REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

REMEDIAL INVESTIGATION REPORT OPERABLE UNIT 2

Volume 3 of 6
Baseline Risk Assessment
February 1994

U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE

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REMEDIAL INVESTIGATION REPORT FOR OPERABLE UNIT 2 VOLUME 3 OF 6 BASELINE RISK ASSESSMENT DRAFT FEBRUARY 1994

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

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ACRONYMS AND ABBREVIATIONS

a	Adult (in exposure parameter tables)
ACGIH	American Conference of Government Industrial Hygienists
ASI/IT	Advanced Sciences Incorporated/International Technology
AT	Averaging time
ATDSR	Agency for Toxic Substances and Disease Registry
BEIR	Biological Effects of Ionizing Radiation
°C	degrees Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CF	Conversion Factor
CFR	Code of Federal Regulations
CH	Chlorinated Hydrocarbons
CIS	Characterization Investigation Study
CNS	Central Nervous System
CLP	Contract Laboratory Program
CPC	Constituent of Potential Concern
COC	Contaminant of Concern
cpm	counts per minute
CRARE	Comprehensive Response Action Risk Evaluation
CRU2	CERCLA/RCRA Unit 2
CSM	Conceptual Site Model
CT	Central Tendency
Cu	Copper
DCR	Document Change Request
DOE	United States Department of Energy
DOE-FN	United States Department of Energy - Fernald Field Office
dpm	disintegrations per minute
DQO	data quality objective
DVS	Data Validation Support
ECAO	Environmental Criteria and Assessment Office
ED	Exposure duration
EF	Exposure frequency
EPA	United States Environmental Protection Agency
ERMC	Environmental Restoration Management Contractor
ES	Environmental Survey
Fe	Iron
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Company
FI	Fraction ingested
FS	Feasibility Study
ft.	foot, feet
µg/L	microgram/liter
GI	Gastrointestinal
HCl	Hydrochloric Acid
HEAST	Health Effects Assessment Summary Tables

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ACRONYMS AND ABBREVIATIONS
(Continued)

HI	Hazard Indices	1
HQ	Hazard Quotient	2
I	Intake	3
IARC	International Agency for Research on Cancer	4
ICRP	International Commission on Radiological Protection	5
ILCR	Incremental Lifetime Cancer Risk	6
in.	inch(es)	7
IR	Ingestion rate	8
IRIS	Integrated Risk Information System	9
ISCLT2	Industrial Source Complex Long-Term dispersion model	10
Kg	Kilogram	11
L	liter	12
LOAEL	lowest observed adverse effect level	13
LSP	Lime Sludge Ponds	14
mL	milliliter	15
Mn	Manganese	16
MSL	Mean sea level	17
mtu	metric tons uranium	18
MUSLE	Modified Universal Soil Loss Equation	19
NaOH	Sodium Hydroxide	20
NOAEL	No observed adverse effect level	21
NOEL	No observed effect level	22
NPL	National Priorities List	23
NRC	Nuclear Regulatory Commission	24
OAC	Ohio Administrative Code	25
oc	Older child (in Exposure Parameter Table)	26
OEPA	Ohio Environmental Protection Agency	27
ORD	Office of Research and Development	28
OSHA	Occupational Safety and Health Administration	29
OU 1	Operable Unit 1	30
OU 2	Operable Unit 2	31
OVA	Organic Vapor Analyzer	32
PCB	Polychlorinated Biphenyl	33
pCi/g	picocuries per gram	34
ppb	parts per billion	35
PPE	Personal Protective Equipment	36
PAH	Polynuclear Aromatic Hydrocarbons	37
PSP	Project Specific Plan	38
QAPP	Quality Assurance Project Plan	39
QA/QC	Quality Assurance/Quality Control	40
RAWPA	Risk Assessment Work Plan Addendum	41
RCRA	Resource Conservation and Recovery Act	42
RfC	Reference Concentration	43
RfD	Reference Dose	44
RI	Remedial Investigation	45

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ACRONYMS AND ABBREVIATIONS
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RI/FS	Remedial Investigation/Feasibility Study
RM	River Mile
RME	Reasonable Maximum Exposure
SAP	Sampling and Analysis Plan
SAS	Statistical Analysis Software
SQL	Sample Quantification Limits
SR	State Road
SVOC	Semi-Volatile Organic Compound
TCLP	Toxicity Characteristics Leaching Procedure
TEF	Toxicity Equivalency Factor
TF	Toxicity Factor
TLD	Thermoluminescent Dosimeter
TOC	Total Organic Carbon
TOX	Total Organic Halogen
TPH	Total Petroleum Hydrocarbon
TSS	Total Suspended Solids
UBK	Uptake/Biokinetic
UCL	Upper Confidence Limit
USDA	United States Department of Agriculture
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
WRS	Wilcoxon Rank Sum
yc	young child (used in Exposure Parameter tables)
Zn	Zinc

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B.1.0 INTRODUCTION

B.1.1 OBJECTIVES AND SCOPE

This appendix contains the Baseline Risk Assessment for Operable Unit 2 at the U. S. Department of Energy (DOE) Fernald Environmental Management Project (FEMP). The baseline risk assessment is part of the Operable Unit 2 Remedial Investigation (RI) report and will also support the Feasibility Study (FS) and Comprehensive Response Action Risk Evaluation (CRARE) for Operable Unit 2. Operable Unit 2 is one of five operable units at the FEMP. It includes the Active Flyash Pile, South Field, Inactive Flyash Pile, Solid Waste Landfill, and Lime Sludge Ponds, as well as the berms, liners, and soil within the operable unit boundaries. These are termed subunits throughout this document.

The primary objective of this baseline risk assessment is to evaluate and document the potential threats to human health that may be posed by current and predicted future exposures to contaminants within Operable Unit 2 if no remedial action is taken. If estimated risks indicate that remedial action is desirable, the baseline risk assessment provides the framework for developing risk information to assist in developing remedial alternatives for Operable Unit 2.

The specific objectives of this baseline risk assessment are to:

- Determine constituents of potential concern (CPC) for environmental media for each subunit within Operable Unit 2.
- Quantify the potential human health risk associated with each individual subunit within Operable Unit 2, due to contaminants of concern (COCs) using Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) methodology, assuming no remedial actions are taken.
- Provide a basis for determining whether remediation of specific subunits within Operable Unit 2 is necessary.
- Identify specific contaminants, areas, and environmental media within subunits for which cleanup is appropriate.
- Provide a basis for determining cleanup levels and criteria.
- Provide a "baseline" of potential health risks for the no-action scenario in the FS for Operable Unit 2 as well as for the CRARE.

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An additional objective of this baseline risk assessment is to demonstrate responsiveness to comments made by the U. S. Environmental Protection Agency (EPA) and the Ohio Environmental Protection Agency (OEPA) on previous risk assessments submitted for the FEMP site. In particular, this risk assessment is intended to be responsive to comments from the EPA on the Operable Unit 2 Risk Assessment and RI dated December 17, 1992 and EPA comments on the Operable Unit 4 Risk Assessment submitted June 17, 1993 (DOE 1993b).

The Operable Unit 2 risk baseline assessment addresses only the potential risks associated with waste subunits within the boundaries or battery limits of Operable Unit 2. Subunit battery limits are defined in Section 1.6 of this report. The Operable Unit 2 baseline risk assessment does not consider existing contamination in groundwater, surface water, sediment, or soil unless it is contained within the battery limits of Operable Unit 2. Risks due to existing groundwater contamination outside the battery limits of Operable Unit 2 will be evaluated as part of Operable Unit 5.

In accord with an agreement between EPA Region V and DOE, ecological risks (impacts on flora and fauna) are not addressed in the Operable Unit 2 RI report. Baseline ecological risks for the FEMP site will be addressed in the site-wide ecological risk assessment to be submitted as part of the Operable Unit 5 RI/FS. The site-wide ecological risk assessment will address only on-site and off-site areas not likely to be remediated on the basis of human health concern. Since significant areas within Operable Unit 2 are likely to be remediated based on human health concerns, ecological risks are not evaluated in this Operable Unit 2 RI. The potential impacts to ecological receptors associated with implementation of remedial alternatives will be considered in the Operable Unit 2 FS.

B.1.2 OVERVIEW

Using the data collected during RI investigations, this baseline risk assessment is conducted for each of the five subunits present within Operable Unit 2. This facilitates remedial decisions for each source area. The same general exposure scenarios are evaluated for each subunit. This maintains consistency in the underlying basis of risk estimates across subunits within Operable Unit 2.

To assist in evaluating the possible impacts of releases of constituents on human health, the general conceptual site model (CSM) for Operable Unit 2 contained in this risk assessment emphasizes potential migration of constituents from waste areas to environmental media contacted by potential receptors. Both current and future land use scenarios are considered in identifying potential

receptors. The purpose of the CSM is to illustrate and describe the most current understanding of the sources of constituents within Operable Unit 2; the types of constituents present; constituent release and transport mechanisms; affected and potentially affected media; known and potential routes of constituent migration; and known and potential human receptors. This information clarifies which environmental media and specific human receptors need to be addressed to adequately characterize risk resulting from waste areas within Operable Unit 2. This in turn allows for the initial grouping of data into subsets relevant to quantitatively assessing risk.

The Risk Assessment Work Plan Addendum established that, at a minimum, the following three land use designations should be addressed in operable unit risk assessments: current land use with active access controls; current land use without access controls; and future land use without access controls, reasonable maximum exposure (RME). In addition to these three land use scenarios, two additional scenarios have been included in previously submitted operable unit risk assessments. These scenarios are: future land use with passive access controls; and future land use without access controls, central tendency (CT) exposure.

The future land use with passive access controls scenarios assumes the government owns the property but does not maintain access control with security personnel or active sensors. A fence is assumed to surround the site and the public is assumed to be off-property. This scenario includes the assessment of future risks assuming receptors are off-property with the exception of an expanded trespasser receptor, who has access to the property. The second additional scenario has been added in response to guidance from the EPA suggesting that all risk assessments provide an evaluation of the CT of the risk range. The recent guidance (EPA 1992c and EPA 1992d) suggests adding a set of risk descriptors for the CT of the risk range at all Superfund sites, using the best information available to describe the average situation.

For this risk assessment, land use assumptions and receptors were selected to ensure that they are consistent with the Risk Assessment Work Plan Addendum (DOE 1992a) where still applicable; they allow adequate quantification of risk for every contaminated, or potentially contaminated, medium within each subunit; and they are consistent with draft FEMP risk assessment guidelines for exposure scenarios (most recent version is dated October 19, 1993). These land use assumptions and receptors, which provide the framework for the quantitative estimates of risk, are described in detail in Section 2.0 of this RI report.

Environmental sampling data collected from Operable Unit 2 during both phases of the RI field investigation were used in this risk assessment. Once the data set was complete, statistical methods were used to evaluate the analytical results from each waste area in order to: (1) identify CPCs specific to the waste areas, (2) develop waste area specific source term concentrations for fate and transport modeling, and (3) establish waste area specific exposure point concentrations of potential receptor locations. The detailed CPC selection process is described in Section 2.0 of this RI report.

B.1.3 RISK ASSESSMENT GUIDANCE

This baseline risk assessment follows the guidance available from EPA as of September 1993. In accordance with the 1991 Amended Consent Agreement between EPA and DOE , the methodology presented in the Risk Assessment Work Plan Addendum (DOE 1992a) was prepared to establish specific risk assessment methodology to be followed in all RI/FS risk assessments for the FEMP. The Risk Assessment Work Plan Addendum is based primarily on the following EPA guidance and databases:

- Risk Assessment Guidance for Superfund, (EPA 1989a)
- Exposure Factors handbook (EPA 1989b)
- Risk Assessment Guidance for Superfund: Human Health Evaluation Manual, Volume I, Supplemental Guidance, Standard Default Exposure Factors, Interim Final (EPA 1991a)
- Health Effects Assessment Summary Tables (HEAST) (EPA 1993b).

B.1.4 ORGANIZATION OF BASELINE RISK ASSESSMENT

Section B.1.0 contains an overview of the purpose for this baseline risk assessment, the scope of the assessment, the guidance used in preparing the risk assessment, and describes Operable Unit 2 history and site conditions.

Section B.2.0 contains the general methodology used in preparing the baseline risk assessment for Operable Unit 2. Within this section, the methodology for the following analyses are discussed:

- Risk Assessment Workplan Addendum (Section B.2.1)
- Refinement of Conceptual Site Model (Section B.2.2)
- Evaluation of Data and Identification of Constituents of Potential Concern (Section B.2.3)
- Exposure Assessment (Section B.2.4)

- Toxicity Assessment (Section B.2.5)
- Risk Characterization (Section B.2.6).
- Uncertainty Analysis (Section B.2.7)

The methodology and processes discussed in Section B.2.0 are common to all subunits within Operable Unit 2 and repeated as the risk associated with each subunit is evaluated and quantified.

Section B.3.0 present the results of the analyses described in Section B.2.0. The section is organized so that the results for each subunit are presented individually, in addition to results of cumulative risk posed by Operable Unit 2 as a whole.

Section B.4.0 summarizes the results and discusses their significance. Uncertainties are re-emphasized to explain the accuracy of the risk estimates and to assist in risk management decisions.

Section B.5.0 presents the references used in preparing this baseline risk assessment.

Finally, the following attachments are appended to this report:

- Attachment B.I — Description and Results of Indoor Radon Modeling
- Attachment B.II — Toxicity Profiles
- Attachment B.III — Intake and Risk/Hazard Results

B.1.5 OVERVIEW OF OPERABLE UNIT 2 BACKGROUND

A detailed description of the FEMP site background and history is provided in Section 1.0 of this RI report.

Operable Unit 2 was defined as a functional unit to efficiently address the remediation of waste subunits with relatively large volumes of waste but presumed to contain small quantities of hazardous materials and radionuclides. Operable Unit 2 includes the following individual areas:

- Solid Waste Landfill
- North and South Lime Sludge Ponds
- South Field

- Inactive Flyash Pile
- Active Flyash Pile

The locations of the Operable Unit 2 areas within the Fernald site are presented in Figure B.1-1. The Solid Waste Landfill is located on a small tract at the northeast corner of the Waste Storage Area (Figure B.1-1). The landfill occupies approximately one acre of land and is covered by a layer of soil. The total estimated volume of fill in the landfill is about 14,400 cubic yards. Materials reported to have been disposed at the landfill include bagged trash and wood; respirator cartridges, asphalt roofing materials, medical wastes, firehoses, and rubber hoses/belts; and medicine vials, bagged asbestos, ceramic tiles, magnesium fluoride, glass acid bottles, steel cables/cans, paint cans, and copper tubing.

The North Lime Sludge Pond is an active unlined pond located southeast of the Waste Storage Area (Figure B.1-1). The approximate dimensions of sludge in the pond are 125 feet by 225 feet by 5.3 feet deep, with a total volume of approximately 5000 cubic yards, not including berms. This pond is approximately 90 percent full and is partially covered with water. This pond contains an estimated 150,000 gallons of water with a depth that varies to 7 feet and an average depth of 2 to 3 feet. Spent lime sludges (primarily lime-alum and boiler blowdown) from the FEMP water treatment plant operations are conveyed to this pond (DOE 1993c).

The South Lime Sludge Pond is an inactive unlined pond located southeast of the Waste Storage Area (Figure B.1-1). The South Lime Sludge Pond is 125 feet by 225 feet by 11.2 feet deep, with a total volume of approximately 10,000 cubic yards, not including berms (DOE 1993c). This pond was retired in the mid-1960s and is now overgrown with grass. The use of this pond was similar to that of the North Lime Sludge Pond.

The Inactive Flyash Pile is located approximately 2,000 feet south/southeast of the Waste Storage Area (Figure B.1-1). The pile occupies approximately two acres. It is west of and contiguous to the South Field without clear definition of the two subunits. Based on information provided by WEMCO, 1500 to 2000 tons per year of flyash were generated during the period of disposal (1952 to 1968).

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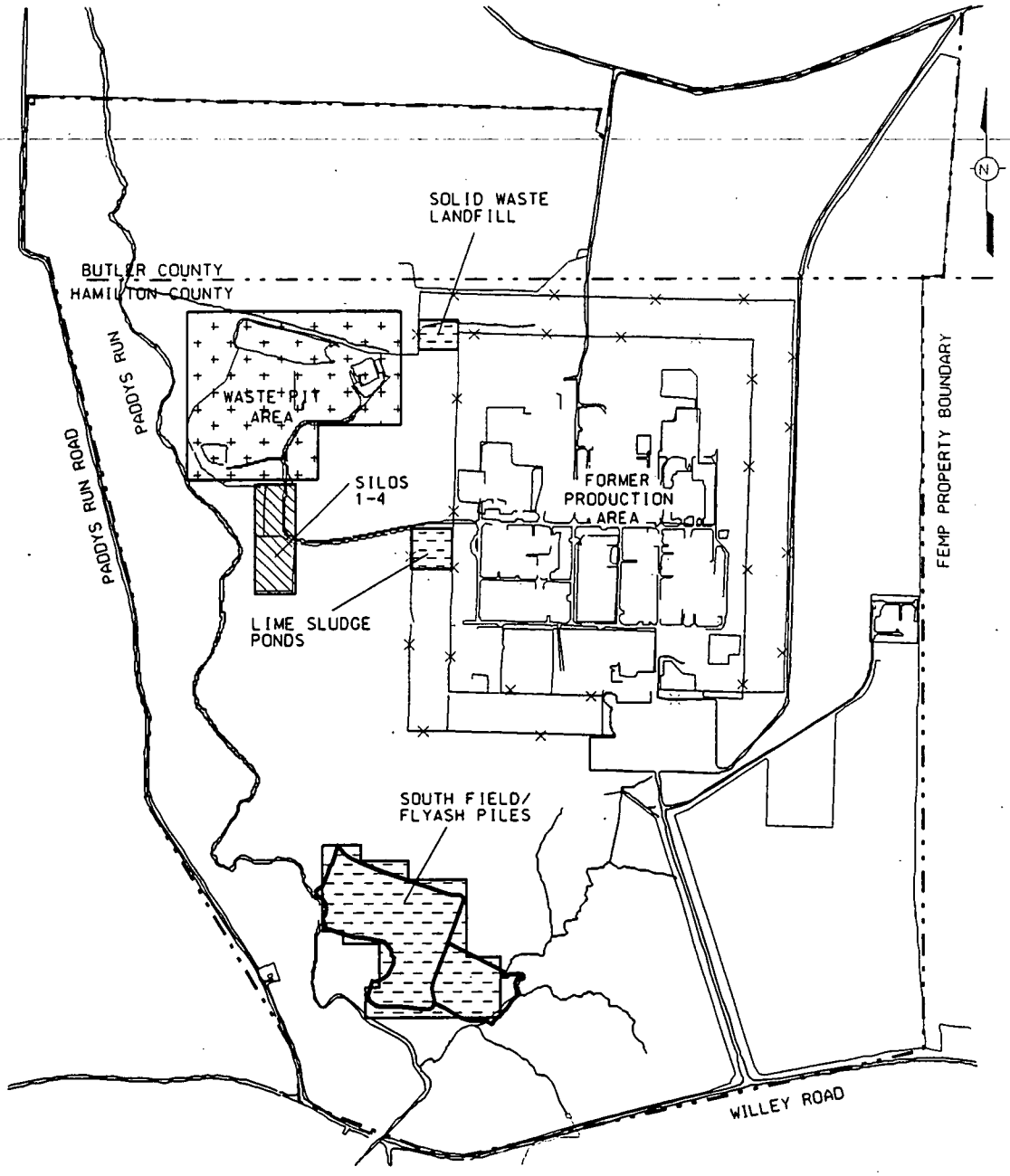

LEGEND

- OPERABLE UNIT 1
- OPERABLE UNIT 2
- OPERABLE UNIT 4

SCALE

0 1200 2400 FEET

NOTE

OPERABLE UNIT 3 INCLUDES ALL BUILDINGS, PIPELINES, AND ABOVEGROUND STRUCTURES IN THE FORMER PRODUCTION AREA. OPERABLE UNIT 5 INCLUDES GROUNDWATER, SURFACE WATER, SOILS, SEDIMENTS, FLORA AND FAUNA IN THE REGIONAL AREA AS WELL AS THE FORMER PRODUCTION AREA.

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FIGURE B.1-1
RI/FS OPERABLE UNITS

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The South Field is located between the Inactive Flyash Pile and the Active Flyash Pile, where construction rubble was deposited on the surface of the glacial overburden (Figure B.1-1). The thickness of the fill increases at the western and southern edges of the area to approximately 25 feet because material was dumped down the natural slope of an old meander scar. The fill volume is estimated to be approximately 109,000 cubic yards. A review of the shallow trenches through the fill indicates that the material is predominantly soil with some rock and concrete and only occasional pieces of wood. The construction rubble deposited in the South Field contains low levels of radioactive materials (DOE 1993d).

The Active Flyash Pile received flyash from the coal-fired boiler plant at the FEMP until December 1992. This disposal area is located east of and adjacent to the South Field (Figure B.1-1). The Active Flyash Pile has an area of approximately 100,000 square feet with an approximate maximum depth of fill of 38 feet, and it contains approximately 64,600 cubic yards of flyash. Active Flyash Pile waste is comprised of 70 percent bottom ash collected below the boilers, and the remaining 30 percent is a combination of precipitator ash collected from pollution control devices and flyash removed from the middle levels of the boiler. Some unburned coal and rock are also present in small quantities in the Active Flyash Pile material. The newly generated flyash is currently being transported off site to a licensed disposal facility.

Investigation activities conducted in the Operable Unit 2 subunit are discussed in Section 3.0 and nature and extent of contamination within each subunit is presented in Section 4.0 of this report.

B.2.0 METHODOLOGY

This baseline risk assessment addresses only the potential risks posed by constituents in, and migrating from, the waste areas of Operable Unit 2. The Risk Assessment Work Plan Addendum (DOE 1992a) provides detailed descriptions of methodology used for FEMP baseline risk assessments. This methodology is based on the four primary steps of risk assessment described in EPA guidance: (1) identification of constituents of potential concern; (2) exposure assessment; (3) toxicity assessment; and (4) risk characterization.

The methodology described in the Risk Assessment Work Plan Addendum (DOE 1992a) has been followed in this risk assessment with the modifications and enhancements noted below. These changes reflect responsiveness to comments from the EPA and OEPA on previous FEMP risk assessments; efforts to establish a consistent approach to risk assessments across all operable units and across all risk assessment related deliverables (e.g., RI operable unit baseline risk assessments, FS risk assessments, and CRAREs); and updates in EPA risk assessment guidance.

To make judgements and remedial decisions about each specific subunit within Operable Unit 2, a risk assessment for each subunit was performed independently and for all subunits together. Since the general methodology followed for the risk assessment is the same, it is summarized once in this section, then applied repeatedly to each assessment to obtain the results presented in Section B.3.0. Figure B.2-1 presents a flow diagram of the FEMP risk assessment process. Significant features of that methodology are summarized below after first noting the changes from the Risk Assessment Work Plan Addendum (DOE 1992a) incorporated into this risk assessment.

B.2.1 CHANGES FROM THE RISK ASSESSMENT WORKPLAN ADDENDUM

Changes to the methodology described in the Risk Assessment Work Plan Addendum (DOE 1992a) incorporated into this risk assessment are as follows:

1. Source-term concentrations based on measurement data from small sample populations (less than seven samples) are calculated using the maximum value detected unless the detection frequency is 100 percent. In the latter case, if the distribution can be determined (i.e., normal or lognormal) then the 95 percent upper confidence limit (UCL) of the mean (lognormal mean if appropriate) was used as the source-term.

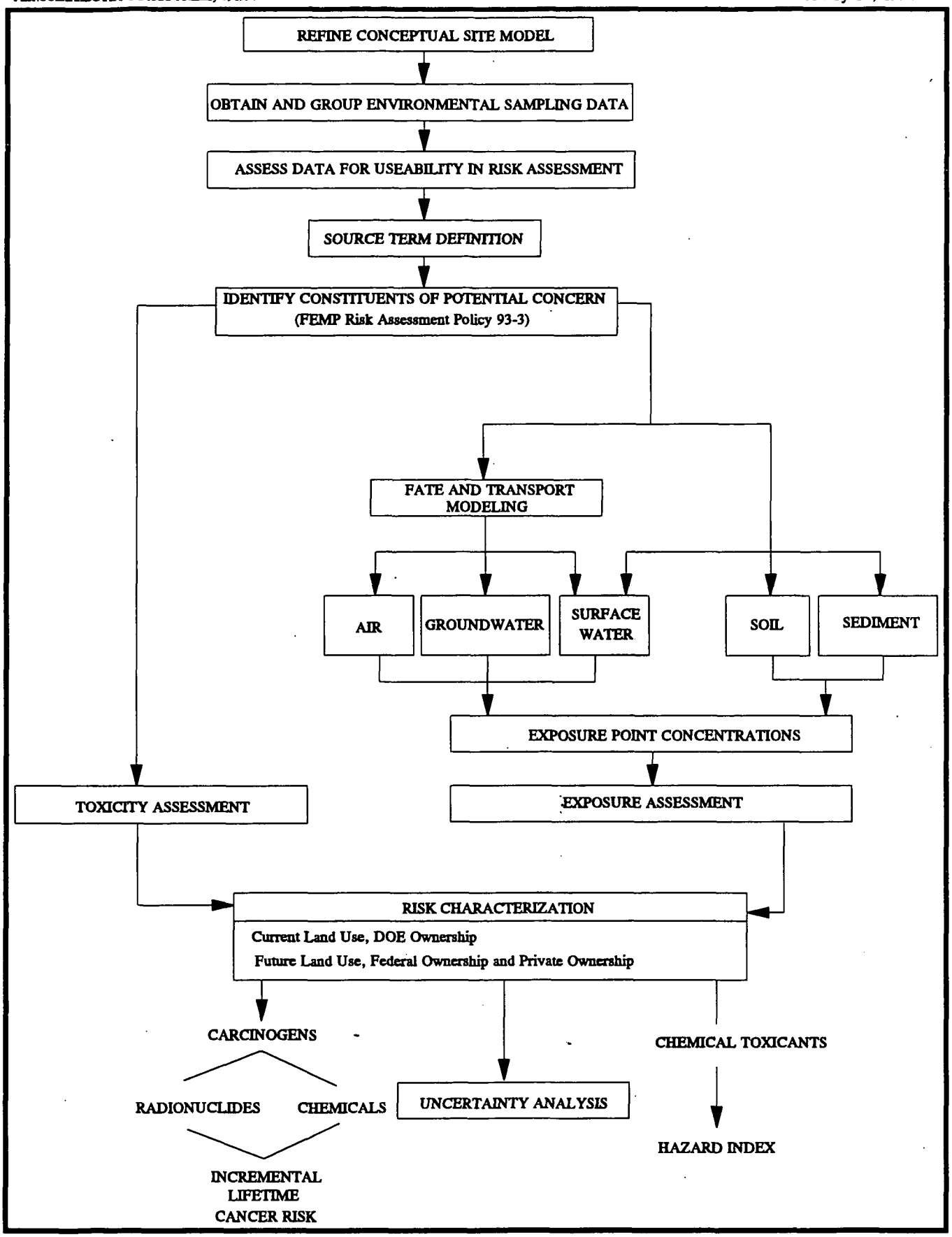

FIGURE B.2-1. FEMP RISK ASSESSMENT PROCESS

Justification: With a small data set, the distribution of concentration data often cannot be adequately assessed. Without knowing the proper distributional assumptions, it is not valid to calculate the 95 percent UCL.

2. The selection of CPC, which is the subset of constituents determined to be present above background, is performed using traditional statistical methods including the Students t-test and the Wilcoxon Rank Sum test, except when these tests cannot be validly applied. A comparison of each site related measurement to the 95th percentile of background data is also performed for the purpose of identifying CPCs which may have been "averaged out" by the statistics. This comparison will not eliminate CPCs already identified but may add additional ones.

   Justification: The comparison of detected concentrations to the 95th percentile of the background ensures that constituents potentially present above naturally occurring levels will not be ruled out as CPCs.

3. The selection of CPCs, which is the subset of detected constituents that is carried through the risk assessment, followed a systematic approach recently approved by EPA for use at this site. This approach is described in detail in Section B.2.3.

   Justification: This approach facilitates a consistent, statistically and toxicologically defensible approach to selecting constituents for which risk will be quantified.

4. Background soil data from literature sources are replaced with data from the March 1993 CERCLA/RCRA Background Soil Study (DOE 1993f).

   Justification: Site-specific background soil data provides a more accurate measure of background concentrations.

5. Airborne particulate concentrations of constituents are calculated using the Industrial Source Complex Long Term (ISCLT2) dispersion model (EPA 1987b).

   Justification: The ISCLT2 dispersion model is one of the EPA's guideline models. It is a sector-averaged, Gaussian plume model capable of calculating seasonal or annual ground level constituent concentrations in suspended particulates. The ISCLT2 model predicts concentrations at grid points set by the user and has the capability to model multiple release sources. The model contains a number of options, allowing the user to make the model more site-specific.

6. The Andelman Model for modeling volatile releases to air from water used in the home is used in the risk assessment.

   Justification: Use of the Andelman Model reflects the most recent EPA guidance for evaluation of the pathway involving inhalation of volatiles released to air from water used in the home.

7. Slope factors for radionuclides are taken from HEAST Annual Fiscal Year (FY) 1993 (EPA 1993b).

Justification: HEAST is updated regularly. The Operable Unit 2 risk assessment uses the most up-to-date HEAST as of October 1993.

8. Risks to an off-property resident farmer receptor for future exposure scenarios are presented.

   Justification: An off-property resident farmer may be exposed to site-related constituents via air transport and migration to the Great Miami Aquifer. The risk assessment for this receptor was specifically requested by EPA in the comment resolution for the Site-Wide Characterization Report (DOE 1992c).

9. Risks due to "average" exposure conditions (in addition to "reasonable maximum" exposure conditions) for the future on-property resident farmer are included.

   Justification: Additional EPA guidance on risk assessment issued in February 1992 (a memorandum from EPA's Deputy Administrator, F. H. Habicht, to EPA's Assistant and Regional Administrators concerning guidance on risk characterization for risk managers) (EPA 1992c) urges risk assessors to address or provide descriptions of individual risk that include the "high end" portions and CT of the risk distribution. Because future on-property resident farmers constitute a very important subgroup for risk estimates at the FEMP, this exposure scenario is selected to present both RME and CT estimates of risk.

10. Dermal contact models and parameters have been revised to reflect the most recent guidance from the EPA (EPA 1992f).

    Justification: The DOE has agreed to employ the most recent dermal exposure assessment guidance from the EPA in operable unit-specific risk assessments.

11. A drinking water pathway assuming domestic use of perched groundwater is quantitatively evaluated where applicable.

    Justification: Hydrogeological data within two Operable Unit 2 subunits (Lime Sludge Ponds and Solid Waste Landfill) indicate the presence of perched groundwater. Assessment of potential risk due to domestic use of this water should provide the highest upper bound estimate of risk due to groundwater at these subunits.

12. The soil ingestion rate for the on-property and off-property farmer is adjusted for an age and occupation specific soil ingestion rate.

    Justification: A site-specific soil ingestion rate is developed to replace the value in the Risk Assessment Work Plan Addendum (DOE 1992a).

13. The inhalation rate for the on-property resident child is replaced by a value that more closely reflects the physiology of a young child.

    Justification: During ERA review of FEMP Operable Unit 4 RI Report, DOE has agreed to modify the inhalation rate for the on-property resident child. The adult inhalation rate used previously is replaced by a value that is more appropriate for the resident child receptor.

14. CPCs were not evaluated separately for target organ effects when evaluating exposure to systemic toxicants.

    Justification: Target organ effects and mode of action were not considered separately for systemic toxicants because hazard indices (HIs) were low (typically less than 1). Therefore, the concern for consideration of target organ effects and mode of action are not of concern for evaluation of potential systemic toxicity.

15. The removal processes considered to predict concentrations in food include the effects of leaching in addition to the radioactive and chemical decay presented in the Risk Assessment Work Plan Addendum. This is presented in more detail in the section in Section B.2.0.

    Justification: During irrigation and aerial deposition, constituents are added to the soil. Simultaneously, radioactive decay, chemical degradation, and soil leaching deplete these constituents. The methodology set forth in the Risk Assessment Work Plan Addendum effectively calculates radioactive decay and chemical degradation, but approximated the effect of leaching by calculating plant concentrations after 70 years of deposition/irrigation. This approach is appropriate for most chemical and radionuclides at the site. However, this approach overestimates the concentrations of very mobile constituents such as technetium-99. An updated methodology, based on work published in National Council on Radiation Protection (NCRP) Report No. 76 (NCRP 1984c) and Commentary No. 3 (NCRP 1989) has been adopted to more accurately represent the physical processes at the site.

B.2.2 REFINEMENT OF CONCEPTUAL SITE MODEL (CSM)

To assist in evaluating the possible impacts of releases of constituents on human health, the general CSM of the Operable Unit 2 site has been refined to emphasize current understanding of constituent migration and potential exposures at Operable Unit 2. Both current and future land use scenarios are considered. The overall purpose of the model is to illustrate and describe the sources of constituent within Operable Unit 2; constituent release and transport mechanisms; impacted and potentially

impacted media; and known and potential human receptors. This information helps to clarify which environmental media and specific human receptors need to be addressed to adequately characterize risk resulting from waste areas within Operable Unit 2. This in turn is critical for the initial grouping of data into subsets relevant to assessing risk so that independent risk-based decisions can be made for each subunit. Refinement of the CSM is therefore an important first step in completing the baseline risk assessment.

The CSM for Operable Unit 2 is depicted in Figure B.2-2. It shows the five waste areas that are the sources of constituents, as well as the secondary sources (groundwater, soil) impacted by migration of constituents from these source areas and is based on the current understanding of Operable Unit 2 RI activities. Nature and extent of contamination in the source areas is described in Section 4.0 of this RI. Potential transport and release mechanisms and impact of receiving media (i.e., air, groundwater, and surface water) in the future is described in Section 5.0. This section of Appendix B emphasizes those parts of the CSM describing current and potential future land use on and around the FEMP site, as well as the exposure pathways via which human receptors may contact impacted media associated with each of the Operable Unit 2 subunits.

Identification of exposure scenarios is dependent on the physical characteristics of the site; the identification of applicable land use scenarios; and identification of populations of concern under both current and future land use configurations.

Populations of concern are identified for a reasonable area of impact considering site-specific environmental conditions such as the results of site characterization, environmental monitoring, constituent fate and transport modeling, and the nature of potential exposure pathways. Subpopulations, such as young children, that could be exposed to increased risk as a result of behavior or increased sensitivity are also identified.

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 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 is above the average estimated exposure level. The

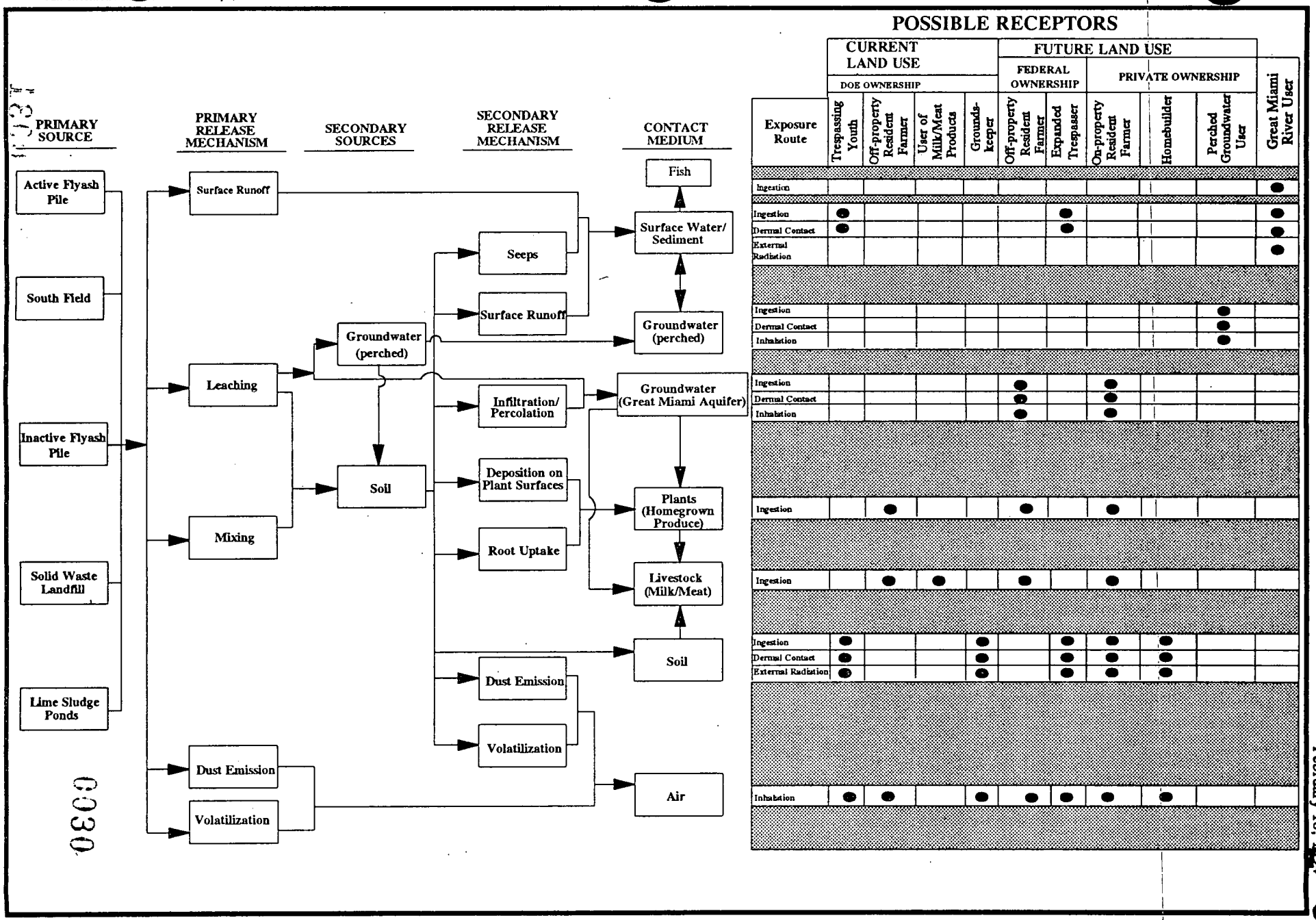

FIGURE B.2-2 GENERAL CONCEPTUAL SITE MODEL/OPERABLE UNIT 2

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Operable Unit 2 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 utilizing a CT analysis for a selected receptor. This CT analysis utilizes mostly average exposure parameters and therefore represents a less conservative exposure case than the RME receptor.

Land use designations and exposure scenarios illustrated in Figure B.2-2 are described in the following sections.

B.2.2.1 Land Use

Potential exposures to the environmental media noted on Figure B.2-2 are evaluated in the context of four land use configurations: (1) current land use assuming DOE ownership with access control, (2) current land use assuming DOE ownership without access control, (3) future land use assuming federal ownership, and (4) future land use assuming private ownership. These land use configurations reflect the current framework for assessing risk at the FEMP. As indicated in the CSM, current receptors assuming access controls and without access controls are trespassing youths, and off-property residents, on-property groundskeeper, and users of meat and milk products; future receptors assuming federal ownership are expanded trespassers, off-property residents, and Great Miami River users, and future receptors assuming private ownership are on-property farmers, homebuilders, perched groundwater users, and Great Miami River users.

These receptors differ slightly from what is described in the Risk Assessment Work Plan Addendum (DOE 1992a). The Risk Assessment Work Plan Addendum established that, at a minimum, the following three land use scenarios should be addressed in operable unit risk assessments: (1) current land use with active access controls; (2) current land use without access controls; and (3) future land use without access controls.

In addition to the above land use scenarios, two additional scenarios have been requested by EPA and included in previously submitted operable unit risk assessments. These scenarios are: future land use with passive access controls (continued federal ownership); and future land use without access controls (private ownership), with CT exposure. The future land use with passive access controls scenarios describes a scenario where the government owns the property but does not maintain access

control with security personnel or active sensors. A fence is assumed to surround the site and the public is assumed to be off-property. The second additional scenario was added in response to new guidance from the EPA suggesting that all risk assessments provide an evaluation of the CT of the risk range. The recent guidance (EPA 1992c and EPA 1992d) suggests adding a set of risk descriptors for the CT of the risk range at all Superfund sites, using the best information available to describe the average situation. All other exposure scenarios in this risk assessment are based on RME input parameters.

For this risk assessment, land use assumptions and receptors were selected to ensure: 1) they are consistent with the Risk Assessment Work Plan Addendum (DOE 1992a) where still applicable; 2) they allow adequate quantification of risk for every contaminated, or potentially contaminated, medium within each subunit; and 3) they are consistent with FEMP risk assessment guidelines for exposure scenarios. Table B.2-1 summarizes land use and receptor designations outlined in the Risk Assessment Work Plan Addendum (DOE 1992a) and compares them to equivalent receptors from the previously submitted Operable Unit 2 risk assessment, as well as receptors identified in this risk assessment. This table illustrates that even though the descriptions of land use and exposure scenarios have undergone changes in terminology the important potential exposures are consistently evaluated.

B.2.2.2 Exposure Scenarios

Table B.2-2 summarizes land use and receptor designations utilized to quantify risk in this baseline risk assessment. The scenarios described in Table B.2-2 are those listed in the far right column of Table B.2-1.

B.2.2.2.1 Current Exposure Scenarios

Under current land use assumptions, the FEMP is assumed to remain as it currently exists. In addition, no remedial action is assumed to have been taken beyond that already accomplished. Existing current land use at and in the vicinity of Operable Unit 2 indicates that receptors most likely to be exposed to constituents on and migrating from Operable Unit 2 waste areas are trespassers who may routinely bypass existing controls and enter the site; off-property farm families who may live in the vicinity of the FEMP property; on-property groundskeeper conducting general maintenance activities not covered under FEMP health/safety and radiation programs, and users of meat and milk products from livestock grazing on the property if access controls are lost. As summarized in the CSM (Figure B.2-2) and on Table B.2-2, current land use receptors include:

TABLE B.2-1

EXPOSURE SCENARIOS CONSIDERED AND SELECTED FOR EVALUATION

Land Use[1]	RAWPA Receptor (June 1992)[1]	Potentially Contaminated Media Contacted	Quantified In Current OU2 Risk Assessment?/Reason	OU2 Receptor	
				Previous OU2 Risk Assessment	Current OU2 Risk Assessment
Current/Access Controls (Assumes current land use of FEMP property will continue under DOE ownership)	Visitor (regular visitor to FEMP or OU)	OU-specific	no/visitors to OU2 not anticipated; incidental exposures to contaminated media evaluated in other scenarios	NE[3]	NE
	Trespasser (remaining near fence or property line)	soil air surface water/sediment	yes/incidental exposures possible	NE	current trespassing youth
	Exploring child (aged 6-17)	sediment in Paddy's Run	yes/exposures to sediment evaluated with trespasser scenario	trespassing child	current trespassing youth
	Off-property farmer (at property boundary)	soil air home-grown produce beef/milk from livestock grazing off FEMP property	yes/represents RME scenario for current land use	off-property farmer	current off-property farmer (adult and child), livestock grazing off-property
	On-property grazing	beef/milk from livestock grazing on FEMP property	no/equivalent exposures evaluated with future land use, without federal ownership, on-property farmer scenario and with current/no access controls	NE	NE
	Groundskeper	soil sediment air	yes/assumes exposure to on-property maintenance worker not covered by FEMP health & safety and radiiological program	NE	current on-property groundskeeper

See footnotes at end of table

TABLE B.2-1
(Continued)

Land Use[1]	RAWPA Receptor (June 1992)[1]	Potentially Contaminated Media Contacted	Quantified In Current OU2 Risk Assessment?/Reason	OU2 Receptor	
				Previous OU2 Risk Assessment	Current OU2 Risk Assessment
Current/No Access Controls (Assumes environmental restoration of the property has ceased and present access restrictions are discontinued)	Visitor (regular visitor to FEMP or OU)	OU-specific	no/visitors to OU2 not anticipated	NE	NE
	Trespasser (moving throughout property)	soil air surface water/sediment	yes/incidental exposures possible	NE	current trespassing youth
	Exploring child (aged 6-17)	soil air	yes/exposures evaluated with current trespassing youth scenario	playing child	current trespassing youth
	Off-property farmer (at property boundary)	soil air homegrown produce beef/milk from livestock grazing on FEMP property	yes/but assuming livestock grazing on-property	off-property resident farmer	future off-property farmer (adult and child), livestock grazing on-property
	On-property grazing	beef/milk from livestock grazing on FEMP property	yes/on-subunit grazing is possible	NE	user of meat and milk products
	On-property building user	soil/waste	no/no buildings within OU2	NE	NE
	Hunter	soil air animal products from wild animals currently on FEMP property	no/hunting exposures unlikely; equivalent exposures to potentially contaminated media evaluated with trespasser and farmer scenarios	NE	NE

See footnotes at end of table

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TABLE B.2-1
(Continued)

Land Use[1]	RAWPA Receptor (June 1992)[1]	Potentially Contaminated Media Contacted	Quantified In Current OU2 Risk Assessment?/Reason	OU2 Receptor	
				Previous OU2 Risk Assessment	Current OU2 Risk Assessment
Future (assumes reasonable future land uses of the property; no access controls)	Resident farm family	soil air groundwater (Great Miami aquifer) homegrown produce beef/milk from livestock grazing on FEMP property	yes/represents worst case scenario for future on-property exposures	resident farm family	future on-property farmer (adult and child), livestock grazing on-property, groundwater obtained on-property
	Construction intruder	soil air	yes/evaluates potential risk of exposures to subsurface soil	NE	future home-builder
	Recreational user[2]	soil air surface water/sediment	yes/represents RME scenario for future on-property exposures (Fernald Risk Assessment Policy 93-1, October 19, 1993)	future trespassing child assuming passive access controls	replaced with expanded trespasser
	Expanded Trespasser[2]	soil air surface water/sediment	yes/EPA comment request (OU4 FS)	NE	expanded trespasser
	User of perched groundwater[2]	perched groundwater	yes/EPA comment request	NE	future user of perched groundwater
	Off-property farmer[2]	soil air homegrown produce beef/milk from livestock grazing off-property groundwater (Great Miami Aquifer)	yes/represents RME scenario for future off-property exposures	NE	future off-property farmer (adult and child), livestock grazing off-property, groundwater off-property
	Great Miami River User[2]	surface water sediment fish	yes/evaluates potential risk to recreational user of GMR	NE	Great Miami River User

[1]Identified in RAWPA (DOE 1992a)
[2]Not identified in RAWPA (DOE 1992a)
[3]NE- Not evaluated

TABLE B.2-2

GENERIC DESCRIPTION OF EXPOSURE SCENARIOS AND EXPOSURE POINT CONCENTRATIONS OPERABLE UNIT 2 BASELINE RISK ASSESSMENT

Current Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Current with Access Controls and without Access Controls (current use of FEMP continues, DOE ownership)	Trespassing Youth	soil	incidental ingestion dermal contact external radiation	surface soil or material within subunit
		air	inhalation particulates, volatiles, and gases	maximum estimated on-site current concentration derived from air modeling
		surface water	incidental ingestion dermal contact	surface water within subunit
		sediment	incidental ingestion dermal contact external radiation	sediment within subunit
	Off-Property Resident Farmer (adult and child), livestock grazing off-property	air	inhalation particulates, volatiles, and gases	maximum estimated off-site current concentrations derived from air modeling
		plants (homegrown produce)	ingestion fruits and vegetables	maximum estimated off-site current concentrations derived from air modeling
		livestock (grazing off-property)	ingestion milk beef	maximum estimated off-site current concentrations derived from air modeling
	Groundskeeper	air	inhalation particulates, volatiles and gases	maximum estimated on-site current concentration derived from air modeling
		soil	incidental ingestion, dermal contact, external radiation	surface soil or material within subunit
	User of Meat and Milk Products	livestock (grazing on-property)	ingestion of milk and beef	maximum estimated on-site current concentrations derived from air modeling

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TABLE B.2-2
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure		Exposure Point Concentration
Federal Ownership (includes exposure routes that require development time)	Future Off-Property Farmer (adult and child), grazing off-property, groundwater off-property	air	inhalation	particulates, volatiles, and gases	maximum estimated off-site future concentrations derived from air modeling
		plants (homegrown produce)	ingestion	fruits and vegetables	maximum estimated off-site future concentrations derived from air modeling and groundwater modeling
		livestock (grazing at property boundary)	ingestion	milk and beef	maximum estimated off-site future concentrations derived from air modeling and groundwater modeling
		groundwater	ingestion dermal contact inhalation of volatiles released during household use		modelled groundwater concentrations at fenceline when concentration is greatest
	Expanded Trespasser (adult and youth)	air	inhalation	particulates, volatiles, and gases radon	maximum estimated on-site air concentrations derived from air modeling
		soil	incidental ingestion dermal contact external radiation		surface soil within subunit
		surface water	incidential ingestion dermal contact		surface water within subunit
		sediment	ingestion dermal contact external radiation		sediment within subunit
Without Federal Ownership (includes exposure routes that require development time)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property; will include RME and CT estimates	air	inhalation	particulates, volatiles, gases, and indoor radon radon	maximum estimated on-site future concentrations derived from air modeling; radon estimated from soil radium concentrations
		plants (homegrown produce)	ingestion	fruits and vegetables	maximum estimated on-site future concentrations derived from air modeling

TABLE B.2-2
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Without Federal Ownership (includes exposure routes that require development time) (Continued)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property; will include RME and CT estimates (Continued)	livestock (grazing on property)	ingestion milk and beef	maximum estimated on-site future concentrations derived from air modeling and groundwater modeling of Great Miami aquifer
		groundwater	ingestion dermal contact inhalation	groundwater concentration in Great Miami aquifer underlying subunit at time when concentration is greatest
		soil	incidental ingestion dermal contact external radiation	surface soil within subunit
Without Federal Ownership (includes exposure routes that require development time)	Future Homebuilder (per OU1)	waste material/subsurface soil	external radiation incidental ingestion dermal contact	subsurface soil within subunit
		air	inhalation particulates, volatiles, and gases	air concentrations at construction site based on modeling
	Future Perched Groundwater User	perched groundwater directly underlying subunit	ingestion dermal contact inhalation of volatiles released during household use	current groundwater concentration in perched groundwater directly underlying subunit
	Great Miami River User	surface water	ingestion dermal contact	estimated concentrations in Great Miami River
		sediment	ingestion dermal contact external radiation	estimated concentrations in Great Miami River
		fish	ingestion	estimated fish concentrations in Great Miami River

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- Off-Property Resident Farmer (Adult and Child) - This exposure scenario assumes that a farm family lives immediately adjacent to the FEMP property boundary. Exposure routes include:

  - Inhalation of fugitive dust, VOCs, and gases.
  - Consumption of farm-product foodstuffs including vegetables, meat, and milk.

- Trespassing Youth (7-18 years) - This exposure scenario considers the risk incurred by a trespassing youth who wanders freely over the site. Exposure routes include:

  - Inhalation of fugitive dust, VOCs, and gases.
  - Incidental ingestion of, direct radiation exposure from, and dermal contact with contaminated soils.
  - Incidental ingestion of and dermal contact with surface water.
  - Incidental ingestion of and dermal contact with contaminated sediment.

- On-Property Groundskeeper - This exposure scenario considers the risks associated with the on-site maintenance receptor. Exposure pathways include:

  - Inhalation of fugitive dust, VOCs, and gases
  - Incidental ingestion of dermal contact with, and direct radiation exposure from contaminated soil.

Current land use without access controls include the following receptors:

- Off-Property Resident Farmer (Adult and Child) - This exposure scenario assumes that a farm family lives immediately adjacent to the FEMP property boundary. Exposure routes include:

  - Inhalation of fugitive dust, VOCs, and gases.
  - Consumption of farm-product foodstuffs including vegetables, meat, and milk.

- Trespassing Youth (7-18 years) - This exposure scenario considers the risk incurred by a trespassing youth who wanders freely over the site. Exposure routes include:

  - Inhalation of fugitive dust, VOCs, and gases.
  - Incidental ingestion of, direct radiation exposure from, and dermal contact with contaminated soils.
  - Incidental ingestion of and dermal contact with surface water.
  - Incidental ingestion of and dermal contact with contaminated sediment.

- User of Meat and Milk Product from Livestock grazing on the site. This exposure scenario considers the risks associated with off-property use of animal products produced by cattle currently grazing on Operable Unit 2. Exposure pathways include:

  - Ingestion of beef and milk.

The current land use configuration used in this risk assessment reflects the physical state of Operable Unit 2 as it exists today. Exposures assuming current land use are based on the following assumptions:

- The Active Flyash Pile and Lime Sludge Ponds remain on site, untreated, uncovered, and vegetated as they are currently
- Existing DOE access restrictions remain
- No additional removal actions are taken
- Mobility of groundwater throughout the site is unaltered
- Pathways of surface water runoff are unaltered
- Vegetative cover remains unchanged
- The effects of radiological and chemical decay of the source are assumed to be minimal.

As indicated in Table B.2-1, receptors listed in the Risk Assessment Work Plan Addendum (DOE 1992a) that were not evaluated under current land use for this risk assessment include:

- Visitor - This scenario is intended to evaluate 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 a given building on the site. This receptor was not considered applicable since no visitor would consistently visit the Operable Unit 2 area.
- On-Property Building User - This scenario considers risks from occupancy of an existing building on site by a hypothetical receptor. This receptor was not considered since no existing habitable structures exist in Operable Unit 2.
- Hunter - this scenario examines risks due to consumption of animal products from wild animals found on the FEMP property. This receptor, as stated in the Risk Assessment Work Plan, will be evaluated in the Operable Unit 5 RI report.

B.2.2.2.2 Future Exposure Scenarios

Under future land use assumptions it is assumed that the FEMP site will either be retained by the federal government (federal ownership) or will be released for private development (without federal ownership). It is assumed that the FEMP site may remain restricted under federal ownership. Hence the most appropriate future on-property receptor to evaluate is the expanded trespasser. Potential exposures to an off-property farm family and recreational user of the Great Miami River were also evaluated. It was assumed that the most likely off-site future land use would be for it to remain

agricultural. For the Great Miami River user, it was assumed that Operable Unit 2 has potential to contaminate the Great Miami River and Paddys Run. This receptor is evaluated for both federal ownership and private ownership. Specific exposure pathways which these receptors may be exposed to constituents on, or migrating from Operable Unit 2 source areas are summarized in the CSM and listed in Table B.2-2.

As summarized in the CSM (Figure B.2-2), future land use receptors assuming federal ownership, include:

- The Expanded Trespasser - This scenario assumes that access to the area remains restricted in the future and that either an adult or child trespasser routinely visit the area and be exposed to CPCs. Exposure routes include:

  - Inhalation of fugitive dust, VOCs, and gases.
  - Ingestion of, dermal contact with, and external radiation from, contaminated soil.
  - Incidental ingestion of and dermal contact with surface water.
  - Incidental ingestion and dermal contact with sediment.
  - External radiation from contact with sediment.

- The Off-Property Resident Farmer (Adult and Child) - This scenario assumes that a farm family lives immediately adjacent to the FEMP property boundary. Exposure routes for this receptor include those listed for the same receptor assuming current land use, in addition to ingestion, dermal contact, and inhalation from groundwater.

- User of the Great Miami River (Adult and Child) - This scenario considers risks to an off-property resident who uses the river for recreation purposes. Exposure routes include:

  - Incidental ingestion of and dermal contact with surface water.
  - Incidental ingestion of and dermal contact with sediment.
  - Ingestion of fish.

If the FEMP property does not remain under the federal ownership, it is assumed that it will be held in private ownership and developed for agricultural use. As illustrated in the CSM (Figure B.2-2) and summarized in Table B.2-2, future land use receptors, assuming private ownership, include:

- The RME On-Property Resident Farmer Receptor (Adult and Child) - 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, VOCs, and gases.
  - Ingestion of groundwater (separate evaluations for groundwater from the Great Miami Aquifer and for perched groundwater).
  - Dermal contact and inhalation while using groundwater in the home.

- Consumption of foodstuff grown on the property, including vegetables, meat, and milk.
- Incidental ingestion of, external radiation from, and dermal contact with, soil.
- Inhalation of indoor radon.

- The CT On-Property Resident Farmer Receptor (Adult) - 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. Exposure routes for this receptor include those listed for the RME on-property resident farmer receptor, excluding ingestion of perched groundwater trapped within the sand lens.

- The Future Home Builder - This exposure scenario involves exposures to workers building residences or other structures within Operable Unit 2. Exposure routes include:

  - Dermal contact with, ingestion of and external radiation from soil.
  - Inhalation of fugitive dust, VOCs, and gases.

- A Perched Groundwater User - This exposure scenario involves exposures to users of perched groundwater within Operable Unit 2. This scenario includes only household use of perched groundwater, because the perched groundwater zone would not be sufficient to support agricultural user. Exposure routes include:

  - Inhalation and dermal contact while using perched groundwater.
  - Ingestion of perched groundwater.

- User of the Great Miami River (Adult and Child) - This scenario considers risks to an off-property resident who uses the river for recreation purposes. Exposure routes include:

  - Incidental ingestion of and dermal contact with surface water.
  - Incidental ingestion of and dermal contact with sediment.
  - Ingestion of fish.

The future land use assumptions reflect activities that require development time. It is assumed that under continued federal ownership, areas within Operable Unit 2 will remain restricted and that under private ownership, the operable unit is developed for residential and agricultural purposes. This land use configuration considers both the site's current configuration and the processes that would act on it if all maintenance activities were discontinued. Exposures assuming future land use are based on the following assumptions:

- The South Field and Solid Waste Landfill may be developed as cropland or pastureland.

- An on-property resident farmer may build a home and live on either the South Field or Solid Waste Landfill. These are the reasonably level and stable potential building sites within Operable Unit 2.

- Domestic water source for on-property residences will be obtained from locations on the site producing the maximum potential exposures to constituents.
- Off-property receptors will remain the same as under the current land use configuration.
- Excess surface water runoff flows to Paddys Run and eventually into the Great Miami River.
- Vegetative cover is consistent with local agricultural practices and ecological succession.
- Under federal ownership, an expanded trespasser moves freely throughout the area.

B.2.3 EVALUATION OF DATA AND IDENTIFICATION OF CONSTITUENTS OF POTENTIAL CONCERN

As indicated above, remedial decisions are made for each waste area, or subunit, within Operable Unit 2. Consequently, CPCs are identified separately for all relevant environmental media for each subunit for use in quantifying risk for that subunit. To ensure a consistent approach for operable unit risk assessments, the FEMP has established guidelines for determining CPCs. The selection process follows guidance provided by EPA Region V and is generally illustrated in Figure B.2-3.

The selection process involves first a statistical comparison of constituent concentrations with background concentrations and then a conservative toxicological screening to identify CPCs. Sources of analytical data subjected to this process are described in Section B.2.3.1. Procedures used to analyze and validate the data are described in Section B.2.3.2. The statistical process used to compare constituent concentrations to background is described in Section B.2.3.4. Procedures used to calculate concentration terms for use in that comparison are described in Section B.2.3.5. This process is then followed by a toxicological screening process, which is described in Section B.2.3.6. Constituents not eliminated by the end of this process are carried completely through the risk assessment process. Those CPCs remaining at the end of the risk assessment process become COCs.

Since radionuclides and chemical carcinogens were expected to contribute the most to estimated risk at Operable Unit 2, radionuclides and EPA Class A, B1, or B2 carcinogens were an exception to the process. These compounds were selected as CPCs for all media where they were detected regardless of whether they were present below background or below screening criteria.

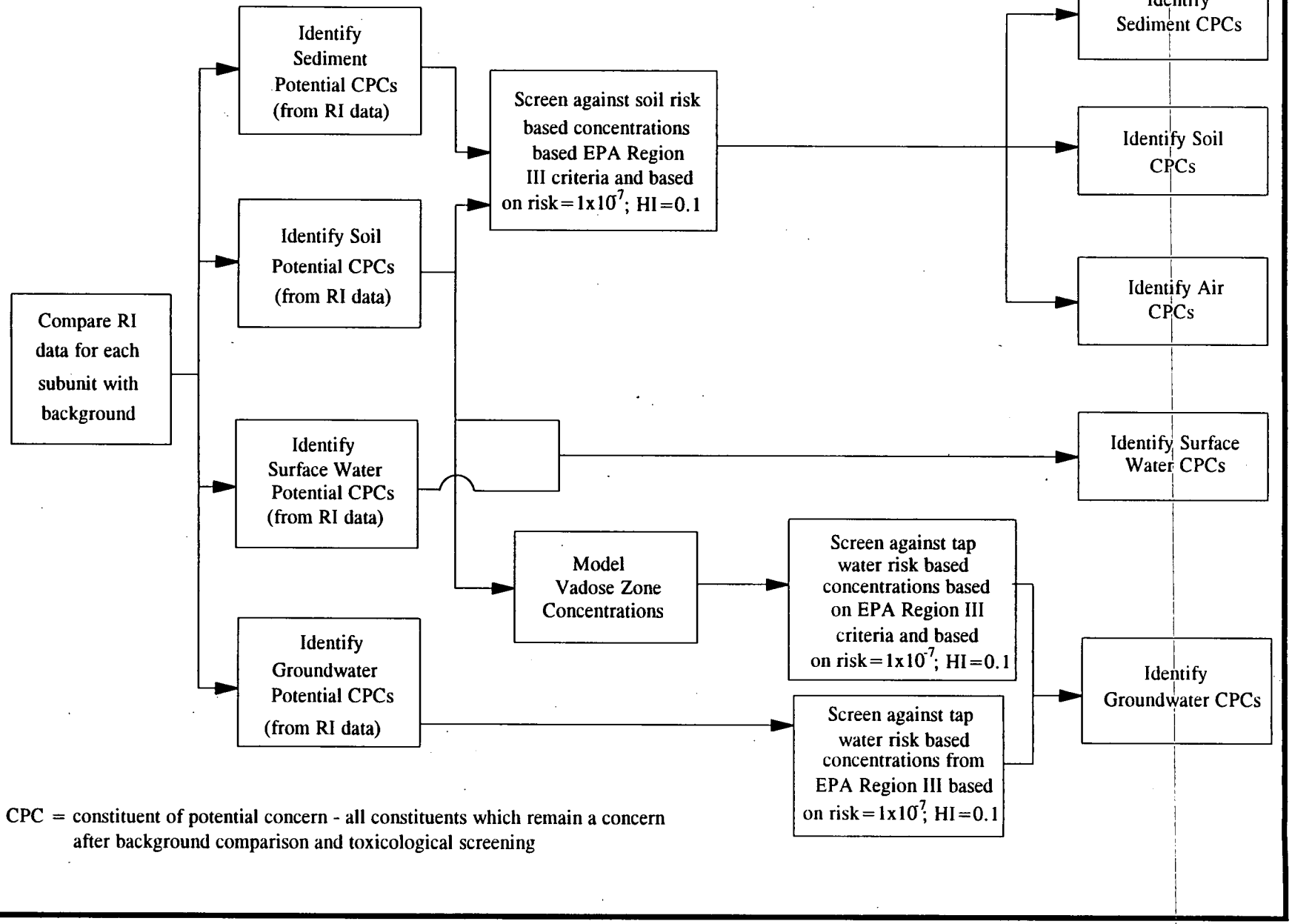


FIGURE B.2-3 CONSTITUENT OF POTENTIAL CONCERN (CPC) SELECTION PROCESS

The statistical methods used in data evaluation are shown as a process flowchart in Figure B.2-4. The rationale used to develop this methodology and the statistical techniques are based on the following sources:

- "The 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 I and Volume 3 (Draft)" (EPA 1989c and 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).

B.2.3.1 Data Sources

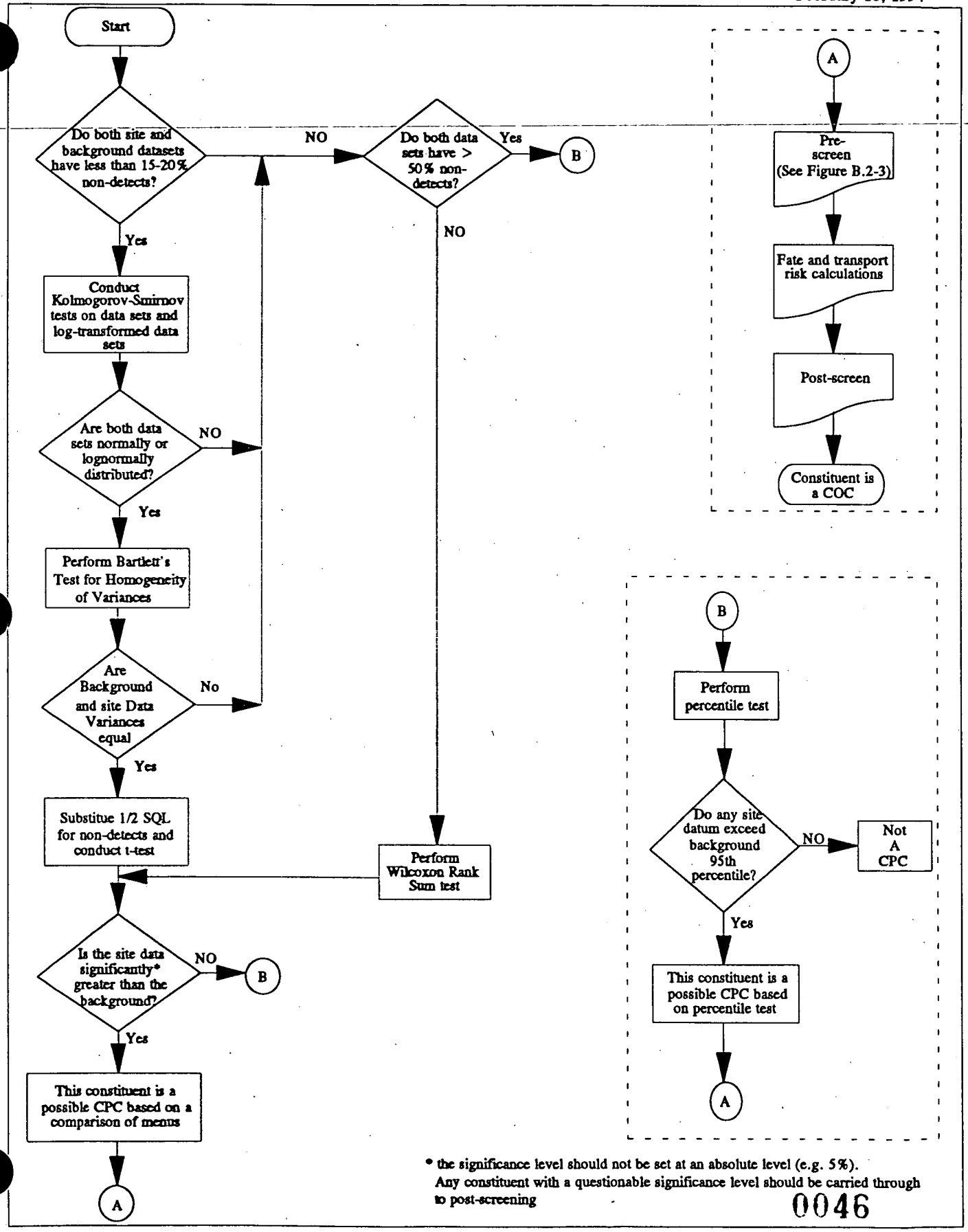
Below is a discussion of data sources used in this baseline risk assessment. These data sources included subunit data generated during on-site field sampling programs and background data generated from samples collected 3 to 5 miles away from the FEMP site.

B.2.3.1.1 Subunit Data

In accordance with the Risk Assessment Work Plan Addendum, data generated in RI/FS field sampling programs are given first consideration in risk assessments. These data are the most current and most reliable based on RI/FS quality assurance/quality control (QA/QC) practices. For Operable Unit 2, two RI/FS field sampling programs were completed. The first (Phase I) was completed in the Summer 1992 and the second (Phase II) was completed in Summer 1993. Analytical data from both of these efforts are utilized in this risk assessment. Data from the Characterization Investigation Study (CIS) and Environmental Survey (ES) investigations were not used for this risk assessment, but were used to guide sampling activities for the RI/FS.

B.2.3.1.2 Background Data

The site-specific background data set for soil consisted of a series of soil samples collected approximately three to five miles from the FEMP site. Background concentrations in surface and subsurface soil were determined based on direct analysis of regional soils at three depths (i.e., 0 to 6 inches, 36 to 42 inches, and 48 to 54 inches), the assumption of secular equilibrium in the radioactive



* the significance level should not be set at an absolute level (e.g. 5%). Any constituent with a questionable significance level should be carried through to post-screening

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FIGURE B.2-4
CONSTITUENT OF POTENTIAL CONCERN (CPC) SELECTION PROCESS

decay process, and the recognition that certain organic compounds and radionuclides (i.e., technetium-99 and the isotopes of plutonium) do not occur naturally.

Background concentrations for the glacial overburden unit and the Great Miami Aquifer are based on the sample results provided in the FEMP RI/FS document "Characterization of Background Water Quality for Streams and Groundwater". Background concentrations in the Great Miami Aquifer are from upgradient Wells 2043, 2050, 2056, 2066, and 2383 located off-site from Operable Unit 2.

Background concentration in the glacial overburden unit are from Wells 1024, 1040, 1059, 1060, and 1065. These locations are distant from site activities and known sources of contamination. Lithologic correlation is highly variable because of the heterogeneity and anisotropy of glacial sediment. Much of the glacial overburden at the FEMP consists of a clayey till and discontinuous sand lenses. Unsaturated zones within the glacial overburden make a transition to perched lenses when sandy units are encountered, because of porosity changes and semiconfined hydrostatic pressures. Therefore, the geochemistry of perched zone groundwater samples may vary from site to site. Background concentrations in the overburden unit are listed in Section B.4.0.

B.2.3.2. Data Validation

The data validation process is described in Section 2.2.2.4 of this RI report. All of the measured constituent concentration data obtained in the RI/FS sampling program for Operable Unit 2 have been validated. Data which did not adequately meet the criteria addressed during data validation were rejected. These data were not used in the quantitative baseline risk assessment process according to EPA guidance (EPA 1989a). All measured constituent concentration data used in this risk assessment was validated to at least ASL C, and 10 percent were validated to ASL D.

B.2.3.3 Treatment of Non-Detected Results

Analytical results are presented as "non-detects" whenever chemical concentrations in samples do not exceed the detection or quantitation levels for the analytical procedures for those samples. There are numerous terms used to describe the detection or quantitation levels (EPA 1989a). SQLs are the most relevant quantitation limits for evaluating non-detected chemicals. SQLs take into account sample characteristics, sample preparation, and analytical adjustments. Generally, the detection limit (the lowest amount of a chemical that can be "detected" above the normal, random noise of an analytical instrument or method) is multiplied by a factor of three to five to obtain the SQL (EPA 1989a).

For radionuclides, the minimum detectable activity (MDA) corresponds most directly to the SQL for chemicals. The MDA is the estimate of the activity level that can be practically achieved under a specified set of typical measurement parameters. These parameters include the sample size, counting time, counting efficiency, self-absorption and decay corrections, chemical yield, and other factors involved in determining activity concentrations (EPA 1980). For the purposes of evaluating data in the RI/FS, the term "SQL" will be used for both chemicals and radionuclides.

Non-detected results (if present in the data set) must be considered with positively detected background results for determining the descriptive statistics for background data sets. Although EPA's Risk Assessment Guidance for Superfund Part A, Human Health Evaluation Manual allows for best professional judgement in determining the most appropriate assignment of values for non-detected results (EPA 1989a), EPA Region V has requested that a value of one-half the SQL be assigned for each non-detected result. Therefore, statistical treatment of background data for risk assessments will conform with the methodology requested by EPA Region V.

A value of the SQL was sought for each non-detected result. If SQLs were not obtainable for chemical analytical results, the contact required quantation limit (CRQL) was used as the value of the SQL. The uncertainty introduced by this assumption was evaluated, since the CRQL may have overestimated or underestimated the actual SQL (EPA 1989a).

B.2.3.4 Evaluation of Background

B.2.3.4.1 Determination of Background Distribution

Each background data set was evaluated to determine the probability distribution (normal, lognormal, or undefined) that best describes the data set. Two methods were used to determine the distribution type.

The first method employed to determine the appropriate distribution. The Kolmogorov-Smirnov test with Lilliefors adjustment (Lilliefor 1967). This method is recommended in EPA's Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities. The test was performed on the untransformed data to test the normality assumption and on the log-transformed data to test the assumption of lognormality. If the test provided sufficient evidence to reject both normality or lognormality assumptions then a second method was employed.

The second method consists of the construction of a probability plot of the data set. If the plotted points fit a straight line reasonably well with no large data gaps, a normal distribution will be assumed. If the data do not follow a straight line on the probability plot, the data was log-transformed and a new plot is generated. If the log-transformed data reasonably fit a straight line then a lognormal distribution was assumed. If a straight line does not fit the plotted points on either the normal probability plot or the log-transformed probability plot, then it was assumed that the data set is neither normally distributed nor lognormally distributed. Visual inspection of the probability plot is often sufficient to determine whether the plotted points follow a normal or lognormal distribution though some experienced professional judgement may be necessary when there are minor deviations. The statistical methods employed to determine the concentration terms are robust to minor deviations from normality or lognormality and visual inspection of probability plots is often a sufficient tool.

B.2.3.4.2 Tests for Outliers in Background Concentration Data

An outlier is defined as an abnormally high or low data value. Since an outlier can represent a true extreme value or can indicate data errors, it is important to evaluate each data value to determine if it is an outlier or a true data value that will be included in the data set (Gilbert 1987).

Visual inspection of the normal and lognormal probability plots of the data set (see Section B.2.3.3.1) was performed to determine whether any data points differ significantly from the remaining data. A value that was four to five times greater than the next highest data value is generally viewed with suspicion. A value that is an order of magnitude different from the other values can arise by the common error of misplacing a decimal (EPA 1989c). Any data points that differed significantly from the remaining data were further evaluated.

If specific data points stood out as suspected outliers in the background datasets, a quantitative test was performed. Since this test, as with most quantitative tests for outliers, assumes an approximate normal distribution, attempts were made to transform datasets that are not normally distributed to approximate a normal distribution before the test is performed.

The method used for identifying outliers consisted of the following steps:

1. Calculate the mean, $\bar{x}$, and the standard deviation, s, of the data including all measurements.

2. Compute the statistic, T_n, given by

$$T_n = \frac{x_n - \bar{x}}{s} \qquad \text{(B.2-1)}$$

for each value suspected of being on outlier.

3. Compare the statistic T_n to the critical value for the given sample size, n, from Table 4-2 in the Risk Assessment Work Plan Addendum (1992a).

4. If the statistic T_n for the suspected value exceeds the critical value from Table 4-2 in the Risk Assessment Work Plan Addendum (1992a), this is evidence that the suspected value, x_n, is a statistical outlier.

Since the presence of outliers can severely affect the determination of descriptive statistics and statistical comparisons, any potential or suspect outliers in the background data sets will be investigated. The investigation included, if possible, a review of the raw data associated with the determination of the background concentration value.

During the determination of background concentration values, nine values failed the outliers test and were removed from the groundwater data before determination of the concentration terms because they were highly suspect and assumed to be true outliers. The values were:

Calcium:	1.03 J and 1.3 J,	UCL = 100.7
Chromium:	0.56 J,	UCL = 0.01
Magnesium:	0.5 J and 0.581,	UCL = 28.3
Nickel:	0.78 J,	UCL = 0.012
Potassium:	13.4 and 13.5,	UCL = 2.004
Selenium:	0.06 UJ,	UCL = 0.002

("J" indicates an estimated value below the method detection limit, "UJ" indicates that the value was below an estimated detection limit of the value shown.)

B.2.3.5 Identification of Constituents of Potential Concern (CPCs)

B.2.3.5.1 Comparison to Background

The first step in selecting CPCs is to compare the concentration term to background concentrations. To conduct the comparison between the site-related measurements and the background data for a constituent, two tests were used in sequence: (1) a "location" test (Student's t-test or Wilcoxon Rank Sum test) and (2) followed by the "95th Percentile Test" (see below for details). If either of the test results rejects the null hypothesis that the site data is equal to background (i.e., the distribution of measurements at the site appears to be shifted to the right (to higher measurements) of the background distribution), the constituent is considered to be a possible CPC and is submitted to toxicological screening. The constituent is not included as a possible CPC only if both test results indicate that there was not a "significant difference" between the two distributions. For cases where the location tests could not be performed due to small sample sizes or large portion of nondetects and the 95th Percentile Test suggests that the site-related data are not different from the background data, professional judgement by risk assessors was used to make the final determination.

The "location" test can be either the t-test, a parametric statistical method, or the Wilcoxon Rank Sum (WRS) test (or the Mann-Whitney U-test, a direct corollary to the WRS) which is the counterpart of the t-test in a nonparametric approach. The t-test was used to compare the mean of the site-related data with the mean of the background data. The WRS test compares two distributions of rank ordered data (equivalent proportions of ranks would indicate similar distributions). The criteria for conducting the t-test are presented in Figure B.2-4. For cases in which the t-test cannot be applied to the data, the WRS test was conducted.

The 95th Percentile Test determines if any sample measurements for a given constituent exceed the upper 95th percentile for the background distribution. If so, the test indicates that the data contains at least one relatively high concentration and the constituent should be considered as a CPC. The 95th percentile for the background distribution can be computed as follows:

For background data with a normal distribution:

$$P_{95} = \bar{x} + z_{0.95} * s \qquad \text{(B.2-2)}$$

where:

$\bar{x}$ = sample arithmetic mean

s = sample standard deviation

$z_{0.95}$ = 1.645

For background data with a lognormal distribution:

$$P_{95} = \exp(\bar{y} + z_{0.95} * s_y) \quad \text{(B.2-3)}$$

where:

$\bar{y}$ = sample arithmetic mean of the log-transformed data

($y = \ln x$; $\bar{y} = \Sigma y/n$)

s_y = sample standard deviation of the log-transformed data

$z_{0.95}$ = 1.645

Undetermined Distribution

If the distribution of the background data could not be adequately determined, a conservative non-parametric method was used to estimate the concentration term. Because of the uncertainty of an undefined distribution the non-parametric 95th percentile concentration was used as the concentration term. The initial step in this procedure is to order the data such that

$$x_1 \leq x_2 \leq \ldots \leq x_i \quad \text{(B.2-4)}$$

where

$x_{j,\ (j=1\ \text{to}\ i)}$ = sample concontrations

i = the number of background samples

The 95th percentile concentration is then determined to be

$$x_k$$

such that

$$k \geq i \times 0.95 \quad (i = \text{number of samples})$$

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Because organic chemicals, some fission product radionuclides, and activation product radionuclides are not naturally occurring at measurable levels, background concentrations are assumed to be zero. Consequently, if these organic chemicals, fission products, or activation products are selected as CPCs, they are not based on comparison to background.

All compounds determined to be present above background concentrations were considered to be CPCs and were then subjected to toxicological screening.

B.2.3.6 Determination of Concentration Term

The subunit concentration term is assumed to be the 95 percent UCL of the mean. If the distribution for an analyte was determined to be either normal or lognormal the appropriate equation was used to calculate the 95 percent UCL. The UCL equations for both a normal distribution and lognormal distribution are presented below.

The UCL for a normal distribution:

$$UCL_{(.95)} = \bar{x} + t_{(.95,n-1)} \times \frac{S}{\sqrt{n-1}} \qquad \text{(B.2-5)}$$

where

n = number of samples
$\bar{x}$ = sample mean concentration
$t_{(.95,n-1)}$ = percentage point from the t distribution
s = sample standard deviation

$$= \sqrt{\frac{1}{n-1} \sum_{i=1}^{n} (x_i - \bar{x})^2}$$

The UCL for a lognormal distribution:

$$UCL_{(.95)} = e^{\bar{y} + \frac{s_y^2}{2}} + \frac{S_y \times H_{.95}}{\sqrt{n-1}} \qquad \text{(B.2-6)}$$

where

n = number of samples
$\bar{y}$ = sample mean of the log-transformed data
$H_{(.95)}$ = quantiles obtained from tables provided by Land(1975)
S_y = sample standard deviation of the log-transformed data

$$= \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(y_i-\bar{y})^2}$$

Undetermined Distribution

If the distribution of the subunit data could not be adequately determined, a conservative non-parametric method was used to estimate the concentration term. Because of the uncertainty of an undefined distribution the non-parametric 95th percentile concentration was used as the concentration term. The initial step in this procedure is to order the data such that

$$x_1 \leq x_2 \leq \ldots \leq x_i \qquad \text{(B.2-7)}$$

where

$x_{j,\,(j=1\ \text{to}\ i)}$ = sample concentrations
i = the number of background samples

The 95th percentile concentration is then determined to be

$$x_k$$

such that

$$k \geq i \times 0.95 \quad (i = \text{number of samples})$$

B.2.3.7 Toxicological Screening

After statistical comparisons to background were made, detected compounds which have been shown to exceed background were subjected to toxicological screening to exclude constituents that are unlikely to have a human health risk at the levels detected. The following process, which has recently been approved by EPA for use at this site, was used:

- Contaminant concentration frequency of detection, persistence, and distribution among media were evaluated. If a constituent was identified in one medium but not found in any other media or was found at unusually high (unrealistic) concentrations, elimination was considered unless additional evaluation required it be included as a CPC.

- Essential micronutrients and macronutrients that were non-toxic at the levels identified (e.g., Na, K, Mg, Ca, Fe, Zn, Mg, Se, etc.) were deleted.

- Nonspecific classes of chemical compounds (e.g., total organic carbon, [TOC], total petroleum hydrocarbons [TPH], polynuclear aromatic hydrocarbons [PAH], chlorinated hydrocarbons [CH], etc.) were removed.

- Compounds known to be derived from off-site sources (e.g., off-site factory discharges, auto exhausts, various herbicides, insecticides, etc.) were deleted unless their contribution to site risk was potentially significant (e.g., 2, 3, 7, 8-TCDD).

- Compounds that were ubiquitous in nature and considered to be nontoxic (e.g., Al, Si, Cl) were removed. Concentrations of inorganics were compared with background levels to determine whether they were present on site at elevated concentrations.

- Compounds known to degrade to non-toxic products due to physical, biological, chemical activities (e.g., photolysis, biodegradation, pump and treat, etc.) or that may have been produced by chemical synthesis during analysis (Aldol-condensation) were removed if no other requirements for inclusion exist.

- Compounds whose potential for toxicity was low ($>$ 5 g/kg body weight) and whose point source concentrations was less than 1 ppm were deleted.

- The list of contaminants (remaining and removed) was compared with values derived from the EPA Region III screening document associated with risk levels of 1×10^{-7} or Hazard Indices (HIs) of 0.1.

- The list of chemicals removed was reviewed to identify those whose toxic effects were exerted upon a common target organ, or have synergistic or additive effects. Toxicity, concentration, and any additive/synergistic effects due to contaminant exposure were examined, as well as structure-activity relationships or other chemical similarities. The possible contribution to site risk was assessed to determine whether a compound should be returned to the CPC list.

- Class A/B carcinogens are included as CPCs

- All radionuclides are included as CPCs.

Radiological and chemical constituents that were not eliminated based on toxicological screening are retained as CPC and subjected to quantitative risk assessment.

B.2.3.8 Results of Selecting CPCs

CPCs were selected for every environmental media that human receptors may contact for each Operable Unit 2 subunit. CPCs identified for environmental media impacted by each waste subunit are presented in each subunit description in Section B.3.0 and summarized in Section B.4.0.

B.2.4 EXPOSURE ASSESSMENT

The exposure assessment is the determination of the magnitude of contact that a potential receptor may have with site-related CPC. The general procedure for conducting an exposure assessment involves the following three steps: 1) characterization of the physical setting, 2) identification of exposure pathways, and 3) quantification of exposure.

In the first step, the general physical characteristics of the site and characteristics of potential receptor populations are described. This information was presented in Section B.2.1. In the second step, the predominant constituent migration and exposure pathways are identified. Pathways are identified on the basis of the source characteristics; known and potential releases; environmental fate of chemical and radioactive constituents; and locations and activities of potentially exposed populations. Section B.2.2 summarizes this information for Operable Unit 2.

The third step, quantification of exposures, involves calculation of estimated intake of contaminants, in mg/kg-day for chemicals and pCi for radionuclides, for each identified receptor. This information is summarized in this section.

To estimate intake, exposure point concentrations are combined with relevant exposure parameters for each receptor, each environmental medium, and each route of exposure. Receptors, environmental media, and routes of exposure for which intake is quantified in this risk assessment is summarized in Table B.2-2. Derivation of exposure point concentrations are described in Section B.2.4.1, and intake equations are described in Section B.2.4.2.

B.2.4.1 Exposure Point Concentrations

The exposure point concentration is the concentration of a constituent in an environmental medium that may be contacted by a real or hypothetical receptor. It is used in combination with other exposure parameters in intake equations to quantify the actual intake (in mg/kg-day for chemicals and

pCi for radionuclides) that a receptor may receive via a specific pathway (e.g., soil, groundwater, etc.) and route of exposure (e.g., ingestion, inhalation, dermal contact).

Exposure point concentrations for Operable Unit 2 are determined in different ways depending on whether exposures are assumed to be current or future, and the environmental medium of interest. 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 constituent in each exposure medium. Because of the uncertainty associated with any estimate of exposure concentrations, the 95 percent UCL on the arithmetic mean for either a normal or lognormal distribution is the recommended statistic (concentration value) to be constructed from measured constituent concentration data and used in risk assessments (EPA 1992c).

B.2.4.1.1 Exposure Point Concentrations for Soil

Exposure point concentrations for direct contact surface soil exposure pathways, under both current and future land use assumptions, are the UCLs determined from surface soil data using the process described in the FEMP guidelines and Section B.2.3 for identifying CPCs.

B.2.4.1.2 Exposure Point Concentrations for Groundwater

Current exposures to groundwater at the FEMP will be addressed as part of the Operable Unit 5 RI. Exposure to potential future concentrations of contaminants in groundwater from each operable unit are addressed during each operable unit RI baseline risk assessment. Future exposure point concentrations for groundwater are determined from the results of geochemical and groundwater transport modeling, as illustrated schematically in Figure B.2-5 and as described in detail in Section 5.0 of this RI report. For assessment of exposures to constituents migrating from the South Field and Inactive Flyash Pile to groundwater, a single source term was derived from soil data of both subunits. For assessment of exposures to contaminants migrating from the Active Flyash Pile, Solid Waste Landfill, and Lime Sludge Ponds, independent source terms were derived.

Potential constituent concentrations in leachate seeping from the waste area and from the underlying soils were modeled with the geochemical model described in Section 5.0 and Appendix A of this RI report. Leachate concentrations were then modeled through the vadose zone to the regional aquifer to yield the calculated future concentrations in the aquifer directly underlying the waste area. As illustrated in Figure B.2-5, CPC soil source concentrations are used in predictive modeling based

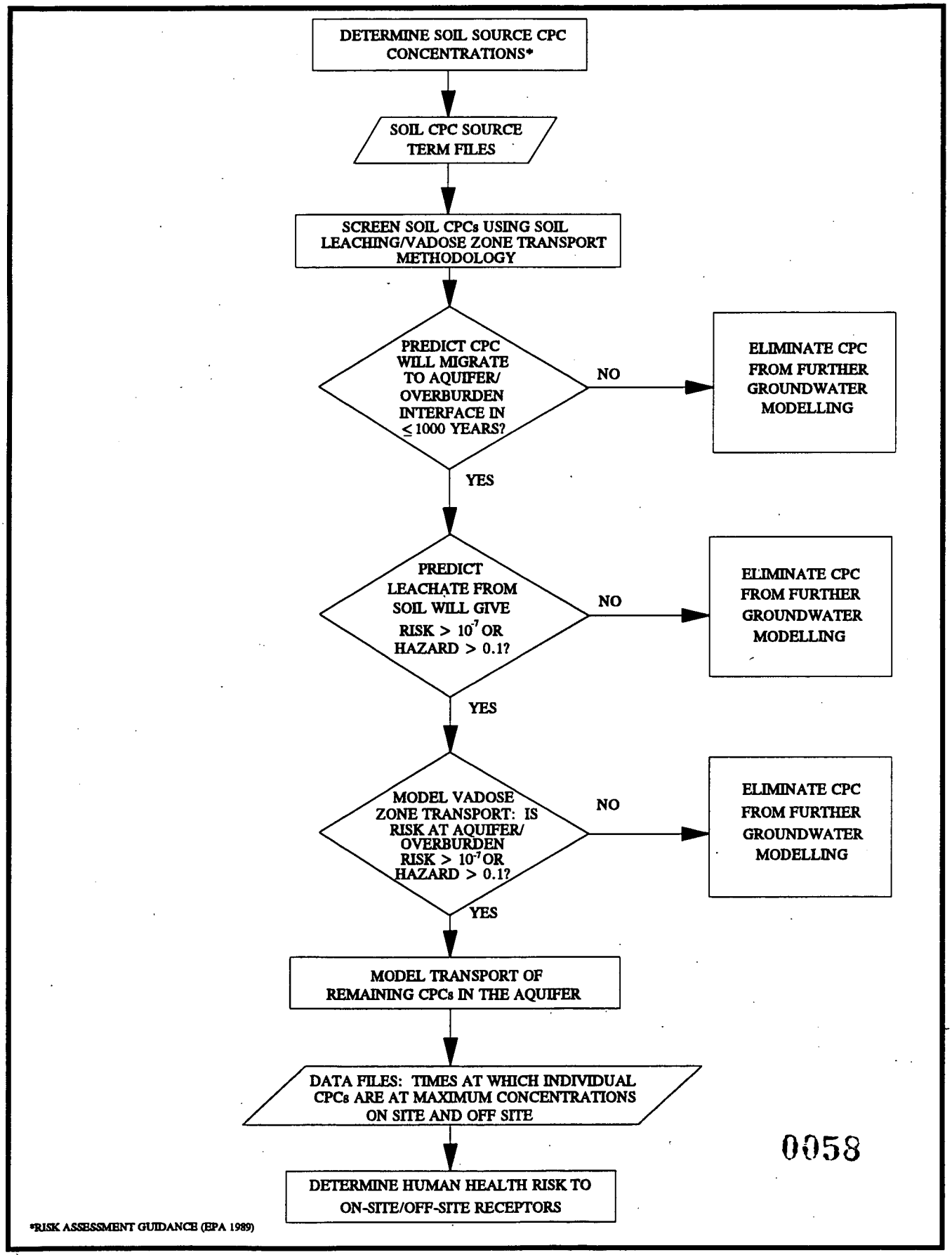

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FIGURE B.2-5. RISK ASSESSMENT AND GROUNDWATER MODELLING

upon potential leaching of CPCs from soil. CPCs estimated to be present in leachate which are not screened out (i.e., which are present in leachate at levels exceeding a level associated with an acceptable risk/hazard level) are further subjected to vadose zone transport modeling to predict which CPCs might reach the aquifer/overburden interface in 1000 years or less. Concentrations of constituents predicted to reach the aquifer/overburden interface are then compared again to acceptable risk levels; and those present at concentrations exceeding acceptable risk levels are carried through the quantitative risk assessment. Screening values against which leachate concentrations are compared were derived from screening criteria generated by EPA Region III using an incremental lifetime cancer risk (ILCR) of 1×10^{-7} and a HI of 0.1. The screening value for each carcinogen is the concentration of the CPC that would yield a lifetime cancer risk of 1×10^{-7} if the leachate were ingested at a rate of 2 L/day for 70 years. For non-carcinogens, the screening level is the concentration reaching the regional aquifer that would yield an intake resulting in a hazard index of 0.1. These levels ensure that any chemical that could contribute significantly to the calculated risk will be retained and modeled. The remaining CPCs not screened any further by the aquifer transport modeling, are described below. The approach of screening CPCs that are conservatively estimated to reach the aquifer provides the necessary and sufficient confidence that risks are not being overlooked while optimizing against the resource and computer requirements of running a three-dimensional groundwater transport code.

Off-property concentrations of CPCs in groundwater are calculated using the regional aquifer model, SWIFT III (Geotrans 1987). CPCs retained after leachate/vadose zone modeling were modeled using SWIFT III. The maximum calculated concentrations in the aquifer on site and at the fenceline were used for exposure point concentrations for on-site and off-site future groundwater exposures, respectively. Details of the model and parameters used to calculate future aquifer concentrations are presented in Section 5.0 and Appendix A of this RI report. The locations of calculated maximum off-site concentrations of constituents transported from the waste areas of Operable Unit 2 via groundwater also are shown in Section 5.0 and Appendix A of this RI report.

B.2.4.1.3 Exposure Point Concentrations for Surface Water and Sediment

Like groundwater, exposures to current concentrations in surface water and sediment outside the boundary of Operable Unit 2 waste areas are to be addressed in the Operable Unit 5 RI. Current exposures to surface water and sediment within each subunit were estimated where applicable using the UCL concentrations for each CPC. For future exposures to surface water in Paddys Run and the

Great Miami River, fate and transport modeling was used to determine exposure point concentrations. Surface water CPCs included all CPCs selected for surface soil within each subunit. The Modified Universal Soil Loss Equation (MUSLE), a commonly used soil loading model (EPA 1988c), was used to determine if soil runoff, and hence sorbed constituent runoff, would contribute significantly to constituent concentrations in Paddys Run and consequently in the Great Miami River. The source term for this model is the 95 percent UCL surface soil concentrations. The model and modeling results are presented in Section 5.0 and Appendix A of this RI report.

B.2.4.1.4 Exposure Point Concentrations for Air

Airborne concentrations of constituents from the individual waste areas of Operable Unit 2 have been modeled for both current and future conditions at on-subunit, on-site, and off-site locations. The model used assumed mass loading (fugitive dust emissions) of surface soil to the air from each waste area and subsequent transport and dispersion of constituents. The model and parameters for air dispersion are described in Section 5.0 and Appendix A of this RI report. Figure B.2-6 illustrates that the initial source term for air modeling is the 95 percent UCL soil concentration (surface soil except homebuilder scenario that uses subsurface). The results of air model provide the highest annual average air concentrations and deposition rates at each of the specified locations (on-subunit, on-property, off-property). This allows for calculation of exposures to constituents being released to air and exposures resulting from ingestion of vegetation on which air particles are deposited.

B.2.4.1.5 Radon Exposure Point Concentrations

Exposure point concentrations for estimating risk to receptors due to radon-222 inhalation were estimated using the RAECOM model algorithms developed for the NRC (NRC 1984) which converts radium-226 concentrations (in pCi/g) to radon-222 fluxes (in pCi/s-m^2). The basic equations are presented in the Risk Assessment Work Plan Addendum. Total emissions of radon-222 were calculated for surface and subsurface soil in each subunit from the radium-226 concentrations in contaminated soil or waste within that subunit.

B.2.4.2 Intake Equations

The equations and parameter values used in estimating intake are summarized in this section. Table B.2-3 presents the parameter values used in these equations to estimate potential exposures for current land use receptors. Table B.2-4 presents the parameter values used in these equations to

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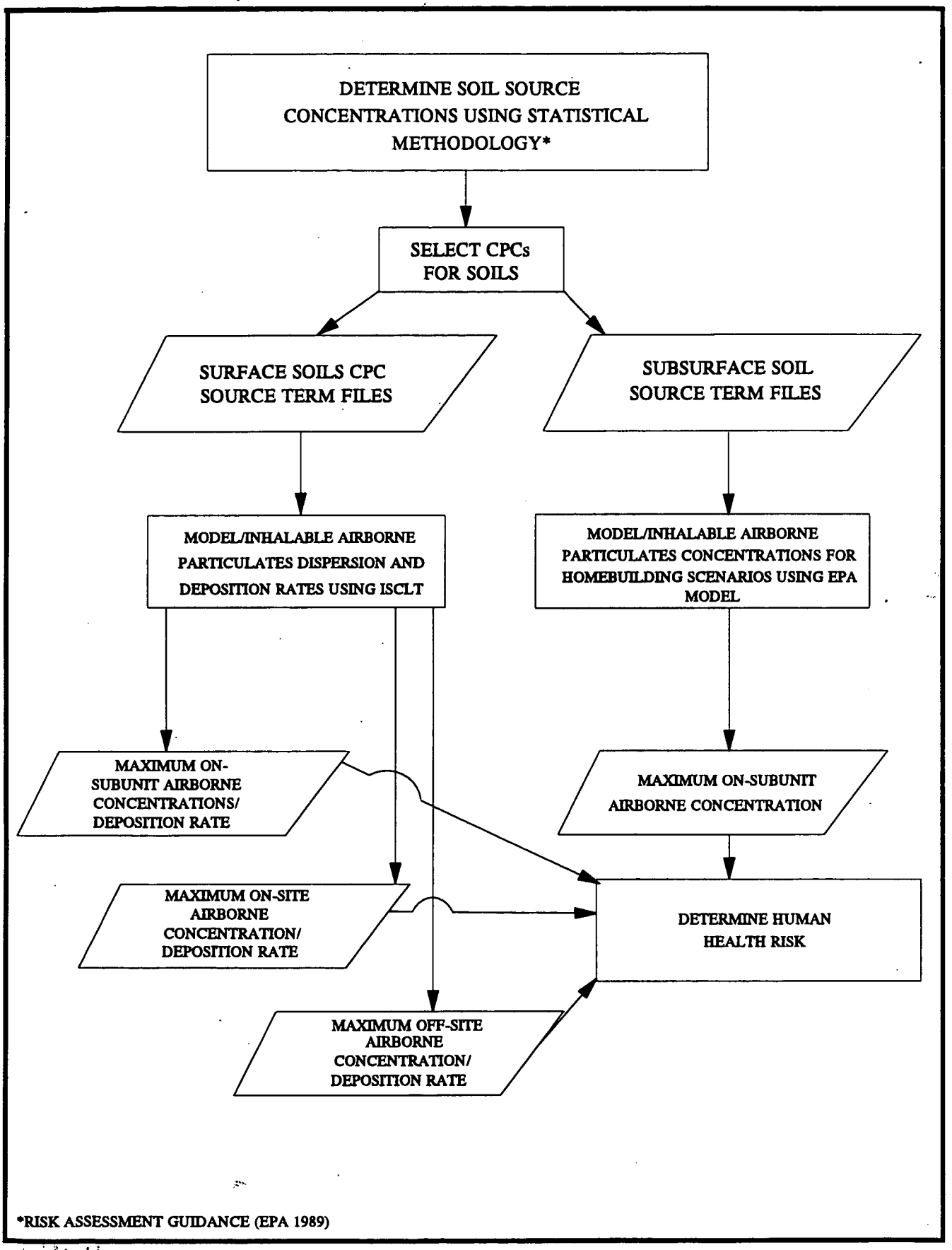

FIGURE B.2-6. RISK ASSESSMENT AND AIR MODELLING

TABLE B.2-3

PARAMETERS USED TO ESTIMATE POTENTIAL EXPOSURES FOR CURRENT LAND USE RECEPTORS

Pathway Parameters	Trespassing Youth Age 7-18	Off-property Farmer Adult	Off-property Resident Child	User of Meat/Milk Products	Groundskeeper
All Pathways (unless otherwise noted)					
EF (d/yr)	52[d]	350[a]	350[a]	350[a]	35[e]
ED (yr)	12[d]	70[a]	6[a]	70[a]	25[s,e]
AT-Noncancer (d)[g]	4380[g]	25550[g]	2190[g]	25550[g]	9125[g]
AT-Cancer (d)[h]	25550[a]	25550[a]	25550[a]	25550[a]	25550[a]
BW (kg)	43[a]	70[a]	15[a]	70[a]	70[a]
Inhalation of Particulates and Radionuclides					
IR (m^3/hr)	0.83[a]	0.83[a]	0.5[f,o]	NA[c]	2.5[s]
ET (hr/d)	4[d]	5.7[f]	2	NA	8[s]
C_a (mg/m^3) (pCi/m^3)	csv[k]	csv	csv	NA	csv
Ingestion of Soil					
IR (mg/d)	100[a]	NA	NA	NA	100[a]
FI (unitless)	0.19[i]	NA	NA	NA	1.0
C_s (mg/kg) (pCi/m^3)	csv	NA	NA	NA	csv
CF - rads (g/mg)	1.0E-3	NA	NA	NA	1.0E-03
CF - chem (kg/mg)	1.0E-6	NA	NA	NA	1.0E-06
Ingestion of Sediment					
IR (mg/d)	100[a]	NA	NA	NA	NA
FI (unitless)	0.06[i]	NA	NA	NA	NA
C_s (mg/kg) (pCi/m^3)	csv	NA	NA	NA	NA
CF - rads (g/mg)	1.0E-3	NA	NA	NA	NA
CF - chem (kg/mg)	1.0E-6	NA	NA	NA	NA
Dermal Contact with Soil					
SA (cm^2)	4200[j]	NA	NA	NA	5750[j]
AF (mg/cm^2)	1.0[j]	NA	NA	NA	1.0[j]
C_s (mg/kg)	csv	NA	NA	NA	csv
CF (kg/mg)	1.0E-6	NA	NA	NA	1.0 E-6
Dermal Contact with Sediment					
SA (cm^2)	4200[j]	NA	NA	NA	NA
AF (mg/cm^2)	1.0[j]	NA	NA	NA	NA
ABS (unitless)	csv	NA	NA	NA	NA
C_s (mg/kg)	csv	NA	NA	NA	NA
CF (kg/mg)	1.0E-6	NA	NA	NA	NA

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See footnotes at end of table

TABLE B.2-3
(Continued)

Pathway Parameters	Trespassing Youth Age 7-18	Off-property Farmer Adult	Off-property Resident Child	User of Meat/Milk Products	Groundskeeper
External Radiation Exposure					
C_r (pCi/g)	csv	NA	NA	NA	csv
ET indoors (hr/d)	NA	NA	NA	NA	NA
ET outdoors (hr/d) sed	1[i]	NA	NA	NA	NA
ET outdoors (hr/d) soil	3[i]	NA	NA	NA	8[s,e]
SH indoors (unitless)	NA	NA	NA	NA	NA
SH outdoors (unitless)	0[a]	NA	NA	NA	0[a]
CF (yr/hr)	1.14E-4	NA	NA	NA	1.14 E-4
Incidental Ingestion of Surface Water					
IR (L/event)	0.035[l]	NA	NA	NA	NA
ET (hr/day)	1.0[l,m]	NA	NA	NA	NA
C_{sw} (mg/L) (pCi/L)	csv	NA	NA	NA	NA
Dermal Contact with Surface Water					
SA (cm^2)	5130[m]	NA	NA	NA	NA
DA (mg/cm^2-event)	csv	NA	NA	NA	NA
Ingestion of Homegrown Fruits and Vegetables					
IR (g/d)	NA	122[p]	106[v,p]	NA	NA
FI (unitless)	NA	0.5[n]	0.5[n]	NA	NA
C_{iv} (mg/kg) (pCi/g)	NA	csv	csv	NA	NA
CF (kg/g)	NA	1.0E-3	1.0E-3	NA	NA
Ingestion of Home Produced Meats					
IR (meat) (g/d)	NA	101[n,p]	39[p,a]	10[n]	NA
FI (unitless)	NA	0.75[p]	0.75[p]	0.75[p]	NA
C_{ia} (mg/kg) (pCi/g)	NA	csv	csv	csv	NA
CF (kg/g)	NA	1.0E-3	1.0E-3	1.0E-03	NA
Ingestion of Milk					
IR (L/day)	NA	0.4[a]	0.9[a]	0.4[a]	NA
FI (unitless)	NA	0.75[p]	0.75[p]	0.75[p]	NA
C_{im} (mg/L) (pCi/L)	NA	csv	csv	csv	NA
Dermal Contact While Bathing					
SA (cm^2)	NA	23000[j]	8000[j]	NA	NA
DA_a (mg/cm^2 - event)	NA	csv	csv	NA	NA
Inhalation of Volatiles Released from Household Water Use					
IR (m^3/d)	NA	15[q]	15[q]	NA	NA
C_w (mg/L)	NA	csv	csv	NA	NA
K (L/m^3)	NA	0.5[q]	0.5[q]	NA	NA

See footnotes at end of table

TABLE B.2-3
(Continued)

[a]Parameter values obtained from the Risk Assessment Work Plan Addendum (DOE 1992a) and revisions per comments received from EPA, unless otherwise noted.

[b]Derived by dividing the default adult human inhalation rate of 20 m^3/day (EPA 1989a, Risk Assessment Guidance for Superfund) by 24 hours/day, and rounding to two significant figures.

[c]NA = Not applicable.

[d]DOE 1993-Comment Response-SWCR: standard trespass scenario assumes 4 hr/d, 3 d/wk for months June through August=36 day plus 1 d/wk for months April, May, September, and October=16 days for a total of 52 d/yr.

[e]Assumes the worker is a groundskeeper, who works 8 hours/day, 1 day/week, 35 weeks/year on the ground of Operable Unit 2.

[f]Assumes a farmer works outdoors for 2,000 hours during the 365 days of exposure a year (5.7h/d=200h/y/350d/y). Indoor duration is the remaining time in day.

[g]Calculated as the product of ED (years) x 365 days/year.

[h]Calculated as the product of 70 years (assumed lifetime) x 365 days/year.

[i]Assumed a trespassing child spends 4 of 16 waking hours/day on site; of the 4 hours, 3 hours are exposure from soil and 1 hour is exposure from sediment. Fraction of waking hours (16 hrs/day) that are spent on site.

[j]EPA 1992f, Dermal Exposure Assessment: Principles and Applications, EPA/600/8-91/011B

[k]csv = Chemical-specific value.

[l]Assumption, The Superfund Exposure Assessment Manual, April 1985 pg. 129, recommends 50 ml/hr for swimming, but Paddys Run is an intermittent stream not deep enough for swimming. Therefore, a slightly lower value seems reasonable.

[m]Assumes a wading scenario because Paddys Run is too shallow for swimming, therefore approximately 31% of total body surface for feet, lower legs, hands, and forearms.

[n]EPA 1990c, EPA/600/8-89/043, Exposure Factor Handbook, FI is from Part II, pg. 1-10; IR for beef and milk are from pg. 2-27; IR for drinking water, pg. 2-3; IR for fish, pg. 2-3.

[o]EPA 1993c, OSWER Directive 9355.3-20, Region III guidance.

[p]USDA 1985, Report No. 85-1, National Food Consumption Food Survey, values include a fraction of food produced at home, i.e.: .35 for fruits and vegetables, .75 for meats, and .75 for milk (as recommended in the Exposure Factor Handbook).

[q]EPA 1991d RAGS, Vol. 1, Part B, pg. 20-22. Using the Andelman Model 1990, it is assumed that half the concentration of volatile chemicals in water transfer to air.

[r]EPA 1988.. Derived from an algorithm relating respiratory rate to body rate, corrected by a factor of 2.11.

[s]EPA 1991, Standard Default Exposure Factors, OSWER directive 9285.6-03.

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TABLE B.2-4

PARAMETERS USED TO ESTIMATE POTENTIAL EXPOSURES FOR FUTURE LAND USE RECEPTORS

Pathway Parameters	CT On-property Resident Farmer Age 1-70	RME On-property Resident Farmer Age 1-70	Off-property Resident Farmer Age 1-70	On-property Resident Child Age 1-6	User of GMR Youth	User of GMR Adult
All pathways (except where noted)						
EF (day/yr)	275[e]	350[a]	350[a]	350[a]	40[x]	40[x]
ED (yr)	9[i]	70[a]	70[a]	6[a]	12[i]	30[i]
BW (kg)	70[a]	70[a]	70[a]	15[a]	43[a]	70[a]
AT-Noncancer (day)	3285[a]	25550[a]	25550[a]	25550[a]	4380[a]	10950[a]
AT-Cancer (day)	25550[a]	25550[a]	25550[a]	25550[a]	25550[a]	25550[a]
Inhalation of Particulates						
IR (m^3/hr)	0.83[c]	0.83[c]	0.83[c]	0.5[d]	NA	NA
ET (hr/d)	4.2[e]	5.7[f]	5.7[f]	2[a]	NA	NA
C_a (mg/m^3) (pCi/m^3)	csv[m]	csv	csv	cvs	NA	NA
Inhalation of Indoor Radon						
IR (m^3/d)	15[s]	15[s]	NA[b]	15[s]	NA	NA
C_{Rn}	csv	csv	NA	csv	NA	NA
Ingestion of Drinking Water						
IR (L/d)	1.4[e]	2[o]	2[o]	1.0[o]	NA	NA
FI (unitless)	1	1	1	1	NA	NA
C_w (pCi/L) (mg/L)	csv	csv	csv	csv	NA	NA
Inhalation of Volatiles Released from Household Water Use						
IR (m^3/d)	15[s]	15[s]	15[s]	15[s]	NA	NA
K (L/m^3)	0.5[s]	0.5[s]	0.5[s]	0.5[s]	NA	NA
C_w (mg/L)	csv	csv	csv	csv	NA	NA

See footnotes at end of table

TABLE B.2-4
(Continued)

Pathway Parameters	CT On-property Resident Farmer Age 1-70	RME On-property Resident Farmer Age 1-70	Off-property Resident Farmer Age 1-70	On-property Resident Child Age 1-6	User of GMR Youth	User of GMR Adult
Dermal Contact While Bathing						
SA (cm^2)	20000[l]	23000[l]	23000[l]	8000[l]	NA	NA
DA_w (mg/cm^2 - event)	csv	csv	csv	csv	NA	NA
Ingestion of Soil/Sediment						
IR (mg/d)	122[d]	180	NA	200	100	100[l]
FI (unitless)	1[n]	1[n]	NA	1[n]	0.25	0.25
C_s (mg/kg) (pCi/g)	csv	csv	NA	csv	csv	csv
CF - rads (g/mg)	1.0E-3	1.0E-3	NA	1.0E-3	1.0E-3	1.0E-3
CF - chem (kg/mg)	1.0E-6	1.0E-6	NA	1.0E-6	1.0E-6	1.0E-6
Dermal Contact with Soil/Sediment[y]						
SA (cm^2)	5000[l]	5750[l]	NA	2000[l]	4200[l]	5750[l]
AF (mg/cm^2)	0.2[l]	1.0[l]	NA	1.0[l]	1.0[l]	1.0[l]
ABS (unitless)	csv	csv	NA	csv	csv	csv
C_s (mg/kg)	csv	csv	NA	csv	csv	csv
CF (kg/mg)	1.0E-6	1.0E-6	NA	1.0E-6	1.0E-6	1.0E-6
External Radiation Exposure						
ET indoors (hr/d)	19.8[e]	18.3[f]	NA	22[g]	NA	NA
ET outdoors (hr/d)	4.2[e]	5.7[f]	NA	2[g]	4[x]	4[x]
SH indoors (unitless)	0.5[a]	0.5[a]	NA	0.5[a]	0.5[a]	0.5[a]
SH outdoors (unitless)	0[a]	0[a]	NA	0[a]	0[a]	0[a]
C_r (pCi/g)	csv	csv	NA	csv	csv	csv
CF (yr/hr)	1.14E-4	1.14E-4	NA	1.14E-4	1.14E-4	1.14E-4

See footnotes at end of table

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TABLE B.2-4
(Continued)

Pathway Parameters	CT On-property Resident Farmer Age 1-70	RME On-property Resident Farmer Age 1-70	Off-property Resident Farmer Age 1-70	On-property Resident Child Age 1-6	User of GMR Youth	User of GMR Adult
Ingestion of Homegrown Fruits and Vegetables						
IR (g/d)	78[e]	122[t]	122[t]	106[t]	NA	NA
FI (unitless)	0.5[o]	0.5[o]	0.5[o]	0.5[o]	NA	NA
CF (kg/g)	1.0E-3	1.0E-3	1.0E-3	1.0E-3	NA	NA
C_{iv} (mg/kg) (pCi/g)	csv	csv	csv	csv	NA	NA
Ingestion of Home Produced Meats						
IR (g/d)	100[t,o]	100[t,o]	100[t,o]	39[t]	NA	NA
FI (unitless)	0.5[e]	0.75[t]	0.75[t]	0.75[t]	NA	NA
C_{ia} (mg/kg) (pCi/kg)	csv	csv	csv	csv	NA	NA
CF (kg/g)	1.0E-3	1.0E-3	1.0E-3	1.0E-3	NA	NA
Ingestion of Milk						
IR (L/day)	0.16[o]	0.4[o,a]	0.4[o,a]	0.9[o,a]	NA	NA
FI (unitless)	0.75[t]	0.75[t]	0.75[t]	0.75[t]		
C_{im} (mg/L) (pCi/L)	csv	csv	csv	csv	NA	NA
Ingestion of Surface Water						
C_{isw} (mg/L) (pCi/L)	NA	NA	NA	NA	csv	csv
IR (L/event)	NA	NA	NA	NA	0.05[l]	0.05[l]
Dermal Contact with Surface Water						
SA (cm^2)	NA	NA	NA	NA	16550	23000
DA (mg/cm^2-event)	NA	NA	NA	NA	NA	NA

See footnotes at end of table

TABLE B.2-4
(Continued)

Pathway Parameters	Off-property Resident Child Age 1-6	On-property Homebuilder	Expanded Trespasser Youth	Expanded Trespasser Adult
All pathways (except where noted)				
EF (day/yr)	350[a]	50[w]	110[p]	40[p]
ET (hr/day)	2[g]	10[w]	2[p]	1[p]
ED (yr)	6[a]	1[w]	12[p]	32[p]
BW (kg)	15[a]	70[a]	43[a]	70[a]
AT-Noncancer (day)	2190[a]	365[a]	4380[a]	11680[a]
AT-Cancer	25550[a]	25550[a]	25550[a]	25550[a]
Incidental Ingestion of Soil/Sediment				
IR (mg/d) soil	NA	480[i]	100[i]	100[i]
IR (mg/d) sed	NA	NA	100[i]	NA
FI (unitless) soil	NA	1.0[h]	0.125[v]	0.125[v]
FI (unitless) sed	NA	NA	0.125[v]	NA
C_s (mg/kg) (pCi/g)	NA	csv	csv	csv
CF - rads (g/mg)	NA	1.0E-3	1.0E-3	1.0E-3
CF - chem (kg/mg)	NA	1.0E-6	1.0E-6	1.0E-6
Dermal Contact with Soil/Sediment				
SA (cm^2) soil	NA	5750[l]	4200[l]	5750[l]
SA (cm^2) sed	NA	NA	4200	NA
SA (cm^2) sed	NA	NA	4200	NA
AF (mg/cm^2)	NA	1.0[l]	1.0[l]	1.0[l]
ABS (unitless)	NA	csv	csv	csv
CF (kg/mg)	NA	1.0E-6	1.0E-6	1.0E-6

See footnotes at end of table

TABLE B.2-4
(Continued)

Pathway Parameters	Off-property Resident Child Age 1-6	On-property Homebuilder	Expanded Trespasser Youth	Expanded Trespasser Adult
External Radiation Exposure				
C_r (pCi/g)	NA	csv	csv	csv
ET indoors (hr/d)	NA	5[w]	NA	NA
ET outdoors (hr/d)	NA	5[w]	2[p]	2[p]
SH indoors (unitless)	NA	0.5[a]	NA	NA
SH outdoors (unitless)	NA	0[a]	0[a]	0[a]
CF (yr/hr)	NA	1.14E-4	1.14E-4	1.14E-4
Inhalation of Particulates, Vapors, and Gases				
IR (m^3/hr)	0.5[d]	2.5	0.83[a]	0.83[a]
ET (hr/d)	2[g]	10[w]	2[p]	1[p]
C_a (mg/m^3) (pCi/m^3)	csv	csv	csv	csv
Inhalation of Volatiles Released from Household Water Use				
IR (m^3/d)	15[s]	NA	NA	NA
K (L/m^3)	0.5[s]	NA	NA	NA
C_w (mg/L)	csv	NA	NA	NA
Dermal Contact While Bathing				
SA (cm^2)	8000[l]	NA	NA	NA
DA_a (mg/cm^2 - event)	csv	NA	NA	NA
Dermal Contact with Surface Water				
SA (cm^2)	NA	NA	5130[q]	NA
ET (hr/event)	NA	NA	1.0	NA
DA (mg/cm^2-event)	NA	NA	csv	NA

See footnotes at end of table

TABLE B.2-4
(Continued)

Pathway Parameters	Off-property Resident Child Age 1-6	On-property Homebuilder	Expanded Trespasser Youth	Expanded Trespasser Adult
Ingestion of Drinking Water				
IR (L/d)	1.0	NA	NA	NA
C_w (pCi/L) (mg/L)	csv	NA	NA	NA
FI (unitless)	1[r]	NA	NA	NA
Ingestion of Milk				
IR (L/day)	0.9[a]	NA	NA	NA
FI (unitless)	0.75[t]	NA	NA	NA
C_{im} (mg/L) (pCi/L)	csv	NA	NA	NA
Ingestion of Home Produced Meats				
IR (g/d)	39[t]	NA	NA	NA
FI (unitless)	0.75[t]	NA	NA	NA
C_{ia} (mg/kg) (pCi/g)	csv	NA	NA	NA
CF (kg/g)	1.0E-3	NA	NA	NA
Ingestion of Homegrown Fruits and Vegetables				
IR (g/d)	106[t]	NA	NA	NA
FI (unitless)	0.5[o]	NA	NA	NA
C_{iv} (mg/kg) (pCi/g)	csv	NA	NA	NA
CF (kg/g)	1.0E-3	NA	NA	NA
Incidental Ingestion of Surface Water				
IR (L/event)	NA	NA	0.035[r]	NA
C_{sw} (mg/L) (pCi/L)	NA	NA	csv	NA

See footnotes at end of table

TABLE B.2-4
(Continued)

[a]Parameter values obtained from the RAWPA (DOE 1992a) and revisions per comments received from EPA, unless otherwise noted.

[b]NA = Not applicable.

[c]Derived by dividing the default adult human inhalation rate of 20 m^3/day (EPA 1989a, Risk Assessment Guidance for Superfund) by 24 hours/day, and rounding to two significant figures.

[d]EPA, 1993c, "Risk-Based Concentration Table, Second Quarter 1993" EPA Region III, May 10.

[e]Special guidance from EPA Region V for the CT scenario (EF = 275 d/yr, hours/day spent indoors and outdoors = 19.8 and 4.2, respectively. (Drinking water ingestion rate = 1.4 L/day; vegetable and fruit ingestion = 78 g/d; meat ingestion = 50 g/d; milk ingestion = 0.2 L/d; soil ingestion = 122 mg/d; are taken from the EPA 1993, Superfund's Standard Default Exposure Factors for CT and RME, preliminary draft 5/5/93.

[f]Special guidance from EPA Region V. 8 hrs/d spent outdoors for 250 d/yr = 2000 hrs/d; this value divided by 350 d/yr on site = 5.7 hrs/d spent outdoors; 18.3 hrs/d spent indoors determined by difference.

[g]Assumes a small resident child spends 700 hrs/yr outdoors.

[h]Specific guidance form EPA Region V (1/6/94 comments on OU4 RI Final Report): Standard trespass scenario assumes 3 d/wk for months June through August = 36 days plus 1 d/wk for months April, May September, and October = 16 days for a total.

[i]EPA 1991a, Risk Assessment Guidance for Superfund: Vol. I - Human Health Evaluation Manual Supplemental Guidance "Standard Default Exposure Factors", Interim Final, OSWER Directive: 9285.6-03.

[j]Calculated as the product of ED (years) x 365 days/year.

[k]Calculated as the product of 70 years (assumed lifetime) x 365 days/year.

[l]EPA 1992f, "Dermal Exposure Assessment: Principals and Applications", EPA/600/8-91/011B.

[m]csv = Chemical-specific values, - PC and ABS from Table D.3-14; DR from Table D.3-15.

[n]Assumed value based on fraction of day spent on site.

[o]EPA 1990c, "Exposure Factor Handbook" EPA/600/8-89/043. Fraction of time homegrown produce is eaten (FI) is from Part II, page 1-10; IR for beef and milk are from page 2-27; IR for drinking water, page 2-3; IR for fish, page 2-3.

TABLE B.2-4
(Continued)

[p]Assumes the expanded trespasser visits the site 110 day/yr (2 hr/day) as a youth, and 40 days/yr (1 hr/day) as an adult for a total of 44 years. Only the youth plays in Paddys Run.

[q]Assumes a wading scenario because Paddys Run is too shallow for swimming, therefore, approximately 31% of total body surface for feet, lower legs, hands, and forearms.

[r]Assumption, "Superfund Exposure Assessment Manual", April 1988, pg. 129, recommends 50 ml/hr for swimming, but Paddys Run is an intermittent stream not deep enough for swimming. Therefore, a slightly lower value seems reasonable.

[s]EPA 1991a Risk Assessment Guidance for Superfund: Vol.1, Part B, pg 20-22, Using the Adelman Model 1990, it is assumed that half the concentration of volatile chemicals in water transfer to air.

[t]USDA 1985, Report No. 85-1, National Food Consumption Food Survey, values include a fraction of food produced at home, i.e.: .30 for fruits and .40 for vegetables, 0.75 for meats, and 0.75 for milk (as recommended in the Exposure Factor Handbook).

[u]EPA 1993, OSWER directive 9355.3-20, Region III guidance.

[v]Based on fraction of day spent on site out of 16 waking hours, or time consuming from source.

[w]Assumes homebuilder spends 500 hrs in one year building a home (50, 10-hr days during one year), spending 50% of the working hours in/on constructing house and 50% of the working hours working on/in the soil/waste.

[x]Assumes the adult and youth will use the Great Miami River for recreational purposes 40 days/yr, 4 hrs/day.

[y]Soil and sediment calculations for external radiation exposures are calculated separately (ET_{soil} = 2 hrs/day; ET_{sed} = 1 hr/day).

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estimate potential exposures for future land use receptors. Parameter values which remain the same from pathway to pathway are provided at the beginning of the table, except where noted.

B.2.4.2.1 Incidental Ingestion of Soil

The estimation of intake of constituents in soils is determined by using the 95 percent UCL concentration in the soil within each subunit. Evaluation of the soil ingestion pathway is performed for adults and children. For variables that are common to both chemical and radionuclide intake equations, units for the radionuclide equations are listed first. The equations used to quantify intake (EPA 1989a) are:

$$(\text{radionuclides})I_s = (C_s)(IR)(ED)(EF)(FI) \qquad \text{(B.2-8)}$$

$$(\text{chemicals})I_s = (C_s)(IR)(CF)(FI)(EF)(ED)/(BW)(AT) \qquad \text{(B.2-9)}$$

where:

I_s = intake from soil (pCi) (mg/kg-day)

C_s = concentration in soil (pCi/g) (mg/kg)

IR = ingestion rate (g/day) (mg/day)

CF = conversion factor (10^{-6} kg/mg)

FI = fraction ingested from contaminated source (unitless)

EF = exposure frequency (days/yr)

ED = exposure duration (yr)

BW = body weight (kg)

AT = averaging time (equals ED x 365 days/yr) (days)

B.2.4.2.2 Ingestion of Vegetables and Fruit

Ingestion of farm and homegrown products irrigated with contaminated groundwater is evaluated in this Operable Unit 2 baseline risk assessment for the future land use pathways. The equations used to estimate exposure to chemicals and radionuclides via ingestion of vegetables irrigated with contaminated water are from the NRC (NRC 1977) and the EPA (EPA 1989a). The two-step process involves the calculation of the concentration of the constituent on and in the plant as a result of foliar deposition and root uptake, followed by the calculation of intake from consumption of the plant by

humans. The model used to estimate the concentration in and on vegetation irrigated with contaminated water is (NRC 1977):

$$C_{vwi} = d_w \left[\frac{r_w (1 - e^{-\lambda_{Ei} t_s})}{Y \lambda_{Ei}} + \frac{f_w B_{iv(2)} (1 - e^{-\lambda_{di} t_{bw}})}{\rho \lambda_{di}} \right] e^{-\lambda_{ri} t_h} \qquad \text{(B.2-10)}$$

where:

λ_{Ei} = effective depletion constant of ith contaminant on the surface plants (hr^{-1})

λ_{di} = radioactive or chemical decay constant of ith contaminant (hr^{-1})

$B_{iv(2)}$ = dry soil to wet plant partitioning coefficient of ith contaminant (C_{iw}/C_s)

C_{vwi} = concentration of ith contaminant in plants as a result of irrigating plants with contaminated water (pCi/kg) (mg/kg)

d_w = irrigation deposition rate (pCi/m^2-hr) (mg/m^2-hr)

f_w = fraction of year plant is downwind (unitless)

ρ = effective dry surface density of the soil (kg/m^2)

r_w = fraction of waterborne material retained on plant surface (unitless)

t_{bw} = direction or irrigation use (hr)

t_s = growing season (hrs)

t_h = duration of period between harvest and consumption (hr)

Y = agricultural yield (kg/m^2)

Site-specific and chemical-specific factors used in this and other food pathways are summarized in Tables B.2-5A, B.2-5B,and B.2-5C.

Deposition of contaminated dust contributes to the overall contaminant concentration in vegetables and fruit consumed by humans. Estimation of contaminant concentration due to aerial deposition on vegetables and fruit uses equation B.2-11:

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TABLE B.2-5A

TRANSFER FACTORS (TF) USED IN EXPOSURE MODELS

Constituent	TRANSFER FACTORS					
	BCF Fish (L/kg)	Beef TF (day/kg)	Milk TF (day/L)	$B_{iv(1)}$ (unitless)	$B_{iv(2)}$[l] (unitless)	Log K_{ow}[m]
RADIONUCLIDES						
Actinium	2.50×10^{1}[a]	3.50×10^{-6}[b]	3.00×10^{-5}[b]	3.5×10^{-3}[b]	1.5×10^{-4}[b]	NA
Protactinium	1.10×10^{1}[a]	1.00×10^{-5}[b]	5.00×10^{-5}[b]	2.50×10^{-3}[b]	1.07×10^{-4}[b]	NA
Radium	5.00×10^{1}[a]	2.50×10^{-4}[b]	4.50×10^{-4}[b]	1.50×10^{-2}[b]	6.42×10^{-4}[b]	NA
Strontium	3.00×10^{1}[a]	3.00×10^{-4}[b]	1.50×10^{-3}[b]	2.50×10^{0}[b]	1.07×10^{-1}[b]	NA
Technetium	1.50×10^{1}[a]	8.50×10^{-3}[b]	1.00×10^{-2}[b]	9.50×10^{0}[b]	6.42×10^{-1}[b]	NA
Thorium	3.00×10^{1}[a]	6.00×10^{-6}[b]	5.00×10^{-6}[b]	8.50×10^{-4}[b]	3.64×10^{-5}[b]	NA
Uranium	2.00×10^{0}[a]	2.00×10^{-4}[b]	6.00×10^{-4}[b]	8.50×10^{-3}[b]	1.71×10^{-3}[b]	NA
INORGANICS						
Ammonia	ND	ND	ND	ND	ND	NA
Antimony	1.00×10^{0}[c]	1.00×10^{-3}[b]	1.00×10^{-4}[b]	2.00×10^{-1}[b]	1.28×10^{-2}[b]	NA
Arsenic	4.40×10^{1}[c]	2.00×10^{-3}[b]	6.00×10^{-5}[b]	4.00×10^{-2}[b]	2.57×10^{-3}[b]	NA
Barium	ND	1.50×10^{-4}[b]	3.50×10^{-4}[b]	1.50×10^{-1}[b]	6.42×10^{-3}[b]	NA
Beryllium	1.90×10^{1}[c]	1.00×10^{-3}[b]	9.00×10^{-7}[b]	1.00×10^{-2}[b]	4.28×10^{-3}[b]	NA
Boron	ND	8.00×10^{-4}[b]	1.50×10^{-3}[b]	4.00×10^{0}[b]	8.56×10^{-1}[b]	NA
Cadmium (food)	8.10×10^{1}[c]	5.50×10^{-4}[b]	1.00×10^{-3}[b]	5.50×10^{-1}[b]	6.42×10^{-2}[b]	NA
Chromium	1.60×10^{1}[c]	5.50×10^{-3}[b]	1.50×10^{-3}[b]	7.50×10^{-3}[b]	1.93×10^{-3}[b]	NA
Cobalt	ND	2.00×10^{-2}[b]	2.00×10^{-3}[b]	2.00×10^{-2}[b]	3.0×10^{-3}[b]	NA
Copper	2.00×10^{2}[c]	1.00×10^{-2}[b]	1.50×10^{-3}[b]	4.00×10^{-1}[b]	1.07×10^{-1}[b]	NA
Cyanide	0.00[c]	5.60×10^{-8}[b]	1.80×10^{-8}[b]	ND	ND	NA
Fluoride	ND	ND	ND	ND	ND	NA
Lead	4.90×10^{1}[c]	3.00×10^{-4}[b]	2.50×10^{-4}[b]	4.50×10^{-2}[b]	3.85×10^{-3}[b]	NA

See footnotes at end of table

TABLE B.2-5A
(Continued)

Constituent	TRANSFER FACTORS					
	BCF Fish (L/kg)	Beef TF (day/kg)	Milk TF (day/L)	$B_{iv(1)}$ (unitless)	$B_{iv(2)}$[l] (unitless)	Log K_{ow}[m]
INORGANICS (Continued)						
Manganese	ND	4.00×10^{-4}[b]	3.50×10^{-4}[b]	2.50×10^{-1}[b]	2.14×10^{-2}[b]	NA
Mercury	5.50×10^{3}[c]	2.50×10^{-1}[b]	4.50×10^{-4}[b]	9.00×10^{-1}[b]	8.56×10^{-2}[b]	NA
Molybdenum	ND	6.00×10^{-3}[b]	1.50×10^{-3}[b]	2.50×10^{-1}[b]	2.57×10^{-2}[b]	NA
Nickel	4.70×10^{1}[c]	6.00×10^{-3}[b]	1.00×10^{-3}[b]	6.00×10^{-2}[b]	2.57×10^{-2}[b]	NA
Nitrate	ND	ND	ND	ND	ND	NA
Phosphorus	2.00×10^{4}[a]	5.50×10^{-2}[b]	1.50×10^{-2}[b]	3.50×10^{0}[b]	1.50×10^{0}[b]	NA
Selenium	1.60×10^{1}[c]	1.50×10^{-2}[b]	4.00×10^{-3}[b]	2.50×10^{-2}[b]	1.07×10^{-2}[b]	NA
Silver	3.08×10^{3}[c]	3.00×10^{-3}[b]	2.00×10^{-2}[b]	4.00×10^{-1}[b]	4.28×10^{-2}[b]	NA
Thallium	ND	4.00×10^{-2}[b]	2.00×10^{-3}[b]	4.00×10^{-3}[b]	1.71×10^{-4}[b]	NA
Uranium	2.00×10^{0}[a]	2.00×10^{-4}[b]	6.00×10^{-4}[b]	8.50×10^{-3}[b]	1.71×10^{-3}[b]	NA
Vanadium	ND	2.50×10^{-3}[b]	2.00×10^{-5}[b]	5.50×10^{-3}[b]	1.28×10^{-3}[b]	NA
Zinc	4.70×10^{1}[c]	1.00×10^{-1}[b]	1.00×10^{-2}[b]	1.50×10^{0}[b]	3.85×10^{-1}[b]	NA
ORGANICS						
2-Butanone	0.00×10^{0}[c]	4.55×10^{-8}[d]	1.44×10^{-8}[e]	2.74×10^{1}[f]	1.17×10^{1}[g]	0.26[h]
2-Hexanone	6.59×10^{0}[i]	6.03×10^{-7}[d]	1.91×10^{-7}[e]	6.17×10^{0}[f]	2.64×10^{0}[g]	1.38[h]
4-Methyl-2-pentanone	ND	3.09×10^{-7}[d]	9.77×10^{-8}[e]	ND	ND	ND[h]
Acetone	3.87×10^{-1}[i]	1.43×10^{-8}[d]	4.53×10^{-9}[e]	5.33×10^{1}[f]	2.28×10^{1}[g]	-0.24[h]
Carbon tetrachloride	1.90×10^{1}[c]	1.35×10^{-5}[d]	4.27×10^{-6}[e]	1.02×10^{0}[f]	4.37×10^{-1}[g]	2.73[h]
Methylene chloride	5.00×10^{0}[c]	4.47×10^{-7}[d]	1.41×10^{-7}[e]	7.34×10^{0}[f]	3.14×10^{0}[g]	1.25[h]
Tetrachloroethene	3.10×1^{1}[c]	8.52×10^{-6}[d]	2.69×10^{-6}[e]	1.34×10^{0}[f]	5.74×10^{-1}[g]	2.53[h]
Toluene	1.07×10^{1}[c]	1.23×10^{-5}[d]	3.89×10^{-6}[e]	1.08×10^{0}[f]	4.62×10^{-1}[g]	2.69[h]
Total xylenes	1.20×10^{2}[i]	2.76×10^{-5}[d]	8.74×10^{-6}[e]	6.77×10^{-1}[f]	2.90×10^{-1}[g]	3.04[h]

See footnotes at end of table

TABLE B.2-5A
(Continued)

Constituent	TRANSFER FACTORS					
	BCF Fish (L/kg)	Beef TF (day/kg)	Milk TF (day/L)	$B_{iv(1)}$ (unitless)	$B_{iv(2)}$[l] (unitless)	Log K_{ow}[m]
SEMIVOLATILE ORGANICS						
Acenaphthylene	7.30×10^{2}[i]	2.95×10^{-4}[d]	9.33×10^{-5}[e]	1.72×10^{-1}[f]	7.36×10^{-2}[g]	4.07[h]
Anthracene	1.42×10^{3}[i]	7.03×10^{-4}[d]	2.22×10^{-4}[e]	1.04×10^{-1}[f]	4.45×10^{-2}[g]	4.45[h]
Benzo(a)anthracene	1.08×10^{4}[i]	1.00×10^{-2}[d]	3.18×10^{-3}[e]	2.22×10^{-2}[f]	9.50×10^{-3}[g]	5.61[h]
Benzo(a)pyrene	2.06×10^{4}[i]	2.40×10^{-2}[d]	7.59×10^{-3}[e]	5.62×10^{-2}[j]	2.41×10^{-2}[g]	5.98[h]
Benzo(b)fluoranthene	5.80×10^{4}[i]	9.34×10^{-2}[d]	2.95×10^{-2}[e]	6.17×10^{-3}[f]	2.64×10^{-3}[g]	6.57[h]
Benzo(g,h,i)perylene	1.84×10^{5}[i]	4.27×10^{-1}[d]	1.35×10^{-1}[e]	2.56×10^{-3}[f]	1.10×10^{-3}[g]	7.23[h]
Benzoic acid	1.55×10^{1}[i]	1.86×10^{-6}[d]	5.89×10^{-7}[e]	3.21×10^{0}[f]	1.37×10^{0}[g]	1.87
bis(2-Ethylhexyl)phthalate	6.28×10^{3}[i]	5.01×10^{-3}[d]	1.58×10^{-3}[e]	3.35×10^{-2}[f]	1.43×10^{-3}[g]	5.3[h]
Chrysene	1.08×10^{4}[i]	1.00×10^{-2}[d]	3.18×10^{-3}[e]	2.22×10^{-2}[f]	9.50×10^{-2}[g]	5.61[h]
Di-n-butylphthalate	5.27×10^{3}[i]	3.97×10^{-3}[d]	1.26×10^{-3}[e]	3.82×10^{2}[f]	1.63×10^{-5}[g]	4.13
Di-n-octylphthalate	5.78×10^{6}[i]	3.98×10^{1}[d]	1.26×10^{1}[e]	1.86×10^{-4}[f]	7.96×10^{-4}[g]	9.2[h]
Dibenzo(a,h)anthracene	2.03×10^{4}[i]	2.34×10^{-2}[d]	7.41×10^{-3}[e]	1.37×10^{-2}[f]	5.86×10^{-3}[g]	5.97[h]
Diethylphthalate	1.17×10^{2}[c]	22.29×10^{-5}[d]	7.24×10^{-6}[e]	7.54×10^{-1}[f]	3.23×10^{-1}[g]	2.47
Dimethylphthalate	5.70×10^{1}[k]	1.86×10^{-6}[d]	5.89×10^{-7}[e]	3.21×10^{0}[f]	1.37×10^{0}[g]	1.56
Fluoranthene	1.15×10^{3}[c]	5.38×10^{-3}[d]	1.70×10^{-3}[e]	3.22×10^{-2}[f]	1.38×10^{-2}[g]	4.95
Indeno(1,2,3-cd)pyrene	3.90×10^{5}[i]	1.15×10^{0}[d]	3.63×10^{-1}[e]	1.45×10^{-3}[f]	6.21×10^{-4}[g]	7.66[h]
2-Nitrophenol	1.35×10^{1}[i]	1.55×10^{-6}[d]	4.90×10^{-7}[e]	3.58×10^{0}[f]	1.53×10^{0}[g]	1.79
4-Nitrophenol	1.61×10^{1}[i]	2.04×10^{-6}[d]	6.46×10^{-7}[e]	3.05×10^{0}[f]	1.53×10^{0}[g]	1.91
N-Nitroso-di-n-propylamine	5.83×10^{0}[i]	5.13×10^{-7}[d]	1.62×10^{-7}[e]	6.77×10^{0}[f]	2.90×10^{0}[g]	1.31[h]
Phenanthrene	2.63×10^{3}[c]	7.28×10^{-4}[d]	2.30×10^{-4}[e]	1.02×10^{-1}[f]	4.37×10^{-2}[g]	4.57
Phenol	1.40×10^{0}[c]	7.23×10^{-7}[d]	2.29×10^{-7}[e]	5.55×10^{0}[f]	2.38×10^{0}[g]	1.46
Pyrene	5.09×10^{3}[k]	3.79×10^{-3}[d]	1.20×10^{-3}[e]	3.93×10^{-2}[f]	1.68×10^{-2}[g]	5.18[h]
Tributyl phosphate	6.46×10^{2}[i]	2.51×10^{-4}[d]	7.94×10^{-5}[e]	1.89×10^{-1}[f]	8.09×10^{-2}[g]	4.00[h]

See footnotes at end of table

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TABLE B.2-5A
(Continued)

Constituent	TRANSFER FACTORS					
	BCF Fish (L/kg)	Beef TF (day/kg)	Milk TF (day/L)	$B_{iv(1)}$ (unitless)	$B_{iv(2)}$[l] (unitless)	Log K_{OW}[m]
PESTICIDES/PCBS						
Aldrin	4.50×10^{3}[i]	8.51×10^{-2}[j]	2.40×10^{-2}[j]	2.14×10^{-2}[j]	9.16×10^{-3}[g]	3.01
Aroclor-1248	7.05×10^{4}[k]	1.41×10^{-2}[d]	4.46×10^{-3}[e]	1.84×10^{-2}[f]	7.88×10^{-3}[g]	6.50
Aroclor-1254	1.00×10^{5}[c]	2.69×10^{-2}[j]	8.50×10^{-3}[j]	1.70×10^{-2}[j]	7.28×10^{-3}[g]	6.50
Aroclor-1260	1.94×10^{5}[k]	3.24×10^{-2}[d]	1.02×10^{-2}[e]	1.14×10^{-2}[f]	4.88×10^{-3}[g]	6.50
4,4-DDE	5.10×10^{4}[c]	4.90×10^{-2}[j]	9.55×10^{-3}[j]	1.05×10^{-1}[j]	4.49×10^{-2}[g]	5.69
4,4-DDT	5.40×10^{4}[c]	2.82×10^{-2}[j]	2.40×10^{-3}[j]	1.58×10^{-2}[j]	6.76×10^{-3}[g]	6.36
Dieldrin	4.76×10^{3}[c]	7.94×10^{-3}[j]	1.07×10^{-2}[j]	9.77×10^{-2}[j]	4.18×10^{-2}[g]	4.56
Endosulfan I	2.94×10^{2}[i]	2.19×10^{-4}[j]	2.82×10^{-5}[e]	3.44×10^{-1}[f]	1.47×10^{-1}[g]	3.55[h]
Endosulfan II	3.92×10^{2}[i]	2.19×10^{-4}[j]	3.31×10^{-5}[e]	3.13×10^{-1}[f]	1.34×10^{-1}[g]	3.62[h]
Endrin	4.50×10^{3}[k]	1.20×10^{-2}[j]	1.74×10^{-3}[j]	1.51×10^{-2}[j]	6.46×10^{-3}[g]	4.56
Heptachlor epoxide	1.44×10^{4}[c]	7.94×10^{-2}[j]	3.55×10^{-2}[j]	2.40×10^{-2}[j]	1.03×10^{-2}[g]	2.70[h]

[a]NRC, 1984, "De Minimis Waste Impacts Analysis Methodology", NEREG/CR-3585.

[b]Baes, C.F. III, R.D. Sharp, A.L. Sjoreen, R.W. Shor, 1984, "A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides Through Agriculture", U.S. DOE, ORNL-5786.

[c]EPA, 1986a, Superfund Public Health Evaluation Manual (SPHEM).

[d]Log of biotransfer factor in beef (Log Bb) calculated from geometric mean regression model: Log Bb = -7.6 + Log K_{ow} (Travis & Arms 1988).

[e]Log of biotransfer factor in milk (Log Bm) calculated from geometric mean regression model: Log Bm = -8.10 + Log K_{ow} (Travis & Arms 1988).

[f]Log of bioconcentration factor in vegetation (Log Bv) calculate from geometric mean regression model: Log Bv = 1.588 - 0.578 Log K_{ow} (Travis & Arms 1988).

[g]This value was used for leafy vegetable uptake as well as forage plant uptake.

[h]EPA Weri Treatability Database (1991).

[i]Calculated from log BCF = 0.76 x Log K_{ow} - 0.23 (Lyman et al. 1990).

[j]Value reported in Travis, C.C., and A.D. Arnd, 1988, "Bioconcentration of Organics in Beef, Milk, and Vegetation", ES&T Vol. 22, No. 3, pp. 271-274.

[k]Value reported in Lyman et al. 1982, Handbook of Chemical Property Estimation Methods (Table 5-3).

[l]$B_{iv(2)}$ = dry weight to weight partioning coefficient multiplied by average correction factor of 0.428.

[m]EPA 1992, "Dermal Exposure Assessment: Principles and Applications." All k_{ow}'s taken from this guidance, unless otherwise specified.

NA = Not available

ND = no data

TABLE B.2-5B

PARAMETERS FOR VEGETABLE/FORAGE/MEAT/MILK/UPTAKE MODELS[a]

HOMEGROWN PRODUCE	
λ_{di} (1/h)	csv, See Table B.2-6D
λ_{w} (1/h)	2.10E-03
λ_{ri} (1/ri)	1.00E-14
$B_{iv(n)}$	csv, See Table B.2-5
d_d (pCi/m^2-h; mg/m^2-h)	csv, See Table B.2-6D
f_d	1
r_d	0.25
t_h (h)	24
t_e (h)	1440
t_{bd} (h)	8760
Y (g/m^2; kg/m^2)	1.5
p (g/m^2; kg/m^2)	150
λ_{Li} (1/h)	csv, See Table B.2-6D
V_w (cm/h)	1.30E-03
z (cm)	15
K_d (cm^3/g)	csv, See Table B.2.5
σ	1.5
v_d	1.80E-03
Θ	0.17
CF_p	1.00E-03
I(L/m^2-hr)	0.081
f_w	1
r_w	0.2
t_{bw}(h)	8760
F_{Ai} (d/g)	25
λ_{ri} (1/h)	24
t_h (h)	25
λ_{ri} (1/h)	24

BEEF AND MILK PRODUCTS	
C^{Ai}	Refer to intake tables
C^{afi}	Refer to intake tables
C^{agi}	Refer to intake tables
C^{asi}	Refer to intake tables
C^{Ai}	Refer to intake tables
C^{fi}	Refer to intake tables
C^{wi}	Refer to intake tables

[a]For concentration values, refer to intake tables and CPC tables in Appendix B.III.

TABLE B.2-5C

CHEMICAL-SPECIFIC RATES
HOMEGROWN PRODUCE/BEEF AND MILK

Contaminant	λ_{Li} Leach Rate (h^{-1})	λ_{di} Depletion Constant (h^{-1})	Dust Deposition Rate[1] (pCi/m^2-h, rad) (mg/m^2-h)			Irrigation Deposition Rate[2] (pCi/m^2-h, rad) (mg/m^2-h, chem)		
			On-Subunit	On-Site	Off-Site	On-Site	Off-Site	Background
Arsenic	2.84E-07	2.84E-07	5.71E-04	3.05E-04	1.00E-05	3.86E-15	1.56E-09	
Barium	4.99E-08	4.99E-08	1.61E-03	8.61E-04	2.84E-05		8.10E-02	
Beryllium	4.38E-08	4.38E-08	2.99E-05	1.60E-05	5.26E-07	3.83E-17	3.08E-11	
Chromium	3.79E-08	3.79E-08	8.46E-05	4.51E-05	1.48E-06			
Cobalt	5.02E-04	5.02E-04	1.20E-04	6.37E-05	2.10E-06			
Copper	5.02E-04	5.02E-04	4.69E-04	2.50E-04	8.25E-06			
Cyanide	5.02E-04	5.02E-04	1.91E-06	1.02E-06	3.36E-08			
Lead	1.90E-08	1.90E-08	3.53E-04	1.88E-04	6.20E-06	1.67E-10	4.71E-07	5.50E-10
Molybdenum	6.31E-07	6.31E-07	5.47E-05	2.91E-05	9.62E-07			1.13E-06
Nickel	8.75E-08	8.75E-08	2.55E-04	1.36E-04	4.49E-06			
Selenium	5.02E-04	5.02E-04	3.76E-05	2.00E-05	6.60E-07			
Thallium	5.02E-04	5.02E-04	1.71E-05	9.16E-06	3.03E-07			
Toluene	5.02E-04	5.02E-04	6.36E-07	3.39E-07	1.12E-08			
Vanadium	5.69E-08	5.69E-08	3.20E-04	1.70E-04	5.62E-06			
Zinc	2.37E-08	2.37E-08	4.97E-04	2.66E-04	8.76E-06			
U-Total	7.57E-07	7.57E-07				6.29E-03	8.22E-04	1.93E-05
TH-Total	5.02E-04	5.02E-04						
NP-237	1.03E-06	1.03E-06	3.49E-02	1.86E-02	6.15E-04	2.54E-05	2.04E-03	
PU-238	3.35E-08	9.35E-07	4.45E-03	2.37E-03	7.83E-05			

See footnotes at end of table

FER\CRU2RI\TLC\APP-B\TAB.2-5C\February 7, 1994 3:33pm

TABLE B.2-5(C)
(Continued)

Contaminant	λ_{Li} Leach Rate (h^{-1})	λ_{di} Depletion Constant (h^{-1})	Dust Deposition Rate[1] (pCi/m^2-h, rad) (mg/m^2-h)			Irrigation Deposition Rate[2] (pCi/m^2-h, rad) (mg/m^2-h, chem)		
			On-Subunit	On-Site	Off-Site	On-Site	Off-Site	Background
PU-239	3.35E-08	3.67E-08	1.91E-03	1.02E-03	3.36E-05			
RA-226	8.17E-08	1.31E-07	2.92E-02	1.56E-02	5.15E-04			
RA-228	8.17E-08	1.38E-05	2.03E-02	1.08E-02	3.58E-04			
SR-90	2.46E-04	2.49E-04	2.87E-02	1.53E-02	5.03E-04	4.43E-02	4.20E-03	3.98E-04
TH-228	9.81E-09	4.14E-05	2.42E-02	1.29E-02	4.25E-04			
TH-230	9.81E-09	1.08E-08	2.35E-02	1.26E-02	4.14E-04			
TH-232	1.78E-08	1.78E-08	1.71E-02	9.16E-03	3.03E-04			
U-234	7.57E-07	7.58E-07	2.29E-02	1.22E-02	4.03E-04	1.60E+00	2.09E-01	6.42E-03
U-235	7.57E-07	7.57E-07	1.27E-03	6.78E-04	2.24E-05	8.53E-02	1.12E-02	5.78E-04
U-238	7.57E-07	7.57E-07	2.29E-02	1.22E-02	4.03E-04	1.77E+00	2.31E-01	6.42E-03

[1] Calculated using equations B.2-12a and B.2-12b.
[2] d_d is the product of contaminant concentration is dust and the dust deposition velocity.
[3] d_w is the product of contaminant concentration in irrigation water and the irrigation rate.

$$C_{avi} = d_d \left[\frac{r_d(1-e^{-\lambda_w t_e})}{Y\lambda_w} + \frac{f_d B_{iv(n)} (1-e^{-\lambda_{di} t_{bd}})}{P\lambda_{di}} \right] e^{-\lambda_{ri} t_h} \qquad \text{(B.2-11)}$$

where:

C_{avi} = concentration of the ith contaminant in/on vegetables and fruit (pCi/g, rad)(mg/kg, chem)

λ_{di} = effective depletion constant of ith contaminant in surface soils due to radioactive decay, chemical degradation, and leaching (h^{-1})

λ_w = effective depletion constant of ith contaminant on the surface plants also known as the weathering removal rate (h^{-1})

λ_{ri} = radioactive or chemical decay constant of ith contaminant (h^{-1})

$B_{iv(n)}$ = dry soil to wet plant partitioning coefficient of ith contaminant in feed and forage (n=1) or food crops (n=2)(C_{iv}/C_s)

d_d = constituent's deposition rate (pCi/m^2-h, rad)(mg/m^2-h, chem)

f_d = fraction of year plant is down wind (unitless)

r_d = fraction of airborne material retained on plant surface (unitless)

t_e = growing season (h)

t_{bd} = duration soil is exposed to airborne emissions (h)

t_h = duration of period between harvest and consumption (h)

Y = agricultural yield (g/m^2, rad)(kg/m^2, chem)

p = effective dry surface soil density (g/m^2, rad)(kg/m^2, chem)

The soil depletion coefficient used in equation B.2-10 and B.2-11 is calculated by:

$$\lambda_{di} = \lambda_{ri} + \lambda_{Li} \qquad \text{(B.2-12a)}$$

where the leaching coefficient (λ_{Li}) is calculated using the relationship (Baes and Sharp 1983):

$$\lambda_{Li} = \frac{V_w}{Z\theta\ [1 + \sigma\ (K_d\ /\theta)]} \qquad \text{(B.2-12b)}$$

and

λ_{Li} = leach rate (h^{-1})

V_w = percolation rate

z = depth of surface soil (15 cm)

σ = density of soil in root zone (nominally 1.5 g/cm^3)

K_d = water to soil partitioning coefficient (cm^3/g)

θ = moisture fraction of surface soil (measured at 0.17)

In addition to being exposed to contaminated irrigation water and dust, vegetables, fruit, and livestock feed may be contaminated by root uptake from contaminated soil or waste. A contribution via this pathway is accounted for in the irrigation model; however, this pathway is also considered for areas that are not irrigated with contaminated water but that exhibit surface soil contamination from historical deposition on the soil by various means. The following equation can be used to calculate the constituent concentration in the plant from root uptake of constituents already in the soil (DOE 1992a):

$$C_{svi} = (C_{si})B_{iv(2)}e^{-\lambda_n t_b} \qquad \text{(B.2-12c)}$$

where:

C_{svi} = concentration of ith contaminant in food crops (pCi/g, rad)(mg/kg, chem)

C_{si} = concentration of ith contaminant in soil (pCi/g, rad)(mg/kg, chem)

$B_{iv(2)}$ = dry soil to dry plant partitioning coefficient of ith contaminant in food crops (C_{iv}/C_s)

CF_p = dry plant mass to wet plant mass ratio (unitless)

λ_{ri} = radioactive or chemical decay constant of ith contaminant (h^{-1})

t_h = duration of period between harvest and consumption (h)

The total concentration of contaminants in vegetables and fruit (C_{iv}) is calculated with the following equation:

$$C_{iv} = C_{vwi} + C_{avi} + C_{svi} \quad \text{(B.2-13)}$$

Site-specific and chemical-specific factors used in these and other food pathway calculations are summarized in Tables B.2-5A, B, and C.

Once the concentration in vegetation has been determined, intake can be calculated with the following equations:

$$(\text{radionuclides})I_{iv} = (C_{iv})(IR)(ED)(EF)(FI) \quad \text{(B.2-14)}$$

$$(\text{chemicals})I_{iv} = (C_{iv})(IR)(CF)(FI)(EF)(ED)/(BW)(AT) \quad \text{(B.2-15)}$$

where:

I_{iv} = intake from vegetation (pCi) (mg/kg-day)

C_{iv} = total concentration of contaminants in vegetables or fruit (pCi/g) (mg/kg)

IR = ingestion rate (g/day)

CF = conversion factor (1×10^{-3} kg/g)

FI = fraction ingested from contaminated source (unitless)

EF = exposure frequency (days/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)

Although EPA (1989a) "Risk Assessment Guidance for Superfund" specifies the IR x FI is expressed in g/meal for foods, and that EF should be expressed in meals/year, by assuming a standard number

of meals/day, g/meal becomes proportional to g/day and L/day, respectively. The same would apply to ingestion of animal products and ingestion of fish.

Equations of the same form are used to determine the contaminant concentration in livestock feed, substituting concentration factors for livestock feed in place of those for vegetables consumed by man. Once the contaminant concentrations in vegetables and livestock feed have been determined, intake can be estimated using the intake equations presented for ingestion of vegetables contaminated by irrigation and ingestion of animal products.

B.2.4.2.3 Ingestion of Animal Products

As in the quantification of intake following exposure to vegetables and fruits, the concentration in animal products must be estimated prior to the determination of intake. Beef and milk can become contaminated in three ways at this facility: the first way is through use of contaminated water as stock water; the second is by aerial deposition of contaminants on feed crops or forage; and the third is by direct ingestion of soil while grazing. Therefore, contaminant concentrations attributable to each contribution must be used to determine the total contaminant concentration in beef or milk.

Beef and Milk Products Produced with Contaminated Water

This scenario assumes that water is used for stock water and irrigation of feed. Animals drinking the water ingest contaminants directly. Plants irrigated with water take up constituents via root uptake and direct deposition onto exposed surfaces by irrigation water. If measured values are not available, this concentration can be calculated using the methodology set forth in the Risk Assessment Work Plan Addendum (DOE, 1992a). The concentration of a contaminant in animal products, such as beef or milk, is estimated using the following equation:

$$C_{Ai} = F_{Ai}[(C_{fi})(Q_f) + (C_{wi})(Q_w)]e^{-\lambda_a t_h} \qquad \text{(B.2-16)}$$

where:

C_{Ai} = concentration of ith contaminant in the animal product (pCi/mL for milk, pCi/g for beef, rad)(mg/L for milk, mg/kg for beef, chem)

C_{fi} = concentration of ith contaminant in feed (pCi/g, rad) (mg/kg, chem)

C_{wi} = concentration of contaminant in water (pCi/L, rad)(mg/L, chem)

F_{Ai} = element (stable) transfer coefficient that relates the daily intake by an animal to the concentration of ith in an edible portion of the animal product (d/L for milk, d/g for meat)

Q_f = consumption rate of contaminated feed by livestock (g/d, rad)(kg/d, chem)

Q_w = consumption rate of contaminated stock water by livestock (L/d)

λ_{ri} = radioactive or chemical decay constant of ith contaminant (h^{-1})

t_h = duration of period between harvest and consumption (h)

The concentration term C_{fi} can be calculated using the following equation:

$$C_{fi} = d_w \left[\frac{r_w(1-e^{-\lambda_w t_e})}{Y\lambda_w} + \frac{f_w B_{iv(1)}(1-e^{-\lambda_{di} t_{bw}})}{p\lambda_{di}} \right] e^{-\lambda_{ri} t_h} \qquad \text{(B.2-17a)}$$

where:

C_{fi} = concentration of ith contaminant in plants as a results of irrigating plants with contaminated water (p/Ci/g, rad)(mg/kg,chem)

λ_{di} = effective depletion constant of ith contaminant in surface soils due to radioactive decay, chemical degradation, and leaching (h^{-1})

λ_w = effective depletion constant of ith contaminant in surface soils due to radioactive decay, chemical degradation, and leaching (h^{-1})

λ_{ri} = radioactive depletion constant of ith contaminant (h^{-1})

$B_{iv(1)}$ = dry soil to wet plant partitioning coefficient of ith contaminant (C_{iw}/C_s) in animal feed

CF_p = dry plant mass to wet plant mass ratio for feed and forage (1.0)

d_w = irrigation deposition rate (pCi/m^2-h, rad)(mg/m^2-h, chem)

p = effective dry surface density of the soil (g/m^2)

f_w = fraction of year plant is irrigated (unitless)

r_w = fraction of waterborne material retained on plant surface (unitless)

t_e = 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)

$$C_{vwi} = d_w \left[\frac{r_w(1-e^{-\lambda_w t_e})}{Y\lambda_w} + \frac{f_w B_{iv(1)}(1-e^{-\lambda_{ri} t_{bw}})}{p\lambda_{di}} \right] e^{-\lambda_{ri} t_h} \qquad \text{(B.2-17b)}$$

where:

C_{vwi} = concentration of ith contaminant in plants as a results of irrigating plants with contaminated water (p/Ci/g, rad)(mg/kg,chem)

λ_{di} = effective depletion constant of ith contaminant in surface soils due to radioactive decay, chemical degradation, and leaching (h^{-1})

λ_w = effective depletion constant of ith contaminant in surface soils due to radioactive decay, chemical degradation, and leaching (h^{-1})

λ_{ri} = radioactive depletion constant of ith contaminant (h^{-1})

$B_{iv(1)}$ = dry soil to wet plant partitioning coefficient of ith contaminant (C_{iw}/C_s) in animal feed

CF_p = dry plant mass to wet plant mass ratio for feed and forage (1.0)

d_w = irrigation deposition rate (pCi/m^2-h, rad)(mg/m^2-h, chem)

f_w = fraction of year plant is irrigated (unitless)

p = effective dry surface density of the soil (g/m^2)

r_w = fraction of water borne material retained on plant surface (unitless)

t_e = 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)

The d_w term can be calculated by:

$$d_w = (C_{iw})(I)$$

where:

C_{iw} = concentration of ith contaminant in groundwater (pCi/L, rad)(mg/L, chem)

I = irrigation rate (L/m^2-hr)

Beef and Dairy Products Contaminated by Aerial Deposition

Forage, feed, and soils downwind of a potential source of contaminated dust can have contamination deposited on them by settling dust. Ingestion of these plants by livestock contributes to the body burden of these contaminants in livestock. Consumption of meat or milk from these animals contributes to the total intake of these contaminants by humans. The magnitude of the contaminant exposure by humans depends, in part, on the concentration of the constituent in the animal products. If measured values are not available, this concentration of a contaminant in animal products, such as beef or milk, is estimated using the following equation:

$$C_{Ai} = F_{Ai} [(C_{afi})(Q_f) + (C_{asi})(Q_g) + (C_{asi})(Q_s)] e^{-\lambda_{ri} t_h} \quad \text{(B.2-18)}$$

C_{Ai} = concentration of ith contaminant in the animal product (pCi/mL for milk, pCi/g for beef, rad)(mg/L for milk, mg/kg for beef, chem)

C_{afi} = concentration of ith contaminant in feed (pCi/g, rad) (mg/kg, chem)

C_{agi} = concentration of contaminant in forage (pCi/g, rad)(mg/kg, chem)

C_{asi} = concentration of ith contaminant in soil (pCi/g, rad)(mg/kg, chem)

F_{Ai} = element (stable) transfer coefficient that relates the daily intake by an animal to the concentration of ith in an edible portion of the animal product (d/L for milk, d/g for meat)

Q_f = consumption rate of contaminated feed by livestock (g/d, rad)(kg/d, chem)

Q_g = consumption rate of contaminated forage by livestock (g/d, rad)(kg/d, chem)

Q_s = consumption rate of contaminated soil by livestock (g/d, rad)(kg/d, chem)

λ_{ri} = radioactive or chemical decay constant of ith contaminant (h^{-1})

t_h = duration of period between harvest and consumption (h)

To calculate C_{afi} or C_{agi} equation B.2-18 is used. To estimate C_{asi} the following equation is used:

$$C_{asi} = d_d \left[\frac{f_d(1 - e^{-\lambda_{di} t_{bd}})}{p\lambda_{di}} \right] e^{-\lambda_{ri} t_h} \qquad \text{(B.2-19)}$$

Beef and Milk Products Grown in Contaminated Soil

Forage and feed grown in contaminated soils are effected by the soil concentration via uptake through the root system. Hence, ingestion of these plants contributes to the body burden of these contaminants in livestock. Meat or milk consumed from these animals adds to the total intake of theses contaminants by humans. The concentration of contaminants in beef or milk is estimated using the following equation:

$$C_{Ai} = F_{Ai} [(C_{fi})(Q_f) + (C_{gi})(Q_g) + (C_{Si})(Q_s)] e^{-\lambda_{ri} t_h} \qquad \text{(B.2-20)}$$

where:

C_{Ai} = concentration of ith contaminant in the animal product, (pCi/L for milk, pCi/g for beef, rad)(mg/L for milk, mg/kg for beef, chem)

C_{si} = concentration of ith contaminant in soil (pCi/g, rad)(mg/kg, chem)

C_{gi} = concentration of ith contaminant in forage (pCi/g, rad)(mg/kg, chem)

F_{Ai} = element (stable) transfer coefficient that relates the daily intake by an animal to the concentration of ith in an edible portion of the animal product (d/L for milk, d/g for meat)

Q_f = consumption rate of contaminated feed by livestock (g/d, rad)(kg/d, chem)

Q_g = consumption rate of contaminated forage by livestock (g/d, rad)(kg/d, chem)

Q_s = consumption rate of contaminated soil by livestock (g/d, rad)(kg/d, chem)

λ_{ri} = radioactive or chemical decay constant of ith contaminant (h^{-1})

t_h = duration of period between harvest and consumption (h)

C_{gi} and C_{fi} can be calculated using the following equation:

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$$C_{a(p)i} = (C_{si})B_{iv(1)}CF_p e^{-\lambda_{ri} t_h}$$

where:

$C_{a(p)i}$ = concentration of ith contaminant in the plant, where p = g is forage, and p=f is stored feed (pCi/g, rad)(mg/kg, chem)

C_{si} = concentration of ith contaminant in soil (pCi/g, rad)(mg/kg, chem)

$B_{iv(1)}$ = dry soil to dry plant partitioning coefficient of ith contaminant if forage (C_{sgi}/C_{si})

CF_p = dry plant mass to wet plant mass ratio (unitless)

λ_{ri} = radioactive or chemical decay constant of ith contaminant (h^{-1})

t_h = duration of period between harvest and consumption (h)

Once the concentration in the animal product (beef or milk) is determined, human intake can be calculated using the following equations:

$$(\text{radionuclides})I_{Ai} = (C_{Ai})(IR)(ED)(EF) \qquad \text{(B.2-21)}$$

$$(\text{chemicals})I_{Ai} = (C_{Ai})(IR)(CF)(EF)(ED)/(BW)(AT) \qquad \text{(B.2-22)}$$

where:

I_{Ai} = intake of chemical in animal product (pCi) (mg/kg-day)

C_{Ai} = concentration of ith contaminant in the animal product (pCi/L for milk, pCi/kg for beef) (mg/L for milk, mg/kg for beef)

IR = ingestion rate (L/day for milk; g/day for beef)

CF = conversion factor (10^{-3} kg/g)

EF = exposure frequency (days/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)

Animal Consumption Rates

The following parameters were used to quantify the intake of contaminants in food and water by beef and milk cattle at or near the FEMP:

Animal	Q_f Feed or Forage [a] (kg wet weight/day)	Q_{Aw} Water [a] (1/day)	Q_a Soil[b] (kg/day)
Milk cow	50	60	0.5 kg/day
modified[c]	25		
Beef cattle	50	50	0.5 kg/day
modified[c]	25		

[a](NCR 1977)

[b](Zach and Mayoh 1984)

[c]Modified assuming that pastureland is not irrigated due to the cost involved and based on data from the Bureau of Census (Bureau of Census 1989). Pasture forage is assumed to be supplemented with stored feed that was irrigated with contaminated water, and the animal diet consists of equal parts of pasture grass and stored feed totaling 50 kg/day wet weight.

B.2.4.2.4 Dermal Contact with Water or Soil

Estimating the intake of a constituent via dermal contact with water can be achieved by using the concentration of the constituent in water. The amount of a chemical taken into the body upon exposure via dermal contact is referred to as an absorbed dose and is calculated using the following equation (EPA 1992f):

$$\text{Absorbed dose (mg/kg-day)} = \frac{(SA)\ (DA)\ (EF)\ (ED)}{(BW)\ (AT)}$$

The DA factor can be calculated as follows:

$$\text{If ET} < t^*,\ DA = 2K_p \times C_w \times CF[6(TAO)(ET)/3.14]^{0.5}$$
$$\text{If ET} > t^*,\ DA = K_p x\ C_w[(ET/1+B) + 2TAO(1+3B/1+B)]$$

where:

DA = dermally absorbed dose from contact with water (mg/cm^2-event)

K_p = permeability coefficient from water (cm/hr)

C_w = contaminant concentration in water (mg/cm^3)

CF = conversion factor

TAO = lag time (hr)

ET = exposure time (hr/event)

t* = time to steady-state conditions

B = partition coefficient (unitless)

SA = skin surface area available for contact (cm^2)

EF = exposure frequency (day/year)

ED = exposure duration

BW = body weight

AT = averaging time (days); for noncarcinogens, AT equals (ED) (365 days/year); for carcinogens, AT equals (70-year lifetime) (365 days/year)

The term DA was calculated per EPA (1992f), Section 5.3. DA is a function of K_p (Table B.2-6A), the water permeability coefficient of each constituent. Values for DA are presented in Table B.2-6B.

Dermal absorption may also occur upon contact with contaminated soil and sediment and is calculated using the following equation (EPA 1989a):

$$AB_s = (C_s)(SA)(CF)(AF)(ABS)(ED)(EF)/(BW)(AT) \qquad \text{(B.2-23)}$$

where:

AB_s = absorbed dose from contact with soil (mg/kg-day)

C_s = concentration in soil (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)

ED = exposure duration (yr)

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TABLE B.2-6A

DERMAL ABSORPTION COEFFICIENTS AND HENRY'S LAW CONSTANTS USED IN EXPOSURE MODEL

Constituent	K_p (cm/hr)	Soil Absorption Coefficient (unitless)	Henry's Law Constant (atm-m^3/mol)	Log K_{ow}[g]
INORGANICS				
Ammonia	1.00×10^{-3}[c]	1.00×10^{-2}[c]	ND	ND
Antimony	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Arsenic	1.00×10^{-3}[a]	1.00×10^{-3}[c]	ND	ND
Barium	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Beryllium	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Boron	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Cadmium (food)	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Chromium	2.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Cobalt	4.00×10^{-4}[a]	1.00×10^{-2}[b]	ND	ND
Cyanide	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Copper	1.00×10^{-3}[a]	1.00×10^{-3}[c]	ND	ND
Fluoride	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Lead	4.00×10^{-6}[a]	1.00×10^{-2}[b]	ND	ND
Manganese	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Mercury	1.00×10^{-4}[a]	5.00×10^{-2}[c]	ND	ND
Molybdenum	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Nickel	1.00×10^{-4}[a]	5.00×10^{-4}[e]	ND	ND
Nitrate	ND	ND	ND	ND
Phosphorus	ND	1.00×10^{-1}[c]	ND	ND
Selenium	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Silver	6.00×10^{-4}[a]	1.00×10^{-2}[b]	ND	ND
Thallium	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Uranium	1.00×10^{-3}[a]	1.00×10^{-2}[b]	ND	ND
Vanadium	1.00×10^{-3}[a]	1.00×10^{-3}[c]	ND	ND
Zinc	6.00×10^{-4}[a]	1.00×10^{-2}[b]	ND	ND

See footnotes at end of table

TABLE B.2-6A
(Continued)

Constituent	K_p (cm/hr)	Soil Absorption Coefficient (unitless)	Henry's Law Constant (atm-m^3/mol)	Log K_{ow}[g]
VOLATILE ORGANICS				
2-Butanone	5.00×10^{-3}[a]	5.00×10^{-4}[c]	2.74×10^{-5}[d]	0.26[f]
2-Hexanone	4.45×10^{-3}[a]	2.00×10^{-1}[c]	ND	1.38[f]
4-Methyl-2-pentanone	ND	3.00×10^{-1}[c]	ND	ND[f]
Acetone	1.40×10^{-3}[a]	5.00×10^{-4}[c]	2.06×10^{-5}[d]	-0.24[f]
Carbon tetrachloride	2.40×10^{-2}[e]	4.00×10^{-1}[c]	2.93×10^{-2}[f]	2.73[f]
Methylene chloride	4.10×10^{-3}[e]	4.00×10^{-1}[c]	3.19×10^{-3}[f]	1.25[f]
Tetrachloroethene	5.30×10^{-2}[e]	4.00×10^{-1}[c]	2.87×10^{-2}[f]	2.53[f]
Toluene	4.50×10^{-2}[a]	3.00×10^{-2}[c]	5.92×10^{-3}[f]	2.69[f]
Total xylenes	8.00×10^{-2}[e]	3.00×10^{-2}[c]	5.27×10^{-3}[f]	3.04[f]
SEMIVOLATILE ORGANICS				
Acenaphthylene	1.74×10^{-1}[a]	3.00×10^{-1}[c]	1.14×10^{-4}[f]	4.07[f]
Anthracene	2.25×10^{-1}[a]	4.00×10^{-1}[c]	8.60×10^{-3}[f]	4.45[f]
Benzo(g,h,i)perylene	5.34×10^{0}[a]	3.00×10^{-1}[c]	5.34×10^{-8}[d]	7.23[f]
Benzoic acid	7.10×10^{-3}[e]	3.00×10^{-1}[c]	ND	1.87
bis(2-Ethylhexyl)phthalate	4.58×10^{-2}[a]	4.00×10^{-3}[c]	3.00×10^{-7}[f]	5.3[f]
Di-n-butylphthalate	1.88×10^{-1}[a]	3.00×10^{-1}[c]	2.80×10^{-7}[f]	4.13
Di-n-octylphthalate	2.69×10^{1}[a]	3.00×10^{-1}[c]	ND	9.2[f]
Diethylphthalate	5.00×10^{-3}[e]	3.00×10^{-1}[c]	1.14×10^{-6}[d]	2.47
Dimethylphthalate	1.60×10^{-3}[a]	3.00×10^{-1}[c]	ND	1.56
Fluoranthene	4.30×10^{-1}[e]	3.00×10^{-1}[c]	6.50×10^{-6}[f]	4.95
2-Nitrophenol	1.00×10^{-1}[a]	NA	1.79[f]	1.79
4-Nitrophenol	6.00×10^{-3}[a]	3.00×10^{-1}[c]	1.91[f]	1.91
N-Nitroso-di-n-propylamine	3.57×10^{-5}[a]	3.00×10^{-1}[c]	ND	1.31[f]
Phenanthrene	2.70×10^{-1}[e]	3.00×10^{-1}[c]	3.93×10^{-5}[f]	4.57
Phenol	5.20×10^{-3}[e]	3.00×10^{-1}[c]	1.30×10^{-6}[f]	1.46
Pyrene	5.30×10^{-1}[a]	3.00×10^{-1}[c]	5.10×10^{-6}[f]	5.18[f]
Tributyl phosphate	3.13×10^{-2}[a]	3.00×10^{-1}[c]	ND	4.00[f]

See footnotes at end of table.

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TABLE B.2-6A
(Continued)

Constituent	K_p (cm/hr)	Soil Absorption Coefficient (unitless)	Henry's Law Constant (atm-m^3/mol)	Log K_{ow}[g]
		PESTICIDE/PCBS		
Aldrin	1.70×10^{-3}[e]	3.00×10^{-1}[c]	4.96×10^{-4}[f]	3.01
Aroclor-1248	1.80×10^{0}[e]	3.00×10^{-1}[c]	4.40×10^{-4}[f]	6.50
Aroclor-1254	1.00×10^{0}[e]	3.00×10^{-1}[c]	8.37×10^{-3}[f]	6.50
Aroclor-1260	1.00×10^{0}[e]	3.00×10^{-1}[c]	3.36×10^{-4}[f]	6.50
4,4-DDE	3.20×10^{-1}[e]	3.00×10^{-1}[c]	6.80×10^{-5}[f]	5.69
4,4-DDT	6.00×10^{-1}[e]	3.00×10^{-1}[c]	3.89×10^{-5}[f]	6.36
Dieldrin	1.90×10^{-2}[e]	3.00×10^{-1}[c]	5.84×10^{-5}[f]	4.56
Endosulfan I	2.08×10^{-3}[a]	3.00×10^{-1}[c]	ND	3.55[f]
Endosulfan II	2.33×10^{-3}[a]	3.00×10^{-1}[c]	ND	3.62[f]
Endrin	1.90×10^{-2}[e]	3.00×10^{-1}[c]	4.00×10^{-7}[f]	4.56
Heptachlor epoxide	6.65×10^{-4}[e]	3.00×10^{-1}[c]	3.16×10^{-5}[f]	2.70[d]

[a]EPA 1992f, the default value for inorganics is 1×10^{-3}, the experimental value for cadmium. Organic K_ps were estimated using the regression equation: Log K_p = 02.72 + 0.71 Log K_{ow} - 0.0061 MW.

[b]Wester et al. (1991).

[c]EPA 1993d, Memorandum from ECAO to EPA Region V, 7/21/93, including Attachments 1-6.

[d]Superfund Public Health Evaluation Manual (SPHEM) October 1986.

[e]EPA 1992h.

[f]EPA Weri Treatability Database, 1991.

[g]EPA 1992f, "Dermal Exposure Assessment: Principles and Applications." All k_{ow} taken from this guidance, unless otherwise specified.

TABLE B.2-6B

CHEMICAL SPECIFIC VALUES FOR DERMAL ABSORPED DOSES[a] (DA) (mg/cm^2-event) CURRENT AND FUTURE LAND USE RECEPTORS

Constituent	Active Flyash Pile	Inactive Flyash Pile	South Field	Lime Sludge Ponds	Solid Waste Landfill
SURFACE WATER					
Arsenic	6.84×10^{-9}	1.773×10^{-9}	NA	NA	NA
Barium	3.458×10^{-8}	NA[b]	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	5.80×10^{-8}	NA	NA	2.32×10^{-7}
Cadmium	NA	2.027×10^{-9}	NA	NA	NA
Lead	NA	4.205×10^{-11}	NA	NA	NA
Manganese	6.713×10^{-9}	NA	NA	NA	2.242×10^{-7}
Selenium	1.267×10^{-9}	NA	NA	NA	NA
Toluene	NA	1.14×10^{-7}	NA	NA	NA
U-Total	5.294×10^{-9}	1.039×10^{-6}	6.168×10^{-7}	NA	7.511×10^{-8}
PERCHED GROUNDWATER					
Arsenic	NA	NA	NA	9.183×10^{-12}	NA
Maganese	NA	NA	NA	1.227×10^{-8}	NA
GROUNDWATER					
Arsenic	1.22×10^{-14}	NA	NA	NA	NA
Beryllium	2.41×10^{-16}	NA	NA	NA	NA
Cadmium	NA	3.622×10^{-10}	3.622×10^{-10}	NA	NA
Lead	1.47×10^{-14}	NA	NA	NA	NA
Molybdenum	NA	3.54×10^{-9}	3.54×10^{-9}	NA	NA
U-Total	6.43×10^{-9}	1.165×10^{-6}	1.165×10^{-6}	NA	NA
BACKGROUND GROUNDWATER					
Lead	1.72×10^{-17}	1.421×10^{-13}	1.421×10^{-13}	NA	NA
Molybdenum	NA	5.13×10^{-11}	5.13×10^{-11}	NA	NA
U-Total	1.51×10^{-10}	NA	NA	NA	NA

[a]EPA (1992f) "Dermal Exposure Assessment: Principles and Application," EPA/600/8-91/011B

[b]NA = Not applicable

EF = exposure frequency (events/year)

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)

Soil dermal absorption coefficients are presented in Table B.2-6A.

B.2.4.2.5 Inhalation Of Gases and Particulates

The equations used to quantify intake from the inhalation pathway adapted from EPA (EPA 1989a) are:

$$(\text{radionuclides})I_a = (C_a)(IR)(ED)(ET)(EF) \quad \text{(B.2-24)}$$

$$(\text{chemicals})I_a = (C_a)(IR)(ET)(EF)(ED)/(BW)(AT) \quad \text{(B.2-25)}$$

where:

I_a = intake from inhalation (pCi) (mg/kg-day)

C_a = concentration in air (pCi/m^3) (mg/m^3)

IR = inhalation rate (m^3/hr)

ET = exposure time (hr/d)

EF = exposure frequency (days/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)

B.2.4.2.6 External Exposure

The equation used to estimate intake from exposure to direct penetrating radiation is calculated in the following manner:

$$I_{ER} = (C_r)(CF)(EF)(ED)[ET_{OUT} \times (1 - SH_{OUT}) + ET_i \times (1-SH_{IN})] \quad \text{(B.2-26)}$$

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I_{ER} = intake from external radiation

C_r = concentration in soil (pCi/g)

ET_{OUT} = outdoor exposure time (hr/day)

ET_{IN} = indoor exposure time (hr/day)

EF = exposure frequency (days/yr)

ED = exposure duration (yr)

SH_{IN} = shielding factor for indoors (unitless = 0.5)

SH_{OUT} = shielding factor for outdoors (unitless = 0)

CF = conversion factor (1.14×10^{-4} yr/hr)

B.2.4.2.7 Ingestion of Water

The equations used to estimate intake from drinking water are adapted from EPA (1989a). The intake equations are:

$$(\text{radionuclides})I_w = (C_w)(IR)(EF)(ED) \quad \text{(B.2-27)}$$

$$(\text{chemicals})I_w = (C_w)(IR)(ED)(EF)/(BW)(AT) \quad \text{(B.2-28)}$$

where:

I_w = intake from drinking water (pCi) (mg/kg-day)

C_w = concentration in water (pCi/L) (mg/L)

IR = ingestion rate (L/day)

EF = exposure frequency (days/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)

These equations can also be modified to quantify intake from incidental ingestion of surface water. The modification consists of replacing IR (L/day) with IR (L/hr) and adding ET (hr/day).

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B.2.4.2.8 Inhalation of VOCs Released from Household Water

The model for estimating the inhaled dose of volatile CPC released from household use, called the Andelman model (EPA 1991d), applies several assumptions:

- The volume of water used in a residence by a family of four is 720 L/day
- The volume of air in the dwelling is 150,000 L
- The air exchange rate is 0.25 m^3/hr
- The average water-to-air transfer efficiency is 0.5 (i.e., half the concentration of a volatile chemical in water is transferred to air).

The Andelman model is applicable to chemicals that will readily volatilize from water (i.e., those with a Henry's Law constance greater than 1 x 10^{-5} atm-m^3/mole and a molecular weight less than 200 g/mole). The equation is:

$$(\text{chemicals})I_a = (C_w)(IR)(K)(EF)(ED)/(BW)(AT) \qquad \text{(B.2-29)}$$

where:

I_a = average inhaled dose of volatile CPC in air from household use of water (mg/kg-day)

C_w = concentration of CPC in water (mg/L)

IR = inhalation rate (m^3/day)

K = volatilization factor of 0.0005 (unitless) x 1000 L/m^3

EF = exposure frequency (days/yr)

ED = exposure duration (yr)

BW = body weight (kg)

AT = averaging time (d)

B.2.4.3 Lead

EPA suggests expressing the level of lead in children as μg/ lead deciliter/(dL) blood. The amount of lead in blood is the most sensitive indicator of lead exposure. Additionally, children are the most sensitive subpopulation for exposure to lead due to their increased absorption of lead compared to adults and due to the susceptibility of their developing nervous systems to lead exposure. The agency

has concluded that it is not possible to confidently identify a blood-lead level below which no undesirable health effects would occur and that a blood-lead range of 10 μg to 15μg/dL represents a level of concern. If no more than 5 percent of exposed children are estimated to have blood lead levels above 10 μg/dL, a significant health hazard due to lead is not deemed to exist.

To aid in predicting blood-lead levels of children (ages zero to seven years) resulting from multimedia exposure to lead in a residential setting, the Environmental Criteria and Assessment Office of the EPA Office of Research and Development (ECAO/ORD) has developed the Uptake/Biokinetic (UBK) model (now in Version 0.5). It is a mathematical model that incorporates the following:

- media-specific uptake factors for exposure to lead via air, drinking water, soil, indoor dust, diet, and paint;
- default values of concentrations of lead in various media that reflect ambient background levels; and
- default values for exposure factors such as liters of water ingested per day, amount of soil ingested per day, and amount of air inhaled per day, which are mean values for children ages zero to seven years old.

When all default values remain unchanged and there is no exposure to higher than ambient environmental levels of lead, the model estimates a blood-lead level of approximately 2 μg/dL. This level is currently considered by EPA to be the background blood-lead level for children ages zero to seven. When site-specific information on lead levels in soil and water is entered into the model, it estimates an associated blood-lead level that may occur in children ages zero to seven years. This level can then be compared with EPA's level of concern of 10 μg/dL.

Blood-lead levels in children who ingest water from each monitoring well location where total lead was detected above EPAs action level of 15 μg/dL, were determined using the UBK model.

B.2.4.4 Indoor Radon

Potential exposures to indoor radon were calculated according to the models described in Attachment I.

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B.2.5 TOXICITY ASSESSMENT

A toxicity assessment examines information concerning the potential effects of exposure to CPCs and summarizes EPA-approved toxicity values. The goal is to provide, for each CPC, a quantitative estimate of the relationship between the magnitude and type of exposure and severity or probability of human health effects. The toxicity assessment contains a compilation of toxicity values for CPCs. Summaries of the toxic effects associated with major CPCs are included as Attachment II to this risk assessment.

B.2.5.1 Toxicity Values For Constituents of Potential Concern

This section presents tabulated summary toxicity information for CPCs with noncarcinogenic and carcinogenic effects.

B.2.5.1.1 Noncarcinogens

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. 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 RfD is expressed in units of milligrams/kilograms-day (mg/kg-day) and represents a daily intake of constituent per kilogram of body weight that is not sufficient to cause the threshold effect of concern for the constituent.

An RfD is specific to the chemical, the route of exposure, and exposure duration. To derive an RfD, the EPA reviews all relevant human and animal studies for each compound and selects the study (or 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-day, 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.

Separate RfDs are needed for ingestion and inhalation pathways. EPA (1992b) presents reference concentrations (RfC) for the inhalation route. Inhalation noncancer toxicity values are usually expressed as inhalation concentrations (RfC) 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. 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)).

The primary source of values for RfDs are the Integrated Risk Information System (IRIS) and the HEAST compiled and maintained by the EPA (EPA 1993a, 1993b). Other EPA sources of RfD values were also consulted, when available. Surrogate chemicals were not used for derivation of an RfD unless the chemical similarity was close and the derivation was highly defensible. Since dermal RfDs are derived from oral RfDs, the oral target organ is adopted as the dermal target organ. RfDs for noncarcinogenic CPCs in Operable Unit 2 are presented in Table B.2-7.

B.2.5.1.2 Chemical Carcinogens

The toxicity information considered in the assessment of potential carcinogenic risks 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 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.

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TABLE B.2-7

REFERENCE DOSES FOR NONCARCINOGENIC CHEMICALS

Chemicals	Chronic Oral Reference Dose (mg/kg/day)	Chronic Inhalation Reference Dose[a] (mg/kg/day)	Reference Concentration (mg/m^3)	Effect of Concern		Uncertainty Factor		
				Oral	Inhalation	Oral	Inhalation	Source
INORGANICS								
Ammonia	9.7×10^{-1} [g]	3×10^{-2} [a]	$1\ 10^{-1}$	Taste Threshold	Nasal Cavity Rhinitis	1	30	c, f
Antimony	4×10^{-4}	ND	ND	Reduced Lifespan; Altered Blood Chemistries	ND	1000	ND	c
Arsenic	3×10^{-4}	ND	ND	Keratosis; Hyperpigmentation	ND	3	ND	c
Barium	7×10^{-2}	1×10^{-4}	5×10^{-4}	Increased Blood Pressure	Fetotoxcity	3	1000	c, f
Beryllium (Soluble Salts)	5×10^{-3}	ND	ND	None Observed	ND	100	ND	c
Cadmium (Food)	1×10^{-3}	ND	ND	Renal Damage	Cancer	10	ND	c
Cadmium (Water)	5×10^{-4}	ND	ND	Renal Damage	Cancer	10	ND	c
Chromium (VI)	5×10^{-3}			None Reported	Nasal Mucosa Atrophy	500	300	c
Cobalt	6×10^{-2}	3×10^{-7}	1×10^{-6}	Cardiomyopathy	Lung Lesions	ND	ND	d, e
Copper	ND [h]	ND	ND	GI System Irritation	ND	ND	ND	f
Cyanide	2×10^{-2}	ND	ND	Weight Loss; Thyroid Effects; Myelin Degeneration	ND	100	ND	c
Lead and Compounds (Inorganic)	ND [i]	ND	ND	CNS Effects	CNS Effects	ND	ND	c
Manganese (Oral and Food)	1.4×10^{-1}	1.1×10^{-4} [a]	4×10^{-4}	No Effect	Respiratory Symptoms; Psychomotor Disturbances	1	300	c
Manganese (Water)	5×10^{-3}	ND	ND	CNS Effects	ND	1	ND	c
Mercury, Inorganic	3×10^{-4}	8.6×10^{-5} [a]	3×10^{-4}	Kidney Effects	Neurotoxicity	1000	30	f
Molybdenum	5×10^{-3}	ND	ND	Increased Uric Acid Levels	ND	30	ND	c

See footnotes at end of table

TABLE B.2-7
(Continued)

Chemicals	Chronic Oral Reference Dose (mg/kg/day)	Chronic Inhalation Reference Dose[a] (mg/kg/day)	Reference Concentration (mg/m^3)	Effect of Concern		Uncertainty Factor		
				Oral	Inhalation	Oral	Inhalation	Source
INORGANICS (Continued)								
Nickel	2×10^{-2}	ND	ND	Reduced Body Weight and Organ Weight	Cancer	300	ND	c, f
Selenium	5×10^{-3}	ND	ND	Selenosis	ND	3	ND	c
Thallium (Sulfate)	8×10^{-5}	ND	ND	Increased SGOT and Serum LDH Levels; Alopecia	ND	3000	ND	c
Thorium	ND	ND	ND	---	ND	ND	ND	
Uranium	3×10^{-3}			Reduced body weight, renal damage	1,000			
Vanadium	7×10^{-3}	ND	ND	None Observed	ND	100	ND	f
Zinc	3×10^{-4}	ND	ND	Decrease in Erythrocyte Superoxide Dismutose Activity	ND	3	ND	c
ORGANICS								
2-Chlorophenol	5×10^{-3}	ND	ND	Reproductive Effects	ND	1000	ND	c
1,2-Dichloroethane								
2-Methylnapthalene	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol (o-cresol)	5×10^{-2}	ND [j]	ND	Reduced Body Weight Gain; Neurotoxicity	ND	1000	ND	c
4-Chlorophenyl-phenylether	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol (p-cresol)	5×10^{-2}	ND [k]	ND	Reduced Body Weight Gain; Neurotoxicity	ND	1000	ND	c, f
Acenaphthene	6×10^{-2}	ND	ND	Hepatotoxicity	ND	3000	ND	c
Acenaphthylene								
Anthracene	3×10^{-1}	ND	ND	No Effects	ND	3000	ND	c

See footnotes at end of table

TABLE B.2-7
(Continued)

Chemicals	Chronic Oral Reference Dose (mg/kg/day)	Chronic Inhalation Reference Dose[a] (mg/kg/day)	Reference Concentration (mg/m^3)	Effect of Concern		Uncertainty Factor		
				Oral	Inhalation	Oral	Inhalation	Source
ORGANICS (Continued)								
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	c
Benzo(a)pyrene								
Benzo(b)fluoranthene								
Benzo(ghi)perylene								
Benzo(k)fluoranthene								
bis(2-ethylhexyl)phthalate								
Carbazole								
Chrysene								
Dibenzo(a,h)anthracene								
Dieldrin								
Di-n-octyl phthalate	2×10^{-2}	ND	ND	Elevated Liver and Kidney Weights; Increased SGOT and SGPT	ND	1000	ND	f
Endrin ketone								
ideno(1,2,3-cd)pyrene								
Methylene chloride								
N-nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND	c
Pentachlorophenol	3×10^{-2}[b]							
Phenanthrene								
TCDD, 2, 3, 7, 8	ND	ND	ND	Developmental Toxicity	ND	ND	ND	f
Vinyl chloride								

See footnotes at end of table

TABLE B.2-7
(Continued)

Chemicals	Chronic Oral Reference Dose (mg/kg/day)	Chronic Inhalation Reference Dose[a] (mg/kg/day)	Reference Concentration (mg/m^3)	Effect of Concern		Uncertainty Factor		
				Oral	Inhalation	Oral	Inhalation	Source
PESTICIDES / PCBS								
Polychlorinated Biphenyls	ND	ND	ND	ND	ND	ND	ND	c
DDT	5×10^{-4}	ND	ND	Liver Lesions	ND	100	ND	c

[a]Where only a reference concentration for inhalation is available, derived by assuming a 70kg adult inhales $20m^3$ of air per day.

[b]EPA, HEAST, Annual FY-1991

[c]EPA IRIS database 1993, July 1993.

[d]Oral intake guidance value recommended by EPA 1992 [memorandum subject: Cobalt toxicity]

[e]Inhalation RfD/RfC provided by EPA/ECOA 1990 [memorandum].

[f]EPA, HEAST, Annual FY-1992.

[g]Derived from the chronic RfD in drinking water of 34 mg/l.

[h]The EPA Drinking Water Criteria Document for Copper (1987) concluded toxicity data were inadequate for calculation of a RfD for copper.

[i]The EPA RfD Work Group consider it inappropriate to develop a RfD for inorganic lead (1985).

[j]The health effects data for 2-methylphenol were reviewed and were determined to be inadequate for the derivation of an inhalation RfC by the EPA RfD/RfC work group (EPA 1993).

[k]The health effects data for 4-methyphenol were reviewed by the EPA RfD/RfC work group and were determined to be inadequate for the derivation of an inhalation RfC (EPA 1993).

CNS = Central nervous system

ND = No data available

The cancer slope factor is the toxicity value used to quantitatively express the carcinogenic risk 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 $(mg/kg\text{-}day)^{-1}$ 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 reciprocal $\mu g/m^3$ ($1/\mu g/m^3$). 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 CPCs are presented in Table B.2-8. The primary sources of these toxicity values are EPA's IRIS (EPA 1993a) and the quarterly updated HEAST (EPA 1993b). Other EPA sources of cancer slope factors were also consulted when available. Surrogate chemicals were not used for cancer slope factor derivation unless the chemical similarity was 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" (TEF) (EPA 1990e). 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 (CDD) and chlorinated dibenzofurans (CDF) 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 B.2-8

CANCER SLOPE FACTORS FOR CARCINOGENIC CHEMICALS

Chemical	Oral Cancer Slope Factor [(mg/kg/day)-1]	Inhalation Cancer Slope Factor[a] [(mg/kg/day)-1]	Tumor Site		Cancer Classification	Source
			Oral	Inhalation		
INORGANICS						
Ammonia	ND	ND	ND	ND	ND	b
Antimony	ND	ND	ND	ND	ND	b
Arsenic	1.8×10^{0} [h]	1.5×10^{1} [c]	Skin, Lung	Respiratory System	A	b,c
Barium	ND	ND	ND	ND	ND	b, g
Beryllium	4.3×10^{0}	8.4×10^{0}	Total Tumors	Lung	B2	b
Cadmium	ND	6.1×10^{0} [g]	ND	Respiratory System	B1	b
Chromium (VI)	ND	4.1×10^{1} [g]	ND	Lung	A	b
Cobalt	ND	ND	ND	ND	ND	b
Copper	ND[i]	ND	ND	ND	D	b
Cyanide	ND[i]	ND	ND	ND	D	b
Lead (Inorganic)	ND	ND	ND	ND	B2	b
Manganese	ND[i]	ND	ND	ND	D	b
Mercury (Inorganic)	ND[i]	ND	ND	ND	D	b
Molybdenum	ND	ND	ND	ND	ND	b
Nickel (Refinery Dust)	ND	0.84	ND	Respiratory System	A	b, g
Selenium (Selenium Sulfide)	ND	ND	Liver, Lung	ND	B2	b
Thallium	ND[i]	ND	ND	ND	D	b
Vanadium	ND	ND	ND	ND	ND	b
Zinc	ND[i]	ND	ND	ND	D	b
SEMIVOLATILES						
2-Chlorophenol	ND	ND	ND	ND	ND	b
2-Methylnapthalene	ND	ND	ND	ND	ND	ND
2-Methylphenol (o-cresol)	ND	ND	ND	ND	C	b
4-Chlorophenyl-phenylether	ND	ND	ND	ND	ND	ND
4-Methylphenol (p-cresol)	ND	ND	ND	ND	C	b
Acenaphthene	ND	ND	ND	ND	ND	b, j

See footnotes at end of table

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TABLE B.2-8
(Continued)

Chemical	Oral Cancer Slope Factor [(mg/kg/day)-1]	Inhalation Cancer Slope Factor[a] [(mg/kg/day)-1]	Tumor Site		Cancer Classification	Source
			Oral	Inhalation		
SEMIVOLATILES (Continued)						
Anthracene	ND[i]	ND	ND	ND	D	b
Benzo(a)anthracene	5.8×10^{0}	6.1×10^{0}	ND	ND	B2	d, f
Di-n-octyl phthalate	ND	ND	ND	ND	ND	b
TCDD, 2, 3, 7, 8	1.5×10^{5}	1.5×10^{5}	Respiratory System, Liver	ND	B2	g, k
N-nitrosodiphenylamine	4.9×10^{-3}	ND	Urinary Bladder	ND	B2	b
PESTICIDES / PCBS						
Polychlorinated Biphenyls	7.7×10^{0}	ND	Liver	ND	B2	b
DDT	3.4×10^{-1}	3.4×10^{-1} [a]	Liver	Liver	B2	b

[a]Where only a unit risk for inhalation is available derived by assuming a 70 kg adult inhales $20m^3$ of air/day.

[b]EPA IRIS database

[c]The HEAST (1992) presented an inhalation slope factor of 50 (mg/kg-day)-1, based on absorbed dose (absorption factor of 0.3). A risk of 15 $(mg/kg\text{-}day)^{-1}$ based on ambient dose is the value used in this risk assessment.

[d]EPA, HEAST, Annual FY-1991

[e]No data presented for chemically induced carcinogenicity - radiocarcinogenicity of uranium isotopes are discussed elsewhere.

[f]Slope factors for benzo(a)pyrene used for B2 PAHs.

[g]EPA, HEAST, Annual FY 1992.

[h]Derived from the proposed inorganic arsenic ingestion unit risk [5×10^{-5} $(\mu g/l)^{-1}$]. "The uncertainties associated with ingested inorganic arsenic are such that estimates could be revised downward as much as an order of magnitude, relative to the risk estimates associated with most other carcinogens" (EPA 1993).

[i]Not classified or not classifiable as to human carcinogenicity.

[j]EPA carcinogenicity assessment under review as of 5/1/93.

[k]For polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofurans, the 2, 3, 7, 8-TCDD toxicity equivalents will be calculated using the appropriate 1-TEFS/89 (1989 EPA Interim) Toxicity Equivalent Factor (EPA ~~1989~~ 1990c)

ND = No data available

Table B.2-9 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 risks associated with PAHs are evaluated using 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 B.2-10.

B.2.5.1.3 Radiocarcinogens

Some elements have isotopes consisting of unstable atoms (i.e., they undergo spontaneous transformation into more stable 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. 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 considerably more penetration power than either alpha or beta radiation and are thus more difficult to shield.

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 concern at environmental levels. Internal exposure occurs after the radionuclide enters the body via inhalation or ingestion. For internal exposures, alpha and beta particles become more important because their energy is directly absorbed by living cells.

Inhalation and ingestion are the primary routes for internal exposure to radionuclides. Biologically significant exposures to alpha and beta emitters are more probable for internal exposure because the

TABLE B.2-9

DIOXIN AND FURAN TOXICITY EQUIVALENCY FACTORS[a]

Compound	TEF
DIOXINS	
Mono-, Di-, and Trichlorodibenzo-p-dioxins	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1
Other TCDDs	0
2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.5
Other PeCDDs	0
2,3,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1
Other HxCDDs	0
2,3,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.01
Other HpCDDs	0
Octaclorodibenzo-p-dioxins (OCDD)	0.001
FURANS	
Mono-, Di-, and Trichlorodibenzo-p-furans	0
2,3,7,8-Tetrachlorodibenzo-p-furan (TCDF)	0.1
Other TCDFs	0
1,2,3,7,8-Pentachlorodibenzo-p-furans (PeCDF)	0.05
2,3,7,8-Pentachlorodibenzo-p-furan (PeCDF)	0.5
Other PeCDFs	0
2,3,7,8-Hexachlorodibenzo-p-furan (HxCDF)	0.1
Other HxCDFs	0
2,3,7,8-Heptachlorodibenzo-p-furan (HpCDF)	0.01
Other HpCDFs	0
Octaclorodibenzo-p-furans (OCDF)	0.001

[a]EPA 1990e.

TABLE B.2-10

TOXICITY EQUIVALENCY FACTORS (TEF) AND CORRESPONDING ORAL AND INHALATION SLOPE FACTORS FOR THE GROUP B2 PAHs[a]

PAH	Relative Potency	Oral Slope Factor $(mg/kg\text{-}day)^{-1}$	Inhalation Slope Factor $(mg\text{-}kg/day)^{-1}$
Benzo(a)pyrene	1.0	7.3	6.1
Benzo(a)anthracene	0.145	1.1	0.89
Benzo(b)fluoranthene	0.1228	0.90	0.75
Benzo(k)fluoranthene	0.0523	0.38	0.32
Chrysene	0.0044	0.032	0.027
Dibenzo(a,h)anthracene	1.11	8.1	6.8
Indeno(1,2,3-cd)pyrene	0.278	2.0	1.7

[a]Clement International 1990.

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emitter is in direct contact with tissue. Once in the body, exposure depends on the absorption and retention characteristics of the radionuclide. These absorption and retention characteristics are based on the chemical form of the radionuclide in a compound and not on the isotopic form of the radionuclide. GI absorption factors and lung retention classifications for the radionuclides of concern are presented in Table B.2-11.

Radioactive contamination within Operable Unit 2 is characterized as low-level ionizing radiation. The principal adverse biological effects associated with ionizing radiation from radioactive substances in the environment are mutagenicity, teratogenicity, and carcinogenicity. Mutagenicity is the ability to induce genetic mutations in the nuclei of either body cells or reproductive cells. Teratogenicity is the ability to induce or increase the incidence of congenital malformations, which are permanent structural or functional deviations produced during embryonic growth and development. 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.

Carcinogenicity is believed to be the limiting deleterious effect at the levels of radiation dose encountered within Operable Unit 2 and has been used as the sole basis for assessing the radiation-related human health risks of a site contaminated with radionuclides (EPA 1989a).

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

TABLE B.2-11

CANCER SLOPE FACTORS FOR OPERABLE UNIT 2 RADIONUCLIDES OF CONCERN

Radionuclide	ICRP Lung Class[a]	Inhalation[b] $(pCi)^{-1}$	GI Absorption Factor[b] (f_1)	Ingestion[b] $(pCi)^{-1}$	Penetrating[b] External Exposure $(pCi\text{-}yr/g)^{-1}$
Actinium-227 + 7 dtrs	Y	8.8×10^{-8}	1.0×10^{-3}	3.5×10^{-10}	8.5×10^{-7}
Americium-241	W	3.2×10^{-8}	1.0×10^{-3}	2.4×10^{-10}	4.9×10^{-9}
Cesium-137 + dtr	D	1.9×10^{-11}	1.0×10^{0}	2.8×10^{-11}	2.0×10^{-6}
Neptunium-237 + dtr	W	2.9×10^{-8}	1.0×10^{-3}	2.2×10^{-10}	4.3×10^{-7}
Protactinium-231	Y	3.6×10^{-8}	1.0×10^{-3}	9.2×10^{-11}	2.6×10^{-8}
Lead-210 + 2 dtrs	D	4.0×10^{-9}	2.0×10^{-1}	6.6×10^{-10}	1.6×10^{-10}
Plutonium-238	Y	3.9×10^{-8}	1.0×10^{-3}	2.2×10^{-10}	2.8×10^{-11}
Plutonium-239/240	Y	3.8×10^{-8}	1.0×10^{-3}	2.3×10^{-10}	2.7×10^{-11}
Radium-226 + 5 dtrs	W	3.0×10^{-9}	2.0×10^{-1}	1.2×10^{-10}	6.0×10^{-6}
Radium-226 + 8 dtrs	W	7.0×10^{-9}	2.0×10^{-1}	7.8×10^{-10}	6.0×10^{-6}
Radium-228 + dtr	W	6.9×10^{-10}	2.0×10^{-1}	1.0×10^{-10}	2.9×10^{-6}
Radon-222 + 4 dtrs	*	7.7×10^{-12}	1.0×10^{0}	1.7×10^{-12}	5.9×10^{-6}
Ruthenium-106	Y	4.4×10^{-10}	5.0×10^{-2}	9.5×10^{-12}	0.0×10^{0}
Strontium-90 + dtr	D	6.2×10^{-11}	3.0×10^{-1}	3.6×10^{-11}	0.0×10^{0}
Technetium-99	W	8.3×10^{-12}	8.0×10^{-1}	1.3×10^{-12}	6.0×10^{-13}
Thorium-228 + 7 dtrs	Y	7.8×10^{-8}	2.0×10^{-4}	5.5×10^{-11}	5.6×10^{-6}
Thorium-230	Y	2.9×10^{-8}	2.0×10^{-4}	1.3×10^{-11}	5.4×10^{-11}
Thorium-232	Y	2.8×10^{-8}	2.0×10^{-11}	1.2×10^{-11}	2.6×10^{-11}
Thorium-232 + 10 dtrs	Y	1.1×10^{-7}	2.0×1^{-1}	1.7×10^{-10}	8.5×10^{-6}
Uranium-233	Y	2.7×10^{-8}	5.0×10^{-2}	1.6×10^{-11}	4.2×10^{-11}
Uranium-234	Y	2.6×10^{-8}	5.0×10^{-2}	1.6×10^{-11}	3.0×10^{-11}
Uranium-235 + dtr	Y	2.5×10^{-8}	5.0×10^{-2}	1.6×10^{-11}	2.4×10^{-7}
Uranium-238 + 2 dtrs	Y	5.2×10^{-8}	5.0×10^{-2}	2.8×10^{-11}	3.6×10^{-8}

*Classification recommended by the ICRP for half-time for clearance from the lung.

[a] "Y" = years, "W" = weeks, "D" = days, "*" = gas.
[b] EPA 1993b

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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 UCL) 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.

B.2.5.2 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) efficiency 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, an oral cancer slope factor is divided, rather than multiplied, by the GI adsorption 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 2 are presented in Table B.2-12.

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 Attachment II 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 not used if more suitable data are available and it appears that saturation of the GI absorption process could have occurred.

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TABLE B.2-12

DERMAL REFERENCE DOSES AND CANCER SLOPE FACTORS FOR CHEMICAL CONSTITUENTS OF POTENTIAL CONCERN

Chemical		Gastrointestinal Absorption Fraction	Dermal Reference Dose (mg/kg-day)	Dermal Slope Factor $(mg/kg\text{-}day)^{-1}$
INORGANICS				
Antimony		0.15[a]	6.00×10^{-5}	ND[b]
Arsenic		0.95[h]	2.85×10^{-4}	1.90×10^{0}
Barium		0.91[g,h]	6.37×10^{-2}	ND
Beryllium		0.01[h]	5.00×10^{-5}	4.30×10^{2}
Boron		0.05[c]	4.50×10^{-3}	ND
Cadmium	(food)	0.05[a]	5.00×10^{-5}	ND
	(water)		2.50×10^{-5}	ND
Chromium (VI)		0.45[a]	2.25×10^{-3}	ND
Cobalt		0.45[a]	2.70×10^{-2}	ND
Copper		0.6[h]	2.20×10^{-2}	ND
Cyanide		0.72[d]	ND[h]	ND
Lead		NA[j]	ND	ND
Manganese	(food)	0.03[a]	4.20×10^{-3}	ND
	(water)		1.50×10^{-4}	ND
Mercury		0.15[h]	4.50×10^{-5}	ND
Molybdenum		0.38[a]	1.90×10^{-3}	ND
Nickel		0.05[c]	2.00×10^{-3}	ND
Selenium		0.8[a]	4.00×10^{-3}	ND
Silver		0.05[c]	ND[h]	ND
Thallium		1[a]	6.00×10^{-5}	ND
Tin		0.05[c]	3.00×10^{-2}	ND
Uranium		0.05[c]	1.50×10^{-4}	ND[e]
Vanadium		0.05[c]	3.50×10^{-4}	ND
Zinc		0.25[h]	7.50×10^{-2}	ND
VOLATILES				
Tetrachloroethene		0.9[f]	9.00×10^{-3}	5.78×10^{-2}
Vinyl chloride		0.9[g]	ND	2.11×100^{0}

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See footnotes at end of table

TABLE B.2-12
(Continued)

Chemical	Gastrointestinal Absorption Fraction	Dermal Reference Dose (mg/kg-day)	Dermal Slope Factor $(mg/kg\text{-}day)^{-1}$
	SEMIVOLATILES		
Acenaphthene	1.0[g]	6.00×10^{-2}	ND
Acenaphthylene	0.43[a]	ND	ND
Anthracene	0.43[a]	1.20×10^{-1}	ND
Benzo(a)anthracene	0.43[a]	ND	ND
Benzo(a)pyrene	0.43[a]	ND	ND
Benzo(b)fluoranthene	0.43[a]	ND	ND
Benzo(b)perylene	0.43[a]	ND	ND
Benzo(k)fluoranthene	0.43[a]	ND	ND
Chrysene	0.43[a]	ND	ND
Dibenzo(a,h)anthracene	0.43[a]	ND	ND
Dibenzofuran	NA[k]	ND	ND
Fluoranthene	0.43[a]	1.72×10^{-2}	ND
Fluorene	0.5[g]	2.00×10^{-2}	ND
Indeno(1,2,3-cd)pyrene	0.43[a]	ND	ND
2-Methylnaphthalene	1.0[g]	ND	ND
Naphthalene	1.0[g]	4.00×10^{-2}	ND
4-Nitroaniline	0.9[f]	2.70×10^{-3}	ND
4-Nitrophenol	0.9[f]	7.20×10^{-3}	ND
Pentachlorophenol	0.9[f]	2.70×10^{-3}	1.33×10^{-1}
Phenanthrene	0.9[f]	ND	ND
Pyrene	0.43[f]	1.29×10^{-2}	ND
2,4,5-Trichlorophenol	0.9[f]	9.00×10^{-2}	ND
Tributyl phosphate	0.9[f]	4.50×10^{-3}	ND

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See footnotes at end of table

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TABLE B.2-12
(Continued)

Chemical	Gastrointestinal Absorption Fraction	Dermal Reference Dose (mg/kg-day)	Dermal Slope Factor $(mg/kg\text{-}day)^{-1}$
PESTICIDE/PCBS			
Polychlorinated biphenyls	0.75[a]	5.30×10^{-5}	1.03×10^{1}
4,4-DDT	0.9[g]	4.50×10^{-4}	3.78×10^{-1}
Dioxins/furans	0.5[i]	ND	3.00×10^{5}

[a]See the Toxicity Profile for this chemical in Attachment III.

[b]ND - Not derived.

[c]EPA 1989a, "Risk Assessment Guidance for Superfund, Volume, Human Health Evaluation Manual (Part A)", EPA/540/1-89/002, pp. A-2 to A-3.

[d]ATSDR 1988.

[e]The carcinogenicity of uranium is due to its radioactivity rather than chemical toxicity; its cancer potency due to penetrating external radiation is presented in Table B.2-11.

[f]Section B.2.5.2.

[g]Jones, T.D. and B.A. Owen, 1989, "Health Risks from Mixtures of Radionuclides and Chemicals in Drinking Water", Oak Ridge National Laboratory, Oak Ridge, Tennessee, ORNL-6533.

[h]EPA 1993a, Memorandum from ECAO to EPA Region V, 7/21/93, including Attachments 1-6.

[i]ATSDR 1990, "Toxicological Profile for 2,3,7,8-Tetrachlorodibenzo-p-dioxin", Draft for Public Comment, U.S. Public Health Service, Atlanta, Georgia.

[j]NA - Not appropriate

[k]NA - Not available

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 GI absorption efficiencies of at least 0.9, indicating that organic chemicals are generally readily absorbed. The arithmetic average of the GI efficiencies for the 19 organic chemicals, 0.91368, 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.

B.2.5.3 Toxicity Profiles

Toxicity profiles are included as Attachment II to this risk assessment.

B.2.6 RISK CHARACTERIZATION

Risk characterization is the final step in the risk assessment process, combining the information developed in the toxicity assessment (Section B.2.4) and the exposure assessment (Section B.2.3). The potential of a CPC to cause carcinogenic effects is presented as the incremental lifetime cancer risk (ILCR). Potential noncarcinogenic effects are presented as hazard quotients (HQs) or HIs, as defined below.

B.2.6.1 Risk Characterization for Chemical Carcinogens

The risk attributed to exposure to chemical carcinogens is estimated as the ILCR probability percent an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. At low doses, the risk of developing cancer is estimated as follows (EPA 1989a):

$$\text{Risk} = (\text{CDI})(\text{SF}) \qquad \text{(B.2-30)}$$

where:

Risk = risk of cancer incidence, expressed as a unitless probability

CDI = chronic daily intake averaged over 70 years (mg/kg/day)

SF = slope factor $(\text{mg/kg/day})^{-1}$

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B.2.6.2 Risk Characterization for Radionuclide Carcinogens

The procedures for estimating the total lifetime excess cancer risks due to continuous, lifetime exposure (i.e., a 70-year average life span) to radionuclides are discussed below.

B.2.6.2.1 Risk Characterization for Internal Exposures

Risk characterization for internal exposures to radionuclides (intake via inhalation or ingestion) is calculated as follows:

$$\text{Risk} = (I)(SF) \qquad \text{(B.2-31)}$$

where:

Risk = risk of cancer incidence, expressed as a unitless probability

I = lifetime radionuclide intake (pCi)

SF = slope factor $(pCi)^{-1}$

The slope factor is either a HEAST (EPA 1993b) value for a particular radionuclide or the sum of the HEAST (EPA 1993b) slope factors for that radionuclide and its short-lived progeny to account for ingrowth during storage and/or environmental transport.

B.2.6.2.2 Risk Characterization for External Gamma Exposures

Risk characterization for external exposure to gamma-emitting radionuclides in contaminated surface soil is calculated as follows:

$$\text{Risk} = (C_s)(SF)(ED)(MF) \qquad \text{(B.2-32)}$$

where:

Risk = risk of cancer incidence, expressed as a unitless probability

C_s = radionuclide soil concentration (pCi/g)

SF = radionuclide slope factor (risk/yr per pCi/g)

ED = exposure duration (yr)

MF = modifying factor, fraction of year exposed (unitless)

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B.2.6.3 Risk Characterization for Noncarcinogens

The risk associated with exposure to noncarcinogenic hazardous CPCs was evaluated by comparing an exposure level or intake to a RfD. It is recognized that this methodology for assessing the human health effect for noncarcinogens does not give a measure of risk as is calculated for the carcinogens. Even so, for convenience the term "risk" will continue to be used when discussing these evaluations. The ratio of intake RfD for a single contaminant is the HQ and is defined as (EPA 1989a):

$$HQ = I/RfD \qquad \text{(B.2-33)}$$

where:

HQ = hazard quotient (unitless)

I = intake of a chemical (mg/kg-day)

RfD = reference dose (mg/kg-day)

When using this equation to estimate potential noncarcinogenic risk, the intake and RfD must be for exposures of equivalent duration (e.g., subchronic, chronic, or fewer than two weeks). For this risk assessment, CPC exposures have been evaluated in all cases on a chronic basis, using chronic RfD values. Analogous to cancer risks, dermal noncancer risks were assessed using absorbed dose rather than intake.

In the case of simultaneous exposure of a receptor to several chemicals, an HI was calculated as the sum of the HQs by:

$$HI = I_1/RfD_1 + I_2/RfD_2 + \ldots I_i/RfD_i \qquad \text{(B.2-34)}$$

where:

I_i = intake for the ith toxicant

RfD_i = reference dose for the ith toxicant

An HI is an indicator of the potential for adverse effects associated with chronic exposures. In effect, HIs assume dose additivity for all CPCs (EPA 1989a).

In compliance with EPA guidance (EPA 1989a), the noncarcinogenic HIs summed across pathways were compared to "unity." An HI of unity (or 1.0) indicates that the exposure intake is equal to the

RfD. If the HI is greater than 1.0 or "above unity," there is concern for potential health effects. Major categories of noncarcinogenic health effects include neurotoxicity, developmental toxicity, reproductive toxicity, immunotoxicity, and adverse effects on target organs, such as hepatic, renal, respiratory, cardiovascular, and dermal/ocular problems (EPA 1989d).

B.2.6.4 Risk Characterization for Background

All site-related risks in the risk assessment are calculated without subtracting the contribution from natural background. In some areas in Operable Unit 2, the concentrations of CPCs are only slightly above background levels. Therefore, it is important to calculate the risks from background contributions to provide a point of comparison for the site-related risk estimates.

Many of the constituents selected as CPCs for Operable Unit 2 are naturally occurring. Therefore, it is informative to estimate what the risk due to these CPCs might be if they were present within each subunit at naturally occurring, or background, concentrations.

Calculation of background risks of CPCs used one of two methods. Figure B.2-7 illustrates how the exposure point concentrations for each subunit were chosen. Background risks associated with direct contact to CPCs present in soil or groundwater were estimated using a proportion based on the assumption that the relationship between risk/hazard and CPC concentration in groundwater or soil is linear, such that:

$$R_B = \frac{R_S \times C_B}{C_S}$$

where:

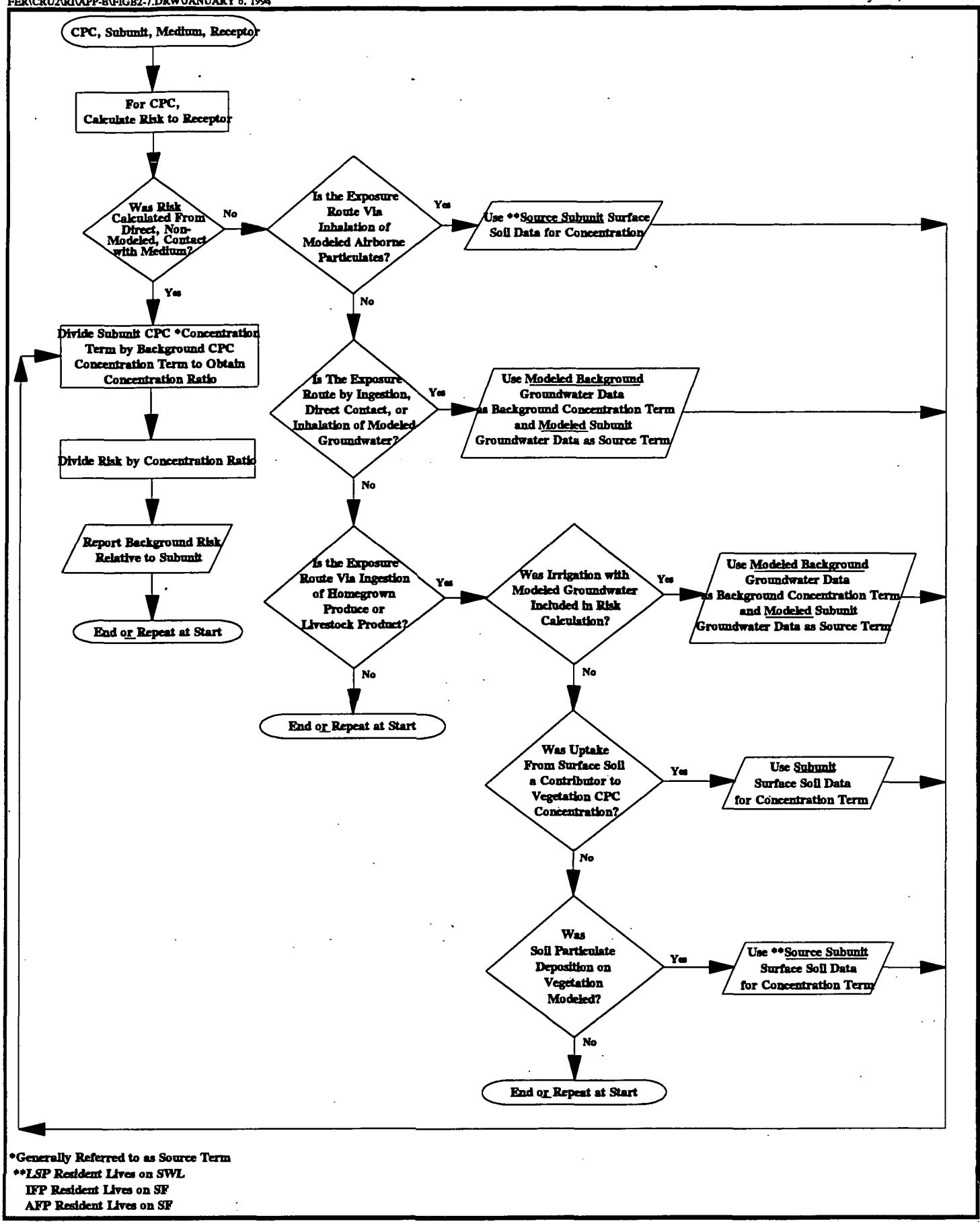
C_S = on-site constituent concentration

C_B = background constituent concentration

R_S = on-site carcinogenic risk or non-carcinogenic hazard

R_B = background carcinogenic risk or non-carcinogenic hazard

For soils, CPC concentrations in background surface soil, along with the subunit-specific CPC concentrations and associated risk, is used in the above proportion to calculate background risk. For groundwater, background soil concentrations were modeled using subunit-specific characteristics to



*Generally Referred to as Source Term
***LSP Resident Lives on SWL*
IFP Resident Lives on SF
AFP Resident Lives on SF

FIGURE B.2-7 CALCULATION OF BACKGROUND RISK FOR OU2

determine the groundwater concentrations that would result if CPCs were present at the specific-subunit at background levels.

A proportion is not appropriate to calculate background risks associated with ingestion of homegrown produce, meat, or milk since the relationship between source medium concentration and risk may not be linear. Therefore, background risks were calculated for these pathways in the same manner subunit risks were calculated.

For homegrown produce, meat, and milk exposures, calculation of risks is based on the assumption that the concentration of CPCs in produce, and ultimately in meat or milk, is affected by soil deposition, uptake from soil, and uptake from contaminated groundwater. Hence, a subunit-specific concentration term must be generated to determine the contribution of each of these factors on the total contaminant concentration in produce, meat, or milk. The concentration terms are dependent on subunit-specific characteristic and are generated for each subunit using the same modeling approaches applied in the risk assessment, but using background concentrations as original modeling source terms.

Risks and HIs were calculated for background concentrations of CPCs in soil using the same exposure pathways quantitatively evaluated for the RME on-property resident farmer for soil. The risk assessment models and parameter values used for these background calculations were also the same as those used for evaluating site-related risks to the RME on-property resident farmer. Soil concentrations used for background risk and HI calculations were calculated UCL values for the site-specific background soil sample analytical results.

B.2.7 UNCERTAINTY ANALYSES

Each step of the risk assessment process has an intrinsic degree of uncertainty. The types and magnitudes of uncertainties associated with each stage are of major importance for evaluating and interpreting risk assessments at the FEMP. Uncertainties associated with calculations that occur in the risk assessment may be magnified in the final results. It is not possible to eliminate all uncertainties from the analysis; they must be identified and discussed to determine their significance when making risk management decisions. A presentation, analysis, and discussion of the uncertainties is an important final step in the risk assessment process.

Once each subunit risk assessment is complete, the results are reviewed and evaluated to identify the type and magnitude of uncertainty contributing to the final estimates of risk. Reliance on results from a risk assessment without consideration of uncertainties, limitations, and assumptions inherent in the risk assessment process can often be misleading. For example, to ensure that potential threat to human health will not be underestimated, conservative estimates must be made in the development of exposure assumptions to ensure that the particular assumptions made are protective of all sensitive subpopulations, or maximum exposed individuals. When a number of conservative assumptions are combined in an exposure model, the resulting calculations propagate the uncertainties, producing a much larger uncertainty for the final results. Thus, both the risk assessment results and the uncertainties associated with those results should be considered when making risk management decisions.

This interpretation is especially relevant when resulting risk numbers exceed the point-of-departure for defining acceptable risk. For example, when risks are calculated that incorporate a high degree of uncertainty fall below an acceptable risk level (e.g., below an ILCR of 10^{-6}), the interpretation is easy and very straight forward. However, when calculated, risks which incorporate a high degree of uncertainty fall within the acceptable risk range (e.g., 10^{-6} to 10^{-4}), a conclusion can be difficult to make unless it considers all of the uncertainties inherent in the calculations.

The actual risk may be one, two, or even three orders of magnitude smaller than the one calculated, which could lead risk managers to make a decision which is unnecessarily protective. This situation may occur in a Superfund risk assessment if the estimated risk were based on limited information for the calculational parameters, conservative assumptions on lifestyles and land use scenarios, and maximum or near-maximum values for many of the modeling and exposure variables to ensure that the risks are not underestimated. The combination of conservative assumptions over a number of areas often results in high risk values as a result of high uncertainty. Characterization of risk based on overly conservative model parameters, scenarios, and assumptions does not convey realistic information and is often misleading if reviewed out of context. A risk estimate for an RME individual in a Superfund risk assessment has been frequently mistakenly viewed as an average risk to the receptor population being evaluated (EPA 1992d).

B.2.7.1 Selection of Constituents of Potential Concern

General uncertainty associated with the selection process used to determine the CPCs in Operable Unit 2 can be attributed to the following sources:

- Sample analytical techniques produce results that may have 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.

- Concentrations of inorganics and radionuclides are compared to background concentrations to determine if their presence is due to naturally occurring concentrations from native soils or are due to site activities. However, sampling procedures for groundwater and air used to determine background concentrations may have high detection limits. A chemical that was not detected during background sampling could result in the erroneous inclusion of a chemical from those selected for further evaluation.

B.2.7.2 Uncertainty in Exposure Assessment

Sources of uncertainty for the exposure assessment arise from calculation of exposure point concentrations, determination of land use scenarios, selection of receptors, and selection of exposure factors.

Predicted concentrations are used as exposure point concentrations in this risk assessment when measured data are not available (e.g., future groundwater contamination). 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, conservative assumptions were often used in these models to estimate final exposure point concentrations. These assumptions are typically made to avoid underestimating the concentrations of contaminants in transport or exposure media (e.g., air or groundwater). The uncertainties associated with modeled concentrations are generally much larger than those associated with measured data. Some general uncertainties associated with modeled exposure point concentrations in Operable Unit 2 can be attributed to the following sources:

- The selection of parameters related to the attenuation and retardation of constituents is a major uncertainty in the groundwater fate and transport analysis. The attenuation and retardation factors of every constituent except uranium were determined after an extensive literature search. It should be noted that the actual retardation factors at the FEMP may not follow the assumed literature values, particularly over the long term. Site-specific attenuation and retardation factors are used when available. The use of site-specific values are assumed to result in lower uncertainty than using literature values.

- The organic decay rates at the FEMP were determined after an extensive literature search. The actual decay rates may or may not follow the literature values because of site-specific conditions. The use of site data to determine organic decay rates would result in lower uncertainty than that resulting from the use of literature values.

- Transport through the vadose zone is approximated by using a one-dimensional 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 actually change from location to location and from depth to depth.

- Except for uranium-238, the total mass of each constituent is estimated by multiplying the UCL by the volume of the entire waste area, thus assuming the UCL concentration is uniformly distributed through the entire source. This methodology introduces an obvious potential for overestimation of constituent mass.

- The total mass of uranium-238 was estimated from average concentrations in each 125 foot by 125 foot model grid block and the associated volume.

- The fate and transport modeling used a "70-year rule" for these constituents where no or inadequate leachate data exist. This "rule" assumes all the chemical leaches from a particular waste unit in 70 years. This method is considered very conservative for compounds that are insoluble but may underestimate the maximum exposure for soluble compounds.

- Air modeling is based on a number of conservative assumptions. In combination these assumptions appear to overestimate the exposure point concentrations for air-based on-site air monitoring data, according to a literature search for typical ambient air PM_{10} measurements for EPA Region V. The long-term average PM_{10} concentrations calculated are comparable to measured dust concentrations on construction sites. This uncertainty is expected to moderately overestimate risk (i.e., overestimate risks by 1 to 2 orders-of-magnitude).

- The transport models individually made assumptions regarding the fate of individual constituents within source media. However, these models were not combined or linked to consider assumptions made regarding depletion of chemicals from one model and the effect of that assumption on another model (i.e., the leaching models did not consider source depletion from volatilization or fugitive emissions and the air emissions models did not consider losses via leaching). Furthermore, the direct exposure pathways to a particular source (i.e., incidental ingestion of surface soil) did not consider source depletion by leaching, surface water transport, or air emissions. Consequently, this assumption is considered very conservative.

These uncertainties for modeling collectively are assumed to moderately overestimate the concentrations expected in groundwater and for aerial deposition (i.e., overestimate concentration and risk by a factor of 1 to 2 orders of magnitude).

Models are also used to calculate chemical concentrations in plants and animals. Each time a concentration at one level in the food chain is 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 may occur. In reality, the contaminant transfer is quite dependent on the form of the constituent (e.g., metal species) and other site-related physical conditions (e.g., soil type). Thus actual site transfer factors are unknown. The values chosen are intended to be conservative and they are likely to overestimate risk.

B.2.7.3 Uncertainty in Determination of Land Use

A major uncertainty associated with predicting future exposures at the FEMP site is the future disposition of the property itself. Because it is not possible to predict with certainty what the future uses of the land will be, 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 B.2.4, one of the on-property residents evaluated under future land use for Operable Unit 2 is the resident farmer. It is not known whether or not such a receptor will ever exist.

B.2.7.4 Uncertainty in Selection of Receptors

The receptors selected for evaluation in this and all FEMP risk assessments have been generally selected to reflect and encompass those types of activities which may produce the reasonable maximum exposure individual. Some of these receptors, such as the on-property resident farmer are considered to may or may not ever exist. Risks from such a receptor may overstate probable risk from future use of the property when considered against more plausible land use alternatives (e.g., residential use). Uncertainty associated with the selection of receptors in the current land use scenario is assumed to be low (over- or underestimate risks by a one order of magnitude or less) because the current site environmental setting and configuration was the basis for selection of these receptors. Uncertainty associated with receptors identified in the future land use scenario is considered to be high (i.e., potential to overestimate risk by two or more orders-of-magnitude) due to the low probability of the site being used as a residence or for agricultural purposes.

B.2.7.5 Uncertainty in 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 followed EPA's recommendation and used the 90th or 95th percentile for most of the exposure parameters used in this risk assessment. In other words, the values selected represent the observed or expected habits of a small percentage of the population (usually the upper 5 or 10 percent). For example, the resident farmer scenarios were assumed to inhale air at the location of the highest annual average concentration for 350 days per year for 70 years. Seventy years represents the maximum exposure duration and is not based on a statistical assessment of local or regional residence time for farm families.

Generally, the uncertainty can be assessed quantitatively for a number of assumptions made in determining factors for calculating exposure and intakes. Many of these parameters were determined from statistical analyses on human population characteristics. Often the database used to summarize a particular exposure parameter (i.e., inhalation rate) is quite large. Consequently, the values chosen for such variables in the RME scenario have low uncertainty (i.e., over or underestimate risks by one order of magnitude or less). For many parameters for which limited information exists (i.e., dermal adsorption of organic chemicals from soils), there is greater uncertainty. However, there is often sufficient data to estimate these parameters with low uncertainty. Few intake parameters have high uncertainty associated with them. In the risk assessment for Operable Unit 2, the particular exposure parameters with the greatest uncertainty are judged to be those associated with time (combination of frequency and duration on the site). The particular exposure pathways with the combination of exposure parameters with the highest uncertainty is dermal contact, which is assumed to result in moderate uncertainty (over or underestimate actual exposure by one to two orders of magnitude) for exposure.

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 assure 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 exposed population. To address these issues, a risk estimate closer to the CT is presented for the maximally exposed individual using the CT scenario. The range of risk for this receptor from the CT scenario to the RME scenario seeks to incorporate the range of uncertainty regarding intake assumptions for this receptor.

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B.2.7.6 Uncertainty in Toxicity Assessment

Uncertainty associated with the toxicity assessment is associated with hazard assessment and dose-response evaluations for CPCs. 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) methods. Positive animal cancer test data suggest that humans contain tissue(s) that may also manifest 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, however, positive animal data suggest the nature of the effects (i.e., the target tissues and type of effects) anticipated in humans (EPA 1989e).

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.

Uncertainty in the dose-response evaluation includes the determination of a slope factor for the carcinogenic assessment and derivation of an RfD or RfC for the noncarcinogenic assessment. Uncertainty is introduced from 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. Uncertainty also results from 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 or tolerance 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. Finally, 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 dose-response factors is mitigated by assuming the 95 percent upper bound for the slope factor. Another source of uncertainty regarding quantitative risk estimation for the carcinogenic assessment 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.

For noncancer effects, additional uncertainty factors may be applied in the derivation of the RfD or RfC to mitigate poor quality of the key study or gaps in the database. Additional 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 from 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. Uncertainty in the derivation of reference doses is mitigated by the use of uncertainty and modifying factors that normally range between three and ten. Uncertainty factors (UF) and modifying factors (MF) are assigned as follows:

- A UF of ten is used to account for sensitive subpopulations.
- A UF of ten is used when extrapolating from animals to humans to account for interspecific variability.
- A UF of ten is applied to a NOAEL derived from a subchronic study rather than a chronic study.
- A UF of ten is applied to a LOAEL to estimate a NOAEL.
- An MF from >0 to ten is applied to data to reflect the quality of the data from the critical study used to derive the reference dose.

As a result, a combination of uncertainty and modifying factors may exceed 100, 1000, or more for a particular compound.

Uncertainty arises in the dose-response assessment for Operable Unit 2 for values derived for principle CPCs from studies with limitations. 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 largely because the human data available for radiocarcinogenic effects of uranium exposure 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 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 and, as a consequence, introduce moderate to high uncertainty into the Operable Unit 2 risk assessment.

Other toxicity information used in the Operable Unit 2 risk assessment that introduces uncertainty include:

- The EPA inhalation slope factor of 7.7×10^{-12} pCi^{-1} for radon-222 plus its daughters is used to calculate risks resulting from indoor inhalation of radon gases. The EPA bases this slope factor on a 50 percent equilibrium ratio between radon-222 and its short-lived daughters. Studies cited in NCRP Report No. 78 (NCRP 1984b) report a lower value for this equilibrium ratio in indoor air (i.e., 100/50/30/20/20 for radon-222, polonium-218, lead-214, bismuth-214, and polonium-214, respectively). Since the concentration of daughters expected in indoor air is lower than the EPA assumption, the slope factor is probably conservative in this respect.

- PAHs that are classified as B2 probable human carcinogens for which no toxicity data were available are evaluated using benzo(a)pyrene toxicity data. This assumption likely leads to an overestimation of the carcinogenicity of those PAHs because conservative assumptions were used to relate their carcinogenicity to that of benzo(a)pyrene. However, when toxicity equivalency factors were used in this assessment to evaluate their carcinogenicity, this may either underestimate or overestimate the carcinogenic risks. Overall, this increased conservatism does not significantly impact the overall risks from Operable Unit 2 since the majority of risks are posed by other CPCs.

- As with PAHs, the carcinogenicity of dioxins and furans other than the 2,3,7,8-isomer were determined using EPA's revised Toxicity Equivalency Factors (TEFs) (EPA 1990e) in the absence of toxicity values for the different isomers. The TEFs are based on the assumption that all dioxin and furan congeners are carcinogenic. This may introduce a 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 GI absorption factor. The actual chemical form(s) that influence the magnitude of the GI absorption factor have not been considered.

To summarize, the uncertainty associated with the toxicity assessment is chemical-specific since it depends on the existing information used to derive the dose-response factor. In general, this uncertainty tends to be higher (overestimate risks by two or more orders of magnitude) for the chemical risk assessment, but tends to be low (overestimate risks by an order of magnitude or less) for radionuclides. This difference is the result of animal versus human data used for chemical and radiological compounds, respectively.

B.2.7.7 Uncertainty in Risk Characterization

Uncertainty in risk characterization results from assumptions made regarding additivity of effects from exposure to multiple compounds from various exposure routes. High uncertainty exists when summing cancer risks or hazard indices for several substances across different exposure pathways. This assumes that each substance has a similar effect and/or mode of action. Often compounds affect different organs, have different mechanisms of action, and differ in their fate in the body where additivity is not appropriate. However, the assumption of additivity is made to provide a conservative estimate of risk.

Risk characterization does not consider antagonistic or synergistic effects. Little to no information is available to determine the potential for antagonism or synergism for CPCs. Therefore, this uncertainty cannot be discussed based on the impact on the risk assessment since it has the potential to either over-or under-estimate potential human health risks.

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 should be considered separately because 1) chemical CSFs are developed using laboratory experiments and radionuclide toxicity values are based on human epidemiological data, and 2) chemical CSFs represent an upper bound limit value while radionuclide slope factors are "best estimates." Therefore, cancer risks from exposure to radionuclides are presented separately from those from chemical CPCs.

B.3.0 RESULTS

This section summarizes the risk characterization result for each Operable Unit 2 subunit and the cumulative risk from Operable Unit 2 as a whole. Tables presenting intake, risks, and hazards associated with each scenario, receptor, and pathway are collected in Attachment III to this appendix to facilitate their review.

B.3.1 ACTIVE FLYASH PILE

B.3.1.1 Exposure Point Concentrations

Table B.3.1-1 summarizes the exposure scenarios evaluated to assess risk associated with the Active Flyash Pile. It also summarizes derivation of exposure concentrations specific to this unit. With the exception of groundwater exposures, all exposure point concentrations were derived from analytical data on samples collected within the boundaries of the Active Flyash Pile subunit.

For groundwater exposures, data from the Active Flyash Pile were used to develop source terms for estimating future groundwater concentrations as described in Section 5.0 of this RI report and Section B.2.4 of this appendix. To assess risk due to groundwater exposures for this unit, single maximum groundwater concentrations of each groundwater CPC were estimated for both the future off-property farmer and resident child and the future on-property farmer and resident child.

Exposure point concentrations related to air dispersion modeling are presented in Section 5.0 of this RI report. Results utilized in the risk assessment were CPC aerial deposition rates and suspended inhalable particulate CPC concentrations. Theoretical locations of receptors are described as: on-subunit (directly within subunit battery limits); on-site (outside of battery limits, but within FEMP boundary); and off-site (outside of FEMP boundary). Use of the appropriate receptor to evaluate risk was dependent on the exposure scenario evaluated at a particular subunit. For assessing risk due to contaminants present at the Active Flyash Pile, South Field, and Inactive Flyash Pile, it was assumed that the on-property farmer resided on the South Field and simultaneously farmed that area. The South Field was chosen as the farm and residence site since it is not feasible to place either a home or an agricultural field on either the Active or Inactive Flyash Pile due to the steep, unstable slopes. This and other relevant information regarding receptors, routes of exposure, and exposure point concentrations for the Active Flyash Pile is summarized in Table B.3.1-1.

TABLE B.3.1-1

ACTIVE FLYASH PILE
EXPOSURE POINT CONCENTRATIONS
FOR SCENARIOS EVALUATED

Current Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Current with Access Controls and without Access Controls (current use of FEMP continues, DOE ownership)	Trespassing Youth	soil	incidental ingestion dermal contact external radiation	surface flyash material within subunit
		air	inhalation of particulates, volatiles, radionuclides, and gases	maximum estimated on-site current concentration derived from airborne surface flyash material air modeling results
		surface water	incidental ingestion dermal contact	single surface water sample within subunit
		sediment	incidental ingestion dermal contact external radiation	not quantitated; single sediment sample located off subunit, sediment within subunit considered with flyash surface material (see soil)
	Off-Property Resident Farmer (adult and child), livestock grazing off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site current concentrations derived from airborne surface flyash material air modeling results
		plants (homegrown produce)	ingestion of fruit and vegetables	maximum estimated off-site current concentrations derived from deposited airborne surface flyash material air modeling results
		livestock (grazing off-property)	ingestion of milk and beef	maximum estimated off-site current concentrations derived from deposited airborne surface flyash material air modeling results
	Groundskeeper	air	inhalation of particulates, volatiles, and gases	maximum estimated on-site current concentration derived from air modeling
		soil	ingestion dermal contact external radiation	surface flyash material
	User of Meat/Milk Products	livestock (grazing on-property)	ingestion of milk and beef	maximum estimated on-site current concentrations derived from deposited airborne surface flyash material air modeling results

TABLE B.3.1-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Federal Ownership (includes exposure routes that require development time)	Future Off-Property Farmer (adult and child), livestock grazing off-property, groundwater off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site future concentrations derived from airborne surface flyash material air modeling results
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated off-site future concentrations derived from deposited airborne surface flyash material air modeling and groundwater modeling results
		livestock (grazing at property boundary)	ingestion of milk and beef	maximum estimated off-site future concentrations derived from deposited airborne surface flyash material air modeling and groundwater modeling results
		groundwater	ingestion dermal contact inhalation of volatiles released during household use	modeled groundwater concentrations off-site at time when contamination is greatest in the South Field and Inactive Flyash Pile
Federal Ownership (includes exposure routes that require development time)	Expanded Trespasser (adult and youth)	air	inhalation of particulates, volatiles, and gases	maximum estimated on-site airborne surface flyash material air modeling results
		surface water	incidental ingestion dermal contact	single surface water sample within subunit
		sediment	incidental ingestion dermal contact external radiation	not quantitated; single sediment sample located off subunit, sediment within subunit considered with flyash surface material (see soil)
		soil	incidental ingestion dermal contact external radiation	surface flyash material within subunit

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TABLE B.3.1-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Without Federal Ownership (includes exposure routes that require development time)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater off-property (will be South Field resident farmer, residence on Active Flyash Pile not possible), RME and CT estimates	air	inhalation of particulates, volatiles, gases, indoor radon	maximum estimated on-site future concentrations from airborne surface flyash material modeling results; indoor radon quantitated under South Field scenario
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated on-site future concentrations derived from deposited airborne surface flyash material modeling and groundwater modeling results
		livestock (grazing on property)	ingestion of milk and beef	maximum estimated on-site future concentrations derived from deposited airborne surface flyash material air modeling and groundwater modeling results
		groundwater	ingestion dermal contact inhalation of volatiles released during household use	modeled groundwater concentrations underlying Active Flyash Pile at time when concentration is greatest
		soil	incidental ingestion dermal contact external radiation	surface flyash material within subunit
Without Federal Ownership (includes exposure routes that require development time)	Future Homebuilder (per Operable Unit 1)	waste material/subsurface soil	incidental ingestion dermal contact external radiation	not quantified; no building on the Active Flyash Pile anticipated
		air	inhalation of particulates, volatiles, and gases	not quantified; no building on the Active Flyash Pile anticipated
	Future Perched Groundwater User (Solid Waste Landfill and Lime Sludge Ponds only)	perched groundwater directly underlying subunit	ingestion, dermal contact, and inhalation of volatiles released during household use	not quantitated; no perched groundwater at Active Flyash Pile
With or Without Federal Ownership	Great Miami River User	surface water	ingestion dermal contact	not quantified; Great Miami River not impacted by Active Flyash Pile
		sediment	ingestion dermal contact external radiation	not quanitified, Great Miami River not impacted by Active Flyash Pile
		fish	ingestion	not quantified; Great Miami River not impacted by Active Flyash Pile

B.3.1.2 Constituents of Potential Concern

The CPCs identified for surface flyash material, 1000 series well groundwater, 2000 series well groundwater, subsurface flyash material, surface water, and sediment are summarized in Tables B.3.1-2(a), (b), (c), (d), (e), and (f), respectively (Attachment III), along with all relevant information regarding frequencies of detection, data distribution, 95 percent UCL's, etc. Table B.3.1-3 summarizes CPCs for the appendix by medium.

B.3.1.3 Risk Characterization for Current Land Use

The scenarios characterized for the Active Flyash Pile assuming continued DOE ownership are a trespassing youth; the off-property farmer and resident child using food products from livestock grazing off-property and from produce grown off-property; a groundskeeper exposed to on-site contaminant concentrations; and a user of meat and milk products from livestock grazed on-property.

B.3.1.3.1 Trespassing Youth

Risk was characterized for the trespassing youth contacting CPCs directly in soil and in surface water. Sediment exposure was not evaluated since the available sediment samples were not located within the Active Flyash Pile battery limits. Additionally, risk was characterized for CPCs contacted via inhalation of particulates derived from airborne surface flyash material. Exposure point concentrations for soil and surface water were based on analytical data, while those for airborne particulates were based on air modeling results as described in the methods section and in Appendix A and Section 5.0 of this RI report.

The risks and hazards calculated for the trespassing youth exposed to contaminants in soil are presented in Table B.3.1-4 (Attachment III). Total risk due to exposure to all CPCs in soil by all routes of exposure is 6.8×10^{-5}. This is primarily due to external radiation from radium-226, radium-228, thorium-228, for which risks of 7.9×10^{-6}, 2.6×10^{-6}, and 6.1×10^{-6} were calculated, respectively. Total chemical hazards calculated for a trespassing youth exposed to CPCs from active flyash material did not exceed a HI of 1.0.

Risks and hazards due to exposure to surface water for this receptor are presented in Table B.3.1-5 (Attachment III). Total risk due to exposure to all CPCs in surface water did not exceed the 10^{-6} risk level for any single pathway or for all pathways combined. Total HI for surface water was well

TABLE B.3.1-3

CONSTITUENTS OF POTENTIAL CONCERN FOR ACTIVE FLYASH PILE

SURFACE SOIL	SUBSURFACE SOIL	SEDIMENT	GROUNDWATER	SURFACE WATER
		Radiological Constituents		
--	--	CS-137	--	--
NP-237	NP-237	NP-237	NP-237	NP-237
	PB-210			
PU-238	PU-237	PU-238	--	PU-238
PU-239/240	PU-239/239	PU-239/240	--	--
	RA-224			
RA-226	RA-226	RA-226	RA-226	--
RA-228	RA-228	RA-228	RA-228	RA-228
SR-90	SR-90	--	--	--
--	--	--	TC-99	
TH-228	TH-228	TH-228	--	--
TH-230	TH-230	TH-230	--	--
TH-232	TH-232	TH-232	--	--
U-234	U-234	U-234	U234	U-234
U-235/236	U-235/236	U-235/236	U235/236	U-235/236
U-238	U-238	U-238	U238	U-238
		Chemical Constituents		
Arsenic	Arsenic	Arsenic	Arsenic	Arsenic
Barium	--	--	--	Barium
Beryllium	Beryllium	Beryllium	Beryllium	--
--	Cadmium	Cadmium	Cadmium	--
Chromium	Chromium	Chromium	--	--
Cobalt	Cobalt	Cobalt	--	--
Copper	--	--	--	--
Cyanide	--	--	--	--
Lead	Lead	Lead	Lead	
--	--	Manganese		Manganese
Molybdenum	--	--	Molybdenum	--
Nickel	--	--	--	--
Selenium	--	--	--	Selenium
--	TH-TOTAL	TH-TOTAL	--	--
Thallium	--	Thallium	--	--
Toluene	--	--	--	--
--	U-TOTAL	U-TOTAL	--	U-TOTAL
Vanadium	--	--	--	--
Zinc	--	--	--	--
--	--	Di-n-butyl phthalate	--	--
--	1,2-Dichloroethane	--	--	--
--	2-Hexanone	--	--	--
--	2-Methylnaphthalene	--	--	--
--	Benzene	--	--	--
--	bis(2-Ethylhexyl) phthalate	--	--	--
--	Chloroform	--	--	--
--	Methylene chloride	--	--	--
--	Pentachlorophenol	--	--	--
--	Phenanthrene	--	--	--
--	Vinyl chloride	--	--	--

-- = not a CPC in this medium

blow 1.0. Sediment was not assessed since no sediment samples were available from within the Active Flyash Pile battery limits.

B.3.1.3.2 Current Off-Property Farmers

Risk was characterized for the current off-property farmer and resident child contacting CPCs via inhalation of airborne particulates, ingestion of contaminants in airborne particulates via their deposition on homegrown produce, and their uptake in milk or beef from livestock grazing on particulates deposited on off-site grasses. For all of these routes of exposure, the exposure point concentration was based on air modeling results as described in Section B.2.0 of this appendix and Appendix A and Section 5.0 of this RI report.

Risks and hazards due to surface soil are calculated for the current off-property farmer and resident child are presented in Tables B.3.1-6 and B.3.1-7, respectively (Attachment III). The risk and HI associated with inhalation of all CPCs in airborne soil particulates was 1.8×10^{-7} and much less than 1.0 for the farmer, respectively. The risks and HI calculated for the off-property resident child were 9.5×10^{-9} and much less than 1.0, respectively.

Risks and hazards associated with ingestion of CPCs in beef and milk for the off-property resident farmer and child are given in Tables B.3.1-8(a) and B.3.1-8(b), respectively (Attachment III). Total risk for all CPCs consumed in beef and milk affected by dust deposition from the Active Flyash Pile was 2.1×10^{-7} and 4.9×10^{-8} for the farmer and resident child, respectively. Total HIs for all CPCs consumed in beef and milk was well below a HI of 1.0 for both the farmer and resident child.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-property resident farmer and child are given in Tables B.3.1-9(a) and B.3.1-9(b), respectively (Attachment III). The total risk for all CPCs consumed in homegrown produce was 1.3×10^{-6} and 4.4×10^{-7} for the farmer and resident child, respectively. Carcinogenic risks were due to the estimated uptake of arsenic by plants. The total HI for all CPCs consumed in homegrown produce was well below 1.0 for both the farmer and resident child.

B.3.1.3.3 Current User of Milk/Meat Products

Risk was characterized for a current user of milk and meat products from livestock potentially grazing within the Active Flyash Pile, South Field, and Inactive Flyash Pile boundaries. Exposure point

concentration in beef were derived from the maximum estimated on-site current deposition rates of airborne surface flyash material.

Risk and hazard to one current user of milk and meat products is given in Table 3.1-10 (Attachment III). Total risk was 6.5 x 10^{-6} due mostly to the estimated uptake of arsenic by plants and then beef. Total HI is well below 1.0.

B.3.1.3.4 Current Groundskeeper

Risk and hazard to the current groundskeeper are given in Table B.3.1-11 (Attachment III). Total risk was 9.2 x 10^{-5} due mostly to dermal contact from beryllium in soil and external radiation in soil from the naturally occurring radioisotope thorium-228. Total HI was below 1.0.

B.3.1.4 Risk Characterization Resident for Future Land Use

The future scenarios characterized for the Active Flyash Pile assuming continued federal ownership are the off-property farmer and resident child and an expanded trespasser. Future scenarios characterized for the Active Flyash Pile assuming private ownership are an on-property farmer and resident child living on and farming in the South Field. The presence of a residence on the Active Flyash Pile was considered infeasible due to steep, unstable slopes and there is no perched groundwater at the Active Flyash Pile. Therefore, risks for a future homebuilder or perched groundwater user were not evaluated for this subunit. Recreational users of the Great Miami River were also evaluated assuming federal and private ownerships.

B.3.1.4.1 Future Off-Property Farmers

For the future off-property farmer and resident child, risks were calculated for exposure to CPCs in airborne surface flyash and groundwater migrating off-site. Receptors were presumed to contact CPCs in air via inhalation of airborne particulates; by consumption of homegrown produce on which airborne surface flyash was deposited and that was irrigated with contaminated groundwater; by ingestion of milk and beef from cattle grazing on vegetation on which airborne surface flyash was deposited and that consumed contaminated groundwater; and by ingestion of, dermal contact with, and inhalation of contaminants groundwater. All of the exposure point concentrations for this scenario were derived from air and groundwater modeling results as described in the Section B.2.0, Appendix A, and Section 5.0 of this RI report.

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Risks and hazards calculated for the future off-property farmer and resident child exposed via direct inhalation of airborne contaminants are presented in Tables B.3.1-12(a) and B.3.1-12(b), respectively (Attachment III). Total risk associated with inhalation of CPCs in airborne soil particulates is 1.8 x 10^{-7} and 9.5 x 10^{-9}, for the future off-property farmer and resident child, respectively. Total HIs associated with inhalation of CPCs in airborne soil particulates were well below 1.0 for both the future off-property farmer and resident child.

Risks and hazards associated with ingestion of CPCs in beef and milk for the off-property farmer and resident child are given in Tables B.3.1-13(a) and B.3.1-13(b), respectively (Attachment III). The total risk for all CPCs consumed in beef and milk was 3.2 x 10^{-7} and 6.9 x 10^{-8} for the farmer and resident child, respectively. Total HIs for all CPCs consumed in beef and milk was well below 1.0 for both the farmer and child.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-property farmer and resident child are given in Tables B.3.1-14(a) and B.3.1-14(b), respectively (Attachment III). Total risk for all CPCs consumed in homegrown produce was 2.3 x 10^{-6} and 5.2 x 10^{-7} for the farmer and child, respectively. Total HI for all CPCs consumed in homegrown produce was well below 1.0 for both the farmer and child.

Risks and hazards associated with exposures of the off-property farmer and resident child to groundwater are given in Tables B.3.1-15(a) and B.3.1-15(b), respectively (Attachment III). Total risk via all routes of direct exposure to groundwater (ingestion, inhalation, and dermal contact) for the farmer was 6.4 x 10^{-6} and for the child was 2.7 x 10^{-7}. Most of this risk is attributable to ingestion of radionuclides uranium-324, and uranium-238. Total HIs via all routes of direct exposure to groundwater for both the farmer and child is less than 1.0.

B.3.1.4.2 Future On-Property Expanded Trespasser

The on-property expanded trespasser was assumed to contact CPCs directly via inhalation of airborne particulates of surface flyash material; ingestion and dermal contact with surface flyash material and surface water; and external radiation resulting from exposure to surface flyash material. Risks associated with contacting sediment were not evaluated because available sediment data were not within the Active Flyash Pile boundaries. All of the exposure point concentrations for this scenario were derived from the analytical data for the subunit.

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Risks and hazards calculated for the future on-property expanded trespasser due to direct exposure to soil and to airborne particulates are presented in Table B.3.1-16 (Attachment III). Total risk due to exposure to all CPCs in soil by all exposure pathways was 2.4×10^{-4}. This was primarily due to a risk of 2.1×10^{-4} from dermal contact with beryllium. HI was less than 1.0.

Risks and hazards calculated for exposure to surface water are presented in Table B.3.1-17 (Attachment III). Total risk due to exposure to CPCs in surface water did not exceed the 1.0×10^{-6} risk level and total HI was less than 1.0.

B.3.1.4.3 Future On-Property (South Field) Farmers

Risks were quantified for the future on-property farmer and resident child living in the South Field with cattle grazing on the South Field and using groundwater contaminated by the Active Flyash Pile. Risks were calculated for inhalation of airborne particulates estimated from air modeling results of the Active Flyash Pile; ingestion of homegrown produce on which airborne surface flyash was deposited and which was irrigated with contaminated groundwater; and ingestion of milk and beef from livestock consuming vegetation on which airborne surface flyash was deposited and drinking contaminated groundwater directly underlying the Inactive Flyash Pile and South Field area. Exposure point concentrations used in estimating risk for these routes of exposure were derived from air and groundwater modeling results, as described in Section B.2.0, Methodology and Appendix A and Section 5.0 of this report. Both RME and CT risks and hazards were estimated for the farmer.

Risks associated with ingestion, dermal contact, and inhalation of contaminants in groundwater migrating from waste mater in the Active Flyash Pile were assessed independently in order to evaluate the specific contribution to risk resulting from migration of contaminants from the Active Flyash Pile into groundwater. Risks associated with direct contact to surface flyash or surface water were not evaluated for this scenario since the presence of a residence on the Active Flyash Pile itself is not assumed to be feasible.

Risks and hazards for a South Field on-property RME farmer and resident child exposed to CPCs in airborne surface flyash material migrating off-subunit are given in Tables B.3.1-18(a), and B.3.1-18(b), respectively (Attachment III). The total risk for the farmer was 1.8×10^{-3}; and for the child was 5.8×10^{-4}. This was almost entirely due to the estimated risk associated with ingestion and

dermal contact with arsenic. HIs for the farmer and child were 1.0 and 5.1, respectively, due mostly to the estimated ingestion of arsenic in soil.

Risks and hazards associated with exposure to contaminants via direct contact with groundwater for the RME future on-property farmer and resident child are given in Tables B.3.1-19(a) and B.3.1-19(b), respectively (Attachment III). Total risk for the farmer was 4.7×10^{-5} due mostly to ingestion of uranium-234 and uranium-238. Total risk for the resident child was 2.0×10^{-6} due mostly to ingestion of the same material. The HI for the adult farmer was less than 1.0, but for the child was 1.8 due to potential ingestion of uranium groundwater.

Risks and hazards associated with exposure to contaminants in homegrown produce for the RME farmer and resident child are given in Table B.3.1-20(a) and B.3.1-20(b), respectively (Attachment III). The total risk associated with homegrown produce for the RME farmer was 4.7×10^{-5} and for the child was 1.4×10^{-5}. This was mostly due to the estimated uptake of arsenic in produce. HIs were below 1.0 for both receptors.

Risks and hazards associated with exposure to contaminants in beef and milk for the RME farmer and resident child are given in Table B.3.1-21(a) and B.3.1-21(b), respectively (Attachment III). The risk associated with beef and milk for the farmer was 7.4×10^{-6} and for the child was 1.7×10^{-6}. Again, this is largely due to the estimated uptake of arsenic by livestock. Noncarcinogenic HIs were below 1.0 for both receptors.

CT estimates of risk and hazard for the future on-property farmer associated with exposures to surface flyash material, groundwater contaminated by the Active Flyash Pile, homegrown produce, and beef and milk are given in Tables B.3.1-22, B.3.1-23, B.3.1-24 and B.3.1-25, respectively (Attachment III). Risks associated with surface flyash were 1.6×10^{-4} due almost entirely to ingestion of arsenic in the soil and external radiation from thorium-228 and radium-228. Risks barely exceeding 1.0×10^{-6} were associated with exposures to groundwater (3.3×10^{-6}), and homegrown produce (3.0×10^{-6}). The greatest proportion of all these risks were due to the estimated presence of uranium-238 in groundwater and arsenic in homegrown produce. All HIs were below 1.0.

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B.3.1.5 Future Great Miami River User

Risks and hazards to a future adult and youth recreational users of the Great Miami River contacting contaminated sediment at the confluence of Paddys Run and the Great Miami River are presented in Tables B.3.1-26(a) and B.3.1-26(b) (Attachment III). Risks due to surface water and fish were not quantified since modeling results indicated that the Great Miami River water would not be contaminated by the Active Flyash Pile. Risks due to dermal contact with sediment were 8.4×10^{-5} and 4.0×10^{-5} for the adult and child, respectively, due almost entirely to the estimated presence of beryllium in sediment.

B.3.1.6 Risks Due to Estimated Radium-222 Emission

Ambient radon emissions potentially associated with the Active Flyash Pile, estimated as described in Section B.2.0, are summarized in Table B.3.1-27 for each receptor. Risks that would result at the Active Flyash Pile assuming radon emissions were equivalent to what would naturally occur if radium-226 were present at background concentrations are presented for comparison. The future on-property RME farmer is associated with a risk of 1.4×10^{-6}.

B.3.1.7 Summary of the Active Flyash Pile

Table B.3.1-28 and B.3.1-29 summarize risk and hazard, respectively, associated with the Active Flyash Pile for all receptors assuming current land use. Exposure of the trespassing youth and groundskeeper to contaminated soil; exposures of the off-property farmer to homegrown produce; and exposure of the current meat and milk user were associated with carcinogenic risks in the 1.0×10^{-6} to 1.0×10^{-5} range. Exposures of the trespassing youth to radium-226, radium-228, and thorium-228 in soil via external radiation; and to arsenic and beryllium in soil via dermal contact accounted for the risk to this receptor. Risk to the farmer from ingestion of homegrown produce was due to the estimated uptake of arsenic. Exposure of the groundskeeper to contaminated soil was associated with a risk of 9.2×10^{-5}. Exposure to this receptor was mostly from thorium-228 and beryllium which accounted for 18 percent and 63 percent, respectively, of the total risk to this receptor. No exposures resulted in HIs exceeding 1.0.

Tables B.3.1-30 and B.3.1-31 summarize risks and hazards, respectively, associated with the Active Flyash Pile for receptors assuming future land use. The greatest risks associated with the Active Flyash Pile are from direct contact with soil or surface flyash material. Total estimated risks to the

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TABLE B.3.1-27
ACTIVE FLYASH PILE
RISKS DUE TO ESTIMATED RA-222 EMISSION

	Subunit			Background		
	Maximum Ra-222 Air Concentration (pCi/m3)*	Intake (pCi)	Risk	Background Ra-222 Air Concentration (pCi/m3)**	Intake (pCi)	Risk
Current Trespassing Youth	1.8E+00	3.7E+03	2.9E-08	3.6E-01	7.4E+02	5.7E-09
Current/Future Off-Property Farmer	1.3E-01	1.6E+04	1.2E-07	2.6E-02	3.0E+03	2.3E-08
Current/Future Off-Property Child	1.3E-01	2.8E+02	2.2E-09	2.6E-02	5.5E+01	4.3E-10
Future Expanded Trespasser (Adult + Child)	1.8E+00	5.9E+03	4.5E-08	3.6E-01	1.2E+03	8.9E-09
Future, RME On-Property Farmer	1.6E+00	1.9E+05	1.5E-06	3.2E-01	3.7E+04	2.9E-07
Future, CT On-Property Farmer	1.6E+00	1.4E+04	1.1E-07	3.2E-01	2.8E+03	2.1E-08
Future On-Property Child	1.6E+00	3.4E+03	2.6E-08	3.2E-01	6.7E+02	5.2E-09

*Represents the maximum surface soil Ra-226 hit of 4.6 pCi/g.

**Assumes Ra-226 concentration is 1.228 pCi/g in surface soil and 0.78 pCi/g in subsurface soil.

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TABLE B.3.1-28
CURRENT LAND USE
ACTIVE FLYASH PILE
SUMMARY OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Soil	NP-237	6.9E-07	1.02%	1.02%	1.4E-08	7.72%	0.81%	2.5E-10	2.64%	0.05%	N/A		
	PU-238	3.1E-09	0.00%	0.00%	2.4E-09	1.32%	0.14%	4.3E-11	0.45%	0.01%	N/A		
	PU-239/240	1.4E-09	0.00%	0.00%	9.9E-10	0.55%	0.06%	1.8E-11	0.19%	0.00%	N/A		
	RA-226	7.9E-06	11.56%	11.55%	1.2E-09	0.67%	0.07%	2.2E-11	0.23%	0.00%	N/A		
	RA-228	2.6E-06	3.85%	3.84%	1.9E-10	0.11%	0.01%	3.5E-12	0.04%	0.00%	N/A		
	SR-90	2.5E-09	0.00%	0.00%	2.4E-11	0.01%	0.00%	4.4E-13	0.00%	0.00%	N/A		
	TH-228	6.1E-06	8.92%	8.92%	2.6E-08	14.34%	1.51%	4.7E-10	4.90%	0.09%	N/A		
	TH-230	3.1E-09	0.00%	0.00%	9.3E-09	5.20%	0.55%	1.7E-10	1.78%	0.03%	N/A		
	TH-232	2.1E-09	0.00%	0.00%	6.6E-09	3.66%	0.39%	1.2E-10	1.25%	0.02%	N/A		
	U-234	2.9E-09	0.00%	0.00%	8.1E-09	4.53%	0.48%	1.5E-10	1.55%	0.03%	N/A		
	U-235/236	1.1E-08	0.02%	0.02%	4.3E-10	0.24%	0.03%	7.9E-12	0.08%	0.00%	N/A		
	U-238	4.3E-08	0.06%	0.06%	1.6E-08	9.06%	0.95%	2.9E-10	3.09%	0.06%	N/A		
	Total Radiologic Risk	1.7E-05	25.45%		8.5E-08	47.42%		1.5E-09	16.20%				
	Arsenic	2.7E-06	3.89%	3.88%	6.6E-08	36.74%	3.87%	5.6E-09	58.56%	1.11%	N/A		
	Beryllium	4.8E-05	70.65%	70.59%	1.9E-09	1.07%	0.11%	1.6E-10	1.71%	0.03%	N/A		
	Chromium	1.1E-08	0.02%	0.02%	2.6E-08	14.77%	1.56%	2.2E-09	23.54%	0.45%	N/A		
	Total Chemical Risk	5.1E-05	74.55%		9.4E-08	52.58%		8.0E-09	83.80%				
	TOTAL	6.8E-05	100.00%		1.8E-07	100.00%		9.5E-09	100.00%				
Surface Water	NP-237	1.7E-10	0.32%	0.00%	N/A			N/A			N/A		
	PU-238	8.3E-11	0.16%	0.00%	N/A			N/A			N/A		
	RA-228	5.0E-10	0.94%	0.00%	N/A			N/A			N/A		
	U-234	7.1E-11	0.13%	0.00%	N/A			N/A			N/A		
	U-235/236	4.6E-12	0.01%	0.00%	N/A			N/A			N/A		
	U-238	1.4E-10	0.26%	0.00%	N/A			N/A			N/A		
	Total Radiologic Risk	9.7E-10	1.82%										
	Arsenic	5.2E-08	98.18%	0.08%	N/A			N/A			N/A		
	Total Chemical Risk	5.2E-08	98.18%										
	TOTAL	5.3E-08	100.00%										
Sediment	NP-237	N/A			N/A			N/A			N/A		
	PU-238	N/A			N/A			N/A			N/A		
	PU-239/240	N/A			N/A			N/A			N/A		
	RA-226	N/A			N/A			N/A			N/A		
	RA-228	N/A			N/A			N/A			N/A		
	SR-90	N/A			N/A			N/A			N/A		
	TH-228	N/A			N/A			N/A			N/A		
	TH-230	N/A			N/A			N/A			N/A		
	TH-232	N/A			N/A			N/A			N/A		
	U-234	N/A			N/A			N/A			N/A		
	U-235/236	N/A			N/A			N/A			N/A		
	U-238	N/A			N/A			N/A			N/A		
	Total Radiologic Risk												
	Arsenic	N/A			N/A			N/A			N/A		
	Beryllium	N/A			N/A			N/A			N/A		
	Total Chemical Risk												
	TOTAL												

TABLE B.3.1-28
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Soil	NP-237	1.9E-06	2.12%	2.12%
	PU-238	1.9E-08	0.02%	0.02%
	PU-239/240	8.7E-09	0.01%	0.01%
	RA-226	9.3E-08	0.10%	0.10%
	RA-228	7.1E-06	7.74%	7.74%
	SR-90	1.4E-08	0.02%	0.02%
	TH-228	1.7E-05	17.98%	17.98%
	TH-230	2.4E-08	0.03%	0.03%
	TH-232	1.6E-08	0.02%	0.02%
	U-234	2.2E-08	0.02%	0.02%
	U-235/236	3.1E-08	0.03%	0.03%
	U-238	1.4E-07	0.16%	0.16%
	Total Radiologic Risk	2.6E-05	28.25%	
	Arsenic	8.3E-06	9.03%	9.04%
	Beryllium	5.8E-05	62.65%	62.65%
	Chromium	5.5E-08	0.06%	0.06%
	Total Chemical Risk	6.6E-05	71.75%	
	TOTAL	9.2E-05	100.00%	
Surface Water	NP-237	N/A		
	PU-238	N/A		
	RA-228	N/A		
	U-234	N/A		
	U-235/236	N/A		
	U-238	N/A		
	Total Radiologic Risk			
	Arsenic	N/A		
	Total Chemical Risk			
	TOTAL			
Sediment	NP-237	N/A		
	PU-238	N/A		
	PU-239/240	N/A		
	RA-226	N/A		
	RA-228	N/A		
	SR-90	N/A		
	TH-228	N/A		
	TH-230	N/A		
	TH-232	N/A		
	U-234	N/A		
	U-235/236	N/A		
	U-238	N/A		
	Total Radiologic Risk			
	Arsenic	N/A		
	Beryllium	N/A		
	Total Chemical Risk			
	TOTAL			

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TABLE B.3.1-28
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	NP-237	N/A			1.6E-08	1.21%	0.93%	1.2E-09	0.27%	0.23%	N/A		
	PU-238	N/A			1.9E-09	0.15%	0.11%	1.4E-10	0.03%	0.03%	N/A		
	PU-239/240	N/A			8.7E-10	0.07%	0.05%	6.5E-11	0.01%	0.01%	N/A		
	RA-226	N/A			7.0E-09	0.54%	0.41%	5.2E-10	0.12%	0.10%	N/A		
	RA-228	N/A			4.1E-09	0.31%	0.24%	3.0E-10	0.07%	0.06%	N/A		
	SR-90	N/A			2.7E-09	0.21%	0.16%	2.0E-10	0.05%	0.04%	N/A		
	TH-228	N/A			2.6E-09	0.20%	0.16%	2.0E-10	0.04%	0.04%	N/A		
	TH-230	N/A			6.1E-10	0.05%	0.04%	4.5E-11	0.01%	0.01%	N/A		
	TH-232	N/A			4.1E-10	0.03%	0.02%	3.1E-11	0.01%	0.01%	N/A		
	U-234	N/A			7.3E-10	0.06%	0.04%	5.4E-11	0.01%	0.01%	N/A		
	U-235/236	N/A			3.9E-11	0.00%	0.00%	2.9E-12	0.00%	0.00%	N/A		
	U-238	N/A			1.3E-09	0.10%	0.08%	9.5E-11	0.02%	0.02%	N/A		
	Total Radiologic Risk				3.8E-08	2.92%		2.8E-09	0.64%				
	Arsenic	N/A			1.1E-06	86.11%	66.17%	3.9E-07	88.13%	77.80%	N/A		
	Beryllium	N/A			1.4E-07	10.98%	8.43%	5.0E-08	11.23%	9.92%	N/A		
	Total Chemical Risk				1.3E-06	97.08%		4.4E-07	99.36%				
	TOTAL				1.3E-06	100.00%		4.4E-07	100.00%				
Beef/Milk (Dust Affected)	NP-237	N/A			9.2E-11	0.04%	0.01%	7.0E-12	0.01%	0.00%	2.8E-09	0.04%	0.04%
	PU-238	N/A			1.4E-13	0.00%	0.00%	1.5E-14	0.00%	0.00%	4.2E-12	0.00%	0.00%
	PU-239/240	N/A			6.3E-14	0.00%	0.00%	6.6E-15	0.00%	0.00%	1.9E-12	0.00%	0.00%
	RA-226	N/A			1.1E-09	0.53%	0.07%	2.0E-10	0.41%	0.04%	3.5E-08	0.53%	0.53%
	RA-228	N/A			6.4E-10	0.30%	0.04%	1.1E-10	0.23%	0.02%	1.9E-08	0.30%	0.30%
	SR-90	N/A			1.1E-09	0.50%	0.06%	2.0E-10	0.41%	0.04%	3.3E-08	0.51%	0.51%
	TH-228	N/A			5.0E-12	0.00%	0.00%	7.8E-13	0.00%	0.00%	1.5E-10	0.00%	0.00%
	TH-230	N/A			1.3E-12	0.00%	0.00%	2.0E-13	0.00%	0.00%	3.8E-11	0.00%	0.00%
	TH-232	N/A			8.5E-13	0.00%	0.00%	1.3E-13	0.00%	0.00%	2.6E-11	0.00%	0.00%
	U-234	N/A			1.5E-10	0.07%	0.01%	2.8E-11	0.06%	0.01%	4.6E-09	0.07%	0.07%
	U-235/236	N/A			8.2E-12	0.00%	0.00%	1.5E-12	0.00%	0.00%	2.5E-10	0.00%	0.00%
	U-238	N/A			2.7E-10	0.12%	0.02%	4.8E-11	0.10%	0.01%	8.0E-09	0.12%	0.12%
	Total Radiologic Risk				3.4E-09	1.58%		6.0E-10	1.21%		1.0E-07	1.58%	
	Arsenic	N/A			2.0E-07	93.06%	11.74%	4.7E-08	95.12%	9.34%	6.1E-06	93.06%	93.06%
	Beryllium	N/A			1.1E-08	5.35%	0.68%	1.8E-09	3.66%	0.36%	3.5E-07	5.36%	5.36%
	Total Chemical Risk				2.1E-07	98.42%		4.9E-08	98.79%		6.4E-06	98.42%	
	TOTAL				2.1E-07	100.00%		4.9E-08	100.00%		6.5E-06	100.00%	
ALL MEDIA		**6.8E-05**			**1.7E-06**			**5.0E-07**			**6.5E-06**		

TABLE B.3.1-28
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	NP-237	N/A		
	PU-238	N/A		
	PU-239/240	N/A		
	RA-226	N/A		
	RA-228	N/A		
	SR-90	N/A		
	TH-228	N/A		
	TH-230	N/A		
	TH-232	N/A		
	U-234	N/A		
	U-235/236	N/A		
	U-238	N/A		
	Total Radiologic Risk			
	Arsenic	N/A		
	Beryllium	N/A		
	Total Chemical Risk			
	TOTAL			
Beef/Milk (Dust Affected)	NP-237	N/A		
	PU-238	N/A		
	PU-239/240	N/A		
	RA-226	N/A		
	RA-228	N/A		
	SR-90	N/A		
	TH-228	N/A		
	TH-230	N/A		
	TH-232	N/A		
	U-234	N/A		
	U-235/236	N/A		
	U-238	N/A		
	Total Radiologic Risk			
	Arsenic	N/A		
	Beryllium	N/A		
	Total Chemical Risk			
	TOTAL			
ALL MEDIA		**9.2E-05**		

N/A signifies that exposure of the receptor to the indicated medium is n

TABLE B.3.1-29
CURRENT LAND USE
ACTIVE FLYASH PILE
SUMMARY OF TOTAL NON-CARCINOGENIC HAZARD

Medium	Parameter	Trespassing Youth	% of Total Medium Hazard	% of Total Receptor Hazard	Off-Property Resident Farmer	% of Total Medium Hazard	% of Total Receptor Hazard	Off-Property Resident Child	% of Total Medium Hazard	% of Total Receptor Hazard	User of Milk and Meat	% of Total Medium Hazard	% of Total Receptor Hazard
Soil	Arsenic	6.9E-02	60.95%	60.35%							N/A		
	Barium	5.6E-04	0.50%	0.49%	8.8E-05	100.00%	2.09%	8.7E-05	100.00%	0.56%	N/A		
	Beryllium	1.3E-02	11.61%	11.50%							N/A		
	Chromium	1.0E-03	0.93%	0.92%							N/A		
	Cobalt	3.9E-03	3.46%	3.42%							N/A		
	Copper	5.8E-04	0.52%	0.51%							N/A		
	Cyanide	1.7E-06	0.00%	0.00%							N/A		
	Molybdenum	7.7E-04	0.69%	0.68%							N/A		
	Nickel	5.7E-03	5.10%	5.05%							N/A		
	Selenium	3.1E-04	0.27%	0.27%							N/A		
	Thallium	3.2E-03	2.84%	2.81%							N/A		
	Toluene	5.1E-06	0.00%	0.00%							N/A		
	Vanadium	2.6E-03	2.30%	2.28%							N/A		
	Zinc	1.7E-04	0.15%	0.15%							N/A		
	U-Total	1.2E-02	10.69%	10.58%							N/A		
	Total	1.1E-01	100.00%	99.02%	8.8E-05	100.00%	2.09%	8.7E-05	100.00%	0.56%			
Surface Water	Arsenic	5.9E-04	52.88%	0.52%	N/A			N/A			N/A		
	Barium	1.3E-05	1.18%	0.01%	N/A			N/A			N/A		
	Manganese	2.1E-05	1.93%	0.02%	N/A			N/A			N/A		
	Selenium	7.3E-06	0.65%	0.01%	N/A			N/A			N/A		
	U-TOTAL	4.8E-04	43.36%	0.42%	N/A			N/A			N/A		
	Total	1.1E-03	100.00%	0.98%									
Sediment	Arsenic	N/A			N/A			N/A			N/A		
	Beryllium	N/A			N/A			N/A			N/A		
	Chromium	N/A			N/A			N/A			N/A		
	Thallium	N/A			N/A			N/A			N/A		
	U-TOTAL	N/A			N/A			N/A			N/A		
	Total												

TABLE B.3.1-29
(continued)

Medium	Parameter	Groundskeeper	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	6.6E-02	66.28%	66.28%
	Barium	1.0E-03	1.05%	1.05%
	Beryllium	7.5E-03	7.54%	7.54%
	Chromium	8.3E-04	0.84%	0.84%
	Cobalt	9.7E-03	9.76%	9.76%
	Copper	5.0E-04	0.50%	0.50%
	Cyanide	2.4E-06	0.00%	0.00%
	Molybdenum	5.9E-04	0.60%	0.60%
	Nickel	3.4E-03	3.46%	3.46%
	Selenium	2.8E-04	0.28%	0.28%
	Thallium	5.2E-03	5.27%	5.27%
	Toluene	2.9E-06	0.00%	0.00%
	Vanadium	2.1E-03	2.13%	2.13%
	Zinc	1.2E-04	0.12%	0.12%
	U-Total	2.2E-03	2.18%	2.18%
	Total	9.9E-02	100.00%	100.00%
Surface Water	Arsenic	N/A		
	Barium	N/A		
	Manganese	N/A		
	Selenium	N/A		
	U-TOTAL	N/A		
	Total			
Sediment	Arsenic	N/A		
	Beryllium	N/A		
	Chromium	N/A		
	Thallium	N/A		
	U-TOTAL	N/A		
	Total			

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TABLE B.3.1-29
(continued)

Medium	Parameter	Trespassing Youth	% of Total Medium Hazard	% of Total Receptor Hazard	Off-Property Resident Farmer	% of Total Medium Hazard	% of Total Receptor Hazard	Off-Property Resident Child	% of Total Medium Hazard	% of Total Receptor Hazard	User of Milk and Meat	% of Total Medium Hazard	% of Total Receptor Hazard
Homegrown Produce (Dust Affected)	Arsenic	N/A			2.1E-03	83.33%	50.93%	8.7E-03	83.33%	55.62%	N/A		
	Barium	N/A			2.7E-05	1.05%	0.64%	1.1E-04	1.05%	0.70%	N/A		
	Beryllium	N/A			6.7E-06	0.26%	0.16%	2.7E-05	0.26%	0.17%	N/A		
	Chromium	N/A			1.9E-05	0.73%	0.45%	7.6E-05	0.73%	0.49%	N/A		
	Copper	N/A			1.3E-05	0.52%	0.32%	5.4E-05	0.52%	0.35%	N/A		
	Cyanide	N/A			3.0E-07	0.01%	0.01%	1.2E-06	0.01%	0.01%	N/A		
	Molybdenum	N/A			1.3E-05	0.51%	0.31%	5.3E-05	0.51%	0.34%	N/A		
	Nickel	N/A			1.4E-05	0.56%	0.34%	5.9E-05	0.56%	0.38%	N/A		
	Selenium	N/A			8.3E-06	0.32%	0.20%	3.4E-05	0.32%	0.22%	N/A		
	Thallium	N/A			2.7E-04	10.62%	6.49%	1.1E-03	10.62%	7.09%	N/A		
	Toluene	N/A			3.8E-09	0.00%	0.00%	1.5E-08	0.00%	0.00%	N/A		
	Vanadium	N/A			5.1E-05	1.97%	1.21%	2.1E-04	1.97%	1.32%	N/A		
	Zinc	N/A			2.8E-06	0.11%	0.07%	1.1E-05	0.11%	0.07%	N/A		
	Total				2.6E-03	100.00%	61.12%	1.0E-02	100.00%	66.75%			
Beef/Milk (Dust Affected)	Arsenic	N/A			3.8E-04	24.56%	9.04%	1.0E-03	20.43%	6.68%	1.2E-02	24.61%	24.61%
	Barium	N/A			3.2E-06	0.21%	0.08%	3.1E-05	0.61%	0.20%	9.7E-05	0.21%	0.21%
	Beryllium	N/A			5.3E-07	0.03%	0.01%	9.8E-07	0.02%	0.01%	1.6E-05	0.03%	0.03%
	Chromium	N/A			1.7E-05	1.12%	0.41%	1.1E-04	2.16%	0.71%	5.2E-04	1.12%	1.12%
	Copper	N/A			1.7E-05	1.11%	0.41%	8.7E-05	1.71%	0.56%	5.2E-04	1.11%	1.11%
	Cyanide	N/A			4.6E-12	0.00%	0.00%	3.1E-11	0.00%	0.00%	1.4E-10	0.00%	0.00%
	Molybdenum	N/A			1.2E-05	0.78%	0.29%	7.5E-05	1.46%	0.48%	3.7E-04	0.78%	0.78%
	Nickel	N/A			1.2E-05	0.76%	0.28%	6.2E-05	1.22%	0.40%	3.5E-04	0.76%	0.76%
	Selenium	N/A			2.1E-05	1.33%	0.49%	1.3E-04	2.56%	0.84%	6.2E-04	1.33%	1.33%
	Thallium	N/A			1.0E-03	67.38%	24.79%	3.4E-03	66.72%	21.81%	3.2E-02	67.33%	67.33%
	Toluene	N/A			9.0E-12	0.00%	0.00%	6.0E-11	0.00%	0.00%	2.7E-10	0.00%	0.00%
	Vanadium	N/A			1.0E-05	0.68%	0.25%	2.2E-05	0.43%	0.14%	3.2E-04	0.68%	0.68%
	Zinc	N/A			3.2E-05	2.05%	0.75%	1.4E-04	2.67%	0.87%	9.6E-04	2.05%	2.05%
	Total				1.5E-03	100.00%	36.79%	5.1E-03	100.00%	32.69%	4.7E-02	100.00%	100.00%
ALL MEDIA		**1.1E-01**			**4.2E-03**			**1.6E-02**			**4.7E-02**		

TABLE B.3.1-29
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Hazard	% Total Receptor Hazard
Homegrown Produce (Dust Affected)	Arsenic	N/A		
	Barium	N/A		
	Beryllium	N/A		
	Chromium	N/A		
	Copper	N/A		
	Cyanide	N/A		
	Molybdenum	N/A		
	Nickel	N/A		
	Selenium	N/A		
	Thallium	N/A		
	Toluene	N/A		
	Vanadium	N/A		
	Zinc	N/A		
	Total			
Beef/Milk (Dust Affected)	Arsenic	N/A		
	Barium	N/A		
	Beryllium	N/A		
	Chromium	N/A		
	Copper	N/A		
	Cyanide	N/A		
	Molybdenum	N/A		
	Nickel	N/A		
	Selenium	N/A		
	Thallium	N/A		
	Toluene	N/A		
	Vanadium	N/A		
	Zinc	N/A		
	Total			

ALL MEDIA	**9.9E-02**

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.3.1-30
ACTIVE FLYASH PILE
FUTURE LAND USE
SUMMARY OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil	NP-237	9.3E-07	0.39%	0.39%	1.4E-08	7.72%	0.15%	2.5E-10	2.64%	0.03%
	PU-238	1.0E-09	0.00%	0.00%	2.4E-09	1.32%	0.03%	4.3E-11	0.45%	0.00%
	PU-239/240	4.3E-10	0.00%	0.00%	9.9E-10	0.55%	0.01%	1.8E-11	0.19%	0.00%
	RA-226	1.1E-05	4.54%	4.53%	1.2E-09	0.67%	0.01%	2.2E-11	0.23%	0.00%
	RA-228	3.6E-06	1.51%	1.51%	1.9E-10	0.11%	0.00%	3.5E-12	0.04%	0.00%
	SR-90	1.6E-11	0.00%	0.00%	2.4E-11	0.01%	0.00%	4.4E-13	0.00%	0.00%
	TH-228	8.4E-06	3.51%	3.50%	2.6E-08	14.34%	0.28%	4.7E-10	4.90%	0.05%
	TH-230	4.0E-09	0.00%	0.00%	9.3E-09	5.20%	0.10%	1.7E-10	1.78%	0.02%
	TH-232	2.8E-09	0.00%	0.00%	6.6E-09	3.66%	0.07%	1.2E-10	1.25%	0.01%
	U-234	3.5E-09	0.00%	0.00%	8.1E-09	4.53%	0.09%	1.5E-10	1.55%	0.02%
	U-235/236	1.5E-08	0.01%	0.01%	4.3E-10	0.24%	0.00%	7.9E-12	0.08%	0.00%
	U-238	5.8E-08	0.02%	0.02%	1.6E-08	9.06%	0.18%	2.9E-10	3.09%	0.03%
	Total Radiological Risk	2.4E-05	9.98%	9.96%	8.5E-08	47.42%	0.92%	1.5E-09	16.20%	0.18%
	Arsenic	5.9E-06	2.49%	2.48%	6.6E-08	36.74%	0.72%	5.6E-09	58.56%	0.64%
	Beryllium	2.1E-04	87.53%	87.32%	1.9E-09	1.07%	0.02%	1.6E-10	1.71%	0.02%
	Chromium	1.6E-08	0.01%	0.01%	2.6E-08	14.77%	0.29%	2.2E-09	23.54%	0.26%
	Total Chemical Risk	2.2E-04	90.02%	89.81%	9.4E-08	52.58%	1.03%	8.0E-09	83.80%	0.92%
	Total	2.4E-04	100.00%	99.76%	1.8E-07	100.00%	1.95%	9.5E-09	100.00%	1.09%
Groundwater	NP-237	N/A			2.7E-07	4.24%	2.96%	1.2E-08	4.24%	1.34%
	SR-90	N/A			9.2E-08	1.43%	1.00%	3.9E-09	1.43%	0.45%
	U234	N/A			2.0E-06	31.60%	22.06%	8.7E-08	31.59%	9.99%
	U235/236	N/A			1.1E-07	1.68%	1.18%	4.6E-09	1.68%	0.53%
	U238	N/A			3.9E-06	61.03%	42.59%	1.7E-07	60.99%	19.29%
	Total Radiological Risk				6.4E-06	99.98%	69.77%	2.7E-07	99.93%	31.61%
	Arsenic	N/A			9.3E-10	0.01%	0.01%	1.9E-10	0.07%	0.02%
	Beryllium	N/A			7.7E-11	0.00%	0.00%	1.3E-11	0.00%	0.00%
	1,2-Dichloroethane	N/A								
	Vinyl chloride	N/A								
	Total Chemical Risk				1.0E-09	0.02%	0.01%	2.0E-10	0.07%	0.02%
	Total				6.4E-06	100.00%	69.78%	2.7E-07	100.00%	31.63%
Sediment	NP-237	N/A			N/A			N/A		
	PU-238	N/A			N/A			N/A		
	PU-239/240	N/A			N/A			N/A		
	RA-226	N/A			N/A			N/A		
	RA-228	N/A			N/A			N/A		
	SR-90	N/A			N/A			N/A		
	TH-228	N/A			N/A			N/A		
	TH-230	N/A			N/A			N/A		
	TH-232	N/A			N/A			N/A		
	U-234	N/A			N/A			N/A		
	U-235/236	N/A			N/A			N/A		
	U-238	N/A			N/A			N/A		
	Total Radiologic Risk									
	Arsenic	N/A			N/A			N/A		
	Beryllium	N/A			N/A			N/A		
	Total Chemical Risk									
	TOTAL									

TABLE B.3.1-30
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Soil	NP-237	1.0E-04	5.77%	5.46%	9.8E-06	6.08%	5.84%	7.9E-06	1.34%	1.30%	N/A			N/A		
	PU-238	7.2E-07	0.04%	0.04%	5.0E-08	0.03%	0.03%	6.7E-08	0.01%	0.01%	N/A			N/A		
	PU-239/240	3.5E-07	0.02%	0.02%	2.4E-08	0.01%	0.01%	3.2E-08	0.01%	0.01%	N/A			N/A		
	RA-226	4.7E-06	0.27%	0.25%	3.9E-07	0.24%	0.23%	8.6E-05	14.79%	14.35%	N/A			N/A		
	RA-228	3.8E-04	21.40%	20.26%	3.7E-05	22.89%	21.95%	2.9E-05	4.92%	4.78%	N/A			N/A		
	SR-90	7.1E-07	0.04%	0.04%	4.9E-08	0.03%	0.03%	6.8E-08	0.01%	0.01%	N/A			N/A		
	TH-228	8.9E-04	49.56%	46.91%	8.5E-05	53.03%	50.86%	6.7E-05	11.39%	11.06%	N/A			N/A		
	TH-230	3.1E-07	0.02%	0.02%	2.2E-08	0.01%	0.01%	2.2E-08	0.00%	0.00%	N/A			N/A		
	TH-232	2.1E-07	0.01%	0.01%	1.5E-08	0.01%	0.01%	1.5E-08	0.00%	0.00%	N/A			N/A		
	U-234	3.4E-07	0.02%	0.02%	2.4E-08	0.01%	0.01%	2.6E-08	0.00%	0.00%	N/A			N/A		
	U-235/236	1.6E-06	0.09%	0.09%	1.1E-09	0.00%	0.00%	1.2E-07	0.02%	0.02%	N/A			N/A		
	U-238	6.0E-06	0.34%	0.32%	5.6E-07	0.35%	0.33%	4.5E-07	0.08%	0.07%	N/A			N/A		
	Total Radiological Risk	1.4E-03	77.57%	73.42%	1.3E-04	82.70%	79.33%	1.9E-04	32.58%	31.63%						
	Arsenic	4.0E-04	22.41%	21.21%	2.8E-05	17.28%	16.58%	1.7E-04	29.75%	28.88%	N/A			N/A		
	Beryllium	1.9E-08	0.00%	0.00%	1.4E-09	0.00%	0.00%	2.2E-04	37.66%	36.56%	N/A			N/A		
	Chromium	2.7E-07	0.01%	0.01%	2.0E-08	0.01%	0.01%	2.2E-08	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	4.0E-04	22.43%	21.23%	2.8E-05	17.30%	16.59%	3.9E-04	67.42%	65.44%						
	Total	1.8E-03	100.00%	94.65%	1.6E-04	100.00%	95.92%	5.8E-04	100.00%	97.07%						
Groundwater	NP-237	3.4E-09	0.01%	0.00%	2.4E-10	0.01%	0.00%	1.5E-10	0.01%	0.00%	N/A			N/A		
	SR-90	9.7E-07	2.05%	0.05%	6.8E-08	2.05%	0.04%	4.1E-08	2.05%	0.01%	N/A			N/A		
	U234	1.5E-05	32.81%	0.82%	1.1E-06	32.81%	0.65%	6.6E-07	32.81%	0.11%	N/A			N/A		
	U235/236	8.3E-07	1.75%	0.04%	5.8E-08	1.75%	0.03%	3.5E-08	1.75%	0.01%	N/A			N/A		
	U238	3.0E-05	63.38%	1.58%	2.1E-06	63.38%	1.26%	1.3E-06	63.38%	0.21%	N/A			N/A		
	Total Radiological Risk	4.7E-05	100.00%	2.49%	3.3E-06	100.00%	1.99%	2.0E-06	100.00%	0.34%	N/A			N/A		
	Arsenic	2.3E-15	0.00%	0.00%	1.6E-16	0.00%	0.00%	4.6E-16	0.00%	0.00%						
	Beryllium	9.6E-17	0.00%	0.00%	6.9E-18	0.00%	0.00%	1.7E-17	0.00%	0.00%	N/A			N/A		
	1,2-Dichloroethane										N/A			N/A		
	Vinyl chloride										N/A			N/A		
	Total Chemical Risk	2.4E-15	0.00%	0.00%	1.7E-16	0.00%	0.00%	4.8E-16	0.00%	0.00%	N/A			N/A		
	Total	4.7E-05	100.00%	2.49%	3.3E-06	100.00%	1.99%	2.0E-06	100.00%	0.34%	N/A			N/A		
Sediment	NP-237	N/A			N/A			N/A			1.2E-06	0.97%	0.97%	5.0E-07	0.77%	0.77%
	PU-238	N/A			N/A			N/A			4.6E-09	0.00%	0.00%	1.8E-09	0.00%	0.00%
	PU-239/240	N/A			N/A			N/A			2.1E-09	0.00%	0.00%	8.3E-10	0.00%	0.00%
	RA-226	N/A			N/A			N/A			4.6E-08	0.04%	0.04%	1.8E-08	0.03%	0.03%
	RA-228	N/A			N/A			N/A			4.9E-06	3.83%	3.83%	2.0E-06	3.05%	3.05%
	SR-90	N/A			N/A			N/A			4.9E-09	0.00%	0.00%	1.9E-09	0.00%	0.00%
	TH-228	N/A			N/A			N/A			1.1E-05	8.74%	8.74%	4.5E-06	6.97%	6.97%
	TH-230	N/A			N/A			N/A			1.6E-09	0.00%	0.00%	6.2E-10	0.00%	0.00%
	TH-232	N/A			N/A			N/A			1.0E-09	0.00%	0.00%	4.0E-10	0.00%	0.00%
	U-234	N/A			N/A			N/A			1.6E-09	0.00%	0.00%	6.4E-10	0.00%	0.00%
	U-235/236	N/A			N/A			N/A			2.3E-08	0.02%	0.02%	9.1E-09	0.01%	0.01%
	U-238	N/A			N/A			N/A			6.4E-08	0.05%	0.05%	2.6E-08	0.04%	0.04%
	Total Radiologic Risk										1.8E-05	13.65%		7.0E-06	10.88%	
	Arsenic	N/A			N/A			N/A			3.3E-05	25.44%	25.44%	2.0E-05	31.28%	31.28%
	Beryllium	N/A			N/A			N/A			7.8E-05	60.91%	60.91%	3.7E-05	57.84%	57.84%
	Total Chemical Risk										1.1E-04	86.35%		5.7E-05	89.12%	
	TOTAL										1.3E-04	100.00%		6.5E-05	100.00%	

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TABLE B.3.1-30
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Surface Water	NP-237	4.36E-09	0.77%	0.00%	N/A			N/A		
	PU-238	2.13E-09	0.38%	0.00%	N/A			N/A		
	RA-228	1.28E-08	2.25%	0.01%	N/A			N/A		
	U-234	1.8E-09	0.32%	0.00%	N/A			N/A		
	U-235/236	1.19E-10	0.02%	0.00%	N/A			N/A		
	U-238	3.55E-09	0.63%	0.00%	N/A			N/A		
	Total Radiological Risk	2.47E-08	4.35%	0.01%						
	Arsenic	5.43E-07	95.65%	0.23%	N/A			N/A		
	Total Chemical Risk	5.43E-07	95.65%	0.23%						
	Total	5.68E-07	100.00%	0.24%						
Homegrown Produce (Dust Affected)	NP-237	N/A			1.6E-08	1.21%	0.17%	1.2E-09	0.27%	0.14%
	PU-238	N/A			1.9E-09	0.15%	0.02%	1.4E-10	0.03%	0.02%
	PU-239/240	N/A			8.7E-10	0.07%	0.01%	6.5E-11	0.01%	0.01%
	RA-226	N/A			7.0E-09	0.54%	0.08%	5.2E-10	0.12%	0.06%
	RA-228	N/A			4.1E-09	0.31%	0.04%	3.0E-10	0.07%	0.03%
	SR-90	N/A			2.7E-09	0.21%	0.03%	2.0E-10	0.05%	0.02%
	TH-228	N/A			2.6E-09	0.20%	0.03%	2.0E-10	0.04%	0.02%
	TH-230	N/A			6.1E-10	0.05%	0.01%	4.5E-11	0.01%	0.01%
	TH-232	N/A			4.1E-10	0.03%	0.00%	3.1E-11	0.01%	0.00%
	U-234	N/A			7.3E-10	0.06%	0.01%	5.4E-11	0.01%	0.01%
	U-235/236	N/A			3.9E-11	0.00%	0.00%	2.9E-12	0.00%	0.00%
	U-238	N/A			1.3E-09	0.10%	0.01%	9.5E-11	0.02%	0.01%
	Total Radiological Risk				3.8E-08	2.92%	0.41%	2.8E-09	0.64%	0.33%
	Arsenic	N/A			1.1E-06	86.11%	12.24%	3.9E-07	88.13%	44.96%
	Beryllium	N/A			1.4E-07	10.98%	1.56%	5.0E-08	11.23%	5.73%
	Total Chemical Risk				1.3E-06	97.08%	13.80%	4.4E-07	99.36%	50.69%
	Total				1.3E-06	100.00%	14.22%	4.4E-07	100.00%	51.02%
Homegrown Produce (Groundwater Affected)	NP-237	N/A			4.2E-08	4.37%	0.46%	3.1E-09	4.37%	0.36%
	PU-238	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-228	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	N/A			1.9E-08	2.01%	0.21%	1.4E-09	2.01%	0.17%
	TH-228	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-230	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-232	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-234	N/A			3.0E-07	31.39%	3.30%	2.3E-08	31.37%	2.60%
	U-235/236	N/A			1.6E-08	1.62%	0.17%	1.2E-09	1.62%	0.13%
	U-238	N/A			5.9E-07	60.60%	6.38%	4.4E-08	60.57%	5.02%
	Total Radiological Risk				9.7E-07	99.98%	10.52%	7.2E-08	99.93%	8.28%
	Arsenic	N/A			1.4E-10	0.01%	0.00%	4.9E-11	0.07%	0.01%
	Beryllium	N/A			6.7E-12	0.00%	0.00%	2.3E-12	0.00%	0.00%
	Total Chemical Risk				1.5E-10	0.02%	0.00%	5.1E-11	0.07%	0.01%
	Total				9.7E-07	100.00%	10.52%	7.2E-08	100.00%	8.29%

TABLE B.3.1-30
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Surface Water	NP-237	N/A			N/A			N/A			N/A			N/A		
	PU-238	N/A			N/A			N/A			N/A			N/A		
	RA-228	N/A			N/A			N/A			N/A			N/A		
	U-234	N/A			N/A			N/A			N/A			N/A		
	U-235/236	N/A			N/A			N/A			N/A			N/A		
	U-238	N/A			N/A			N/A			N/A			N/A		
	Total Radiological Risk															
	Arsenic	N/A			N/A			N/A			N/A			N/A		
	Total Chemical Risk															
	Total															
Homegrown Produce (Dust Affected)	NP-237	4.8E-07	1.20%	0.03%	3.1E-08	1.20%	0.02%	3.6E-08	0.26%	0.01%	N/A			N/A		
	PU-238	5.9E-08	0.15%	0.00%	3.8E-09	0.15%	0.00%	4.4E-09	0.03%	0.00%	N/A			N/A		
	PU-239/240	2.6E-08	0.07%	0.00%	1.7E-09	0.07%	0.00%	2.0E-09	0.01%	0.00%	N/A			N/A		
	RA-226	2.1E-07	0.54%	0.01%	1.4E-08	0.54%	0.01%	1.6E-08	0.12%	0.00%	N/A			N/A		
	RA-228	1.2E-07	0.31%	0.01%	7.9E-09	0.31%	0.00%	9.2E-09	0.07%	0.00%	N/A			N/A		
	SR-90	8.3E-08	0.21%	0.00%	5.4E-09	0.21%	0.00%	6.2E-09	0.05%	0.00%	N/A			N/A		
	TH-228	8.0E-08	0.20%	0.00%	5.2E-09	0.20%	0.00%	6.0E-09	0.04%	0.00%	N/A			N/A		
	TH-230	1.8E-08	0.05%	0.00%	1.2E-09	0.05%	0.00%	1.4E-09	0.01%	0.00%	N/A			N/A		
	TH-232	1.2E-08	0.03%	0.00%	8.0E-10	0.03%	0.00%	9.2E-10	0.01%	0.00%	N/A			N/A		
	U-234	2.2E-08	0.06%	0.00%	1.4E-09	0.06%	0.00%	1.6E-09	0.01%	0.00%	N/A			N/A		
	U-235/236	1.2E-09	0.00%	0.00%	7.7E-11	0.00%	0.00%	8.9E-11	0.00%	0.00%	N/A			N/A		
	U-238	3.9E-08	0.10%	0.00%	2.5E-09	0.10%	0.00%	2.9E-09	0.02%	0.00%	N/A			N/A		
	Total Radiological Risk	1.2E-06	2.91%	0.06%	7.5E-08	2.91%	0.04%	8.6E-08	0.64%	0.01%						
	Arsenic	3.4E-05	86.10%	1.80%	2.2E-06	86.10%	1.32%	1.2E-05	88.12%	1.97%	N/A			N/A		
	Beryllium	4.4E-06	10.98%	0.23%	2.8E-07	10.98%	0.17%	1.5E-06	11.24%	0.25%	N/A			N/A		
	Total Chemical Risk	3.8E-05	97.09%	2.03%	2.5E-06	97.09%	1.48%	1.3E-05	99.36%	2.22%						
	Total	4.0E-05	100.00%	2.09%	2.6E-06	100.00%	1.53%	1.3E-05	100.00%	2.23%						
Homegrown Produce (Groundwater Affected)	NP-237	5.3E-10	0.01%	0.00%	3.4E-11	0.01%	0.00%	3.9E-11	0.01%	0.00%	N/A			N/A		
	PU-238	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	PU-239/240	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-226	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	SR-90	2.0E-07	2.87%	0.01%	1.3E-08	2.87%	0.01%	1.5E-08	2.87%	0.00%	N/A			N/A		
	TH-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-230	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-232	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	U-234	2.3E-06	32.55%	0.12%	1.5E-07	32.55%	0.09%	1.7E-07	32.55%	0.03%	N/A			N/A		
	U-235/236	1.2E-07	1.68%	0.01%	7.7E-09	1.68%	0.00%	8.9E-09	1.68%	0.00%	N/A			N/A		
	U-238	4.5E-06	62.88%	0.24%	2.9E-07	62.88%	0.17%	3.3E-07	62.88%	0.06%	N/A			N/A		
	Total Radiological Risk	7.1E-06	100.00%	0.38%	4.6E-07	100.00%	0.28%	5.3E-07	100.00%	0.09%						
	Arsenic	3.5E-16	0.00%	0.00%	2.2E-17	0.00%	0.00%	1.2E-16	0.00%	0.00%	N/A			N/A		
	Beryllium	8.4E-18	0.00%	0.00%	5.4E-19	0.00%	0.00%	2.9E-18	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	3.6E-16	0.00%	0.00%	2.3E-17	0.00%	0.00%	1.2E-16	0.00%	0.00%						
	Total	7.1E-06	100.00%	0.38%	4.6E-07	100.00%	0.28%	5.3E-07	100.00%	0.09%						

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TABLE B.3.1-30
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected)	NP-237	N/A			9.2E-11	0.04%	0.00%	7.0E-12	0.01%	0.00%
	PU-238	N/A			1.4E-13	0.00%	0.00%	1.5E-14	0.00%	0.00%
	PU-239/240	N/A			6.3E-14	0.00%	0.00%	6.6E-15	0.00%	0.00%
	RA-226	N/A			1.1E-09	0.53%	0.01%	2.0E-10	0.41%	0.02%
	RA-228	N/A			6.4E-10	0.30%	0.01%	1.1E-10	0.23%	0.01%
	SR-90	N/A			1.1E-09	0.50%	0.01%	2.0E-10	0.41%	0.02%
	TH-228	N/A			5.0E-12	0.00%	0.00%	7.8E-13	0.00%	0.00%
	TH-230	N/A			1.3E-12	0.00%	0.00%	2.0E-13	0.00%	0.00%
	TH-232	N/A			8.5E-13	0.00%	0.00%	1.3E-13	0.00%	0.00%
	U-234	N/A			1.5E-10	0.07%	0.00%	2.8E-11	0.06%	0.00%
	U-235/236	N/A			8.2E-12	0.00%	0.00%	1.5E-12	0.00%	0.00%
	U-238	N/A			2.7E-10	0.12%	0.00%	4.8E-11	0.10%	0.01%
	Total Radiological Risk				3.4E-09	1.58%	0.04%	6.0E-10	1.21%	0.07%
	Arsenic	N/A			2.0E-07	93.06%	2.17%	4.7E-08	95.12%	5.40%
	Beryllium	N/A			1.1E-08	5.35%	0.12%	1.8E-09	3.66%	0.21%
	Total Chemical Risk				2.1E-07	98.42%	2.30%	4.9E-08	98.79%	5.61%
	Total				2.1E-07	100.00%	2.33%	4.9E-08	100.00%	5.68%
Beef/Milk (Groundwater Affected)	NP-237	N/A			1.4E-10	0.13%	0.00%	1.0E-11	0.05%	0.00%
	PU-238	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-228	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	N/A			4.1E-09	3.71%	0.04%	7.6E-10	3.81%	0.09%
	TH-228	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-230	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-232	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-234	N/A			3.5E-08	32.24%	0.38%	6.4E-09	32.23%	0.74%
	U-235/236	N/A			1.8E-09	1.66%	0.02%	3.3E-10	1.66%	0.04%
	U-238	N/A			6.8E-08	62.25%	0.74%	1.2E-08	62.23%	1.43%
	Total Radiological Risk				1.1E-07	99.99%	1.19%	2.0E-08	99.98%	2.29%
	Arsenic	N/A			1.4E-11	0.01%	0.00%	3.3E-12	0.02%	0.00%
	Beryllium	N/A			3.0E-13	0.00%	0.00%	4.7E-14	0.00%	0.00%
	Total Chemical Risk				1.4E-11	0.01%	0.00%	3.3E-12	0.02%	0.00%
	Total				1.1E-07	100.00%	1.19%	2.0E-08	100.00%	2.30%
ALL MEDIA		**2.4E-04**			**9.2E-06**			**8.7E-07**		

TABLE B.3.1-30
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected)	NP-237	2.8E-09	0.04%	0.00%	1.8E-10	0.04%	0.00%	2.1E-10	0.01%	0.00%	N/A			N/A		
	PU-238	4.2E-12	0.00%	0.00%	2.6E-13	0.00%	0.00%	4.4E-13	0.00%	0.00%	N/A			N/A		
	PU-239/240	1.9E-12	0.00%	0.00%	1.2E-13	0.00%	0.00%	2.0E-13	0.00%	0.00%	N/A			N/A		
	RA-226	3.5E-08	0.53%	0.00%	1.9E-09	0.45%	0.00%	6.1E-09	0.41%	0.00%	N/A			N/A		
	RA-228	1.9E-08	0.30%	0.00%	1.1E-09	0.25%	0.00%	3.4E-09	0.23%	0.00%	N/A			N/A		
	SR-90	3.3E-08	0.51%	0.00%	1.8E-09	0.42%	0.00%	6.1E-09	0.41%	0.00%	N/A			N/A		
	TH-228	1.5E-10	0.00%	0.00%	8.6E-12	0.00%	0.00%	2.4E-11	0.00%	0.00%	N/A			N/A		
	TH-230	3.8E-11	0.00%	0.00%	2.2E-12	0.00%	0.00%	6.0E-12	0.00%	0.00%	N/A			N/A		
	TH-232	2.6E-11	0.00%	0.00%	1.5E-12	0.00%	0.00%	4.1E-12	0.00%	0.00%	N/A			N/A		
	U-234	4.6E-09	0.07%	0.00%	2.5E-10	0.06%	0.00%	8.4E-10	0.06%	0.00%	N/A			N/A		
	U-235/236	2.5E-10	0.00%	0.00%	1.4E-11	0.00%	0.00%	4.5E-11	0.00%	0.00%	N/A			N/A		
	U-238	8.0E-09	0.12%	0.00%	4.4E-10	0.10%	0.00%	1.5E-09	0.10%	0.00%	N/A			N/A		
	Total Radiological Risk	1.0E-07	1.58%	0.01%	5.7E-09	1.33%	0.00%	1.8E-08	1.22%	0.00%						
	Arsenic	6.1E-06	93.06%	0.32%	4.0E-07	93.19%	0.24%	1.4E-06	95.12%	0.24%	N/A			N/A		
	Beryllium	3.5E-07	5.36%	0.02%	2.3E-08	5.48%	0.01%	5.5E-08	3.66%	0.01%	N/A			N/A		
	Total Chemical Risk	6.4E-06	98.42%	0.34%	4.2E-07	98.67%	0.25%	1.5E-06	98.78%	0.25%						
	Total	6.5E-06	100.00%	0.34%	4.3E-07	100.00%	0.26%	1.5E-06	100.00%	0.25%						
Beef/Milk (Groundwater Affected)	NP-237	1.7E-12	0.00%	0.00%	1.1E-13	0.00%	0.00%	1.3E-13	0.00%	0.00%	N/A			N/A		
	PU-238	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	PU-239/240	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-226	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	SR-90	4.3E-08	5.06%	0.00%	2.3E-09	5.02%	0.00%	8.0E-09	5.18%	0.00%	N/A			N/A		
	TH-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-230	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-232	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	U-234	2.7E-07	31.83%	0.01%	1.5E-08	31.84%	0.01%	4.9E-08	31.78%	0.01%	N/A			N/A		
	U-235/236	1.4E-08	1.64%	0.00%	7.7E-10	1.64%	0.00%	2.5E-09	1.64%	0.00%	N/A			N/A		
	U-238	5.2E-07	61.48%	0.03%	2.9E-08	61.50%	0.02%	9.5E-08	61.39%	0.02%	N/A			N/A		
	Total Radiological Risk	8.5E-07	100.00%	0.04%	4.7E-08	100.00%	0.03%	1.5E-07	100.00%	0.03%						
	Arsenic	3.4E-17	0.00%	0.00%	2.3E-18	0.00%	0.00%	8.1E-18	0.00%	0.00%	N/A			N/A		
	Beryllium	3.7E-19	0.00%	0.00%	2.5E-20	0.00%	0.00%	5.9E-20	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	3.5E-17	0.00%	0.00%	2.3E-18	0.00%	0.00%	8.2E-18	0.00%	0.00%						
	Total	8.5E-07	100.00%	0.04%	4.7E-08	100.00%	0.03%	1.5E-07	100.00%	0.03%						
ALL MEDIA		**1.9E-03**			**1.7E-04**			**6.0E-04**			**1.3E-04**			**6.5E-05**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.3.1-31
ACTIVE FLYASH PILE
FUTURE LAND USE
SUMMARY OF TOTAL NON-CARCINOGENIC HAZARD

Medium	Parameter	Expanded Trespasser	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	On-Property Resident Farmer (RME)	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	1.6E-01	58.81%	58.81%							7.6E-01	73.33%	36.41%
	Barium	8.2E-04	0.30%	0.30%	8.8E-05	100.00%	0.05%	8.7E-05	100.00%	0.01%	1.3E-02	1.25%	0.62%
	Beryllium	3.9E-02	13.87%	13.87%							7.6E-02	7.29%	3.62%
	Chromium	2.7E-03	0.98%	0.98%							1.1E-02	1.08%	0.54%
	Cobalt	4.7E-03	1.70%	1.70%							0.0E+00	0.00%	0.00%
	Copper	1.5E-03	0.53%	0.53%							4.8E-03	0.46%	0.23%
	Cyanide	2.8E-06	0.00%	0.00%							5.9E-05	0.01%	0.00%
	Molybdenum	2.1E-03	0.74%	0.74%							0.0E+00	0.00%	0.00%
	Nickel	1.7E-02	6.02%	6.02%							7.8E-03	0.75%	0.37%
	Selenium	7.5E-04	0.27%	0.27%							6.5E-03	0.63%	0.31%
	Thallium	4.5E-03	1.60%	1.60%							4.1E-03	0.39%	0.20%
	Toluene	1.5E-05	0.01%	0.01%							1.2E-01	11.88%	5.90%
	Vanadium	6.7E-03	2.42%	2.42%							3.0E-05	0.00%	0.00%
	Zinc	4.6E-04	0.17%	0.17%							2.9E-02	2.79%	1.38%
	U-Total	3.5E-02	12.60%	12.60%							1.5E-03	0.14%	0.07%
	Total	2.8E-01	100.000%	100.00%	8.8E-05	100.000%	0.05%	8.7E-05	100.000%	0.01%	1.0	100.000%	49.65%
Groundwater	Arsenic	N/A			1.8E-06	0.00%	0.00%	4.1E-06	0.00%	0.00%	4.4E-12	0.00%	0.00%
	Beryllium	N/A			3.6E-09	0.00%	0.00%	7.3E-09	0.00%	0.00%	4.5E-15	0.00%	0.00%
	U-Total	N/A			1.1E-01	100.00%	55.30%	3.3E-01	100.00%	46.22%	8.1E-01	100.00%	38.75%
	Total				1.1E-01	100.000%	55.31%	3.3E-01	100.000%	46.22%	8.1E-01	100.00%	38.75%
Sediment	Arsenic	N/A			N/A			N/A			N/A		
	Beryllium	N/A			N/A			N/A			N/A		
	Chromium	N/A			N/A			N/A			N/A		
	Thallium	N/A			N/A			N/A			N/A		
	U-TOTAL	N/A			N/A			N/A			N/A		
	Total												

TABLE B.3.1-31
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% Total Medium Hazard	% Total Receptor Hazard	On-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	4.0E-01	81.46%	37.48%	4.2E+00	81.51%	52.49%	N/A			N/A		
	Barium	5.5E-03	1.14%	0.53%	4.8E-02	0.93%	0.60%	N/A			N/A		
	Beryllium	7.7E-03	1.59%	0.73%	1.2E-01	2.32%	1.50%	N/A			N/A		
	Chromium	3.9E-03	0.81%	0.37%	4.1E-02	0.80%	0.51%	N/A			N/A		
	Cobalt	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Copper	2.4E-03	0.50%	0.23%	2.7E-02	0.53%	0.34%	N/A			N/A		
	Cyanide	2.3E-05	0.00%	0.00%	2.1E-04	0.00%	0.00%	N/A			N/A		
	Molybdenum	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Nickel	2.6E-03	0.53%	0.24%	2.7E-02	0.53%	0.34%	N/A			N/A		
	Selenium	2.8E-03	0.57%	0.26%	7.2E-02	1.40%	0.90%	N/A			N/A		
	Thallium	1.7E-03	0.34%	0.16%	1.7E-02	0.33%	0.21%	N/A			N/A		
	Toluene	5.3E-02	10.82%	4.98%	4.9E-01	9.46%	6.09%	N/A			N/A		
	Vanadium	3.0E-06	0.00%	0.00%	4.7E-05	0.00%	0.00%	N/A			N/A		
	Zinc	1.0E-02	2.15%	0.99%	1.1E-01	2.11%	1.36%	N/A			N/A		
	U-Total	4.2E-04	0.09%	0.04%	4.5E-03	0.09%	0.06%	N/A			N/A		
	Total	4.9E-01	100.000%	46.02%	5.1E+00	100.000%	64.39%						
Groundwater	Arsenic	2.4E-12	0.00%	0.00%	1.0E-11	0.00%	0.00%	N/A			N/A		
	Beryllium	2.5E-15	0.00%	0.00%	9.1E-15	0.00%	0.00%	N/A			N/A		
	U-Total	4.5E-01	100.00%	42.48%	1.8E+00	100.00%	22.82%	N/A			N/A		
	Total	4.5E-01	100.00%	42.48%	1.8E+00	100.00%	22.82%						
Sediment	Arsenic	N/A			N/A			1.5E-01	88.31%	88.31%	2.2E-01	90.39%	90.39%
	Beryllium	N/A			N/A			8.5E-03	5.16%	5.16%	1.0E-02	4.08%	4.08%
	Chromium	N/A			N/A			6.4E-04	0.39%	0.39%	6.3E-04	0.26%	0.26%
	Thallium	N/A			N/A			5.0E-03	3.03%	3.03%	6.6E-03	2.66%	2.66%
	U-TOTAL	N/A			N/A			5.1E-03	3.11%	3.11%	6.5E-03	2.62%	2.62%
	Total							1.6E-01	100.00%	100.00%	2.5E-01	100.00%	100.00%

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TABLE B.3.1-31
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	On-Property Resident Farmer (RME)	% Total Medium Hazard	% Total Receptor Hazard
Homegrown Produce (Dust Affected)	Arsenic	N/A			2.1E-03	83.33%	1.11%	8.7E-03	83.33%	1.23%	6.5E-02	83.36%	3.10%
	Barium	N/A			2.7E-05	1.05%	0.01%	1.1E-04	1.05%	0.02%	8.1E-04	1.05%	0.04%
	Beryllium	N/A			6.7E-06	0.26%	0.00%	2.7E-05	0.26%	0.00%	2.0E-04	0.26%	0.01%
	Chromium	N/A			1.9E-05	0.73%	0.01%	7.6E-05	0.73%	0.01%	5.7E-04	0.73%	0.03%
	Copper	N/A			1.3E-05	0.52%	0.01%	5.4E-05	0.52%	0.01%	4.1E-04	0.52%	0.02%
	Cyanide	N/A			3.0E-07	0.01%	0.00%	1.2E-06	0.01%	0.00%	9.0E-06	0.01%	0.00%
	Molybdenum	N/A			1.3E-05	0.51%	0.01%	5.3E-05	0.51%	0.01%	4.0E-04	0.51%	0.02%
	Nickel	N/A			1.4E-05	0.56%	0.01%	5.9E-05	0.56%	0.01%	4.4E-04	0.56%	0.02%
	Selenium	N/A			8.3E-06	0.32%	0.00%	3.4E-05	0.32%	0.00%	2.5E-04	0.32%	0.01%
	Thallium	N/A			2.7E-04	10.62%	0.14%	1.1E-03	10.62%	0.16%	8.3E-03	10.59%	0.39%
	Toluene	N/A			3.8E-09	0.00%	0.00%	1.5E-08	0.00%	0.00%	1.2E-07	0.00%	0.00%
	Vanadium	N/A			5.1E-05	1.97%	0.03%	2.1E-04	1.97%	0.03%	1.5E-03	1.97%	0.07%
	Zinc	N/A			2.8E-06	0.11%	0.00%	1.1E-05	0.11%	0.00%	8.4E-05	0.11%	0.00%
	Total				2.6E-03	100.00%	1.34%	1.0E-02	100.00%	1.48%	7.8E-02	100.00%	3.72%
Homegrown Produce (Groundwater Affected)	Arsenic	N/A			2.7E-07	0.00%	0.00%	1.1E-06	0.00%	0.00%	6.6E-13	0.00%	0.00%
	Barium	N/A			6.2E-02	81.71%	32.31%	2.5E-01	81.71%	35.67%	0.0E+00	0.00%	0.00%
	Beryllium	N/A			3.1E-10	0.00%	0.00%	1.3E-09	0.00%	0.00%	3.9E-16	0.00%	0.00%
	U-Total	N/A			1.4E-02	18.29%	7.23%	5.6E-02	18.29%	7.98%	1.1E-01	100.00%	5.07%
	Total				6.2E-02	100.00%	39.53%	2.5E-01	100.00%	43.65%	6.6E-13	100.00%	5.07%
Beef/Milk (Dust Affected)	Arsenic	N/A			3.8E-04	24.75%	0.20%	1.0E-03	20.74%	0.15%	1.2E-02	24.80%	0.55%
	Barium	N/A			3.2E-06	0.21%	0.00%	3.1E-05	0.62%	0.00%	9.7E-05	0.21%	0.00%
	Beryllium	N/A			5.3E-07	0.03%	0.00%	9.8E-07	0.02%	0.00%	1.6E-05	0.03%	0.00%
	Chromium	N/A			1.7E-05	1.13%	0.01%	1.1E-04	2.19%	0.02%	5.2E-04	1.13%	0.03%
	Copper	N/A			1.7E-05	1.12%	0.01%	8.7E-05	1.74%	0.01%	5.2E-04	1.12%	0.02%
	Cyanide	N/A			4.6E-12	0.00%	0.00%	3.1E-11	0.00%	0.00%	1.4E-10	0.00%	0.00%
	Nickel	N/A			1.2E-05	0.76%	0.01%	6.2E-05	1.24%	0.01%	3.5E-04	0.76%	0.02%
	Selenium	N/A			2.1E-05	1.34%	0.01%	1.3E-04	2.60%	0.02%	6.2E-04	1.34%	0.03%
	Thallium	N/A			1.0E-03	67.91%	0.54%	3.4E-03	67.71%	0.48%	3.2E-02	67.85%	1.50%
	Toluene	N/A			9.0E-12	0.00%	0.00%	6.0E-11	0.00%	0.00%	2.7E-10	0.00%	0.00%
	Vanadium	N/A			1.0E-05	0.68%	0.01%	2.2E-05	0.43%	0.00%	3.2E-04	0.68%	0.02%
	Zinc	N/A			3.2E-05	2.06%	0.02%	1.4E-04	2.71%	0.02%	9.6E-04	2.07%	0.05%
	Total				1.5E-03	100.00%	0.80%	5.0E-03	100.00%	0.71%	4.6E-02	100.00%	2.22%
Beef/Milk (Groundwater Affected)	Arsenic	N/A			2.7E-08	0.00%	0.00%	7.3E-08	0.00%	0.00%	6.6E-14	0.00%	0.00%
	Barium	N/A			4.1E-03	71.72%	2.14%	4.0E-02	71.35%	5.66%	0.0E+00	0.00%	0.00%
	Beryllium	N/A			1.4E-11	0.00%	0.00%	2.6E-11	0.00%	0.00%	1.7E-17	0.00%	0.00%
	U-Total	N/A			1.6E-03	28.28%	0.84%	1.6E-02	28.65%	2.27%	1.2E-02	100.00%	0.59%
	Total				5.7E-03	100.00%	2.98%	5.6E-02	100.00%	7.93%	1.2E-02	100.00%	0.59%
ALL MEDIA		**2.8E-01**			**1.9E-01**			**7.1E-01**			**2.1**		

TABLE B.3.1-31
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% Total Medium Hazard	% Total Receptor Hazard	On-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
Homegrown Produce (Dust Affected)	Arsenic	3.3E-02	83.36%	3.09%	2.6E-01	83.36%	3.30%	N/A			N/A		
	Barium	4.1E-04	1.05%	0.04%	3.3E-03	1.05%	0.04%	N/A			N/A		
	Beryllium	1.0E-04	0.26%	0.01%	8.2E-04	0.26%	0.01%	N/A			N/A		
	Chromium	2.9E-04	0.73%	0.03%	2.3E-03	0.73%	0.03%	N/A			N/A		
	Copper	2.0E-04	0.52%	0.02%	1.6E-03	0.52%	0.02%	N/A			N/A		
	Cyanide	4.5E-06	0.01%	0.00%	3.7E-05	0.01%	0.00%	N/A			N/A		
	Molybdenum	2.0E-04	0.51%	0.02%	1.6E-03	0.51%	0.02%	N/A			N/A		
	Nickel	2.2E-04	0.56%	0.02%	1.8E-03	0.56%	0.02%	N/A			N/A		
	Selenium	1.3E-04	0.32%	0.01%	1.0E-03	0.32%	0.01%	N/A			N/A		
	Thallium	4.1E-03	10.59%	0.39%	3.3E-02	10.59%	0.42%	N/A			N/A		
	Toluene	5.8E-08	0.00%	0.00%	4.7E-07	0.00%	0.00%	N/A			N/A		
	Vanadium	7.7E-04	1.97%	0.07%	6.2E-03	1.97%	0.08%	N/A			N/A		
	Zinc	4.2E-05	0.11%	0.00%	3.4E-04	0.11%	0.00%	N/A			N/A		
	Total	3.9E-02	100.00%	3.71%	3.2E-01	100.00%	3.96%						
Homegrown Produce (Groundwater Affected)	Arsenic	3.3E-13	0.00%	0.00%	2.7E-12	0.00%	0.00%	N/A			N/A		
	Barium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	2.0E-16	0.00%	0.00%	1.6E-15	0.00%	0.00%	N/A			N/A		
	U-Total	5.33%	100.00%	5.06%	4.3E-01	100.00%	5.39%	N/A			N/A		
	Total	3.3E-13	100.00%	5.06%	2.7E-12	100.00%	5.39%						
Beef/Milk (Dust Affected)	Arsenic	5.9E-03	6.36%	0.56%	3.2E-02	20.77%	0.40%	N/A			N/A		
	Barium	4.2E-05	0.04%	0.00%	9.4E-04	0.62%	0.01%	N/A			N/A		
	Beryllium	8.5E-06	0.01%	0.00%	3.0E-05	0.02%	0.00%	N/A			N/A		
	Chromium	2.5E-04	0.27%	0.02%	3.3E-03	2.20%	0.04%	N/A			N/A		
	Copper	2.5E-04	0.27%	0.02%	2.6E-03	1.74%	0.03%	N/A			N/A		
	Cyanide	6.5E-11	0.00%	0.00%	9.3E-10	0.00%	0.00%	N/A			N/A		
	Nickel	1.7E-04	0.18%	0.02%	1.9E-03	1.24%	0.02%	N/A			N/A		
	Selenium	2.9E-04	0.32%	0.03%	4.0E-03	2.60%	0.05%	N/A			N/A		
	Thallium	1.6E-02	17.19%	1.51%	1.0E-01	67.66%	1.29%	N/A			N/A		
	Toluene	1.3E-10	0.00%	0.00%	1.8E-09	0.00%	0.00%	N/A			N/A		
	Vanadium	1.6E-04	0.18%	0.02%	6.6E-04	0.43%	0.01%	N/A			N/A		
	Zinc	4.7E-04	0.51%	0.05%	4.1E-03	2.72%	0.05%	N/A			N/A		
	Total	9.3E-02	100.00%	2.23%	1.5E-01	100.00%	1.91%						
Beef/Milk (Groundwater Affected)	Arsenic	3.4E-14	0.00%	0.00%	1.8E-13	0.00%	0.00%	N/A			N/A		
	Barium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	9.1E-18	0.00%	0.00%	3.2E-17	0.00%	0.00%	N/A			N/A		
	U-Total	5.3E-03	100.00%	0.50%	1.2E-01	100.00%	1.53%	N/A			N/A		
	Total	5.3E-03	100.00%	0.50%	1.2E-01	100.00%	1.53%						
ALL MEDIA		**1.1**			**8.0**			**0.2**			**0.2**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

expanded trespasser slightly exceeded the 1.0×10^{-4} level due mostly to the estimated presence of beryllium in flyash material which accounted for 87 percent of the total risk to this receptor.

Total estimated risk to the off-property farmer exceeded the 1.0×10^{-6} level due mostly to direct exposure to the estimated future concentrations of uranium-234 and uranium-238 and in groundwater which together accounted for about 65 percent of total risk to this receptor. The estimated presence of arsenic in flyash material accounted for another 12 percent of total risk to this receptor due to its estimated deposition on produce.

Total estimated risks to future on-property residents were greatest for the RME farmer. Total risks to this receptor was 1.9×10^{-3} due mostly to the presence of neptunium-237, radium-228, and thorium-228 in surface flyash material which accounted for about 73 percent of total risk to this receptor (equal to 1.4×10^{-3}); and arsenic in surface flyash material which accounted for 21 percent of total risk to this receptor (equal to 4.0×10^{-4}). Risk due to direct contact with contaminants in groundwater accounts for only 2.5 percent of total risk (equal to a risk of 4.7×10^{-5}) to this receptor. Contributions of homegrown and produce and beef and milk to risk for this receptor are negligible.

The only receptors associated with total HIs greater than 1.0 are the future on-property RME farmer and child. Total HI for the farmer is 2.1 due mostly to the presence of arsenic, beryllium, toluene, and zinc in surface flyash material which accounted for 49 percent of total receptor hazard. Total HI for the future on-property child is 8.0, again due mostly to the presence of arsenic in surface flyash material which accounted for approximately 60 percent of total receptor hazard.

Total estimated risk to future Great Miami River users was greatest for the adult receptor. Total risk to this receptor was 1.3×10^{-4}, due mostly to dermal contact of arsenic and beryllium in sediment which accounted for 25 and 61 percent of total risk to this receptor, respectively. Total HIs for this receptor were less that 1.0. The youth receptor total risk was 6.5×10^{-5} also due mostly to arsenic and beryllium in sediment which accounted for 31 and 58 percent of total risk, respectively. Total hazard for this receptor was less than 1.0.

B.3.2 SOUTH FIELD

B.3.2.1 Exposure Point Concentrations

Table B.3.2-1 summarizes the exposure scenarios evaluated to assess risks associated with the South Field. It also summarizes derivation of exposure concentration specific to this subunit. With the exception of groundwater exposures, all exposure point concentrations were derived from the analytical data on samples collected within the boundaries of the South Field subunit.

For groundwater exposure, data from the Inactive Flyash Pile and the South Field were combined to develop source terms for estimating future groundwater concentrations as described in Section 5.0 of this RI report. This is because the groundwater underlying and migrating from these subunits is closely interconnected. To assess risk due to groundwater exposures for each of these units, single maximum groundwater concentrations of each groundwater CPC were estimated for both the future off-property farmer and the future on-property farmer. It was assumed that the on-property farmer resided on the South Field, and simultaneously farmed that area. The South Field was chosen as the site for a future farm since it is not feasible to place either a home or an agricultural field on either the Active or Inactive Flyash Pile. Because it was assumed a home could be constructed on the South Field, both risks to a homebuilder and risks due to indoor radon were estimated for this area. This and other relevant information regarding exposure point concentrations for the South Field are summarized in Table 3.2-1.

B.3.2.2 Constituents of Potential Concern

The CPCs quantified for South Field surface soil, subsurface soil, surface water and sediment, and groundwater are summarized in Tables 3.2-2(a), (b), (c), (d) and (e), respectively (Attachment III). Table B.3.2-3 summarizes CPCs for the South Field by medium.

B.3.2.3 Risk Characterization for Current Land Use

The scenarios characterized for the South Field assuming continued DOE ownership are a trespassing youth, the off-property farmer and resident child using food products from livestock grazing off-property and from produce grown off-property, a user of meat and milk products from livestock grazed on-property and a groundskeeper exposed to on-site contaminant concentrations.

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TABLE B.3.2-1

SOUTH FIELD
EXPOSURE POINT CONCENTRATIONS
FOR SCENARIOS EVALUATED

Current Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Current with Access Controls and without Access Controls (current use of FEMP continues, DOE ownership)	Trespassing Youth	soil	incidental ingestion dermal contact external radiation	surface soil within subunit
		air	inhalation of particulates, volatiles and gases	maximum estimated on-site current concentrations derived from airborne soil air modeling results
		surface water	incidental ingestion dermal contact	surface water within subunit
		sediment	incidental ingestion dermal contact external radiation	sediment within subunit
	Off-Property Resident Farmer (adult and child), livestock grazing off-property	air	inhalation of particulates, volatiles and gases	maximum estimated off-site current concentrations derived from airborne soil air modeling concentrations
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated off-site current concentrations derived from deposited airborne soil air modeling results
		livestock (grazing off-property)	ingestion of milk and beef	maximum estimated off-site current concentrations derived from deposited airborne soil air modeling results
	Groundskeeper	air	inhalation of particulates, volatiles and gases	maximum estimated on-site current concentration derived from air modeling
		soil	incidental ingestion dermal contact external radiation	surface soil within subunit
	User of Meat/Milk Products	livestock (grazing on-property	ingestion of milk and beef	maximum estimated on-site current concentrations derived from deposited South Field surface soil air modeling results.

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TABLE B.3.2-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Federal Ownership (includes exposure routes that require development time)	Future Off-Property Farmer (adult and child), livestock grazing off-property, groundwater off-property	air	inhalation of particulates, volatiles and gases	maximum estimated off-site future concentrations derived from airborne soil air modeling results
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		livestock (grazing at property boundary)	ingestion of milk and beef	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		groundwater	ingestion dermal contact inhalation	modeled groundwater concentrations off-site at time when concentration is greatest (South Field and Inactive Flyash Pile combined)
	Expanded Trespasser	air	inhalation of particulates, radionuclides, volatiles and gases	maximum estimated on-site airborne soil modeling results
		surface water	incidental ingestion dermal contact	surface water within subunit
		sediment	incidental ingestion dermal contact external radiation	sediment within subunit
		soil	incidental ingestion dermal contact external radiation	surface soil within subunit
Without Federal Ownership (includes exposure routes that require development time)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property, RME and CT estimates	air	inhalation of particulates, volatiles and gases, including indoor radon	maximum estimated on-site future concentrations from airborne soil modeling results and modelled radon emissions from soil radium
		plants (homegrown produce)	ingestionof fruits and vegetables	maximum estimated on-subunit future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		livestock (grazing on property)	ingestion of milk and beef	maximum estimated on-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		groundwater	ingestion dermal contact inhalation	modeled groundwater concentrations underlying South Field at time when concentration is greatest (South Field and Inactive Flyash Pile combined)

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TABLE B.3.2-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Without Federal Ownership (includes exposure routes that require development time)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property, RME and CT estimates (Continued)	soil	indicental ingestion dermal contact external radiation	surface soil within subunit
	Future Homebuilder (per OU1)	waste material/subsurface soil	external radiation incidental ingestion dermal contact	subsurface soil within subunit
		air	inhalation of particulates, volatiles and gases	estimated air concentrations at construction site on subunit
	Future Perched Groundwater User (Solid Waste Landfill and Lime Sludge Ponds only)	perched groundwater directly underlying subunit	ingestion dermal contact inhalation of volatiles released during household use.	not quantified; no useable perched groundwater at South Field
With or Without Federal Ownership	Great Miami River User	surface water	ingestion dermal contact	estimated concentrations in Great Miami River
		sediment	ingestion dermal contact external radiation	estimated concentrations in Great Miami River
		fish	ingestion	estimated fish concentration in Great Miami River

TABLE B.3.2-3

CONSTITUENTS OF POTENTIAL CONCERN
FOR THE SOUTH FIELD

SURFACE SOIL	SEDIMENT	GROUNDWATER	SURFACE WATER
	Radiological Constituents		
CS-137	CS-137	--	--
NP-237	NP-237	NP-237	--
PU-238	PU-238	--	--
PU-239	PU-239/240	--	--
RA-226	RA-226	RA-226	--
RA-228	RA-228	RA-228	--
--	RU-106	--	--
SR-90	SR-90	--	--
TC-99	TC-99	TC-99	--
TH-228	TH-228	--	--
TH-230	TH-230	--	--
TH-232	TH-232	--	--
U-234	U-234	U234	U-234
U-235	U-235/236	U235/236	U-235/236
U-238	U-238	U238	U-238
	Chemical Constituents		
Arsenic	Arsenic	Arsenic	--
Beryllium	Beryllium	Beryllium	--
Chromium	Chromium	--	--
--	Cobalt	--	--
Lead	Lead	Lead	--
--	Manganese	--	--
--	--	Mercury	--
--	--	Molybdenum	--
TH-TOTAL	TH-TOTAL	--	--
--	Thallium	--	--
U-TOTAL	U-TOTAL	--	U-TOTAL
Acenaphthylene		--	--
Benzo(a)anthracene	Benzo(a)anthracene	--	--
Benzo(a)pyrene	Benzo(a)pyrene	--	--
Benzo(b)fluoranthene	Benzo(b)fluoranthene	--	--
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	--	--
Benzo(k)fluoranthene	Benzo(k)fluoranthene	--	--
bis(2-Ethylhexyl)phthalate	bis(2-Ethylhexyl) phthalate	--	--
Carbazole	--	--	--
Chrysene	Chrysene	--	--
Dibenzo(a,h)anthracene	--	--	--
Dibenzofuran	--	--	--
Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	--	--
Phenanthrene	Phenanthrene	--	--
Methylene chloride	--	--	--
Aroclor 1254	Aroclor-1254	--	--
Aroclor 1260	--	--	--
Dieldrin	--	--	--
Endrin ketone	--	--	--
--	--	--	--

– = not a CPC in this medium

B.3.2.3.1 Trespassing Youth

Risk was characterized for a trespassing youth on the South Field exposed to CPCs via ingestion and dermal contact with surface soil, sediment, and surface water located on the subunit; external radiation from exposure to on-subunit surface soil; and inhalation of on-subunit airborne soil particulates. Exposure point concentrations for exposure to soil, surface water, and sediment were based on analytical data from South Field soil samples while the inhaled particulate concentration was based on air modeling results as described in Section B.2.0 of this appendix.

Risks and hazards calculated for the trespassing youth exposed to CPCs in surface soil on the South Field are presented in Table B.3.2-4 (Attachment III). The total risk due to soil for this receptor was 2.4×10^{-5}. This was primarily due to external radiation exposure to thorium-228 in soil (7.0×10^{-6}), dermal contact with beryllium in soil (9.7×10^{-6}), and estimated ingestion of PAHs. Total HI did not exceed 1.0.

Risks and hazards calculated for the trespassing youth exposed to CPCs in surface water on the South Field are presented in Table B.3.2-5 (Attachment III). Total risk did not exceed the 10^{-6} risk level and the total HI did not exceed 1.0.

Risks and hazards calculated for the trespassing youth exposed to CPCs in sediment on the South Field are presented in Table B.3.2-6 (Attachment III). The total risk was 5.7×10^{-5}. This was primarily due to dermal contact with beryllium, which was associated with a risk of 4.6×10^{-5}. HI did not exceed 1.0.

B.3.2.3.2 Current Off-Property Farmers

Risk was characterized for the off-property farmer and resident child contacting CPCs via inhalation of airborne South Field soil particulates, ingestion of airborne particulates deposited on homegrown produce, and ingestion of milk or beef from livestock grazing on particulates deposited on off-site vegetation. For all of these routes of exposure the exposure point concentration was based on air modeling results as described in the methods section.

Risks and hazards calculated for the off-property farmer and resident child exposed to CPCs in airborne soil migrating off of the subunit are presented in Tables B.3.2-7(a) and B.3.2-7(b),

respectively (Attachment III). Total risk did not exceed the 10^{-6} risk level and HIs did not exceed 1.0 for either the farmer or child.

Risks and hazards associated with the ingestion of CPCs in beef and milk for the off-property resident farmer and child are given in Table B.3.2-8(a) and B.3.2-8(b), respectively (Attachment III). The total risk for all CPCs consumed in beef and milk was 4.9×10^{-7} and 2.8×10^{-7} for the farmer and child, respectively. The total HIs did not exceed 1.0 for either receptor.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-property farmer and resident child are given in Tables B.3.2-9(a) and B.3.2-9(b), respectively (Attachment III). The total risk for all CPCs consumed in homegrown produce was 3.7×10^{-8} and 1.2×10^{-8} for the farmer and child, respectively. Total HIs were well below 1.0 for both receptors.

B.3.2.3.3 Current User of Milk/Meat Products

Risks and hazards were characterized for a current user of milk and meat products from livestock potentially grazing within the Active Flyash Pile, South Field, and Inactive Flyash Pile boundaries. Exposure point concentrations in beef and milk were derived from the maximum estimated on-site current deposition rates of airborne South Field surface soil.

Risk and hazard to the current user of meat and milk products are given in Table B.3.1-10 (Attachment III). Total risk to this receptor was 4.2×10^{-6} due mostly to the estimated uptake of the PAH indeno(1,2,3-cd)pyrene by cattle, which was associated with a risk of 3.4×10^{-6}. Total HI was well below 1.0.

B.3.2.3.4 Current Groundskeeper

Risks and hazards associated with the current groundskeeper are given in Table B.3.2-11 (Attachment III). Total carcinogenic risk was 6.5×10^{-4} due mostly to thorium-228 via external radiation. Total HI was below 1.0.

B.3.2.4 Risk Characterization for Future Land Use

The scenarios characterized for the South Field assuming future federal ownership are the off-property farmer and resident child and an expanded trespasser. Scenarios characterized for the South Field assuming future private ownership are a farmer and resident child living on the South Field and

a future homebuilder. Risks for a future perched groundwater user are not evaluated because there is no usable perched groundwater at the South Field. Recreational users of the Great Miami River were also evaluated for federal and private ownerships.

B.3.2.4.1 Future Off-Property Farmers

For the off-property farmer and resident child, risks were calculated for exposure to CPCs in airborne South Field soil and in groundwater underlying the South Field and Inactive Flyash Pile. Receptors are assumed to contact CPCs in air via inhalation of particulates; consumption of homegrown produce irrigated with contaminated groundwater and on which contaminated airborne soil was deposited; ingestion of milk and beef from cattle grazing off-site consuming vegetation on which airborne soil was deposited and drinking contaminated groundwater; and by ingestion, dermal contact, and inhalation of contaminated groundwater. All of the exposure point concentrations for this scenario were derived from air and groundwater modeling results as described in Section B.2.0, Methodology.

Risks and hazards calculated for the future off-property farmer and resident child exposed to CPCs in airborne soil are presented in Tables B.3.2-12(a) and B.3.2-12(b), respectively (Attachment III). Total risk from soil for the farmer was 6.2×10^{-6}. This was primarily due to inhalation of radioactive CPCs in particular, thorium-228 (1.0×10^{-6}), thorium-230 (1.2×10^{-6}), and uranium-238 (1.5×10^{-6}). The individual risks associated with all other CPCs did not exceed the 10^{-6} risk level. Total risk for the child did not exceed the 10^{-6} risk level. Total HI did not exceed 1.0 for either the farmer or child.

Risks and hazards associated with ingestion of CPCs in beef and milk for the future off-property farmer and resident child are given in Tables B.3.2-13(a) and B.3.2-13(b), respectively (Attachment III). Total risk for all CPCs consumed in beef and milk was 1.5×10^{-5} and 8.2×10^{-6} for the farmer and child, respectively, due mostly to the estimated presence of PAHs (benzo(a)pyrene and indeno(1,2,3-cd)pyrene) in beef and milk. No HI exceeded 1.0.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the future off-property farmer and resident child are given in Tables B.3.2-14(a) and B.3.2-14(b), respectively (Attachment III). Total risk for all CPCs consumed in homegrown produce was 9.5×10^{-6} and 9.7×10^{-7} for the farmer and child, respectively. Total HI for all CPCs consumed in homegrown produce was well below 1.0 for both the farmer and child.

The risks and hazards associated with exposures of the off-property farmer and resident child to contaminated groundwater are given in Tables B.3.2-15(a) and B.3.2.-15(b), respectively (Attachment III). Total risk via all routes of direct exposure to groundwater (ingestion, inhalation, and dermal contact) for the farmer is 5.6×10^{-5} and for the resident child is 2.4×10^{-6}. Most of this risk is attributable to ingestion of the radionuclides uranium-234 and uranium-238. Total HI via all routes of direct exposure to groundwater for the farmer is less than 1.0. The child, however, is associated with a HI of 2.0 due o the ingestion of uranium-total.

B.3.2.4.2 Future On-Property Expanded Trespasser

Risks to the future South Field expanded trespasser were calculated for exposure to CPCs detected on the subunit. The expanded trespasser was anticipated to contact CPCs directly via inhalation of airborne particulates of soil, ingestion, and dermal contact with on-subunit soil, sediment, and surface water, and external radiation resulting from exposure to on-subunit soil and sediment. Exposure point concentrations for inhalation of airborne particles were estimated from soil modeling results. All other exposure point concentrations were derived from analytical data from samples taken at the South Field.

Risks and hazards for a future expanded trespasser of the South Field exposed to CPCs in on-subunit soil and airborne particulates are given in Table B.3.2-16 (Attachment III). Total risk was 6.8×10^{-5}. This was primarily due to the external radiation effects of thorium-228 (1.0×10^{-5}), ingestion of benzo(a)pyrene in soil (1.8×10^{-6}), and dermal contact with beryllium (4.2×10^{-5}), Aroclor-1254 (2.8×10^{-6}), and Aroclor-1260 (1.7×10^{-6}). Risks calculated for all other CPCs did not exceed the 10^{-6} risk level. Total HI did not exceed 1.0.

Risks and hazards calculated for the future expanded trespasser exposed to CPCs in sediment located on the South Field subunit are presented in Table B.3.2-17 (Attachment III). Total risk due to exposure to all CPCs in sediment by all exposure pathways is 1.5×10^{-4}. This was primarily due to dermal contact with beryllium in soil. Risks and hazards for a future expanded trespasser exposed to surface water are given in Table B.3.2-18 (Attachment III). The risk due to exposure to CPCs in surface water was 5.7×10^{-7}. Total HIs calculated for exposure of an expanded trespasser to CPCs found in the soil, sediment, or surface water on the South Field subunit did not exceed 1.0.

B.3.2.4.3 Future On-Property (South Field) Farmers

RME risk estimates were calculated for the future on-property farmer and resident child with livestock grazing on-property and using groundwater, underlying the South Field and Inactive Flyash Pile, impacted by these subunits. Receptors are presumed to contact CPCs via inhalation of airborne soil particulates, ingestion, and dermal contact with South Field soil; external radiation from South Field soil; consumption of homegrown produce irrigated with contaminated groundwater and on which contaminated airborne soil was deposited; ingestion of milk and beef from cattle drinking contaminated groundwater and grazing on South Field vegetation on which airborne soil was deposited; and by ingestion, dermal contact, and inhalation of contaminated groundwater. Exposure point concentrations for routes of exposure using airborne particulates or groundwater were estimated from air and groundwater modeling.

The RME risks and hazards for a South Field on-property farmer and resident child exposed to CPCs in on-subunit soil and airborne particulates are given in Tables B.3.2-19(a) and B.3.2-19(b), respectively (Attachment III). The total RME risks were 2.4×10^{-3} and 3.1×10^{-4}, respectively. The greatest single risks for the farmer were calculated for external radiation exposure to thorium-228 (1.0×10^{-3}), ingestion of benzo(a)pyrene (1.7×10^{-4}), and dermal contact with beryllium (3.2×10^{-4}). The greatest single risks for the resident child were calculated for external radiation exposure to thorium-228 (7.7×10^{-5}), ingestion of benzo(a)pyrene (7.5×10^{-5}) and arsenic (1.4×10^{-5}), and dermal contact with beryllium (4.4×10^{-5}). The risks associated with individual CPCs ranged between 10^{-7} and 10^{-12}. When the risks associated with each CPC were summed across a pathway of exposure, the total pathway risk was at or above 10^{-6} for all pathways. Total HIs did not exceed 1.0 for any single CPC, or the sum of CPCs, across pathways for exposure of either a future on-property farmer or resident child to CPCs in soil.

Risks and hazards associated with exposure to contaminants in groundwater for the RME future farmer on-property farmer and on-property resident child are given in Tables B.3.2-20(a) and B.3.2-20(b), respectively (Attachment III). Exceeding 1.0×10^{-6} risks are indicated for both the RME farmer and resident child. Total risk for the farmer was 1.1×10^{-3} due to ingestion of uranium-234 and uranium-238. Total risk for the resident child was 4.7×10^{-5} due to ingestion of the same compounds. Total HIs were 19.3 and 43.3 for the farmer and child, respectively, due to the presence of uranium-total.

Risks and hazards associated with exposure to contaminants in homegrown produce for the RME farmer and resident child are given in Tables B.3.2-21(a) and B.3.2-21(b), respectively (Attachment III). The risk associated with homegrown produce for the farmer was 1.7×10^{-4} and for the resident child was 1.5×10^{-5}. This was mostly due to the estimated presence of uranium-234 and uranium-238 in produce. The HI exceeded 1.0 for both the farmer and child due to the estimated uptake of uranium-total into irrigated plants.

Risks and hazards associated with exposure to contaminants in beef and milk for the RME farmer and resident child are given in Tables B.3.2-22(a) and B.3.2-22(b), respectively (Attachment III). The risk associated with beef and milk for the farmer was 1.4×10^{-4} and for the child was 7.3×10^{-5}. This is largely due to the uptake of PAHs by livestock. Total hazard was below 1.0 for the farmer, but the child had a hazard of 2.9 due to the estimated uptake of uranium-total by livestock.

CT estimates of risk for the future on-property resident farmer associated with exposures to surface soil, groundwater, homegrown produce, and beef and milk are given in Tables B.3.2-23, B.3.2-24, B.3.2-25, and B.3.2-26, respectively (Attachment III). Total risk from soil was 2.1×10^{-4} due mostly to extended radiation from thorium-228. Total risk to groundwater is 7.8×10^{-5}, homegrown produce is 1.1×10^{-5}, and beef and milk is 8.3×10^{-6}. The greatest proportion of all these risks was due to the presence of uranium-234, and uranium-238 in groundwater and its subsequent uptake into irrigated plants and watered livestock. Total HI for groundwater was 11 due to total uranium and total HI for produce was 1.3 also due to total uranium.

B.3.2.4.4 Future On-Property (South Field) Homebuilder

Risks were calculated for a future homebuilder ingesting, inhaling, or coming into dermal contact with subsurface soil within the South Field. The risk of external radiation resulting from exposure to subsurface soil was also determined.

The risks and hazards for an on-property homebuilder exposed to contaminated subsurface soils while building a home on the South Field are given in Table B.3.2-27 (Attachment III). The total risk due to all CPCs by all routes of exposure was 2.2×10^{-6}. HI did not exceed 1.0 for any individual CPC.

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B.3.2.4.5 Future Great Miami River User

Risks and hazards associated with future adult and youth recreational users of the Great Miami River contacting contaminated surface water and in Tables B.3.2-28(a) and B.3.2-28(b), respectively (Attachment III). Total carcinogenic risk due to surface water exposure was 6.9×10^{-5} for the adult receptor and 4.5×10^{-5} for the youth receptor, are mostly to benzo(a)pyrene in contaminated fish. Total estimated measure of associated with surface water exposures was less than 1.0 for both receptors.

Risks and hazards associated with exposure to contaminated sediment are given in Tables B.3.2-29(a) and B.3.2-29(b), respectively Attachment III. Total carcinogenic risk was 4.0×10^{-5} and 1.8×10^{-5} for the adult and youth, respectively. For the adult, beryllium along the dermal contact route was the greatest contributor to the total risk. Beryllium, radium-228, and thorium-228 were slightly higher than any other contaminant. Total HI was less than 1.0.

B.3.2.5 Risks Due to Estimated Radium-222 Emission

Concentrations of indoor air radon at the South Field were estimated from South Field subsurface soil radium-226 concentrations as described in Attachment I. The results shown in Table B.3.2-30, indicate that potential residents of a structure built on a slab-type foundation have a considerably higher risk than residents of a structure with a basement; this is due to surface soil concentrations of radium-226. Carcinogenic risk associated with a house on a slab foundation are 4.2×10^{-3} for a child, 4.9×10^{-3} for the CT scenario, and 4.9×10^{-2} for the RME resident. For future residents dwelling in a house with basement, the risk to a child would be 1.9×10^{-7}, with 2.3×10^{-7} risk to the CT resident, and 2.3×10^{-6} risk to an RME resident. For comparisons, the RME resident carcinogenic risk based on the EPA action level of 4 pCi/L (ASTDR 1990) is presented. The risk would be 1.1×10^{-2}. The higher risk associated with the slab foundation is primarily due to the higher permeability of the surface soil compared to the subsurface soil (see Solid Waste Landfill results where the surface and subsurface permeabilities are similar.

Ambient outdoor radon emissions potentially associated with the South Field, estimated as described in Section B.2.0, are summarized in Table B.3.2-31 for each receptor. Risks that would result at the South Field assuming radon emission were equivalent to what would naturally occur if radium-226 were present at background concentrations are presented for comparison. Risks exceeding 1.0×10^{-6} were associated with future on-property farm receptors (RME farmer, CT farmer, and child). The

TABLE B.3.2-30

CARCINOGENIC RISK ASSOCIATED WITH INDOOR RADON: SOUTH FIELD[a]

Type Structure	RME	CT	Child	RME Risk-based on EPA Action Level[b]
House on Slab	4.9×10^{-2}	4.9×10^{-3}	4.2×10^{-3}	1.1×10^{-2}
House with Basement	2.3×10^{-6}	2.3×10^{-7}	1.9×10^{-7}	1.1×10^{-2}

[a]Results obtained from Indoor Radon Modeling Studies (Attachment I) using radon-226 concentrations in South Field subsurface soil

[b]EPA Action level of 4 pCi/L (ASTDR 1990)

TABLE B.3.2-31
SOUTH FIELD
RISKS DUE TO ESTIMATED RA-222 EMISSION

	Subunit			Background		
	Maximum Ra-222Air Concentration (pCi/m3)*	Intake (pCi)	Risk	Background Ra-222 Air Concentration (pCi/m3)**	Intake (pCi)	Risk
Current Trespassing Youth	7.7E+01 1.5E+01	1.6E+05 3.1E+04	1.2E-06 2.4E-07	3.4E+00	7.0E+03	5.4E-08
Current/Future Off-Property Farmer	4.9E+00 9.6E-01	5.7E+05 1.1E+05	4.4E-06 8.6E-07	2.2E-01	2.5E+04	1.9E-07
Current/Future Off-Property Child	4.9E+00 9.6E-01	1.0E+04 2.0E+03	7.9E-08 1.6E-08	2.2E-01	4.5E+02	3.5E-09
Future Expanded Trespasser (Adult + Child)	7.7E+01 1.5E+01	7.7E+04 4.9E+04	5.9E-07 3.8E-07	3.4E+00	1.1E+04	8.5E-08
Future, RME On-Property Farmer	6.8E+01 1.3E+01	7.8E+06 1.5E+06	6.0E-05 1.2E-05	3.0E+00	3.4E+05	2.6E-06
Future, CT On-Property Farmer	6.8E+01 1.3E+01	5.8E+05 1.1E+05	4.5E-06 8.8E-07	3.0E+00	2.6E+04	2.0E-07
Future On-Property Child	6.8E+01 1.3E+01	1.4E+05 2.8E+04	1.1E-06 2.1E-07	3.0E+00	6.2E+03	4.8E-08

*Upper value represents maximum surface soil hit of 30.8 pCi/g in RAECOM model.
Lower value is mean surface soil concentration of 3.734 pCi/g. Sample distribution is undefined.

**Assumes Ra-226 concentration is 1.228 pCi/g in surface soil and 0.78 pCi/g in subsurface soil.

risks calculated were about 20 times what could be expected if radium-226 were present at the South Field at background concentrations.

B.3.2.6 Summary for South Field

Tables B.3.2-32 and B.3.2-33 summarize risk and hazard, respectively, associated with the South Field for receptors assuming current land use. Total carcinogenic risk to the trespassing youth was 8.0×10^{-5}. This was due mostly to external radiation from radium-228 and thorium-228 in soil and sediment which accounted for approximately 21 percent of total receptor risk and exposure to beryllium in soil and sediment which accounted for 70 percent of total receptor risk mainly through the dermal contact route. All total HIs were less than 1.0.

Total estimated risk to the current groundskeeper is 6.5×10^{-4} due primarily to thorium-228 in contaminated soil which accounted for a combined 95 percent of total risk to this receptor. Total HI for this receptor was less than 1.0.

Tables B.3.2-34 and B.3.2-35 summarize risk and hazard, respectively, associated with the South Field for receptors assuming future land use. The greatest risk was the risk associated with the RME on-property farmer, which was 3.8×10^{-3}. Risks associated with groundwater use by this receptor were 3.9×10^{-4} and risks associated with groundwater affected homegrown produce and dust affected beef and milk for this receptor also exceeded 1.0×10^{-4}. Risks to all other receptors (off-property farmer and resident child; and on-property resident child) via contact with groundwater, beef and milk, and homegrown produce were in the 1.0×10^{-6} to 1.0×10^{-4} range. The greatest proportion of the risks for all these pathways was attributable to the future estimated concentrations of uranium-234 and uranium-238 in groundwater, and consequently in irrigated homegrown produce and beef and milk from livestock watered with contaminated groundwater; from the presence of radium-228 and thorium-228 in surface soil; and from the presence of PAHs in surface soil. The greatest hazard (Table B.3.2-35) to all on- and off-property farm receptors was due to the estimated future presence of uranium-total in groundwater.

Total estimated risk to future Great Miami River users was greatest for the adult receptor. Total risk to this receptor was 1.1×10^{-4} due to benzo(a)pyrene in surface water which accounted for 36 percent of total risk to this receptor. Thorium-230 and beryllium in sediment accounted for 12 and 14

TABLE B.3.2-32
CURRENT LAND USE
SOUTH FIELD
SUMMARY OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	2.8E-07	1.21%	0.35%	8.0E-13	0.00%	0.00%	1.5E-14	0.00%	0.00%	N/A		
	NP-237	2.9E-08	0.12%	0.04%	5.6E-10	0.32%	0.08%	1.0E-11	0.19%	0.00%	N/A		
	PU-238	5.0E-10	0.00%	0.00%	4.0E-10	0.23%	0.06%	7.2E-12	0.13%	0.00%	N/A		
	PU-239/240	2.2E-10	0.00%	0.00%	1.6E-10	0.09%	0.02%	3.0E-12	0.06%	0.00%	N/A		
	RA-226	1.6E-07	0.70%	0.21%	7.8E-09	4.46%	1.11%	1.4E-10	2.66%	0.05%	N/A		
	RA-228	3.2E-06	13.62%	4.00%	2.2E-10	0.12%	0.03%	3.9E-12	0.07%	0.00%	N/A		
	SR-90	5.6E-10	0.00%	0.00%	5.3E-12	0.00%	0.00%	9.5E-14	0.00%	0.00%	N/A		
	TC-99	2.9E-09	0.01%	0.00%	1.0E-10	0.06%	0.01%	1.8E-12	0.03%	0.00%	N/A		
	TH-228	7.0E-06	29.87%	8.77%	2.9E-08	16.66%	4.15%	5.3E-10	9.93%	0.18%	N/A		
	TH-230	1.0E-08	0.04%	0.01%	3.4E-08	19.37%	4.82%	6.2E-10	11.54%	0.21%	N/A		
	TH-232	2.8E-09	0.01%	0.00%	9.5E-09	5.41%	1.35%	1.7E-10	3.22%	0.06%	N/A		
	U-234	6.4E-09	0.03%	0.01%	1.9E-08	10.88%	2.71%	3.5E-10	6.49%	0.12%	N/A		
	U-235/236	2.9E-08	0.12%	0.04%	8.9E-10	0.51%	0.13%	1.6E-11	0.30%	0.01%	N/A		
	U-238	1.1E-07	0.46%	0.14%	4.1E-08	23.41%	5.83%	7.4E-10	13.96%	0.25%	N/A		
	Total Radiological Risk	1.1E-05	46.19%	13.57%	1.4E-07	81.52%	20.30%	2.6E-09	48.60%	0.86%			
	Arsenic	2.1E-07	0.90%	0.26%	5.2E-10	0.30%	0.07%	4.4E-11	0.83%	0.01%	N/A		
	Beryllium	9.7E-06	41.21%	12.11%	3.8E-10	0.21%	0.05%	3.2E-11	0.60%	0.01%	N/A		
	Chromium	9.6E-09	0.04%	0.01%	2.7E-08	15.46%	3.85%	2.3E-09	43.01%	0.76%	N/A		
	Benzo(a)anthracene	8.6E-08	0.36%	0.11%	2.3E-10	0.13%	0.03%	2.0E-11	0.37%	0.01%	N/A		
	Benzo(a)pyrene	9.8E-07	4.13%	1.21%	2.7E-09	1.55%	0.39%	2.3E-10	4.32%	0.08%	N/A		
	Benzo(b)fluoranthene	7.9E-08	0.34%	0.10%	2.2E-10	0.13%	0.03%	1.9E-11	0.35%	0.01%	N/A		
	Benzo(k)fluoranthene	3.9E-08	0.17%	0.05%	1.1E-10	0.06%	0.02%	9.4E-12	0.18%	0.00%	N/A		
	bis(2-Ethylhexyl) phthalate	3.8E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Carbazole	4.8E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Chrysene	2.7E-09	0.01%	0.00%	7.7E-12	0.00%	0.00%	6.5E-13	0.01%	0.00%	N/A		
	Dibenzo(a,h)anthracene	2.2E-07	0.93%	0.27%	6.1E-10	0.35%	0.09%	5.2E-11	0.97%	0.02%	N/A		
	Indeno(1,2,3-cd)pyrene	1.7E-07	0.72%	0.21%	4.8E-10	0.28%	0.07%	4.1E-11	0.77%	0.01%	N/A		
	Methylene chloride	3.6E-11	0.00%	0.00%	4.7E-16	0.00%	0.00%	4.0E-17	0.00%	0.00%	N/A		
	Aroclor-1254	6.6E-07	2.81%	0.83%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Aroclor-1260	3.9E-07	1.64%	0.48%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Dieldrin	1.3E-07	0.53%	0.16%	7.6E-12	0.00%	0.00%	6.4E-13	0.01%	0.00%	N/A		
	Total Chemical Risk	1.3E-05	53.81%	15.81%	3.2E-08	18.48%	4.60%	2.7E-09	51.40%	0.91%			
	Total	2.4E-05	100.00%	29.38%	1.8E-07	100.00%	24.90%	5.3E-09	100.00%	1.78%			

TABLE B.3.2-32
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	7.7E-07	0.12%	0.12%
	NP-237	8.1E-08	0.01%	0.01%
	PU-238	3.0E-09	0.00%	0.00%
	PU-239/240	1.3E-09	0.00%	0.00%
	RA-226	6.2E-07	0.10%	0.10%
	RA-228	8.7E-06	1.35%	1.35%
	SR-90	3.2E-09	0.00%	0.00%
	TC-99	1.6E-08	0.00%	0.00%
	TH-228	6.1E-04	95.17%	95.17%
	TH-230	3.6E-08	0.01%	0.01%
	TH-232	6.5E-08	0.01%	0.01%
	U-234	2.8E-08	0.00%	0.00%
	U-235/236	1.6E-06	0.25%	0.25%
	U-238	3.8E-08	0.01%	0.01%
	Total Radiological Risk	6.3E-04	97.03%	97.03%
	Arsenic	6.6E-07	0.10%	0.10%
	Beryllium	1.2E-05	1.80%	1.80%
	Chromium	5.0E-08	0.01%	0.01%
	Benzo(a)anthracene	3.0E-07	0.05%	0.05%
	Benzo(a)pyrene	3.4E-06	0.52%	0.52%
	Benzo(b)fluoranthene	2.7E-07	0.04%	0.04%
	Benzo(k)fluoranthene	1.4E-07	0.02%	0.02%
	bis(2-Ethylhexyl) phthalate	9.5E-11	0.00%	0.00%
	Carbazole	1.7E-10	0.00%	0.00%
	Chrysene	9.4E-09	0.00%	0.00%
	Dibenzo(a,h)anthracene	7.5E-07	0.12%	0.12%
	Indeno(1,2,3-cd)pyrene	5.9E-07	0.09%	0.09%
	Methylene chloride	4.4E-11	0.00%	0.00%
	Aroclor-1254	8.0E-07	0.12%	0.12%
	Aroclor-1260	4.7E-07	0.07%	0.07%
	Dieldrin	1.5E-07	0.02%	0.02%
	Total Chemical Risk	1.9E-05	2.97%	2.97%
	Total	6.5E-04	100.00%	100.00%

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TABLE B.3.2-32
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Sediment	CS-137	2.3E-07	0.40%	0.28%	N/A			N/A			N/A		
	NP-237	5.3E-08	0.09%	0.07%	N/A			N/A			N/A		
	PU-238	6.5E-09	0.01%	0.01%	N/A			N/A			N/A		
	PU-239/240	1.3E-09	0.00%	0.00%	N/A			N/A			N/A		
	RA-226	1.6E-08	0.03%	0.02%	N/A			N/A			N/A		
	RA-228	2.1E-06	3.69%	2.61%	N/A			N/A			N/A		
	SR-90	5.7E-10	0.00%	0.00%	N/A			N/A			N/A		
	TH-228	4.5E-06	7.88%	5.57%	N/A			N/A			N/A		
	TH-230	2.0E-09	0.00%	0.00%	N/A			N/A			N/A		
	TH-232	5.0E-10	0.00%	0.00%	N/A			N/A			N/A		
	U-234	2.1E-09	0.00%	0.00%	N/A			N/A			N/A		
	U-235/236	2.8E-08	0.05%	0.04%	N/A			N/A			N/A		
	U-238	9.4E-08	0.17%	0.12%	N/A			N/A			N/A		
	Total Radiological Risk	7.0E-06	12.34%	8.71%									
	Arsenic	2.2E-06	3.89%	2.75%	N/A			N/A			N/A		
	Beryllium	4.7E-05	82.49%	58.24%	N/A			N/A			N/A		
	Benzo(a)anthracene	1.0E-09	0.00%	0.00%	N/A			N/A			N/A		
	Benzo(a)pyrene	1.1E-08	0.02%	0.01%	N/A			N/A			N/A		
	Benzo(b)fluoranthene	1.4E-09	0.00%	0.00%	N/A			N/A			N/A		
	Benzo(k)fluoranthene	6.5E-10	0.00%	0.00%	N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	4.5E-11	0.00%	0.00%	N/A			N/A			N/A		
	Chrysene	5.0E-11	0.00%	0.00%	N/A			N/A			N/A		
	Indeno(1,2,3-cd)pyrene	2.8E-09	0.00%	0.00%	N/A			N/A			N/A		
	Aroclor-1254	7.1E-07	1.24%	0.88%	N/A			N/A			N/A		
	Total Chemical Risk	5.0E-05	87.66%	61.88%									
	Total	5.7E-05	100.00%	70.60%									

TABLE B.3.2-32
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Sediment	CS-137	N/A		
	NP-237	N/A		
	PU-238	N/A		
	PU-239/240	N/A		
	RA-226	N/A		
	RA-228	N/A		
	SR-90	N/A		
	TH-228	N/A		
	TH-230	N/A		
	TH-232	N/A		
	U-234	N/A		
	U-235/236	N/A		
	U-238	N/A		
	Total Radiological Risk			
	Arsenic	N/A		
	Beryllium	N/A		
	Benzo(a)anthracene	N/A		
	Benzo(a)pyrene	N/A		
	Benzo(b)fluoranthene	N/A		
	Benzo(k)fluoranthene	N/A		
	bis(2-Ethylhexyl) phthalate	N/A		
	Chrysene	N/A		
	Indeno(1,2,3-cd)pyrene	N/A		
	Aroclor-1254	N/A		
	Total Chemical Risk			
	Total			

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TABLE B.3.2-32
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Surface Water	U-234	7.5E-09	33.76%	0.01%	N/A			N/A			N/A		
	U-235/236	3.5E-10	1.59%	0.00%	N/A			N/A			N/A		
	U-238	1.4E-08	64.65%	0.02%	N/A			N/A			N/A		
	Total Radiological Risk	2.2E-08	100.00%	0.03%									
Homegrown Produce (Dust Affected)	CS-137	N/A			6.9E-12	0.02%	0.00%	5.2E-13	0.00%	0.00%	N/A		
	NP-237	N/A			2.5E-11	0.07%	0.00%	1.9E-12	0.02%	0.00%	N/A		
	PU-238	N/A			1.3E-11	0.03%	0.00%	9.5E-13	0.01%	0.00%	N/A		
	PU-239	N/A			5.7E-12	0.02%	0.00%	4.2E-13	0.00%	0.00%	N/A		
	RA-226	N/A			1.8E-09	4.92%	0.26%	1.3E-10	1.12%	0.04%	N/A		
	RA-228	N/A			1.9E-10	0.52%	0.03%	1.4E-11	0.12%	0.00%	N/A		
	SR-90	N/A			1.9E-11	0.05%	0.00%	1.4E-12	0.01%	0.00%	N/A		
	TC-99	N/A			1.1E-10	0.29%	0.02%	8.0E-12	0.07%	0.00%	N/A		
	TH-228	N/A			1.2E-10	0.32%	0.02%	8.7E-12	0.07%	0.00%	N/A		
	TH-230	N/A			8.7E-11	0.24%	0.01%	6.5E-12	0.05%	0.00%	N/A		
	TH-232	N/A			2.3E-11	0.06%	0.00%	1.7E-12	0.01%	0.00%	N/A		
	U-234	N/A			6.7E-11	0.18%	0.01%	5.0E-12	0.04%	0.00%	N/A		
	U-235	N/A			3.2E-12	0.01%	0.00%	2.4E-13	0.00%	0.00%	N/A		
	U-238	N/A			1.3E-10	0.34%	0.02%	9.4E-12	0.08%	0.00%	N/A		
	Total Radiological Risk				2.6E-09	7.08%	0.37%	1.9E-10	1.61%	0.06%			

TABLE B.3.2-32
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Surface Water	U-234	N/A		
	U-235/236	N/A		
	U-238	N/A		
	Total Radiological Risk			
Homegrown Produce (Dust Affected)	CS-137	N/A		
	NP-237	N/A		
	PU-238	N/A		
	PU-239	N/A		
	RA-226	N/A		
	RA-228	N/A		
	SR-90	N/A		
	TC-99	N/A		
	TH-228	N/A		
	TH-230	N/A		
	TH-232	N/A		
	U-234	N/A		
	U-235	N/A		
	U-238	N/A		
	Total Radiological Risk			

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TABLE B.3.2-32
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected) (continued)	Arsenic	N/A			3.5E-09	9.52%	0.50%	1.2E-09	10.08%	0.40%	N/A		
	Beryllium	N/A			1.1E-09	2.99%	0.16%	3.8E-10	3.17%	0.13%	N/A		
	Benzo(a)anthracene	N/A			1.6E-09	4.35%	0.23%	5.5E-10	4.61%	0.18%	N/A		
	Benzo(a)pyrene	N/A			1.8E-08	49.13%	2.56%	6.3E-09	52.02%	2.09%	N/A		
	Benzo(b)fluoranthene	N/A			1.5E-09	4.01%	0.21%	5.1E-10	4.25%	0.17%	N/A		
	Benzo(k)fluoranthene	N/A			7.4E-10	2.03%	0.11%	2.6E-10	2.15%	0.09%	N/A		
	bis(2-Ethylhexyl)phthalate	N/A			2.0E-13	0.00%	0.00%	7.0E-14	0.00%	0.00%	N/A		
	Carbazole	N/A			9.3E-13	0.00%	0.00%	3.2E-13	0.00%	0.00%	N/A		
	Chrysene	N/A			5.1E-11	0.14%	0.01%	1.8E-11	0.15%	0.01%	N/A		
	Dibenzo(a,h)anthracene	N/A			4.1E-09	11.17%	0.58%	1.4E-09	11.82%	0.47%	N/A		
	Indeno(1,2,3-cd)pyrene	N/A			3.2E-09	8.65%	0.45%	1.1E-09	9.16%	0.37%	N/A		
	Methylene chloride	N/A			3.5E-14	0.00%	0.00%	1.2E-14	0.00%	0.00%	N/A		
	Aroclor 1254	N/A			1.9E-10	0.51%	0.03%	6.4E-11	0.54%	0.02%	N/A		
	Aroclor 1260	N/A			1.1E-10	0.30%	0.02%	3.8E-11	0.31%	0.01%	N/A		
	Dieldrin	N/A			4.4E-11	0.12%	0.01%	1.5E-11	0.13%	0.01%	N/A		
	Total Chemical Risk				3.4E-08	92.92%	4.83%	1.2E-08	98.39%	3.95%			
	Total				3.7E-08	100.00%	5.2E-02	1.2E-08	100.00%	4.0E-02			
Beef/Milk (Dust Affected)	CS-137	N/A			2.6E-11	0.01%	0.00%	3.3E-12	0.00%	0.00%	2.3E-10	0.01%	0.01%
	NP-237	N/A			1.5E-13	0.00%	0.00%	1.1E-14	0.00%	0.00%	1.3E-12	0.00%	0.00%
	PU-238	N/A			9.2E-16	0.00%	0.00%	9.6E-17	0.00%	0.00%	7.9E-15	0.00%	0.00%
	PU-239	N/A			4.1E-16	0.00%	0.00%	4.3E-17	0.00%	0.00%	3.5E-15	0.00%	0.00%
	RA-226	N/A			2.9E-10	0.06%	0.04%	5.1E-11	0.02%	0.02%	2.5E-09	0.06%	0.06%
	RA-228	N/A			3.0E-11	0.01%	0.00%	5.2E-12	0.00%	0.00%	2.6E-10	0.01%	0.01%
	SR-90	N/A			8.8E-12	0.00%	0.00%	1.6E-12	0.00%	0.00%	7.6E-11	0.00%	0.00%
	TC-99	N/A			3.6E-10	0.07%	0.05%	6.1E-11	0.02%	0.02%	3.1E-09	0.07%	0.07%
	TH-228	N/A			2.2E-13	0.00%	0.00%	3.5E-14	0.00%	0.00%	1.9E-12	0.00%	0.00%
	TH-230	N/A			1.8E-13	0.00%	0.00%	2.8E-14	0.00%	0.00%	1.6E-12	0.00%	0.00%
	TH-232	N/A			4.8E-14	0.00%	0.00%	7.6E-15	0.00%	0.00%	4.1E-13	0.00%	0.00%
	U-234	N/A			1.4E-11	0.00%	0.00%	2.5E-12	0.00%	0.00%	1.2E-10	0.00%	0.00%
	U-235	N/A			6.7E-13	0.00%	0.00%	1.2E-13	0.00%	0.00%	5.8E-12	0.00%	0.00%
	U-238	N/A			2.6E-11	0.01%	0.00%	4.8E-12	0.00%	0.00%	2.3E-10	0.01%	0.01%
	Total Radiological Risk				7.7E-10	0.16%	0.11%	1.3E-10	0.05%	0.04%	6.6E-09	0.16%	0.16%
	Arsenic	N/A			6.2E-10	0.13%	0.09%	1.5E-10	0.05%	0.05%	5.3E-09	0.13%	0.13%
	Beryllium	N/A			8.8E-11	0.02%	0.01%	1.4E-11	0.00%	0.00%	7.6E-10	0.02%	0.02%
	Benzo(a)anthracene	N/A			1.8E-09	0.36%	0.25%	1.0E-09	0.36%	0.34%	1.5E-08	0.36%	0.36%
	Benzo(a)pyrene	N/A			4.8E-08	9.68%	6.77%	2.7E-08	9.70%	9.14%	4.1E-07	9.67%	9.67%
	Benzo(b)fluoranthene	N/A			1.5E-08	3.07%	2.15%	8.7E-09	3.08%	2.90%	1.3E-07	3.07%	3.07%
	Benzo(k)fluoranthene	N/A			1.5E-08	3.10%	2.17%	8.8E-09	3.11%	2.93%	1.3E-07	3.10%	3.10%
	bis(2-Ethylhexyl)phthalate	N/A			1.1E-14	0.00%	0.00%	6.1E-15	0.00%	0.00%	9.2E-14	0.00%	0.00%
	Carbazole	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	N/A			5.6E-11	0.01%	0.01%	3.2E-11	0.01%	0.01%	4.9E-10	0.01%	0.01%
	Dibenzo(a,h)anthracene	N/A			1.1E-08	2.14%	1.49%	6.0E-09	2.14%	2.02%	9.1E-08	2.14%	2.14%
	Indeno(1,2,3-cd)pyrene	N/A			4.0E-07	81.03%	56.64%	2.3E-07	81.19%	76.49%	3.4E-06	81.04%	81.04%
	Methylene chloride	N/A			4.4E-18	0.00%	0.00%	2.5E-18	0.00%	0.00%	3.8E-17	0.00%	0.00%
	Aroclor 1254	N/A			9.0E-10	0.18%	0.13%	5.2E-10	0.18%	0.17%	7.7E-09	0.18%	0.18%
	Aroclor 1260	N/A			6.3E-10	0.13%	0.09%	3.6E-10	0.13%	0.12%	5.4E-09	0.13%	0.13%
	Total Chemical Risk				4.9E-07	99.84%	69.79%	2.8E-07	99.95%	94.17%	4.2E-06	99.84%	99.84%
	Total				4.9E-07	100.00%	69.90%	2.8E-07	100.00%	94.21%	4.2E-06	100.00%	100.00%
ALL MEDIA		8.0E-05			7.0E-07			3.0E-07			4.2E-06		

TABLE B.3.2-32
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected) (continued)	Arsenic	N/A		
	Beryllium	N/A		
	Benzo(a)anthracene	N/A		
	Benzo(a)pyrene	N/A		
	Benzo(b)fluoranthene	N/A		
	Benzo(k)fluoranthene	N/A		
	bis(2-Ethylhexyl)phthalate	N/A		
	Carbazole	N/A		
	Chrysene	N/A		
	Dibenzo(a,h)anthracene	N/A		
	Indeno(1,2,3-cd)pyrene	N/A		
	Methylene chloride	N/A		
	Aroclor 1254	N/A		
	Aroclor 1260	N/A		
	Dieldrin	N/A		
	Total Chemical Risk Total			
Beef/Milk (Dust Affected)	CS-137	N/A		
	NP-237	N/A		
	PU-238	N/A		
	PU-239	N/A		
	RA-226	N/A		
	RA-228	N/A		
	SR-90	N/A		
	TC-99	N/A		
	TH-228	N/A		
	TH-230	N/A		
	TH-232	N/A		
	U-234	N/A		
	U-235	N/A		
	U-238	N/A		
	Total Radiological Risk			
	Arsenic	N/A		
	Beryllium	N/A		
	Benzo(a)anthracene	N/A		
	Benzo(a)pyrene	N/A		
	Benzo(b)fluoranthene	N/A		
	Benzo(k)fluoranthene	N/A		
	bis(2-Ethylhexyl)phthalate	N/A		
	Carbazole	N/A		
	Chrysene	N/A		
	Dibenzo(a,h)anthracene	N/A		
	Indeno(1,2,3-cd)pyrene	N/A		
	Methylene chloride	N/A		
	Aroclor 1254	N/A		
	Aroclor 1260	N/A		
	Total Chemical Risk Total			
ALL MEDIA		**6.5E-04**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.3.2-33
CURRENT LAND USE
SOUTH FIELD
SUMMARY OF TOTAL NONCARCINOGENIC HAZARD

Medium	Parameter	Trespassing Youth	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	User of Milk and Meat	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	2.4E-03	6.66%	0.65%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Beryllium	2.6E-03	7.44%	0.73%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Chromium	1.1E-03	3.07%	0.30%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	U-TOTAL	2.8E-02	79.68%	7.83%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Acenaphthylene	2.0E-04	0.55%	0.05%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	bis(2-Ethylhexyl) phthalate	8.0E-07	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Dibenzofuran	2.7E-06	0.01%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Methylene chloride	4.6E-07	0.00%	0.00%	2.9E-13	100.00%	0.00%	2.8E-13	100.00%	0.00%	N/A		
	Dieldrin	9.2E-04	2.58%	0.25%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A		
	Total	3.5E-02	100.00%	9.83%	2.9E-13	100.00%	0.00%	2.8E-13	100.00%	0.00%			
Sediment	Arsenic	2.5E-02	22.15%	6.79%	N/A			N/A			N/A		
	Beryllium	1.3E-02	11.47%	3.52%	N/A			N/A			N/A		
	Chromium	1.5E-03	1.34%	0.41%	N/A			N/A			N/A		
	Manganese	3.0E-02	26.91%	8.25%	N/A			N/A			N/A		
	Thallium	1.4E-02	12.49%	3.83%	N/A			N/A			N/A		
	U-TOTAL	2.8E-02	25.62%	7.85%	N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	7.7E-06	0.01%	0.00%	N/A			N/A			N/A		
	Total	1.1E-01	100.00%	30.66%									
Surface Water	Arsenic				N/A			N/A			N/A		
	Beryllium				N/A			N/A			N/A		
	Chromium				N/A			N/A			N/A		
	U-TOTAL	2.1E-01	100.00%	59.51%	N/A			N/A			N/A		
	bis(2-Ethylhexyl)phthalate				N/A			N/A			N/A		
	Total	2.1E-01	100.00%	59.51%									
Homegrown Produce (Dust Affected)	Arsenic	N/A			6.6E-06	65.49%	55.08%	2.7E-05	65.49%	55.12%	N/A		
	Beryllium	N/A			5.1E-08	0.50%	0.42%	2.1E-07	0.50%	0.42%	N/A		
	Chromium	N/A			7.5E-07	7.42%	6.24%	3.1E-06	7.42%	6.24%	N/A		
	U-TOTAL	N/A			2.6E-06	26.04%	21.90%	1.1E-05	26.04%	21.92%	N/A		
	bis(2-Ethylhexyl)phthalate	N/A			7.2E-10	0.01%	0.01%	2.9E-09	0.01%	0.01%	N/A		
	Methylene chloride	N/A			7.6E-11	0.00%	0.00%	3.1E-10	0.00%	0.00%	N/A		
	Dieldrin	N/A			5.4E-08	0.54%	0.45%	2.2E-07	0.54%	0.45%	N/A		
	Total				1.0E-05	100.00%	84.10%	4.1E-05	100.00%	84.17%			
Beef/Milk (Dust Affected)	Arsenic	N/A			1.2E-06	61.47%	9.77%	3.2E-06	41.81%	6.62%	1.0E-05	61.38%	61.38%
	Beryllium	N/A			4.1E-09	0.21%	0.03%	7.5E-09	0.10%	0.02%	3.5E-08	0.21%	0.21%
	Chromium	N/A			6.9E-07	36.11%	5.74%	4.4E-06	57.10%	9.04%	6.0E-06	36.18%	36.18%
	U-TOTAL	N/A			4.2E-08	2.20%	0.35%	7.6E-08	0.99%	0.16%	3.7E-07	2.22%	2.22%
	bis(2-Ethylhexyl)phthalate	N/A			3.8E-11	0.00%	0.00%	2.5E-10	0.00%	0.00%	3.3E-10	0.00%	0.00%
	Methylene chloride	N/A			9.6E-15	0.00%	0.00%	6.5E-14	0.00%	0.00%	8.3E-14	0.00%	0.00%
	Total				1.9E-06	100.00%	15.90%	7.7E-06	100.00%	15.83%	1.7E-05	100.00%	100.00%
ALL MEDIA		3.6E-01			1.2E-05			4.9E-05			1.7E-05		

TABLE B.3.2-33
(continued)

Medium	Parameter	Grounds-keeper	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	3.5E-03	8.58%	8.58%
	Beryllium	1.5E-03	3.68%	3.68%
	Chromium	8.7E-04	2.11%	2.11%
	U-TOTAL	1.7E-02	41.15%	41.15%
	Acenaphthylene	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	1.8E-02	43.16%	43.16%
	Dibenzofuran	4.5E-06	0.01%	0.01%
	Methylene chloride	2.7E-07	0.00%	0.00%
	Dieldrin	5.4E-04	1.31%	1.31%
	Total	4.1E-02	100.00%	100.00%
Sediment	Arsenic	N/A		
	Beryllium	N/A		
	Chromium	N/A		
	Manganese	N/A		
	Thallium	N/A		
	U-TOTAL	N/A		
	bis(2-Ethylhexyl) phthalate	N/A		
	Total			
Surface Water	Arsenic	N/A		
	Beryllium	N/A		
	Chromium	N/A		
	U-TOTAL	N/A		
	bis(2-Ethylhexyl)phthalate	N/A		
	Total			
Homegrown Produce (Dust Affected)	Arsenic	N/A		
	Beryllium	N/A		
	Chromium	N/A		
	U-TOTAL	N/A		
	bis(2-Ethylhexyl)phthalate	N/A		
	Methylene chloride	N/A		
	Dieldrin	N/A		
	Total			
Beef/Milk (Dust Affected)	Arsenic	N/A		
	Beryllium	N/A		
	Chromium	N/A		
	U-TOTAL	N/A		
	bis(2-Ethylhexyl)phthalate	N/A		
	Methylene chloride	N/A		
	Total			
ALL MEDIA		4.1E-02		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.2-34
FUTURE LAND USE
SOUTH FIELD
SUMMARY OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	3.9E-07	0.57%	0.18%	8.0E-13	0.00%	0.00%	1.5E-14	0.00%	0.00%
	NP-237	4.7E-08	0.07%	0.02%	5.6E-10	0.32%	0.00%	1.0E-11	0.19%	0.00%
	PU-238	6.0E-09	0.01%	0.00%	4.0E-10	0.23%	0.00%	7.2E-12	0.13%	0.00%
	PU-239/240	2.5E-09	0.00%	0.00%	1.6E-10	0.09%	0.00%	3.0E-12	0.06%	0.00%
	RA-226	2.6E-07	0.38%	0.12%	7.8E-09	4.46%	0.01%	1.4E-10	2.66%	0.00%
	RA-228	4.4E-06	6.46%	2.01%	2.2E-10	0.12%	0.00%	3.9E-12	0.07%	0.00%
	SR-90	8.1E-11	0.00%	0.00%	5.3E-12	0.00%	0.00%	9.5E-14	0.00%	0.00%
	TC-99	1.5E-09	0.00%	0.00%	1.0E-10	0.06%	0.00%	1.8E-12	0.03%	0.00%
	TH-228	1.0E-05	14.81%	4.62%	2.9E-08	16.66%	0.04%	5.3E-10	9.93%	0.00%
	TH-230	5.1E-07	0.75%	0.23%	3.4E-08	19.37%	0.04%	6.2E-10	11.54%	0.01%
	TH-232	1.4E-07	0.21%	0.07%	9.5E-09	5.41%	0.01%	1.7E-10	3.22%	0.00%
	U-234	2.9E-07	0.42%	0.13%	1.9E-08	10.88%	0.02%	3.5E-10	6.49%	0.00%
	U-235/236	5.3E-08	0.08%	0.02%	8.9E-10	0.51%	0.00%	1.6E-11	0.30%	0.00%
	U-238	7.5E-07	1.10%	0.34%	4.1E-08	23.41%	0.05%	7.4E-10	13.96%	0.01%
	Total Radiological Risk	1.7E-05	24.87%	7.75%	1.4E-07	81.52%	0.18%	2.6E-09	48.60%	0.02%
	Arsenic	4.9E-07	0.71%	0.22%	5.2E-10	0.30%	0.00%	4.4E-11	0.83%	0.00%
	Beryllium	4.2E-05	61.72%	19.23%	3.8E-10	0.21%	0.00%	3.2E-11	0.60%	0.00%
	Chromium	5.6E-07	0.83%	0.26%	2.7E-08	15.46%	0.03%	2.3E-09	43.01%	0.02%
	Benzo(a)anthracene	1.7E-07	0.24%	0.08%	2.3E-10	0.13%	0.00%	2.0E-11	0.37%	0.00%
	Benzo(a)pyrene	1.9E-06	2.76%	0.86%	2.7E-09	1.55%	0.00%	2.3E-10	4.32%	0.00%
	Benzo(b)fluoranthene	1.5E-07	0.22%	0.07%	2.2E-10	0.13%	0.00%	1.9E-11	0.35%	0.00%
	Benzo(k)fluoranthene	7.6E-08	0.11%	0.03%	1.1E-10	0.06%	0.00%	9.4E-12	0.18%	0.00%
	bis(2-Ethylhexyl) phthalate	1.1E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	9.1E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	5.3E-09	0.01%	0.00%	7.7E-12	0.00%	0.00%	6.5E-13	0.01%	0.00%
	Dibenzo(a,h)anthracene	4.2E-07	0.62%	0.19%	6.1E-10	0.35%	0.00%	5.2E-11	0.97%	0.00%
	Indeno(1,2,3-cd)pyrene	3.3E-07	0.48%	0.15%	4.8E-10	0.28%	0.00%	4.1E-11	0.77%	0.00%
	Methylene chloride	1.6E-10	0.00%	0.00%	4.7E-16	0.00%	0.00%	4.0E-17	0.00%	0.00%
	Aroclor-1254	2.9E-06	4.19%	1.31%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Aroclor-1260	1.7E-06	2.45%	0.76%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dieldrin	5.4E-07	0.79%	0.25%	7.6E-12	0.00%	0.00%	6.4E-13	0.01%	0.00%
	Total Chemical Risk	5.1E-05	75.13%	23.41%	3.2E-08	18.48%	0.04%	2.7E-09	51.40%	0.02%
	Total	6.8E-05	100.00%	31.15%	1.8E-07	100.00%	0.22%	5.3E-09	100.00%	0.05%

TABLE B.3.2-34
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	4.1E-05	1.76%	1.10%	4.0E-06	1.88%	1.29%	3.1E-06	0.99%	0.69%	N/A			N/A		
	NP-237	4.6E-06	0.19%	0.12%	4.3E-07	0.20%	0.14%	3.3E-07	0.11%	0.07%	N/A			N/A		
	PU-238	3.1E-07	0.01%	0.01%	2.2E-08	0.01%	0.01%	1.5E-08	0.00%	0.00%	N/A			N/A		
	PU-239/240	1.3E-07	0.01%	0.00%	9.6E-09	0.00%	0.00%	6.4E-09	0.00%	0.00%	N/A			N/A		
	RA-226	3.5E-05	1.51%	0.94%	2.9E-06	1.36%	0.93%	2.8E-06	0.88%	0.62%	N/A			N/A		
	RA-228	4.7E-04	19.91%	12.46%	4.5E-05	21.21%	14.55%	3.5E-05	11.23%	7.86%	N/A			N/A		
	SR-90	1.6E-07	0.01%	0.00%	1.1E-08	0.01%	0.00%	1.5E-08	0.00%	0.00%	N/A			N/A		
	TC-99	8.7E-07	0.04%	0.02%	6.0E-08	0.03%	0.02%	7.9E-08	0.03%	0.02%	N/A			N/A		
	TH-228	1.0E-03	44.17%	27.64%	1.0E-04	46.95%	32.21%	7.7E-05	24.66%	17.24%	N/A			N/A		
	TH-230	1.7E-05	0.74%	0.46%	1.3E-06	0.61%	0.42%	3.8E-07	0.12%	0.08%	N/A			N/A		
	TH-232	4.9E-06	0.21%	0.13%	3.6E-07	0.17%	0.12%	1.0E-07	0.03%	0.02%	N/A			N/A		
	U-234	1.0E-05	0.42%	0.26%	7.4E-07	0.35%	0.24%	2.3E-07	0.07%	0.05%	N/A			N/A		
	U-235/236	4.6E-06	0.20%	0.12%	4.3E-07	0.21%	0.14%	3.2E-07	0.10%	0.07%	N/A			N/A		
	U-238	3.5E-05	1.49%	0.93%	2.9E-06	1.37%	0.94%	1.5E-06	0.48%	0.34%	N/A			N/A		
	Total Radiological Risk	1.7E-03	70.66%	44.21%	1.6E-04	74.34%	51.00%	1.2E-04	38.72%	27.08%						
	Arsenic	3.3E-05	1.39%	0.87%	2.3E-06	1.07%	0.73%	1.4E-05	4.50%	3.15%	N/A			N/A		
	Beryllium	3.3E-04	13.97%	8.74%	2.9E-05	13.55%	9.30%	4.9E-05	15.58%	10.90%	N/A			N/A		
	Chromium	1.3E-05	0.56%	0.35%	9.8E-07	0.46%	0.32%	1.1E-06	0.36%	0.25%	N/A			N/A		
	Benzo(a)anthracene	1.5E-05	0.64%	0.40%	1.0E-06	0.49%	0.33%	6.6E-06	2.12%	1.48%	N/A			N/A		
	Benzo(a)pyrene	1.7E-04	7.24%	4.53%	1.2E-05	5.51%	3.78%	7.5E-05	24.01%	16.80%	N/A			N/A		
	Benzo(b)fluoranthene	1.4E-05	0.59%	0.37%	9.5E-07	0.45%	0.31%	6.1E-06	1.95%	1.37%	N/A			N/A		
	Benzo(k)fluoranthene	6.9E-06	0.29%	0.18%	4.7E-07	0.22%	0.15%	3.0E-06	0.97%	0.68%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	4.3E-09	0.00%	0.00%	3.1E-10	0.00%	0.00%	1.8E-09	0.00%	0.00%	N/A			N/A		
	Carbazole	8.4E-09	0.00%	0.00%	5.7E-10	0.00%	0.00%	3.7E-09	0.00%	0.00%	N/A			N/A		
	Chrysene	4.8E-07	0.02%	0.01%	3.3E-08	0.02%	0.01%	2.1E-07	0.07%	0.05%	N/A			N/A		
	Dibenzo(a,h)anthracene	3.8E-05	1.62%	1.02%	2.6E-06	1.24%	0.85%	1.7E-05	5.39%	3.77%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	3.0E-05	1.27%	0.79%	2.0E-06	0.96%	0.66%	1.3E-05	4.20%	2.94%	N/A			N/A		
	Methylene chloride	1.3E-09	0.00%	0.00%	1.1E-10	0.00%	0.00%	2.1E-10	0.00%	0.00%	N/A			N/A		
	Aroclor-1254	2.3E-05	0.99%	0.62%	2.0E-06	0.95%	0.65%	3.8E-06	1.20%	0.84%	N/A			N/A		
	Aroclor-1260	1.4E-05	0.58%	0.36%	1.2E-06	0.55%	0.38%	2.2E-06	0.70%	0.49%	N/A			N/A		
	Dieldrin	4.5E-06	0.19%	0.12%	3.8E-07	0.18%	0.12%	7.4E-07	0.24%	0.16%	N/A			N/A		
	Total Chemical Risk	6.9E-04	29.34%	18.36%	5.4E-05	25.66%	17.60%	1.9E-04	61.28%	42.86%						
	Total	2.4E-03	100.00%	62.57%	2.1E-04	100.00%	68.60%	3.1E-04	100.00%	69.94%						

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TABLE B.3.2-34
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Sediment	CS-137	1.6E-07	0.11%	0.07%	N/A			N/A		
	NP-237	3.6E-08	0.02%	0.02%	N/A			N/A		
	PU-238	2.2E-11	0.00%	0.00%	N/A			N/A		
	PU-239/240	4.3E-12	0.00%	0.00%	N/A			N/A		
	RA-226	7.1E-09	0.00%	0.00%	N/A			N/A		
	RA-228	1.5E-06	0.98%	0.67%	N/A			N/A		
	SR-90	9.7E-13	0.00%	0.00%	N/A			N/A		
	TC-99									
	TH-228	3.2E-06	2.09%	1.43%	N/A			N/A		
	TH-230	1.0E-10	0.00%	0.00%	N/A			N/A		
	TH-232	1.4E-11	0.00%	0.00%	N/A			N/A		
	U-234	5.1E-11	0.00%	0.00%	N/A			N/A		
	U-235/236	2.0E-08	0.01%	0.01%	N/A			N/A		
	U-238	6.3E-08	0.04%	0.03%	N/A			N/A		
	Total Radiological Risk	4.9E-06	3.26%	2.24%						
	Arsenic	3.3E-06	2.16%	1.48%	N/A			N/A		
	Beryllium	1.4E-04	94.55%	64.85%	N/A			N/A		
	Benzo(a)anthracene	1.2E-09	0.00%	0.00%	N/A			N/A		
	Benzo(a)pyrene	1.4E-08	0.01%	0.01%	N/A			N/A		
	Benzo(b)fluoranthene	1.7E-09	0.00%	0.00%	N/A			N/A		
	Benzo(k)fluoranthene	7.8E-10	0.00%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.0E-10	0.00%	0.00%	N/A			N/A		
	Carbazole									
	Chrysene									
	Dibenzo(a,h)anthracene									
	Indeno(1,2,3-cd)pyrene									
	Aroclor-1254	1.6E-08	0.01%	0.01%	N/A			N/A		
	Aroclor-1260									
	Dieldrin									
	Total Chemical Risk	1.5E-04	96.74%	66.35%						
	Total	1.5E-04	100.00%	68.59%						
Groundwater	NP-237	N/A			4.9E-09	0.01%	0.01%	2.1E-10	0.01%	0.00%
	SR-90	N/A			1.6E-09	0.00%	0.00%	7.0E-11	2.9E-03%	0.00%
	TC-99	N/A			6.2E-08	0.11%	0.08%	2.7E-09	0.11%	0.02%
	U234	N/A			1.9E-05	33.45%	23.27%	8.1E-07	33.45%	6.97%
	U235/236	N/A			1.0E-06	1.78%	1.24%	4.3E-08	1.78%	0.37%
	U238	N/A			3.6E-05	64.64%	44.97%	1.6E-06	64.64%	13.47%
	Total Radiological Risk				2.0E-05	100.00%	69.57%	8.5E-07	100.00%	20.84%

TABLE B.3.2-34
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Sediment	CS-137	N/A			N/A			N/A			5.3E-07	1.32%	0.48%	2.1E-07	1.18%	0.33%
	NP-237	N/A			N/A			N/A			5.2E-08	0.13%	0.05%	2.1E-08	0.12%	0.03%
	PU-238	N/A			N/A			N/A			7.9E-10	0.00%	0.00%	3.2E-10	0.00%	0.00%
	PU-239/240	N/A			N/A			N/A			3.5E-10	0.00%	0.00%	1.4E-10	0.00%	0.00%
	RA-226	N/A			N/A			N/A			3.1E-07	0.77%	0.28%	1.2E-07	0.69%	0.19%
	RA-228	N/A			N/A			N/A			6.0E-06	14.97%	5.42%	2.4E-06	13.40%	3.78%
	SR-90	N/A			N/A			N/A			1.0E-09	0.00%	0.00%	4.2E-10	0.00%	0.00%
											2.4E-09	0.01%	0.00%	9.7E-10	0.01%	0.00%
	TH-228	N/A			N/A			N/A			1.3E-05	32.75%	11.85%	5.2E-06	29.31%	8.26%
	TH-230	N/A			N/A			N/A			5.8E-09	0.01%	0.01%	2.3E-09	0.01%	0.00%
	TH-232	N/A			N/A			N/A			1.5E-09	0.00%	0.00%	6.0E-10	0.00%	0.00%
	U-234	N/A			N/A			N/A			1.1E-15	0.00%	0.00%	4.5E-16	0.00%	0.00%
	U-235/236	N/A			N/A			N/A			5.0E-08	0.13%	0.05%	2.0E-08	0.11%	0.03%
	U-238	N/A			N/A			N/A			1.7E-07	0.44%	0.16%	7.0E-08	0.39%	0.11%
	Total Radiological Risk										2.0E-05	50.53%		8.1E-06	45.23%	
	Arsenic	N/A			N/A			N/A			2.7E-07	0.67%	0.24%	1.6E-07	0.92%	0.26%
	Beryllium	N/A			N/A			N/A			1.6E-05	39.38%	14.25%	7.5E-06	41.98%	11.83%
	Benzo(a)anthracene	N/A			N/A			N/A			1.0E-07	0.25%	0.09%	6.6E-08	0.37%	0.10%
	Benzo(a)pyrene	N/A			N/A			N/A			1.2E-06	2.89%	1.04%	7.5E-07	4.21%	1.19%
	Benzo(b)fluoranthene	N/A			N/A			N/A			9.4E-08	0.23%	0.08%	6.1E-08	0.34%	0.10%
	Benzo(k)fluoranthene	N/A			N/A			N/A			4.7E-08	0.12%	0.04%	3.0E-08	0.17%	0.05%
	bis(2-Ethylhexyl) phthalate	N/A			N/A			N/A			5.0E-11	0.00%	0.00%	2.8E-11	0.00%	0.00%
	Carbazole	N/A			N/A			N/A			5.6E-11	0.00%	0.00%	3.6E-11	0.00%	0.00%
	Chrysene	N/A			N/A			N/A			3.2E-09	0.01%	0.00%	2.1E-09	0.01%	0.00%
	Dibenzo(a,h)anthracene	N/A			N/A			N/A			2.6E-07	0.65%	0.23%	1.7E-07	0.94%	0.27%
	Indeno(1,2,3-cd)pyrene	N/A			N/A			N/A			2.0E-07	0.51%	0.18%	1.3E-07	0.74%	0.21%
	Aroclor-1254	N/A			N/A			N/A			1.1E-06	2.68%	0.97%	5.1E-07	2.87%	0.81%
	Aroclor-1260	N/A			N/A						6.2E-07	1.57%	0.57%	3.0E-07	1.67%	0.47%
	Dieldrin	N/A			N/A						2.1E-07	0.52%	0.19%	9.8E-08	0.55%	0.16%
	Total Chemical Risk										2.0E-05	49.47%		9.8E-06	54.77%	
	Total										4.0E-05	100.00%		1.8E-05	100.00%	
Groundwater	NP-237	3.3E-07	0.03%	0.01%	2.4E-08	0.03%	0.01%	1.4E-08	0.03%	0.00%	N/A			N/A		
	SR-90	2.0E-08	1.8E-03%	0.00%	1.4E-09	1.8E-03%	0.00%	8.5E-10	1.8E-03%	0.00%	N/A			N/A		
	TC-99	1.2E-07	0.01%	0.00%	8.2E-09	0.01%	0.00%	5.0E-09	0.01%	0.00%	N/A			N/A		
	U234	3.7E-04	33.52%	9.76%	2.6E-05	33.52%	8.42%	1.6E-05	33.52%	3.51%	N/A			N/A		
	U235/236	2.0E-05	1.79%	0.52%	1.4E-06	1.79%	0.45%	8.4E-07	1.79%	0.19%	N/A			N/A		
	U238	7.1E-04	64.66%	18.83%	5.0E-05	64.66%	16.23%	3.0E-05	64.66%	6.78%	N/A			N/A		
	Total Radiological Risk	3.9E-04	100.00%	29.13%	2.7E-05	100.00%	25.11%	1.7E-05	100.00%	10.49%						

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TABLE B.3.2-34
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Surface Water	CS-137				N/A			N/A		
	NP-237				N/A			N/A		
	PU-238				N/A			N/A		
	PU-239/240				N/A			N/A		
	RA-226				N/A			N/A		
	RA-228				N/A			N/A		
	SR-90				N/A			N/A		
	TC-99				N/A			N/A		
	TH-228				N/A			N/A		
	TH-230				N/A			N/A		
	TH-232				N/A			N/A		
	U-234	1.9E-07	33.76%	0.09%	N/A			N/A		
	U-235/236	9.0E-09	1.59%	0.00%	N/A			N/A		
	U-238	3.7E-07	64.65%	0.17%	N/A			N/A		
	Total Radiological Risk	5.7E-07	100.00%	0.26%						
	Arsenic				N/A			N/A		
	Beryllium				N/A			N/A		
	Benzo(a)anthracene				N/A			N/A		
	Benzo(a)pyrene				N/A			N/A		
	Benzo(b)fluoranthene				N/A			N/A		
	Benzo(k)fluoranthene				N/A			N/A		
	bis(2-Ethylhexyl)phthalate				N/A			N/A		
	Carbazole				N/A			N/A		
	Chrysene				N/A			N/A		
	Dibenzo(a,h)anthracene				N/A			N/A		
	Indeno(1,2,3-cd)pyrene				N/A			N/A		
	Aroclor 1254				N/A			N/A		
	Aroclor 1260				N/A			N/A		
	Dieldrin				N/A			N/A		
	Total Chemical Risk									
	Total									

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TABLE B.3.2-34
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
	CS-137	N/A			N/A			N/A			1.6E-18	0.00%	0.00%	6.4E-19	0.00%	0.00%
	NP-237	N/A			N/A			N/A			1.9E-12	0.00%	0.00%	7.6E-13	0.00%	0.00%
	PU-238	N/A			N/A			N/A			4.2E-17	0.00%	0.00%	1.7E-17	0.00%	0.00%
	PU-239/240	N/A			N/A			N/A			5.1E-15	0.00%	0.00%	2.1E-15	0.00%	0.00%
	RA-226	N/A			N/A			N/A			2.9E-08	0.04%	0.03%	1.1E-08	0.03%	0.02%
	RA-228	N/A			N/A			N/A			1.1E-11	0.00%	0.00%	4.4E-12	0.00%	0.00%
	SR-90	N/A			N/A			N/A			3.7E-08	0.05%	0.03%	1.5E-08	0.03%	0.02%
	TC-99	N/A			N/A			N/A			1.5E-06	2.16%	1.38%	6.1E-07	1.34%	0.96%
	TH-228	N/A			N/A			N/A			2.0E-10	0.00%	0.00%	8.0E-11	0.00%	0.00%
	TH-230	N/A			N/A			N/A			1.5E-10	0.00%	0.00%	5.9E-11	0.00%	0.00%
	TH-232	N/A			N/A			N/A			3.9E-11	0.00%	0.00%	1.6E-11	0.00%	0.00%
Surface	U-234	N/A			N/A			N/A			1.5E-08	0.02%	0.01%	6.2E-09	0.01%	0.01%
Water	U-235/236	N/A			N/A			N/A			7.5E-10	0.00%	0.00%	3.0E-10	0.00%	0.00%
	U-238	N/A			N/A			N/A			2.9E-08	0.04%	0.03%	1.2E-08	0.03%	0.02%
	Total Radiological Risk										1.6E-06	2.32%		6.5E-07	1.44%	
	Arsenic	N/A			N/A			N/A			1.4E-10	0.00%	0.00%	9.0E-11	0.00%	0.00%
	Beryllium	N/A			N/A			N/A			2.3E-08	0.03%	0.02%	1.4E-08	0.03%	0.02%
	Benzo(a)anthracene	N/A			N/A			N/A			4.4E-06	6.27%	4.00%	2.9E-06	6.33%	4.55%
	Benzo(a)pyrene	N/A			N/A			N/A			4.0E-05	56.80%	36.25%	2.6E-05	57.31%	41.16%
	Benzo(b)fluoranthene	N/A			N/A			N/A			2.4E-06	3.34%	2.13%	1.5E-06	3.37%	2.42%
	Benzo(k)fluoranthene	N/A			N/A			N/A			1.9E-12	0.00%	0.00%	1.3E-12	0.00%	0.00%
	bis(2-Ethylhexyl)phthalate	N/A			N/A			N/A			2.6E-07	0.37%	0.24%	1.7E-07	0.37%	0.27%
	Carbazole	N/A			N/A			N/A			8.2E-12	0.00%	0.00%	5.3E-12	0.00%	0.00%
	Chrysene	N/A			N/A			N/A			1.4E-07	0.20%	0.13%	9.1E-08	0.20%	0.14%
	Dibenzo(a,h)anthracene	N/A			N/A			N/A			9.0E-06	12.84%	8.20%	5.9E-06	12.96%	9.31%
	Indeno(1,2,3-cd)pyrene	N/A			N/A			N/A			2.8E-06	3.93%	2.51%	1.8E-06	3.96%	2.85%
	Aroclor 1254	N/A			N/A			N/A			1.7E-06	2.46%	1.57%	1.1E-06	2.48%	1.78%
	Aroclor 1260	N/A			N/A			N/A			1.6E-06	2.32%	1.48%	1.1E-06	2.34%	1.68%
	Dieldrin	N/A			N/A			N/A			6.4E-06	9.12%	5.82%	4.2E-06	9.20%	6.61%
	Total Chemical Risk										6.9E-05	97.68%		4.5E-05	98.56%	
	Total										7.0E-05	100.00%		4.5E-05	100.00%	

TABLE B.3.2-34
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	CS-137	N/A			2.0E-10	0.02%	0.00%	1.5E-11	0.00%	0.00%
	NP-237	N/A			7.1E-10	0.07%	0.00%	5.3E-11	0.02%	0.00%
	PU-238	N/A			3.6E-10	0.03%	0.00%	2.7E-11	0.01%	0.00%
	PU-239	N/A			1.6E-10	0.02%	0.00%	1.2E-11	0.00%	0.00%
	RA-226	N/A			5.1E-08	4.89%	0.06%	3.8E-09	1.11%	0.03%
	RA-228	N/A			5.3E-09	0.51%	0.01%	4.0E-10	0.12%	0.00%
	SR-90	N/A			6.4E-10	0.06%	0.00%	4.7E-11	0.01%	0.00%
	TC-99	N/A			4.3E-09	0.42%	0.01%	3.2E-10	0.09%	0.00%
	TH-228	N/A			3.3E-09	0.32%	0.00%	2.5E-10	0.07%	0.00%
	TH-230	N/A			2.5E-09	0.24%	0.00%	1.8E-10	0.05%	0.00%
	TH-232	N/A			6.6E-10	0.06%	0.00%	4.9E-11	0.01%	0.00%
	U-234	N/A			1.9E-09	0.18%	0.00%	1.4E-10	0.04%	0.00%
	U-235	N/A			9.2E-11	0.01%	0.00%	6.8E-12	0.00%	0.00%
	U-238	N/A			3.6E-09	0.34%	0.00%	2.7E-10	0.08%	0.00%
	Total Radiological Risk				7.5E-08	7.18%	0.09%	5.5E-09	1.63%	0.05%
	Arsenic	N/A			9.9E-08	9.51%	0.12%	3.4E-08	10.08%	0.30%
	Beryllium	N/A			3.1E-08	2.99%	0.04%	1.1E-08	3.17%	0.09%
	Benzo(a)anthracene	N/A			4.5E-08	4.36%	0.06%	1.6E-08	4.62%	0.14%
	Benzo(a)pyrene	N/A			5.1E-07	49.05%	0.63%	1.8E-07	51.98%	1.53%
	Benzo(b)fluoranthene	N/A			4.2E-08	4.00%	0.05%	1.4E-08	4.24%	0.12%
	Benzo(k)fluoranthene	N/A			2.1E-08	2.03%	0.03%	7.3E-09	2.15%	0.06%
	bis(2-Ethylhexyl)phthalate	N/A			5.7E-12	0.00%	0.00%	2.0E-12	0.00%	0.00%
	Carbazole	N/A			2.7E-11	0.00%	0.00%	9.4E-12	0.00%	0.00%
	Chrysene	N/A			1.4E-09	0.14%	0.00%	5.0E-10	0.15%	0.00%
	Dibenzo(a,h)anthracene	N/A			1.2E-07	11.16%	0.14%	4.0E-08	11.83%	0.35%
	Indeno(1,2,3-cd)pyrene	N/A			9.0E-08	8.65%	0.11%	3.1E-08	9.17%	0.27%
	Methylene chloride	N/A			9.8E-13	0.00%	0.00%	3.4E-13	1.0E-04%	0.00%
	Aroclor 1254	N/A			5.3E-09	0.51%	0.01%	1.8E-09	5.4E-01%	0.02%
	Aroclor 1260	N/A			3.1E-09	0.30%	0.00%	1.1E-09	3.1E-01%	0.01%
	Dieldrin	N/A			1.3E-09	0.12%	0.00%	4.4E-10	1.3E-01%	0.00%
	Total Chemical Risk				9.6E-07	92.82%	1.19%	3.3E-07	98.37%	2.90%
	Total				1.0E-06	100.00%	1.28%	3.4E-07	100.00%	2.94%
Homegrown Produce (Groundwater Affected)	CS-137	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	NP-237	N/A			7.7E-10	0.01%	0.00%	5.7E-11	0.01%	0.00%
	PU-238	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-228	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	N/A			3.3E-10	0.00%	0.00%	2.5E-11	0.00%	0.00%
	TC-99	N/A			1.8E-08	0.21%	0.02%	1.3E-09	0.21%	0.01%
	TH-228	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-230	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-232	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-234	N/A			2.8E-06	33.42%	3.49%	2.1E-07	33.42%	1.81%
	U-235	N/A			1.5E-07	1.78%	0.19%	1.1E-08	1.78%	0.10%
	U-238	N/A			5.4E-06	64.58%	6.73%	4.1E-07	64.58%	3.51%
	Total Radiological Risk				8.4E-06	100.00%	10.43%	6.3E-07	100.00%	5.43%

TABLE B.3.2-34
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	CS-137	1.6E-09	0.02%	0.00%	1.0E-10	0.02%	0.00%	1.2E-10	0.00%	0.00%	N/A			N/A		
	NP-237	5.9E-09	0.07%	0.00%	3.8E-10	0.07%	0.00%	4.4E-10	0.02%	0.00%	N/A			N/A		
	PU-238	3.0E-09	0.03%	0.00%	1.9E-10	0.03%	0.00%	2.2E-10	0.01%	0.00%	N/A			N/A		
	PU-239	1.3E-09	0.02%	0.00%	8.6E-11	0.02%	0.00%	9.9E-11	0.00%	0.00%	N/A			N/A		
	RA-226	4.2E-07	4.90%	0.01%	2.7E-08	4.90%	0.01%	3.1E-08	1.11%	0.01%	N/A			N/A		
	RA-228	4.4E-08	0.51%	0.00%	2.8E-09	0.51%	0.00%	3.3E-09	0.12%	0.00%	N/A			N/A		
	SR-90	5.3E-09	0.06%	0.00%	3.4E-10	0.06%	0.00%	3.9E-10	0.01%	0.00%	N/A			N/A		
	TC-99	3.6E-08	0.42%	0.00%	2.3E-09	0.42%	0.00%	2.7E-09	0.09%	0.00%	N/A			N/A		
	TH-228	2.7E-08	0.32%	0.00%	1.8E-09	0.32%	0.00%	2.0E-09	0.07%	0.00%	N/A			N/A		
	TH-230	2.0E-08	0.24%	0.00%	1.3E-09	0.24%	0.00%	1.5E-09	0.05%	0.00%	N/A			N/A		
	TH-232	5.4E-09	0.06%	0.00%	3.5E-10	0.06%	0.00%	4.0E-10	0.01%	0.00%	N/A			N/A		
	U-234	1.6E-08	0.18%	0.00%	1.0E-09	0.18%	0.00%	1.2E-09	0.04%	0.00%	N/A			N/A		
	U-235	7.6E-10	0.01%	0.00%	4.9E-11	0.01%	0.00%	5.7E-11	0.00%	0.00%	N/A			N/A		
	U-238	3.0E-08	0.34%	0.00%	1.9E-09	0.34%	0.00%	2.2E-09	0.08%	0.00%	N/A			N/A		
	Total Radiological Risk	6.2E-07	7.18%	0.02%	4.0E-08	7.18%	0.01%	4.6E-08	1.63%	0.01%						
	Arsenic	8.2E-07	9.51%	0.02%	5.3E-08	9.51%	0.02%	2.8E-07	10.08%	0.06%	N/A			N/A		
	Beryllium	2.6E-07	3.00%	0.01%	1.7E-08	3.00%	0.01%	9.0E-08	3.18%	0.02%	N/A			N/A		
	Benzo(a)anthracene	3.7E-07	4.36%	0.01%	2.4E-08	4.36%	0.01%	1.3E-07	4.62%	0.03%	N/A			N/A		
	Benzo(a)pyrene	4.2E-06	49.05%	0.11%	2.7E-07	49.05%	0.09%	1.5E-06	51.98%	0.33%	N/A			N/A		
	Benzo(b)fluoranthene	3.4E-07	4.01%	0.01%	2.2E-08	4.01%	0.01%	1.2E-07	4.25%	0.03%	N/A			N/A		
	Benzo(k)fluoranthene	1.7E-07	2.03%	0.00%	1.1E-08	2.03%	0.00%	6.1E-08	2.15%	0.01%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	4.7E-11	0.00%	0.00%	3.1E-12	0.00%	0.00%	1.6E-11	0.00%	0.00%	N/A			N/A		
	Carbazole	2.2E-10	0.00%	0.00%	1.4E-11	0.00%	0.00%	7.8E-11	0.00%	0.00%	N/A			N/A		
	Chrysene	1.2E-08	0.14%	0.00%	7.7E-10	0.14%	0.00%	4.2E-09	0.15%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	9.6E-07	11.15%	0.03%	6.2E-08	11.15%	0.02%	3.3E-07	11.81%	0.07%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	7.4E-07	8.65%	0.02%	4.8E-08	8.65%	0.02%	2.6E-07	9.17%	0.06%	N/A			N/A		
	Methylene chloride	8.1E-12	0.00%	0.00%	5.3E-13	0.00%	0.00%	2.8E-12	0.00%	0.00%	N/A			N/A		
	Aroclor 1254	4.4E-08	0.51%	0.00%	2.8E-09	0.51%	0.00%	1.5E-08	0.54%	0.00%	N/A			N/A		
	Aroclor 1260	2.5E-08	0.30%	0.00%	1.6E-09	0.30%	0.00%	8.9E-09	0.31%	0.00%	N/A			N/A		
	Dieldrin	1.0E-08	0.12%	0.00%	6.7E-10	0.12%	0.00%	3.6E-09	0.13%	0.00%	N/A			N/A		
	Total Chemical Risk	8.0E-06	92.82%	0.21%	5.2E-07	92.82%	0.17%	2.8E-06	98.37%	0.62%						
	Total	8.6E-06	100.00%	0.23%	5.6E-07	100.00%	0.18%	2.8E-06	100.00%	0.63%						
Homegrown Produce (Groundwater Affected)	CS-137	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	NP-237	5.2E-08	0.03%	0.00%	3.4E-09	0.03%	0.00%	3.9E-09	0.03%	0.00%	N/A			N/A		
	PU-238	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	PU-239	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-226	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	SR-90	4.0E-09	0.00%	0.00%	2.6E-10	0.00%	0.00%	3.0E-10	0.00%	0.00%	N/A			N/A		
	TC-99	3.3E-08	0.02%	0.00%	2.1E-09	0.02%	0.00%	2.4E-09	0.02%	0.00%	N/A			N/A		
	TH-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-230	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-232	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	U-234	5.5E-05	33.51%	1.46%	3.6E-06	33.51%	1.15%	4.1E-06	33.51%	0.91%	N/A			N/A		
	U-235	2.9E-06	1.79%	0.08%	1.9E-07	1.79%	0.06%	2.2E-07	1.79%	0.05%	N/A			N/A		
	U-238	1.1E-04	64.65%	2.82%	6.9E-06	64.65%	2.22%	7.9E-06	64.65%	1.76%	N/A			N/A		
	Total Radiological Risk	1.6E-04	100.00%	4.36%	1.1E-05	100.00%	3.43%	1.2E-05	100.00%	2.73%						

TABLE B.3.2-34
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected)	CS-137	N/A			7.4E-10	0.01%	0.00%	9.4E-11	0.00%	0.00%
	NP-237	N/A			4.1E-12	0.00%	0.00%	3.1E-13	0.00%	0.00%
	PU-238	N/A			2.6E-14	0.00%	0.00%	2.7E-15	0.00%	0.00%
	PU-239	N/A			1.2E-14	0.00%	0.00%	1.2E-15	0.00%	0.00%
	RA-226	N/A			8.3E-09	0.06%	0.01%	1.4E-09	0.02%	0.01%
	RA-228	N/A			8.4E-10	0.01%	0.00%	1.5E-10	0.00%	0.00%
	SR-90	N/A			2.6E-10	0.00%	0.00%	4.8E-11	0.00%	0.00%
	TC-99	N/A			1.2E-08	0.08%	0.01%	1.9E-09	0.02%	0.02%
	TH-228	N/A			6.3E-12	0.00%	0.00%	9.8E-13	0.00%	0.00%
	TH-230	N/A			5.1E-12	0.00%	0.00%	8.0E-13	0.00%	0.00%
	TH-232	N/A			1.4E-12	0.00%	0.00%	2.1E-13	0.00%	0.00%
	U-234	N/A			4.0E-10	0.00%	0.00%	7.2E-11	0.00%	0.00%
	U-235	N/A			1.9E-11	0.00%	0.00%	3.5E-12	0.00%	0.00%
	U-238	N/A			7.4E-10	0.01%	0.00%	1.4E-10	0.00%	0.00%
	Total Radiological Risk				2.3E-08	0.17%	0.03%	3.9E-09	0.05%	0.03%
	Arsenic	N/A			1.8E-08	0.13%	0.02%	4.1E-09	0.05%	0.04%
	Beryllium	N/A			2.5E-09	0.02%	0.00%	3.9E-10	0.00%	0.00%
	Benzo(a)anthracene	N/A			5.0E-08	0.36%	0.06%	2.9E-08	0.36%	0.25%
	Benzo(a)pyrene	N/A			1.3E-06	9.67%	1.67%	7.8E-07	9.69%	6.70%
	Benzo(b)fluoranthene	N/A			4.3E-07	3.06%	0.53%	2.5E-07	3.07%	2.12%
	Benzo(k)fluoranthene	N/A			4.3E-07	3.10%	0.53%	2.5E-07	3.10%	2.15%
	bis(2-Ethylhexyl)phthalate	N/A			3.0E-13	0.00%	0.00%	1.7E-13	0.00%	0.00%
	Carbazole	N/A			5.0E-11	0.00%	0.00%	2.9E-11	0.00%	0.00%
	Chrysene	N/A			1.6E-09	0.01%	0.00%	9.2E-10	0.01%	0.01%
	Dibenzo(a,h)anthracene	N/A			3.0E-07	2.14%	0.37%	1.7E-07	2.14%	1.48%
	Indeno(1,2,3-cd)pyrene	N/A			1.1E-05	81.05%	13.99%	6.5E-06	81.21%	56.17%
	Methylene chloride	N/A			1.2E-16	0.00%	0.00%	7.2E-17	0.00%	0.00%
	Aroclor 1254	N/A			2.6E-08	0.18%	0.03%	1.5E-08	0.18%	0.13%
	Aroclor 1260	N/A			1.8E-08	0.13%	0.02%	1.0E-08	0.13%	0.09%
	Total Chemical Risk				1.4E-05	99.83%	17.23%	8.0E-06	99.95%	69.13%
	Total				1.4E-05	100.00%	17.26%	8.0E-06	100.00%	69.17%
Beef/Milk (Groundwater Affected)	NP-237	N/A			2.5E-12	0.00%	0.00%	1.9E-13	0.00%	0.00%
	SR-90	N/A			7.2E-11	0.01%	0.00%	1.3E-11	0.01%	0.00%
	TC-99	N/A			2.5E-08	2.47%	0.03%	4.1E-09	2.26%	0.04%
	U-234	N/A			3.3E-07	32.66%	0.41%	6.0E-08	32.73%	0.52%
	U-235	N/A			1.8E-08	1.74%	0.02%	3.2E-09	1.75%	0.03%
	U-238	N/A			6.3E-07	63.12%	0.78%	1.2E-07	63.25%	1.00%
	Total Radiological Risk				1.0E-06	100.00%	1.24%	1.8E-07	100.00%	1.58%
ALL MEDIA		**2.2E-04**			**8.1E-05**			**1.2E-05**		

TABLE B.3.2-34
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected)	CS-137	6.4E-09	0.01%	0.00%	3.8E-10	0.01%	0.00%	8.2E-10	0.00%	0.00%	N/A			N/A		
	NP-237	3.6E-11	0.00%	0.00%	2.3E-12	0.00%	0.00%	2.7E-12	0.00%	0.00%	N/A			N/A		
	PU-238	2.2E-13	0.00%	0.00%	1.4E-14	0.00%	0.00%	2.3E-14	0.00%	0.00%	N/A			N/A		
	PU-239	1.0E-13	0.00%	0.00%	6.1E-15	0.00%	0.00%	1.0E-14	0.00%	0.00%	N/A			N/A		
	RA-226	6.0E-08	0.05%	0.00%	3.4E-09	0.05%	0.00%	1.1E-08	0.02%	0.00%	N/A			N/A		
	RA-228	7.3E-09	0.01%	0.00%	4.0E-10	0.01%	0.00%	1.3E-09	0.00%	0.00%	N/A			N/A		
	SR-90	2.2E-09	0.00%	0.00%	1.2E-10	0.00%	0.00%	4.2E-10	0.00%	0.00%	N/A			N/A		
	TC-99	1.0E-07	0.08%	0.00%	5.7E-09	0.08%	0.00%	1.7E-08	0.02%	0.00%	N/A			N/A		
	TH-228	5.4E-11	0.00%	0.00%	3.1E-12	0.00%	0.00%	8.5E-12	0.00%	0.00%	N/A			N/A		
	TH-230	4.4E-11	0.00%	0.00%	2.5E-12	0.00%	0.00%	6.9E-12	0.00%	0.00%	N/A			N/A		
	TH-232	1.2E-11	0.00%	0.00%	6.7E-13	0.00%	0.00%	1.9E-12	0.00%	0.00%	N/A			N/A		
	U-234	3.4E-09	0.00%	0.00%	1.9E-10	0.00%	0.00%	6.2E-10	0.00%	0.00%	N/A			N/A		
	U-235	1.7E-10	0.00%	0.00%	9.1E-12	0.00%	0.00%	3.0E-11	0.00%	0.00%	N/A			N/A		
	U-238	6.4E-09	0.01%	0.00%	3.5E-10	0.00%	0.00%	1.2E-09	0.00%	0.00%	N/A			N/A		
	Total Radiological Risk	1.9E-07	0.16%	0.00%	1.1E-08	0.15%	0.00%	3.2E-08	0.05%	0.01%						
	Arsenic	1.5E-07	0.13%	0.00%	1.0E-08	0.14%	0.00%	3.6E-08	0.05%	0.01%	N/A			N/A		
	Beryllium	2.2E-08	0.02%	0.00%	1.5E-09	0.02%	0.00%	3.4E-09	0.00%	0.00%	N/A			N/A		
	Benzo(a)anthracene	4.3E-07	0.36%	0.01%	2.6E-08	0.36%	0.01%	2.5E-07	0.36%	0.06%	N/A			N/A		
	Benzo(a)pyrene	1.2E-05	9.67%	0.31%	7.0E-07	9.67%	0.23%	6.7E-06	9.69%	1.50%	N/A			N/A		
	Benzo(b)fluoranthene	3.7E-06	3.06%	0.10%	2.2E-07	3.06%	0.07%	2.1E-06	3.07%	0.47%	N/A			N/A		
	Benzo(k)fluoranthene	3.7E-06	3.10%	0.10%	2.2E-07	3.10%	0.07%	2.2E-06	3.11%	0.48%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	2.6E-12	0.00%	0.00%	1.6E-13	0.00%	0.00%	1.5E-12	0.00%	0.00%	N/A			N/A		
	Carbazole	4.3E-10	0.00%	0.00%	2.6E-11	0.00%	0.00%	2.5E-10	0.00%	0.00%	N/A			N/A		
	Chrysene	1.4E-08	0.01%	0.00%	8.3E-10	0.01%	0.00%	7.9E-09	0.01%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	2.6E-06	2.14%	0.07%	1.5E-07	2.14%	0.05%	1.5E-06	2.14%	0.33%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	9.8E-05	81.04%	2.60%	5.9E-06	81.04%	1.89%	5.6E-05	81.20%	12.54%	N/A			N/A		
	Methylene chloride	1.1E-15	0.00%	0.00%	6.5E-17	0.00%	0.00%	6.2E-16	0.00%	0.00%	N/A			N/A		
	Aroclor 1254	2.2E-07	0.18%	0.01%	1.3E-08	0.18%	0.00%	1.3E-07	0.18%	0.03%	N/A			N/A		
	Aroclor 1260	1.6E-07	0.13%	0.00%	9.4E-09	0.13%	0.00%	9.0E-08	0.13%	0.02%	N/A			N/A		
	Total Chemical Risk	1.2E-04	99.84%	3.20%	7.2E-06	99.85%	2.33%	6.9E-05	99.95%	15.43%						
	Total	1.2E-04	100.00%	3.20%	7.2E-06	100.00%	2.34%	6.9E-05	100.00%	15.44%						
Beef/Milk (Groundwater Affected)	NP-237	1.7E-10	0.00%	0.00%	1.1E-11	0.00%	0.00%	1.3E-11	0.00%	0.00%	N/A			N/A		
	SR-90	8.7E-10	4.5E-03%	0.00%	4.7E-11	4.5E-03%	0.00%	1.6E-10	4.7E-03%	0.00%	N/A			N/A		
	TC-99	4.6E-08	0.24%	0.00%	2.6E-09	0.25%	0.00%	7.6E-09	0.22%	0.00%	N/A			N/A		
	U-234	6.4E-06	33.45%	0.17%	3.5E-07	33.45%	0.11%	1.2E-06	33.45%	0.26%	N/A			N/A		
	U-235	3.4E-07	1.78%	0.01%	1.9E-08	1.78%	0.01%	6.2E-08	1.78%	0.01%	N/A			N/A		
	U-238	1.2E-05	64.52%	0.33%	6.8E-07	64.52%	0.22%	2.3E-06	64.54%	0.50%	N/A			N/A		
	Total Radiological Risk	1.9E-05	100.00%	0.51%	1.1E-06	100.00%	0.34%	3.5E-06	100.00%	0.78%						
ALL MEDIA		**3.8E-03**			**3.1E-04**			**4.5E-04**			**1.1E-04**			**6.3E-05**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.3.2-35
FUTURE LAND USE
SOUTH FIELD
SUMMARY OF NONCARCINOGENIC HAZARD

Medium	Parameter	Expanded Trespasser	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Farmer	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk
Soil	Arsenic	3.8E-03	3.80%	0.99%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	6.2E-02	22.48%	0.28%
	Beryllium	7.8E-03	7.80%	2.03%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.5E-02	5.57%	0.07%
	Chromium	2.9E-03	2.87%	0.75%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.2E-02	4.27%	0.05%
	U-TOTAL	8.2E-02	82.55%	21.52%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.8E-01	65.40%	0.80%
	bis(2-Ethylhexyl) phthalate	1.6E-06	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.5E-05	0.01%	0.00%
	Dibenzofuran	3.7E-06	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	8.0E-05	0.03%	0.00%
	Methylene chloride	1.4E-06	0.00%	0.00%	2.9E-13	100.00%	0.00%	2.8E-13	100.00%	0.00%	2.8E-06	0.00%	0.00%
	Dieldrin	2.7E-03	2.69%	0.70%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	5.6E-03	2.03%	0.02%
	Endrin ketone	2.7E-04	0.27%	0.07%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	5.6E-04	0.21%	0.00%
	Total	1.0E-01	100.00%	26.07%	2.9E-13	100.00%	0.00%	2.8E-13	100.00%	0.00%	2.7E-01	100.00%	1.23%
Sediment	Arsenic	2.0E-02	13.19%	5.33%	N/A			N/A			N/A		
	Beryllium	2.1E-02	13.37%	5.41%	N/A			N/A			N/A		
	Chromium	2.1E-03	1.38%	0.56%	N/A			N/A			N/A		
	Manganese	4.8E-02	31.16%	12.61%	N/A			N/A			N/A		
	Thallium	1.8E-02	11.44%	4.63%	N/A			N/A			N/A		
	U-TOTAL	4.6E-02	29.46%	11.92%	N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.0E-06	0.00%	0.00%	N/A			N/A			N/A		
	Dieldrin												
	Total	1.5E-01	100.00%	40.45%									
Groundwater	Cadmium	N/A			1.7E-08	0.00%	0.00%	3.9E-08	0.00%	0.00%	3.6E-02	0.19%	0.16%
	Molybdenum	N/A			5.8E-07	0.00%	0.00%	1.3E-06	0.00%	0.00%	3.1E-02	0.16%	0.14%
	U-Total	N/A			9.9E-01	100.00%	87.24%	2.0E+00	100.00%	74.90%	1.9E+01	99.65%	85.89%
	Total				9.9E-01	100.00%	87.24%	2.0E+00	100.00%	74.90%	1.9E+01	100.00%	86.19%
Surface Water	Arsenic				N/A			N/A			N/A		
	Beryllium				N/A			N/A			N/A		
	Chromium				N/A			N/A			N/A		
	U-TOTAL	1.3E-01	100.00%	33.48%	N/A			N/A			N/A		
	bis(2-Ethylhexyl)phthalate				N/A			N/A			N/A		
	Dieldrin				N/A			N/A			N/A		
	Total		100.00%	33.48%	N/A			N/A			N/A		
Homegrown Produce (Dust Affected)	Arsenic	N/A			1.9E-04	65.28%	0.02%	7.6E-04	65.28%	0.03%	1.6E-03	65.30%	0.01%
	Beryllium	N/A			1.4E-06	0.50%	0.00%	5.9E-06	0.50%	0.00%	1.2E-05	0.50%	0.00%
	Chromium	N/A			2.1E-05	7.42%	0.00%	8.7E-05	7.42%	0.00%	1.8E-04	7.39%	0.00%
	U-TOTAL	N/A			7.6E-05	26.25%	0.01%	3.1E-04	26.25%	0.01%	6.3E-04	26.25%	0.00%
	bis(2-Ethylhexyl)phthalate	N/A			2.0E-08	0.01%	0.00%	8.3E-08	0.01%	0.00%	1.7E-07	0.01%	0.00%
	Methylene chloride	N/A			2.2E-09	0.00%	0.00%	8.7E-09	0.00%	0.00%	1.8E-08	0.00%	0.00%
	Dieldrin	N/A			1.6E-06	0.54%	0.00%	6.4E-06	0.54%	0.00%	1.3E-05	0.55%	0.00%
	Total				2.9E-04	100.00%	0.03%	1.2E-03	100.00%	0.04%	2.4E-03	100.00%	0.01%
Homegrown Produce (H20 Affected)	Molybdenum	N/A			9.4E-08	0.00%	0.00%	3.8E-07	0.00%	0.00%	5.0E-03	0.20%	0.02%
	U-TOTAL	N/A			1.3E-01	100.00%	11.40%	5.2E-01	100.00%	19.49%	2.5E+00	99.80%	11.23%
	Total				1.3E-01	100.00%	11.40%	5.2E-01	100.00%	19.49%	2.5E+00	100.00%	11.25%
Beef/Milk (Dust Affected)	Arsenic	N/A			3.3E-05	48.46%	0.00%	9.2E-05	24.56%	0.00%	2.9E-04	48.46%	0.00%
	Beryllium	N/A			1.2E-07	0.17%	0.00%	2.1E-07	0.06%	0.00%	1.0E-06	0.17%	0.00%
	Chromium	N/A			2.0E-05	28.55%	0.00%	1.3E-04	33.65%	0.00%	1.7E-04	28.53%	0.00%
	U-TOTAL	N/A			1.6E-05	22.82%	0.00%	1.6E-04	41.73%	0.01%	1.4E-04	22.84%	0.00%
	bis(2-Ethylhexyl)phthalate	N/A			1.1E-09	0.00%	0.00%	7.2E-09	0.00%	0.00%	9.3E-09	0.00%	0.00%
	Methylene chloride	N/A			2.7E-13	0.00%	0.00%	1.8E-12	0.00%	0.00%	2.4E-12	0.00%	0.00%
	Total				6.9E-05	100.00%	0.01%	3.7E-04	100.00%	0.01%	6.0E-04	100.00%	0.00%
Beef/Milk (Groundwater Affected)	Molybdenum	N/A			4.8E-08	0.00%	0.00%	2.9E-07	0.00%	0.00%	2.6E-03	0.86%	0.01%
	U-TOTAL	N/A			1.5E-02	100.00%	1.33%	1.5E-01	100.00%	5.55%	2.9E-01	99.14%	1.31%
	Total				1.5E-02	100.00%	1.33%	1.5E-01	100.00%	5.55%	3.0E-01	100.00%	1.32%
ALL MEDIA		3.8E-01			1.1E+00			2.7E+00			2.2E+01		

TABLE B.3.2-35
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	3.3E-02	19.10%	0.27%	3.1E-01	40.47%	0.55%	N/A			N/A		
	Beryllium	1.0E-02	5.98%	0.08%	2.7E-02	3.43%	0.05%	N/A			N/A		
	Chromium	7.0E-03	4.01%	0.06%	4.3E-02	5.62%	0.08%	N/A			N/A		
	U-TOTAL	1.2E-01	68.51%	0.95%	3.8E-01	48.89%	0.66%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	8.5E-06	0.00%	0.00%	7.3E-05	0.01%	0.00%	N/A			N/A		
	Dibenzofuran	4.3E-05	0.02%	0.00%	4.2E-04	0.05%	0.00%	N/A			N/A		
	Methylene chloride	1.9E-06	0.00%	0.00%	5.2E-06	0.00%	0.00%	N/A			N/A		
	Dieldrin	3.7E-03	2.15%	0.03%	1.1E-02	1.39%	0.02%	N/A			N/A		
	Endrin ketone	3.8E-04	0.22%	0.00%	1.1E-03	0.14%	0.00%	N/A			N/A		
	Total	1.7E-01	100.00%	1.39%	7.7E-01	100.00%	1.35%						
Sediment	Arsenic	N/A			N/A			1.2E-03	5.54%	2.69%	1.8E-03	7.02%	2.91%
	Beryllium	N/A			N/A			1.7E-03	8.01%	3.89%	2.0E-03	7.84%	3.24%
	Chromium	N/A			N/A			6.6E-04	3.13%	1.52%	8.2E-04	3.18%	1.32%
	Manganese	N/A			N/A								
	Thallium	N/A			N/A								
	U-TOTAL	N/A			N/A			1.7E-02	80.49%	39.08%	2.1E-02	79.20%	32.78%
	bis(2-Ethylhexyl) phthalate	N/A			N/A			4.2E-07	0.00%	0.00%	5.8E-07	0.00%	0.00%
	Dieldrin							6.0E-04	2.82%	1.37%	7.2E-04	2.76%	1.14%
	Total							2.1E-02	100.00%	48.55%	2.6E-02	100.00%	41.39%
Groundwater	Cadmium	2.0E-02	0.19%	0.16%	8.1E-02	0.19%	0.14%	N/A			N/A		
	Molybdenum	1.7E-02	0.16%	0.14%	7.2E-02	0.17%	0.13%	N/A			N/A		
	U-Total	1.1E+01	99.66%	87.17%	4.3E+01	99.65%	75.41%	N/A			N/A		
	Total	1.1E+01	100.00%	87.47%	4.3E+01	100.00%	75.68%						
	Arsenic	N/A			N/A			6.2E-07	0.00%	0.00%	1.0E-06	0.00%	0.00%
	Beryllium	N/A			N/A			2.5E-06	0.01%	0.01%	3.7E-06	0.01%	0.01%
	Chromium	N/A			N/A			7.4E-05	0.33%	0.17%	1.2E-04	0.33%	0.19%
Surface	U-TOTAL	N/A			N/A			1.6E-03	6.98%	3.59%	2.6E-03	6.98%	4.09%
Water	bis(2-Ethylhexyl)phthalate	N/A			N/A			2.2E-03	9.65%	4.97%	3.5E-03	9.65%	5.66%
	Dieldrin	N/A			N/A			1.9E-02	83.02%	42.72%	3.0E-02	83.03%	48.66%
	Total	N/A			N/A			2.3E-02	100.00%	51.45%	3.7E-02	100.00%	58.61%
Homegrown	Arsenic	7.8E-04	65.30%	0.01%	6.3E-03	65.30%	0.01%	N/A			N/A		
Produce	Beryllium	6.0E-06	0.50%	0.00%	4.9E-05	0.50%	0.00%	N/A			N/A		
(Dust	Chromium	8.9E-05	7.39%	0.00%	7.1E-04	7.39%	0.00%	N/A			N/A		
Affected)	U-TOTAL	3.1E-04	26.25%	0.00%	2.5E-03	26.25%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	8.5E-08	0.01%	0.00%	6.8E-07	0.01%	0.00%	N/A			N/A		
	Methylene chloride	8.9E-09	0.00%	0.00%	7.2E-08	0.00%	0.00%	N/A			N/A		
	Dieldrin	6.5E-06	0.55%	0.00%	5.3E-05	0.55%	0.00%	N/A			N/A		
	Total	1.2E-03	100.00%	0.01%	9.7E-03	100.00%	0.02%						
Homegrown	Molybdenum	2.5E-03	0.20%	0.02%	2.0E-02	0.20%	0.04%	N/A			N/A		
Produce	U-TOTAL	1.3E+00	99.80%	10.10%	1.0E+01	99.80%	17.82%	N/A			N/A		
(H20 Affected)	*Total*	1.3E+00	100.00%	10.12%	1.0E+01	100.00%	17.85%						
Beef/Milk	Arsenic	1.5E-04	51.67%	0.00%	7.9E-04	24.56%	0.00%	N/A			N/A		
(Dust	Beryllium	5.3E-07	0.18%	0.00%	1.8E-06	0.06%	0.00%	N/A			N/A		
Affected)	Chromium	8.0E-05	27.85%	0.00%	1.1E-03	33.62%	0.00%	N/A			N/A		
	U-TOTAL	5.8E-05	20.29%	0.00%	1.3E-03	41.76%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	4.3E-09	0.00%	0.00%	6.2E-08	0.00%	0.00%	N/A			N/A		
	Methylene chloride	1.1E-12	0.00%	0.00%	1.6E-11	0.00%	0.00%	N/A			N/A		
	Total	2.9E-04	100.00%	0.00%	3.2E-03	100.00%	0.01%						
Beef/Milk	Molybdenum	1.2E-03	0.95%	0.01%	1.6E-02	0.54%	0.03%	N/A			N/A		
(Groundwater	U-TOTAL	1.3E-01	99.05%	1.00%	2.9E+00	99.46%	5.07%	N/A			N/A		
Affected)	*Total*	1.3E-01	100.00%	1.01%	2.9E+00	100.00%	5.10%						
ALL MEDIA		**1.3E+01**			**5.7E+01**			**4.4E-02**			**6.3E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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percent of total risk to this receptor, respectively. Total hazard for the adult receptor was less than 1.0.

Total estimated risk to the Great Miami River youth user was 6.3×10^{-5} also due mostly to benzo(a)pyrene in surface water which accounted for 41 percent of total risk to this receptor. Beryllium contributed another 12 percent to total risk to this receptor. Total HI for this receptor was less than 1.0.

B.3.3 INACTIVE FLYASH PILE

B.3.3.1 Exposure Point Concentrations

Table B.3.3-1 summarizes the exposure scenarios evaluated to assess risk associated with the Inactive Flyash Pile. It also summarizes derivation of exposure concentrations specific to this subunit. With the exception of groundwater and air exposures, all exposure point concentrations were derived from analytical data on samples collected within the boundaries of the Inactive Flyash Pile.

For groundwater exposures, data from the Inactive Flyash Pile and the South Field were combined to develop source terms for estimating future groundwater concentrations as described in Section 5.0 of this RI report. Exposure point concentrations related to air dispersion modeling are also described in Section 5.0.

B.3.3.2 Constituents of Potential Concern

The CPCs identified for surface soil, subsurface soil, surface water, and sediment in the Inactive Flyash Pile are summarized in Tables 3.3-2(a), (b), (c), and (d), respectively (Attachment III) along with relevant information regarding frequencies of detection, data distribution, 95 percent UCLs, etc. Table B.3.3-3 summarized CPCs for the Inactive Flyash Pile by medium.

B.3.3.3 Risk Characterization for Current Land Use

The scenarios characterized for the Inactive Flyash Pile assuming continued DOE ownership are a trespassing youth; an off-property farmer and resident child using food products from livestock grazing off-property and produce grown off-property; a user of meat and milk products from livestock grazing on-property; and a groundskeeper exposed to on-site contaminant concentrations.

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TABLE B.3.3-1

INACTIVE FLYASH PILE
EXPOSURE POINT CONCENTRATIONS
FOR SCENARIOS EVALUATED

Current Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Current Access Controls (current use of FEMP continues, DOE ownership)	Trespassing Youth	soil	incidental ingestion dermal contact external radiation	surface soil within subunit
		air	inhalation of particulates, radionuclides, volatiles, and gases	maximum estimated on-site current concentrations derived from airborne soil air modeling results
		surface water	incidental ingestion dermal contact	surface water within subunit
		sediment	incidental ingestion dermal contact external radiation	sediment within subunit
	Off-Property Resident Farmer (adult and child), livestock grazing off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site current concentrations derived from airborne soil air modeling concentrations
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated off-site current concentrations derived from deposited airborne soil air modeling results
		livestock (grazing off-property)	ingestion of milk and beef	maximum estimated off-site current concentrations derived from deposited airborne soil air modeling results
	Groundskeeper	air	inhalation of particulates, volatiles, and gases	maximum estimated on-site current concentration derived from air modeling
		soil	ingestion dermal contact external radiation	surface soil or material within subunit
	User of Milk/Meat Products	livestock (grazing on-property)	ingestion of milk and beef	maximum estimated on-site current concentrations derived from deposited IFP surface soil air modeling results

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TABLE B.3.3-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Federal Ownership (includes exposure routes that require development time)	Future Off-Property Farmer (adult and child), livestock grazing off-property, groundwater off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site future concentrations derived from airborne soil air modeling results
		plants (homegrown produce)	ingestion	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		livestock (grazing at property boundary)	ingestion of milk and beef	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		groundwater	ingestion dermal contact inhalation	modeled groundwater concentrations off-site at time when concentration is greatest (SF and IFP combined)
	Expanded Trespasser (adult and child)	air	inhalation of particulates, radionculides, volatiles, and gases	maximum estimated on-site airborne soil modeling results
		surface water	incidental ingestion dermal contact	surface water within subunit
		sediment	ingestion dermal contact external radiation	sediment within subunit
		soil	ingestion dermal contact external radiation	surface soil within subunit
Without Federal Ownership (includes exposure routes that require development time)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property (will be South Field resident farmer, livestock grazing on-property, groundwater underlying South Field; residence on Inactive Flyash Pile is highly unlikely), RME and CT estimates	air	inhalation of particulates, volatiles, gases, and indoor radon	maximum estimated on-site future concentrations from airborne soil modeling results; indoor radon quantitated under South Field scenario
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated on-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		livestock (grazing on property)	ingestion of milk and beef	maximum estimated on-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		groundwater	incidental ingestion dermal contact inhalation	modeled groundwater concentrations underlying South Field at time when concentration is greatest (AFP, SF, and IFP combined)

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TABLE B.3.3-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Without Federal Ownership (includes exposure routes that require development time) (Continued)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property (will be South Field resident farmer, livestock grazing on-property, groundwater underlying South Field; residence on Inactive Flyash Pile is highly unlikely), RME and CT estimates (Continued)	soil	incidental ingestion dermal contact external radiation	surface soil within subunit
Without Federal Ownership (includes exposure routes that require development time) (Continued)	Future Homebuilder (per Operable Unit 1)	waste material/subsurface soil	external radiation incidental ingestion dermal contact	not quantified; no building on IFP anticipated
		air	inhalation of particulates, volatiles, and gases	not quantified; no building on IFP anticipated
	Future Perched Groundwater User (Solid Waste Landfill and Lime Sludge Ponds only)	perched groundwater directly underlying subunit	ingestion, dermal contact, inhalation of volatiles released during household use	not quantified; no useable perched groundwater at IFP
With or Without Federal Ownership	Great Miami River User	surface water	ingestion dermal contact	estimated concentration in Great Miami River
		sediment	ingestion dermal contact external radiation	estimated concentrations in Great Miami River
		fish	ingestion	estimated fish concentrations in Great Miami River

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TABLE B.3.3-3

CONSTITUENTS OF POTENTIAL CONCERN
FOR THE INACTIVE FLYASH PILE

SURFACE SOIL	SEDIMENT	GROUNDWATER	SURFACE WATER
Radiological Constituents			
CS-137	--	--	--
NP-237	NP-237	NP-237	NP-237
PU-238	PU-238	--	PU-238
PU-239/240	PU-239/240	--	PU-239/240
RA-226	RA-226	--	RA-226
RA-228	RA-228	--	--
SR-90	SR-90	SR-90	--
--	--	TC-99	--
TH-228	TH-228	--	--
TH-230	TH-230	--	TH-230
TH-232	TH-232	--	--
U-234	U-234	U234	U-234
U-235/236	U-235/236	U235/236	U-235/236
U-238	U-238	U238	U-238
Chemical Constituents			
Arsenic	Arsenic	--	Arsenic
Beryllium	--	--	--
Cadmium	--	Cadmium	Cadmium
Chromium	Chromium	--	--
--	Cobalt	--	--
Lead	Lead	--	Lead
--	Manganese	--	--
--	--	--	--
--	--	Molybdenum	--
--	--	--	--
--	Thallium	--	--
U-TOTAL	U-TOTAL	U-TOTAL	U-TOTAL
--	--	--	--
--	--	--	--
--	Benzo(a)pyrene	--	--
--	bis(2-Ethylhexyl)phthalate	--	bis(2-Ethylhexyl) phthalate
Carbazole	--	--	--
Dibenzo(a,h)anthracene	--	--	--
Dibenzofuran	--	--	--
--	--	--	Toluene
--	--	--	--

-- = not a CPC in this medium

B.3.3.3.1 Trespassing Youth

Risk was characterized for a trespassing youth contacting CPCs via ingestion of and dermal contact with surface soil within the subunit; external radiation resulting from exposure to surface soil within the subunit; inhalation of particulates; and ingestion and dermal contact with surface water and sediment within the subunit. Exposure point concentrations for soil, surface water, and sediment were based on analytical data, while inhaled particulate concentrations were based on air modeling results as described in the Section B.2.0, Appendix A, and Section 5.0 of this RI report.

Risks and hazards calculated for the trespassing youth exposed to contaminants in soil on the Inactive Flyash Pile are presented in Table B.3.3-4 (Attachment III). The total risk due to exposure to all CPCs in soil was 3.1×10^{-5}. This was primarily due to dermal contact with beryllium which was associated with a risk of 2.3×10^{-5}. While risk associated with the ingestion of any one CPC in soil did not exceed the 10^{-6} risk level, the total risk calculated for ingestion of arsenic, beryllium, carbazole, and dibenzo(a,h)anthracene combined was 1.2×10^{-6}.

Risks and hazards calculated for the trespassing youth exposed to contaminants in sediment are presented in Table B.3.3-5(a) (Attachment III). Total risk of 1.7×10^{-6} was due to estimated external radiation from radium-228 and thorium-228 and ingestion of arsenic. The risks and hazards calculated for the trespassing youth exposed to contaminants in surface water are presented in Table B.3.3-5(b) (Attachment III). All risks were below 1.0×10^{-6}. Total HIs calculated for exposure of a trespassing youth to CPCs in soil, sediment, or surface water did not exceed 1.0.

B.3.3.3.2 Current Off-Property Farmers

Risk was characterized for the off-property farmer and resident child contacting CPCs via inhalation of airborne particulates and ingestion of airborne particulates deposited on homegrown produce or in milk or beef from livestock grazing on particulates deposited on off-site vegetation. For these routes of exposure, the exposure point concentrations were derived from air modeling results as described in Section B.2.0, Methodology, and Appendix A, and Section 5.0 of the RI report.

The risks and hazards calculated for the current off-property farmer and resident child exposed to CPCs in soil are presented in Tables B.3.3-6(a) and B.3.3-6(b), respectively (Attachment III). The total risk associated with inhalation of all CPCs in airborne soil particulates was 6.9×10^{-8} and $2.8 \times$

10^{-9}, respectively. Total HIs calculated for CPCs in soil were below 1.0 for both the farmer and resident child.

Risks and hazards calculated for the off-property farmer and resident child exposed to CPCs in beef and milk are given in Tables B.3.3-7(a) and B.3.3-7(b), respectively (Attachment III). The total risk for all CPCs consumed in beef and milk was 2.4×10^{-9} and 5.4×10^{-10} for the farmer and child, respectively. The total HI for all CPCs consumed in beef and milk was well below 1.0 for both the farmer and child.

Risks and hazards calculated for the off-property farmer and resident child exposed to CPCs in homegrown produce are given in Tables B.3.3-8(a) and B.3.3-8(b), respectively (Attachment III). Total risk for all CPCs consumed in homegrown produce was 1.5×10^{-8} and 4.9×10^{-9} for both the farmer and child, respectively. The total HI for all CPCs consumed in homegrown produce was well below 1.0 for both the farmer and the child.

B.3.3.3.3 Current User of Milk/Meat Products

Risk was characterized for a current user of milk and meat products from livestock potentially grazing within the Active Flyash Pile, South Field, and Inactive Flyash Pile Boundaries. Exposure point concentrations in meat and milk were derived from the maximum on-site current deposition rates of airborne Inactive Flyash Pile surface soil.

Risk and hazard to the current user of meat and milk products is given in Table B.3.3-9 (Attachment III). Total risk did not exceed 1×10^{-6} and the total HI was well below 1.0.

B.3.3.3.4 Current Groundskeeper

Risks and hazards associated with the current groundskeeper are given in Table B.3.3-10 (Attachment III). Total carcinogenic risk is 5.0×10^{-5} due mostly to thorium-228 from external radiation and dermal contact with beryllium. Total hazard was less than 1.0.

B.3.3.4 Risk Characterization for Future Land Use

The future scenarios characterized for the Inactive Flyash Pile assuming continued federal ownership, include off-property farmer and resident child and an expanded trespasser. Future scenarios characterized for the Inactive Flyash Pile, assuming private ownership, include an on-property farmer

and resident child living on and farming in the South Field. Risks for a future home builder were not evaluated because no building on the Inactive Flyash Pile is anticipated. Risks for a future perched groundwater user were also not evaluated because there is no usable perched groundwater at the Inactive Flyash Pile. Recreational user of the Great Miami River were evaluated for federal and private ownerships.

B.3.3.4.1 Future Off-Property Farmers

The off-property farmer and resident child were presumed to contact CPCs in air via inhalation of airborne particulates; by consumption of homegrown produce irrigated with contaminated water and on which airborne soil was deposited; by ingestion of milk and beef from cattle grazing on vegetation on which airborne soil was deposited and that consumed contaminated groundwater; and by ingestion, dermal contact, and inhalation of contaminated groundwater. All of the exposure point concentrations for this scenario were derived from air and groundwater modeling results as described in Section B.2.0, Methodology, and in Section 5.0, and Appendix A of this RI report.

Risks and hazards calculated for the future off-property farmer and resident child exposed to CPCs in airborne Inactive Flyash Pile soil are presented in Tables B.3.3-11(a) and B.3.3-11(b), respectively (Attachment III). Total risk associated with inhalation of all CPCs in airborne Inactive Flyash Pile soil particulates was 6.9×10^{-8} and 2.8×10^{-9} for the farmer and child, respectively. No HI exceeded 1.0.

Risks and hazards associated with ingestion of CPCs in beef and milk for the off-property farmer and resident child are given in Tables B.3.3-12(a) and B.3.3-12(b), respectively (Attachment III). Total risk for all CPCs consumed in beef and milk did not exceed 1.0×10^{-6} for either the farmer or child. HIs for both receptors did not exceed 1.0.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-property farmer and resident child are given in Tables B.3.3-13(a) and B.3.3-13(b), respectively (Attachment III). The total risk for all CPCs consumed in homegrown produce was 8.4×10^{-6} and 6.3×10^{-7} for the farmer and child, respectively. Most of this risk is attributable to the estimated uptake of uranium-234 and uranium-238 in produce. The total HI for all CPCs consumed in homegrown produce was well below 1.0 for both the farmer and child.

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The risks and hazards associated with exposures of the off-property farmer and resident child to contaminants in groundwater are given in Tables B.3.3-14(a) and B.3.3-14(b), respectively (Attachment III). Total risk via all routes of direct exposure to groundwater (ingestion, inhalation, and dermal contact) for the farmer is 5.6×10^{-5} and for the resident child is 2.4×10^{-6}. Most of this risk is attributable to ingestion of the radionuclides uranium-234 and uranium-238. Total HI via all routes of exposure to groundwater for the farmer was less than 1.0, but for the child, HI was 2.0 due to the ingestion of uranium-total.

B.3.3.4.2 Future On-Property Expanded Trespasser

The future on-property expanded trespasser was assumed to contact CPCs directly via inhalation of airborne particulates; ingestion and dermal contact with soil, sediment, and surface water; and external radiation resulting from exposure to contaminated surface soil and sediment. The exposure point concentrations for inhalation of airborne particles were estimated from airborne soil modeling results. All other exposure point concentrations were derived from analytical data for the Inactive Flyash Pile.

Risks and hazards calculated for the future expanded trespasser exposed to CPCs in the soil, surface water, and sediment located on the Inactive Flyash Pile are presented in Tables B.3.3-15, B.3.3-16, and B.3.3-17, respectively (Attachment III). Total risk due to exposure to all CPCs in soil by all exposure pathways was 1.1×10^{-4}. This was primarily due to dermal contact with beryllium.

Total risk due to exposure to all CPCs in surface water did not exceed the 1.1×10^{-6} risk level. Total risk due to exposure to sediment was 1.3×10^{-6} due to external radiation from radium-228 and thorium-228 and ingestion of arsenic. Total HIs calculated for exposure of a future expanded trespasser to CPCs in soil, surface water, and sediment at the Inactive Flyash Pile did not exceed 1.0.

B.3.3.4.3 Future On-Property (South Field) Farmers

Risks were quantified for the future on-property farmer and resident child living in the South Field with livestock grazing on the property and using groundwater underlying the South Field and Inactive Flyash Pile. Risks were calculated for inhalation of airborne soil particulates; ingestion of homegrown produce on which soil from the Inactive Flyash Pile was deposited and which was irrigated with contaminated groundwater; ingestion of milk and beef from livestock consuming on-property vegetation on which airborne soil from the Inactive Flyash Pile was deposited and drinking

groundwater underlying the South Field and Inactive Flyash Pile. Exposure point concentrations for these routes of exposure were derived from air and groundwater modeling. Both RME and CT risks and hazards were estimated for the farmer. Risks associated with ingestion, dermal contact, and inhalation of groundwater underlying the South Field and Inactive Flyash Pile were assessed together since it is not possible to estimate the contribution of the risks associated with these two subunits separately.

Risks and hazards for a South Field on-property RME farmer and resident child exposed to CPCs in surface soil are given in Tables B.3.3-18(a) and B.3.3-18(b), respectively (Attachment III). Total risk for the farmer was 2.0×10^{-3}, and for the child was 2.6×10^{-4}. This was due almost entirely to dermal contact with and ingestion of arsenic and beryllium, and to external radiation from radionuclides (radium-228 and thorium-228). HI for the adult did not exceed 1.0, but for the child, HI was 1.6 due to ingestion of total uranium and arsenic.

Risks and hazards associated with exposure to contaminants in groundwater for the RME on-property farmer and resident child are given in Tables B.3.3-19(a) and B.3.3-19(b), respectively (Attachment III). Significant risks are indicated for both the RME on-property farmer and the child. Total risk for the farmer was 1.1×10^{-3} due to ingestion of uranium-234, uranium-235/236, and uranium-238. Total risk for the resident child was 4.7×10^{-5} due to the ingestion of the same compounds. Total HIs for the RME farmer and child were 19.3 and 43.3, respectively, due to the presence of uranium-total in groundwater.

Risks and hazards associated with exposure to contaminants in homegrown produce for the RME farmer are given in Table B.3.3-20(a) (Attachment III). The risk associated with homegrown produce for the RME farmer was 1.6×10^{-4}. This was mostly due to the estimated presence of uranium-234 and uranium-238 in produce. Total HI associated with this pathway for the RME farmer was 2.5. This was primarily due to the estimated uptake of uranium-total.

Risks and hazards associated with exposure to contaminants in beef and milk for the RME farmer and resident child are given in Table B.3.3-21(a) and B.3.3-21(b), respectively (Attachment III). The risk associated with beef and milk for the farmer was 1.9×10^{-5} and for the child was 3.5×10^{-6}. Again, this is largely due to the uptake of uranium-234, uranium-235/236, and uranium-238 by livestock.

Hazards associated with this pathway were 0.3 for the farmer and 2.9 for the child. Most of this was attributable to plant uptake of arsenic and uranium-total by cattle.

CT estimates of risk and hazard for the future on-property farmer associated with exposures to surface soil, groundwater, homegrown produce, and beef and milk are given in Tables B.3.3-22, B.3.3-23, B.3.3-24 and B.3.3-25, respectively (Attachment III). Risks exceeding 1×10^{-6} were associated with exposures to groundwater (7.8×10^{-5}), homegrown produce (1.1×10^{-5}), beef and milk (1.1×10^{-6}), and surface soil (1.8×10^{-4}). The greatest proportion of all these risks was due to the presence of arsenic, beryllium, radium-226, and thorium-228 in soil. Total HI for groundwater was 11 and homegrown produce was 1.3 due to total uranium.

B.3.3.5 Future Great Miami River User

Risks and hazards associated with future adult and youth recreation users of the Great Miami River contacting contaminated surface water and ingesting fish are given in Tables B.3.3-26(a) and B.3.3-26(b) (Attachment III). Total carcinogenic risk is 2.7×10^{-7} and 6.1×10^{-8} for the adult and youth, respectively. HI was less than 1.0 for both receptors.

Tables B.3.3-27(a) and B.3.3-27(b) (Attachment III) contain risks and hazards associated with contacting sediment at the point of mixing with Paddys Run and the Great Miami River. Total carcinogenic risk is 2.0×10^{-5} for the adult receptor and 8.2×10^{-6} for the youth. For the adult and youth receptors, the total risk was due mostly to external radiation from radium-228 and uranium-235/236. The total HI was less than 1.0 for both receptors.

B.3.3.6 Risks Due to Estimated Radium-222 Emission

Aminate radon emissions potentially associated with the Inactive Flyash Pile, estimated as described in Section B.2.0, are summarized in Table B.3.3-28 for each receptor. Risks that would result in the Inactive Flyash Pile assuming radon emission were equivalent to what would naturally occur if radium-226 were present at background concentrations are presented for comparison. Only the future on-property RME farmer is associated with a risk exceeding 1.0×10^{-6}. The risk associated with this receptor is 4.2×10^{-6}, which slightly exceeds the background risk of 1.9×10^{-6}.

TABLE B.3.3-28
INACTIVE FLYASH PILE
RISKS DUE TO ESTIMATED RA-222 EMISSION

	Subunit			Background		
	Maximum Ra-222 Air Concentration (pCi/m3)*	Intake (pCi)	Risk	Background Ra-222 Air Concentration (pCi/m3)**	Intake (pCi)	Risk
Current Trespassing Youth	4.1E+00	8.5E+03	6.5E-08	1.8E+00	3.7E+03	2.9E-08
Current/Future Off-Property Farmer	2.5E-01	2.8E+04	2.2E-07	1.7E-01	2.0E+04	1.5E-07
Current/Future Off-Property Child	2.5E-01	5.1E+02	4.0E-09	1.1E-01	7.5E+02	5.8E-09
Future, Expanded Trespasser (Adult + Child)	4.1E+00	1.3E+04	1.0E-07	1.8E+00	5.8E+03	4.5E-08
Future, RME On-Property Farmer	4.8E+00	5.5E+05	4.2E-06	2.1E+00	2.4E+05	1.9E-06
Future, CT On-Property Farmer	4.8E+00	4.1E+04	3.2E-07	2.1E+00	1.8E+04	1.4E-07
Future, On-Property Child	4.8E+00	1.0E+04	7.7E-08	2.1E+00	4.4E+03	3.4E-08

*Represents the upper 95 percent confidence interval on the mean Ra-226 soil concentration.

**Assumes Ra-226 concentration is 1.228 pCi/g in surface soil and 0.78 pCi/g in subsurface soil.

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B.3.3.7 Summary for Inactive Flyash Pile

Tables B.3.3-29 and B.3.3-30 summarize risks and hazards, respectively, associated with the Inactive Flyash Pile for receptors assuming current land use. No exposures resulted in HIs exceeding 1.0. Exposures of the trespassing youth to contaminated soils were associated with a total risk of 3.3×10^{-5} due to the presence of radium-228, thorium-228, and beryllium in surface soil, which account for 89 percent of total receptor risk. Total estimated risk to the groundskeeper was 5.0×10^{-5} due primarily to thorium-228 (23 percent of total risk) and beryllium (56 percent of total risk). Radium-226 contributes 10 percent of total risk. Total HIs did not exceed 1.0.

Tables B.3.3-31 and B.3.3-32 summarize risk and hazard, respectively, associated with the Inactive Flyash Pile for receptors assuming future land use. Exposures resulting in HIs greater than 1.0 were associated with on-property residents and off-property child via ingestion of groundwater and homegrown produce contaminated with uranium-total.

The greatest carcinogenic risk was the risk associated with groundwater use by the RME on-property farmer which slightly exceeded 1.0×10^{-3}. Total risk for this receptor was 3.2×10^{-3} due mostly to the future estimated concentrations of uranium-234 and uranium-238 in groundwater and consequently in irrigated produce and beef and milk from livestock watered with contaminated groundwater. Thorium-228 and beryllium in surface soil also contributed significant risk to this and other on-property receptors. As with the South Field, the greatest hazard (Table B.3.3-32) to all receptors was due to the estimated presence of uranium-total in groundwater.

Total estimated risk to future Great Miami River recreation users was in the 1.0×10^{-5} to 1.0×10^{-6} range. For the adult and youth receptors, thorium-228 and uranium-235/236 in sediment contributed 40 and 32 percent to total risk, respectively. Radium-228 in sediment contributed 17 percent. Total hazard for both receptors was less than 1.0.

B.3.4 SOLID WASTE LANDFILL

B.3.4.1 Exposure Point Concentrations

Table B.3.4-1 summarizes the exposure scenarios evaluated to assess risk associated with the Solid Waste Landfill. It also summarizes derivation of exposure concentrations specific to this subunit. With the exception of groundwater and air exposures, all exposure point concentrations were derived

TABLE B.3.3-29
INACTIVE FLYASH PILE
CURRENT LAND USE
SUMMARY OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Surface Soil	CS-137	2.6E-07	0.84%	0.79%	3.7E-13	5.3E-04%	0.00%	6.6E-15	2.3E-04%	0.00%
	NP-237	1.0E-07	0.32%	0.30%	9.6E-10	1.39%	1.12%	1.7E-11	0.62%	0.21%
	PU-238	3.2E-10	0.00%	0.00%	1.3E-10	0.19%	0.15%	2.4E-12	0.08%	0.03%
	PU-239/240	8.5E-11	0.00%	0.00%	3.3E-11	0.05%	0.04%	6.0E-13	0.02%	0.01%
	RA-226	1.1E-08	0.03%	0.03%	2.5E-10	0.36%	0.29%	4.5E-12	0.16%	0.05%
	RA-228	1.9E-06	5.91%	5.60%	6.5E-11	0.09%	0.07%	1.2E-12	0.04%	0.01%
	SR-90	4.9E-10	0.00%	0.00%	2.2E-12	0.00%	0.00%	4.1E-14	0.00%	0.00%
	TH-228	4.3E-06	13.79%	13.06%	8.8E-09	12.75%	10.24%	1.6E-10	5.63%	1.93%
	TH-230	1.8E-09	0.01%	0.01%	3.4E-09	4.84%	3.89%	6.1E-11	2.14%	0.73%
	TH-232	1.4E-09	0.00%	0.00%	2.7E-09	3.93%	3.16%	4.9E-11	1.74%	0.59%
	U-234	5.5E-09	0.02%	0.02%	9.4E-09	13.54%	10.88%	1.7E-10	5.98%	2.05%
	U-235/236	2.9E-08	0.09%	0.09%	4.4E-10	0.63%	0.51%	7.9E-12	0.28%	0.10%
	U-238	1.0E-07	0.32%	0.31%	1.9E-08	27.77%	22.32%	3.5E-10	12.27%	4.20%
	Total Radiological Risk	6.7E-06	21.34%	20.21%	4.5E-08	65.55%	52.68%	8.2E-10	28.97%	9.91%
	Arsenic	9.8E-07	3.11%	2.95%	1.2E-08	16.96%	13.63%	9.9E-10	34.98%	11.96%
	Beryllium	2.3E-05	74.72%	70.73%	4.5E-10	0.64%	0.52%	3.8E-11	1.33%	0.45%
	Cadmium	2.5E-10	0.00%	0.00%	4.4E-10	0.64%	0.51%	3.7E-11	1.32%	0.45%
	Chromium	6.1E-09	0.02%	0.02%	1.1E-08	15.70%	12.62%	9.2E-10	32.37%	11.07%
	Carbazole	1.4E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	2.5E-07	0.81%	0.76%	3.5E-10	0.50%	0.41%	3.0E-11	1.04%	0.36%
	Total Chemical Risk	2.5E-05	78.66%	74.46%	2.4E-08	34.45%	27.68%	2.0E-09	71.03%	24.29%
	Total	3.1E-05	100.00%	94.67%	6.9E-08	100.00%	80.36%	2.8E-09	100.00%	34.20%
Sediment	CS-137				N/A			N/A		
	NP-237	2.4E-09	0.14%	0.01%	N/A			N/A		
	PU-238	6.5E-11	0.00%	0.00%	N/A			N/A		
	PU-239/240	1.1E-10	0.01%	0.00%	N/A			N/A		
	RA-226	4.7E-09	0.27%	0.01%	N/A			N/A		
	RA-228	7.5E-07	43.33%	2.25%	N/A			N/A		
	SR-90	2.7E-10	0.02%	0.00%	N/A			N/A		
	TH-228	7.8E-07	45.44%	2.36%	N/A			N/A		
	TH-230	2.8E-10	0.02%	0.00%	N/A			N/A		
	TH-232	1.1E-10	0.01%	0.00%	N/A			N/A		
	U-234	3.9E-10	0.02%	0.00%	N/A			N/A		
	U-235/236	8.2E-09	0.48%	0.02%	N/A			N/A		
	U-238	1.8E-08	1.04%	0.05%	N/A			N/A		
	Total Radiological Risk	1.6E-06	90.77%	4.71%						
	Arsenic	1.6E-07	9.15%	0.48%	N/A			N/A		
	Benzo(a)pyrene	9.3E-10	0.05%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	4.1E-10	0.02%	0.00%	N/A			N/A		
	Carbazole	2.0E-12	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	1.6E-07	9.23%	0.48%						
	Total	1.7E-06	100.00%	5.19%						

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TABLE B.3.3-29
(continued)

Medium	Parameter	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Groundskeeper	% Total Medium Risk	% Total Receptor Risk
Surface Soil	CS-137	N/A			7.1E-07	1.42%	1.42%
	NP-237	N/A			2.8E-07	0.56%	0.56%
	PU-238	N/A			1.9E-09	0.00%	0.00%
	PU-239/240	N/A			5.1E-10	0.00%	0.00%
	RA-226	N/A			4.0E-08	0.08%	0.08%
	RA-228	N/A			5.0E-06	10.02%	10.02%
	SR-90	N/A			2.7E-09	0.01%	0.01%
	TH-228	N/A			1.2E-05	23.36%	23.36%
	TH-230	N/A			1.3E-08	0.03%	0.03%
	TH-232	N/A			1.0E-08	0.02%	0.02%
	U-234	N/A			4.0E-08	0.08%	0.08%
	U-235/236	N/A			7.9E-08	0.16%	0.16%
	U-238	N/A			3.2E-07	0.65%	0.65%
	Total Radiological Risk				1.8E-05	36.38%	36.38%
	Arsenic	N/A			3.0E-06	6.07%	6.07%
	Beryllium	N/A			2.8E-05	55.74%	55.74%
	Cadmium	N/A			1.3E-09	0.00%	0.00%
	Chromium	N/A			3.2E-08	0.06%	0.06%
	Carbazole	N/A			5.0E-10	0.00%	0.00%
	Dibenzo(a,h)anthracene	N/A			8.7E-07	1.74%	1.74%
	Total Chemical Risk				3.2E-05	63.62%	63.62%
	Total				5.0E-05	100.00%	100.00%
Sediment	CS-137	N/A			N/A		
	NP-237	N/A			N/A		
	PU-238	N/A			N/A		
	PU-239/240	N/A			N/A		
	RA-226	N/A			N/A		
	RA-228	N/A			N/A		
	SR-90	N/A			N/A		
	TH-228	N/A			N/A		
	TH-230	N/A			N/A		
	TH-232	N/A			N/A		
	U-234	N/A			N/A		
	U-235/236	N/A			N/A		
	U-238	N/A			N/A		
	Total Radiological Risk						
	Arsenic	N/A			N/A		
	Benzo(a)pyrene	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	N/A			N/A		
	Carbazole	N/A			N/A		
	Total Chemical Risk						
	Total						

TABLE B.3.3-29
(continued)

Medium	Parameter	Trespassing Youth	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Farmer	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk
Surface Water	NP-237	5.1E-10	1.10%	0.00%	N/A			N/A		
	PU-238	1.9E-09	4.05%	0.01%	N/A			N/A		
	PU-239/240	1.4E-10	0.29%	0.00%	N/A			N/A		
	RA-226	5.2E-11	0.11%	0.00%	N/A			N/A		
	TH-230	2.5E-11	0.05%	0.00%	N/A			N/A		
	U-234	1.2E-08	26.84%	0.04%	N/A			N/A		
	U-235/236	6.6E-10	1.42%	0.00%	N/A			N/A		
	U-238	2.1E-08	45.56%	0.06%	N/A			N/A		
	Total Radiological Risk	3.7E-08	79.43%	0.11%						
	Arsenic	9.4E-09	20.34%	0.03%	N/A			N/A		
	bis(2-Ethylhexyl) phthalat	1.1E-10	0.23%	0.00%	N/A			N/A		
	Total Chemical Risk	9.6E-09	20.57%	0.03%						
	Total	4.6E-08	100.00%	0.14%						
Homegrown Produce (Dust Affected)	CS-137	N/A			4.8E-12	0.03%	0.01%	3.6E-13	0.01%	0.00%
	NP-237	N/A			6.6E-11	0.46%	0.08%	4.9E-12	0.10%	0.06%
	PU-238	N/A			6.5E-12	0.04%	0.01%	4.9E-13	0.01%	0.01%
	PU-239/240	N/A			1.8E-12	0.01%	0.00%	1.3E-13	0.00%	0.00%
	RA-226	N/A			8.7E-11	0.60%	0.10%	6.5E-12	0.13%	0.08%
	RA-228	N/A			8.2E-11	0.57%	0.10%	6.1E-12	0.12%	0.07%
	SR-90	N/A			1.5E-11	0.10%	0.02%	1.1E-12	0.02%	0.01%
	TH-228	N/A			5.5E-11	0.38%	0.06%	4.1E-12	0.08%	0.05%
	TH-230	N/A			1.3E-11	0.09%	0.02%	9.8E-13	0.02%	0.01%
	TH-232	N/A			1.0E-11	0.07%	0.01%	7.6E-13	0.02%	0.01%
	U-234	N/A			5.1E-11	0.35%	0.06%	3.8E-12	0.08%	0.05%
	U-235/236	N/A			2.5E-12	0.02%	0.00%	1.8E-13	0.00%	0.00%
	U-238	N/A			9.1E-11	0.63%	0.11%	6.8E-12	0.14%	0.08%
	Total Radiological Risk				4.9E-10	3.34%	0.56%	3.6E-11	0.74%	0.44%
	Arsenic	N/A			1.2E-08	82.85%	13.98%	4.2E-09	85.08%	50.43%
	Beryllium	N/A			2.0E-09	13.81%	2.33%	7.0E-10	14.18%	8.41%
	Total Chemical Risk				1.4E-08	96.66%	16.31%	4.9E-09	99.26%	58.84%
	Total				1.5E-08	100.00%	16.87%	4.9E-09	100.00%	59.27%
Beef/Milk (Dust Affected)	CS-137	N/A			1.8E-11	0.77%	0.02%	2.3E-12	0.43%	0.03%
	NP-237	N/A			3.9E-13	0.02%	0.00%	2.9E-14	0.01%	0.00%
	PU-238	N/A			4.7E-16	0.00%	0.00%	4.9E-17	9.1E-06%	0.00%
	PU-239/240	N/A			1.3E-16	0.00%	0.00%	1.3E-17	2.5E-06%	0.00%
	RA-226	N/A			1.4E-11	0.60%	0.02%	2.5E-12	0.46%	0.03%
	RA-228	N/A			1.3E-11	0.55%	0.02%	2.3E-12	0.42%	0.03%
	SR-90	N/A			6.0E-12	0.25%	0.01%	1.1E-12	0.21%	0.01%
	TH-228	N/A			1.0E-13	0.00%	0.00%	1.6E-14	0.00%	0.00%
	TH-230	N/A			2.7E-14	0.00%	0.00%	4.3E-15	0.00%	0.00%
	TH-232	N/A			2.1E-14	0.00%	0.00%	3.3E-15	0.00%	0.00%
	U-234	N/A			1.1E-11	0.44%	0.01%	1.9E-12	0.35%	0.02%
	U-235/236	N/A			5.1E-13	0.02%	0.00%	9.3E-14	0.02%	0.00%
	U-238	N/A			1.9E-11	0.80%	0.02%	3.4E-12	0.64%	0.04%
	Total Radiological Risk				8.2E-11	3.45%	0.10%	1.4E-11	2.53%	0.17%
	Arsenic	N/A			2.1E-09	89.79%	2.48%	5.0E-10	92.80%	6.06%
	Beryllium	N/A			1.6E-10	6.75%	0.19%	2.5E-11	4.67%	0.30%
	Total Chemical Risk				2.3E-09	96.55%	2.67%	5.3E-10	97.47%	6.36%
	Total				2.4E-09	100.00%	2.76%	5.4E-10	100.00%	6.53%
ALL MEDIA		**3.3E-05**			**8.6E-08**			**8.3E-09**		

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TABLE B.3.3-29
(continued)

Medium	Parameter	User of Milk and Meat	% of Total Medium Risk	% of Total Receptor Ris	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Water	NP-237	N/A			N/A		
	PU-238	N/A			N/A		
	PU-239/240	N/A			N/A		
	RA-226	N/A			N/A		
	TH-230	N/A			N/A		
	U-234	N/A			N/A		
	U-235/236	N/A			N/A		
	U-238	N/A			N/A		
	Total Radiological Risk						
	Arsenic	N/A			N/A		
	bis(2-Ethylhexyl) phthalat	N/A			N/A		
	Total Chemical Risk						
	Total						
Homegrown Produce (Dust Affected)	CS-137	N/A			N/A		
	NP-237	N/A			N/A		
	PU-238	N/A			N/A		
	PU-239/240	N/A			N/A		
	RA-226	N/A			N/A		
	RA-228	N/A			N/A		
	SR-90	N/A			N/A		
	TH-228	N/A			N/A		
	TH-230	N/A			N/A		
	TH-232	N/A			N/A		
	U-234	N/A			N/A		
	U-235/236	N/A			N/A		
	U-238	N/A			N/A		
	Total Radiological Risk						
	Arsenic	N/A			N/A		
	Beryllium	N/A			N/A		
	Total Chemical Risk						
	Total						
Beef/Milk (Dust Affected)	CS-137	2.4E-10	0.77%	0.77%	N/A		
	NP-237	5.1E-12	0.02%	0.02%	N/A		
	PU-238	6.2E-15	2.0E-05%	0.00%	N/A		
	PU-239/240	1.7E-15	5.3E-06%	0.00%	N/A		
	RA-226	1.9E-10	0.60%	0.60%	N/A		
	RA-228	1.7E-10	0.55%	0.55%	N/A		
	SR-90	8.0E-11	0.25%	0.25%	N/A		
	TH-228	1.4E-12	0.00%	0.00%	N/A		
	TH-230	3.6E-13	0.00%	0.00%	N/A		
	TH-232	2.8E-13	0.00%	0.00%	N/A		
	U-234	1.4E-10	0.44%	0.44%	N/A		
	U-235/236	6.8E-12	0.02%	0.02%	N/A		
	U-238	2.5E-10	0.79%	0.79%	N/A		
	Total Radiological Risk	1.1E-09	3.44%	3.44%			
	Arsenic	2.8E-08	89.82%	89.82%	N/A		
	Beryllium	2.1E-09	6.74%	6.74%	N/A		
	Total Chemical Risk	3.0E-08	96.56%	96.56%			
	Total	3.2E-08	100.00%	100.00%			
ALL MEDIA		**3.2E-08**			**5.0E-05**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.3-30
INACTIVE FLYASH PILE
CURRENT LAND USE
SUMMARY OF NON-CARCINOGENIC HAZARD

Medium	Parameter	Trespassing Youth	% of Total Medium Hazard	% of Total Receptor Hazard	Off-Property Resident Farmer	% of Total Medium Hazard	% of Total Receptor Hazard	Off-Property Resident Child	% of Total Medium Hazard	% of Total Receptor Hazard
Surface Soil	Arsenic	1.1E-02	20.13%	8.69%	0.0E+00		0.00%	0.0E+00		0.00%
	Beryllium	6.4E-03	11.88%	5.13%	0.0E+00		0.00%	0.0E+00		0.00%
	Cadmium	8.9E-03	16.58%	7.16%	0.0E+00		0.00%	0.0E+00		0.00%
	Chromium	2.5E-03	4.63%	2.00%	0.0E+00		0.00%	0.0E+00		0.00%
	U-TOTAL	2.5E-02	46.72%	20.17%	0.0E+00		0.00%	0.0E+00		0.00%
	Dibenzofuran	3.1E-05	0.06%	0.03%	0.0E+00		0.00%	0.0E+00		0.00%
	Total	5.4E-02	100.00%	43.17%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
Sediment	Arsenic	1.8E-03	5.80%	1.41%	N/A			N/A		
	Chromium	5.0E-04	1.67%	0.41%	N/A			N/A		
	Cobalt	3.7E-04	1.23%	0.30%	N/A			N/A		
	Manganese	1.3E-02	42.50%	10.34%	N/A			N/A		
	Thallium	1.6E-03	5.41%	1.32%	N/A			N/A		
	U-TOTAL	1.3E-02	43.36%	10.55%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	8.6E-06	0.03%	0.01%	N/A			N/A		
	Total	3.0E-02	100.00%	24.31%						
Surface Water	Arsenic	1.0E-04	0.26%	0.08%	N/A			N/A		
	Cadmium	2.3E-04	0.58%	0.19%	N/A			N/A		
	Lead	0.0E+00	0.00%	0.00%	N/A			N/A		
	U-TOTAL	4.0E-02	99.15%	32.23%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	2.2E-06	0.01%	0.00%	N/A			N/A		
	Toluene	2.1E-06	0.01%	0.00%	N/A			N/A		
	Total	4.0E-02	100.00%	32.51%						
Homegrown Produce	Arsenic	N/A			2.3E-05	88.09%	72.96%	9.3E-05	88.09%	73.77%
	Beryllium	N/A			9.3E-08	0.36%	0.30%	3.8E-07	0.36%	0.30%
	Cadmium	N/A			7.5E-07	2.88%	2.38%	3.0E-06	2.88%	2.41%
	Chromium	N/A			4.7E-07	1.79%	1.48%	1.9E-06	1.79%	1.50%
	U-TOTAL	N/A			1.8E-06	6.88%	5.70%	7.3E-06	6.88%	5.76%
	Total				2.6E-05	100.00%	82.81%	1.1E-04	100.00%	83.75%
Beef/Milk	Arsenic	N/A			4.1E-06	75.33%	12.94%	1.1E-05	54.51%	8.86%
	Beryllium	N/A			7.5E-09	0.14%	0.02%	1.4E-08	0.07%	0.01%
	Cadmium	N/A			5.2E-07	9.71%	1.67%	2.9E-06	14.07%	2.29%
	Chromium	N/A			4.3E-07	7.94%	1.36%	2.7E-06	13.36%	2.17%
	U-TOTAL	N/A			3.7E-07	6.89%	1.18%	3.7E-06	17.99%	2.92%
	Total				5.4E-06	100.00%	17.19%	2.0E-05	100.00%	16.25%
ALL MEDIA		**1.2E-01**			**3.1E-05**			**1.3E-04**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.3-30
(continued)

Medium	Parameter	User of Milk and Meat	% of Total Medium Hazard	% of Total Receptor Hazard	Grounds-keeper	% Total Medium Hazard	% Total Receptor Hazard
Surface Soil	Arsenic	N/A			1.6E-02	35.99%	35.99%
	Beryllium	N/A			3.6E-03	8.15%	8.15%
	Cadmium	N/A			5.3E-03	11.88%	11.88%
	Chromium	N/A			4.7E-03	10.45%	10.45%
	U-TOTAL	N/A			1.5E-02	33.48%	33.48%
	Dibenzofuran	N/A			2.3E-05	0.05%	0.05%
	Total				4.5E-02	100.00%	100.00%
Sediment	Arsenic	N/A			N/A		
	Chromium	N/A			N/A		
	Cobalt	N/A			N/A		
	Manganese	N/A			N/A		
	Thallium	N/A			N/A		
	U-TOTAL	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	N/A			N/A		
	Total						
Surface Water	Arsenic	N/A			N/A		
	Cadmium	N/A			N/A		
	Lead	N/A			N/A		
	U-TOTAL	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	N/A			N/A		
	Toluene	N/A			N/A		
	Total						
Homegrown Produce	Arsenic	N/A			N/A		
	Beryllium	N/A			N/A		
	Cadmium	N/A			N/A		
	Chromium	N/A			N/A		
	U-TOTAL	N/A			N/A		
	Total						
Beef/Milk	Arsenic	5.4E-05	75.39%	75.39%	N/A		
	Beryllium	9.9E-08	0.14%	0.14%	N/A		
	Cadmium	6.9E-06	9.66%	9.66%	N/A		
	Chromium	5.7E-06	7.93%	7.93%	N/A		
	U-TOTAL	4.9E-06	6.88%	6.88%	N/A		
	Total	7.2E-05	100.00%	100.00%			
ALL MEDIA		**7.2E-05**			**4.5E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.3-31
FUTURE LAND USE
INACTIVE FLYASH PILE
SUMMARY OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Expanded Trespasser User	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Farmer	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk
Soil	CS-137	3.6E-07	0.32%	0.31%	3.7E-13	0.001%	0.00%	6.6E-15	0.000%	0.00%	3.8E-05	1.956%	1.18%
	NP-237	1.4E-07	0.12%	0.12%	9.6E-10	1.39%	0.00%	1.7E-11	0.62%	0.00%	1.5E-05	0.77%	0.46%
	PU-238	8.1E-11	0.00%	0.00%	1.3E-10	0.19%	0.00%	2.4E-12	0.08%	0.00%	8.1E-08	0.00%	0.00%
	PU-239/240	2.0E-11	0.00%	0.00%	3.3E-11	0.05%	0.00%	6.0E-13	0.02%	0.00%	2.1E-08	0.00%	0.00%
	RA-226	9.5E-09	0.01%	0.01%	2.5E-10	0.36%	0.00%	4.5E-12	0.16%	0.00%	2.0E-06	0.10%	0.06%
	RA-228	2.6E-06	2.24%	2.20%	6.5E-11	0.09%	0.00%	1.2E-12	0.04%	0.00%	2.7E-04	13.80%	8.35%
	SR-90	2.5E-12	0.00%	0.00%	2.2E-12	0.00%	0.00%	4.1E-14	0.00%	0.00%	1.4E-07	0.01%	0.00%
	TH-228	6.0E-06	5.24%	5.13%	8.8E-09	12.75%	0.01%	1.6E-10	5.63%	0.00%	6.3E-04	32.12%	19.45%
	TH-230	2.1E-09	0.00%	0.00%	3.4E-09	4.84%	0.01%	6.1E-11	2.14%	0.00%	2.3E-07	0.01%	0.01%
	TH-232	1.7E-09	0.00%	0.00%	2.7E-09	3.93%	0.00%	4.9E-11	1.74%	0.00%	1.8E-07	0.01%	0.01%
	U-234	5.7E-09	0.01%	0.00%	9.4E-09	13.54%	0.01%	1.7E-10	5.98%	0.01%	8.0E-07	0.04%	0.02%
	U-235/236	4.0E-08	0.04%	0.03%	4.4E-10	0.63%	0.00%	7.9E-12	0.28%	0.00%	4.2E-06	0.22%	0.13%
	U-238	1.4E-07	0.12%	0.12%	1.9E-08	27.77%	0.03%	3.5E-10	12.27%	0.01%	1.5E-05	0.75%	0.45%
	Total Radiological Risk	9.2E-06	8.10%	7.93%	4.5E-08	65.55%	0.07%	8.2E-10	28.97%	0.03%	9.8E-04	49.79%	30.14%
	Arsenic	2.2E-06	1.93%	1.89%	1.2E-08	16.96%	0.02%	9.9E-10	34.98%	0.03%	1.5E-04	7.55%	4.57%
	Beryllium	1.0E-04	89.55%	87.68%	4.5E-10	0.64%	0.00%	3.8E-11	1.33%	0.00%	7.9E-04	40.42%	24.47%
	Cadmium	3.7E-10	0.00%	0.00%	4.4E-10	0.64%	0.00%	3.7E-11	1.32%	0.00%	8.6E-09	0.00%	0.00%
	Chromium	9.0E-09	0.01%	0.01%	1.1E-08	15.70%	0.02%	9.2E-10	32.37%	0.03%	2.1E-07	0.01%	0.01%
	Carbazole	2.7E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	2.5E-08	0.00%	0.00%
	Dibenzo(a,h)anthracene	4.8E-07	0.42%	0.41%	3.5E-10	0.50%	0.00%	3.0E-11	1.04%	0.00%	4.4E-05	2.24%	1.35%
	Total Chemical Risk	1.0E-04	91.90%	89.98%	2.4E-08	34.45%	0.04%	2.0E-09	71.03%	0.06%	9.9E-04	50.21%	30.40%
	Total	1.1E-04	100.00%	97.91%	6.9E-08	100.00%	0.11%	2.8E-09	100.00%	0.09%	2.0E-03	100.00%	60.54%
Sediment	CS-137				N/A			N/A			N/A		
	NP-237	1.8E-09	0.13%	0.00%	N/A			N/A			N/A		
	PU-238	1.1E-10	0.01%	0.00%	N/A			N/A			N/A		
	PU-239/240	1.9E-10	0.01%	0.00%	N/A			N/A			N/A		
	RA-226	5.0E-09	0.37%	0.00%	N/A			N/A			N/A		
	RA-228	5.3E-07	39.29%	0.45%	N/A			N/A			N/A		
	SR-90	4.6E-10	0.03%	0.00%	N/A			N/A			N/A		
	TH-228	5.5E-07	41.12%	0.48%	N/A			N/A			N/A		
	TH-230	4.6E-10	0.03%	0.00%	N/A			N/A			N/A		
	TH-232	1.8E-10	0.01%	0.00%	N/A			N/A			N/A		
	U-234	6.5E-10	0.05%	0.00%	N/A			N/A			N/A		
	U-235/236	5.8E-09	0.43%	0.01%	N/A			N/A			N/A		
	U-238	1.3E-08	1.00%	0.01%	N/A			N/A			N/A		
	Total Radiological Risk	1.1E-06	82.50%	0.95%									
	Arsenic	2.3E-07	17.36%	0.20%	N/A			N/A			N/A		
	Benzo(a)pyrene	1.1E-09	0.08%	0.00%	N/A			N/A			N/A		
	bis(2-Ethylhexyl)phthalate	8.2E-10	0.06%	0.00%	N/A			N/A			N/A		
	Carbazole												
	Total Chemical Risk	2.3E-07	17.50%	0.20%									
	Total	1.3E-06	100.00%	1.16%									

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TABLE B.3.3-31
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	3.7E-06	2.091%	1.39%	2.9E-06	1.091%	0.88%	N/A			N/A		
	NP-237	1.4E-06	0.81%	0.53%	1.1E-06	0.43%	0.35%	N/A			N/A		
	PU-238	5.6E-09	0.00%	0.00%	7.5E-09	0.00%	0.00%	N/A			N/A		
	PU-239/240	1.5E-09	0.00%	0.00%	2.0E-09	0.00%	0.00%	N/A			N/A		
	RA-226	1.7E-07	0.09%	0.06%	1.7E-07	0.07%	0.05%	N/A			N/A		
	RA-228	2.6E-05	14.74%	9.78%	2.0E-05	7.70%	6.22%	N/A			N/A		
	SR-90	9.5E-09	0.01%	0.00%	1.3E-08	0.00%	0.00%	N/A			N/A		
	TH-228	6.1E-05	34.34%	22.78%	4.7E-05	17.91%	14.46%	N/A			N/A		
	TH-230	1.6E-08	0.01%	0.01%	1.7E-08	0.01%	0.01%	N/A			N/A		
	TH-232	1.3E-08	0.01%	0.00%	1.3E-08	0.00%	0.00%	N/A			N/A		
	U-234	5.6E-08	0.03%	0.02%	6.2E-08	0.02%	0.02%	N/A			N/A		
	U-235/236	4.0E-07	0.23%	0.15%	3.2E-07	0.12%	0.10%	N/A			N/A		
	U-238	1.4E-06	0.78%	0.52%	1.1E-06	0.42%	0.34%	N/A			N/A		
	Total Radiological Risk	9.4E-05	53.14%	35.25%	7.3E-05	27.78%	22.44%						
	Arsenic	1.0E-05	5.82%	3.86%	6.4E-05	24.31%	19.64%	N/A			N/A		
	Beryllium	6.9E-05	39.32%	26.08%	1.1E-04	40.51%	32.72%	N/A			N/A		
	Cadmium	6.4E-10	0.00%	0.00%	7.3E-10	0.00%	0.00%	N/A			N/A		
	Chromium	1.6E-08	0.01%	0.01%	1.8E-08	0.01%	0.01%	N/A			N/A		
	Carbazole	1.7E-09	0.00%	0.00%	1.1E-08	0.00%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	3.0E-06	1.71%	1.13%	2.0E-05	7.39%	5.96%	N/A			N/A		
	Total Chemical Risk	8.3E-05	46.86%	31.08%	1.9E-04	72.22%	58.33%						
	Total	1.8E-04	100.00%	66.34%	2.6E-04	100.00%	80.76%						
Sediment	CS-137	N/A			N/A			4.9E-07	2.47%	2.43%	2.0E-07	2.39%	2.37%
	NP-237	N/A			N/A			1.8E-07	0.91%	0.89%	7.2E-08	0.88%	0.87%
	PU-238	N/A			N/A			5.4E-10	0.00%	0.00%	2.1E-10	0.00%	0.00%
	PU-239/240	N/A			N/A			1.4E-10	0.00%	0.00%	5.8E-11	0.00%	0.00%
	RA-226	N/A			N/A			2.0E-08	0.10%	0.10%	7.9E-09	0.10%	0.10%
	RA-228	N/A			N/A			3.4E-06	17.35%	17.09%	1.4E-06	16.82%	16.67%
	SR-90	N/A			N/A			9.4E-10	0.00%	0.00%	3.8E-10	0.00%	0.00%
	TH-228	N/A			N/A			8.0E-06	40.43%	39.83%	3.2E-06	39.20%	38.86%
	TH-230	N/A			N/A			1.2E-09	0.01%	0.01%	4.6E-10	0.01%	0.01%
	TH-232	N/A			N/A			8.7E-10	0.00%	0.00%	3.5E-10	0.00%	0.00%
	U-234	N/A			N/A			1.1E-15	0.00%	0.00%	4.3E-16	0.00%	0.00%
	U-235/236	N/A			N/A			6.5E-06	32.75%	32.26%	2.6E-06	31.75%	31.48%
	U-238	N/A			N/A			1.6E-07	0.79%	0.78%	6.2E-08	0.76%	0.76%
	Total Radiological Risk							1.9E-05	94.81%	93.38%	7.5E-06	91.92%	91.12%
	Arsenic	N/A			N/A			2.7E-07	1.34%	1.32%	1.6E-07	2.00%	1.98%
	Benzo(a)pyrene	N/A			N/A			7.6E-07	3.83%	3.78%	4.9E-07	6.05%	6.00%
	bis(2-Ethylhexyl)phthalate	N/A			N/A			3.5E-09	0.02%	0.02%	1.9E-09	0.02%	0.02%
	Carbazole							3.5E-11	0.00%	0.00%	2.3E-11	0.00%	0.00%
	Total Chemical Risk							1.0E-06	5.19%	5.11%	6.6E-07	8.08%	8.01%
	Total							2.0E-05	100.00%		8.2E-06	100.00%	

TABLE B.3.3-31
(continued)

Medium	Parameter	Expanded Trespasser User	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Farmer	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk
Groundwater	NP-237	N/A			4.9E-09	0.01%	0.01%	2.1E-10	0.01%	0.01%	3.3E-07	0.03%	0.01%
	SR-90	N/A			1.6E-09	0.00%	0.00%	7.0E-11	0.00%	0.00%	2.0E-08	0.00%	0.00%
	TC-99	N/A			6.2E-08	0.11%	0.10%	2.7E-09	0.11%	0.08%	1.2E-07	0.01%	0.00%
	U234	N/A			1.9E-05	33.45%	28.63%	8.1E-07	33.45%	25.01%	3.7E-04	33.52%	11.33%
	U235/236	N/A			1.0E-06	1.78%	1.53%	4.3E-08	1.78%	1.33%	2.0E-05	1.79%	0.60%
	U238	N/A			3.6E-05	64.64%	55.32%	1.6E-06	64.64%	48.34%	7.1E-04	64.66%	21.86%
	Total Radiological Risk				5.6E-05	100.00%	85.58%	2.4E-06	100.00%	74.78%	1.1E-03	100.00%	33.80%
Surface Water	CS-137				N/A			N/A			N/A		
	NP-237	1.3E-08	1.20%	0.01%	N/A			N/A			N/A		
	PU-238	4.8E-08	4.43%	0.04%	N/A			N/A			N/A		
	PU-239/240	3.5E-09	0.32%	0.00%	N/A			N/A			N/A		
	RA-226	1.3E-09	0.12%	0.00%	N/A			N/A			N/A		
	RA-228				N/A			N/A			N/A		
	SR-90				N/A			N/A			N/A		
	TH-228				N/A			N/A			N/A		
	TH-230	6.4E-10	0.06%	0.00%	N/A			N/A			N/A		
	TH-232				N/A			N/A			N/A		
	U-234	3.2E-07	29.33%	0.27%	N/A			N/A			N/A		
	U-235/236	1.7E-08	1.55%	0.01%	N/A			N/A			N/A		
	U-238	5.4E-07	49.78%	0.46%	N/A			N/A			N/A		
	Total Radiological Risk	9.4E-07	86.79%	0.81%									
	Arsenic	1.4E-07	13.09%	0.12%	N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.3E-09	0.12%	0.00%	N/A			N/A			N/A		
	Total Chemical Risk	1.4E-07	13.21%	0.12%									
	Total	1.1E-06	100.00%	0.93%									
Homegrown Produce (Dust Affected)	CS-137	N/A			4.8E-12	0.03%	0.00%	3.6E-13	0.01%	0.00%	6.4E-11	0.03%	0.00%
	NP-237	N/A			6.6E-11	0.46%	0.00%	4.9E-12	0.10%	0.00%	8.8E-10	0.45%	0.00%
	PU-238	N/A			6.5E-12	0.04%	0.00%	4.9E-13	0.01%	0.00%	8.6E-11	0.04%	0.00%
	PU-239/240	N/A			1.8E-12	0.01%	0.00%	1.3E-13	0.00%	0.00%	2.3E-11	0.01%	0.00%
	RA-226	N/A			8.7E-11	0.60%	0.00%	6.5E-12	0.13%	0.00%	1.2E-09	0.60%	0.00%
	RA-228	N/A			8.2E-11	0.57%	0.00%	6.1E-12	0.12%	0.00%	1.1E-09	0.57%	0.00%
	SR-90	N/A			1.5E-11	0.10%	0.00%	1.1E-12	0.02%	0.00%	2.0E-10	0.10%	0.00%
	TH-228	N/A			5.5E-11	0.38%	0.00%	4.1E-12	0.08%	0.00%	7.2E-10	0.37%	0.00%
	TH-230	N/A			1.3E-11	0.09%	0.00%	9.8E-13	0.02%	0.00%	1.7E-10	0.09%	0.00%
	TH-232	N/A			1.0E-11	0.07%	0.00%	7.6E-13	0.02%	0.00%	1.4E-10	0.07%	0.00%
	U-234	N/A			5.1E-11	0.35%	0.00%	3.8E-12	0.08%	0.00%	6.7E-10	0.35%	0.00%
	U-235/236	N/A			2.5E-12	0.02%	0.00%	1.8E-13	0.00%	0.00%	3.3E-11	0.02%	0.00%
	U-238	N/A			9.1E-11	0.63%	0.00%	6.8E-12	0.14%	0.00%	1.2E-09	0.63%	0.00%
	Total Radiological Risk				4.9E-10	3.34%	0.00%	3.6E-11	0.74%	0.00%	6.4E-09	3.34%	0.00%
	Arsenic	N/A			1.2E-08	82.85%	0.02%	4.2E-09	85.08%	0.13%	1.6E-07	82.88%	0.00%
	Beryllium	N/A			2.0E-09	13.81%	0.00%	7.0E-10	14.18%	0.02%	2.7E-08	13.78%	0.00%
	Total Chemical Risk				1.4E-08	96.66%	0.02%	4.9E-09	99.26%	0.15%	1.9E-07	96.66%	0.01%
	Total				1.5E-08	100.00%	0.02%	4.9E-09	100.00%	0.15%	1.9E-07	100.00%	0.01%

TABLE B.3.3-31
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Groundwater	NP-237	2.4E-08	0.03%	0.01%	1.4E-08	0.03%	0.00%	N/A			N/A		
	SR-90	1.4E-09	0.00%	0.00%	8.5E-10	0.00%	0.00%	N/A			N/A		
	TC-99	8.2E-09	0.01%	0.00%	5.0E-09	0.01%	0.00%	N/A			N/A		
	U234	2.6E-05	33.52%	9.79%	1.6E-05	33.52%	4.81%	N/A			N/A		
	U235/236	1.4E-06	1.79%	0.52%	8.4E-07	1.79%	0.26%	N/A			N/A		
	U238	5.0E-05	64.66%	18.88%	3.0E-05	64.66%	9.28%	N/A			N/A		
	Total Radiological Risk	7.8E-05	100.00%	29.21%	4.7E-05	100.00%	14.36%						
	CS-137	N/A			N/A			2.2E-17	0.00%	0.00%	8.7E-18	0.00%	0.00%
Surface Water	NP-237	N/A			N/A			7.8E-14	0.00%	0.00%	3.1E-14	0.00%	0.00%
	PU-238	N/A			N/A			1.5E-18	0.00%	0.00%	5.9E-19	0.00%	0.00%
	PU-239/240	N/A			N/A			1.1E-16	0.00%	0.00%	4.4E-17	0.00%	0.00%
	RA-226	N/A			N/A			1.4E-09	0.48%	0.01%	5.8E-10	0.81%	0.01%
	RA-228	N/A			N/A			1.4E-09	0.45%	0.01%	5.5E-10	0.77%	0.01%
	SR-90	N/A			N/A			6.5E-11	0.02%	0.00%	2.6E-11	0.04%	0.00%
	TH-228	N/A			N/A			1.8E-08	5.98%	0.09%	7.2E-09	10.10%	0.09%
	TH-230	N/A			N/A			4.4E-12	0.00%	0.00%	1.7E-12	0.00%	0.00%
	TH-232	N/A			N/A			3.4E-12	0.00%	0.00%	1.4E-12	0.00%	0.00%
	U-234	N/A			N/A			2.2E-09	0.72%	0.01%	8.7E-10	1.21%	0.01%
	U-235/236	N/A			N/A			1.0E-10	0.03%	0.00%	4.2E-11	0.06%	0.00%
	U-238	N/A			N/A			3.9E-09	1.28%	0.02%	1.5E-09	2.17%	0.02%
	Total Radiological Risk							2.7E-08	8.97%		1.1E-08	15.15%	
	Arsenic	N/A			N/A			2.7E-07	91.03%	1.37%	6.1E-08	84.85%	0.74%
	bis(2-Ethylhexyl) phthalate	N/A			N/A								
	Total Chemical Risk							2.7E-07	91.03%		6.1E-08	84.85%	
	Total							3.0E-07	100.00%		7.2E-08	100.00%	
Homegrown Produce (Dust Affected)	CS-137	4.1E-12	0.03%	0.00%	4.8E-12	0.01%	0.00%	N/A			N/A		
	NP-237	5.7E-11	0.45%	0.00%	6.5E-11	0.10%	0.00%	N/A			N/A		
	PU-238	5.6E-12	0.04%	0.00%	6.4E-12	0.01%	0.00%	N/A			N/A		
	PU-239/240	1.5E-12	0.01%	0.00%	1.7E-12	0.00%	0.00%	N/A			N/A		
	RA-226	7.4E-11	0.60%	0.00%	8.6E-11	0.13%	0.00%	N/A			N/A		
	RA-228	7.0E-11	0.57%	0.00%	8.1E-11	0.12%	0.00%	N/A			N/A		
	SR-90	1.3E-11	0.10%	0.00%	1.5E-11	0.02%	0.00%	N/A			N/A		
	TH-228	4.7E-11	0.37%	0.00%	5.4E-11	0.08%	0.00%	N/A			N/A		
	TH-230	1.1E-11	0.09%	0.00%	1.3E-11	0.02%	0.00%	N/A			N/A		
	TH-232	8.7E-12	0.07%	0.00%	1.0E-11	0.02%	0.00%	N/A			N/A		
	U-234	4.3E-11	0.35%	0.00%	5.0E-11	0.08%	0.00%	N/A			N/A		
	U-235/236	2.1E-12	0.02%	0.00%	2.4E-12	0.00%	0.00%	N/A			N/A		
	U-238	7.8E-11	0.63%	0.00%	9.0E-11	0.14%	0.00%	N/A			N/A		
	Total Radiological Risk	4.2E-10	3.34%	0.00%	4.8E-10	0.73%	0.00%						
	Arsenic	1.0E-08	82.88%	0.00%	5.5E-08	85.12%	0.02%	N/A			N/A		
	Beryllium	1.7E-09	13.78%	0.00%	9.2E-09	14.15%	0.00%	N/A			N/A		
	Total Chemical Risk	1.2E-08	96.66%	0.00%	6.5E-08	99.27%	0.02%						
	Total	1.2E-08	100.00%	0.00%	6.5E-08	100.00%	0.02%						

TABLE B.3.3-31
(continued)

Medium	Parameter	Expanded Trespasser User	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Farmer	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk
Homegrown Produce (Groundwater Affected)	CS-137	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	NP-237	N/A			7.7E-10	0.01%	0.00%	5.7E-11	0.01%	0.00%	5.2E-08	0.03%	0.00%
	PU-238	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	N/A			3.3E-10	0.00%	0.00%	2.5E-11	0.00%	0.00%	4.0E-09	0.00%	0.00%
	U-234	N/A			2.8E-06	33.49%	4.29%	2.1E-07	33.49%	6.51%	5.5E-05	33.52%	1.70%
	U-235/236	N/A			1.5E-07	1.79%	0.23%	1.1E-08	1.79%	0.35%	2.9E-06	1.79%	0.09%
	U-238	N/A			5.4E-06	64.71%	8.28%	4.1E-07	64.71%	12.58%	1.1E-04	64.66%	3.27%
	Total Radiological Risk				8.4E-06	100.00%	12.80%	6.3E-07	100.00%	19.44%	1.6E-04	100.00%	5.06%
Beef/Milk (Dust Affected)	CS-137	N/A			1.8E-11	0.77%	0.00%	2.3E-12	4.3E-01%	0.00%	2.2E-10	0.78%	0.00%
	NP-237	N/A			3.9E-13	0.02%	0.00%	2.9E-14	0.01%	0.00%	4.7E-12	0.02%	0.00%
	PU-238	N/A			4.7E-16	0.00%	0.00%	4.9E-17	0.00%	0.00%	5.6E-15	0.00%	0.00%
	PU-239/240	N/A			1.3E-16	0.00%	0.00%	1.3E-17	0.00%	0.00%	1.5E-15	0.00%	0.00%
	RA-226	N/A			1.4E-11	0.60%	0.00%	2.5E-12	0.46%	0.00%	1.7E-10	0.60%	0.00%
	RA-228	N/A			1.3E-11	0.55%	0.00%	2.3E-12	0.42%	0.00%	1.6E-10	0.55%	0.00%
	SR-90	N/A			6.0E-12	0.25%	0.00%	1.1E-12	0.21%	0.00%	7.2E-11	0.25%	0.00%
	TH-228	N/A			1.0E-13	0.00%	0.00%	1.6E-14	0.00%	0.00%	1.2E-12	0.00%	0.00%
	TH-230	N/A			2.7E-14	0.00%	0.00%	4.3E-15	0.00%	0.00%	3.3E-13	0.00%	0.00%
	TH-232	N/A			2.1E-14	0.00%	0.00%	3.3E-15	0.00%	0.00%	2.6E-13	0.00%	0.00%
	U-234	N/A			1.1E-11	0.44%	0.00%	1.9E-12	0.35%	0.00%	1.3E-10	0.45%	0.00%
	U-235/236	N/A			5.1E-13	0.02%	0.00%	9.3E-14	0.02%	0.00%	6.2E-12	0.02%	0.00%
	U-238	N/A			1.9E-11	0.80%	0.00%	3.4E-12	0.64%	0.00%	2.3E-10	0.80%	0.00%
	Total Radiological Risk				8.2E-11	3.45%	0.00%	1.4E-11	2.53%	0.00%	9.9E-10	3.47%	0.00%
	Arsenic	N/A			2.1E-09	89.79%	0.00%	5.0E-10	92.80%	0.02%	2.6E-08	89.76%	0.00%
	Beryllium	N/A			1.6E-10	6.75%	0.00%	2.5E-11	4.67%	0.00%	1.9E-09	6.78%	0.00%
	Carbazole	N/A									0.0E+00	0.00%	0.00%
	Dibenz(a,h)anthracene	N/A									0.0E+00	0.00%	0.00%
	Total Chemical Risk				2.3E-09	96.55%	0.00%	5.3E-10	97.47%	0.02%	2.8E-08	96.53%	0.00%
	Total				2.4E-09	100.00%	0.00%	5.4E-10	100.00%	0.02%	2.9E-08	100.00%	0.00%

TABLE B.3.3-31
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Groundwater Affected)	CS-137	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	NP-237	1.6E-07	1.53%	0.06%	1.9E-07	1.53%	0.06%	N/A			N/A		
	PU-238	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	PU-239/240	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	SR-90	2.0E-09	0.02%	0.00%	2.3E-09	0.02%	0.00%	N/A			N/A		
	U-234	3.6E-06	33.01%	1.34%	4.1E-06	33.01%	1.25%	N/A			N/A		
	U-235/236	1.9E-07	1.76%	0.07%	2.2E-07	1.76%	0.07%	N/A			N/A		
	U-238	6.9E-06	63.68%	2.58%	7.9E-06	63.68%	2.42%	N/A			N/A		
	Total Radiological Risk	1.1E-05	100.00%	4.06%	1.2E-05	100.00%	3.79%						
Beef/Milk (Dust Affected)	CS-137	1.3E-11	0.70%	0.00%	2.8E-11	0.43%	0.00%	N/A			N/A		
	NP-237	3.0E-13	0.02%	0.00%	3.5E-13	0.01%	0.00%	N/A			N/A		
	PU-238	3.5E-16	0.00%	0.00%	5.9E-16	0.00%	0.00%	N/A			N/A		
	PU-239/240	9.4E-17	0.00%	0.00%	1.6E-16	0.00%	0.00%	N/A			N/A		
	RA-226	9.5E-12	0.51%	0.00%	3.0E-11	0.46%	0.00%	N/A			N/A		
	RA-228	8.7E-12	0.46%	0.00%	2.7E-11	0.42%	0.00%	N/A			N/A		
	SR-90	3.9E-12	0.21%	0.00%	1.3E-11	0.21%	0.00%	N/A			N/A		
	TH-228	7.1E-14	0.00%	0.00%	1.9E-13	0.00%	0.00%	N/A			N/A		
	TH-230	1.9E-14	0.00%	0.00%	5.2E-14	0.00%	0.00%	N/A			N/A		
	TH-232	1.5E-14	0.00%	0.00%	4.0E-14	0.00%	0.00%	N/A			N/A		
	U-234	7.0E-12	0.37%	0.00%	2.3E-11	0.36%	0.00%	N/A			N/A		
	U-235/236	3.4E-13	0.02%	0.00%	1.1E-12	0.02%	0.00%	N/A			N/A		
	U-238	1.3E-11	0.67%	0.00%	4.1E-11	0.64%	0.00%	N/A			N/A		
	Total Radiological Risk	5.6E-11	2.96%	0.00%	1.7E-10	2.54%	0.00%						
	Arsenic	1.7E-09	90.09%	0.00%	6.0E-09	92.77%	0.00%	N/A			N/A		
	Beryllium	1.3E-10	6.95%	0.00%	3.0E-10	4.69%	0.00%	N/A			N/A		
	Carbazole	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Dibenz(a,h)anthracene	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	1.8E-09	97.04%	0.00%	6.3E-09	97.46%	0.00%						
	Total	1.9E-09	100.00%	0.00%	6.5E-09	100.00%	0.00%						

TABLE B.3.3-31
(continued)

Medium	Parameter	Expanded Trespasser User	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Farmer	% of Total Medium Risk	% of Total Receptor Risk	Off-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk
Beef/Milk	CS-137	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.0E+00%	0.00%	0.0E+00	0.00%	0.00%
(Groundwater	NP-237	N/A			7.6E-10	0.08%	0.00%	1.9E-13	0.00%	0.00%	1.7E-10	0.00%	0.00%
Affected)	PU-238	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	N/A			1.4E-10	0.01%	0.00%	1.3E-11	0.01%	0.00%	8.7E-10	0.00%	0.00%
	U-234	N/A			3.3E-07	33.46%	0.50%	6.0E-08	33.49%	1.85%	6.4E-06	33.53%	0.20%
	U-235/236	N/A			1.8E-08	1.78%	0.03%	3.2E-09	1.79%	0.10%	3.4E-07	1.79%	0.01%
	U-238	N/A			6.3E-07	64.66%	0.96%	1.2E-07	64.71%	3.58%	1.2E-05	64.68%	0.38%
	Total Radiological Risk				9.8E-07	100.00%	1.49%	1.8E-07	100.00%	5.53%	1.9E-05	100.00%	0.59%
ALL MEDIA		**1.2E-04**			**6.6E-05**			**3.2E-06**			**3.2E-03**		

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TABLE B.3.3-31
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% of Total Medium Risk	% of Total Receptor Risk	On-Property Resident Child	% of Total Medium Risk	% of Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Groundwater Affected)	CS-137	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	NP-237	5.3E-10	0.05%	0.00%	6.3E-10	0.02%	0.00%	N/A			N/A		
	PU-238	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	SR-90	3.6E-10	0.03%	0.00%	1.2E-09	0.04%	0.00%	N/A			N/A		
	U-234	3.5E-07	33.50%	0.13%	1.2E-06	33.51%	0.36%	N/A			N/A		
	U-235/236	1.9E-08	1.79%	0.01%	6.2E-08	1.79%	0.02%	N/A			N/A		
	U-238	6.8E-07	64.63%	0.26%	2.3E-06	64.65%	0.69%	N/A			N/A		
	Total Radiological Risk	1.1E-06	100.00%	0.40%	3.5E-06	100.00%	1.06%						
ALL MEDIA		**2.7E-04**			**3.3E-04**			**2.0E-05**			**8.2E-06**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.3-32
FUTURE LAND USE
INACTIVE FLYASH PILE
SUMMARY OF TOTAL NON-CARCINOGENIC HAZARD

Medium	Parameter	Expanded Trespasser User	% Total Medium Hazard	% of Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% of Receptor Hazard	Off-Property Resident Child	% Total Medium Hazard	% of Receptor Hazard	On-Property Resident Farmer (RME)	% Total Medium Hazard	% of Receptor Hazard
Surface Soil	Arsenic	1.7E-02	12.44%	4.29%	0.0E+00			0.0E+00			2.8E-01	51.80%	1.24%
	Beryllium	1.9E-02	13.48%	4.65%	0.0E+00			0.0E+00			3.7E-02	6.78%	0.16%
	Cadmium	2.6E-02	18.59%	6.41%	0.0E+00			0.0E+00			5.6E-02	10.37%	0.25%
	Chromium	4.3E-03	3.06%	1.06%	0.0E+00			0.0E+00			9.6E-03	1.76%	0.04%
	U-TOTAL	7.3E-02	52.37%	18.06%	0.0E+00			0.0E+00			1.6E-01	29.23%	0.70%
	Dibenzofuran	8.4E-05	0.06%	0.02%	0.0E+00			0.0E+00			3.0E-04	0.06%	0.00%
	Total	1.4E-01	100.00%	34.49%							5.4E-01	100.00%	2.40%
Sediment	Arsenic	1.5E-03	3.12%	0.36%	N/A			N/A			N/A		
	Chromium	7.2E-04	1.55%	0.18%	N/A			N/A			N/A		
	Cobalt	5.3E-04	1.14%	0.13%	N/A			N/A			N/A		
	Manganese	2.1E-02	44.54%	5.15%	N/A			N/A			N/A		
	Thallium	2.1E-03	4.49%	0.52%	N/A			N/A			N/A		
	U-TOTAL	2.1E-02	45.14%	5.21%	N/A			N/A			N/A		
	bis(2-Ethylhexyl)phthalate	9.4E-06	0.02%	0.00%	N/A			N/A			N/A		
	Total	4.7E-02	100.00%	11.55%									
Groundwater	Arsenic	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Cadmium	N/A			1.7E-08	0.00%	0.00%	3.9E-08	0.00%	0.00%	3.6E-02	0.19%	0.16%
	Mercury	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Molybdenum	N/A			5.8E-07	0.00%	0.00%	1.3E-06	0.00%	0.00%	3.1E-02	0.16%	0.14%
	U-Total	N/A			9.9E-01	100.00%	77.57%	2.0E+00	100.00%	59.90%	1.9E+01	99.65%	84.87%
	Total				9.9E-01	100.00%	77.57%	2.0E+00	100.00%	59.90%	1.9E+01	100.00%	85.16%
Surface Water	Arsenic	9.0E-04	0.41%	0.22%	N/A			N/A			N/A		
	Cadmium	1.3E-03	0.58%	0.31%	N/A			N/A			N/A		
	U-TOTAL	2.2E-01	98.99%	53.41%	N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.5E-05	0.01%	0.00%	N/A			N/A			N/A		
	Toluene	1.1E-05	0.01%	0.00%	N/A			N/A			N/A		
	Total	2.2E-01	100.00%	53.95%									
Homegrown Produce (Dust Affected)	Arsenic	N/A			2.3E-05	88.09%	0.00%	9.3E-05	88.09%	0.00%	3.0E-04	88.13%	0.00%
	Beryllium	N/A			9.3E-08	0.36%	0.00%	3.8E-07	0.36%	0.00%	1.2E-06	0.36%	0.00%
	Cadmium	N/A			7.5E-07	2.88%	0.00%	3.0E-06	2.88%	0.00%	9.9E-06	2.86%	0.00%
	Chromium	N/A			4.7E-07	1.79%	0.00%	1.9E-06	1.79%	0.00%	6.2E-06	1.79%	0.00%
	Molybdenum	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-TOTAL	N/A			1.8E-06	6.88%	0.00%	7.3E-06	6.88%	0.00%	2.4E-05	6.87%	0.00%
	Dibenzofuran				0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total				2.6E-05	100.00%	0.00%	1.1E-04	100.00%	0.00%	3.5E-04	100.00%	0.00%
Homegrown Produce (Groundwater Affected)	Arsenic	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Cadmium	N/A			1.4E-09	0.00%	0.00%	5.6E-09	0.00%	0.00%	2.9E-03	0.11%	0.01%
	Chromium	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Molybdenum	N/A			9.4E-02	42.06%	7.36%	3.8E-01	42.06%	11.31%	5.0E-03	0.20%	0.02%
	U-TOTAL	N/A			1.3E-01	57.94%	10.14%	5.2E-01	57.94%	15.59%	2.5E+00	99.69%	11.09%
	Dibenzofuran				0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total				2.2E-01	100.00%	17.50%	9.0E-01	100.00%	26.90%	2.5E+00	100.00%	11.13%

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TABLE B.3.3-32
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% Total Medium Hazard	% of Receptor Hazard	On-Property Resident Child	% Total Medium Hazard	% of Receptor Hazard	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	1.5E-01	78.90%	1.17%	1.4E+00	86.80%	2.44%	N/A			N/A		
	Beryllium	3.7E-03	2.02%	0.03%	1.0E-02	0.63%	0.02%	N/A			N/A		
	Cadmium	8.4E-03	4.51%	0.07%	4.6E-02	2.80%	0.08%	N/A			N/A		
	Chromium	3.3E-03	1.80%	0.03%	3.0E-02	1.81%	0.05%	N/A			N/A		
	U-TOTAL	2.4E-02	12.72%	0.19%	1.3E-01	7.90%	0.22%	N/A			N/A		
	Dibenzofuran	9.5E-05	0.05%	0.00%	8.2E-04	0.05%	0.00%	N/A			N/A		
	Total	1.9E-01	100.00%	1.48%	1.6E+00	100.00%	2.81%						
Sediment	Arsenic	N/A			N/A			1.2E-03	6.61%	0.31%	1.8E-03	7.89%	7.47%
	Chromium	N/A			N/A			4.5E-05	0.25%	0.01%	5.7E-05	0.25%	0.23%
	Cobalt	N/A			N/A			5.5E-05	0.31%	0.01%	7.0E-05	0.30%	0.29%
	Manganese	N/A			N/A			6.1E-04	3.40%	0.16%	7.2E-04	3.14%	2.97%
	Thallium	N/A			N/A			1.0E-02	56.93%	2.70%	1.3E-02	58.25%	55.15%
	U-TOTAL	N/A			N/A			5.8E-03	32.34%	1.53%	6.9E-03	29.99%	28.39%
	bis(2-Ethylhexyl)phthalate	N/A			N/A			2.9E-05	0.16%	0.01%	4.1E-05	0.18%	0.17%
	Total							1.8E-02	100.00%	4.74%	2.3E-02	100.00%	94.67%
Groundwater	Arsenic	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Cadmium	2.0E-02	0.19%	0.16%	8.1E-02	0.19%	0.14%	N/A			N/A		
	Mercury	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Molybdenum	1.7E-02	0.16%	0.14%	7.2E-02	0.17%	0.12%	N/A			N/A		
	U-Total	1.1E+01	99.66%	87.08%	4.3E+01	99.65%	74.28%	N/A			N/A		
	Total	1.1E+01	100.00%	87.38%	4.3E+01	100.00%	74.54%						
Surface Water	Arsenic	N/A			N/A			3.4E-01	95.32%	90.80%	6.7E-04	51.99%	2.77%
	Cadmium	N/A			N/A			7.0E-04	0.19%	0.19%	5.7E-04	43.77%	2.33%
	U-TOTAL	N/A			N/A			3.7E-06	0.00%	0.00%	1.0E-07	0.01%	0.00%
	bis(2-Ethylhexyl) phthalate	N/A			N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Toluene	N/A			N/A			1.6E-02	4.49%	4.27%	5.5E-05	4.23%	0.23%
	Total							3.6E-01	100.00%	95.26%	1.3E-03	100.00%	5.33%
Homegrown Produce (Dust Affected)	Arsenic	1.5E-04	88.13%	0.00%	1.2E-03	88.13%	0.00%	N/A			N/A		
	Beryllium	6.2E-07	0.36%	0.00%	5.0E-06	0.36%	0.00%	N/A			N/A		
	Cadmium	5.0E-06	2.86%	0.00%	4.0E-05	2.86%	0.00%	N/A			N/A		
	Chromium	3.1E-06	1.79%	0.00%	2.5E-05	1.79%	0.00%	N/A			N/A		
	Molybdenum	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	U-TOTAL	1.2E-05	6.87%	0.00%	9.6E-05	6.87%	0.00%	N/A			N/A		
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Total	1.7E-04	100.00%	0.00%	1.4E-03	100.00%	0.00%						
Homegrown Produce (Groundwater Affected)	Arsenic	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Cadmium	1.9E-03	0.15%	0.02%	1.5E-02	0.15%	0.03%	N/A			N/A		
	Chromium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Molybdenum	2.5E-03	0.20%	0.02%	2.0E-02	0.20%	0.04%	N/A			N/A		
	U-TOTAL	1.3E+00	99.65%	10.09%	1.0E+01	99.65%	17.55%	N/A			N/A		
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Total	1.3E+00	100.00%	10.12%	1.0E+01	100.00%	17.61%						

TABLE B.3.3-32
(continued)

Medium	Parameter	Expanded Trespasser User	% Total Medium Hazard	% of Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% of Receptor Hazard	Off-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	On-Property Resident Farmer (RME)	% Total Medium Hazard	% of Receptor Hazard
Beef/Milk (Dust Affected)	Arsenic	N/A			4.1E-06	75.33%	0.00%	1.1E-05	54.51%	0.00%	4.9E-05	75.25%	0.00%
	Beryllium	N/A			7.5E-09	0.14%	0.00%	1.4E-08	0.07%	0.00%	9.0E-08	0.14%	0.00%
	Cadmium	N/A			5.2E-07	9.71%	0.00%	2.9E-06	14.07%	0.00%	6.3E-06	9.75%	0.00%
	Chromium	N/A			4.3E-07	7.94%	0.00%	2.7E-06	13.36%	0.00%	5.2E-06	7.95%	0.00%
	Molybdenum	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-TOTAL	N/A			3.7E-07	6.89%	0.00%	3.7E-06	17.99%	0.00%	4.5E-06	6.91%	0.00%
	Dibenzofuran	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total				5.4E-06	100.00%	0.00%	2.0E-05	100.00%	0.00%	6.5E-05	100.00%	0.00%
Beef/Milk (Groundwater Affected)	Arsenic	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Cadmium	N/A			1.5E-04	0.23%	0.01%	2.9E-09	0.00%	0.00%	1.1E-03	0.37%	0.00%
	Chromium	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Molybdenum	N/A			4.8E-02	75.78%	3.73%	2.9E-01	66.39%	8.76%	2.6E-03	0.86%	0.01%
	U-TOTAL				1.5E-02	23.98%	1.18%	1.5E-01	33.61%	4.43%	2.9E-01	98.77%	1.29%
	Dibenzofuran				0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total				6.3E-02	100.00%	4.93%	4.4E-01	100.00%	13.20%	3.0E-01	100.00%	1.31%
ALL MEDIA		**4.0E-01**			**1.3E+00**			**3.4E+00**			**2.3E+01**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.3.3-32
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% Total Medium Hazard	% of Receptor Hazard	On-Property Resident Child	% Total Medium Hazard	% of Receptor Hazard	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
Beef/Milk (Dust Affected)	Arsenic	2.5E-05	77.14%	0.00%	1.3E-04	54.41%	0.00%	N/A			N/A		
	Beryllium	4.7E-08	0.15%	0.00%	1.7E-07	0.07%	0.00%	N/A			N/A		
	Cadmium	3.0E-06	9.35%	0.00%	3.5E-05	14.12%	0.00%	N/A			N/A		
	Chromium	2.4E-06	7.46%	0.00%	3.3E-05	13.37%	0.00%	N/A			N/A		
	Molybdenum	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	U-TOTAL	1.9E-06	5.90%	0.00%	4.4E-05	18.03%	0.00%	N/A			N/A		
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Total	3.2E-05	100.00%	0.00%	2.5E-04	100.00%	0.00%						
Beef/Milk (Groundwater Affected)	Arsenic	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Cadmium	6.9E-04	0.54%	0.01%	7.9E-03	0.27%	0.01%	N/A			N/A		
	Chromium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Molybdenum	1.2E-03	0.95%	0.01%	1.6E-02	0.54%	0.03%	N/A			N/A		
	U-TOTAL	1.3E-01	98.51%	1.00%	2.9E+00	99.19%	4.99%	N/A			N/A		
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Total	1.3E-01	100.00%	1.01%	2.9E+00	100.00%	5.03%						
ALL MEDIA		**1.3E+01**			**5.8E+01**			**3.8E-01**			**2.4E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

TABLE B.3.4-1

SOLID WASTE LANDFILL
EXPOSURE POINT CONCENTRATIONS FOR SCENARIOS EVALUATED

Current Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Current Access Controls (current use of FEMP continues, DOE Ownership)	Trespassing Youth	soil	incidental ingestion dermal contact external radiation	surface soil within subunit
		air	inhalation of particulates, volatiles, gases, and radionuclides	maximum estimated on-site current concentrations derived from airborne soil air modeling results
		surface water	incidental ingestion dermal contact	surface water within subunit
		sediment	ingestion dermal contact external radiation	sediment within subunit
	Off-Property Resident Farmer (adult and child), livestock grazing off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site current concentrations derived from airborne soil air modeling concentrations
		plants (homegrown produce)	ingestion	maximum estimated off-site current concentrations derived from airborne soil air modeling results
		livestock (grazing at property boundary)	ingestion of milk and beef	maximum estimated off-site current concentrations derived from airborne soil air modeling results
	Groundskeeper	air	inhalation of particulates, volatiles, and gases	maximum estimated on-site current concentration derived from air modeling
		soil	ingestion dermal contact external radiation	surface soil within subunit
	User of Meat/Milk Products	livestock grazing on-property	ingestion of milk and beef	maximum estimated on-site current concentrations derived from deposited airborne surface soil modeling results

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TABLE B.3.4-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Federal Ownership (includes exposure routes that require development time)	Future Off-Property Farmer (adult and child), livestock grazing off-property, groundwater off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site future concentrations derived from airborne soil air modeling results
		plants (homegrown produce)	ingestion	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		livestock (grazing at property boundary)	ingestion of milk and beef	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		groundwater	ingestion dermal contact inhalation	modeled groundwater concentrations off-site at time when concentration is greatest
	Expanded Trespasser (adult and child)	air	inhalation of particulates, radionuclides, volatiles, and gases	maximum estimated on-site airborne soil modeling results
		surface water	incidental ingestion dermal contact	surface water within subunit
		sediment	ingestion dermal contact external radiation	sediment within subunit
		soil	ingestion dermal contact external radiation	surface soil within subunit
Without Federal Ownership (includes exposure routes that require development time)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property, RME and CT estimates	air	inhalation of particulates, volatiles, gases, and indoor radon	maximum estimated on-site future concentrations from airborne soil modeling results and modelled radon emissions from soil radium
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated on-subunit future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		livestock (grazing on property)	ingestion of milk and beef	maximum estimated on-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		groundwater	incidental ingestion dermal contact inhalation	groundwater concentrations underlying Solid Waste Landfill at time when concentration is greatest

TABLE B.3.4-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Without Federal Ownership (includes exposure routes that require development time) (Continued)	Future On-Property Resident Farmer (adult and child), livestock grazing on-property, groundwater on property, RME and CT estimates (Continued)	soil	incidental ingestion dermal contact external radiation	surface soil within subunit
	Future Homebuilder (per Operable Unit 1)	waste material/subsurface soil	external radiation incidental ingestion dermal contact	subsurface soil within subunit
		air	inhalation of particulates, volatiles, and gases	air concentrations at construction site based on modeling
	Future Perched Groundwater User (Solid Waste Landfill and Lime Sludge Ponds only, RME and CT estimates	maximum modelled perched groundwater directly underlying subunit	ingestion, dermal contact, and inhalation of volatiles released during household use	maximum modelled groundwater concentration in perched groundwater directly underlying Solid Waste Landfill
With or Without Federal Ownership	Great Miami River User	surface water	ingestion dermal contact	estimated concentrations in Great Miami River
		sediment	ingestion dermal contact external radiation	estimated concentrations in Great Miami River
		fish	ingestion	estimated fish concentrations in Great Miami River

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from analytical data on samples collected within the boundaries of the Solid Waste Landfill subunit. For the future on-property farmer it was assumed that the farmer resided on the Solid Waste Landfill and simultaneously farmed that area. The Solid Waste Landfill was chosen as a farm and residence site since it is feasible to place either a home or an agricultural field on this subunit. Because of the feasibility of constructing a home on the Solid Waste Landfill, risks to a potential homebuilder were also determined for this area. Additionally, because the Solid Waste Landfill is underlain by perched groundwater, risks to a future perched groundwater user were assessed. This and other relevant information regarding exposure point concentrations for the Solid Waste Landfill is summarized in Table B.3.4-1.

B.3.4.2 Constituents of Potential Concern

The CPCs identified for surface soil, subsurface soil, surface water, sediment, 1000 series wells, and 2000 series wells are summarized in Tables B.3.4-2(a), (b), (c), (d), (e), and (f), respectively (Attachment III). Table 3.4-3 summarizes CPCs for the Solid Waste Landfill by medium.

B.3.4.3 Risk Characterization for Current Land Use

The scenarios characterized for the Solid Waste Landfill assuming continued DOE ownership are a trespassing youth; the off-property farmer and resident child using food products from livestock grazing off-property and from produce grown off-property; a current user of meat and milk products from livestock grazing on-property; and a groundskeeper exposed to on-site contaminant concentrations.

B.3.4.3.1 Trespassing Youth

Risk was characterized for the trespassing youth contacting CPCs via ingestion and dermal contact with surface soil within the subunit; external radiation resulting from exposure to surface soil and sediment within the subunit; inhalation of airborne particulates; and ingestion and dermal contact with surface water and sediment within the subunit. The exposure point concentrations for exposure to soil, surface water, and sediment were based on analytical data, while the inhaled particulate concentration was based on air modeling results as described in the Section B.2.0.

Risks and hazards calculated for the trespassing youth on the Solid Waste Landfill are presented in Tables B.3.4-4, B.3.4-5, and B.3.4-6 (Attachment III) for exposure to contaminated soil, surface water, and sediment, respectively. Total risk for exposure to soil was 1.3×10^{-5}. This was primarily

TABLE B.3.4-3

CONSTITUENTS OF POTENTIAL CONCERN
FOR THE SOLID WASTE LANDFILL

SURFACE SOIL	SEDIMENT	GROUNDWATER	PERCHED GROUNDWATER	SURFACE WATER
		Radiological Constituents		
CS-137	--	--	--	--
NP-237	NP-237	--	--	--
PU-238	PU-238	--	--	PU-238
PU-239/240	PU-239/240	--	--	--
RA-226	RA-226	--	--	--
RA-228	RA-228	--	--	--
SR-90	SR-90	--	--	--
--	--	TC-99	TC-99	--
TH-228	TH-228	--	--	--
TH-230	TH-230	--	--	--
TH-232	TH-232	--	--	--
U-234	U-234	--	--	U-234
U-235/236	U-235/236	--	--	U-235/236
U-238	U-238	--	--	U-238
		Chemical Constituents		
Arsenic	Arsenic	--	--	--
Beryllium	--	--	--	--
Cadmium	--	--	--	--
Chromium	Chromium	--	--	--
--	Cobalt	--	--	--
Lead	Lead	--	--	--
--	Manganese	--	--	Manganese
--	Silicon	--	--	--
TH-TOTAL	TH-TOTAL	--	--	--
--	Thallium	--	--	--
U-TOTAL	U-TOTAL	--	--	U-TOTAL
4,4'-DDE	--	--	--	--
Benzo(a)anthracene	Benzo(a)anthracene	--	--	--
Benzo(a)pyrene	Benzo(a)pyrene	--	--	--
Benzo(b)fluoranthene	Benzo(b)fluoranthene	--	--	--
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	--	--	--
Benzo(k)fluoranthene	Benzo(k)fluoranthene	--	--	--
bis(2-Ethylhexyl) phthalate	bis(2-Ethylhexyl) phthalate	--	--	bis(2-Ethylhexyl) phthalate
Carbazole	Carbazole	--	Carbazole	--
Chrysene	Chrysene	--	--	--
Dibenzo(a,h)anthracene	--	--	--	--
Dibenzofuran	--	--	--	--
--	Fluoranthene	--	--	--
Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	--	--	--
Phenanthrene	Phenanthrene	--	--	--
--	Pyrene	--	--	--
--	--	--	--	--

-- = not a CPC in this medium

due to external radiation exposure to radium-228 (1.4×10^{-6} risk) and thorium-228 (2.6×10^{-6} risk) and dermal contact with beryllium in the soil (7.2×10^{-6} risk). The risks calculated for all other CPCs were at or below the 1×10^{-7} risk level. Total risk for exposure of a trespassing youth to CPCs in surface water on the Solid Waste Landfill was below 1.0×10^{-6}, but was 2.5×10^{-6} for sediment due to external radiation from thorium-228. Total HIs calculated for exposure of a trespassing youth to CPCs in soil, surface water, or sediment on the Solid Waste Landfill were all well below 1.0.

B.3.4.3.2 Current Off-Property Farmers

Risk was characterized for the current off-property farmer and resident child contacting CPCs via inhalation of airborne particulates; and ingestion of airborne particulates deposited on homegrown produce and in milk or beef from livestock grazing on particulates deposited on off-property vegetation. For all of these routes of exposure, the exposure point concentration was based on air modeling results as described in the Section B.2.0.

Risks and hazards calculated for the off-property farmer and resident child exposed to CPCs in airborne soil particulates from the Solid Waste Landfill are presented in Tables B.3.4-7(a) and B.3.4-7(b), respectively (Attachment III). The total risk was 3.5×10^{-8} and 7.9×10^{-10} for the farmer and resident child, respectively. The total hazard for both the farmer and child was well below 1.0.

Risks and hazards associated with ingestion of CPCs in beef and milk for the current off-property farmer and resident child are given in Tables B.3.4-8(a) and B.3.4-8(b), respectively (Attachment III). Total risk for all CPCs consumed in beef and milk was 6.4×10^{-9} and 3.6×10^{-9} for the farmer and child, respectively. The total HIs for all CPCs consumed in beef and milk was well below 1.0 for both the farmer and child.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-property resident farmer and child are given in Tables B.3.4-9(a) and B.3.4-9(b), respectively (Attachment III). The total risk for all CPCs consumed in homegrown produce was 5.3×10^{-9} and 1.8×10^{-9} for the farmer and child, respectively. The total HI for all CPCs consumed in homegrown produce was well below 1.0 for both the farmer and child.

B.3.4.3.3 Current User of Milk/Meat Products

Risk and hazard to the current user of meat and milk products is given in Table 3.4-10 (Attachment III). Total risk was less than 1.0×10^{-6} and total HI was well below 1.0.

B.3.4.3.4 Current Groundskeeper

Risks and hazards to the current groundskeeper are given in Table 3.4-11 (Attachment III). Total carcinogenic risk was 2.4×10^{-5} due mostly to external radiation from radium-228, thorium-228, and uranium-238, and dermal contact with beryllium in soil. The total HI was less than 1.0.

B.3.4.4 Risk Characterization for Future Land Use

The future scenarios characterized for the Solid Waste Landfill assuming continued federal ownership are the off-property farmer and resident child and an expanded trespasser. Future scenarios characterized for the Solid Waste Landfill assuming private ownership are an on-property farmer and resident child living on and farming the Solid Waste Landfill; a future home builder; a future perched groundwater user. Recreational users of the Great Miami River were evaluated for federal and private ownerships.

B.3.4.4.1 Future Off-Property Farmers

For the off-property farmer and resident child, risks were calculated for exposure to CPCs in airborne soil. Receptors were presumed to contact CPCs in air via inhalation of airborne particulates; by consumption of homegrown produce on which airborne soil was deposited and that was watered with contaminated groundwater; by ingestion of milk and beef from cattle grazing on vegetation on which airborne soil was deposited and that consumed contaminated groundwater; and by ingestion, dermal contact, and inhalation of contaminated groundwater. All of the exposure point concentrations for this scenario were derived from air and groundwater modeling results as described in Section B.2.0, Methodology.

Risks and hazards calculated for the future off-property farmer and resident child exposed to CPCs in soil and airborne contaminants from the Solid Waste Landfill are given in Tables B.3.4-12(a) and B.3.4-12(b), respectively (Attachment III). The total risk was 1.1×10^{-6} and 2.4×10^{-8} for the farmer and child, respectively. The risks associated with any individual CPC was at or below the 1×10^{-7} risk level. The total HIs for both the farmer and child were well below 1.0.

Risks and hazards associated with ingestion of CPCs in beef and milk for the off-property farmer and resident child are given in Tables B.3.4-13(a) and B.3.4-13(b), respectively (Attachment III). The total risk for all CPCs consumed in beef and milk was 1.5×10^{-7} and 8.4×10^{-8} for the farmer and child, respectively. The total HIs for all CPCs consumed in beef and milk were well below 1.0 for both the farmer and child.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-property farmer and resident child are given in Tables B.3.4-14(a) and B.3.4-14(b), respectively (Attachment III). The total risk for all CPCs consumed in homegrown produce was 1.2×10^{-7} and 4.1×10^{-8} for the farmer and child, respectively. The total HIs for all CPCs consumed in homegrown produce were well below 1.0 for both the farmer and child.

The risks and hazards associated with exposure of the off-property farmer and resident child to groundwater are given in Tables B.3.4-15(a) and B.3.4-15(b), respectively (Attachment III). No risks exceeded 1.0×10^{-6} and both total HIs were below 1.0.

B.3.4.4.2 Future On-Property Expanded Trespasser

The expanded trespasser was assumed to contact CPCs directly via inhalation of airborne particulates of soil; ingestion and dermal contact with sediment and surface water; ingestion and dermal contact with surface soil; and external radiation resulting from exposure to contaminated soil and sediment. The exposure point concentrations for inhalation of airborne particles were estimated from airborne soil modeling results while all other exposure point concentrations were derived from analytical data.

Risks and hazards calculated for the future expanded trespasser due to CPCs in soil at the Solid Waste Landfill are presented in Table B.3.4-16 (Attachment III). The total risk due to exposure to all CPCs in soil by all exposure pathways was 2.8×10^{-5}. This was primarily due to inhalation of uranium-238 in airborne soil, external radiation by radium-228, thorium-228, and uranium-238, and dermal contact with beryllium in soil.

Total risk due to exposure to all CPCs in surface water (Table 3.4-17, Attachment III) did not exceed the 1.0×10^{-6} risk level. Total risk due to sediment (Table 3.4-18, Attachment III) slightly exceeded the 1.0×10^{-6} level due to ingestion of and dermal contact with arsenic and external radiation from thorium-228. All HIs were below 1.0.

B.3.4.4.3 Future On-Property (Solid Waste Landfill) Farmers

Risks were quantified for the future on-site farmer and resident child living on the Solid Waste Landfill, assuming livestock would be grazing on the landfill and both humans and livestock would be using groundwater underlying the Solid Waste Landfill. Risks were calculated for inhalation of airborne particulates estimated from modelled results as described in Section B.2, and Appendix A, and Section 5.0 of this RI report; and for direct contact with soil via ingestion, external radiation, and dermal contact. Risks were estimated for ingestion of homegrown produce on which contaminated soil was deposited and which was irrigated with groundwater underlying the Solid Waste Landfill; and for ingestion of milk and beef from livestock consuming on-property vegetation on which airborne soil was deposited and drinking groundwater underlying the Solid Waste Landfill. Risks associated with ingestion, dermal contact, and inhalation of contaminants in groundwater underlying the Solid Waste Landfill were also assessed. Exposure point concentrations for these routes of exposure were based on air and groundwater modeling results.

Risks and hazards for the RME Solid Waste Landfill on-property farmer and resident child exposed to CPCs in surface soil and in airborne particulates are given in Tables B.3.4-19(a) and B.3.4-19(b), respectively (Attachment III). The total risks for the on-property farmer and resident child were 1.1×10^{-3} and 1.2×10^{-4}, respectively. The greatest risks were associated with external radiation from radium-228, thorium-228, and uranium-238 and ingestion of arsenic and beryllium. For dermal contact, the highest RME risk calculated was 2.4×10^{-4} for beryllium. HIs of 1.5 and 3.3, due to ingestion and dermal contact with uranium-total, were calculated for farmer and child exposures to surface soil, respectively.

Risks and hazards associated with exposure to contaminants in groundwater for the RME on-property farmer and resident child are given in Tables B.3.4-20(a) and B.3.4-20(b), respectively (Attachment III). The risk to the farmer and child was 3.4×10^{-9} and 1.5×10^{-9}, respectively. HIs were well below 1.0 for both receptors.

Risks and hazards associated with exposure to contaminants in homegrown produce for the RME farmer and resident child are given in Tables B.3.4-21(a) and B.3.4-21(b), respectively (Attachment III). The risk associated with homegrown produce for the RME farmer was 8.5×10^{-6} and for the child was 2.8×10^{-6}. This was due almost entirely to the estimated presence of arsenic in produce. HIs below 1.0 for both the farmer and the child.

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Risks and hazards associated with exposure to contaminants in beef and milk for the RME farmer and resident child are given in Table B.3.4-22(a) and B.3.4-22(b), respectively (Attachment III). The risk associated with beef and milk for the adult was 9.1×10^{-6} and for the child was 5.1×10^{-6}. This is largely due to the estimated uptake of the PAH, indeno(1,2,3-cd)pyrene, by livestock. HIs were below 1.0 for both receptors.

CT estimates of risk and hazard for the future on-property farmer associated with exposures to surface soil, groundwater, homegrown produce, and beef and milk, are given in Tables B.3.4-23, B.3.4-24, B.3.4-25 and B.3.4-26, respectively (Attachment III). Risks exceeding 1.0×10^{-6} were associated with exposures to surface soil (8.7×10^{-5}) due to external radiation from radium-228 and thorium-228.

B.3.4.4.4 Future On-Property Solid Waste Landfill Homebuilder

Risks and hazards for an on-property homebuilder exposed to contaminated subsurface and surface soils while building a home on the Solid Waste Landfill are given in Table B.3.4-27 (Attachment III). Total risk due to all CPCs by all routes of exposure was 5.1×10^{-6}. Although this risk is above the 1×10^{-6} risk level there was no individual CPC that accounted for the majority of the risk. Rather, this risk estimate is above the 1×10^{-6} risk level due to the additive risk from many CPCs with low risk estimates (10^{-7} or lower). External radiation from radioactive CPCs in soil was perhaps the greatest contributor to total risk (1.5×10^{-6}). Total HI for the homebuilder on the Solid Waste Landfill was 1.9. This was entirely due to a HI of 0.6 for ingestion of uranium-total in subsurface soil and 1.3 for dermal contact with uranium-total in subsurface soil.

B.3.4.4.5 Future On-Property Solid Waste Landfill Perched Groundwater User

Risks were calculated for a future on-property resident ingesting, dermally contacting, or inhaling contaminants predicted to be present in perched groundwater directly underlying the Solid Waste Landfill. Risks and hazards to the adult and child due to exposures to perched groundwater are given in Tables B.3.4-28(a) and B.3.4-28(b), respectively, (Attachment III). Total risk to the adult user was 5.3×10^{-3} due to the estimated presence of carbazole in perched groundwater. Total risk to the child was 1.1×10^{-3} due to the same compound. HIs were below 1.0 for both receptors.

B.3.4.4.6 Future Great Miami River User

Risks and hazards to a future adult and youth recreational user of the Great Miami River contacting surface water are given in Tables B.3.4-29(a) and B.3.4-29(b), respectively (Attachment III). Total carcinogenic risk is 9.6×10^{-11} and 4.8×10^{-11} for the adult and youth, respectively. Total HIs for both receptors were much less than 1.0.

Tables B.3.4-30(a) and B.3.4-30(b) (Attachment III) illustrate the risks and hazards associated with exposure to sediment at the confluence of Paddys Run and the Great Miami River. Total carcinogenic risk is 1.0×10^{-5} and 4.1×10^{-6} for the adult and youth, respectively. This was due mostly to radium-228, thorium-228, and uranium-238 external radiation exposures for the adult, and radium-228, and thorium-228 external radiation exposures for the youth. Total HI was less than 1.0 for both receptors.

B.3.4.4.7 Results of Modeled Indoor Air Radon Concentrations: Solid Waste Landfill

Ambient radon emission potentially associated with the Solid Waste Landfill, estimated as described in Section B.2.0, are summarized in Table B.3.4-31(a) for each receptor. Risks that would result at the Solid Waste Landfill, assuming radon emissions were equivalent to what would naturally occur if radium-226 were present at background concentrations, are presented for comparison. With the exception of the future on-property RME farmer, all subunit-specific risks are within or close to background.

Concentrations of indoor radon were estimated from Solid Waste Landfill subsurface soil radium-226 concentrations as described in Attachment II. The results shown in Table B.3.4-31(b) demonstrate little difference exists between potential carcinogenic risk to future residents dwelling either in a house constructed on a slab-type foundation or a house built with a basement. The future risk to the child resident of a house with slab foundation is 2.6×10^{-4}, with 3.1×10^{-4} risk to the CT resident, and 3.0×10^{-3} risk to an RME resident. The house with basement would present risks of 1.9×10^{-4} to the child, 2.3×10^{-4} to the CT resident, and 2.3×10^{-3} risks to an RME resident. Unlike the South Field indoor radon scenario, essentially no difference exists between the type of foundation constructed on the Solid Waste Landfill (see Table B.3.2.4.3-13, Attachment III). For comparisons, the risk to an RME resident exposed to the EPA action level for radon (4 pCi/L) (ASTDR 1990) is presented. The risk would be 1.1×10^{-2}.

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TABLE B.3.4-31(a)
SOLID WASTE LANDFILL
RISKS DUE TO ESTIMATED RA-222 EMISSION

	Subunit			Background		
	Maximum Ra-222 Air Concentration (pCi/m3)*	Intake (pCi)	Risk	Background Ra-222 Air Concentration (pCi/m3)**	Intake (pCi)	Risk
Current Trespassing Youth	1.6E+00	3.3E+03	2.6E-08	9.0E-01	1.9E+03	1.4E-08
Current/Future Off-Property Farmer	2.6E-02	3.0E+03	2.3E-08	1.5E-02	1.7E+03	1.3E-08
Current/Future Off-Property Child	2.6E-02	5.5E+01	4.3E-10	1.5E-02	3.1E+01	2.4E-10
Future Expanded Trespasser (Adult + Child)	1.6E+00	5.2E+03	4.0E-08	9.0E-01	2.9E+03	2.3E-08
Future, RME On-Property Farmer	1.6E+00	1.9E+05	1.4E-06	9.0E-01	1.0E+05	8.1E-07
Future, CT On-Property Farmer	1.6E+00	1.4E+04	1.1E-07	9.0E-01	7.8E+03	6.0E-08
Future, On-Property Child	1.6E+00	3.4E+03	2.6E-08	9.0E-01	1.9E+03	1.5E-08

*Represents subsurface soil Ra-226 estimate of 1.55 pCi/g.

**Assumes Ra-226 concentration is 1.228 pCi/g in surface soil and 0.78 pCi/g in subsurface soil.

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TABLE B.3.4-31B

CARCINOGENIC RISK ASSOCIATED WITH INDOOR RADON: SOLID WASTE LANDFILL[a]

Type Structure	RME	CT	Child	RME Risk-based on EPA Action Level[b]
House on Slab	3.0×10^{-3}	3.1×10^{-4}	2.6×10^{-4}	1.1×10^{-2}
House with Basement	2.3×10^{-3}	2.3×10^{-4}	1.9×10^{-4}	1.1×10^{-2}

[a]Results obtained from Indoor Radon Modeling Studies (Attachment I) using radon-226 concentrations in Solid Waste Landfill subsurface soil

[b]EPA Action level of 4 pCi/L (ASTDR 1990)

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B.3.4.5 Summary for Solid Waste Landfill

Tables B.3.4-32 and B.3.4-33 summarize risk and hazard, respectively, associated with the Solid Waste Landfill for receptors assuming current land use. Exposure of the trespassing youth to contaminated soil was associated with a total risk slightly greater than 1.0×10^{-5} due to external radiation from radium-228 and thorium-228 and to dermal contact with beryllium. HIs did not exceed 1.0 for any current receptor.

Total risk to the groundskeeper contacting air and soil was 2.4×10^{-5}. Dermal contact with beryllium accounts for 35 percent of total risk. In addition, external radiation from uranium-238, thorium-228, and radium-228 accounts for 10, 29, and 15 percent of total risk, respectively. Total hazard for this receptor did not exceed 1.0.

Tables B.3.4-34 and B.3.4-35 summarize risks and hazards, respectively, associated with the Solid Waste Landfill assuming future land use. Total risks barely exceeded 1.0×10^{-6} for future off-property farmer receptors. Risks were mostly due to the estimated presence of the naturally occurring radionuclides thorium-228, uranium-234, and uranium-238 in soil. Risks exceeded the 1.0×10^{-4} level for perched groundwater users. This was due mostly to the estimated presence of carbazole which accounted for 99.9 percent of total risk to this receptor. Risks exceeded 1.0×10^{-4} for the RME on-property farmer and child exposed to arsenic and beryllium in surface soil via dermal contact and ingestion; radium-228, uranium-238, and thorium-228 in surface soil via external radiation; and to the homebuilder exposed to these same compounds. Risks exceeded the 1.0×10^{-4} level for on-property residents ingesting produce or livestock products estimated to be contaminated with a PAH. These estimates, however, are highly uncertain. This is further discussed in Section B.4.0. Risk to recreational users of the Great Miami River was in the 1.0×10^{-6} to 1.0×10^{-5} range. Thorium-228 in sediment accounted for 46 percent of total risk to this receptor. Radium-228 and uranium-238 in sediment contributed 25 and 15 percent, respectively. HIs ranged from 1.5 to 3.3 for future on-property receptors due to the presence of uranium-total in soil.

B.3.5 LIME SLUDGE PONDS

B.3.5.1 Exposure Point Concentrations

Table B.3.5-1 summarizes the exposure scenarios evaluated to assess risks associated with the Lime Sludge Ponds. It also summarizes derivation of exposure concentration specific to this subunit. All

TABLE B.3.4-32
CURRENT LAND USE
SOLID WASTE LANDFILL
SUMMARY OF CARCINOGENIC RISK

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	1.5E-07	1.11%	0.93%	2.9E-14	0.00%	0.00%	5.3E-16	0.00%	0.00%
	NP-237	1.5E-07	1.13%	0.96%	1.9E-10	0.55%	0.41%	3.5E-12	0.44%	0.06%
	PU-238	2.8E-09	0.02%	0.02%	1.7E-10	0.50%	0.37%	3.1E-12	0.40%	0.05%
	PU-239/240	3.1E-10	0.00%	0.00%	1.8E-11	0.05%	0.04%	3.2E-13	0.04%	0.01%
	RA-226	7.4E-09	0.06%	0.05%	3.3E-11	0.09%	0.07%	5.9E-13	0.08%	0.01%
	RA-228	1.4E-06	10.53%	8.87%	6.6E-12	0.02%	0.01%	1.2E-13	0.02%	0.00%
	SR-90	5.4E-10	0.00%	0.00%	3.4E-13	0.00%	0.00%	6.1E-15	0.00%	0.00%
	TH-228	2.6E-06	19.65%	16.56%	7.3E-10	2.12%	1.58%	1.3E-11	1.68%	0.21%
	TH-230	2.6E-09	0.02%	0.02%	1.1E-09	3.12%	2.33%	1.9E-11	2.48%	0.32%
	TH-232	5.6E-10	0.00%	0.00%	2.4E-10	0.70%	0.52%	4.4E-12	0.56%	0.07%
	U-234	1.8E-08	0.13%	0.11%	6.3E-09	18.16%	13.56%	1.1E-10	14.46%	1.84%
	U-235/236	2.0E-07	1.51%	1.27%	4.1E-10	1.18%	0.88%	7.4E-12	0.94%	0.12%
	U-238	8.5E-07	6.43%	5.42%	2.3E-08	66.53%	49.68%	4.2E-10	52.96%	6.75%
	Total Radiological Risk	5.4E-06	40.61%	34.22%	3.2E-08	93.01%	69.46%	5.8E-10	74.04%	9.43%
	Arsenic	2.0E-07	1.48%	1.25%	3.2E-10	0.93%	0.70%	2.7E-11	3.47%	0.44%
	Beryllium	7.2E-06	54.50%	45.92%	1.9E-11	0.05%	0.04%	1.6E-12	0.20%	0.03%
	Chromium	3.6E-07	2.71%	2.29%	2.0E-09	5.88%	4.39%	1.7E-10	21.85%	2.78%
	4,4'-DDE	3.3E-09	0.02%	0.02%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	5.7E-09	0.04%	0.04%	1.1E-12	0.00%	0.00%	9.3E-14	0.01%	0.00%
	Benzo(a)pyrene	3.5E-08	0.27%	0.22%	6.6E-12	0.02%	0.01%	5.6E-13	0.07%	0.01%
	Benzo(b)fluoranthene	9.1E-09	0.07%	0.06%	1.7E-12	0.00%	0.00%	1.4E-13	0.02%	0.00%
	Benzo(k)fluoranthene	2.1E-09	0.02%	0.01%	9.1E-13	0.00%	0.00%	7.7E-14	0.01%	0.00%
	bis(2-Ethylhexyl) phthalate	1.7E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	2.2E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	2.1E-10	0.00%	0.00%	3.9E-14	0.00%	0.00%	3.3E-15	0.00%	0.00%
	Dibenzo(a,h)anthracene	2.3E-08	0.17%	0.15%	4.4E-12	0.01%	0.01%	3.7E-13	0.05%	0.01%
	Indeno(1,2,3-cd)pyrene	1.4E-08	0.10%	0.09%	2.6E-11	0.08%	0.06%	2.2E-12	0.28%	0.04%
	Total Chemical Risk	7.8E-06	59.39%	50.05%	2.4E-09	6.99%	5.22%	2.0E-10	25.96%	3.31%
	Total	1.3E-05	100.00%	84.26%	3.5E-08	100.00%	74.68%	7.9E-10	100.00%	12.74%
Surface Water	CS-137				N/A			N/A		
	NP-237				N/A			N/A		
	PU-238	1.3E-10	3.38%	0.00%	N/A			N/A		
	PU-239/240				N/A			N/A		
	RA-226				N/A			N/A		
	RA-228				N/A			N/A		
	SR-90				N/A			N/A		
	TH-228				N/A			N/A		
	TH-230				N/A			N/A		
	TH-232				N/A			N/A		
	U-234	8.1E-10	21.57%	0.01%	N/A			N/A		
	U-235/236	6.1E-11	1.63%	0.00%	N/A			N/A		
	U-238	1.7E-09	44.34%	0.01%	N/A			N/A		
	Total Radiological Risk	2.7E-09	70.92%	0.02%						
	bis(2-Ethylhexyl) phthalate	1.1E-09	29.08%	0.01%	N/A			N/A		
	Total Chemical Risk	1.1E-09	29.08%	0.01%						
	Total	3.8E-09	100.00%	0.02%						

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TABLE B.3.4-32
(continued)

Medium	Parameter	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Groundskeeper	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	N/A			4.0E-07	1.63%	1.63%
	NP-237	N/A			4.2E-07	1.72%	1.72%
	PU-238	N/A			1.6E-08	0.07%	0.07%
	PU-239/240	N/A			1.8E-09	0.01%	0.01%
	RA-226	N/A			2.8E-08	0.11%	0.11%
	RA-228	N/A			3.8E-06	15.51%	15.51%
	SR-90	N/A			3.0E-09	0.01%	0.01%
	TH-228	N/A			7.0E-06	28.91%	28.91%
	TH-230	N/A			1.7E-08	0.07%	0.07%
	TH-232	N/A			3.8E-09	0.02%	0.02%
	U-234	N/A			1.2E-07	0.48%	0.48%
	U-235/236	N/A			5.7E-07	2.33%	2.33%
	U-238	N/A			2.5E-06	10.44%	10.44%
	Total Radiological Risk				1.5E-05	61.32%	61.32%
	Arsenic	N/A			5.5E-08	0.23%	0.23%
	Beryllium	N/A			8.4E-06	34.76%	34.76%
	Chromium	N/A			8.9E-07	3.65%	3.65%
	4,4'-DDE	N/A			3.8E-09	0.02%	0.02%
	Benzo(a)anthracene	N/A			5.7E-10	0.00%	0.00%
	Benzo(a)pyrene	N/A			3.5E-09	0.01%	0.01%
	Benzo(b)fluoranthene	N/A			9.1E-10	0.00%	0.00%
	Benzo(k)fluoranthene	N/A			2.1E-10	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	N/A			9.3E-12	0.00%	0.00%
	Carbazole	N/A			2.2E-12	0.00%	0.00%
	Chrysene	N/A			2.1E-11	0.00%	0.00%
	Dibenzo(a,h)anthracene	N/A			2.3E-09	0.01%	0.01%
	Indeno(1,2,3-cd)pyrene	N/A			1.4E-09	0.01%	0.01%
	Total Chemical Risk				9.4E-06	38.68%	38.68%
	Total				2.4E-05	100.00%	100.00%
Surface Water	CS-137	N/A			N/A		
	NP-237	N/A			N/A		
	PU-238	N/A			N/A		
	PU-239/240	N/A			N/A		
	RA-226	N/A			N/A		
	RA-228	N/A			N/A		
	SR-90	N/A			N/A		
	TH-228	N/A			N/A		
	TH-230	N/A			N/A		
	TH-232	N/A			N/A		
	U-234	N/A			N/A		
	U-235/236	N/A			N/A		
	U-238	N/A			N/A		
	Total Radiological Risk						
	bis(2-Ethylhexyl) phthalate	N/A			N/A		
	Total Chemical Risk						
	Total						

TABLE B.3.4-32
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Sediment	CS-137							N/A		
	NP-237	7.8E-08	3.17%	0.50%	N/A			N/A		
	PU-238	1.2E-10	0.01%	0.00%	N/A			N/A		
	PU-239/240	1.4E-10	0.01%	0.00%	N/A			N/A		
	RA-226	5.1E-09	0.21%	0.03%	N/A			N/A		
	RA-228	8.9E-07	35.95%	5.65%	N/A			N/A		
	SR-90	5.6E-10	0.02%	0.00%	N/A			N/A		
	TH-228	1.2E-06	47.30%	7.43%	N/A			N/A		
	TH-230	2.3E-10	0.01%	0.00%	N/A			N/A		
	TH-232	1.1E-10	0.00%	0.00%	N/A			N/A		
	U-234	1.1E-09	0.04%	0.01%	N/A			N/A		
	U-235/236	1.7E-08	0.70%	0.11%	N/A			N/A		
	U-238	7.3E-08	2.95%	0.46%	N/A			N/A		
	Total Radiological Risk	2.2E-06	90.36%	14.20%						
	Benzo(a)anthracene	7.8E-09	0.32%	0.05%	N/A			N/A		
	Benzo(a)pyrene	5.7E-08	2.31%	0.36%	N/A			N/A		
	Benzo(b)fluoranthene	9.3E-09	0.38%	0.06%	N/A			N/A		
	Benzo(k)fluoranthene	1.5E-09	0.06%	0.01%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.8E-11	0.00%	0.00%	N/A			N/A		
	Chrysene	2.3E-10	0.01%	0.00%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	8.8E-09	0.36%	0.06%	N/A			N/A		
	Arsenic	1.5E-07	6.20%	0.97%	N/A			N/A		
	Total Chemical Risk	2.4E-07	9.64%	1.51%						
	Total	2.5E-06	100.00%	15.71%						
Homegrown Produce (Dust Affected)	CS-137	N/A			6.0E-13	0.01%	0.00%	4.5E-14	0.00%	0.00%
	NP-237	N/A			2.1E-11	0.40%	0.05%	1.6E-12	0.09%	0.03%
	PU-238	N/A			1.3E-11	0.25%	0.03%	9.9E-13	0.06%	0.02%
	PU-239/240	N/A			1.5E-12	0.03%	0.00%	1.1E-13	0.01%	0.00%
	RA-226	N/A			1.8E-11	0.34%	0.04%	1.3E-12	0.08%	0.02%
	RA-228	N/A			1.3E-11	0.25%	0.03%	9.9E-13	0.06%	0.02%
	SR-90	N/A			3.2E-12	0.06%	0.01%	2.4E-13	0.01%	0.00%
	TH-228	N/A			7.0E-12	0.13%	0.02%	5.2E-13	0.03%	0.01%
	TH-230	N/A			6.6E-12	0.13%	0.01%	4.9E-13	0.03%	0.01%
	TH-232	N/A			1.4E-12	0.03%	0.00%	1.1E-13	0.01%	0.00%
	U-234	N/A			5.3E-11	1.00%	0.11%	4.0E-12	0.23%	0.06%
	U-235/236	N/A			3.5E-12	0.07%	0.01%	2.6E-13	0.01%	0.00%
	U-238	N/A			1.7E-10	3.22%	0.37%	1.3E-11	0.72%	0.21%
	Total Radiological Risk				3.1E-10	5.92%	0.68%	2.3E-11	1.33%	0.38%

TABLE B.3.4-32
(continued)

Medium	Parameter	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
	CS-137	N/A			N/A		
Sediment	NP-237	N/A			N/A		
	PU-238	N/A			N/A		
	PU-239/240	N/A			N/A		
	RA-226	N/A			N/A		
	RA-228	N/A			N/A		
	SR-90	N/A			N/A		
	TH-228	N/A			N/A		
	TH-230	N/A			N/A		
	TH-232	N/A			N/A		
	U-234	N/A			N/A		
	U-235/236	N/A			N/A		
	U-238	N/A			N/A		
	Total Radiological Risk						
	Benzo(a)anthracene	N/A			N/A		
	Benzo(a)pyrene	N/A			N/A		
	Benzo(b)fluoranthene	N/A			N/A		
	Benzo(k)fluoranthene	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	N/A			N/A		
	Chrysene	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	N/A			N/A		
	Arsenic	N/A			N/A		
	Total Chemical Risk						
	Total						
Homegrown Produce (Dust Affected)	CS-137	N/A			N/A		
	NP-237	N/A			N/A		
	PU-238	N/A			N/A		
	PU-239/240	N/A			N/A		
	RA-226	N/A			N/A		
	RA-228	N/A			N/A		
	SR-90	N/A			N/A		
	TH-228	N/A			N/A		
	TH-230	N/A			N/A		
	TH-232	N/A			N/A		
	U-234	N/A			N/A		
	U-235/236	N/A			N/A		
	U-238	N/A			N/A		
	Total Radiological Risk						

TABLE B.3.4-32
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected) *(continued)*	Arsenic	N/A			4.5E-09	84.80%	9.70%	1.6E-09	88.93%	25.28%
	Beryllium	N/A			2.6E-10	4.89%	0.56%	9.0E-11	5.13%	1.46%
	Benzo(a)anthracene	N/A			1.5E-11	0.28%	0.03%	5.1E-12	0.29%	0.08%
	Benzo(a)pyrene	N/A			8.8E-11	1.67%	0.19%	3.1E-11	1.75%	0.50%
	Benzo(b)fluoranthene	N/A			2.3E-11	0.43%	0.05%	7.9E-12	0.45%	0.13%
	Benzo(k)fluoranthene	N/A			1.2E-11	0.23%	0.03%	4.3E-12	0.25%	0.07%
	Chrysene	N/A			5.3E-13	0.01%	0.00%	1.8E-13	0.01%	0.00%
	Dibenzo(a,h)anthracene	N/A			5.9E-11	1.11%	0.13%	2.0E-11	1.16%	0.33%
	Indeno(1,2,3-cd)pyrene	N/A			3.5E-11	0.66%	0.08%	1.2E-11	0.70%	0.20%
	Total Chemical Risk				5.0E-09	94.08%	10.77%	1.7E-09	98.67%	28.04%
	Total				5.3E-09	100.00%	11.44%	1.8E-09	100.00%	28.42%
Beef/Milk (Dust Affected)	CS-137	N/A			2.3E-12	0.04%	0.00%	2.9E-13	0.01%	0.00%
	NP-237	N/A			1.2E-13	0.00%	0.00%	9.4E-15	0.00%	0.00%
	PU-238	N/A			9.6E-16	0.00%	0.00%	1.0E-16	0.00%	0.00%
	PU-239/240	N/A			1.1E-16	0.00%	0.00%	1.1E-17	0.00%	0.00%
	RA-226	N/A			2.9E-12	0.05%	0.01%	5.1E-13	0.01%	0.01%
	RA-228	N/A			2.1E-12	0.03%	0.00%	3.7E-13	0.01%	0.01%
	SR-90	N/A			1.4E-12	0.02%	0.00%	2.6E-13	0.01%	0.00%
	TH-228	N/A			1.3E-14	0.00%	0.00%	2.1E-15	0.00%	0.00%
	TH-230	N/A			1.4E-14	0.00%	0.00%	2.2E-15	0.00%	0.00%
	TH-232	N/A			3.0E-15	0.00%	0.00%	4.7E-16	0.00%	0.00%
	U-234	N/A			1.1E-11	0.17%	0.02%	2.0E-12	0.06%	0.03%
	U-235/236	N/A			7.4E-13	0.01%	0.00%	1.4E-13	0.00%	0.00%
	U-238	N/A			3.5E-11	0.55%	0.08%	6.4E-12	0.18%	0.10%
	Total Radiological Risk				5.6E-11	0.87%	0.12%	1.0E-11	0.28%	0.16%
	Arsenic	N/A			9.2E-11	1.44%	0.20%	2.2E-11	0.60%	0.35%
	Beryllium	N/A			1.1E-11	0.17%	0.02%	1.7E-12	0.05%	0.03%
	4,4'-DDE	N/A			7.6E-13	0.01%	0.00%	6.5E-13	0.02%	0.01%
	Benzo(a)anthracene	N/A			2.0E-11	0.31%	0.04%	1.2E-11	0.32%	0.19%
	Benzo(a)pyrene	N/A			2.8E-10	4.36%	0.60%	1.6E-10	4.43%	2.60%
	Benzo(b)fluoranthene	N/A			2.8E-10	4.38%	0.61%	1.6E-10	4.45%	2.62%
	Benzo(k)fluoranthene	N/A			3.0E-10	4.69%	0.65%	1.7E-10	4.76%	2.80%
	bis(2-Ethylhexyl) phthalate	N/A			1.4E-15	0.00%	0.00%	8.2E-16	0.00%	0.00%
	Carbazole	N/A			1.3E-13	0.00%	0.00%	7.3E-14	0.00%	0.00%
	Chrysene	N/A			6.9E-13	0.01%	0.00%	4.0E-13	0.01%	0.01%
	Dibenzo(a,h)anthracene	N/A			1.8E-10	2.80%	0.39%	1.0E-10	2.85%	1.68%
	Indeno(1,2,3-cd)pyrene	N/A			5.2E-09	80.96%	11.23%	3.0E-09	82.25%	48.39%
	Total Chemical Risk				6.4E-09	99.13%	13.76%	3.6E-09	99.72%	58.67%
	Total				6.4E-09	100.00%	13.88%	3.6E-09	100.00%	58.84%
ALL MEDIA		**1.6E-05**			**4.6E-08**			**6.2E-09**		

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TABLE B.3.4-32
(continued)

Medium	Parameter	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected) *(continued)*	Arsenic	N/A			N/A		
	Beryllium	N/A			N/A		
	Benzo(a)anthracene	N/A			N/A		
	Benzo(a)pyrene	N/A			N/A		
	Benzo(b)fluoranthene	N/A			N/A		
	Benzo(k)fluoranthene	N/A			N/A		
	Chrysene	N/A			N/A		
	Dibenzo(a,h)anthracene	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	N/A			N/A		
	Total Chemical Risk						
	Total						
Beef/Milk (Dust Affected)	CS-137	1.4E-10	0.04%	0.04%	N/A		
	NP-237	7.5E-12	0.00%	0.00%	N/A		
	PU-238	5.8E-14	0.00%	0.00%	N/A		
	PU-239/240	6.4E-15	0.00%	0.00%	N/A		
	RA-226	1.8E-10	0.05%	0.05%	N/A		
	RA-228	1.3E-10	0.03%	0.03%	N/A		
	SR-90	8.4E-11	0.02%	0.02%	N/A		
	TH-228	8.0E-13	0.00%	0.00%	N/A		
	TH-230	8.3E-13	0.00%	0.00%	N/A		
	TH-232	1.8E-13	0.00%	0.00%	N/A		
	U-234	6.7E-10	0.17%	0.17%	N/A		
	U-235/236	4.5E-11	0.01%	0.01%	N/A		
	U-238	2.1E-09	0.55%	0.55%	N/A		
	Total Radiological Risk	3.4E-09	0.87%	0.87%			
	Arsenic	5.6E-09	1.43%	1.43%	N/A		
	Beryllium	6.4E-10	0.17%	0.17%	N/A		
	4,4'-DDE	4.6E-11	0.01%	0.01%	N/A		
	Benzo(a)anthracene	1.2E-09	0.31%	0.31%	N/A		
	Benzo(a)pyrene	1.7E-08	4.36%	4.36%	N/A		
	Benzo(b)fluoranthene	1.7E-08	4.37%	4.37%	N/A		
	Benzo(k)fluoranthene	1.8E-08	4.69%	4.69%	N/A		
	bis(2-Ethylhexyl) phthalate	8.6E-14	0.00%	0.00%	N/A		
	Carbazole	7.6E-12	0.00%	0.00%	N/A		
	Chrysene	4.2E-11	0.01%	0.01%	N/A		
	Dibenzo(a,h)anthracene	1.1E-08	2.80%	2.80%	N/A		
	Indeno(1,2,3-cd)pyrene	3.1E-07	80.98%	80.98%	N/A		
	Total Chemical Risk	3.8E-07	99.13%	99.13%			
	Total	3.9E-07	100.00%	100.00%			
ALL MEDIA		**3.9E-07**			**2.4E-05**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.4-33
CURRENT LAND USE
SOLID WASTE LANDFILL
SUMMARY OF NON-CARCINOGENIC HAZARD

Medium	Parameter	Trespassing Youth	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	User of Milk and Meat	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	2.2E-03	0.69%	0.55%	0.0E+00		0.00%	0.0E+00		0.00%	N/A		
	Beryllium	2.0E-03	0.62%	0.50%	0.0E+00		0.00%	0.0E+00		0.00%	N/A		
	Cadmium	2.4E-03	0.77%	0.62%	0.0E+00		0.00%	0.0E+00		0.00%	N/A		
	Chromium	9.4E-02	29.85%	23.97%	0.0E+00		0.00%	0.0E+00		0.00%	N/A		
	U-TOTAL	2.2E-01	68.07%	54.66%	0.0E+00		0.00%	0.0E+00		0.00%	N/A		
	Total	3.2E-01	100.00%	80.30%									
Surface Water	bis(2-Ethylhexyl) phthalate	2.3E-05	1.91%	0.01%	N/A			N/A			N/A		
	Manganese	1.0E-04	8.45%	0.03%	N/A			N/A			N/A		
	U-TOTAL	1.1E-03	89.64%	0.27%	N/A			N/A			N/A		
	Total	1.2E-03	100.00%	0.30%									
Sediment	bis(2-Ethylhexyl) phthalate	3.7E-07	0.00%	0.00%	N/A			N/A			N/A		
	Fluoranthene	3.1E-04	0.41%	0.08%	N/A			N/A			N/A		
	Pyrene	2.9E-04	0.38%	0.07%	N/A			N/A			N/A		
	Arsenic	1.7E-03	2.22%	0.43%	N/A			N/A			N/A		
	Chromium	8.3E-04	1.09%	0.21%	N/A			N/A			N/A		
	Manganese	5.0E-02	65.67%	12.74%	N/A			N/A			N/A		
	Thallium	2.3E-03	2.97%	0.58%	N/A			N/A			N/A		
	U-TOTAL	2.1E-02	27.26%	5.29%	N/A			N/A			N/A		
	Total	7.6E-02	100.00%	19.40%									
Homegrown Produce	Arsenic	N/A			9.9E-07	22.17%	18.06%	4.0E-06	22.17%	15.24%	N/A		
	Beryllium	N/A			6.2E-09	0.14%	0.11%	2.5E-08	0.14%	0.09%	N/A		
	Cadmium	N/A			4.4E-08	0.99%	0.81%	1.8E-07	0.99%	0.68%	N/A		
	Chromium	N/A			1.4E-07	3.05%	2.48%	5.5E-07	3.05%	2.10%	N/A		
	U-TOTAL	N/A			3.3E-06	73.65%	60.00%	1.3E-05	73.65%	50.65%	N/A		
	Total				4.5E-06	100.00%	81.46%	1.8E-05	100.00%	68.76%			
Beef/Milk	Arsenic	N/A			1.8E-07	17.29%	3.20%	4.8E-07	5.86%	1.83%	1.1E-05	17.23%	17.23%
	Beryllium	N/A			4.9E-10	0.05%	0.01%	9.1E-10	0.01%	0.00%	3.0E-08	0.05%	0.05%
	Cadmium	N/A			3.1E-08	3.04%	0.56%	1.7E-07	2.07%	0.65%	1.9E-06	3.04%	3.04%
	Chromium	N/A			1.3E-07	12.33%	2.29%	8.0E-07	9.72%	3.04%	7.6E-06	12.32%	12.32%
	U-TOTAL	N/A			6.8E-07	67.30%	12.48%	6.8E-06	82.34%	25.72%	4.1E-05	67.36%	67.36%
	bis(2-Ethylhexyl) phthalate	N/A			5.1E-12	0.00%	0.00%	3.4E-11	0.00%	0.00%	3.1E-10	0.00%	0.00%
	Total				1.0E-06	100.00%	18.54%	8.2E-06	100.00%	31.24%	6.1E-05	100.00%	100.00%
ALL MEDIA		3.9E-01			5.5E-06			2.6E-05			6.1E-05		

TABLE B.3.4-33
(current)

Medium	Parameter	Grounds-keeper	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	3.2E-03	2.39%	2.39%
	Beryllium	1.1E-03	0.83%	0.83%
	Cadmium	1.5E-03	1.08%	1.08%
	Chromium	9.6E-04	0.71%	0.71%
	U-TOTAL	1.3E-01	95.00%	95.00%
	Total	1.4E-01	100.00%	100.00%
Surface Water	bis(2-Ethylhexyl) phthalate	N/A		
	Manganese	N/A		
	U-TOTAL	N/A		
	Total			
Sediment	bis(2-Ethylhexyl) phthalate	N/A		
	Fluoranthene	N/A		
	Pyrene	N/A		
	Arsenic	N/A		
	Chromium	N/A		
	Manganese	N/A		
	Thallium	N/A		
	U-TOTAL	N/A		
	Total			
Homegrown Produce	Arsenic	N/A		
	Beryllium	N/A		
	Cadmium	N/A		
	Chromium	N/A		
	U-TOTAL	N/A		
	Total			
Beef/Milk	Arsenic	N/A		
	Beryllium	N/A		
	Cadmium	N/A		
	Chromium	N/A		
	U-TOTAL	N/A		
	bis(2-Ethylhexyl) phthalate	N/A		
	Total			
ALL MEDIA		**1.4E-01**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.4-34
FUTURE LAND USE
SOLID WASTE LANDFILL
SUMMARY OF OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	2.0E-07	0.49%	0.46%	8.8E-13	0.00%	0.00%	1.6E-14	0.00%	0.00%	2.1E-05	1.88%	1.85%	2.0E-06	2.35%	2.32%
	NP-237	2.1E-07	0.51%	0.48%	6.0E-09	0.57%	0.45%	1.1E-10	0.45%	0.07%	2.3E-05	2.00%	1.97%	2.1E-06	2.46%	2.42%
	PB-210			0.00%			0.00%			0.00%			0.00%			0.00%
	PU-238	9.8E-09	0.02%	0.02%	5.2E-09	0.50%	0.40%	9.5E-11	0.40%	0.06%	1.1E-06	0.09%	0.09%	7.5E-08	0.09%	0.08%
	PU-239/240	1.0E-09	0.00%	0.00%	5.4E-10	0.05%	0.04%	9.8E-12	0.04%	0.01%	1.2E-07	0.01%	0.01%	8.2E-09	0.01%	0.01%
	RA-224			0.00%			0.00%			0.00%			0.00%			0.00%
	RA-226	8.4E-09	0.02%	0.02%	9.9E-10	0.09%	0.07%	1.8E-11	0.08%	0.01%	1.5E-06	0.13%	0.13%	1.2E-07	0.14%	0.14%
	RA-228	1.9E-06	4.65%	4.37%	2.0E-09	0.19%	0.15%	3.7E-11	0.15%	0.02%	2.0E-04	17.87%	17.59%	1.9E-05	22.32%	22.04%
	SR-90	2.1E-11	0.00%	0.00%	1.0E-11	0.00%	0.00%	1.9E-13	0.00%	0.00%	1.5E-07	0.01%	0.01%	1.0E-08	0.01%	0.01%
	TC-99			0.00%			0.00%			0.00%			0.00%			0.00%
	TH-228	3.6E-06	8.79%	8.26%	2.2E-08	2.10%	1.66%	4.0E-10	1.67%	0.27%	3.8E-04	33.40%	32.89%	3.6E-05	41.72%	41.21%
	TH-230	6.1E-08	0.15%	0.14%	3.3E-08	3.10%	2.46%	5.9E-10	2.48%	0.40%	2.4E-06	0.21%	0.20%	1.7E-07	0.20%	0.20%
	TH-232	1.4E-08	0.03%	0.03%	7.4E-09	0.70%	0.56%	1.3E-10	0.56%	0.09%	5.3E-07	0.05%	0.05%	3.9E-08	0.04%	0.04%
	U-234	3.6E-07	0.87%	0.81%	1.9E-07	18.12%	14.37%	3.5E-09	14.46%	2.32%	1.5E-05	1.28%	1.26%	1.1E-06	1.22%	1.21%
	U-235			0.00%			0.00%			0.00%			0.00%			0.00%
	U-235/236	2.9E-07	0.71%	0.66%	1.2E-08	1.17%	0.93%	2.2E-10	0.94%	0.15%	2.9E-05	2.57%	2.53%	2.8E-06	3.19%	3.15%
	U-238	2.4E-06	5.82%	5.47%	7.0E-07	66.50%	52.77%	1.3E-08	53.07%	8.50%	1.7E-04	14.70%	14.47%	1.5E-05	17.04%	16.83%
	Total Radiological Risk	9.1E-06	22.06%	20.73%	9.8E-07	93.10%	73.87%	1.8E-08	74.30%	11.90%	8.4E-04	74.20%	73.07%	7.9E-05	90.79%	89.67%
	Arsenic	4.6E-07	1.13%	1.06%	9.8E-09	0.93%	0.74%	8.3E-10	3.47%	0.56%	3.0E-05	2.67%	2.63%	2.0E-06	2.33%	2.30%
	Beryllium	3.1E-05	75.98%	71.41%	5.8E-10	0.05%	0.04%	4.9E-11	0.20%	0.03%	2.4E-04	21.43%	21.11%	4.7E-06	5.34%	5.28%
	Chromium	1.6E-07	0.39%	0.37%	6.2E-08	5.86%	4.65%	5.2E-09	21.84%	3.50%	3.7E-06	0.33%	0.32%	2.8E-07	0.32%	0.32%
	4,4'-DDD			0.00%			0.00%			0.00%			0.00%			0.00%
	4,4'-DDE	1.4E-08	0.03%	0.03%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.2E-07	0.01%	0.01%	2.6E-09	0.00%	0.00%
	Aroclor-1254			0.00%			0.00%			0.00%			0.00%			0.00%
	Aroclor-1260			0.00%			0.00%			0.00%			0.00%			0.00%
	Benzo(a)anthracene	1.1E-08	0.03%	0.02%	3.3E-11	0.00%	0.00%	2.8E-12	0.01%	0.00%	9.9E-07	0.09%	0.09%	6.8E-08	0.08%	0.08%
	Benzo(a)pyrene	6.7E-08	0.16%	0.15%	2.0E-10	0.02%	0.02%	1.7E-11	0.07%	0.01%	6.1E-06	0.54%	0.53%	4.2E-07	0.48%	0.48%
	Benzo(b)fluoranthene	1.7E-08	0.04%	0.04%	5.2E-11	0.00%	0.00%	4.4E-12	0.02%	0.00%	1.6E-06	0.14%	0.14%	1.1E-07	0.12%	0.12%
	Benzo(k)fluoranthene	4.0E-09	0.01%	0.01%	2.8E-11	0.00%	0.00%	2.3E-12	0.01%	0.00%	3.6E-07	0.03%	0.03%	2.5E-08	0.03%	0.03%
	bis(2-Ethylhexyl) phthalate	4.9E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.9E-09	0.00%	0.00%	1.2E-10	0.00%	0.00%
	Carbazole	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	3.8E-09	0.00%	0.00%	2.6E-10	0.00%	0.00%
	Chrysene	3.9E-10	0.00%	0.00%	1.2E-12	0.00%	0.00%	1.0E-13	0.00%	0.00%	3.6E-08	0.00%	0.00%	2.5E-09	0.00%	0.00%
	Dibenzo(a,h)anthracene	4.4E-08	0.11%	0.10%	1.3E-10	0.01%	0.01%	1.1E-11	0.05%	0.01%	4.0E-06	0.35%	0.35%	2.7E-07	0.31%	0.31%
	Indeno(1,2,3-cd)pyrene	2.6E-08	0.06%	0.06%	7.9E-11	0.01%	0.01%	6.7E-12	0.03%	0.00%	2.4E-06	0.21%	0.21%	1.6E-07	0.19%	0.18%
	1,4-Dioxane			0.00%			0.00%			0.00%			0.00%			0.00%
	Benzene			0.00%			0.00%			0.00%			0.00%			0.00%
	Methylene chloride			0.00%			0.00%			0.00%			0.00%			0.00%
	Tetrachloroethene			0.00%			0.00%			0.00%			0.00%			0.00%
	Total Chemical Risk	1.7E-07	77.94%	73.25%	5.3E-10	6.90%	5.47%	4.5E-11	25.70%	4.11%	1.5E-05	25.80%	25.41%	1.1E-06	9.21%	9.10%
	Total	9.3E-06	100.00%	93.98%	9.8E-07	100.00%	79.35%	1.8E-08	100.00%	16.01%	8.6E-04	100.00%	98.48%	8.0E-05	100.00%	98.77%

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TABLE B.3.4-34
(continued)

Medium	Parameter	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-builder	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater User	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	1.6E-06	1.38%	1.29%	2.2E-08	0.42%	0.42%	N/A			N/A			N/A			N/A		
	NP-237	1.7E-06	1.47%	1.37%	9.1E-09	0.18%	0.18%	N/A			N/A			N/A			N/A		
	PB-210			0.00%	1.7E-08	0.33%	0.33%	N/A			N/A			N/A			N/A		
	PU-238	7.7E-08	0.07%	0.06%	2.8E-09	0.05%	0.05%	N/A			N/A			N/A			N/A		
	PU-239/240	8.5E-09	0.01%	0.01%	5.9E-09	0.11%	0.11%	N/A			N/A			N/A			N/A		
	RA-224			0.00%	4.3E-09	0.08%	0.08%	N/A			N/A			N/A			N/A		
	RA-226	1.2E-07	0.11%	0.10%	5.6E-09	0.11%	0.11%	N/A			N/A			N/A			N/A		
	RA-228	1.5E-05	13.08%	12.25%	3.2E-07	6.34%	6.34%	N/A			N/A			N/A			N/A		
	SR-90	1.4E-08	0.01%	0.01%	1.4E-09	0.03%	0.03%	N/A			N/A			N/A			N/A		
	TC-99			0.00%	1.4E-11	0.00%	0.00%	N/A			N/A			N/A			N/A		
	TH-228	2.8E-05	24.38%	22.83%	8.4E-07	16.40%	16.40%	N/A			N/A			N/A			N/A		
	TH-230	7.2E-08	0.06%	0.06%	3.3E-08	0.64%	0.64%	N/A			N/A			N/A			N/A		
	TH-232	1.6E-08	0.01%	0.01%	9.2E-09	0.18%	0.18%	N/A			N/A			N/A			N/A		
	U-234	5.0E-07	0.43%	0.40%	2.4E-07	4.74%	4.74%	N/A			N/A			N/A			N/A		
	U-235			0.00%	2.4E-08	0.47%	0.47%	N/A			N/A			N/A			N/A		
	U-235/236	2.2E-06	1.85%	1.73%	1.0E-07	2.00%	2.00%	N/A			N/A			N/A			N/A		
	U-238	1.0E-05	8.85%	8.29%	1.1E-06	21.41%	21.41%	N/A			N/A			N/A			N/A		
	Total Radiological Risk	6.0E-05	51.69%	48.41%	2.7E-06	53.49%	53.49%												
	Arsenic	1.3E-05	11.12%	10.41%	3.4E-07	6.60%	6.60%	N/A			N/A			N/A			N/A		
	Beryllium	3.6E-05	31.01%	29.04%	8.1E-07	15.75%	15.75%	N/A			N/A			N/A			N/A		
	Chromium	3.2E-07	0.27%	0.25%	3.8E-08	0.73%	0.73%	N/A			N/A			N/A			N/A		
	4,4'-DDD			0.00%	1.3E-11	0.00%	0.00%	N/A			N/A			N/A			N/A		
	4,4'-DDE	1.9E-08	0.02%	0.02%			0.00%	N/A			N/A			N/A			N/A		
	Aroclor-1254			0.00%	3.0E-08	0.59%	0.59%	N/A			N/A			N/A			N/A		
	Aroclor-1260			0.00%	4.8E-08	0.94%	0.94%	N/A			N/A			N/A			N/A		
	Benzo(a)anthracene	4.4E-07	0.38%	0.35%	1.1E-07	2.17%	2.17%	N/A			N/A			N/A			N/A		
	Benzo(a)pyrene	2.7E-06	2.33%	2.18%	8.1E-07	15.76%	15.76%	N/A			N/A			N/A			N/A		
	Benzo(b)fluoranthene	7.0E-07	0.60%	0.56%	1.8E-08	0.36%	0.36%	N/A			N/A			N/A			N/A		
	Benzo(k)fluoranthene	1.6E-07	0.14%	0.13%	3.8E-09	0.07%	0.07%	N/A			N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	7.7E-10	0.00%	0.00%	3.4E-10	0.01%	0.01%	N/A			N/A			N/A			N/A		
	Carbazole	0.0E+00	0.00%	0.00%	1.1E-09	0.02%	0.02%	N/A			N/A			N/A			N/A		
	Chrysene	1.6E-08	0.01%	0.01%	2.4E-09	0.05%	0.05%	N/A			N/A			N/A			N/A		
	Dibenzo(a,h)anthracene	1.8E-06	1.52%	1.43%	2.7E-08	0.53%	0.53%	N/A			N/A			N/A			N/A		
	Indeno(1,2,3-cd)pyrene	1.1E-06	0.90%	0.84%	1.5E-07	2.90%	2.90%	N/A			N/A			N/A			N/A		
	1,4-Dioxane			0.00%	1.9E-09	0.04%	0.04%	N/A			N/A			N/A			N/A		
	Benzene			0.00%	1.2E-12	0.00%	0.00%	N/A			N/A			N/A			N/A		
	Methylene chloride			0.00%	3.5E-12	0.00%	0.00%	N/A			N/A			N/A			N/A		
	Tetrachloroethene			0.00%	4.4E-12	0.00%	0.00%	N/A			N/A			N/A			N/A		
	Total Chemical Risk	6.9E-06	48.30%	45.23%	1.1E-06	46.51%	46.51%												
	Total	6.7E-05	100.00%	93.64%	3.9E-06	100.00%	100.00%												

TABLE B.3.4-34
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk
Sediment	CS-137				N/A			N/A			N/A			N/A		
	NP-237	5.7E-08	2.25%	0.13%	N/A			N/A			N/A			N/A		
	PU-238	2.1E-10	0.01%	0.00%	N/A			N/A			N/A			N/A		
	PU-239/240	2.4E-10	0.01%	0.00%	N/A			N/A			N/A			N/A		
	RA-226	5.5E-09	0.21%	0.01%	N/A			N/A			N/A			N/A		
	RA-228	6.3E-07	24.62%	1.43%	N/A			N/A			N/A			N/A		
	SR-90	9.6E-10	0.04%	0.00%	N/A			N/A			N/A			N/A		
	TH-228	8.2E-07	32.33%	1.88%	N/A			N/A			N/A			N/A		
	TH-230	3.8E-10	0.01%	0.00%	N/A			N/A			N/A			N/A		
	TH-232	1.9E-10	0.01%	0.00%	N/A			N/A			N/A			N/A		
	U-234	1.8E-09	0.07%	0.00%	N/A			N/A			N/A			N/A		
	U-235/236	1.2E-08	0.48%	0.03%	N/A			N/A			N/A			N/A		
	U-238	5.4E-08	2.13%	0.12%	N/A			N/A			N/A			N/A		
	Total Radiological Risk	1.6E-06	62.18%	3.61%												
	Benzo(a)anthracene	9.4E-09	0.37%	0.02%	N/A			N/A			N/A			N/A		
	Benzo(a)pyrene	6.9E-08	2.70%	0.16%	N/A			N/A			N/A			N/A		
	Benzo(b)fluoranthene	1.1E-08	0.44%	0.03%	N/A			N/A			N/A			N/A		
	Benzo(k)fluoranthene	1.8E-09	0.07%	0.00%	N/A			N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	3.6E-11	0.00%	0.00%	N/A			N/A			N/A			N/A		
	Chrysene	2.8E-10	0.01%	0.00%	N/A			N/A			N/A			N/A		
	Indeno(1,2,3-cd)pyrene	1.1E-08	0.42%	0.02%	N/A			N/A			N/A			N/A		
	Arsenic	8.6E-07	33.81%	1.96%	N/A			N/A			N/A			N/A		
	Total Chemical Risk	9.6E-07	37.82%	2.20%												
	Total	2.5E-06	100.00%	5.81%												
Surface Water	CS-137															
	NP-237															
	PU-238	3.2E-09	3.49%	0.01%	N/A			N/A			N/A			N/A		
	PU-239/240															
	RA-226															
	RA-228															
	SR-90															
	TH-228															
	TH-230															
	TH-232															
	U-234	2.1E-08	22.27%	0.05%	N/A			N/A			N/A			N/A		
	U-235/236	1.5E-09	1.63%	0.00%	N/A			N/A			N/A			N/A		
	U-238	4.2E-08	45.78%	0.10%	N/A			N/A			N/A			N/A		
	Total Radiological Risk	6.8E-08	73.17%	0.15%												
	bis(2-Ethylhexyl) phthalate	2.5E-08	26.83%	0.06%	N/A			N/A			N/A			N/A		
	Total Chemical Risk	2.5E-08	26.83%	0.06%												
	Total	9.3E-08	100.00%	0.21%												
Groundwater	TC-99	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total Radiological Risk				0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
Perched Groundwater	TC-99	N/A			N/A			N/A			N/A			N/A		
	Carbazole															
	Total Radiological Risk															

TABLE B.3.4-34
(continued)

Medium	Parameter	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-builder	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater User	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Sediment	CS-137	N/A			N/A			N/A						2.7E-07	2.66%	2.65%	1.1E-07	2.62%	2.60%
	NP-237	N/A			N/A			N/A			N/A			2.8E-07	2.73%	2.72%	1.1E-07	2.68%	2.67%
	PU-238	N/A			N/A			N/A			N/A			5.1E-09	0.05%	0.05%	2.0E-09	0.05%	0.05%
	PU-239/240	N/A			N/A			N/A			N/A			5.7E-10	0.01%	0.01%	2.3E-10	0.01%	0.01%
	RA-226	N/A			N/A			N/A			N/A			1.4E-08	0.14%	0.14%	5.5E-09	0.13%	0.13%
	RA-228	N/A			N/A			N/A			N/A			2.6E-06	25.30%	25.17%	1.0E-06	24.86%	24.73%
	SR-90	N/A			N/A			N/A			N/A			1.0E-09	0.01%	0.01%	4.1E-10	0.01%	0.01%
	TH-228	N/A			N/A			N/A			N/A			4.8E-06	47.13%	46.88%	1.9E-06	46.31%	46.06%
	TH-230	N/A			N/A			N/A			N/A			2.7E-09	0.03%	0.03%	1.1E-09	0.03%	0.03%
	TH-232	N/A			N/A			N/A			N/A			5.6E-10	0.01%	0.01%	2.3E-10	0.01%	0.01%
	U-234	N/A			N/A			N/A			N/A			2.1E-08	0.20%	0.20%	8.3E-09	0.20%	0.20%
	U-235/236	N/A			N/A			N/A			N/A			3.6E-07	3.53%	3.51%	1.4E-07	3.47%	3.45%
	U-238	N/A			N/A			N/A			N/A			1.5E-06	15.05%	14.97%	6.1E-07	14.79%	14.71%
	Total Radiological Risk													9.9E-06	96.85%	96.33%	3.9E-06	95.16%	94.66%
	Benzo(a)anthracene	N/A			N/A			N/A			N/A			6.8E-09	0.07%	0.07%	4.4E-09	0.11%	0.11%
	Benzo(a)pyrene	N/A			N/A			N/A			N/A			4.2E-08	0.41%	0.41%	2.7E-08	0.65%	0.65%
	Benzo(b)fluoranthene	N/A			N/A			N/A			N/A			1.1E-08	0.11%	0.10%	7.0E-09	0.17%	0.17%
	Benzo(k)fluoranthene	N/A			N/A			N/A			N/A			2.5E-09	0.02%	0.02%	1.6E-09	0.04%	0.04%
	bis(2-Ethylhexyl) phthalate	N/A			N/A			N/A			N/A			3.5E-11	0.00%	0.00%	1.9E-11	0.00%	0.00%
	Chrysene	N/A			N/A			N/A			N/A			2.4E-10	0.00%	0.00%	1.6E-10	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	N/A			N/A			N/A			N/A			1.6E-08	0.16%	0.16%	1.0E-08	0.25%	0.25%
	Arsenic	N/A			N/A			N/A			N/A			2.4E-07	2.39%	2.37%	1.5E-07	3.62%	3.60%
	Total Chemical Risk													3.2E-07	3.15%	3.13%	2.0E-07	4.84%	4.81%
	Total													1.9E-06	100.00%	99.46%	8.1E-07	100.00%	99.47%
Surface Water	CS-137				N/A			N/A						7.5E-18	0.00%	3.13%	3.0E-18	0.00%	4.81%
	NP-237				N/A			N/A						8.9E-15	0.00%	18.10%	3.6E-15	0.00%	19.52%
	PU-238	N/A			N/A			N/A						1.9E-16	0.00%	0.00%	7.6E-17	0.00%	0.00%
	PU-239/240				N/A			N/A						2.1E-17	0.00%	0.00%	8.4E-18	0.00%	0.00%
	RA-226				N/A			N/A						1.3E-10	0.23%	0.00%	5.1E-11	0.23%	0.00%
	RA-228				N/A			N/A						1.3E-10	0.23%	0.00%	5.1E-11	0.23%	0.00%
	SR-90				N/A			N/A						5.4E-08	98.31%	0.00%	2.2E-08	98.27%	0.00%
	TH-228				N/A			N/A						4.9E-12	0.01%	0.00%	2.0E-12	0.01%	0.00%
	TH-230				N/A			N/A						4.6E-12	0.01%	0.53%	1.9E-12	0.01%	0.52%
	TH-232				N/A			N/A						1.8E-12	0.00%	0.00%	7.2E-13	0.00%	0.00%
	U-234	N/A			N/A			N/A						3.4E-15	0.00%	0.00%	1.3E-15	0.00%	0.00%
	U-235/236	N/A			N/A			N/A						1.3E-11	0.02%	0.00%	5.1E-12	0.02%	0.00%
	U-238	N/A			N/A			N/A						6.1E-10	1.11%	0.01%	2.5E-10	1.11%	0.01%
	Total Radiological Risk													5.5E-08	99.93%	21.78%	2.2E-08	99.88%	24.87%
	bis(2-Ethylhexyl) phthalate	N/A			N/A			N/A						4.0E-11	0.07%	0.00%	2.6E-11	0.12%	0.00%
	Total Chemical Risk													4.0E-11	0.07%	0.00%	2.6E-11	0.12%	0.00%
	Total													5.5E-08	100.00%	21.78%	2.2E-08	100.00%	24.87%
Groundwater	TC-99	0.0E+00	0.00%	0.00%	N/A			N/A						N/A			N/A		
	Total Radiological Risk	0.0E+00	0.00%	0.00%															
Perched Groundwater	TC-99	N/A			N/A			1.8E-06	0.03%	0.03%	3.9E-12	0.00%	0.00%	N/A			N/A		
	Carbazole							5.3E-03	99.97%	99.97%	1.1E-03	99.91%	100.00%						
	Total Radiological Risk							5.3E-03	100.00%	100.00%	1.1E-03	99.91%	100.00%						

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TABLE B.3.4-34
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	CS-137	N/A			1.4E-11	0.01%	0.00%	1.0E-12	0.00%	0.00%	9.7E-10	0.01%	0.00%	6.3E-11	0.01%	0.00%
	NP-237	N/A			4.9E-10	0.40%	0.04%	3.7E-11	0.09%	0.02%	3.4E-08	0.40%	0.00%	2.2E-09	0.40%	0.00%
	PU-238	N/A			3.1E-10	0.25%	0.02%	2.3E-11	0.06%	0.02%	2.1E-08	0.25%	0.00%	1.4E-09	0.25%	0.00%
	PU-239/240	N/A			3.4E-11	0.03%	0.00%	2.6E-12	0.01%	0.00%	2.4E-09	0.03%	0.00%	1.5E-10	0.03%	0.00%
	RA-226	N/A			4.2E-10	0.34%	0.03%	3.1E-11	0.08%	0.02%	2.9E-08	0.34%	0.00%	1.9E-09	0.34%	0.00%
	RA-228	N/A			3.1E-10	0.25%	0.02%	2.3E-11	0.06%	0.02%	2.1E-08	0.25%	0.00%	1.4E-09	0.25%	0.00%
	SR-90	N/A			7.4E-11	0.06%	0.01%	5.5E-12	0.01%	0.00%	5.1E-09	0.06%	0.00%	3.3E-10	0.06%	0.00%
	TC-99	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	N/A			1.6E-10	0.13%	0.01%	1.2E-11	0.03%	0.01%	1.1E-08	0.13%	0.00%	7.3E-10	0.13%	0.00%
	TH-230	N/A			1.5E-10	0.13%	0.01%	1.1E-11	0.03%	0.01%	1.1E-08	0.13%	0.00%	6.9E-10	0.13%	0.00%
	TH-232	N/A			3.3E-11	0.03%	0.00%	2.5E-12	0.01%	0.00%	2.3E-09	0.03%	0.00%	1.5E-10	0.03%	0.00%
	U-234	N/A			1.2E-09	1.00%	0.09%	9.2E-11	0.23%	0.06%	8.5E-08	1.01%	0.01%	5.5E-09	1.01%	0.01%
	U-235/236	N/A			8.0E-11	0.07%	0.01%	6.0E-12	0.01%	0.00%	5.6E-09	0.07%	0.00%	3.6E-10	0.07%	0.00%
	U-238	N/A			3.9E-09	3.21%	0.30%	2.9E-10	0.72%	0.20%	2.7E-07	3.22%	0.02%	1.8E-08	3.22%	0.02%
	Total Radiological Risk				7.3E-09	5.91%	0.55%	5.4E-10	1.33%	0.36%	5.0E-07	5.93%	0.04%	3.2E-08	5.93%	0.04%
	Arsenic	N/A			1.0E-07	84.80%	7.86%	3.6E-08	88.93%	24.28%	7.2E-06	84.78%	0.62%	4.6E-07	84.78%	0.53%
	Beryllium	N/A			6.0E-09	4.89%	0.45%	2.1E-09	5.13%	1.40%	4.2E-07	4.89%	0.04%	2.7E-08	4.89%	0.03%
	Benzo(a)anthracene	N/A			3.4E-10	0.28%	0.03%	1.2E-10	0.29%	0.08%	2.4E-08	0.28%	0.00%	1.5E-09	0.28%	0.00%
	Benzo(a)pyrene	N/A			2.1E-09	1.67%	0.15%	7.1E-10	1.75%	0.48%	1.4E-07	1.67%	0.01%	9.2E-09	1.67%	0.01%
	Benzo(b)fluoranthene	N/A			5.3E-10	0.43%	0.04%	1.8E-10	0.45%	0.12%	3.7E-08	0.43%	0.00%	2.4E-09	0.43%	0.00%
	Benzo(g,h,i)perylene	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	N/A			2.9E-10	0.23%	0.02%	9.9E-11	0.24%	0.07%	2.0E-08	0.23%	0.00%	1.3E-09	0.23%	0.00%
	Chrysene	N/A			1.2E-11	0.01%	0.00%	4.3E-12	0.01%	0.00%	8.5E-10	0.01%	0.00%	5.5E-11	0.01%	0.00%
	Dibenzo(a,h)anthracene	N/A			1.4E-09	1.11%	0.10%	4.7E-10	1.16%	0.32%	9.4E-08	1.11%	0.01%	6.1E-09	1.11%	0.01%
	Indeno(1,2,3-cd)pyrene	N/A			8.1E-10	0.66%	0.06%	2.8E-10	0.70%	0.19%	5.6E-08	0.66%	0.00%	3.6E-09	0.66%	0.00%
	Heptachloro-p-dioxin	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total Chemical Risk				1.2E-07	94.09%	8.72%	4.0E-08	98.67%	26.94%	8.0E-06	94.07%	0.69%	5.2E-07	94.07%	0.58%
	Total				1.2E-07	100.00%	9.27%	4.1E-08	100.00%	27.30%	8.5E-06	100.00%	0.73%	5.5E-07	100.00%	0.62%
Homegrown Produce (Groundwater Affected)	TC-99	N/A			7.4E-10	100.00%	0.06%	5.5E-11	100.00%	0.04%	8.3E-09	100.00%	0.00%	5.4E-10	100.00%	0.00%
	Total Radiological Risk				7.4E-10	100.00%	0.06%	5.5E-11	100.00%	0.04%	8.3E-09	100.00%	0.00%	5.4E-10	100.00%	0.00%
Beef/Milk (Dust Affected)	CS-137	N/A			5.3E-11	0.04%	0.00%	6.7E-12	0.01%	0.00%	3.2E-09	0.04%	0.00%	1.9E-10	0.04%	0.00%
	NP-237	N/A			2.9E-12	0.00%	0.00%	2.2E-13	0.00%	0.00%	1.7E-10	0.00%	0.00%	1.1E-11	0.00%	0.00%
	PU-238	N/A			2.2E-14	0.00%	0.00%	2.3E-15	0.00%	0.00%	1.4E-12	0.00%	0.00%	8.3E-14	0.00%	0.00%
	PU-239/240	N/A			2.5E-15	0.00%	0.00%	2.6E-16	0.00%	0.00%	1.5E-13	0.00%	0.00%	9.2E-15	0.00%	0.00%
	RA-226	N/A			6.8E-11	0.05%	0.01%	1.2E-11	0.01%	0.01%	4.1E-09	0.05%	0.00%	2.3E-10	0.04%	0.00%
	RA-228	N/A			4.9E-11	0.03%	0.00%	8.5E-12	0.01%	0.01%	3.0E-09	0.03%	0.00%	1.6E-10	0.03%	0.00%
	SR-90	N/A			3.2E-11	0.02%	0.00%	6.0E-12	0.01%	0.00%	2.0E-09	0.02%	0.00%	1.1E-10	0.02%	0.00%
	TC-99	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	N/A			3.1E-13	0.00%	0.00%	4.8E-14	0.00%	0.00%	1.9E-11	0.00%	0.00%	1.1E-12	0.00%	0.00%
	TH-230	N/A			3.2E-13	0.00%	0.00%	5.0E-14	0.00%	0.00%	1.9E-11	0.00%	0.00%	1.1E-12	0.00%	0.00%
	TH-232	N/A			6.9E-14	0.00%	0.00%	1.1E-14	0.00%	0.00%	4.2E-12	0.00%	0.00%	2.4E-13	0.00%	0.00%
	U-234	N/A			2.6E-10	0.17%	0.02%	4.7E-11	0.06%	0.03%	1.6E-08	0.17%	0.00%	8.5E-10	0.16%	0.00%
	U-235/236	N/A			1.7E-11	0.01%	0.00%	3.1E-12	0.00%	0.00%	1.0E-09	0.01%	0.00%	5.8E-11	0.01%	0.00%
	U-238	N/A			8.2E-10	0.55%	0.06%	1.5E-10	0.18%	0.10%	5.0E-08	0.55%	0.00%	2.7E-09	0.51%	0.00%
	Total Radiological Risk				1.3E-09	0.87%	0.10%	2.3E-10	0.28%	0.16%	7.9E-08	0.87%	0.01%	4.4E-09	0.80%	0.00%

TABLE B.3.4-34
(continued)

Medium	Parameter	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-builder	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater User	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	CS-137	7.2E-11	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	NP-237	2.6E-09	0.09%	0.00%	N/A			N/A			N/A			N/A			N/A		
	PU-238	1.6E-09	0.06%	0.00%	N/A			N/A			N/A			N/A			N/A		
	PU-239/240	1.8E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	RA-226	2.2E-09	0.08%	0.00%	N/A			N/A			N/A			N/A			N/A		
	RA-228	1.6E-09	0.06%	0.00%	N/A			N/A			N/A			N/A			N/A		
	SR-90	3.8E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TC-99	0.0E+00	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TH-228	8.4E-10	0.03%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TH-230	7.9E-10	0.03%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TH-232	1.7E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	U-234	6.4E-09	0.23%	0.01%	N/A			N/A			N/A			N/A			N/A		
	U-235/236	4.1E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	U-238	2.0E-08	0.72%	0.02%	N/A			N/A			N/A			N/A			N/A		
	Total Radiological Risk	3.7E-08	1.33%	0.03%															
	Arsenic	2.5E-06	88.92%	2.01%	N/A			N/A			N/A			N/A			N/A		
	Beryllium	1.4E-07	5.13%	0.12%	N/A			N/A			N/A			N/A			N/A		
	Benzo(a)anthracene	8.2E-09	0.29%	0.01%	N/A			N/A			N/A			N/A			N/A		
	Benzo(a)pyrene	4.9E-08	1.75%	0.04%	N/A			N/A			N/A			N/A			N/A		
	Benzo(b)fluoranthene	1.3E-08	0.45%	0.01%	N/A			N/A			N/A			N/A			N/A		
	Benzo(g,h,i)perylene	0.0E+00	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Benzo(k)fluoranthene	6.9E-09	0.25%	0.01%	N/A			N/A			N/A			N/A			N/A		
	Chrysene	3.0E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Dibenzo(a,h)anthracene	3.3E-08	1.17%	0.03%	N/A			N/A			N/A			N/A			N/A		
	Indeno(1,2,3-cd)pyrene	2.0E-08	0.70%	0.02%	N/A			N/A			N/A			N/A			N/A		
	Heptachloro-p-dioxin	0.0E+00	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Total Chemical Risk	2.8E-06	98.67%	2.23%															
	Total	2.8E-06	100.00%	2.26%															
Homegrown Produce (Groundwater Affected)	TC-99	6.2E-10	100.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Total Radiological Risk	6.2E-10	100.00%	0.00%															
Beef/Milk (Dust Affected)	CS-137	4.1E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	NP-237	1.3E-11	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	PU-238	1.4E-13	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	PU-239/240	1.6E-14	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	RA-226	7.2E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	RA-228	5.2E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	SR-90	3.7E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TC-99	0.0E+00	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TH-228	2.9E-12	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TH-230	3.0E-12	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	TH-232	6.6E-13	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	U-234	2.8E-09	0.06%	0.00%	N/A			N/A			N/A			N/A			N/A		
	U-235/236	1.9E-10	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	U-238	9.1E-09	0.18%	0.01%	N/A			N/A			N/A			N/A			N/A		
	Total Radiological Risk	1.4E-08	0.28%	0.01%															

TABLE B.3.4-34
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected) *(continued)*	Arsenic	N/A			2.1E-09	1.44%	0.16%	5.0E-10	0.60%	0.34%	1.3E-07	1.44%	0.01%	8.6E-09	1.58%	0.01%
	Beryllium	N/A			2.5E-10	0.17%	0.02%	3.9E-11	0.05%	0.03%	1.5E-08	0.17%	0.00%	1.0E-09	0.19%	0.00%
	4,4'-DDE	N/A			1.6E-11	0.01%	0.00%	1.5E-11	0.02%	0.01%	9.9E-10	0.01%	0.00%	5.4E-11	0.01%	0.00%
	Benzo(a)anthracene	N/A			4.7E-10	0.31%	0.04%	2.7E-10	0.32%	0.18%	2.8E-08	0.31%	0.00%	1.7E-09	0.31%	0.00%
	Benzo(a)pyrene	N/A			6.5E-09	4.37%	0.49%	3.7E-09	4.44%	2.51%	3.9E-07	4.36%	0.03%	2.4E-08	4.36%	0.03%
	Benzo(b)fluoranthene	N/A			6.5E-09	4.40%	0.49%	3.8E-09	4.47%	2.53%	4.0E-07	4.38%	0.03%	2.4E-08	4.38%	0.03%
	Benzo(k)fluoranthene	N/A			7.0E-09	4.67%	0.53%	4.0E-09	4.75%	2.68%	4.2E-07	4.69%	0.04%	2.5E-08	4.68%	0.03%
	bis(2-Ethylhexyl) phthalate	N/A			3.3E-14	0.00%	0.00%	1.9E-14	0.00%	0.00%	2.0E-12	0.00%	0.00%	1.2E-13	0.00%	0.00%
	Carbazole	N/A			2.9E-12	0.00%	0.00%	1.7E-12	0.00%	0.00%	1.8E-10	0.00%	0.00%	1.1E-11	0.00%	0.00%
	Chrysene	N/A			1.6E-11	0.01%	0.00%	9.2E-12	0.01%	0.01%	9.8E-10	0.01%	0.00%	5.8E-11	0.01%	0.00%
	Dibenzo(a,h)anthracene	N/A			4.2E-09	2.80%	0.31%	2.4E-09	2.85%	1.61%	2.5E-07	2.81%	0.02%	1.5E-08	2.80%	0.02%
	Indeno(1,2,3-cd)pyrene	N/A			1.2E-07	80.94%	9.10%	6.9E-08	82.23%	46.46%	7.3E-06	80.95%	0.63%	4.4E-07	80.88%	0.50%
	Total Chemical Risk				1.5E-07	99.13%	11.14%	8.4E-08	99.72%	56.35%	9.0E-06	99.13%	0.78%	5.4E-07	99.20%	0.61%
	Total				1.5E-07	100.00%	11.24%	8.4E-08	100.00%	56.51%	9.0E-06	100.00%	0.78%	5.4E-07	100.00%	0.61%
Beef/Milk (Groundwater Affected)	TC-99	N/A			1.2E-09	100.00%	0.09%	2.1E-10	100.00%	0.14%	1.4E-08	100.00%	0.00%	7.8E-10	100.00%	0.00%
	Total Radiological Risk				1.2E-09	100.00%	0.09%	2.1E-10	100.00%	0.14%	1.4E-08	100.00%	0.00%	7.8E-10	100.00%	0.00%
ALL MEDIA		**4.4E-05**			**1.3E-06**			**1.5E-07**			**1.2E-03**			**8.8E-05**		

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TABLE B.3.4-34
(continued)

Medium	Parameter	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-builder	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater User	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected) *(continued)*	Arsenic	3.1E-08	0.60%	0.02%	N/A			N/A			N/A			N/A			N/A		
	Beryllium	2.3E-09	0.05%	0.00%	N/A			N/A			N/A			N/A			N/A		
	4,4'-DDE	9.0E-10	0.02%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Benzo(a)anthracene	1.6E-08	0.32%	0.01%	N/A			N/A			N/A			N/A			N/A		
	Benzo(a)pyrene	2.3E-07	4.43%	0.18%	N/A			N/A			N/A			N/A			N/A		
	Benzo(b)fluoranthene	2.3E-07	4.45%	0.18%	N/A			N/A			N/A			N/A			N/A		
	Benzo(k)fluoranthene	2.4E-07	4.76%	0.20%	N/A			N/A			N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.2E-12	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Carbazole	1.0E-10	0.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Chrysene	5.6E-10	0.01%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Dibenzo(a,h)anthracene	1.5E-07	2.85%	0.12%	N/A			N/A			N/A			N/A			N/A		
	Indeno(1,2,3-cd)pyrene	4.2E-06	82.24%	3.38%	N/A			N/A			N/A			N/A			N/A		
	Total Chemical Risk	5.1E-06	99.72%	4.09%															
	Total	5.1E-06	100.00%	4.10%															
Beef/Milk (Groundwater Affected)	TC-99	2.3E-09	100.00%	0.00%	N/A			N/A			N/A			N/A			N/A		
	Total Radiological Risk	2.3E-09	100.00%	0.00%															
ALL MEDIA		1.2E-04			5.1E-06			5.3E-03			1.1E-03			1.0E-05			4.2E-06		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.4-35
FUTURE LAND USE
SOLID WASTE LANDFILL
SUMMARY OF TOTAL NONCARCINOGENIC HAZARD

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk
Soil	Arsenic	3.5E-03	0.54%	0.47%	0.0E+00		0.00%	0.0E+00		0.00%	5.7E-02	3.87%	3.85%
	Beryllium	5.8E-03	0.89%	0.78%	0.0E+00		0.00%	0.0E+00		0.00%	1.1E-02	0.77%	0.77%
	Cadmium	7.1E-03	1.10%	0.95%	0.0E+00		0.00%	0.0E+00		0.00%	1.5E-02	1.06%	1.05%
	Chromium	3.2E-03	0.49%	0.43%	0.0E+00		0.00%	0.0E+00		0.00%	1.3E-02	0.89%	0.88%
	U-TOTAL	6.3E-01	96.98%	84.33%	0.0E+00		0.00%	0.0E+00		0.00%	1.4E+00	93.41%	92.86%
	4,4'-DDE	0.0E+00	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%	0.0E+00	0.00%	0.00%
	Benzo(g,h,i)perylene	0.0E+00	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	7.1E-07	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%	6.8E-06	0.00%	0.00%
	Dibenzo(a,h)anthracene	0.0E+00	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%	0.0E+00	0.00%	0.00%
	Dibenzofuran	1.6E-06	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%	3.5E-05	0.00%	0.00%
	Phenanthrene	0.0E+00	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%	0.0E+00	0.00%	0.00%
	Total	6.5E-01	100.00%	86.96%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.5E+00	100.00%	99.41%
Sediment	bis(2-Ethylhexyl) phthalate	4.2E-07	0.00%	0.00%	N/A			N/A					
	Fluoranthene	5.5E-04	0.98%	0.07%	N/A			N/A					
	Pyrene	5.2E-04	0.92%	0.07%	N/A			N/A					
	Arsenic	5.2E-03	9.20%	0.70%	N/A			N/A					
	Chromium	1.3E-03	2.27%	0.17%	N/A			N/A					
	Manganese	9.4E-03	16.73%	1.27%	N/A			N/A					
	Thallium	3.1E-03	5.43%	0.41%	N/A			N/A					
	U-TOTAL	3.6E-02	64.48%	4.89%									
	Total	5.6E-02	100.00%	7.58%									
Surface Water	bis(2-Ethylhexyl) phthalate	2.3E-02	57.81%	3.16%	N/A			N/A					
	Manganese	1.5E-03	3.76%	0.21%	N/A			N/A					
	U-TOTAL	1.6E-02	38.43%	2.10%									
	Total	4.1E-02	100.00%	5.46%									
Homegrown Produce (Dust Affected)	Arsenic	N/A			2.3E-05	22.08%	17.99%	9.3E-05	22.08%	15.18%	1.6E-03	22.03%	0.11%
	Beryllium	N/A			1.4E-07	0.14%	0.11%	5.8E-07	0.14%	0.09%	9.9E-06	0.14%	0.00%
	Cadmium	N/A			1.0E-06	0.98%	0.80%	4.1E-06	0.98%	0.67%	7.1E-05	0.98%	0.00%
	Chromium	N/A			3.2E-06	3.04%	2.47%	1.3E-05	3.04%	2.09%	2.2E-04	3.04%	0.01%
	U-TOTAL	N/A			7.7E-05	73.77%	60.10%	3.1E-04	73.77%	50.72%	5.3E-03	73.80%	0.36%
	Dibenzofuran	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total				1.0E-04	100.00%	81.47%	4.2E-04	100.00%	68.76%	7.2E-03	100.00%	0.49%
Beef/Milk (Dust Affected)	Arsenic	N/A			4.1E-06	17.23%	3.19%	1.1E-05	5.84%	1.82%	2.5E-04	17.19%	0.02%
	Beryllium	N/A			1.1E-08	0.05%	0.01%	2.1E-08	0.01%	0.00%	6.9E-07	0.05%	0.00%
	Cadmium	N/A			7.2E-07	3.02%	0.56%	3.9E-06	2.05%	0.64%	4.4E-05	3.03%	0.00%
	Chromium	N/A			2.9E-06	12.29%	2.28%	1.9E-05	9.68%	3.02%	1.8E-04	12.28%	0.01%
	U-TOTAL	N/A			1.6E-05	67.42%	12.49%	1.6E-04	82.42%	25.75%	9.7E-04	67.46%	0.07%
	bis(2-Ethylhexyl) phthalate	N/A			1.2E-10	0.00%	0.00%	7.9E-10	0.00%	0.00%	7.2E-09	0.00%	0.00%
	Total				2.4E-05	100.00%	18.53%	1.9E-04	100.00%	31.24%	1.4E-03	100.00%	0.10%
ALL MEDIA		7.4E-01			1.3E-04			6.1E-04			1.5E+00		

TABLE B.3.4-35
(continued)

Medium	Parameter	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-builder	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	2.9E-02	9.84%	9.70%	2.9E-01	8.79%	8.68%	4.4E-02	2.25%	2.25%	N/A			N/A		
	Beryllium	1.7E-03	0.56%	0.56%	2.0E-02	0.60%	0.59%	2.6E-03	0.13%	0.13%	N/A			N/A		
	Cadmium	2.9E-03	0.99%	0.97%	3.3E-02	1.00%	0.99%	5.4E-03	0.28%	0.28%	N/A			N/A		
	Chromium	4.8E-03	1.60%	1.58%	4.8E-02	1.48%	1.46%	4.8E-03	0.25%	0.25%	N/A			N/A		
	U-TOTAL	2.6E-01	87.00%	85.77%	2.9E+00	88.13%	87.04%	9.0E-03	0.46%	0.46%	N/A			N/A		
	4,4'-DDE	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.9E+00	96.62%	96.62%	N/A			N/A		
	Benzo(g,h,i)perylene	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	1.1E-04	0.01%	0.01%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	3.3E-06	0.00%	0.00%	3.2E-05	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Dibenzofuran	1.8E-05	0.01%	0.01%	1.8E-04	0.01%	0.01%	0.0E+00	0.00%	0.00%	N/A			N/A		
	Phenanthrene	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	8.4E-05	0.00%	0.00%	N/A			N/A		
	Total	3.0E-01	100.00%	98.59%	3.3E+00	100.00%	98.76%	1.9E+00	100.00%	100.00%						
Sediment	bis(2-Ethylhexyl) phthalate										1.9E-07	0.00%	0.00%	2.7E-07	0.00%	0.00%
	Fluoranthene										1.1E-04	0.08%	0.08%	1.3E-04	0.08%	0.08%
	Pyrene										1.8E-04	0.13%	0.13%	2.1E-04	0.13%	0.13%
	Arsenic										1.1E-03	0.77%	0.77%	1.7E-03	0.99%	0.99%
	Chromium										7.4E-04	0.53%	0.53%	9.3E-04	0.56%	0.56%
	Manganese										0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Thallium										0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-TOTAL										1.4E-01	98.49%	98.48%	1.7E-01	98.25%	98.22%
	Total										1.4E-01	100.00%	99.98%	1.7E-01	100.00%	99.97%
Surface Water	bis(2-Ethylhexyl) phthalate										1.4E-07	0.58%	0.00%	9.4E-08	0.21%	0.00%
	Manganese										0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-TOTAL										2.5E-05	99.42%	0.02%	4.4E-05	99.79%	0.03%
	Total										2.5E-05	100.00%	0.02%	4.4E-05	100.00%	0.03%
Homegrown Produce (Dust Affected)	Arsenic	8.0E-04	22.03%	0.26%	6.4E-03	22.03%	0.19%	N/A			N/A			N/A		
	Beryllium	5.0E-06	0.14%	0.00%	4.0E-05	0.14%	0.00%	N/A			N/A			N/A		
	Cadmium	3.6E-05	0.98%	0.01%	2.9E-04	0.98%	0.01%	N/A			N/A			N/A		
	Chromium	1.1E-04	3.04%	0.04%	8.9E-04	3.04%	0.03%	N/A			N/A			N/A		
	U-TOTAL	2.7E-03	73.80%	0.88%	2.2E-02	73.80%	0.65%	N/A			N/A			N/A		
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A			N/A		
	Total	3.6E-03	100.00%	1.19%	2.9E-02	100.00%	0.88%									
Beef/Milk (Dust Affected)	Arsenic	1.3E-04	19.64%	0.04%	6.8E-04	5.82%	0.02%	N/A			N/A			N/A		
	Beryllium	3.6E-07	0.06%	0.00%	1.3E-06	0.01%	0.00%	N/A			N/A			N/A		
	Cadmium	2.1E-05	3.24%	0.01%	2.4E-04	2.05%	0.01%	N/A			N/A			N/A		
	Chromium	8.3E-05	12.84%	0.03%	1.1E-03	9.67%	0.03%	N/A			N/A			N/A		
	U-TOTAL	4.1E-04	64.23%	0.14%	9.6E-03	82.44%	0.29%	N/A			N/A			N/A		
	bis(2-Ethylhexyl) phthalate	3.3E-09	0.00%	0.00%	4.8E-08	0.00%	0.00%	N/A			N/A			N/A		
	Total	6.5E-04	100.00%	0.21%	1.2E-02	100.00%	0.35%									
ALL MEDIA		**3.0E-01**			**3.3E+00**			**1.9E+00**			**1.4E-01**			**1.7E-01**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.5-1

LIME SLUDGE PONDS
EXPOSURE POINT CONCENTRATIONS FOR SCENARIOS EVALUATED

Current Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Current Access Controls (current use of FEMP continues, DOE Ownership)	Trespassing Youth	soil	incidental ingestion dermal contact external radiation	surface soil within subunit
		air	inhalation of particulates, radionuclides, volatiles, and gases	maximum estimated on-site current concentrations derived from airborne soil air modeling results
		surface water	incidental ingestion dermal contact	not quantified; surface water data not available
		sediment	incidental ingestion dermal contact external radiation	not quantified; sediment data not available
	Off-Property Resident Farmer (adult and child), livestock grazing off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site current concentrations derived from airborne soil air modeling concentrations
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated off-site current concentrations derived from deposited airborne soil air modeling results
		livestock (grazing at property boundary)	ingestion of milk and beef	maximum estimated off-site current concentrations derived from deposited airborne soil air modeling results
	Groundskeeper	air	inhalation of particulates, volatiles, and gases	maximum estimated on-site current concentration derived from air modeling
		soil	ingestion dermal contact external radiation	surface soil within subunit
	User of Meat/Milk Products	livestock (grazing on-property)	ingestion of milk and beef	maximum estimated on-site current cocentrations derived from deposited airborne soil air modeling results

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TABLE B.3.5-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Federal Ownership (includes exposure routes that require development time)	Future Off-Property Farmer (adult and child), livestock grazing off-property, groundwater off-property	air	inhalation of particulates, volatiles, and gases	maximum estimated off-site future concentrations derived from airborne soil air modeling results
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		livestock (grazing at property boundary)	ingestion of milk and beef	maximum estimated off-site future concentrations derived from deposited airborne soil air modeling and groundwater modeling results
		groundwater	ingestion dermal contact inhalation	modeled groundwater concentrations off-site at time when concentration is greatest
	Expanded Trespasser (adult and youth)	air	inhalation of particulates, radionuclides, volatiles, and gases	maximum estimated on-site airborne modeling results
		surface water	incidental ingestion dermal contact	not quantified; surface water data not available
		sediment	incidental ingestion dermal contact external radiation	not quantified; sediment data not available
		soil	ingestion dermal contact external radiation	surface soil within subunit
Without Federal Ownership (includes exposure routes that require development time)	Future On-Property (Solid Waste Landfill) Resident Farmer (adult and child), livestock grazing on-property, groundwater on property, RME and CT estimates	air	inhalation of particulates, volatiles, gases, and indoor radon	maximum estimated on-site future concentrations from airborne soil modeling results; indoor radon quantitated under Solid Waste Landfill scenario
		plants (homegrown produce)	ingestion of fruits and vegetables	maximum estimated on-site future concentrations derived from deposited airborne soil air modeling results and groundwater modeling results
		livestock (grazing on property)	ingestion of milk and beef	maximum estimated on-site future concentrations derived from deposited airborne soil air modeling results and groundwater modeling results
		groundwater	ingestion dermal contact inhalation	modeled groundwater concentrations underlying Solid Waste Landfill at time when concentration is greatest

TABLE B.3.5-1
(Continued)

Future Land Use	Receptor	Direct Contact Medium	Route of Exposure	Exposure Point Concentration
Without Federal Ownership (includes exposure routes that require development time) (Continued)	Future On-Property (Solid Waste Landfill) Resident Farmer (adult and child), livestock grazing on-property, groundwater on property, RME and CT estimates (Continued)	soil	incidental ingestion dermal contact external radiation	surface soil within LSP
Without Federal Ownership (includes exposure routes that require development time) (Continued)	Future Homebuilder (per Operable Unit 1)	waste material/subsurface soil	external radiation incidental ingestion dermal contact	not quantified; no building on LSP anticipated
		air	inhalation of particulates, volatiles, and gases	not quantified; no building on LSP anticipated
	Future Perched Groundwater User (Solid Waste Landfill and Lime Sludge Ponds only)	perched groundwater directly underlying subunit	incidental ingestion, dermal contact, and inhalation of volatiles released during household use	not quantified; no resident anticipated on LSP
With or Without Federal Ownership	Great Miami River User	surface water	ingestion dermal contact	not quantified; Lime Sludge Ponds do not contribute to Great Miami River contamination
		sediment	ingestion dermal contact external radiation	not quantified; Great Miami River not impacted by Lime Sludge Ponds
		fish	ingestion	not quantified; Great Miami River not impacted by Lime Sludge Ponds

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exposure point concentrations were derived from the analytical data on samples collected within the boundaries of the Lime Sludge Ponds subunit. For groundwater, modeled data indicated contaminants did not enter the aquifer underlying the Lime Sludge Ponds. For this subunit, under future land use it was assumed that the on-property farmer resided on the Solid Waste Landfill, and simultaneously farmed that area. The Solid Waste Landfill was chosen as the site for a future farm since it is not feasible to place a home or an agricultural field on the Lime Sludge Ponds. This, and other relevant information regarding exposure point concentrations for the Lime Sludge Ponds is summarized in Table B.3.5-1.

B.3.5.2 Constituents of Potential Concern

The CPCs quantified for the Lime Sludge Pond surface soil, waste material, 1000 series wells, and 2000 series wells are summarized in Table B.3.5-2 (a), (b), (c), and (d), respectively (Attachment III) along with relevant information regarding frequencies of detection data distribution, 95 percent UCLs, etc. Table B.3.5-3 summarizes CPCs for the Lime Sludge Ponds by medium.

B.3.5.3 Risk Characterization for Current Land Use

The scenarios characterized for the Lime Sludge Ponds assuming continued DOE ownership include a trespassing youth; the off-property farmer and resident child using food products from livestock grazing off-property and produce grown off-property; a current user of meat and milk product from livestock grazed on-property; and a groundskeeper contacting on-site contaminants in air and soil.

B.3.5.3.1 Trespassing Youth

Risk was characterized for the trespassing youth contacting CPCs via ingestion and dermal contact with surface soil within the subunit; external radiation resulting from exposure to surface soil within the subunit; and inhalation of airborne particulates. Exposure point concentrations for the exposure to soil were based on analytical data while the inhaled particulate concentration was based on air modeling results as described in Section B.2.0, Appendix A, and Section 5.0 of this RI report.

Risks and hazards calculated for the trespassing youth exposed to contaminants in soil are presented in Table B.3.5-4 (Attachment III). Total risk due to all CPCs in soil by all routes of exposure was 2.8×10^{-5}. This was primarily due to dermal contact with beryllium and Aroclor-1254, for which risks of 1.6×10^{-5} and 4.4×10^{-6} were calculated. External radiation due to radium-228 and thorium-228

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TABLE B.3.5-3

CONSTITUENTS OF POTENTIAL CONCERN
FOR THE LIME SLUDGE PONDS

SURFACE SOIL	GROUNDWATER	PERCHED GROUNDWATER
Radiological Constituents		
CS-137	--	--
NP-237	--	NP-237
PU-238	--	--
PU-239/240	--	--
RA-226	--	--
RA-228	--	--
SR-90	--	SR-90
TC-99	TC-99	TC-99
TH-228	--	--
TH-230	--	--
TH-232	--	--
U-234	--	--
U-235/236	--	--
U-238	--	--
Chemical Constituents		
Arsenic	--	Arsenic
Beryllium	--	--
Cadmium	--	--
Chromium	--	--
Lead	--	--
--	--	Manganese
TH-TOTAL	--	--
U-TOTAL	--	--
Aroclor-1254	--	--
Benzo(a)anthracene	--	--
Benzo(a)pyrene	--	--
Benzo(b)fluoranthene	--	--
Benzo(g,h,i)perylene	--	--
Benzo(k)fluoranthene	--	--
bis(2-Ethylhexyl) phthalate	--	--
Carbazole	--	--
Chrysene	--	--
Dibenzo(a,h)anthracene	--	--
Dibenzofuran	--	--
Indeno(1,2,3-cd)pyrene	--	--
Phenanthrene	--	--

-- = not a CPC in this medium

contributed risks of 1.4 x 10^{-6} and 4.7 x 10^{-6}, respectively. Total chemical HIs calculated for a trespassing youth exposed to CPCs in soil did not exceed HI of 1.0.

B.3.5.3.2 Current Off-Property Farmers

Risks were characterized for the off-property farmer and resident child contacting CPCs via inhalation of airborne particulates and ingestion of homegrown produce on which airborne particulates were deposited; and ingestion of milk and beef from livestock grazing on off-site grasses on which airborne particulates were deposited. For all of these routes of exposure, the exposure point concentration was based on air modeling results as described in Section B.2.0, Methodology.

The risks and hazards calculated for the off-property farmer and resident child are presented in Tables B.3.5-5(a) and B.3.5-5(b), respectively (Attachment III). The total risk associated with CPCs in soil was 1.2 x 10^{-7} and 2.4 x 10^{-9} for the farmer and child, respectively. Total HIs were below 1.0.

Risks and hazards associated with ingestion of CPCs in beef and milk for the off-property farmer and resident child are given in Tables B.3.5-6(a) and B.3.5-6(b), respectively (Attachment III). Total risk for all CPCs consumed in beef and milk was 6.3 x 10^{-8} and 3.5 x 10^{-8} for the farmer and child, respectively. Total HIs for all CPCs consumed in beef and milk were well below 1.0 for both the farmer and child.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-site farmer and resident child are given in Tables B.3.5-7(a) and B.3.5-7(b), respectively (Attachment III). Total risk for all CPCs consumed in homegrown produce was 3.9 x 10^{-8} and 1.2 x 10^{-8} for the farmer and child, respectively. Total HIs for all CPCs consumed in homegrown produce were well below 1.0 for both the farmer and child.

B.3.5.3.3 Current User of Meat and Milk Products

Risks and hazards to the current user of meat and milk products from livestock grazing on-property are summarized in Table B.3.5-8 (Attachment III). Total risk was 5.5 x 10^{-6} due mostly to the estimated uptake of benzo(a)pyrene and aroclor-1254 in milk. Total HI was below 1.0.

B.3.5.3.4 Current Groundskeeper

Risks and hazards to the current groundskeeper are given in Table B.3.5-9 (Attachment III). Total carcinogenic risk was 4.7 x 10^{-5} due mostly to external radiation from thorium-228 and dermal contact with beryllium in soil. The total HI was less than 1.0.

B.3.5.4 Risk Characterization for Future Land Use

The future scenarios characterized for the Lime Sludge Ponds assuming continued federal ownership are the off-property farmer and resident child and an expanded trespasser. Future scenarios characterized for the Lime Sludge Ponds assuming private ownership are an on-property farmer and resident child living on the Solid Waste Landfill and farming in the Solid Waste Landfill area. Recreational users of the Great Miami River were evaluated for federal and private ownerships.

B.3.5.4.1 Future Off-Property Farmers

For the off-property farmer and resident child, risks were calculated for exposure to CPCs in airborne Lime Sludge Pond soil particulates. Receptors were assumed to contact CPCs in air via inhalation of airborne particulates; by consumption of homegrown produce on which airborne Lime Sludge Pond soil was deposited; and by ingestion of milk and beef from cattle grazing on grasses on which airborne Lime Sludge Pond soil was deposited and which was watered with contaminated groundwater. All of the exposure point concentrations for this scenario were derived from air modeling results as described in the methods Section B.2.0.

The risks and hazards calculated for the off-property farmer and resident child exposed to surface soil in the Lime Sludge Ponds are presented in Tables B.3.5-10(a) and B.3.5-10(b), respectively (Attachment III). Total risk associated with CPCs in soil was 1.2 x 10^{-7} and 2.4 x 10^{-9} for the farmer and child, respectively. This was due mostly to ingestion and external radiation from radionuclides. HIs were below 1.0.

Risks and hazards associated with ingestion of CPCs in beef and milk for the future off-property farmer and resident child are given in Tables B.3.5-11(a) and B.3.5-11(b), respectively (Attachment III). Total risk for all CPCs consumed in beef and milk was 6.6 x 10^{-8} and 3.5 x 10^{-8} for the farmer and child, respectively. Total HIs for all CPCs consumed in beef and milk were well below of 1.0 for both the farmer and child.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the off-property farmer and resident child are given in Tables B.3.5-12(a) and B.3.5-12(b), respectively (Attachment III). Total risk for all CPCs consumed in homegrown produce was 4.2×10^{-8} and 1.2×10^{-8} for the farmer and child, respectively. Total HIs for all CPCs consumed in homegrown produce were well below 1.0 for both the farmer and child.

Risks and hazards associated with groundwater exposure for the off-property farmer and resident child are summarized in Tables B.3.5-13(a) and B.3.5-13(b), respectively (Attachment III). Risks were 9.1×10^{-9} and 3.9×10^{-10}, respectively. HIs were below 1.0.

B.3.5.4.2 Future On-Property Expanded Trespasser

Risks to the future on-property expanded trespasser were calculated for exposure to CPCs detected on-subunit. The expanded trespasser was anticipated to contact CPCs directly via inhalation of airborne particulates; ingestion of and dermal contact with on-subunit soil; and external radiation resulting from exposure to contaminated on-subunit soil. The exposure point concentrations for inhalation of airborne Lime Sludge Pond soil particles were estimated from airborne soil modeling results, all other exposure point concentrations were based on analytical data.

Risks and hazards associated with trespasser contact with on-subunit surface water and sediment were not quantified since no surface water or sediment samples within the Lime Sludge Ponds were available.

Risks and hazards calculated for the expanded trespasser due to direct exposure to soil and airborne particulates are presented in Table B.3.5-14 (Attachment III). Total risk due to exposure to all CPCs in soil by all exposure pathways was 9.8×10^{-5}. This was primarily due to dermal contact with beryllium in soil for which a risk of 6.8×10^{-5} was calculated. External radiation due to radium-228, thorium-228, and uranium-238 contributed risks of 1.9×10^{-6}, 6.4×10^{-6}, and 1.2×10^{-6}, respectively. Total HIs calculated for exposure of an expanded trespasser to CPCs in soil at the Lime Sludge Ponds did not exceed 1.0.

B.3.5.4.3 Future On-Property (Lime Sludge Ponds) Farmers

Risks were quantified for the future on-property farmer and resident child living on the Solid Waste Landfill with livestock grazing on the Solid Waste Landfill. Risks were calculated for inhalation of

airborne particulates; direct contact with soil via ingestion, external radiation, and dermal contact; ingestion of homegrown produce on which airborne Lime Sludge Pond soil was deposited; and ingestion of milk and beef from livestock grazing on grasses on which airborne Lime Sludge Pond soil was deposited. Exposure point concentrations for these routes of exposure were based on airborne soil air modeling as described in Section B.2.0. Both RME and CT risks and hazards were estimated for the farmer.

Risks and hazards calculated due to contact with soil for a Solid Waste Landfill on-property RME farmer and resident child are presented in Tables B.3.5-15(a) and B.3.5-15(b), respectively (Attachment III). Total risk associated with future exposure to soil was 1.9×10^{-3} and 2.1×10^{-4} for the farmer and child, respectively. For the RME farmer, this risk was primarily due to dermal contact with beryllium and Aroclor-1254 and external radiation from thorium-228, radium-228, and uranium-238 which had calculated risks of 6.8×10^{-4}, 2.0×10^{-4}, and 1.2×10^{-4}, respectively. HIs were below 1.0 for the RME farmer and 1.3 for the on-property child. The principal hazard to the child is from ingestion of uranium-total and arsenic.

Risks and hazards associated with ingestion of CPCs in beef and milk for the on-property RME farmer and resident child are given in Tables B.3.5-16(a) and B.3.5-16(b), respectively, (Attachment III). Total risk for all CPCs consumed in beef and milk was 5.6×10^{-6} and 3.1×10^{-6} for the RME farmer and child, respectively, due mostly to the estimated uptake of Aroclor-1254 in milk. Total HIs for all CPCs consumed in beef and milk was well below 1.0 for both the farmer and child.

Risks and hazards associated with ingestion of CPCs in homegrown produce for the on-property RME farmer and resident child are given in Tables B.3.5-17(a) and B.3.5-17(b), respectively (Attachment III). Total risk for all CPCs consumed in homegrown produce was 3.5×10^{-6} and 1.0×10^{-6} for the RME farmer and child, respectively. Total HIs for all other CPCs consumed in homegrown produce were well below 1.0 for both the RME farmer and child.

CT estimates of risk and hazard for the future on-property farmer associated with exposures to surface soil, homegrown produce, beef and milk, and groundwater are given in Tables B.3.5-18, B.3.5-19, B.3.5-20, and B.3.5-21 respectively (Attachment III). All risks except those due to contact with soil were below 1.0×10^{-6}. External radiation and dermal contact with soil resulted in risk of

1.7 x 10^{-4} due to the presence of radium-228, thorium-228, uranium-238, beryllium, and aroclor-1254. All calculated HIs were below 1.0.

B.3.5.4.4 Perched Groundwater User

Risk and hazard to a user of perched groundwater underlying the Lime Sludge Ponds are given in Tables B.3.5-22(a) and B.3.5-22(b) for the farmer and resident child, respectively. Total risks were below 1.0 x 10^{-6} and HIs were below 1.0 for both receptors.

B.3.5.5 Risks Due to Radium-222 Emission

Risks due to eminent exposures to outdoor radon emissions attributable to the Lime Sludge Ponds are summarized on Table B.3.5-24. All estimated subunit specific risks are below 1.0 x 10^{-6}.

B.3.5.6 Summary Lime Sludge Ponds

Tables B.3.5-25 and B.3.5-26 summarize risk and hazard, respectively, associated with Lime Sludge Pond receptors assuming current land use. Risks to the trespassing youth exceeded 1.0 x 10^{-6} due to external radiation exposure to surface soil containing radium-228 and thorium-228 and dermal exposure to beryllium and Aroclor-1254 in soil. Total risk to the current groundskeeper exposed to soil was 4.7 x 10^{-5} due mostly to the presence of thorium-228 accounting for 27 percent of total risk ; and dermal contact with beryllium which accounted for 40 percent of total risk. All calculated HIs were below 1.0.

Tables B.3.5-27 and B.3.5-28 summarize risks and hazards, respectively, associated with Lime Sludge Pond receptors assuming future land use. Risks due to groundwater did not exceed 1.0 x 10^{-6}. Total risks to the on-property RME farmer and resident child exceed 1.0 x 10^{-3} due primarily to direct contact with surface soil containing radium-228, thorium-228, uranium-238, beryllium, and Aroclor-1254. Total risk to the expanded trespasser exceeded 1.0 x 10^{-5} due to same compounds as on-property residents. Total HIs exceeded 1.0 for the on-property child due to the presence of uranium-total in soil.

B.3.6 OPERABLE UNIT 2 CUMULATIVE RISK

In order to assess the cumulative impact of contaminants present in all Operable Unit 2 subunits future receptors were assumed to be exposed to contaminants via their presence in:

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TABLE B.3.5-24
LIME SLUDGE PONDS
RISKS DUE TO ESTIMATED RA-222 EMISSION

	Subunit			Background		
	Maximum Ra-222 Air Concentration (pCi/m3)*	Intake (pCi)	Risk	Background Ra-222 Air Concentration (pCi/m3)**	Intake (pCi)	Risk
Current Trespassing Youth	3.9E-01	8.1E+02	6.3E-09	1.4E+00	1.0E-11	8.1E-23
Current/Future Off-Property Farmer	3.0E-03	3.5E+02	2.7E-09	1.0E-02	1.2E+03	9.3E-09
Current/Future Off-Property Child	3.0E-03	6.3E+00	4.9E-11	1.0E-02	2.2E+01	1.7E-10
Future Expanded Trespasser (Adult+ Child)	3.9E-01	1.3E+03	9.8E-09	1.4E+00	4.4E+03	3.4E-08
Future, RME On-Property Farmer	3.9E-01	4.5E+04	3.5E-07	1.4E+00	1.6E+05	1.2E-06
Future, CT On-Property Farmer	3.9E-01	3.4E+03	2.6E-08	1.4E+00	1.2E+04	9.0E-08
Future, On-Property Child	3.9E-01	8.2E+02	6.3E-09	1.4E+00	2.8E+03	2.2E-08

*Represents upper 95 percent confidence interval on the mean Ra-226 concentration.

**Assumes Ra-226 concentration is 1.228 pCi/g in surface soil and 0.78 pCi/g in subsurface soil.

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TABLE B.3.5-25
CURRENT LAND USE
LIME SLUDGE PONDS
SUMMARY OF CARCINOGENIC RISK

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	4.0E-07	1.43%	1.43%	2.7E-13	0.00%	0.00%	4.9E-15	2.1E-04%	0.00%
	NP-237	9.1E-08	0.33%	0.33%	4.3E-10	0.35%	0.19%	7.8E-12	0.33%	0.02%
	PU-238	2.7E-09	0.01%	0.01%	4.6E-10	0.37%	0.20%	8.4E-12	0.35%	0.02%
	PU-239/240	6.5E-10	0.00%	0.00%	1.1E-10	0.09%	0.05%	1.9E-12	0.08%	0.00%
	RA-226	1.0E-08	0.04%	0.04%	1.2E-10	0.10%	0.05%	2.1E-12	0.09%	0.00%
	RA-228	1.4E-06	4.83%	4.83%	2.2E-11	0.02%	0.01%	4.0E-13	0.02%	0.00%
	SR-90	4.4E-10	0.00%	0.00%	1.0E-12	0.00%	0.00%	1.8E-14	0.00%	0.00%
	TC-99									
	TH-228	4.7E-06	16.56%	16.56%	4.7E-09	3.77%	2.07%	8.4E-11	3.53%	0.17%
	TH-230	5.0E-08	0.18%	0.18%	2.7E-08	21.57%	11.83%	4.8E-10	20.19%	0.99%
	TH-232	1.4E-09	0.00%	0.00%	7.5E-10	0.61%	0.33%	1.4E-11	0.57%	0.03%
	U-234	2.2E-08	0.08%	0.08%	1.1E-08	9.07%	4.98%	2.0E-10	8.49%	0.41%
	U-235/236	1.2E-07	0.43%	0.43%	9.0E-10	0.72%	0.40%	1.6E-11	0.68%	0.03%
	U-238	8.8E-07	3.13%	3.13%	7.6E-08	61.46%	33.71%	1.4E-09	57.52%	2.81%
	Total Radiological Risk	7.6E-06	27.02%	27.02%	1.2E-07	98.13%	53.82%	2.2E-09	91.84%	4.49%
	Arsenic	2.1E-07	0.76%	0.76%	1.2E-09	1.01%	0.55%	1.1E-10	4.39%	0.21%
	Beryllium	1.6E-05	55.75%	55.75%	1.5E-10	0.12%	0.06%	1.2E-11	0.52%	0.03%
	Chromium	1.9E-08	0.07%	0.07%	7.8E-10	0.63%	0.35%	6.6E-11	2.76%	0.13%
	Aroclor-1254	4.4E-06	15.66%	15.66%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	1.4E-08	0.05%	0.05%	9.3E-12	0.01%	0.00%	7.9E-13	0.03%	0.00%
	Benzo(a)pyrene	1.1E-07	0.41%	0.41%	7.7E-11	0.06%	0.03%	6.5E-12	0.27%	0.01%
	Benzo(b)fluoranthene	1.3E-08	0.05%	0.05%	8.6E-12	0.01%	0.00%	7.3E-13	0.03%	0.00%
	Benzo(k)fluoranthene	4.3E-09	0.02%	0.02%	2.9E-12	0.00%	0.00%	2.5E-13	0.01%	0.00%
	bis(2-Ethylhexyl) phthalat	3.5E-09	0.01%	0.01%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	4.0E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	5.0E-10	0.00%	0.00%	3.4E-13	0.00%	0.00%	2.9E-14	0.00%	0.00%
	Dibenzo(a,h)anthracene	3.7E-08	0.13%	0.13%	2.5E-11	0.02%	0.01%	2.1E-12	0.09%	0.00%
	Indeno(1,2,3-cd)pyrene	2.0E-08	0.07%	0.07%	1.4E-11	0.01%	0.01%	1.2E-12	0.05%	0.00%
	Total Chemical Risk	2.0E-05	72.98%	72.98%	2.3E-09	1.87%	1.02%	2.0E-10	8.16%	0.40%
	Total	2.8E-05	100.00%	100.00%	1.2E-07	100.00%	54.84%	2.4E-09	100.00%	4.88%

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TABLE B.3.5-25
(continued)

Medium	Parameter	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	N/A			1.1E-06	2.29%	2.29%
	NP-237	N/A			2.6E-07	0.55%	0.55%
	PU-238	N/A			1.7E-08	0.04%	0.04%
	PU-239/240	N/A			4.1E-09	0.01%	0.01%
	RA-226	N/A			3.9E-08	0.08%	0.08%
	RA-228	N/A			3.7E-06	7.78%	7.78%
	SR-90	N/A			2.5E-09	0.01%	0.01%
	TC-99						
	TH-228	N/A			1.3E-05	26.72%	26.72%
	TH-230	N/A			3.9E-07	0.83%	0.83%
	TH-232	N/A			1.1E-08	0.02%	0.02%
	U-234	N/A			1.7E-07	0.37%	0.37%
	U-235/236	N/A			3.4E-07	0.71%	0.71%
	U-238	N/A			3.1E-06	6.62%	6.62%
	Total Radiological Risk				2.2E-05	46.03%	46.03%
	Arsenic	N/A			6.7E-07	1.42%	1.42%
	Beryllium	N/A			1.9E-05	39.54%	39.54%
	Chromium	N/A			1.0E-07	0.21%	0.21%
	Aroclor-1254	N/A			5.3E-06	11.29%	11.29%
	Benzo(a)anthracene	N/A			4.9E-08	0.10%	0.10%
	Benzo(a)pyrene	N/A			3.9E-07	0.83%	0.83%
	Benzo(b)fluoranthene	N/A			4.4E-08	0.09%	0.09%
	Benzo(k)fluoranthene	N/A			1.5E-08	0.03%	0.03%
	bis(2-Ethylhexyl) phthalate	N/A			8.6E-09	0.02%	0.02%
	Carbazole	N/A			1.4E-10	0.00%	0.00%
	Chrysene	N/A			1.7E-09	0.00%	0.00%
	Dibenzo(a,h)anthracene	N/A			1.3E-07	0.27%	0.27%
	Indeno(1,2,3-cd)pyrene	N/A			7.1E-08	0.15%	0.15%
	Total Chemical Risk				2.5E-05	53.97%	53.97%
	Total				4.7E-05	100.00%	100.00%

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TABLE B.3.5-25
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Homegrown	CS-137	N/A			3.2E-11	0.08%	0.01%	2.4E-12	0.02%	0.00%
Produce	NP-237	N/A			2.6E-10	0.67%	0.12%	2.0E-11	0.17%	0.04%
	PU-238	N/A			2.0E-10	0.52%	0.09%	1.5E-11	0.13%	0.03%
	PU-239/240	N/A			5.0E-11	0.13%	0.02%	3.7E-12	0.03%	0.01%
	RA-226	N/A			3.7E-10	0.95%	0.17%	2.8E-11	0.23%	0.06%
	RA-228	N/A			2.7E-10	0.68%	0.12%	2.0E-11	0.17%	0.04%
	SR-90	N/A			6.1E-11	0.16%	0.03%	4.5E-12	0.04%	0.01%
	TC-99	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	N/A			2.6E-10	0.66%	0.11%	1.9E-11	0.16%	0.04%
	TH-230	N/A			9.4E-10	2.40%	0.42%	7.0E-11	0.59%	0.14%
	TH-232	N/A			2.5E-11	0.06%	0.01%	1.9E-12	0.02%	0.00%
	U-234	N/A			5.4E-10	1.38%	0.24%	4.0E-11	0.34%	0.08%
	U-235/236	N/A			4.5E-11	0.12%	0.02%	3.3E-12	0.03%	0.01%
	U-238	N/A			3.2E-09	8.24%	1.43%	2.4E-10	2.02%	0.49%
	Total Radiological Risk				6.3E-09	16.05%	2.78%	4.7E-10	3.94%	0.95%
	Arsenic	N/A			1.1E-08	29.36%	5.09%	4.0E-09	33.60%	8.14%
	Beryllium	N/A			5.9E-09	15.11%	2.62%	2.1E-09	17.30%	4.19%
	Aroclor-1254	N/A			4.1E-09	10.51%	1.82%	1.4E-09	12.02%	2.91%
	Benzo(a)anthracene	N/A			8.8E-10	2.26%	0.39%	3.1E-10	2.58%	0.63%
	Benzo(a)pyrene	N/A			7.0E-09	17.88%	3.10%	2.4E-09	20.46%	4.96%
	Benzo(b)fluoranthene	N/A			7.9E-10	2.02%	0.35%	2.7E-10	2.31%	0.56%
	Benzo(k)fluoranthene	N/A			2.7E-10	0.69%	0.12%	9.4E-11	0.80%	0.19%
	bis(2-Ethylhexyl) phthalat	N/A			6.1E-11	0.16%	0.03%	2.1E-11	0.18%	0.04%
	Carbazole	N/A			2.6E-12	0.01%	0.00%	9.1E-13	0.01%	0.00%
	Chrysene	N/A			3.1E-11	0.08%	0.01%	1.1E-11	0.09%	0.02%
	Dibenzo(a,h)anthracene	N/A			2.3E-09	5.87%	1.02%	8.0E-10	6.72%	1.63%
	Total Chemical Risk				3.3E-08	83.95%	14.56%	1.1E-08	96.06%	23.27%
	Total				3.9E-08	100.00%	17.34%	1.2E-08	100.00%	24.23%

TABLE B.3.5-25
(continued)

Medium	Parameter	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce	CS-137	N/A			N/A		
	NP-237	N/A			N/A		
	PU-238	N/A			N/A		
	PU-239/240	N/A			N/A		
	RA-226	N/A			N/A		
	RA-228	N/A			N/A		
	SR-90	N/A			N/A		
	TC-99	N/A			N/A		
	TH-228	N/A			N/A		
	TH-230	N/A			N/A		
	TH-232	N/A			N/A		
	U-234	N/A			N/A		
	U-235/236	N/A			N/A		
	U-238	N/A			N/A		
	Total Radiological Risk						
	Arsenic	N/A			N/A		
	Beryllium	N/A			N/A		
	Aroclor-1254	N/A			N/A		
	Benzo(a)anthracene	N/A			N/A		
	Benzo(a)pyrene	N/A			N/A		
	Benzo(b)fluoranthene	N/A			N/A		
	Benzo(k)fluoranthene	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	N/A			N/A		
	Carbazole	N/A			N/A		
	Chrysene	N/A			N/A		
	Dibenzo(a,h)anthracene	N/A			N/A		
	Total Chemical Risk						
	Total						

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TABLE B.3.5-25
(continued)

Medium	Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Beef/Milk	CS-137	N/A			1.2E-10	0.20%	0.05%	1.6E-11	0.04%	0.03%
	NP-237	N/A			1.5E-12	0.00%	0.00%	1.2E-13	0.00%	0.00%
	PU-238	N/A			1.5E-14	0.00%	0.00%	1.5E-15	0.00%	0.00%
	PU-239/240	N/A			3.6E-15	0.00%	0.00%	3.8E-16	0.00%	0.00%
	RA-226	N/A			6.1E-11	0.10%	0.03%	1.1E-11	0.03%	0.02%
	RA-228	N/A			4.2E-11	0.07%	0.02%	7.3E-12	0.02%	0.01%
	SR-90	N/A			2.4E-11	0.04%	0.01%	4.5E-12	0.01%	0.01%
	TC-99	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	N/A			4.9E-13	0.00%	0.00%	7.6E-14	0.00%	0.00%
	TH-230	N/A			2.0E-12	0.00%	0.00%	3.1E-13	0.00%	0.00%
	TH-232	N/A			5.2E-14	0.00%	0.00%	8.2E-15	0.00%	0.00%
	U-234	N/A			1.1E-10	0.18%	0.05%	2.0E-11	0.06%	0.04%
	U-235/236	N/A			9.3E-12	0.01%	0.00%	1.7E-12	0.00%	0.00%
	U-238	N/A			6.7E-10	1.07%	0.30%	1.2E-10	0.35%	0.25%
	Total Radiological Risk				1.0E-09	1.67%	0.46%	1.8E-10	0.53%	0.37%
	Arsenic	N/A			2.0E-09	3.25%	0.90%	4.8E-10	1.38%	0.98%
	Beryllium	N/A			4.7E-10	0.75%	0.21%	7.4E-11	0.21%	0.15%
	Aroclor-1254	N/A			2.0E-08	31.99%	8.90%	1.2E-08	33.19%	23.53%
	Benzo(a)anthracene	N/A			9.7E-10	1.55%	0.43%	5.6E-10	1.61%	1.14%
	Benzo(a)pyrene	N/A			1.8E-08	29.51%	8.21%	1.1E-08	30.62%	21.71%
	Benzo(b)fluoranthene	N/A			8.1E-09	12.93%	3.60%	4.7E-09	13.42%	9.51%
	Benzo(k)fluoranthene	N/A			5.6E-09	8.87%	2.47%	3.2E-09	9.21%	6.53%
	bis(2-Ethylhexyl) phthalat	N/A			2.8E-12	0.00%	0.00%	1.6E-12	0.00%	0.00%
	Chrysene	N/A			3.4E-11	0.05%	0.02%	2.0E-11	0.06%	0.04%
	Dibenzo(a,h)anthracene	N/A			5.9E-09	9.41%	2.62%	3.4E-09	9.77%	6.92%
	Total Chemical Risk				6.2E-08	98.33%	27.36%	3.5E-08	99.47%	70.51%
	Total				6.3E-08	100.00%	27.82%	3.5E-08	100.00%	70.89%
ALL MEDIA		**2.8E-05**			**2.3E-07**			**4.9E-08**		

TABLE B.3.5-25
(continued)

Medium	Parameter	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Beef/Milk	CS-137	1.1E-08	0.20%	0.20%	N/A		
	NP-237	1.4E-10	0.00%	0.00%	N/A		
	PU-238	1.3E-12	0.00%	0.00%	N/A		
	PU-239/240	3.2E-13	0.00%	0.00%	N/A		
	RA-226	5.4E-09	0.10%	0.10%	N/A		
	RA-228	3.7E-09	0.07%	0.07%	N/A		
	SR-90	2.1E-09	0.04%	0.04%	N/A		
	TC-99	0.0E+00	0.00%	0.00%	N/A		
	TH-228	4.3E-11	0.00%	0.00%	N/A		
	TH-230	1.7E-10	0.00%	0.00%	N/A		
	TH-232	4.6E-12	0.00%	0.00%	N/A		
	U-234	9.9E-09	0.18%	0.18%	N/A		
	U-235/236	8.2E-10	0.01%	0.01%	N/A		
	U-238	5.9E-08	1.07%	1.07%	N/A		
	Total Radiological Risk	9.2E-08	1.66%	1.66%			
	Arsenic	1.8E-07	3.25%	3.25%	N/A		
	Beryllium	4.2E-08	0.75%	0.75%	N/A		
	Aroclor-1254	1.8E-06	31.97%	31.97%	N/A		
	Benzo(a)anthracene	8.5E-08	1.55%	1.55%	N/A		
	Benzo(a)pyrene	1.6E-06	29.58%	29.58%	N/A		
	Benzo(b)fluoranthene	7.1E-07	12.92%	12.92%	N/A		
	Benzo(k)fluoranthene	4.9E-07	8.87%	8.87%	N/A		
	bis(2-Ethylhexyl) phthalate	2.5E-10	0.00%	0.00%	N/A		
	Chrysene	3.0E-09	0.05%	0.05%	N/A		
	Dibenzo(a,h)anthracene	5.2E-07	9.40%	9.40%	N/A		
	Total Chemical Risk	5.4E-06	98.34%	98.34%			
	Total	5.5E-06	100.00%	100.00%			
ALL MEDIA		**5.5E-06**			**4.7E-05**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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B-3-149

TABLE B.3.5-26
CURRENT LAND USE
LIME SLUDGE PONDS
SUMMARY OF NONCARCINOGENIC HAZARD

Medium	Parameter	Trespassing Youth	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	2.3E-03	1.08%	1.08%	0.0E+00		0.00%
	Beryllium	4.2E-03	1.97%	1.97%	0.0E+00		0.00%
	Cadmium	3.4E-03	1.59%	1.59%	0.0E+00		0.00%
	Chromium	1.3E-03	0.60%	0.60%	0.0E+00		0.00%
	U-TOTAL	2.0E-01	94.73%	94.73%	0.0E+00		0.00%
	bis(2-Ethylhexyl) phthalate	7.2E-05	0.03%	0.03%	0.0E+00		0.00%
	Dibenzofuran	8.7E-07	0.00%	0.00%	0.0E+00		0.00%
	Indeno(1,2,3-cd)pyrene				0.0E+00		0.00%
	Total	2.2E-01	100.00%	100.00%	0.0E+00		0.00%
Homegrown Produce	Arsenic	N/A			2.2E-05	23.97%	19.49%
	Beryllium	N/A			2.7E-07	0.30%	0.24%
	Cadmium	N/A			1.3E-06	1.40%	1.14%
	Chromium	N/A			3.0E-06	3.28%	2.67%
	U-TOTAL	N/A			6.5E-05	70.81%	57.56%
	bis(2-Ethylhexyl) phthalate	N/A			2.2E-07	0.24%	0.19%
	Total				9.1E-05	100.00%	81.30%
Beef/Milk	Arsenic	N/A			3.9E-06	18.49%	3.46%
	Beryllium	N/A			2.2E-08	0.10%	0.02%
	Cadmium	N/A			8.9E-07	4.26%	0.80%
	Chromium	N/A			2.7E-06	13.12%	2.45%
	U-TOTAL	N/A			1.3E-05	63.97%	11.96%
	bis(2-Ethylhexyl) phthalate	N/A			1.0E-08	0.05%	0.01%
	Total				2.1E-05	100.00%	18.70%
ALL MEDIA		**2.2E-01**			**1.1E-04**		

TABLE B.3.5-26
(continued)

Medium	Parameter	Off-Property Resident Child	% Total Medium Hazard	% Total Receptor Hazard	User of Milk and Meat	% Total Medium Hazard	% Total Receptor Hazard	Grounds-keeper	% Total Medium Risk	% Total Receptor Risk
Soil	Arsenic	0.0E+00		0.00%	N/A			3.5E-03	2.42%	2.42%
	Beryllium	0.0E+00		0.00%	N/A			2.4E-03	1.69%	1.69%
	Cadmium	0.0E+00		0.00%	N/A			2.1E-03	1.43%	1.43%
	Chromium	0.0E+00		0.00%	N/A			1.3E-02	9.34%	9.34%
	U-TOTAL	0.0E+00		0.00%	N/A			1.2E-01	85.06%	85.06%
	bis(2-Ethylhexyl) phthalate	0.0E+00		0.00%	N/A			8.6E-05	0.06%	0.06%
	Dibenzofuran	0.0E+00		0.00%	N/A			1.4E-06	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	0.0E+00		0.00%						
	Total	0.0E+00		0.00%				1.4E-01	100.00%	100.00%
Homegrown Produce	Arsenic	7.6E-06	23.97%	3.84%	N/A			N/A		
	Beryllium	9.5E-08	0.30%	0.05%	N/A			N/A		
	Cadmium	4.4E-07	1.40%	0.22%	N/A			N/A		
	Chromium	1.0E-06	3.28%	0.53%	N/A			N/A		
	U-TOTAL	2.2E-05	70.81%	11.34%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	7.6E-08	0.24%	0.04%	N/A			N/A		
	Total	3.2E-05	100.00%	16.02%						
Beef/Milk	Arsenic	1.1E-05	6.41%	5.38%	3.4E-04	18.50%	18.50%	N/A		
	Beryllium	4.0E-08	0.02%	0.02%	1.9E-06	0.10%	0.10%	N/A		
	Cadmium	4.9E-06	2.96%	2.49%	7.9E-05	4.26%	4.26%	N/A		
	Chromium	1.8E-05	10.57%	8.88%	2.4E-04	13.10%	13.10%	N/A		
	U-TOTAL	1.3E-04	80.00%	67.18%	1.2E-03	63.99%	63.99%	N/A		
	bis(2-Ethylhexyl) phthalate	6.7E-08	0.04%	0.03%	8.9E-07	0.05%	0.05%	N/A		
	Total	1.7E-04	100.00%	83.98%	1.8E-03	100.00%	100.00%			
ALL MEDIA		**2.0E-04**			**1.8E-03**			**1.4E-01**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.3.5-27
FUTURE LAND USE
LIME SLUDGE PONDS
SUMMARY OF CARCINOGENIC RISK

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	5.5E-07	0.56%	0.56%	2.7E-13	0.00%	0.00%	4.9E-15	0.00%	0.00%
	NP-237	1.2E-07	0.12%	0.12%	4.3E-10	0.35%	0.18%	7.8E-12	0.33%	0.02%
	PU-238	1.2E-09	0.00%	0.00%	4.6E-10	0.37%	0.19%	8.4E-12	0.35%	0.02%
	PU-239/240	2.8E-10	0.00%	0.00%	1.1E-10	0.09%	0.04%	1.9E-12	0.08%	0.00%
	RA-226	9.4E-09	0.01%	0.01%	1.2E-10	0.10%	0.05%	2.1E-12	0.09%	0.00%
	RA-228	1.9E-06	1.90%	1.90%	2.2E-11	0.02%	0.01%	4.0E-13	0.02%	0.00%
	SR-90	3.7E-12	0.00%	0.00%	1.0E-12	0.00%	0.00%	1.8E-14	0.00%	0.00%
	TC-99			0.00%			0.00%	0.0E+00	0.00%	0.00%
	TH-228	6.4E-06	6.52%	6.52%	4.7E-09	3.77%	1.94%	8.4E-11	3.53%	0.17%
	TH-230	7.1E-08	0.07%	0.07%	2.7E-08	21.57%	11.08%	4.8E-10	20.19%	0.96%
	TH-232	2.0E-09	0.00%	0.00%	7.5E-10	0.61%	0.31%	1.4E-11	0.57%	0.03%
	U-234	3.0E-08	0.03%	0.03%	1.1E-08	9.07%	4.66%	2.0E-10	8.49%	0.41%
	U-235/236	1.7E-07	0.17%	0.17%	9.0E-10	0.72%	0.37%	1.6E-11	0.68%	0.03%
	U-238	1.2E-06	1.23%	1.23%	7.6E-08	61.46%	31.57%	1.4E-09	57.52%	2.74%
	Total Radiological Risk	1.0E-05	10.61%	10.61%	1.2E-07	98.13%	50.40%	2.2E-09	91.84%	4.38%
	Arsenic	4.8E-07	0.49%	0.49%	1.2E-09	1.01%	0.52%	1.1E-10	4.39%	0.21%
	Beryllium	6.8E-05	69.15%	69.15%	1.5E-10	0.12%	0.06%	1.2E-11	0.52%	0.02%
	Chromium	2.8E-08	0.03%	0.03%	7.8E-10	0.63%	0.32%	6.6E-11	2.76%	0.13%
	Aroclor-1254	1.9E-05	19.33%	19.33%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	2.7E-08	0.03%	0.03%	9.3E-12	0.01%	0.00%	7.9E-13	0.03%	0.00%
	Benzo(a)pyrene	2.1E-07	0.22%	0.22%	7.7E-11	0.06%	0.03%	6.5E-12	0.27%	0.01%
	Benzo(b)fluoranthene	2.4E-08	0.02%	0.02%	8.6E-12	0.01%	0.00%	7.3E-13	0.03%	0.00%
	Benzo(k)fluoranthene	8.1E-09	0.01%	0.01%	2.9E-12	0.00%	0.00%	2.5E-13	0.01%	0.00%
	bis(2-Ethylhexyl) phthalate	1.0E-08	0.01%	0.01%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	7.5E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	9.4E-10	0.00%	0.00%	3.4E-13	0.00%	0.00%	2.9E-14	0.00%	0.00%
	Dibenzo(a,h)anthracene	6.9E-08	0.07%	0.07%	2.5E-11	0.02%	0.01%	2.1E-12	0.09%	0.00%
	Indeno(1,2,3-cd)pyrene	3.8E-08	0.04%	0.04%	1.4E-11	0.01%	0.01%	1.2E-12	0.05%	0.00%
	Total Chemical Risk	8.8E-05	89.39%	89.39%	2.3E-09	1.87%	0.96%	2.0E-10	8.16%	0.39%
	Total	9.8E-05	100.00%	100.00%	1.2E-07	100.00%	51.36%	2.4E-09	100.00%	4.77%
Groundwater	TC-99	N/A			9.1E-09	100.00%	3.79%	3.9E-10	100.00%	0.78%
	Total Radiological Risk				9.1E-09	100.00%	3.79%	3.9E-10	100.00%	0.78%

TABLE B.3.5-27
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Perched Groundwate User (Adult)	% Total Medium Risk	% Total Receptor Risk	Perched Groundwate User (Child)	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	5.8E-05	3.16%	3.14%	5.6E-06	3.32%	3.31%	4.4E-06	2.13%	2.08%	N/A			N/A		
	NP-237	1.4E-05	0.73%	0.73%	1.3E-06	0.76%	0.76%	1.0E-06	0.50%	0.49%	N/A			N/A		
	PU-238	6.0E-07	0.03%	0.03%	4.1E-08	0.02%	0.02%	5.4E-08	0.03%	0.03%	N/A			N/A		
	PU-239/240	1.5E-07	0.01%	0.01%	1.0E-08	0.01%	0.01%	1.3E-08	0.01%	0.01%	N/A			N/A		
	RA-226	2.0E-06	0.11%	0.11%	1.6E-07	0.10%	0.10%	1.7E-07	0.08%	0.08%	N/A			N/A		
	RA-228	2.0E-04	10.71%	10.65%	1.9E-05	11.24%	11.20%	1.5E-05	7.21%	7.07%	N/A			N/A		
	SR-90	1.2E-07	0.01%	0.01%	8.5E-09	0.01%	0.01%	1.2E-08	0.01%	0.01%	N/A			N/A		
	TC-99	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-228	6.8E-04	36.64%	36.45%	6.5E-05	38.48%	38.35%	5.1E-05	24.65%	24.17%	N/A			N/A		
	TH-230	4.9E-06	0.27%	0.26%	3.5E-07	0.21%	0.21%	2.9E-07	0.14%	0.14%	N/A			N/A		
	TH-232	1.3E-07	0.01%	0.01%	9.6E-09	0.01%	0.01%	7.8E-09	0.00%	0.00%	N/A			N/A		
	U-234	2.5E-06	0.13%	0.13%	1.7E-07	0.10%	0.10%	1.6E-07	0.08%	0.08%	N/A			N/A		
	U-235/236	1.8E-05	0.95%	0.94%	1.7E-06	0.99%	0.99%	1.3E-06	0.64%	0.63%	N/A			N/A		
	U-238	1.2E-04	6.59%	6.56%	1.1E-05	6.70%	6.68%	9.0E-06	4.35%	4.26%	N/A			N/A		
	Total Radiological Risk	1.1E-03	59.34%	59.05%	1.0E-04	61.95%	61.74%	8.2E-05	39.81%	39.03%						
	Arsenic	3.2E-05	1.74%	1.73%	2.2E-06	1.32%	1.31%	1.4E-05	6.75%	6.62%	N/A			N/A		
	Beryllium	5.3E-04	28.65%	28.51%	4.6E-05	27.39%	27.29%	7.2E-05	34.66%	33.98%	N/A			N/A		
	Chromium	6.6E-08	0.00%	0.00%	4.9E-09	0.00%	0.00%	5.6E-09	0.00%	0.00%	N/A			N/A		
	Aroclor-1254	1.5E-04	8.34%	8.30%	1.3E-05	7.90%	7.87%	2.3E-05	11.10%	10.88%	N/A			N/A		
	Benzo(a)anthracene	2.5E-06	0.13%	0.13%	1.7E-07	0.10%	0.10%	1.1E-06	0.53%	0.52%	N/A			N/A		
	Benzo(a)pyrene	2.0E-05	1.07%	1.07%	1.4E-06	0.80%	0.80%	8.8E-06	4.27%	4.18%	N/A			N/A		
	Benzo(b)fluoranthene	2.2E-06	0.12%	0.12%	1.5E-07	0.09%	0.09%	9.9E-07	0.48%	0.47%	N/A			N/A		
	Benzo(k)fluoranthene	7.5E-07	0.04%	0.04%	5.1E-08	0.03%	0.03%	3.3E-07	0.16%	0.16%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	3.9E-07	0.02%	0.02%	2.8E-08	0.02%	0.02%	1.6E-07	0.08%	0.08%	N/A			N/A		
	Carbazole	6.9E-09	0.00%	0.00%	4.7E-10	0.00%	0.00%	3.1E-09	0.00%	0.00%	N/A			N/A		
	Chrysene	8.7E-08	0.00%	0.00%	5.9E-09	0.00%	0.00%	3.9E-08	0.02%	0.02%	N/A			N/A		
	Dibenzo(a,h)anthracene	6.4E-06	0.35%	0.34%	4.4E-07	0.26%	0.26%	2.8E-06	1.38%	1.35%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	3.6E-06	0.19%	0.19%	2.4E-07	0.14%	0.14%	1.6E-06	0.76%	0.75%	N/A			N/A		
	Total Chemical Risk	7.5E-04	40.66%	40.46%	6.4E-05	38.05%	37.92%	1.2E-04	60.19%	59.01%						
	Total	1.9E-03	100.00%	99.50%	1.7E-04	100.00%	99.66%	2.1E-04	100.00%	98.04%						
Groundwater	TC-99	1.6E-07	100.00%	0.01%	1.1E-08	100.00%	0.01%	6.9E-09	100.00%	0.00%	N/A			N/A		
	Total Radiological Risk	1.6E-07	100.00%	0.01%	1.1E-08	100.00%	0.01%	6.9E-09	100.00%	0.00%						

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TABLE B.3.5-27
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Perched Groundwater	NP-237									
	SR-90									
	TC-99									
	Total Radiological Risk									
	Arsenic									
	Total Chemical Risk									
	Total									
Homegrown Produce (Dust Affected)	CS-137	N/A			3.2E-11	0.08%	0.01%	2.4E-12	0.02%	0.00%
	NP-237	N/A			2.6E-10	0.67%	0.11%	2.0E-11	0.17%	0.04%
	PU-238	N/A			2.0E-10	0.52%	0.08%	1.5E-11	0.13%	0.03%
	PU-239/240	N/A			5.0E-11	0.13%	0.02%	3.7E-12	0.03%	0.01%
	RA-226	N/A			3.7E-10	0.95%	0.15%	2.8E-11	0.23%	0.06%
	RA-228	N/A			2.7E-10	0.68%	0.11%	2.0E-11	0.17%	0.04%
	SR-90	N/A			6.1E-11	0.16%	0.03%	4.5E-12	0.04%	0.01%
	TC-99	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	N/A			2.6E-10	0.66%	0.11%	1.9E-11	0.16%	0.04%
	TH-230	N/A			9.4E-10	2.40%	0.39%	7.0E-11	0.59%	0.14%
	TH-232	N/A			2.5E-11	0.06%	0.01%	1.9E-12	0.02%	0.00%
	U-234	N/A			5.4E-10	1.39%	0.23%	4.0E-11	0.34%	0.08%
	U-235/236	N/A			4.5E-11	0.12%	0.02%	3.4E-12	0.03%	0.01%
	U-238	N/A			3.2E-09	8.26%	1.34%	2.4E-10	2.03%	0.48%
	Total Radiological Risk				6.3E-09	16.08%	2.61%	4.7E-10	3.94%	0.93%
	Arsenic	N/A			1.1E-08	29.35%	4.77%	4.0E-09	33.59%	7.95%
	Beryllium	N/A			5.9E-09	15.11%	2.45%	2.1E-09	17.29%	4.09%
	Aroclor-1254	N/A			4.1E-09	10.50%	1.71%	1.4E-09	12.02%	2.84%
	Benzo(a)anthracene	N/A			8.8E-10	2.26%	0.37%	3.1E-10	2.58%	0.61%
	Benzo(a)pyrene	N/A			7.0E-09	17.87%	2.90%	2.4E-09	20.46%	4.84%
	Benzo(b)fluoranthene	N/A			7.9E-10	2.02%	0.33%	2.7E-10	2.31%	0.55%
	Benzo(k)fluoranthene	N/A			2.7E-10	0.69%	0.11%	9.4E-11	0.80%	0.19%
	bis(2-Ethylhexyl) phthalate	N/A			6.1E-11	0.16%	0.03%	2.1E-11	0.18%	0.04%
	Carbazole	N/A			2.6E-12	0.01%	0.00%	9.1E-13	0.01%	0.00%
	Chrysene	N/A			3.1E-11	0.08%	0.01%	1.1E-11	0.09%	0.02%
	Dibenzo(a,h)anthracene	N/A			2.3E-09	5.87%	0.95%	8.0E-10	6.72%	1.59%
	Total Chemical Risk				3.3E-08	83.92%	13.63%	1.1E-08	96.06%	22.73%
	Total				3.9E-08	100.00%	16.24%	1.2E-08	100.00%	23.66%

TABLE B.3.5-27
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Perched Groundwate User	% Total Medium Risk	% Total Receptor Risk	Perched Groundwate User (Child)	% Total Medium Risk	% Total Receptor Risk
Perched	NP-237										5.9E-08	7.71%	7.71%	2.5E-09	1.78%	1.78%
Groundwater	SR-90										3.4E-09	0.44%	0.44%	1.4E-10	0.10%	0.10%
	TC-99										4.4E-09	0.58%	0.58%	1.9E-10	0.13%	0.13%
	Total Radiological Risk										6.7E-08	8.73%	8.73%	2.9E-09	2.01%	2.01%
	Arsenic										7.0E-07	91.27%	91.27%	1.4E-07	97.99%	97.99%
	Total Chemical Risk										7.0E-07	91.27%	91.27%	1.4E-07	97.99%	97.99%
	Total										7.0E-07	100.00%	100.00%	1.4E-07	100.00%	########
Homegrown	CS-137	2.9E-09	0.08%	0.00%	1.8E-10	0.08%	0.00%	2.1E-10	0.02%	0.00%	N/A			N/A		
Produce	NP-237	2.3E-08	0.67%	0.00%	1.5E-09	0.67%	0.00%	1.7E-09	0.17%	0.00%	N/A			N/A		
(Dust	PU-238	1.8E-08	0.52%	0.00%	1.2E-09	0.52%	0.00%	1.3E-09	0.13%	0.00%	N/A			N/A		
Affected)	PU-239/240	4.4E-09	0.13%	0.00%	2.9E-10	0.13%	0.00%	3.3E-10	0.03%	0.00%	N/A			N/A		
	RA-226	3.3E-08	0.95%	0.00%	2.1E-09	0.95%	0.00%	2.4E-09	0.23%	0.00%	N/A			N/A		
	RA-228	2.3E-08	0.68%	0.00%	1.5E-09	0.68%	0.00%	1.7E-09	0.17%	0.00%	N/A			N/A		
	SR-90	5.4E-09	0.16%	0.00%	3.5E-10	0.16%	0.00%	4.0E-10	0.04%	0.00%	N/A			N/A		
	TC-99	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-228	2.3E-08	0.66%	0.00%	1.5E-09	0.66%	0.00%	1.7E-09	0.16%	0.00%	N/A			N/A		
	TH-230	8.3E-08	2.40%	0.00%	5.3E-09	2.40%	0.00%	6.2E-09	0.59%	0.00%	N/A			N/A		
	TH-232	2.2E-09	0.06%	0.00%	1.4E-10	0.06%	0.00%	1.7E-10	0.02%	0.00%	N/A			N/A		
	U-234	4.8E-08	1.39%	0.00%	3.1E-09	1.39%	0.00%	3.6E-09	0.34%	0.00%	N/A			N/A		
	U-235/236	4.0E-09	0.12%	0.00%	2.6E-10	0.12%	0.00%	3.0E-10	0.03%	0.00%	N/A			N/A		
	U-238	2.8E-07	8.25%	0.02%	1.8E-08	8.25%	0.01%	2.1E-08	2.02%	0.01%	N/A			N/A		
	Total Radiological Risk	5.5E-07	16.07%	0.03%	3.6E-08	16.07%	0.02%	4.1E-08	3.94%	0.02%						
	Arsenic	1.0E-06	29.36%	0.05%	6.5E-08	29.36%	0.04%	3.5E-07	33.60%	0.17%	N/A			N/A		
	Beryllium	5.2E-07	15.08%	0.03%	3.4E-08	15.08%	0.02%	1.8E-07	17.26%	0.09%	N/A			N/A		
	Aroclor-1254	3.6E-07	10.50%	0.02%	2.3E-08	10.50%	0.01%	1.3E-07	12.02%	0.06%	N/A			N/A		
	Benzo(a)anthracene	7.7E-08	2.25%	0.00%	5.0E-09	2.25%	0.00%	2.7E-08	2.57%	0.01%	N/A			N/A		
	Benzo(a)pyrene	6.2E-07	17.92%	0.03%	4.0E-08	17.92%	0.02%	2.1E-07	20.51%	0.10%	N/A			N/A		
	Benzo(b)fluoranthene	6.9E-08	2.02%	0.00%	4.5E-09	2.02%	0.00%	2.4E-08	2.31%	0.01%	N/A			N/A		
	Benzo(k)fluoranthene	2.4E-08	0.69%	0.00%	1.5E-09	0.69%	0.00%	8.3E-09	0.80%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	5.4E-09	0.16%	0.00%	3.5E-10	0.16%	0.00%	1.9E-09	0.18%	0.00%	N/A			N/A		
	Carbazole	2.3E-10	0.01%	0.00%	1.5E-11	0.01%	0.00%	8.0E-11	0.01%	0.00%	N/A			N/A		
	Chrysene	2.7E-09	0.08%	0.00%	1.8E-10	0.08%	0.00%	9.5E-10	0.09%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	2.0E-07	5.87%	0.01%	1.3E-08	5.87%	0.01%	7.0E-08	6.71%	0.03%	N/A			N/A		
	Total Chemical Risk	2.9E-06	83.93%	0.16%	1.9E-07	83.93%	0.11%	1.0E-06	96.06%	0.48%						
	Total	3.4E-06	100.00%	0.19%	2.2E-07	100.00%	0.13%	1.0E-06	100.00%	0.50%						

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TABLE B.3.5-27
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Groundwater Affected)	TC-99	N/A			2.6E-09	100.00%	1.06%	1.9E-10	100.00%	0.38%
	Total Radiological Risk				2.6E-09	100.00%	1.06%	1.9E-10	100.00%	0.38%
Beef/Milk (Dust Affected)	CS-137	N/A			1.2E-10	0.20%	0.05%	1.6E-11	0.04%	0.03%
	NP-237	N/A			1.5E-12	0.00%	0.00%	1.2E-13	0.00%	0.00%
	PU-238	N/A			1.5E-14	0.00%	0.00%	1.5E-15	0.00%	0.00%
	PU-239/240	N/A			3.6E-15	0.00%	0.00%	3.8E-16	0.00%	0.00%
	RA-226	N/A			6.1E-11	0.10%	0.03%	1.1E-11	0.03%	0.02%
	RA-228	N/A			4.2E-11	0.07%	0.02%	7.3E-12	0.02%	0.01%
	SR-90	N/A			2.4E-11	0.04%	0.01%	4.5E-12	0.01%	0.01%
	TC-99	N/A			0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	N/A			4.9E-13	0.00%	0.00%	7.6E-14	0.00%	0.00%
	TH-230	N/A			2.0E-12	0.00%	0.00%	3.1E-13	0.00%	0.00%
	TH-232	N/A			5.2E-14	0.00%	0.00%	8.2E-15	0.00%	0.00%
	U-234	N/A			1.1E-10	0.18%	0.05%	2.0E-11	0.06%	0.04%
	U-235/236	N/A			9.4E-12	0.01%	0.00%	1.7E-12	0.00%	0.00%
	U-238	N/A			6.7E-10	1.07%	0.28%	1.2E-10	0.35%	0.24%
	Total Radiological Risk				1.0E-09	1.67%	0.43%	1.8E-10	0.53%	0.36%
	Arsenic	N/A			2.0E-09	3.25%	0.85%	4.8E-10	1.38%	0.95%
	Beryllium	N/A			4.7E-10	0.75%	0.20%	7.4E-11	0.21%	0.15%
	Aroclor-1254	N/A			2.0E-08	31.99%	8.33%	1.2E-08	33.19%	22.97%
	Benzo(a)anthracene	N/A			9.7E-10	1.55%	0.40%	5.6E-10	1.61%	1.12%
	Benzo(a)pyrene	N/A			1.8E-08	29.51%	7.69%	1.1E-08	30.62%	21.20%
	Benzo(b)fluoranthene	N/A			8.1E-09	12.93%	3.37%	4.7E-09	13.42%	9.29%
	Benzo(k)fluoranthene	N/A			5.6E-09	8.87%	2.31%	3.2E-09	9.21%	6.37%
	bis(2-Ethylhexyl) phthalate	N/A			2.8E-12	0.00%	0.00%	1.6E-12	0.00%	0.00%
	Chrysene	N/A			3.4E-11	0.05%	0.01%	2.0E-11	0.06%	0.04%
	Dibenzo(a,h)anthracene	N/A			5.9E-09	9.41%	2.45%	3.4E-09	9.77%	6.76%
	Total Chemical Risk				6.2E-08	98.33%	25.62%	3.5E-08	99.47%	68.85%
	Total				6.3E-08	100.00%	26.05%	3.5E-08	100.00%	69.22%
Beef/Milk (Groundwater Affected)	TC-99	N/A			3.6E-09	100.00%	1.50%	6.0E-10	100.00%	1.20%
	Total Radiological Risk				3.6E-09	100.00%	1.50%	6.0E-10	100.00%	1.20%
ALL MEDIA		**9.8E-05**			**2.4E-07**			**5.0E-08**		

TABLE B.3.5-27
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Perched Groundwate User	% Total Medium Risk	% Total Receptor Risk	Perched Groundwate User (Child)	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Groundwater Affected)	TC-99	4.5E-08	100.00%	0.00%	2.9E-09	100.00%	0.00%	3.3E-09	100.00%	0.00%	N/A			N/A		
	Total Radiological Risk	4.5E-08	100.00%	0.00%	2.9E-09	100.00%	0.00%	3.3E-09	100.00%	0.00%						
Beef/Milk (Dust Affected)	CS-137	1.1E-08	0.20%	0.00%	6.4E-10	0.19%	0.00%	1.4E-09	0.04%	0.00%	N/A			N/A		
	NP-237	1.4E-10	0.00%	0.00%	8.6E-12	0.00%	0.00%	1.0E-11	0.00%	0.00%	N/A			N/A		
	PU-238	1.3E-12	0.00%	0.00%	7.9E-14	0.00%	0.00%	1.4E-13	0.00%	0.00%	N/A			N/A		
	PU-239/240	3.2E-13	0.00%	0.00%	1.9E-14	0.00%	0.00%	3.3E-14	0.00%	0.00%	N/A			N/A		
	RA-226	5.4E-09	0.10%	0.00%	3.0E-10	0.09%	0.00%	9.3E-10	0.03%	0.00%	N/A			N/A		
	RA-228	3.7E-09	0.07%	0.00%	2.0E-10	0.06%	0.00%	6.4E-10	0.02%	0.00%	N/A			N/A		
	SR-90	2.1E-09	0.04%	0.00%	1.2E-10	0.03%	0.00%	4.0E-10	0.01%	0.00%	N/A			N/A		
	TC-99	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-228	4.3E-11	0.00%	0.00%	2.4E-12	0.00%	0.00%	6.7E-12	0.00%	0.00%	N/A			N/A		
	TH-230	1.7E-10	0.00%	0.00%	9.8E-12	0.00%	0.00%	2.7E-11	0.00%	0.00%	N/A			N/A		
	TH-232	4.6E-12	0.00%	0.00%	2.6E-13	0.00%	0.00%	7.3E-13	0.00%	0.00%	N/A			N/A		
	U-234	9.9E-09	0.18%	0.00%	5.4E-10	0.16%	0.00%	1.8E-09	0.06%	0.00%	N/A			N/A		
	U-235/236	8.2E-10	0.01%	0.00%	4.5E-11	0.01%	0.00%	1.5E-10	0.00%	0.00%	N/A			N/A		
	U-238	5.9E-08	1.07%	0.00%	3.2E-09	0.98%	0.00%	1.1E-08	0.35%	0.01%	N/A			N/A		
	Total Radiological Risk	9.2E-08	1.67%	0.00%	5.1E-09	1.54%	0.00%	1.6E-08	0.53%	0.01%						
	Arsenic	1.8E-07	3.25%	0.01%	1.2E-08	3.56%	0.01%	4.2E-08	1.38%	0.02%	N/A			N/A		
	Beryllium	4.2E-08	0.75%	0.00%	2.8E-09	0.84%	0.00%	6.5E-09	0.21%	0.00%	N/A			N/A		
	Aroclor-1254	1.8E-06	31.97%	0.09%	1.1E-07	31.87%	0.06%	1.0E-06	33.17%	0.48%	N/A			N/A		
	Benzo(a)anthracene	8.5E-08	1.55%	0.00%	5.1E-09	1.54%	0.00%	4.9E-08	1.60%	0.02%	N/A			N/A		
	Benzo(a)pyrene	1.6E-06	29.58%	0.09%	9.8E-08	29.49%	0.06%	9.4E-07	30.69%	0.45%	N/A			N/A		
	Benzo(b)fluoranthene	7.1E-07	12.92%	0.04%	4.3E-08	12.88%	0.03%	4.1E-07	13.40%	0.19%	N/A			N/A		
	Benzo(k)fluoranthene	4.9E-07	8.87%	0.03%	2.9E-08	8.84%	0.02%	2.8E-07	9.20%	0.13%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	2.5E-10	0.00%	0.00%	1.5E-11	0.00%	0.00%	1.4E-10	0.00%	0.00%	N/A			N/A		
	Chrysene	3.0E-09	0.05%	0.00%	1.8E-10	0.05%	0.00%	1.7E-09	0.06%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	5.2E-07	9.40%	0.03%	3.1E-08	9.37%	0.02%	3.0E-07	9.75%	0.14%	N/A			N/A		
	Total Chemical Risk	5.4E-06	98.33%	0.29%	3.3E-07	98.46%	0.19%	3.0E-06	99.47%	1.45%	N/A			N/A		
	Total	5.5E-06	100.00%	0.30%	3.3E-07	100.00%	0.20%	3.1E-06	100.00%	1.45%	N/A			N/A		
Beef/Milk (Groundwater Affected)	TC-99	6.3E-08	100.00%	0.00%	3.6E-09	100.00%	0.00%	1.1E-08	100.00%	0.01%	N/A			N/A		
	Total Radiological Risk	6.3E-08	100.00%	0.00%	3.6E-09	100.00%	0.00%	1.1E-08	100.00%	0.01%						
ALL MEDIA		**1.9E-03**			**1.7E-04**			**2.1E-04**			**7.7E-07**			**1.4E-07**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.5-28
FUTURE LAND USE
LIME SLUDGE PONDS
SUMMARY OF NON-CARCINOGENIC HAZARDS

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil	Arsenic	3.7E-03	0.60%	0.60%	0.0E+00		0.00%	0.0E+00		0.00%
	Beryllium	1.3E-02	2.00%	2.00%	0.0E+00		0.00%	0.0E+00		0.00%
	Cadmium	1.0E-02	1.60%	1.60%	0.0E+00		0.00%	0.0E+00		0.00%
	Chromium	3.4E-03	0.54%	0.54%	0.0E+00		0.00%	0.0E+00		0.00%
	U-TOTAL	6.0E-01	95.23%	95.23%	0.0E+00		0.00%	0.0E+00		0.00%
	Aroclor-1254	0.0E+00	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%
	bis(2-Ethylhexyl) phthalate	1.5E-04	0.02%	0.02%	0.0E+00		0.00%	0.0E+00		0.00%
	Dibenzofuran	1.2E-06	0.00%	0.00%	0.0E+00		0.00%	0.0E+00		0.00%
	Total	6.3E-01	100.00%	100.00%	0.0E+00		0.00%	0.0E+00		0.00%
Perched Groundwater	Arsenic									
	Manganese									
	Total									
Homegrown Produce (Dust Affected)	Arsenic	N/A			2.2E-05	23.97%	19.49%	7.6E-06	23.97%	3.84%
	Beryllium	N/A			2.7E-07	0.30%	0.24%	9.5E-08	0.30%	0.05%
	Cadmium	N/A			1.3E-06	1.40%	1.14%	4.4E-07	1.40%	0.22%
	Chromium	N/A			3.0E-06	3.28%	2.67%	1.0E-06	3.28%	0.53%
	U-TOTAL	N/A			6.5E-05	70.81%	57.56%	2.2E-05	70.81%	11.34%
	bis(2-Ethylhexyl) phthalate	N/A			2.2E-07	0.24%	0.19%	7.6E-08	0.24%	0.04%
	Total				9.1E-05	100.00%	81.30%	3.2E-05	100.00%	16.02%
Beef/Milk (Dust Affected)	Arsenic				3.9E-06	18.49%	3.46%	1.1E-05	6.41%	5.38%
	Beryllium				2.2E-08	0.10%	0.02%	4.0E-08	0.02%	0.02%
	Cadmium				8.9E-07	4.26%	0.80%	4.9E-06	2.96%	2.49%
	Chromium				2.7E-06	13.12%	2.45%	1.8E-05	10.57%	8.88%
	U-TOTAL				1.3E-05	63.97%	11.96%	1.3E-04	80.00%	67.18%
	bis(2-Ethylhexyl) phthalate				1.0E-08	0.05%	0.01%	6.7E-08	0.04%	0.03%
	Total				2.1E-05	100.00%	18.70%	1.7E-04	100.00%	83.98%
ALL MEDIA		**6.3E-01**			**1.1E-04**			**2.0E-04**		

TABLE B.3.5-28
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater User (Adult)	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater User (Child)	% Total Medium Risk	% Total Receptor Risk
Soil	Arsenic	5.9E-02	23.79%	22.88%	3.1E-02	23.79%	22.95%	3.1E-01	23.79%	22.95%	N/A			N/A		
	Beryllium	7.5E-04	0.30%	0.29%	4.0E-04	0.30%	0.29%	3.9E-03	0.30%	0.29%	N/A			N/A		
	Cadmium	3.0E-03	1.19%	1.15%	1.6E-03	1.19%	1.15%	1.5E-02	1.19%	1.15%	N/A			N/A		
	Chromium	8.2E-03	3.29%	3.17%	4.4E-03	3.29%	3.17%	4.2E-02	3.29%	3.18%	N/A			N/A		
	U-TOTAL	1.8E-01	70.92%	68.21%	9.4E-02	70.92%	68.40%	9.1E-01	70.92%	68.41%	N/A			N/A		
	Aroclor-1254	1.2E-03	0.50%	0.48%	6.6E-04	0.50%	0.48%	6.4E-03	0.50%	0.48%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	2.6E-05	0.01%	0.01%	1.4E-05	0.01%	0.01%	1.3E-04	0.01%	0.01%	N/A			N/A		
	Dibenzofuran	8.9E-07	0.00%	0.00%	4.7E-07	0.00%	0.00%	4.6E-06	0.00%	0.00%	N/A			N/A		
	Total	2.5E-01	100.00%	96.18%	1.3E-01	100.00%	96.45%	1.3E+00	100.00%	96.47%						
Perched Groundwater	Arsenic										1.3E-03	22.07%	22.07%	3.1E-03	25.89%	25.89%
	Manganese										4.7E-03	77.93%	77.93%	8.8E-03	74.11%	74.11%
	Total										6.0E-03	100.00%	100.00%	1.2E-02	100.00%	100.00%
Homegrown Produce (Dust Affected)	Arsenic	1.9E-03	23.98%	0.75%	9.7E-04	23.98%	0.70%	7.8E-03	23.98%	0.58%	N/A			N/A		
	Beryllium	2.4E-05	0.30%	0.01%	1.2E-05	0.30%	0.01%	9.8E-05	0.30%	0.01%	N/A			N/A		
	Cadmium	1.1E-04	1.40%	0.04%	5.6E-05	1.40%	0.04%	4.6E-04	1.40%	0.03%	N/A			N/A		
	Chromium	2.6E-04	3.28%	0.10%	1.3E-04	3.28%	0.10%	1.1E-03	3.28%	0.08%	N/A			N/A		
	U-TOTAL	5.7E-03	70.81%	2.20%	2.9E-03	70.81%	2.08%	2.3E-02	70.81%	1.73%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.9E-05	0.24%	0.01%	9.6E-06	0.24%	0.01%	7.8E-05	0.24%	0.01%	N/A			N/A		
	Total	8.0E-03	100.00%	3.11%	4.0E-03	100.00%	2.94%	3.3E-02	100.00%	2.44%						
Beef/Milk (Dust Affected)	Arsenic	3.4E-04	18.50%	0.13%	1.8E-04	21.03%	0.13%	9.4E-04	6.41%	0.07%	N/A			N/A		
	Beryllium	1.9E-06	0.10%	0.00%	1.0E-06	0.12%	0.00%	3.5E-06	0.02%	0.00%	N/A			N/A		
	Cadmium	7.9E-05	4.26%	0.03%	3.8E-05	4.54%	0.03%	4.3E-04	2.96%	0.03%	N/A			N/A		
	Chromium	2.4E-04	13.10%	0.09%	1.1E-04	13.63%	0.08%	1.5E-03	10.56%	0.12%	N/A			N/A		
	U-TOTAL	1.2E-03	63.99%	0.46%	5.0E-04	60.62%	0.37%	1.2E-02	80.01%	0.88%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	8.9E-07	0.05%	0.00%	4.1E-07	0.05%	0.00%	5.9E-06	0.04%	0.00%	N/A			N/A		
	Total	1.8E-03	100.00%	0.71%	8.3E-04	100.00%	0.61%	1.5E-02	100.00%	1.09%						
ALL MEDIA		**2.6E-01**			**1.4E-01**			**1.3E+00**			**6.0E-03**			**1.2E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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- ground water impacted simultaneously by the Active Flyash Pile, Inactive Flyash Pile and South Field -- the Lime Sludge Ponds and Solid Waste Landfill were not found to significantly impact groundwater;
- air impacted by all fine subunits;
- surface soil currently existing on the South Field; and,
- surface water and sediment impacted by all fine subunits in the Great Miami River

For the purpose of this assessment, the future on-property receptors were assumed to be located on the South Field; and the off-property receptors were assumed to be located at the point of greatest groundwater and air concentrations.

Estimated risk and hazards to the future off-property farmer due to contaminants present in surface soil (South Field), beef and milk, homegrown produce, and groundwater and summarized in Table B.3.6-1, B.3.6-2, B.3.6-3 and B.3.6-4, respectively (Attachment III). Generally, risks are in the 1.0×10^{-5} risk range due to the estimated inhalation of dust containing thorium-228 and thorium-230; ingestion of beef and milk contaminated with PAHs (benzo(a)pyrene and indeno (1,2,3-cd)pyrene; and ingestion of homegrown produce contaminated with uranium-234 and uranium-238 from groundwater containing uranium-234, uranium-235/236, and uranium-238. All hazard indices were below 1.0 for the off-property future farmer

Estimated risks and hazards to the future on-property farmer due to contaminants present in surface soil (South Field), beef and milk, homegrown produce, and groundwater are summarized in Tables B.3.6-5, B.3.6-6, B.3.6-7 and B.3.6-8 respectively (Attachment III). Generally risks are in the 1.0×10^{-4} to 1.0×10^{-3} risk range due the inhalation of, ingestion of, and external radiation from soils containing radium-228, thorium-228, beryllium, and benzo (a) pyrene; ingestion of beef and milk containing PAHs (benzo(a)pyrene) and uranium-238; ingestion of homegrown produce contaminated with uranium-234 and uranium-238; and ingestion of groundwater containing uranium-234, uranium-235/236, and uranium-238.

Estimated risks and hazards to the future Great Miami River user due to contaminants present in surface water are summarized in Tables B.3.6-9(a) and B.3.6-9(b) for an adult and youth, respectively (Attachment III). Risks were slightly greater than 1.0×10^{-7} for both receptors.

Estimated risks and hazards to the future, expanded trespasser are summarized in Table B.3.6-10 and B.3.6-11, respectively (Attachment III). Total risks were 6.4×10^{-5} due mostly to dermal contact with soil containing beryllium and external radiation from thorium-228.

Total risk from surface water was 1.8×10^{-6} due mostly to ingestion of thorium-228.

Tables B.3.6-12 and B.2.6-13 summarize the risk and hazard to future receptors due to the cumulative impact of contaminants present within Operable Unit 2. It is emphasized that the risks and hazards presented are those resulting primarily from the three subunits contributing most to groundwater contamination: the Active Flyash Pile, South Field and Inactive Flyash Pile.

TABLE B.3.6-12
FUTURE LAND USE
OU2-WIDE
SUMMARY OF TOTAL CARCINOGENIC RISK

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	3.9E-07	0.62%	0.60%	3.9E-10	0.00%	0.00%
	NP-237	4.8E-08	0.07%	0.07%	3.0E-07	0.37%	0.18%
	PU-238	6.1E-09	0.01%	0.01%	2.0E-07	0.25%	0.12%
	PU-239/240	2.5E-09	0.00%	0.00%	8.2E-08	0.10%	0.05%
	RA-226	2.6E-07	0.41%	0.40%	3.8E-06	4.74%	2.31%
	RA-228	4.4E-06	6.94%	6.75%	1.1E-07	0.14%	0.07%
	SR-90	8.2E-11	0.00%	0.00%	2.6E-09	0.00%	0.00%
	TC-99	1.5E-09	0.00%	0.00%	4.9E-08	0.06%	0.03%
	TH-228	1.0E-05	15.92%	15.48%	1.4E-05	17.70%	8.63%
	TH-230	5.1E-07	0.80%	0.78%	1.7E-05	20.57%	10.03%
	TH-232	1.4E-07	0.22%	0.22%	4.6E-06	5.75%	2.80%
	U-234	2.9E-07	0.45%	0.44%	9.4E-06	11.61%	5.66%
	U-235/236	5.3E-08	0.08%	0.08%	4.4E-07	0.54%	0.26%
	U-238	7.5E-07	1.18%	1.15%	2.0E-05	25.01%	12.20%
	Total Radiological Risk	1.7E-05	26.74%	25.99%	7.0E-05	86.83%	42.35%
	Arsenic	5.9E-07	0.93%	0.90%	2.7E-06	3.31%	1.61%
	Beryllium	4.2E-05	66.33%	64.48%	1.9E-07	0.23%	0.11%
	Chromium	2.3E-07	0.35%	0.34%	5.3E-06	6.55%	3.19%
	Nickel	1.4E-08	0.02%	0.02%	3.4E-07	0.42%	0.20%
	Benzo(a)anthracene	1.7E-07	0.26%	0.25%	1.1E-07	0.14%	0.07%
	Benzo(a)pyrene	1.9E-06	2.96%	2.88%	1.3E-06	1.65%	0.80%
	Benzo(b)fluoranthene	1.5E-07	0.24%	0.23%	1.1E-07	0.13%	0.06%
	Benzo(k)fluoranthene	7.6E-08	0.12%	0.12%	5.4E-08	0.07%	0.03%
	bis(2-Ethylhexyl) phthalate	1.1E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	9.1E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	5.3E-09	0.01%	0.01%	3.7E-09	0.00%	0.00%
	Dibenzo(a,h)anthracene	4.2E-07	0.66%	0.65%	3.0E-07	0.37%	0.18%
	Dieldrin	5.4E-07	0.85%	0.83%	3.7E-09	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	3.3E-07	0.52%	0.50%	2.4E-07	0.29%	0.14%
	Methylene chloride	1.6E-10	0.00%	0.00%	2.3E-13	0.00%	0.00%
	Total Chemical Risk	4.7E-05	73.26%	71.21%	1.1E-05	13.17%	6.42%
	Total	6.4E-05	100.00%	97.20%	8.1E-05	100.00%	48.78%

TABLE B.3.6-12
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	4.1E-05	1.79%	1.11%	N/A			N/A		
	NP-237	4.6E-06	0.20%	0.12%	N/A			N/A		
	PU-238	3.1E-07	0.01%	0.01%	N/A			N/A		
	PU-239/240	1.3E-07	0.01%	0.00%	N/A			N/A		
	RA-226	3.5E-05	1.53%	0.95%	N/A			N/A		
	RA-228	4.7E-04	20.27%	12.60%	N/A			N/A		
	SR-90	1.6E-07	0.01%	0.00%	N/A			N/A		
	TC-99	8.7E-07	0.04%	0.02%	N/A			N/A		
	TH-228	1.0E-03	44.97%	27.95%	N/A			N/A		
	TH-230	1.7E-05	0.75%	0.47%	N/A			N/A		
	TH-232	4.9E-06	0.21%	0.13%	N/A			N/A		
	U-234	1.0E-05	0.43%	0.27%	N/A			N/A		
	U-235/236	4.6E-06	0.20%	0.12%	N/A			N/A		
	U-238	3.5E-05	1.52%	0.95%	N/A			N/A		
	Total Radiological Risk	1.7E-03	71.95%	44.71%						
	Arsenic	3.5E-05	1.52%	0.94%	N/A			N/A		
	Beryllium	3.3E-04	14.23%	8.84%	N/A			N/A		
	Chromium	5.3E-06	0.23%	0.14%	N/A			N/A		
	Nickel	3.4E-07	0.01%	0.01%						
	Benzo(a)anthracene	1.5E-05	0.65%	0.40%	N/A			N/A		
	Benzo(a)pyrene	1.7E-04	7.37%	4.58%	N/A			N/A		
	Benzo(b)fluoranthene	1.4E-05	0.60%	0.37%	N/A			N/A		
	Benzo(k)fluoranthene	6.9E-06	0.30%	0.19%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	4.3E-09	0.00%	0.00%	N/A			N/A		
	Carbazole	8.4E-09	0.00%	0.00%	N/A			N/A		
	Chrysene	4.8E-07	0.02%	0.01%	N/A			N/A		
	Dibenzo(a,h)anthracene	3.8E-05	1.65%	1.03%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	4.5E-06	0.19%	0.12%	N/A			N/A		
	Methylene chloride	3.0E-05	1.29%	0.80%	N/A			N/A		
	Aroclor-1254	1.3E-09	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	6.5E-04	28.05%	17.43%						
	Total	2.3E-03	100.00%	62.15%						

TABLE B.3.6-12
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk
Groundwater	NP-237	N/A			2.2E-07	0.36%	0.13%
	SR-90	N/A			8.8E-08	0.15%	0.05%
	TC-99	N/A			6.2E-08	0.10%	0.04%
	U234	N/A			2.0E-05	33.32%	12.03%
	U235/236	N/A			1.1E-06	1.77%	0.64%
	U238	N/A			3.8E-05	64.28%	23.21%
	Total Radiological Risk				6.0E-05	99.99%	36.10%
	Arsenic	N/A			4.8E-09	0.01%	0.00%
	Beryllium	N/A			2.0E-09	0.00%	0.00%
	Total Chemical Risk				6.9E-09	0.01%	0.00%
	Total				6.0E-05	100.00%	36.11%
Surface Water	CS-137	4.2E-13	0.00%	0.00%	N/A		
	NP-237	5.7E-09	0.31%	0.01%	N/A		
	PU-238	9.8E-11	0.01%	0.00%	N/A		
	PU-239/240	2.3E-11	0.00%	0.00%	N/A		
	RA-226	1.3E-09	0.07%	0.00%	N/A		
	RA-228	2.1E-10	0.01%	0.00%	N/A		
	SR-90	5.3E-10	0.03%	0.00%	N/A		
	TC-99	4.0E-08	2.19%	0.06%	N/A		
	TH-228	1.7E-06	92.85%	2.60%	N/A		
	TH-230	3.1E-12	0.00%	0.00%	N/A		
	TH-232	8.1E-13	0.00%	0.00%	N/A		
	U-234	1.3E-08	0.69%	0.02%	N/A		
	U-235/236	2.8E-10	0.02%	0.00%	N/A		
	U-238	1.1E-08	0.58%	0.02%	N/A		
	Total Radiological Risk	1.8E-06	96.77%	2.71%			
	Arsenic	1.7E-08	0.91%	0.03%	N/A		
	Beryllium	3.5E-08	1.89%	0.05%	N/A		
	4-4'-DDE	1.2E-14	0.00%	0.00%	N/A		
	Aroclor-1254	2.1E-09	0.12%	0.00%	N/A		
	Aroclor-1260	1.0E-09	0.06%	0.00%	N/A		
	Benzo(a)anthracene	1.9E-10	0.01%	0.00%	N/A		
	Benzo(a)pyrene	8.8E-10	0.05%	0.00%	N/A		
	Benzo(b) fluoranthene	1.8E-11	0.00%	0.00%	N/A		
	Benzo(k)fluoranthene	4.9E-12	0.00%	0.00%	N/A		
	bis(2-Ethylhexyl) phthalate	2.3E-10	0.01%	0.00%	N/A		
	Carbazole	3.0E-11	0.00%	0.00%	N/A		
	Chloromethane	7.9E-13	0.00%	0.00%	N/A		
	Chrysene	5.9E-12	0.00%	0.00%	N/A		
	Dibenzo(a,h)anthracene	2.4E-10	0.01%	0.00%	N/A		
	Dieldrin	3.2E-09	0.17%	0.00%	N/A		
	Indeno(1,2,3-cd)pyrene	3.2E-12	0.00%	0.00%	N/A		
	Methylene chloride	1.2E-11	0.00%	0.00%	N/A		
	Total Chemical Risk	5.9E-08	3.23%	0.09%			
	Total	1.8E-06	100.00%	2.80%			

TABLE B.3.6-12
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Groundwater	NP-237	3.3E-07	0.03%	0.01%	N/A			N/A		
	SR-90	2.0E-08	1.8E-03%	0.00%	N/A			N/A		
	TC-99	1.2E-07	0.01%	0.00%	N/A			N/A		
	U234	3.7E-04	33.52%	9.87%	N/A			N/A		
	U235/236	2.0E-05	1.79%	0.53%	N/A			N/A		
	U238	7.1E-04	64.66%	19.04%	N/A			N/A		
	Total Radiological Risk	3.9E-04	100.00%	29.45%						
	Arsenic				N/A			N/A		
	Beryllium				N/A			N/A		
	Total Chemical Risk									
	Total	3.9E-04	100.00%	29.45%						
Surface Water	CS-137	N/A			1.4E-16	0.00%	0.00%	5.7E-17	0.00%	0.00%
	NP-237	N/A			1.9E-12	0.00%	0.00%	7.8E-13	0.00%	0.00%
	PU-238	N/A			3.3E-14	0.00%	0.00%	1.3E-14	0.00%	0.00%
	PU-239/240	N/A			8.0E-15	0.00%	0.00%	3.2E-15	0.00%	0.00%
	RA-226	N/A			1.7E-10	0.08%	0.08%	6.7E-11	0.07%	0.07%
	RA-228	N/A			2.6E-11	0.01%	0.01%	1.0E-11	0.01%	0.01%
	SR-90	N/A			4.0E-11	0.02%	0.02%	1.6E-11	0.02%	0.02%
	TC-99	N/A			1.5E-09	0.76%	0.76%	6.0E-10	0.62%	0.62%
	TH-228	N/A			1.3E-07	63.63%	63.63%	5.1E-08	52.05%	52.05%
	TH-230	N/A			2.3E-13	0.00%	0.00%	9.3E-14	0.00%	0.00%
	TH-232	N/A			6.0E-14	0.00%	0.00%	2.4E-14	0.00%	0.00%
	U-234	N/A			6.7E-11	0.03%	0.03%	2.7E-11	0.03%	0.03%
	U-235/236	N/A			1.5E-12	0.00%	0.00%	6.0E-13	0.00%	0.00%
	U-238	N/A			5.7E-11	0.03%	0.03%	2.3E-11	0.02%	0.02%
	Total Radiological Risk				1.3E-07	64.57%	64.57%	5.2E-08	52.82%	52.82%
	Arsenic	N/A			1.3E-09	0.66%	0.66%	8.6E-10	0.88%	0.88%
	Beryllium	N/A			1.1E-10	0.06%	0.06%	6.6E-11	0.07%	0.07%
	4-4'-DDE	N/A			1.7E-17	0.00%	0.00%	8.2E-18	0.00%	0.00%
	Aroclor-1254	N/A			1.7E-09	0.85%	0.85%	1.1E-09	1.14%	1.14%
	Aroclor-1260	N/A			1.6E-09	0.80%	0.80%	1.0E-09	1.07%	1.07%
	Benzo(a)anthracene	N/A			4.4E-09	2.18%	2.18%	2.8E-09	2.91%	2.91%
	Benzo(a)pyrene	N/A			3.9E-08	19.73%	19.73%	2.6E-08	26.27%	26.27%
	Benzo(b) fluoranthene	N/A			2.3E-09	1.16%	1.16%	1.5E-09	1.55%	1.55%
	Benzo(k)fluoranthene	N/A			1.5E-15	0.00%	0.00%	9.5E-16	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	N/A			2.8E-10	0.14%	0.14%	1.8E-10	0.19%	0.19%
	Carbazole	N/A			9.0E-15	0.00%	0.00%	5.9E-15	0.00%	0.00%
	Chloromethane	N/A			2.4E-16	0.00%	0.00%	1.5E-16	0.00%	0.00%
	Chrysene	N/A			1.4E-10	0.07%	0.07%	9.0E-11	0.09%	0.09%
	Dibenzo(a,h)anthracene	N/A			1.0E-08	5.24%	5.24%	6.8E-09	6.98%	6.98%
	Dieldrin	N/A			6.3E-09	3.16%	3.16%	4.1E-09	4.21%	4.21%
	Indeno(1,2,3-cd)pyrene	N/A			2.7E-09	1.37%	1.37%	1.8E-09	1.82%	1.82%
	Methylene chloride	N/A			9.8E-15	0.00%	0.00%	5.1E-15	0.00%	0.00%
	Total Chemical Risk				7.1E-08	35.43%	35.43%	4.6E-08	47.18%	47.18%
	Total				2.0E-07	100.00%	100.00%	9.8E-08	100.00%	100.00%

TABLE B.3.6-12
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	CS-137	N/A			2.0E-10	0.02%	0.00%
	NP-237	N/A			7.1E-10	0.07%	0.00%
	PU-238	N/A			3.6E-10	0.03%	0.00%
	PU-239	N/A			1.6E-10	0.02%	0.00%
	RA-226	N/A			5.1E-08	4.89%	0.03%
	RA-228	N/A			5.3E-09	0.51%	0.00%
	SR-90	N/A			6.4E-10	0.06%	0.00%
	TC-99	N/A			4.3E-09	0.42%	0.00%
	TH-228	N/A			3.3E-09	0.32%	0.00%
	TH-230	N/A			2.5E-09	0.24%	0.00%
	TH-232	N/A			6.6E-10	0.06%	0.00%
	U-234	N/A			1.9E-09	0.18%	0.00%
	U-235	N/A			9.2E-11	0.01%	0.00%
	U-238	N/A			3.6E-09	0.34%	0.00%
	Total Radiological Risk				7.5E-08	7.18%	0.05%
	Arsenic	N/A			9.9E-08	9.51%	0.06%
	Beryllium	N/A			3.1E-08	2.99%	0.02%
	Benzo(a)anthracene	N/A			4.5E-08	4.36%	0.03%
	Benzo(a)pyrene	N/A			5.1E-07	49.05%	0.31%
	Benzo(b)fluoranthene	N/A			4.2E-08	4.00%	0.03%
	Benzo(k)fluoranthene	N/A			2.1E-08	2.03%	0.01%
	bis(2-Ethylhexyl)phthalate	N/A			5.7E-12	0.00%	0.00%
	Carbazole	N/A			2.7E-11	0.00%	0.00%
	Chrysene	N/A			1.4E-09	0.14%	0.00%
	Dibenzo(a,h)anthracene	N/A			1.2E-07	11.16%	0.07%
	Indeno(1,2,3-cd)pyrene	N/A			9.0E-08	8.65%	0.05%
	Methylene chloride	N/A			9.8E-13	0.00%	0.00%
	Aroclor 1254	N/A			5.3E-09	0.51%	0.00%
	Aroclor 1260	N/A			3.1E-09	0.30%	0.00%
	Dieldrin	N/A			1.3E-09	0.12%	0.00%
	Total Chemical Risk				9.6E-07	92.82%	0.58%
	Total				1.0E-06	100.00%	0.63%
Homegrown Produce (Groundwater Affected)	CS-137	N/A			0.0E+00	0.00%	0.00%
	NP-237	N/A			3.3E-08	0.37%	0.02%
	PU-238	N/A			0.0E+00	0.00%	0.00%
	PU-239	N/A			0.0E+00	0.00%	0.00%
	RA-226	N/A			0.0E+00	0.00%	0.00%
	RA-228	N/A			0.0E+00	0.00%	0.00%
	SR-90	N/A			1.8E-08	0.20%	0.01%
	TC-99	N/A			1.8E-08	0.20%	0.01%
	TH-228	N/A			0.0E+00	0.00%	0.00%
	TH-230	N/A			0.0E+00	0.00%	0.00%
	TH-232	N/A			0.0E+00	0.00%	0.00%
	U-234	N/A			3.0E-06	33.27%	1.80%
	U-235	N/A			1.6E-07	1.77%	0.10%
	U-238	N/A			5.8E-06	64.18%	3.48%
	Total Radiological Risk				9.0E-06	99.99%	5.42%
	Arsenic				7.3E-10	0.01%	0.00%
	Beryllium				1.8E-10	0.00%	0.00%
	Total Chemical Risk				9.0E-10	0.01%	0.00%
	Total				9.0E-06	100.00%	5.42%

TABLE B.3.6-12
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected)	CS-137	1.6E-09	0.02%	0.00%	N/A			N/A		
	NP-237	5.9E-09	0.07%	0.00%	N/A			N/A		
	PU-238	3.0E-09	0.03%	0.00%	N/A			N/A		
	PU-239	1.3E-09	0.02%	0.00%	N/A			N/A		
	RA-226	4.2E-07	4.90%	0.01%	N/A			N/A		
	RA-228	4.4E-08	0.51%	0.00%	N/A			N/A		
	SR-90	5.3E-09	0.06%	0.00%	N/A			N/A		
	TC-99	3.6E-08	0.42%	0.00%	N/A			N/A		
	TH-228	2.7E-08	0.32%	0.00%	N/A			N/A		
	TH-230	2.0E-08	0.24%	0.00%	N/A			N/A		
	TH-232	5.4E-09	0.06%	0.00%	N/A			N/A		
	U-234	1.6E-08	0.18%	0.00%	N/A			N/A		
	U-235	7.6E-10	0.01%	0.00%	N/A			N/A		
	U-238	3.0E-08	0.34%	0.00%	N/A			N/A		
	Total Radiological Risk	6.2E-07	7.18%	0.02%						
	Arsenic	8.2E-07	9.51%	0.02%	N/A			N/A		
	Beryllium	2.6E-07	3.00%	0.01%	N/A			N/A		
	Benzo(a)anthracene	3.7E-07	4.36%	0.01%	N/A			N/A		
	Benzo(a)pyrene	4.2E-06	49.05%	0.11%	N/A			N/A		
	Benzo(b)fluoranthene	3.4E-07	4.01%	0.01%	N/A			N/A		
	Benzo(k)fluoranthene	1.7E-07	2.03%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	4.7E-11	0.00%	0.00%	N/A			N/A		
	Carbazole	2.2E-10	0.00%	0.00%	N/A			N/A		
	Chrysene	1.2E-08	0.14%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	9.6E-07	11.15%	0.03%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	7.4E-07	8.65%	0.02%	N/A			N/A		
	Methylene chloride	8.1E-12	0.00%	0.00%	N/A			N/A		
	Aroclor 1254	4.4E-08	0.51%	0.00%	N/A			N/A		
	Aroclor 1260	2.5E-08	0.30%	0.00%	N/A			N/A		
	Dieldrin	1.0E-08	0.12%	0.00%	N/A			N/A		
	Total Chemical Risk	8.0E-06	92.82%	0.21%						
	Total	8.6E-06	100.00%	0.23%						
Homegrown Produce (Groundwater Affected)	CS-137	0.0E+00	0.00%	0.00%	N/A			N/A		
	NP-237	5.2E-08	0.03%	0.00%	N/A			N/A		
	PU-238	0.0E+00	0.00%	0.00%	N/A			N/A		
	PU-239	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-226	0.0E+00	0.00%	0.00%	N/A			N/A		
	RA-228	0.0E+00	0.00%	0.00%	N/A			N/A		
	SR-90	4.0E-09	0.00%	0.00%	N/A			N/A		
	TC-99	3.3E-08	0.02%	0.00%	N/A			N/A		
	TH-228	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-230	0.0E+00	0.00%	0.00%	N/A			N/A		
	TH-232	0.0E+00	0.00%	0.00%	N/A			N/A		
	U-234	5.5E-05	33.51%	1.48%	N/A			N/A		
	U-235	2.9E-06	1.79%	0.08%	N/A			N/A		
	U-238	1.1E-04	64.65%	2.85%	N/A			N/A		
	Total Radiological Risk	1.6E-04	100.00%	4.41%						
	Arsenic	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	0.0E+00	0.00%	0.00%						
	Total	1.6E-04	100.00%	4.41%						

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TABLE B.3.6-12
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected)	CS-137	N/A			7.4E-10	0.01%	0.00%
	NP-237	N/A			4.1E-12	0.00%	0.00%
	PU-238	N/A			2.6E-14	0.00%	0.00%
	PU-239	N/A			1.2E-14	0.00%	0.00%
	RA-226	N/A			8.3E-09	0.06%	0.01%
	RA-228	N/A			8.4E-10	0.01%	0.00%
	SR-90	N/A			2.6E-10	0.00%	0.00%
	TC-99	N/A			1.2E-08	0.08%	0.01%
	TH-228	N/A			6.3E-12	0.00%	0.00%
	TH-230	N/A			5.1E-12	0.00%	0.00%
	TH-232	N/A			1.4E-12	0.00%	0.00%
	U-234	N/A			4.0E-10	0.00%	0.00%
	U-235	N/A			1.9E-11	0.00%	0.00%
	U-238	N/A			7.4E-10	0.01%	0.00%
	Total Radiological Risk				2.3E-08	0.17%	0.01%
	Arsenic	N/A			1.8E-08	0.13%	0.01%
	Beryllium	N/A			2.5E-09	0.02%	0.00%
	Benzo(a)anthracene	N/A			5.0E-08	0.36%	0.03%
	Benzo(a)pyrene	N/A			1.3E-06	9.67%	0.81%
	Benzo(b)fluoranthene	N/A			4.3E-07	3.06%	0.26%
	Benzo(k)fluoranthene	N/A			4.3E-07	3.10%	0.26%
	bis(2-Ethylhexyl)phthalate	N/A			3.0E-13	0.00%	0.00%
	Carbazole	N/A			5.0E-11	0.00%	0.00%
	Chrysene	N/A			1.6E-09	0.01%	0.00%
	Dibenzo(a,h)anthracene	N/A			3.0E-07	2.14%	0.18%
	Indeno(1,2,3-cd)pyrene	N/A			1.1E-05	81.05%	6.83%
	Methylene chloride	N/A			1.2E-16	0.00%	0.00%
	Aroclor 1254	N/A			2.6E-08	0.18%	0.02%
	Aroclor 1260	N/A			1.8E-08	0.13%	0.01%
	Total Chemical Risk				1.4E-05	99.83%	8.42%
	Total				1.4E-05	100.00%	8.43%
Beef/Milk (Groundwater Affected)	NP-237	N/A			1.1E-10	0.01%	0.00%
	SR-90	N/A			3.9E-09	0.37%	0.00%
	TC-99	N/A			2.5E-08	2.33%	0.01%
	U-234	N/A			3.5E-07	32.62%	0.21%
	U-235	N/A			1.8E-08	1.73%	0.01%
	U-238	N/A			6.7E-07	62.93%	0.40%
	Total Radiological Risk				1.1E-06	99.99%	0.64%
	Arsenic	N/A			7.2E-11	0.01%	0.00%
	Beryllium	N/A			7.9E-12	0.00%	0.00%
	Total Chemical Risk				8.0E-11	0.01%	0.00%
	Total				1.1E-06	100.00%	0.64%
ALL MEDIA		6.6E-05			1.7E-04		

TABLE B.3.6-12
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Adult)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User (Youth)	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected)	CS-137	6.4E-09	0.01%	0.00%	N/A			N/A		
	NP-237	3.6E-11	0.00%	0.00%	N/A			N/A		
	PU-238	2.2E-13	0.00%	0.00%	N/A			N/A		
	PU-239	1.0E-13	0.00%	0.00%	N/A			N/A		
	RA-226	6.0E-08	0.05%	0.00%	N/A			N/A		
	RA-228	7.3E-09	0.01%	0.00%	N/A			N/A		
	SR-90	2.2E-09	0.00%	0.00%	N/A			N/A		
	TC-99	1.0E-07	0.08%	0.00%	N/A			N/A		
	TH-228	5.4E-11	0.00%	0.00%	N/A			N/A		
	TH-230	4.4E-11	0.00%	0.00%	N/A			N/A		
	TH-232	1.2E-11	0.00%	0.00%	N/A			N/A		
	U-234	3.4E-09	0.00%	0.00%	N/A			N/A		
	U-235	1.7E-10	0.00%	0.00%	N/A			N/A		
	U-238	6.4E-09	0.01%	0.00%	N/A			N/A		
	Total Radiological Risk	1.9E-07	0.16%	0.01%						
	Arsenic	1.5E-07	0.13%	0.00%	N/A			N/A		
	Beryllium	2.2E-08	0.02%	0.00%	N/A			N/A		
	Benzo(a)anthracene	4.3E-07	0.36%	0.01%	N/A			N/A		
	Benzo(a)pyrene	1.2E-05	9.67%	0.31%	N/A			N/A		
	Benzo(b)fluoranthene	3.7E-06	3.06%	0.10%	N/A			N/A		
	Benzo(k)fluoranthene	3.7E-06	3.10%	0.10%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	2.6E-12	0.00%	0.00%	N/A			N/A		
	Carbazole	4.3E-10	0.00%	0.00%	N/A			N/A		
	Chrysene	1.4E-08	0.01%	0.00%	N/A			N/A		
	Dibenzo(a,h)anthracene	2.6E-06	2.14%	0.07%	N/A			N/A		
	Indeno(1,2,3-cd)pyrene	9.8E-05	81.04%	2.63%	N/A			N/A		
	Methylene chloride	1.1E-15	0.00%	0.00%	N/A			N/A		
	Aroclor 1254	2.2E-07	0.18%	0.01%	N/A			N/A		
	Aroclor 1260	1.6E-07	0.13%	0.00%	N/A			N/A		
	Total Chemical Risk	1.2E-04	99.84%	3.24%						
	Total	1.2E-04	100.00%	3.24%						
Beef/Milk (Groundwater Affected)	NP-237	1.7E-10	0.00%	0.00%	N/A			N/A		
	SR-90	8.7E-10	4.5E-03%	0.00%	N/A			N/A		
	TC-99	4.6E-08	0.24%	0.00%	N/A			N/A		
	U-234	6.4E-06	33.45%	0.17%	N/A			N/A		
	U-235	3.4E-07	1.78%	0.01%	N/A			N/A		
	U-238	1.2E-05	64.52%	0.33%	N/A			N/A		
	Total Radiological Risk	1.9E-05	100.00%	0.51%						
	Arsenic	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	0.0E+00	0.00%	0.00%						
	Total	1.9E-05	100.00%	0.51%						
ALL MEDIA		3.7E-03			2.0E-07			9.8E-08		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.3.6-13
FUTURE LAND USE
OU2-WIDE
SUMMARY OF TOTAL NONCARCINOGENIC HAZARD

Medium	Parameter	Expanded Trespasser	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	3.8E-03	3.79%	3.53%	0.0E+00	0.00%	0.00%
	Barium	3.2E-03	3.19%	2.97%	1.6E-02	100.00%	1.28%
	Beryllium	7.8E-03	7.79%	7.24%	0.0E+00	0.00%	0.00%
	Chromium	2.9E-03	2.86%	2.66%	0.0E+00	0.00%	0.00%
	U-TOTAL	8.2E-02	82.36%	76.59%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	1.6E-06	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzofuran	3.7E-06	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Methylene chloride	1.4E-06	0.00%	0.00%	1.4E-10	0.00%	0.00%
	Toluene	1.0E-13	0.00%	0.00%	5.1E-13	0.00%	0.00%
	Total Chemical Hazard	1.0E-01	100.00%	92.99%	1.6E-02	100.00%	1.28%
Groundwater	Arsenic	N/A			9.2E-06	0.00%	0.00%
	Beryllium	N/A			9.5E-08	0.00%	0.00%
	Cadmium	N/A			1.7E-08	0.00%	0.00%
	Molybdenum	N/A			2.8E-04	0.03%	0.02%
	U-Total	N/A			1.0E+00	99.97%	86.10%
	Total Chemical Hazard				1.0E+00	100.00%	86.12%
Surface Water	Antimony	3.1E-05	0.41%	0.03%	N/A		
	Arsenic	1.1E-04	1.41%	0.10%	N/A		
	Barium	1.8E-05	0.24%	0.02%	N/A		
	Beryllium	5.3E-06	0.07%	0.00%	N/A		
	Cadmium	1.5E-05	0.21%	0.01%	N/A		
	Chromium	9.6E-06	0.13%	0.01%	N/A		
	Copper	4.8E-06	0.06%	0.00%	N/A		
	Cyanide	4.7E-06	0.06%	0.00%	N/A		
	Manganese	4.4E-07	0.01%	0.00%	N/A		
	Mercury	5.4E-07	0.01%	0.00%	N/A		
	Molybdenum	2.9E-05	0.38%	0.03%	N/A		
	Nickel	6.7E-07	0.01%	0.00%	N/A		
	Selenium	6.4E-07	0.01%	0.00%	N/A		
	Silver	3.4E-06	0.04%	0.00%	N/A		
	Thallium	1.5E-06	0.02%	0.00%	N/A		
	Vanadium	9.3E-06	0.12%	0.01%	N/A		
	Zinc	1.6E-07	0.00%	0.00%	N/A		
	U-TOTAL	7.3E-03	96.32%	6.75%	N/A		

TABLE B.3.6-13
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
	Arsenic	6.2E-02	21.74%	0.28%	N/A			N/A		
	Barium	1.6E-02	5.46%	0.07%	N/A			N/A		
	Beryllium	1.5E-02	5.39%	0.07%	N/A			N/A		
	Chromium	1.2E-02	4.13%	0.05%	N/A			N/A		
	U-TOTAL	1.8E-01	63.24%	0.80%	N/A			N/A		
	bis(2-Ethylhexyl) phthalate	1.5E-05	0.01%	0.00%	N/A			N/A		
	Dibenzofuran	8.0E-05	0.03%	0.00%	N/A			N/A		
	Methylene chloride	2.8E-06	0.00%	0.00%	N/A			N/A		
	Toluene	5.1E-13	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	2.8E-01	100.00%	1.27%						
Groundwater	Arsenic	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	N/A			N/A		
	Cadmium	3.6E-02	0.19%	0.16%	N/A			N/A		
	Molybdenum	3.1E-02	0.16%	0.14%	N/A			N/A		
	U-Total	1.9E+01	99.65%	85.86%	N/A			N/A		
	Total Chemical Risk	6.7E-02	100.00%	86.16%						
	Antimony	N/A			2.0E-08	0.05%	0.05%	2.5E-08	0.04%	0.04%
	Arsenic	N/A			5.9E-06	13.49%	13.49%	9.6E-06	14.25%	14.25%
	Barium	N/A			6.3E-06	14.32%	14.32%	8.8E-06	13.13%	13.13%
	Beryllium	N/A			1.2E-08	0.03%	0.03%	1.8E-08	0.03%	0.03%
	Cadmium	N/A			1.3E-08	0.03%	0.03%	1.6E-08	0.02%	0.02%
	Chromium	N/A			1.3E-07	0.30%	0.30%	2.1E-07	0.31%	0.31%
	Copper	N/A			1.9E-09	0.00%	0.00%	2.6E-09	0.00%	0.00%
	Cyanide	N/A			1.8E-09	0.00%	0.00%	2.4E-09	0.00%	0.00%
	Manganese	N/A			3.9E-10	0.00%	0.00%	4.8E-10	0.00%	0.00%
	Mercury	N/A			1.6E-10	0.00%	0.00%	2.3E-10	0.00%	0.00%
	Molybdenum	N/A			1.4E-08	0.03%	0.03%	1.8E-08	0.03%	0.03%
	Nickel	N/A			2.9E-10	0.00%	0.00%	3.9E-10	0.00%	0.00%
	Selenium	N/A			2.3E-10	0.00%	0.00%	3.2E-10	0.00%	0.00%
	Silver	N/A			2.5E-09	0.01%	0.01%	3.1E-09	0.00%	0.00%
	Thallium	N/A			4.9E-10	0.00%	0.00%	6.9E-10	0.00%	0.00%
	Vanadium	N/A			7.7E-09	0.02%	0.02%	9.5E-09	0.01%	0.01%
	Zinc	N/A			7.1E-11	0.00%	0.00%	9.5E-11	0.00%	0.00%
	U-TOTAL	N/A			1.1E-05	24.06%	24.06%	1.5E-05	21.81%	21.81%

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TABLE B.3.6-13
(continued)

Medium	Parameter	Expanded Trespasser	% Total Medium Hazard	% Total Receptor Hazard	Off-Property Resident Farmer	% Total Medium Hazard	% Total Receptor Hazard
Surface Water *(continued)*	2-Butanone	9.9E-10	0.00%	0.00%	N/A		
	Acenaphthene	5.9E-09	0.00%	0.00%	N/A		
	Acetone	7.6E-07	0.01%	0.00%	N/A		
	Anthracene	5.0E-07	0.01%	0.00%	N/A		
	Benzoic Acid	5.7E-08	0.00%	0.00%	N/A		
	bis(2-Ethylhexyl) phthalate	2.7E-06	0.04%	0.00%	N/A		
	Bromomethane	7.1E-08	0.00%	0.00%	N/A		
	Di-n-butylphthalate	2.2E-10	0.00%	0.00%	N/A		
	Dieldrin	1.3E-05	0.17%	0.01%	N/A		
	Dimethyl phthalate	1.9E-08	0.00%	0.00%	N/A		
	Fluoranthene	1.8E-06	0.02%	0.00%	N/A		
	Fluorene	2.0E-08	0.00%	0.00%	N/A		
	Methylene chloride	9.0E-08	0.00%	0.00%	N/A		
	Naphthalene	6.4E-09	0.00%	0.00%	N/A		
	Pyrene	1.8E-05	0.24%	0.02%	N/A		
	Toluene	2.6E-07	0.00%	0.00%	N/A		
	Total Chemical Hazard	7.5E-03	100.00%	7.01%			
Homegrown Produce (Dust Affected)	Arsenic	N/A			1.9E-04	65.28%	0.02%
	Beryllium	N/A			1.4E-06	0.50%	0.00%
	Chromium	N/A			2.1E-05	7.42%	0.00%
	U-TOTAL	N/A			7.6E-05	26.25%	0.01%
	bis(2-Ethylhexyl)phthalate	N/A			2.0E-08	0.01%	0.00%
	Methylene chloride	N/A			2.2E-09	0.00%	0.00%
	Dieldrin	N/A			1.6E-06	0.54%	0.00%
	Total Chemical Risk	N/A			2.9E-04	100.00%	0.02%
Homegrown Produce (Groundwater Affected)	Arsenic				1.4E-06	0.00%	0.00%
	Beryllium				8.2E-09	0.00%	0.00%
	Cadmium						
	Molybdenum				4.5E-05	0.03%	0.00%
	U-TOTAL				1.4E-01	99.97%	11.25%
	Total Chemical Hazard				1.4E-01	100.00%	1.1E-01
Beef/Milk (Dust Affected)	Arsenic	N/A			3.3E-05	48.46%	0.00%
	Beryllium	N/A			1.2E-07	0.17%	0.00%
	Chromium	N/A			2.0E-05	28.55%	0.00%
	U-TOTAL	N/A			1.6E-05	22.82%	0.00%
	bis(2-Ethylhexyl)phthalate	N/A			1.1E-09	0.00%	0.00%
	Total Chemical Hazard				6.9E-05	100.00%	0.01%
Beef/Milk (Groundwater Affected)	Arsenic	N/A			1.4E-07	0.00%	0.00%
	Beryllium	N/A			3.7E-10	0.00%	0.00%
	Molybdenum	N/A			2.3E-05	0.14%	0.00%
	U-TOTAL	N/A			1.6E-02	99.86%	1.31%
	Total Chemical Hazard				1.6E-02	100.00%	1.31%
ALL MEDIA		1.1E-01			1.2E+00		

TABLE B.3.6-13
(continued)

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Adult)	% Total Medium Hazard	% Total Receptor Hazard	Great Miami River User (Youth)	% Total Medium Hazard	% Total Receptor Hazard
Surface Water *(continued)*	2-Butanone	N/A			6.1E-13	0.00%	0.00%	7.8E-13	0.00%	0.00%
	Acenaphthene	N/A			1.2E-12	0.00%	0.00%	2.0E-12	0.00%	0.00%
	Acetone	N/A			3.0E-10	0.00%	0.00%	4.1E-10	0.00%	0.00%
	Anthracene	N/A			4.9E-10	0.00%	0.00%	5.9E-10	0.00%	0.00%
	Benzoic Acid	N/A			3.9E-11	0.00%	0.00%	4.9E-11	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	N/A			2.3E-06	5.37%	5.37%	3.8E-06	5.68%	5.68%
	Bromomethane	N/A			1.5E-11	0.00%	0.00%	2.4E-11	0.00%	0.00%
	Di-n-butylphthalate	N/A			2.1E-13	0.00%	0.00%	2.5E-13	0.00%	0.00%
	Dieldrin	N/A			1.8E-05	42.23%	42.23%	3.0E-05	44.63%	44.63%
	Dimethyl phthalate	N/A			7.8E-12	0.00%	0.00%	1.1E-11	0.00%	0.00%
	Fluoranthene	N/A			1.7E-09	0.00%	0.00%	2.1E-09	0.00%	0.00%
	Fluorene	N/A			4.2E-12	0.00%	0.00%	6.9E-12	0.00%	0.00%
	Methylene chloride	N/A			5.0E-11	0.00%	0.00%	6.4E-11	0.00%	0.00%
	Naphthalene	N/A			1.3E-12	0.00%	0.00%	2.2E-12	0.00%	0.00%
	Pyrene	N/A			1.8E-08	0.04%	0.04%	2.2E-08	0.03%	0.03%
	Toluene	N/A			2.4E-10	0.00%	0.00%	2.9E-10	0.00%	0.00%
	Total Chemical Risk				4.4E-05	100.00%	100.00%	6.7E-05	100.00%	100.00%
Homegrown Produce (Dust Affected)	Arsenic	1.6E-03	65.30%	0.01%	N/A			N/A		
	Beryllium	1.2E-05	0.50%	0.00%	N/A			N/A		
	Chromium	1.8E-04	7.39%	0.00%	N/A			N/A		
	U-TOTAL	6.3E-04	26.25%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	1.7E-07	0.01%	0.00%	N/A			N/A		
	Methylene chloride	1.8E-08	0.00%	0.00%	N/A			N/A		
	Dieldrin	1.3E-05	0.55%	0.00%	N/A			N/A		
	Total Chemical Risk	2.4E-03	100.00%	0.01%	N/A			N/A		
Homegrown Produce (Groundwater Affected)	Arsenic	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	N/A			N/A		
	Cadmium	0.0E+00	0.00%	0.00%	N/A			N/A		
	Molybdenum	5.0E-03	0.20%	0.02%	N/A			N/A		
	U-TOTAL	2.5E+00	99.80%	11.22%	N/A			N/A		
	Total Chemical Hazard	0.0E+00	100.00%	11.25%						
Beef/Milk (Dust Affected)	Arsenic	2.9E-04	48.46%	0.00%	N/A			N/A		
	Beryllium	1.0E-06	0.17%	0.00%	N/A			N/A		
	Chromium	1.7E-04	28.53%	0.00%	N/A			N/A		
	U-TOTAL	1.4E-04	22.84%	0.00%	N/A			N/A		
	bis(2-Ethylhexyl)phthalate	9.3E-09	0.00%	0.00%	N/A			N/A		
	Total Chemical Risk	6.0E-04	100.00%	0.00%						
Beef/Milk (Groundwater Affected)	Arsenic	0.0E+00	0.00%	0.00%	N/A			N/A		
	Beryllium	0.0E+00	0.00%	0.00%	N/A			N/A		
	Molybdenum	2.6E-03	0.86%	0.01%	N/A			N/A		
	U-TOTAL	2.9E-01	99.14%	1.31%	N/A			N/A		
	Total Chemical Hazard	3.0E-01	100.00%	1.32%						
ALL MEDIA		**2.2E+01**			**4.4E-05**			**6.7E-05**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable.

B.4.0 SUMMARY OF HEALTH RISK CHARACTERIZATION

The CPCs identified from site characterization data as described in Section B.2.0 include long-lived radionuclides and other chemicals consisting of several metals, a few organic compounds, PAHs, and a few PCBs. Most of the radionuclides have short-lived daughters that are evaluated concurrently with the parent nuclides, unless specifically excluded. This baseline risk assessment indicates that radionuclides (particularly uranium-238, thorium-238, and their short-lived progeny) are the contaminants contributing most significantly to risks.

Receptors and exposure pathways were identified in this baseline risk assessment on the basis of FEMP risk assessment policy and Operable Unit 2 specific considerations of current land use and reasonable projections of future land use. Confidence is high that the exposure pathways and potential receptors likely to experience the greatest potential exposures, and thus risk have been identified and evaluated. Although additional receptors and activities could be identified, exposures would be similar to, or less than, those estimated for the specific receptors and pathways considered in this analysis. Standard (conservative) intake parameters were used for the assessment of all pathways to ensure that potential risks would not be likely to be underestimated.

The potential for health effects from exposure to site-related contaminants was estimated for on-property receptors and in adjacent off-property areas impacted by Operable Unit 2 releases. To focus the discussion, the magnitude of the total estimated carcinogenic risks (ILCR) and noncarcenogenic risks (HIs) are discussed relative to remedial action goals for an NPL site, as defined by the EPA (1989a and 1990c). These goals are an ILCR of 10^{-6} to 10^{-4} and an HI not to exceed 1.0 for toxic effects other than cancer.

B.4.1 SUMMARY OF SUBUNIT-SPECIFIC RISKS

Tables B.4-1 through B.4-10 summarize the COCs by medium assuming current and future land use for the Active Flyash Pile, South Field, Inactive Flyash Pile, Solid Waste Landfill, and Lime Sludge Ponds, respectively. COCs are defined as those CPCs which remain a concern at the conclusion of the baseline risk assessment. All the COCs listed on the above mentioned tables are CPCs that were associated with risks exceeding 1.0×10^{-6} or HIs of 0.2 under the assumed conditions of exposure of the indicated scenarios. The Active Flyash Pile is the only subunit that does not have any noncarcinogen COCs identified for both current and future scenarios.

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TABLE B.4-1

ACTIVE FLYASH PILE
CURRENT LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	%Total Medium Risk	% Total Receptor Risk
Soil:						
Radium-226	7.9E-06	11.56%	11.55%	-[b]	-	-
Radium-228	2.6E-06	3.85%	3.84%	-	-	-
Thorium-228	6.1E-06	8.92%	8.92%	-	-	-
Arsenic	2.7E-06	3.89%	3.88%	-	-	-
Beryllium	4.8E-05	70.65%	70.59%	-	-	-
Home Grown Produce (Dust Affected):						
Arsenic	N/A[c]			1.1E-06	86.11%	66.17%
Beef/Milk (Dust Affected):						
Arsenic	N/A			-	-	-

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See footnotes at end of table

TABLE B.4-1
(Continued)

Medium/ Parameter	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Groundskeeper	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Soil:									
Radium-226	-	-	-	-	-	-	N/A		
Radium-228	-	-	-	7.1E-06	7.74%	7.74%	N/A		
Thorium-228	-	-	-	1.7E-05	17.98%	17.98%	N/A		
Arsenic	-	-	-	8.3E-06	9.03%	9.04%	N/A		
Beryllium	-	-	-	5.8E-05	62.65%	62.65%	N/A		
Home Grown Produce (Dust Affected):									
Arsenic	-	-	-	N/A			N/A		
Beef/Milk (Dust Affected):									
Arsenic	-	-	-	N/A			6.1E-06	93.06%	93.06%

[a]Surface water pathway does not have any COCs associated with it, therefore, was not included in this table.

[b]No risk greater than the threshold level of 1×10^{-6}.

[c]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.4-2

ACTIVE FLYASH PILE
FUTURE LAND USE
SUMMARY OF COC TOTAL CARCINOGENIC RISK CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Great Miami River User	% Total Medium Risk	% Total Receptor Risk
Soil:									
Neptunium-237	-[c]	-	-	-	-	-	N/A		
Radium-226	1.1E-05	4.54%	4.53%	-	-	-			
Radium-228	3.6E-06	1.51%	1.51%	-	-	-			
Thorium-228	8.4E-06	3.51%	3.50%	-	-	-			
Uranium-235/236	-	-	-	-	-	-			
Uranium-238	-	-	-	-	-	-			
Arsenic	5.9E-06	2.49%	2.48%	-	-	-			
Beryllium	2.1E-04	87.53%	87.32%	-	-	-			
Sediment:									
Neptunium-237	-	-	-	-	-	-	1.2E-06	0.97%	0.97%
Radium-228	-	-	-	-	-	-	4.9E-06	3.83%	3.83%
Thorium-228	-	-	-	-	-	-	1.1E-05	8.74%	8.74%
Groundwater:									
Uranium-234	N/A[d]			2.0E-06	31.60%	22.06%			
Uranium-238	N/A			3.9E-06	61.03%	42.59%			
Home Grown Produce (Dust Affected):									
Arsenic	N/A			1.1E-06	86.11%	12.24%			
Beryllium	N/A			-	-	-			
Home Grown Produce (Groundwater Affected):									
Uranium-234	N/A			-	-	-			
Uranium-238	N/A			-	-	-			
Beef/Milk (Dust Affected):									
Arsenic	N/A			-	-	-			

See footnotes at end of table

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TABLE B.4-2
(Continued)

Medium/ Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil:									
Neptunium-237	1.0E-04	5.77%	5.46%	9.8E-06	6.08%	5.84%	7.9E-06	1.34%	1.30%
Radium-226	4.7E-06	0.27%	0.25%	-	-	-	8.6E-05	14.79%	14.35%
Radium-228	3.8E-04	21.40%	20.26%	3.7E-05	22.89%	21.95%	2.9E-05	4.92%	4.78%
Thorium-228	8.9E-04	49.56%	46.91%	8.5E-05	53.03%	50.86%	6.7E-05	11.39%	11.06%
Uranium-235/236	1.6E-06	0.09%	0.09%	-	-	-	-	-	-
Uranium-238	6.0E-06	0.34%	0.32%	-	-	-	-	-	-
Arsenic	4.0E-04	22.41%	21.21%	2.8E-05	17.28%	16.58%	1.7E-04	29.75%	28.88%
Beryllium	-	-	-	-	-	-	2.2E-04	37.66%	36.56%
Sediment:									
Neptunium-237	-	-	-	-	-	-	-	-	-
Radium-228	-	-	-	-	-	-	-	-	-
Thorium-228	-	-	-	-	-	-	-	-	-
Groundwater:									
Uranium-234	1.5E-05	32.81%	0.82%	1.1E-06	32.81%	0.65%	-	-	-
Uranium-238	3.0E-05	63.38%	1.58%	2.1E-06	63.38	1.26%	1.3E-06	63.38%	0.21%
Home Grown Produce (Dust Affected):									
Arsenic	3.4E-05	86.10%	1.80%	2.2E-06	86.10%	1.32%	1.2E-05	88.12%	1.97%
Beryllium	4.4E-06	10.98%	0.23%	-	-	-	1.5E-06	11.24%	0.25%
Home Grown Produce (Groundwater Affected):									
Uranium-234	2.3E-06	32.55%	0.12%	-	-	-	-	-	-
Uranium-238	4.5E-06	62.88%	0.24%	-	-	-	-	-	-
Beef/Milk (Dust Affected):									
Arsenic	6.1E-06	93.06%	0.32%	-	-	-	1.4E-06	95.12%	0.24%

[a]Surface water pathway does not have any COCs associated with it, therefore, was not included in this table.
[b]Great Miami River user (Adult) and Great Miami River user (Youth) receptors did not have any COCs associated with them, therefore, were not included in this table.
[c]No risk greater htan the threshold level of 1 x 10^{-6}.
[d]N/A signigies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.4-3a

SOUTH FIELD
CURRENT LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk	Groundskeeper	% Total Medium Risk	% Total Receptor Risk
Soil:									
Radium-228	3.2E-06	13.62%	4.00%	N/A[b]			8.7E-06	1.35%	1.35%
Thorium-228	7.0E-06	29.87%	8.77%	N/A			6.1E-04	95.17%	95.17%
Uranium-235/236	-	-	-	N/A			1.6E-06	0.25%	0.25%
Beryllium	9.7E-06	41.21%	12.11%	N/A					
Sediment:									
Radium-228	2.1E-06	3.69%	2.61%	N/A					
Thorium-228	4.5E-06	7.88%	5.57%	N/A					
Arsenic	2.2E-06	3.89%	2.75%	N/A					
Beryllium	4.7E-05	82.49%	58.24%	N/A					
Surface Water:	-[c]	-	-	N/A					
Home Grown Produce (Dust Affected):	N/A	-	-	N/A	-	-			
Beef/Milk (Dust Affected):									
Indeno(1,2,3-cd)pyrene	N/A			3.4E-06	81.04%	81.04%			

[a]Off-Property Resident Farmer and Child receptors do not have any COCs associated with them, therefore, were not included in this table.
[b]No risk reater than the threshold of a x 10^{-6}.
[c]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.4-3b

SOUTH FIELD
CURRENT LAND USE
SUMMARY OF COC NONCARCINOGENIC RISK CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk
Soil:	-[b]	-	-
Sediment:	-	-	-
Surface Water:	-	-	-
U-Total	2.1E-01	100.00%	59.51%
Home Grown Produce (Dust Affected):	N/A[a]		
Beef/Milk (Dust Affected):	N/A		

[a]Off-Property Resident Farmer and Child receptors do not have any COCs associated with them, therefore, were not included in this table.

[b]No hazard greater than the threshold level of 0.2.

[a]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.4-4a

SOUTH FIELD
FUTURE LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User	% Total Medium Risk	% Total Receptor Risk
Soil:												
Cesium-137	-[c]	-	-	-	-	-	-	-	-			
Neptunium-237	-	-	-	-	-	-	-	-	-			
Radium-226	-	-	-	-	-	-	-	-	-			
Radium-228	4.4E-06	6.46%	2.01%	-	-	-	-	-	-			
Thorium-228	1.0E-05	4.81%	4.62%	-	-	-	-	-	-			
Thorium-230	-	-	-	-	-	-	-	-	-			
Thorium-232	-	-	-	-	-	-	-	-	-			
Uranium-234	-	-	-	-	-	-	-	-	-			
Uranium-235/236	-	-	-	-	-	-	-	-	-			
Uranium-238	-	-	-	-	-	-	-	-	-			
Arsenic	-	-	-	-	-	-	-	-	-			
Beryllium	4.2E-05	61.72%	19.23%	-	-	-	-	-	-			
Chromium	-	-	-	-	-	-	-	-	-			
Benzo(a)-anthracene	-	-	-	-	-	-	-	-	-			
Benzo(a)pyrene	1.9E-06	2.76%	0.86%	-	-	-	-	-	-			
Benzo(b)-fluoranthene	-	-	-	-	-	-	-	-	-			
Benzo(k)-fluoranthene	-	-	-	-	-	-	-	-	-			
Dibenzo(a,h)-anthracene	-	-	-	-	-	-	-	-	-			
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-			
Aroclor-1254	2.9E-06	4.19%	1.31%	-	-	-	-	-	-			
Aroclor-1260	1.7E-06	2.45%	0.76%	-	-	-	-	-	-			
Dieldrin	-	-	-	-	-	-	-	-	-			

See footnotes at end of table

TABLE B.4-4a
(Continued)

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User	% Total Medium Risk	% Total Receptor Risk
Soil:												
Cesium-137	-[c]	-	-	-	-	-	-	-	-			
Sediment:												
Radium-228	1.5E-06	0.98%	0.67%	N/A[d]			N/A			6.0E-06	14.97%	5.42%
Thorium-228	3.2E-06	2.09%	1.43%	N/A			N/A			1.3E-05	32.75%	11.85%
Aroclor 1254										1.1E-06	2.68%	0.97%
Arsenic	3.3E-06	2.16%	1.48%	N/A			N/A					
Benzo(a)pyrene										1.2E-06	2.89%	1.04%
Beryllium	1.4E-04	4.55%	64.85%	N/A			N/A			1.6E-05	39.38%	14.25%
Groundwater:												
Uranium-234	N/A			1.9E-05	33.45%	23.27%	-	-	-			
Uranium-235/236	N/A			1.0E-06	1.78%	1.24%	-	-	-			
Uranium-238	N/A			3.6E-05	64.64%	44.97%	1.6E-06	64.64%	13.47%			
Surface Water:	-	-	-	N/A			N/A					
Technetium-99										1.5E-06	2.16%	1.38%
benzo(a)anthracene										4.4E-06	6.27%	4.00%
benzo(a)pyrene										4.0E-05	56.80%	36.25%
benzo(b)fluoranthene										2.4E-06	3.34%	2.13%
dibenzo(a)anthrecene										9.0E-06	12.84%	8.20%
ideno pyrene										2.8E-06	3.93%	2.51%
Aroclor 1254										1.7E-06	2.46%	1.57%
Aroclor 1260										1.6E-06	2.32%	1.48%
dieldrin										6.4E-06	9.12%	5.82%

See footnotes at end of table

TABLE B.4-4a
(Continued)

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Great Miami River User	% Total Medium Risk	% Total Receptor Risk
Soil:												
Cesium-137	-[c]	-	-	-	-	-	-	-	-			
Home Grown Produce (Dust Affected):												
Benzo(a)pyrene	N/A			-	-	-	-	-	-			
Home Grown Produce (Groundwater Affected):												
Uranium-234	N/A			2.8E-06	33.42%	3.49%	-	-	-			
Uranium-235	N/A			-	-	-	-	-	-			
Uranium-238	N/A			5.4E-06	64.58%	6.73%	-	-	-			
Beef/Milk (Dust Affected):												
Benzo(a)pyrene	N/A			1.3E-06	9.67%	1.67%	-	-	-			
Benzo(b)-fluoranthene	N/A			-	-	-	-	-	-			
Benzo(k)-fluoranthene	N/A			-	-	-	-	-	-			
Dibenzo(a,h)-anthracene	N/A			-	-	-	-	-	-			
Indeno(1,2,3-cd)pyrene	N/A			1.1E-05	81.05%	13.99%	6.5E-06	81.21%	56.17%			
Beef/Milk (Groundwater Affected):												
Uranium-234	N/A			-	-	-	-	-	-			
Uranium-238	N/A			-	-	-	-	-	-			

See footnotes at end of table

TABLE B.4-4a
(Continued)

Medium/ Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil:									
Cesium-137	4.1E-05	1.76%	1.10%	4.0E-06	1.88%	1.29%	3.1E-06	0.99%	0.69%
Neptunium-237	4.6E-06	0.19%	0.12%	-	-	-	-	-	-
Radium-226	3.5E-05	1.51%	0.94%	2.9E-06	1.36%	0.93%	2.8E-06	0.88%	0.62%
Radium-228	4.7E-04	19.91%	12.46%	4.5E-05	21.21%	14.55%	3.5E-05	11.23%	7.86%
Thorium-228	1.0E-03	44.17%	27.64%	1.0E-04	46.95%	32.21%	7.7E-05	24.66%	17.24%
Thorium-230	1.7E-05	0.74%	0.46%	1.3E-06	0.61%	0.42%	-	-	-
Thorium-232	4.9E-06	0.21%	0.13%	-	-	-	-	-	-
Uranium-234	1.0E-05	0.42%	0.26%	-	-	-	-	-	-
Uranium-235/236	4.6E-06	0.20%	0.12%	-	-	-	-	-	-
Uranium-238	3.5E-05	1.49%	0.93%	2.9E-06	1.37%	0.94%	1.5E-06	0.48%	0.34%
Arsenic	3.3E-05	1.39%	0.87%	2.3E-06	1.07%	0.73%	1.4E-05	4.50%	3.15%
Beryllium	3.3E-04	13.97%	8.74%	2.9E-05	13.55%	9.30%	4.9E-05	15.58%	10.90%
Chromium	1.3E-05	0.56%	0.35%	-	-	-	1.1E-06	0.36%	0.25%
Benzo(a)-anthracene	1.5E-05	0.64%	0.40%	1.0E-06	0.49%	0.33%	6.6E-06	2.12%	1.48%
Benzo(a)pyrene	1.7E-04	7.24%	4.53%	1.2E-05	5.51%	3.78%	7.5E-05	24.01%	16.80%
Benzo(b)-fluoranthene	1.4E-05	0.59%	0.37%	-	-	-	6.1E-06	1.95%	1.37%
Benzo(k)-fluoranthene	6.9E-06	0.29%	0.18%	-	-	-	3.0E-06	0.97%	0.68%
Dibenzo(a,h)-anthracene	3.8E-05	1.62%	1.02%	2.6E-06	1.24%	0.85%	1.7E-05	5.39%	3.77%
Indeno(1,2,3-cd)pyrene	3.0E-05	1.27%	0.79%	2.0E-06	0.96%	0.66%	1.3E-05	4.20%	2.94%
Aroclor-1254	2.3E-05	0.99%	0.62%	2.0E-06	0.95%	0.65%	3.8E-06	1.20%	0.84%
Aroclor-1260	1.4E-05	0.58%	0.36%	1.2E-06	0.55%	0.38%	2.2E-06	0.70%	0.49%
Dieldrin	4.5E-06	0.19%	0.12%	-	-	-	-	-	-
Sediment:									
Radium-228	N/A			N/A			N/A		
Thorium-228	N/A			N/A			N/A		

See footnotes at end of table

TABLE B.4-4a
(Continued)

Medium/ Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Arsenic	N/A			N/A			N/A		
Beryllium	N/A			N/A			N/A		
Groundwater:									
Uranium-234	3.7E-04	33.52%	9.76%	2.6E-05	33.52%	8.42%	1.6E-05	33.52%	3.51%
Uranium-235/236	2.0E-05	1.79%	0.52%	1.4E-06	1.79%	0.45%	-	-	-
Uranium-238	7.1E-04	64.66%	18.83%	5.0E-05	64.66%	16.23%	3.0E-05	64.66%	6.78%
Home Grown Produce (Dust Affected):									
Benzo(a)pyrene	4.2E-06	49.05%	0.11%	-	-	-	1.5E-06	51.98%	0.33%
Home Grown Produce (Groundwater Affected):									
Uranium-234	5.5E-05	33.51%	1.46%	3.6E-06	33.51%	1.15%	4.1E-06	33.51%	0.91%
Uranium-235	2.9E-06	1.70%	0.08%	-	-	-	-	-	-
Uranium-238	1.1E-04	64.65%	2.82%	6.9E-06	64.65%	2.22%	7.9E-06	64.65%	1.76%
Beef/Milk (Dust Affected):									
Benzo(a)pyrene	1.2E-05	9.67%	0.31%	-	-	-	6.7E-06	9.69%	1.50%
Benzo(b)-fluoranthene	3.7E-06	3.06%	0.10%	-	-	-	2.1E-06	3.07	0.47%
Benzo(k)-fluoranthene	3.7E-06	3.10%	0.10%	-	-	-	2.2E-06	3.11%	0.48%
Dibenzo(a,h)-anthracene	2.6E-06	2.14%	0.07%	-	-	-	1.5E-06	2.14%	0.33%
Indeno(1,2,3-cd)pyrene	9.8E-05	81.04%	2.60%	5.9E-06	81.04%	1.89%	5.6E-05	81.20%	12.54%
Beef/Milk (Groundwater Affected):									
Uranium-234	6.4E-06	33.45%	0.17%	-	-	-	1.2E-06	33.45%	0.26%
Uranium-238	1.2E-05	64.52%	0.33%	-	-	-	2.3E-06	64.54%	0.50%

[a]Homebuilder, Great Miami River User (Adult), and Great Miami River User (Youth) receptors did not have any COCs associated with them, therefore, were not included within this table.

[b]Surface water pathway did not have any COCs associated with carcinogenic risk, therefore, were not inlcuded in this table.

[c]No risk greater then the threshold level of 1×10^{-6}.

[d]C/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.4-4b

SOUTH FIELD
FUTURE LAND USE
SUMMARY OF COC NONCARCINOGENIC HAZARD CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Off-Property Resident Farmer	%Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil:				-[c]	-	-	-	-	-	-	-	-	-	-	-
Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	3.1E-01	40.47%	0.55%
Uranium-Total	-	-	-	-	-	-	-	-	-	-	-	-	3.8E-01	48.89%	0.66%
Groundwater:															
Uranium-Total				2.0E+00	100.00%	74.90%	1.9E+01	99.65%	85.89%	1.1E+01	99.66%	87.17%	4.3E+01	99.65%	75.41%
Home Grown Produce (Groundwater Affected):															
Uranium-Total				5.2E-01	100.00%	19.49%	2.5E+00	99.80%	11.23%	1.3E+00	99.80%	10.10%	1.0E+01	99.80%	17.82%
Beef/Milk (Groundwater Affected):															
Uranium-Total				-	-	-	2.9E-01	99.14%	1.31%	-	-	-	2.9E+00	99.46%	5.07%

[a]Expanded Trespasser receptor does not have any COCs associated with them, therefore, was not included in this table.

[b]Sediment surface water, homegrown produce (dust affected), and beef and milk (dust affected) pathways do not have any COCs associated with the risk, therefore, were not included in this table.

[c]No hazard greater than the threshold level of 0.2.

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TABLE B.4-5

INACTIVE FLYASH PILE
CURRENT LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Groundskeeper	% Total Medium Risk	% Total Receptor Risk
Soil:						
Radium-228	1.9E-06	5.91%	5.60%	5.0E-06	10.02%	10.02%
Thorium-228	4.3E-06	13.79%	13.06%	1.2E-05	23.36%	23.36%
Arsenic	-	-	-	3.0E-06	6.07%	6.07%
Beryllium	2.3E-05	74.72%	70.73%	2.8E-05	55.74%	55.74%
Sediment:	-[b]	-	-			
Surface Water:	-	-	-			
Home Grown Produce (Dust Affected):	N/A[c]					
Beef/Milk (Dust Affected):	N/A					

[a]Off-Property Resident Farmer Child and User of Milk and Meat receptors do not have any COCs associated with them, therefore, were not included in this table.
[b]No risk is greater than the threshold level of 1×10^{-6}.
[c]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.4-6a

INACTIVE FLYASH PILE
FUTURE LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Great Miami River User	% Total Medium Risk	% Total Receptor Risk
Soil:									
Cesium-137	-[c]	-	-			-			
Neptunium-237	-	-	-			-			
Radium-226	-	-	-			-			
Radium-228	2.6E-06	2.52%	2.46%			-	3.4E-06	17.35%	17.09%
Thorium-228	6.0E-06	5.24%	5.13%			-	8.0E-06	40.43%	39.83%
Uranium-235/236	-	-	-			-	6.5E-06	32.75%	32.75%
Uranium-238	-	-	-			-			
Arsenic	2.0E-06	1.93%	1.89%			-			
Beryllium	1.0E-04	89.55%	87.68%			-			
Dibenzo(a,h)-anthracene	-	-	-			-			
Sediment:									
Radium-228	-	-	-	N/A[d]					
Thorium-228	-	-	-	N/A					
Groundwater:									
Uranium-234	N/A[d]					1.9E-05			
Uranium-235/236	N/A					1.0E-06			
Uranium-238	N/A					3.6E-05			
Home Grown Produce (Groundwater Affected):									
Uranium-234	N/A			2.8E-06	33.49%	4.29%			
Uranium-235	N/A			-	-	-			
Uranium-238	N/A			5.4E-06	64.71%	8.28%			
Beef/Milk (Groundwater Affected):									
Uranium-234	N/A			-	-	-			
Uranium-238	N/A			-	-	-			

See footnotes at end of table

TABLE B.4-6a
(Continued)

Medium/ Parameter	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil:												
Cesium-137	-	-	-	3.8E-05	1.96%	1.18%	3.7E-06	2.09%	1.39%	2.9E-06	1.09%	0.88%
Neptunium-237	-	-	-	1.5E-05	0.77%	0.46%	1.4E-06	0.81%	0.53%	1.1E-06	0.43%	0.35%
Radium-226	-	-	-	2.0E-06	0.10%	0.06%	-	-	-	-	-	-
Radium-228	-	-	-	2.7E-04	13.80%	8.35%	2.6E-05	14.74%	9.78%	2.0E-05	7.70%	6.22%
Thorium-228	-	-	-	6.3E-04	32.12%	19.45%	6.1E-05	34.34%	22.78%	4.7E-05	17.91%	14.46%
Uranium-235/236	-	-	-	4.2E-06	0.22%	0.13%	-	-	-	-	-	-
Uranium-238	-	-	-	1.5E-05	0.75%	0.45%	1.4E-06	0.78%	0.52%	1.1E-06	0.42%	0.34%
Arsenic	-	-	-	1.5E-04	7.55%	4.57%	1.0E-05	5.82%	3.86%	6.4E-05	24.31%	19.64%
Beryllium	-	-	-	7.9E-04	40.42%	24.47%	6.9E-05	39.32%	26.08%	1.1E-04	40.51%	32.72%
Dibenzo(a,h)-anthracene	-	-	-	4.4E-05	2.24%	1.35%	3.0E-06	1.71%	1.13%	2.0E-05	7.39%	5.96%
Sediment:												
Radium-228	N/A			N/A			N/A			N/A		
Thorium-228	N/A			N/A			N/A			N/A		
Groundwater:												
Uranium-234	-	-	-	3.7E-04	33.52%	11.33%	2.6E-05	33.52%	9.79%	1.6E-05	33.52%	4.81%
Uranium-235/236	-	-	-	2.0E-05	1.79%	0.60%	1.4E-06	1.79%	0.52%	-	-	-
Uranium-238	1.6E-06	64.64%	48.34%	7.1E-04	64.66%	21.86%	5.0E-05	64.66%	18.88%	3.0E-05	64.66%	9.28%
Home Grown Produce (Groundwater Affected):												
Uranium-234	-	-	-	5.5E-05	33.52%	1.70%	3.6E-06	33.01%	1.34%	4.1E-06	33.01%	1.25%
Uranium-235	-	-	-	2.9E-06	1.79%	0.09%	-	-	-	-	-	-
Uranium-238	-	-	-	1.1E-04	64.66%	3.27%	6.9E-06	63.68%	2.58%	7.9E-06	63.68%	2.42%
Beef/Milk (Groundwater Affected):												
Uranium-234	-	-	-	6.4E-06	33.53%	0.20%	-	-	-	1.2E-06	33.51%	0.36%
Uranium-238	-	-	-	1.2E-05	64.68%	0.38%	-	-	-	2.3E-06	64.65%	0.69%

[a]Surface water, home grown produce (dust affected), and beef/milk (dust affected) pathways do not have any COCs associated with them, therefore, were not included in this table.

[b]Great Miami River User (Adult) and Great Miami River (Youth) receptors did not have any COCs associated with them, therefore, were not included in this table.

[c]No risk greater than the threshold level of 1×10^{-6}.

[d]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.4-6b

INACTIVE FLYASH PILE
FUTURE LAND USE
SUMMARY OF COC NONCARCINOGENIC HAZARD CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk
Soil:												
Arsenic	-[b]	-	-	-	-	-	-	-	-	2.8E-01	51.80%	1.24%
Groundwater:												
Uranium-Total	N/A[c]			9.95E-01	100.00%	77.57%	2.0E+00	100.00%	59.90%	1.9E+01	99.65%	84.87%
Surface Water:	2.2E-01	98.99%	53.41%	NA			N/A			N/A		
Home Grown Produce (Dust Affected):	N/A			NA			-	-	-	-	-	-
Home Grown Produce (Groundwater Affected):	N/A			NA								
Molybdenum							3.8E-01	42.69%	11.31%			
Uranium-Total							5.2E-01	57.94%	15.59%	2.5E+00	99.69%	11.09%
Beef/Milk (Groundwater Affected):	N/A			N/A								
Molybdenum							2.9E-01	66.39%	8.76%			
Uranium-Total							-	-	-	2.9E-01	98.77%	1.29%

See footnotes at end of table

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TABLE B.4-6b
(Continued)

Medium/ Parameter	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil:						
Arsenic	-	-	-	1.4E+00	86.80%	2.44%
Groundwater:						
Uranium-Total	1.1E+01	99.66%	87.08%	4.3E+01	99.65%	74.28%
Surface Water:	N/A			N/A		
Home Grown Produce (Groundwater Affected):						
Uranium-Total	1.3E+00	99.65%	10.09%	1.0E+01	99.65%	17.55%
Beef/Milk (Groundwater Affected):						
Uranium-Total	-	-	-	2.9E+00	99.19%	4.99%

[a]Surface water, sediment, home grown produce (dust affected), and beef/milk (dust affected) pathways do not have any COCs associated with them, therefore, were not included in this table.

[b]No hazard greater than the threshold level of 0.2.

[c]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.4-7a

SOLID WASTE LANDFILL
CURRENT LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Groundskeeper	% Total Medium Risk	% Total Receptor Risk
Soil:						
Radium-228	1.4E-06	10.53%	8.87%	3.8E-06	15.51%	15.51%
Thorium-228	2.6E-06	19.65%	16.56%	7.0E-06	28.91%	28.91%
Uranium-238	-[b]	-	-	2.5E-06	10.44%	10.44%
Beryllium	7.2E-06	4.50%	45.92%	8.4E-06	34.76%	34.76%
Sediment:						
Thorium-228	1.2E-06	47.30%	7.43%			
Surface Water:	-	-	-			
Home Grown Produce (Dust Affected):	N/A[c]					
Beef/Milk (Dust Affected):	N/A					

[a]Off-Property Resident Farmer and Child, and User of Milk and Meat receptors do not have any COCs associated with them, therefore, were not included in this table.

[b]No risk greater than the threshold level of 1×10^{-6}.

[c]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.4-7b

SOLID WASTE LANDFILL
CURRENT LAND USE
SUMMARY OF COC NONCARCINOGENIC RISK CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk
Soil: Uranium-Total	2.2E-01	68.07%	54.66%
Sediment:	-[b]	-	-
Surface Water:	-	-	-
Home Grown Produce (Dust Affected):	N/A[c]		
Beef/Milk (Dust Affected):	N/A		

[a]Off-Property Resident Farmer and Child, and User of Milk and Meat receptors do not have any COCs associated with them, therefore, were not included in this table.

[b]No hazard greater than the threshold level of 0.2.

[c]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.4-8a
SOLID WASTE LANDFILL FUTURE LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User	% Total Medium Risk	% Total Receptor Risk
Soil:												
Cesium-137				2.1E-05	1.88%	1.85%	2.0E-06	2.35%	2.32%			
Neptunium-237				2.3E-05	2.00%	1.97%	2.1E-06	2.46%	2.42%			
Plutonium-238				1.1E-06	0.09%	0.09%	-[c]	-	-			
Radium-226				1.5E-06	0.13%	0.13%	-	-	-			
Radium-228	1.9E-06	4.65%	4.37%	2.0E-04	17.87%	17.59%	1.9E-05	22.32%	22.04%	2.6E-06	25.30%	25.17%
Thorium-228	3.6E-06	8.79%	8.26%	3.8E-04	33.42%	32.91%	3.6E-05	41.72%	41.21%	4.8E-06	47.13%	46.88%
Thorium-230				2.4E-6	0.21%	0.20%	-	-	-			
Uranium-234				1.5E-05	1.28%	1.26%	1.1E-06	1.22%	1.21%			
Uranium-235/236				2.9E-05	2.57%	2.53%	2.8E-06	3.19%	3.15%			
Uranium-238	2.4E-06	5.82%	5.47%	1.7E-04	14.70%	14.47%	1.5E-05	17.04%	16.83%	1.5E-06	15.05%	14.97%
Arsenic				3.0E-05	2.67%	2.63%	2.0E-06	2.33%	2.30%			
Beryllium	3.1E-05	75.98%	71.41%	2.4E-04	21.43%	21.11%	4.7E-06	5.34%	5.28%			
Benzo(a)pyrene				6.1E-06	0.54%	0.53%	-	-	-			
Benzo(b)-fluoranthene				1.6E-06	0.14%	0.14%	-	-	-			
Chromium				3.7E-06	0.33%	0.32%	-	-	-			
Dibenzo(a,h)-anthracene				4.0E-06	0.35%	0.35%	-	-	-			
Indeno(1,2,3-cd)pyrene				2.4E-06	0.21%	0.21%	-	-	-			
Sediment:												
Radium-288	-	-	-	N/A[d]			N/A					
Thorium-228	-	-	-	N/A			N/A					
Arsenic	-	-	-	N/A			N/A					
Perched Groundwater:												
Technetium-99	N/A			N/A			N/A					
Carbazole	N/A			N/A			N/A					

See footnotes at end of table

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TABLE B.4-8a
(Continued)

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	Great Miami River User	% Total Medium Risk	% Total Receptor Risk
Home Grown Produce (Dust Affected):												
Arsenic	N/A			7.2E-06	84.78%	0.62%	-	-	-			
Beef/Milk (Dust Affected):												
Indeno(1,2,3-cd)pyrene	N/A			7.3E-06	80.95%	0.63%	-	-	-			

See footnotes at end of table

TABLE B.4-8a
(Continued)

Medium/ Parameter	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-builder	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater user	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater Child	% Total Medium Risk	% Total Receptor Risk
Soil:												
Cesium-137	1.6E-06	1.38%	1.29%	-	-	-	N/A			N/A		
Neptunium-237	1.7E-06	1.47%	1.37%	-	-	-	N/A			N/A		
Plutonium-238	-	-	-	-	-	-	N/A			N/A		
Radium-226	-	-	-	-	-	-	N/A			N/A		
Radium-228	1.5E-05	13.08%	12.25%	-	-	-	N/A			N/A		
Thorium-228	2.8E-05	24.38%	22.83%	-	-	-	N/A			N/A		
Thorium-230	-	-	-	-	-	-	N/A			N/A		
Uranium-234	-	-	-	-	-	-	N/A			N/A		
Uranium-235/236	2.2E-06	1.85%	1.73%	-	-	-	N/A			N/A		
Uranium-238	1.0E-05	8.85%	8.29%	1.1E-06	21.41%	21.41%	N/A			N/A		
Arsenic	1.3E-05	11.12%	10.41%	-	-	-	N/A			N/A		
Beryllium	3.6E-05	31.01%	29.04%	-	-	-	N/A			N/A		
Benzo(a)pyrene	2.7E-06	2.33%	2.18%	-	-	-	N/A			N/A		
Benzo(b)-fluoranthene	-	-	-	-	-	-	N/A			N/A		
Chromium	-	-	-	-	-	-	N/A			N/A		
Dibenzo(a,h)-anthracene	1.8E-06	1.52%	1.43%	-	-	-	N/A			N/A		
Indeno(1,2,3-cd)pyrene	1.1E-06	0.90%	0.84%	-	-	-	N/A			N/A		
Sediment:												
Radium-288	N/A			N/A			N/A			N/A		
Thorium-228	N/A			N/A			N/A			N/A		
Arsenic	N/A			N/A			N/A			N/A		
Perched Groundwater:												
Technetium-99	N/A			N/A			1.8E-06	0.03%	0.03%	-	-	-
Carbazole	N/A			N/A			5.3E-03	99.97%	99.97%	1.1E-03	99.91%	100.00%
Home Grown Produce (Dust Affected):												
Arsenic	2.5E-06	88.92%	2.01%	N/A			N/A			N/A		

See footnotes at end of table

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TABLE B.4-8a
(Continued)

Medium/ Parameter	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-builder	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater user	% Total Medium Risk	% Total Receptor Risk	Perched Groundwater Child	% Total Medium Risk	% Total Receptor Risk
Beef/Milk (Dust Affected):												
Indeno(1,2,3-cd)pyrene	4.2E-06	82.24%	3.38%	N/A			N/A			N/A		

[a]Off-Property Resident Farmer and Child receptors did not have any COCs asscociated with them, therefore, were not included in this table.

[b]Groundwater, surface water, home grown produce (groundwater affected), beef/milk (groundwater affected) pathways did not have any COCs associated with them, therefore, were not included in this table.

[c]No risk greater than the threshold level of 1×10^{-6}.

[d]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

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TABLE B.4-8b

SOLID WASTE LANDFILL
FUTURE LAND USE
SUMMARY OF COC TOTAL NONCARCINOGENIC HAZARD CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	Home-Builder	% Total Medium Risk	% Total Receptor Risk
Soil:															
Arsenic	-[c]	-	-	-	-	-	-	-	-	2.9E-01	8.79%	8.68%	-	-	-
Uranium-Total	6.3E-01	96.98%	84.33%	1.4	93.41%	92.86%	2.6E-01	87.00%	85.77%	2.9	88.13%	87.04%	-	-	-
4,4-DDE	-	-	-	-	-	-	-	-	-	-	-	-	1.9	96.62%	96.62%

[a]Off-Property Resident Farmer and Child receptors do not have any COCs associated with them, therefore, were not included in this table.

[b]Sediment, groundwater, surface water, home grown produce (dust affected), home grown produce (groundwater affected), beef/milk (dust affected), and beef/milk (groundwater affected) pathways do not have any COCs associated with them, therefore, were not included in this table.

[c]No hazard greater than the threshold level of 0.2.

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TABLE B.4-9a

LIME SLUDGE PONDS
CURRENT LAND USE
SUMMARY OF COC CARCINOGENIC RISK CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk	Groundskeeper	% Total Medium Risk	% Total Receptor Risk
Soil:									
Cesium-137	-[c]	-	-	-	-	-	1.1E-06	2.29%	2.29%
Neptunium-237	-	-	-	-	-	-	-	-	-
Radium-226	-	-	-	-	-	-	-	-	-
Radium-228	1.4E-06	4.83%	4.83%	-	-	-	3.7E-06	7.78%	7.78%
Thorium-228	4.7E-06	16.56%	16.56%	-	-	-	1.3E-05	26.72%	26.72%
Thorium-230	-	-	-	-	-	-	-	-	-
Uranium-234	-	-	-	-	-	-	-	-	-
Uranium-235/236	-	-	-	-	-	-	-	-	-
Uranium-238	-	-	-	-	-	-	3.1E-06	6.62%	6.62%
				-	-	-	-	-	-
Arsenic	-	-	-	-	-	-	-	-	-
Beryllium	1.6E-05	55.75%	55.75%	-	-	-	1.9E-05	39.54%	39.54%
Aroclor-1254	4.4E-06	15.66%	15.66%	-	-	-	5.3E-06	11.29%	11.29%
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)-anthracene	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-
				-	-	-	-	-	-
Beef/Milk (Dust Affected):									
Aroclor-1254	N/A[d]			-	-	-			
Benzo(a)pyrene	N/A			-	-	-			

See footnotes at end of table

TABLE B.4-9a
(Continued)

Medium/ Parameter	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	User of Milk and Meat	% Total Medium Risk	% Total Receptor Risk
Soil:	-	-	-			
Cesium-137	-	-	-	N/A		
Neptunium-237	-	-	-	N/A		
Radium-226	-	-	-	N/A		
Radium-228	-	-	-	N/A		
Thorium-228	-	-	-	N/A		
Thorium-230	-	-	-	N/A		
Uranium-234	-	-	-	N/A		
Uranium-235/236	-	-	-	N/A		
Uranium-238	-	-	-	N/A		
	-	-	-			
Arsenic	-	-	-	N/A		
Beryllium	-	-	-	N/A		
Aroclor-1254	-	-	-	N/A		
Benzo(a)anthracene	-	-	-	N/A		
Benzo(a)pyrene	-	-	-	N/A		
Benzo(b)fluoranthene	-	-	-	N/A		
Dibenzo(a,h)-anthracene	-	-	-	N/A		
Indeno(1,2,3-cd)pyrene	-	-	-	N/A		
	-	-	-			
Home Grown Produce (Dust Affected):	-	-	-	N/A		
Beef/Milk (Dust Afflected):						
Aroclor-1254	-	-	-	1.8E-06	31.97%	31.97%
Benzo(a)pyrene	-	-	-	1.6E-06	29.58%	29.58%

[a]Off-Property Resident Farmer and Off-Property Resident Child receptors did not have any COCs associated with them, therefore, are not included in this table.
[b]Groundwater, surface water, homegrown produce (dust and groundwater affected), beef/milk (groundwater affected) pathways did not have any COCs associated with them, therefore, were not included in this table.
[c]No risk greater than the threshold level of 1×10^{-6}.
[d]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.4-9b

LIME SLUDGE PONDS
CURRENT LAND USE
SUMMARY OF COC NONCARCINOGENIC RISK CONTRIBUTIONS[a]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Trespassing Youth	% Total Medium Risk	% Total Receptor Risk
Soil:			
Uranium-Total	2.0E-1	94.73%	94.73%
Sediment:	-[b]	-	-
Surface Water:	-	-	-
Home Grown Produce (Dust Affected):	N/A[c]		
Beef/Milk (Dust Affected):	N/A		

[a]Off-Property Resident Farmer and Child, and User of Milk and Meat receptors do not have any COCs associated with them, therefore, were not included in this table.

[b]No hazard greater than the threshold level of 0.2.

[c]N/A signifies that exposure of the receptor for the indicated medium is not applicable.

TABLE B.4-10a

LIME SLUDGE PONDS
FUTURE LAND USE
SUMMARY OF COC TOTAL CARCINOGENIC RISK CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	Off-Property Resident Farmer	% Total Medium Risk	% Total Receptor Risk
Soil:				-	-	-
Cesium-137	-[c]	-	-	-	-	-
Neptunium-237	-	-	-	-	-	-
Radium-226	-	-	-	-	-	-
Radium-228	1.9E-06	1.90%	1.90%	-	-	-
Thorium-228	6.4E-06	6.52%	6.52%	-	-	-
Thorium-230	-	-	-	-	-	-
Uranium-234	-	-	-	-	-	-
Uranium-235/236	-	-	-	-	-	-
Uranium-238	1.2E-06	1.23%	1.23%	-	-	-
				-	-	-
Arsenic	-	-	-	-	-	-
Beryllium	6.8E-05	69.15%	69.15%	-	-	-
Aroclor-1254	1.9E-05	19.33%	19.33%	-	-	-
Benzo(a)-anthracene	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-
Benzo(b)-fluoranthene	-	-	-	-	-	-
Dibenzo(a,h)-anthracene	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-
Home Grown Produce (Dust Affected):						
Arsenic	N/A[d]			-	-	-
Beef/Milk (Dust Affected):						
Aroclor-1254	N/A			-	-	-
Benzo(a)pyrene	N/A			-	-	-

See footnote at end of table

TABLE B.4-10a
(Continued)

Medium/ Parameter	Off-Property Resident Child	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Farmer (CT)	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil:	-	-	-									
Cesium-137	-	-	-	5.8E-05	3.16%	3.14%	5.6E-06	3.32%	3.31%	4.4E-06	2.13%	2.08%
Neptunium-237	-	-	-	1.4E-05	0.73%	0.73%	1.3E-06	0.76%	0.76%	1.0E-06	0.50%	0.49%
Radium-226	-	-	-	2.0E-06	0.11%	0.11%	-	-	-	-	-	-
Radium-228	-	-	-	2.0E-04	10.71%	10.65%	1.9E-05	11.24%	11.20%	1.5E-05	7.21%	7.07%
Thorium-228	-	-	-	6.8E-04	36.64%	36.45%	6.5E-05	38.48%	38.35%	5.1E-05	24.65%	24.17%
Thorium-230	-	-	-	4.9E-06	0.27%	0.26%	-	-	-	-	-	-
Uranium-234	-	-	-	2.5E-06	0.13%	0.13%	-	-	-	-	-	-
Uranium-235/236	-	-	-	1.8E-05	0.95%	0.94%	1.7E-06	0.99%	0.99%	1.3E-06	0.64%	0.63%
Uranium-238	-	-	-	1.2E-04	6.59%	6.56%	1.1E-05	6.70%	6.68%	9.0E-06	4.35%	4.26%
	-	-	-									
Arsenic	-	-	-	3.2E-05	1.74%	1.73%	2.2E-06	1.32%	1.32%	1.4E-05	6.75%	6.62%
Beryllium	-	-	-	5.3E-04	28.65%	28.51%	4.6E-05	27.39%	27.29%	7.2E-05	34.66%	33.98%
Aroclor-1254	-	-	-	1.5E-04	8.34%	8.30%	1.3E-05	7.90%	7.87%	2.3E-05	11.10%	10.88%
Benzo(a)-anthracene	-	-	-	2.5E-06	0.13%	0.13%	-	-	-	1.1E-06	0.53%	0.52%
Benzo(a)pyrene	-	-	-	2.0E-05	1.07%	1.07%	1.4E-06	0.80%	0.80%	8.8E-06	4.27%	4.18%
Benzo(b)-fluoranthene	-	-	-	2.2E-06	0.12%	0.12%	-	-	-	-	-	-
Dibenzo(a,h)-anthracene	-	-	-	6.4E-06	0.35%	0.34%	-	-	-	2.8E-06	1.38%	1.35%
Indeno(1,2,3-cd)pyrene	-	-	-	3.6E-06	0.19%	0.19%	-	-	-	1.6E-06	0.76%	0.75%
Home Grown Produce (Dust Affected):												
Arsenic	-	-	-	1.0E-06	29.36%	0.05%	-	-	-	-	-	-
Beef/Milk (Dust Affected):												
Aroclor-1254	-	-	-	1.8E-06	31.97%	0.09%	-	-	-	1.0E-06	33.17%	0.48%
Benzo(a)pyrene	-	-	-	1.6E-06	29.58%	0.09%	-	-	-	-	-	-

[a]Perched Groundwater User and Perched Groundwater Child receptors do not have any COCs and are not included in this table.
[b]Sediment, groundwater, surface water, perched groundwater, home grown produce (groundwater affected), and beef/milk (groundwater affected) pathways do not have any COCs associated with them, therefore, not included in this table.
[c]No risk greater than the threshold level of 1×10^{-6}.
[d]N/A signifies that exposure of the receptor to the indicated medium is not applicable.

TABLE B.4-10b

LIME SLUDGE PONDS
FUTURE LAND USE
SUMMARY OF COC TOTAL NONCARCINOGENIC HAZARD CONTRIBUTIONS[a,b]
OPERABLE UNIT 2 REMEDIAL INVESTIGATION
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Medium/ Parameter	Expanded Trespasser	% Total Medium Risk	% Total Receptor Risk	On-Property Resident Child	% Total Medium Risk	% Total Receptor Risk
Soil:						
Arsenic	-	-	-	3.1E-01	23.79%	22.95%
Uranium-Total	6.0E-01	95.23%	95.23%	9.1E-01	70.92%	68.41%

[a]Off-Property and On-Property Resident Farmer and Off-Property Resident Child receptors do not have any COCs associated with them, therefore, were not included in this table.

[b]Sediment, groundwater, surface water, home grown produce (dust affected), and beef/milk (dust and groundwater affected) pathways and groundwater do not have any COCs associated with them, therefore, were not included in this table.

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These tables indicate that the naturally occurring isotopes of uranium, radium, and thorium were detected in soil (and sediment) and associated with risks exceeding the 1.0×10^{-6} level across all subunits. Moreover, as indicated in Section B.3.0, the risk due to estimated ambient emissions of radon-222 at each of the subunits generally falls within, or very close to, the background range.

These tables also indicate that the naturally occurring metals (arsenic and beryllium) were consistently associated with risks exceeding the 1.0×10^{-6} level across subunits. These COCs, however, also appear to be present at naturally occurring levels. As indicated in Section B.4.2, the risks calculated for these subunits, assuming that background levels of arsenic and beryllium existed at each subunit, are equivalent, or very close, to the subunit-specific risks.

For the Active Flyash Pile, South Field, and Inactive Flyash Pile, the COCs of greatest concern are uranium-234, uranium-235/236, and uranium-238 which were estimated to migrate into the Great Miami Aquifer and off site at levels that would present total risks exceeding the 1.0×10^{-6} level.

B.4.2 RISKS FROM NATURAL BACKGROUND

All subunit-specific risks in the risk assessment are calculated without subtracting the contribution from natural background. In some areas in Operable Unit 2, the concentrations of CPCs are only slightly above naturally occurring background levels. Therefore, it is informative to calculate the risks from background contributions to provide a point of comparison for the subunit-specific risks.

Risks and HIs are calculated replacing background concentrations for Operable Unit 2 CPCs existing at each subunit. The same exposure pathways quantitatively evaluated for the RME on-property resident farmer are evaluated. Exposure point concentrations dependent on the results of air and groundwater modeling were derived assuming background soil concentrations for the source terms in both groundwater and air modeling. Other exposure parameter values used for calculating background intakes are also the same as those used for evaluating subunit-specific risks to the RME on-property resident farmer.

Tables B.4-11(a), B.4-11(b), B.4-11(c), and B.4-11(d) (Attachment III) present the background risks and HIs for the Active Flyash Pile future on-property RME farmer due to background levels of CPCs in surface flyash material, groundwater, homegrown produce, and beef and milk, respectively.

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Tables B.4-12(a) and B.4-12(b) compare the total Active Flyash Pile specific carcinogenic risk and noncarcinogenic HIs for the future on-property RME farmer to the risks and hazards that can be attributed to naturally occurring levels of CPCs.

Table B.4-12(a) illustrates that the total risk to this receptor assuming background concentrations of CPCs would be 4.3×10^{-4}. This can be viewed as a "floor" against which to compare the Active Flyash Pile specific calculated risk of 1.9×10^{-3}. Review of Table B.4-12(a) also indicates that the compounds contributing to above background risks for the Active Flyash Pile are neptunium-237 (which was not detected in background soils) in soil, arsenic in soil, and uranium-234 and uranium-238 in groundwater.

Tables B.4-12(b) illustrates that the total HI hazard to this receptor assuming background concentrations of CPCs would be 0.12. This can be viewed as a "floor" against which to compare the Active Flyash Pile specific calculated HI of 1.3. Review of Table B.4-12(b) also indicates that the compound contributing the most to above background hazard for the Active Flyash Pile is arsenic in soil.

Tables B.4-13(a) B.4-13(b), B.4-13(c), and B.4-13(d) (Attachment III) present the background risks and HIs for the South Field future on-property RME farmer due to background levels of CPCs in surface soil, groundwater, homegrown produce, and beef and milk, respectively. Tables B.4-14(a) and B.4-14(b) compare the total South Field specific carcinogenic hazards and noncarcinogenic risks to the risks and hazards that can be attributed to naturally occurring levels of COCs.

Table B.4-14(a) illustrates that the total risk to this receptor assuming background concentrations of CPCs on the South Field would be 7.0×10^{-4}. This can be viewed as a "floor" against which to compare the South Field specific risk of 3.8×10^{-3}. Review of Table B.4-14(a) also indicates that the compounds contributing to above background risks for the South Field are the radionuclides thorium-228, uranium-234, uranium-235/236, and uranium-238 in soil; the PAHs and Aroclors in soil; and uranium-234, uranium-235/236, and uranium-238 in groundwater. It is of interest to note that the risk due to the presence of arsenic and beryllium in soil is within the background range. Table B.4-14(b) illustrates that the total hazard to this receptor assuming background concentrations of CPCs on the South Field would be 0.09. The South Field specific HI of 22 is due mostly to the

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TABLE 4-12(a)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
ACTIVE FLYASH PILE: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk	Background	% of Total Medium Risk	% of Total Receptor Risk
Soil	NP-237	1.0E-04	5.77%	5.46%	0.0E+00	0.00%	0.00%
	PU-238	7.2E-07	0.04%	0.04%	0.0E+00	0.00%	0.00%
	PU-239/240	3.5E-07	0.02%	0.02%	0.0E+00	0.00%	0.00%
	RA-226	4.7E-06	0.27%	0.25%	1.3E-06	0.30%	0.29%
	RA-228	3.8E-04	21.40%	20.26%	1.4E-04	32.14%	32.11%
	SR-90	7.1E-07	0.04%	0.04%	0.0E+00	0.00%	0.00%
	TH-228	8.9E-04	49.56%	46.91%	2.6E-04	60.79%	60.73%
	TH-230	3.1E-07	0.02%	0.02%	1.3E-07	0.03%	0.03%
	TH-232	2.1E-07	0.01%	0.01%	8.5E-08	0.02%	0.02%
	U-234	3.4E-07	0.02%	0.02%	9.8E-08	0.02%	0.02%
	U-235/236	1.6E-06	0.09%	0.09%	8.9E-07	0.21%	0.21%
	U-238	6.0E-06	0.34%	0.32%	1.8E-06	0.42%	0.42%
	Total Radiological Risk	1.4E-03	77.57%	73.42%	4.0E-04	93.92%	93.84%
	Arsenic	4.0E-04	22.41%	21.21%	2.6E-05	6.02%	6.02%
	Beryllium	1.9E-08	0.00%	0.00%	2.4E-09	0.00%	0.00%
	Chromium	2.7E-07	0.01%	0.01%	2.3E-07	0.05%	0.05%
	Total Chemical Risk	4.0E-04	22.43%	21.23%	2.6E-05	6.08%	6.07%
	Total	1.8E-03	100.00%	94.65%	4.3E-04	100.00%	99.91%
Groundwater	NP-237	3.4E-09	0.01%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	9.7E-07	2.05%	0.05%	8.7E-09	4.68%	0.00%
	U234	1.5E-05	32.81%	0.82%	6.2E-08	33.56%	0.01%
	U235/236	8.3E-07	1.75%	0.04%	5.6E-09	3.02%	0.00%
	U238	3.0E-05	63.38%	1.58%	1.1E-07	58.73%	0.03%
	Total Radiological Risk	4.7E-05	100.00%	2.49%	1.9E-07	100.00%	0.04%
	Arsenic	2.3E-15	0.00%	0.00%			
	Beryllium	9.6E-17	0.00%	0.00%			
	Total Chemical Risk	2.4E-15	0.00%	0.00%			
	Total	4.7E-05	100.00%	2.49%	1.9E-07	100.00%	0.04%
Homegrown Produce (Dust Affected)	NP-237	4.8E-07	1.20%	0.03%	0.0E+00	0.00%	0.00%
	PU-238	5.9E-08	0.15%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	2.6E-08	0.07%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	2.1E-07	0.54%	0.01%	5.7E-08	35.96%	0.01%
	RA-228	1.2E-07	0.31%	0.01%	4.4E-08	27.82%	0.01%
	SR-90	8.3E-08	0.21%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	8.0E-08	0.20%	0.00%	2.4E-08	14.91%	0.01%
	TH-230	1.8E-08	0.05%	0.00%	7.4E-09	4.72%	0.00%
	TH-232	1.2E-08	0.03%	0.00%	4.9E-09	3.14%	0.00%
	U-234	2.2E-08	0.06%	0.00%	6.4E-09	4.04%	0.00%
	U-235/236	1.2E-09	0.00%	0.00%	5.2E-10	0.33%	0.00%
	U-238	3.9E-08	0.10%	0.00%	1.2E-08	7.34%	0.00%
	Total Radiological Risk	1.2E-06	2.91%	0.06%	1.5E-07	98.26%	0.04%
	Arsenic	3.4E-05	86.10%	1.80%	2.2E-09	1.39%	0.00%
	Beryllium	4.4E-06	10.98%	0.23%	5.5E-10	0.35%	0.00%
	Total Chemical Risk	3.8E-05	97.09%	2.03%	2.7E-09	1.74%	0.00%
	Total	4.0E-05	100.00%	2.09%	1.6E-07	100.00%	0.04%
Homegrown Produce (Groundwater Affected)	NP-237	5.3E-10	0.01%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	2.0E-07	2.87%	0.01%	1.8E-09	6.51%	0.00%
	U-234	2.3E-06	32.55%	0.12%	9.3E-09	32.95%	0.00%
	U-235/236	1.2E-07	1.68%	0.01%	8.1E-10	2.87%	0.00%
	U-238	4.5E-06	62.88%	0.24%	1.6E-08	57.67%	0.00%
	Total Radiological Risk	7.1E-06	100.00%	0.38%	2.8E-08	100.00%	0.01%
	Arsenic	3.5E-16	0.00%	0.00%			
	Beryllium	8.4E-18	0.00%	0.00%			
	Total Chemical Risk	3.6E-16	0.00%	0.00%			
	Total	7.1E-06	100.00%	0.38%	2.8E-08	100.00%	0.01%

TABLE 4-12(a) (continued)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
ACTIVE FLYASH PILE: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk	Background	% of Total Medium Risk	% of Total Receptor Risk
Beef/Milk (Dust Affected)	NP-237	2.8E-09	0.04%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	4.2E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	1.9E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	3.5E-08	0.53%	0.00%	9.3E-09	45.09%	0.00%
	RA-228	1.9E-08	0.30%	0.00%	6.9E-09	33.76%	0.00%
	SR-90	3.3E-08	0.51%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	1.5E-10	0.00%	0.00%	4.4E-11	0.22%	0.00%
	TH-230	3.8E-11	0.00%	0.00%	1.5E-11	0.08%	0.00%
	TH-232	2.6E-11	0.00%	0.00%	1.0E-11	0.05%	0.00%
	U-234	4.6E-09	0.07%	0.00%	1.3E-09	6.44%	0.00%
	U-235/236	2.5E-10	0.00%	0.00%	1.1E-10	0.53%	0.00%
	U-238	8.0E-09	0.12%	0.00%	2.4E-09	11.72%	0.00%
	Total Radiological Risk	1.0E-07	1.58%	0.01%	2.0E-08	97.89%	0.00%
	Arsenic	6.1E-06	93.06%	0.32%	3.9E-10	1.90%	0.00%
	Beryllium	3.5E-07	5.36%	0.02%	4.4E-11	0.22%	0.00%
	Total Chemical Risk	6.4E-06	98.42%	0.34%	4.3E-10	2.11%	0.00%
	Total	6.5E-06	100.00%	0.34%	2.1E-08	100.00%	0.00%
Beef/Milk (Groundwater Affected)	NP-237	1.7E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	4.3E-08	5.06%	0.00%	3.6E-10	10.53%	0.00%
	U-234	2.7E-07	31.83%	0.01%	1.1E-09	31.53%	0.00%
	U-235/236	1.4E-08	1.64%	0.00%	9.4E-11	2.75%	0.00%
	U-238	5.2E-07	61.48%	0.03%	1.9E-09	55.19%	0.00%
	Total Radiological Risk	8.5E-07	100.00%	0.04%	3.4E-09	100.00%	0.00%
	Arsenic	3.4E-17	0.00%	0.00%			
	Beryllium	3.7E-19	0.00%	0.00%			
	Total Chemical Risk	3.5E-17	0.00%	0.00%			
	Total	8.5E-07	100.00%	0.04%	3.4E-09	100.00%	0.00%
ALL MEDIA		**1.9E-03**			**4.3E-04**		

TABLE B.4-12(b)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
ACTIVE FLYASH PILE: NON-CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% of Total Medium Hazard	% of Total Receptor Hazard	Background	% of Total Medium Hazard	% of Total Receptor Hazard
Soil	Arsenic	7.6E-01	73.33%	36.41%	4.9E-02	42.35%	41.32%
	Barium	1.3E-02	1.25%	0.62%	3.6E-03	3.07%	3.00%
	Beryllium	7.6E-02	7.29%	3.62%	9.7E-03	8.41%	8.20%
	Chromium	1.1E-02	1.08%	0.54%	9.8E-03	8.44%	8.23%
	Copper	4.8E-03	0.46%	0.23%	5.6E-04	0.48%	0.47%
	Cyanide	5.9E-05	0.01%	0.00%	2.7E-05	0.02%	0.02%
	Nickel	7.8E-03	0.75%	0.37%	0.0E+00	0.00%	0.00%
	Selenium	6.5E-03	0.63%	0.31%	2.1E-03	1.78%	1.73%
	Thallium	4.1E-03	0.39%	0.20%	5.0E-04	0.43%	0.42%
	Toluene	1.2E-01	11.88%	5.90%	2.7E-02	23.25%	22.69%
	Vanadium	3.0E-05	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Zinc	2.9E-02	2.79%	1.38%	1.3E-02	11.08%	10.81%
	U-Total	1.5E-03	0.14%	0.07%	8.0E-04	0.69%	0.68%
	Total	1.0E+00	100.00%	49.65%	1.2E-01	100.000%	97.57%
Groundwater	Arsenic	4.4E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	4.5E-15	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-Total	8.1E-01	100.00%	38.75%	2.5E-03	100.00%	2.10%
	Total	8.1E-01	100.00%	38.75%	2.5E-03	100.00%	2.10%
Homegrown Produce (Dust Affected)	Arsenic	6.5E-02	83.36%	3.10%	4.2E-06	54.70%	0.00%
	Barium	8.1E-04	1.05%	0.04%	2.2E-07	2.92%	0.00%
	Beryllium	2.0E-04	0.26%	0.01%	2.6E-08	0.34%	0.00%
	Chromium	5.7E-04	0.73%	0.03%	5.0E-07	6.51%	0.00%
	Copper	4.1E-04	0.52%	0.02%	4.7E-08	0.62%	0.00%
	Cyanide	9.0E-06	0.01%	0.00%	4.5E-09	0.06%	0.00%
	Molybdenum	4.0E-04	0.51%	0.02%	0.0E+00	0.00%	0.00%
	Nickel	4.4E-04	0.56%	0.02%	1.4E-07	1.81%	0.00%
	Selenium	2.5E-04	0.32%	0.01%	3.1E-08	0.40%	0.00%
	Thallium	8.3E-03	10.59%	0.39%	1.8E-06	23.14%	0.00%
	Toluene	1.2E-07	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Vanadium	1.5E-03	1.97%	0.07%	6.8E-07	8.91%	0.00%
	Zinc	8.4E-05	0.11%	0.00%	4.6E-08	0.60%	0.00%
	Total	7.8E-02	100.00%	3.72%	7.6E-06	100.00%	0.01%
Homegrown Produce (Groundwater Affected)	Arsenic	6.6E-13	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	3.9E-16	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-Total	1.1E-01	100.00%	5.07%	3.3E-04	96.27%	0.27%
	Total	1.1E-01	100.00%	5.07%	3.4E-04	100.00%	0.28%
Beef/Milk (Dust Affected)	Arsenic	1.2E-02	24.80%	0.55%	7.4E-07	8.31%	0.00%
	Barium	9.7E-05	0.21%	0.00%	2.7E-08	0.30%	0.00%
	Beryllium	1.6E-05	0.03%	0.00%	2.1E-09	0.02%	0.00%
	Chromium	5.2E-04	1.13%	0.03%	4.6E-07	5.13%	0.00%
	Copper	5.2E-04	1.12%	0.02%	6.1E-08	0.68%	0.00%
	Cyanide	1.4E-10	0.00%	0.00%	6.9E-14	0.00%	0.00%
	Nickel	3.5E-04	0.76%	0.02%	1.1E-07	1.25%	0.00%
	Selenium	6.2E-04	1.34%	0.03%	7.7E-08	0.86%	0.00%
	Thallium	3.2E-02	67.85%	1.50%	6.8E-06	76.02%	0.01%
	Toluene	2.7E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Vanadium	3.2E-04	0.68%	0.02%	1.4E-07	1.57%	0.00%
	Zinc	9.6E-04	2.07%	0.05%	5.2E-07	5.86%	0.00%
	Total	4.6E-02	100.00%	2.22%	8.9E-06	100.00%	0.01%
Beef/Milk (Groundwater Affected)	Arsenic	6.6E-14	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	1.7E-17	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-Total	1.2E-02	100.00%	0.59%	3.8E-05	100.00%	0.03%
	Total	1.2E-02	100.00%	0.59%	3.8E-05	100.00%	0.03%
ALL MEDIA		**2.1**			**1.2E-01**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

TABLE 4-14(a)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
SOUTH FIELD: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Background	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	4.1E-05	2.49%	1.10%	3.7E-05	8.12%	5.23%
	NP-237	4.6E-06	0.27%	0.12%	0.0E+00	0.00%	0.00%
	PU-238	3.1E-07	0.02%	0.01%	0.0E+00	0.00%	0.00%
	PU-239/240	1.3E-07	0.01%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	3.5E-05	2.13%	0.94%	1.4E-06	0.32%	0.21%
	RA-228	4.7E-04	28.17%	12.46%	1.4E-04	30.57%	19.69%
	SR-90	1.6E-07	0.01%	0.00%	0.0E+00	0.00%	0.00%
	TC-99	8.7E-07	0.05%	0.02%	0.0E+00	0.00%	0.00%
	TH-228	1.0E-03	62.52%	27.64%	2.6E-04	58.69%	37.81%
	TH-230	1.7E-05	1.05%	0.46%	2.1E-06	0.48%	0.31%
	TH-232	4.9E-06	0.29%	0.13%	1.5E-06	0.33%	0.21%
	U-234	1.0E-05	0.60%	0.26%	1.4E-06	0.30%	0.19%
	U-235/236	4.6E-06	0.28%	0.12%	9.9E-07	0.22%	0.14%
	U-238	3.5E-05	2.11%	0.93%	4.4E-06	0.98%	0.63%
	Total	1.7E-03	100.00%	44.21%	4.5E-04	100.00%	64.43%
	Arsenic	3.3E-05	4.73%	0.87%	2.6E-05	10.47%	3.72%
	Beryllium	3.3E-04	47.62%	8.74%	2.1E-04	84.43%	29.96%
	Chromium	1.3E-05	1.91%	0.35%	1.3E-05	5.09%	1.81%
	Benzo(a)anthracene	1.5E-05	2.17%	0.40%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	1.7E-04	24.66%	4.53%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	1.4E-05	2.01%	0.37%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	6.9E-06	1.00%	0.18%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	4.3E-09	6.3E-04%	0.00%	0.0E+00	0.0E+00%	0.00%
	Carbazole	8.4E-09	1.2E-03%	0.00%	0.0E+00	0.0E+00%	0.00%
	Chrysene	4.8E-07	0.07%	0.01%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	3.8E-05	5.53%	1.02%	0.0E+00	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	3.0E-05	4.31%	0.79%	0.0E+00	0.00%	0.00%
	Methylene chloride	1.3E-09	1.8E-04%	0.00%	0.0E+00	0.0E+00%	0.00%
	Aroclor-1254	2.3E-05	3.37%	0.62%	0.0E+00	0.00%	0.00%
	Aroclor-1260	1.4E-05	1.97%	0.36%	0.0E+00	0.00%	0.00%
	Dieldrin	4.5E-06	0.65%	0.12%	0.0E+00	0.00%	0.00%
	Total	6.9E-04	100.00%	18.36%	2.5E-04	100.00%	35.48%
Groundwater	NP-237	3.3E-07	0.03%	0.01%	0.0E+00	0.00%	0.00%
	RA-226	0.0E+00	0.00%	0.00%	9.3E-10	0.19%	0.00%
	SR-90	2.0E-08	1.8E-03%	0.00%	3.7E-09	7.4E-01%	0.00%
	TC-99	1.2E-07	0.01%	0.00%	0.0E+00	0.00%	0.00%
	U234	3.7E-04	33.52%	9.76%	1.5E-07	29.69%	0.02%
	U235/236	2.0E-05	1.79%	0.52%	1.3E-08	2.68%	0.00%
	U238	7.1E-04	64.66%	18.83%	3.3E-07	66.69%	0.05%
	Total	3.9E-04	100.00%	29.13%	1.6E-07	100.00%	0.07%
Homegrown Produce (Dust Affected)	CS-137	1.6E-09	0.26%	0.00%	1.4E-09	4.45%	0.00%
	NP-237	5.9E-09	0.95%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	3.0E-09	0.49%	0.00%	0.0E+00	0.00%	0.00%
	PU-239	1.3E-09	0.22%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	4.2E-07	68.20%	0.01%	1.7E-09	5.21%	0.00%
	RA-228	4.4E-08	7.15%	0.00%	1.3E-08	40.21%	0.00%
	SR-90	5.3E-09	0.85%	0.00%	0.0E+00	0.00%	0.00%
	TC-99	3.6E-08	5.79%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	2.7E-08	4.45%	0.00%	7.0E-09	21.67%	0.00%
	TH-230	2.0E-08	3.28%	0.00%	2.2E-09	6.87%	0.00%
	TH-232	5.4E-09	0.88%	0.00%	1.5E-09	4.57%	0.00%
	U-234	1.6E-08	2.55%	0.00%	1.9E-09	5.86%	0.00%
	U-235	7.6E-10	0.12%	0.00%	1.6E-10	0.50%	0.00%
	U-238	3.0E-08	4.80%	0.00%	3.4E-09	10.66%	0.00%
	Total	6.2E-07	100.00%	0.02%	3.2E-08	100.00%	0.00%

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TABLE 4-14(a) (continued)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
SOUTH FIELD: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Background	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Dust Affected) *[continued]*	Arsenic	8.2E-07	10.25%	0.02%	6.5E-10	79.85%	0.00%
	Beryllium	2.6E-07	3.23%	0.01%	1.6E-10	20.15%	0.00%
	Benzo(a)anthracene	3.7E-07	4.69%	0.01%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	4.2E-06	52.85%	0.11%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	3.4E-07	4.32%	0.01%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	1.7E-07	2.19%	0.00%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl)phthalate	4.7E-11	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	2.2E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	1.2E-08	0.15%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	9.6E-07	12.01%	0.03%	0.0E+00	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	7.4E-07	9.32%	0.02%	0.0E+00	0.00%	0.00%
	Methylene chloride	8.1E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Aroclor 1254	4.4E-08	0.55%	0.00%	0.0E+00	0.00%	0.00%
	Aroclor 1260	2.5E-08	0.32%	0.00%	0.0E+00	0.00%	0.00%
	Dieldrin	1.0E-08	0.13%	0.00%	0.0E+00	0.00%	0.00%
	Total	8.0E-06	100.00%	0.21%	8.1E-10	100.00%	0.00%
Homegrown Produce (Groundwater Affected)	CS-137	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	NP-237	5.2E-08	0.03%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	0.0E+00	0.00%	0.00%	1.4E-10	0.19%	0.00%
	RA-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	SR-90	4.0E-09	0.00%	0.00%	7.4E-10	1.00%	0.00%
	TC-99	3.3E-08	0.02%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-230	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-232	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-234	5.5E-05	33.51%	1.46%	2.2E-08	29.62%	0.00%
	U-235	2.9E-06	1.79%	0.08%	2.0E-09	2.68%	0.00%
	U-238	1.1E-04	64.65%	2.82%	4.9E-08	66.52%	0.01%
	Total	1.6E-04	100.00%	4.36%	7.4E-08	100.00%	0.01%
Beef/Milk (Dust Affected)	CS-137	6.4E-09	3.41%	0.00%	5.4E-09	60.91%	0.00%
	NP-237	3.6E-11	0.02%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	2.2E-13	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239	1.0E-13	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	6.0E-08	32.07%	0.00%	2.7E-10	3.08%	0.00%
	RA-228	7.3E-09	3.87%	0.00%	2.0E-09	22.99%	0.00%
	SR-90	2.2E-09	1.19%	0.00%	0.0E+00	0.00%	0.00%
	TC-99	1.0E-07	54.05%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	5.4E-11	0.03%	0.00%	1.3E-11	0.15%	0.00%
	TH-230	4.4E-11	0.02%	0.00%	4.6E-12	0.05%	0.00%
	TH-232	1.2E-11	0.01%	0.00%	3.1E-12	0.03%	0.00%
	U-234	3.4E-09	1.82%	0.00%	3.9E-10	4.40%	0.00%
	U-235	1.7E-10	0.09%	0.00%	3.3E-11	0.37%	0.00%
	U-238	6.4E-09	3.42%	0.00%	7.1E-10	8.01%	0.00%
	Total	1.9E-07	100.00%	0.00%	8.9E-09	100.00%	0.00%
	Arsenic	1.5E-07	0.13%	0.00%	1.2E-10	89.78%	0.00%
	Beryllium	2.2E-08	0.02%	0.00%	1.3E-11	10.22%	0.00%
	Benzo(a)anthracene	4.3E-07	0.36%	0.01%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	1.2E-05	9.69%	0.31%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	3.7E-06	3.07%	0.10%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	3.7E-06	3.10%	0.10%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl)phthalate	2.6E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	4.3E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	1.4E-08	0.01%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	2.6E-06	2.14%	0.07%	0.0E+00	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	9.8E-05	81.17%	2.60%	0.0E+00	0.00%	0.00%
	Methylene chloride	1.1E-15	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Aroclor 1254	2.2E-07	0.18%	0.01%	0.0E+00	0.00%	0.00%
	Aroclor 1260	1.6E-07	0.13%	0.00%	0.0E+00	0.00%	0.00%
	Total	2.0E-05	100.00%	3.20%	1.3E-10	100.00%	0.00%
Beef/Milk (Groundwater Affected)	NP-237	1.7E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	0.0E+00	0.00%	0.00%	1.3E-11	0.15%	0.00%
	SR-90	8.7E-10	4.5E-03%	0.00%	1.5E-10	1.8E+00%	0.00%
	TC-99	4.6E-08	0.24%	0.00%	0.0E+00	0.00%	0.00%
	U-234	6.4E-06	33.45%	0.17%	2.6E-09	29.40%	0.00%
	U-235	3.4E-07	1.78%	0.01%	2.3E-10	2.66%	0.00%
	U-238	1.2E-05	64.52%	0.33%	5.7E-09	66.04%	0.00%
	Total	1.9E-05	100.00%	0.51%	8.7E-09	100.00%	0.00%
ALL MEDIA		3.8E-03			7.0E-04		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

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TABLE B.4-14(b)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
SOUTH FIELD: NON-CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk	Background	% of Total Medium Risk	% of Total Receptor Risk
Soil	Arsenic	6.2E-02	22.48%	0.28%	4.9E-02	55.60%	55.20%
	Beryllium	1.5E-02	5.57%	0.07%	9.7E-03	11.04%	10.96%
	Chromium	1.2E-02	4.27%	0.05%	9.8E-03	11.08%	11.00%
	U-TOTAL	1.8E-01	65.40%	0.80%	2.0E-02	22.28%	22.12%
	bis(2-Ethylhexyl) phthalate	1.5E-05	0.01%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzofuran	8.0E-05	0.03%	0.00%	0.0E+00	0.00%	0.00%
	Methylene chloride	2.8E-06	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dieldrin	5.6E-03	2.03%	0.02%	0.0E+00	0.00%	0.00%
	Endrin ketone	5.6E-04	0.21%	0.00%	0.0E+00	0.00%	0.00%
	Total	2.7E-01	100.00%	1.23%	8.8E-02	100.00%	99.27%
Groundwater	Cadmium	3.6E-02	0.19%	0.16%	0.0E+00	0.00%	0.00%
	Molybdenum	3.1E-02	0.16%	0.14%	4.5E-04	100.00%	0.51%
	U-Total	1.9E+01	99.65%	85.89%	0.0E+00	0.00%	0.00%
	Total	1.9E+01	100.00%	86.19%	4.5E-04	100.00%	0.51%
Homegrown Produce (Dust Affected)	Arsenic	1.6E-03	65.30%	0.01%	1.2E-06	1.77%	0.00%
	Beryllium	1.2E-05	0.50%	0.00%	7.6E-09	0.01%	0.00%
	Chromium	1.8E-04	7.39%	0.00%	1.5E-07	0.21%	0.00%
	U-TOTAL	6.3E-04	26.25%	0.00%	6.9E-05	98.01%	0.08%
	bis(2-Ethylhexyl)phthalate	1.7E-07	0.01%	0.00%	0.0E+00	0.00%	0.00%
	Methylene chloride	1.8E-08	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dieldrin	1.3E-05	0.55%	0.00%	0.0E+00	0.00%	0.00%
	Total	2.4E-03	100.00%	0.01%	7.0E-05	100.00%	0.08%
Homegrown Produce (H20 Affected)	Molybdenum	5.0E-03	0.20%	0.02%	7.3E-05	100.00%	0.08%
	U-TOTAL	2.5E+00	99.80%	11.23%	0.0E+00	0.00%	0.00%
	Total	2.5E+00	100.00%	11.25%	7.3E-05	100.00%	0.08%
Beef/Milk (Dust Affected)	Arsenic	2.9E-04	48.46%	0.00%	2.2E-07	1.50%	0.00%
	Beryllium	1.0E-06	0.17%	0.00%	6.1E-10	0.00%	0.00%
	Chromium	1.7E-04	28.53%	0.00%	1.4E-07	0.93%	0.00%
	U-TOTAL	1.4E-04	22.84%	0.00%	1.4E-05	97.57%	0.02%
	bis(2-Ethylhexyl)phthalate	9.3E-09	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Methylene chloride	2.4E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	6.0E-04	100.00%	0.00%	1.5E-05	100.00%	0.02%
Beef/Milk (Groundwater Affected)	Molybdenum	2.6E-03	0.86%	0.01%	3.6E-05	100.00%	0.04%
	U-TOTAL	2.9E-01	99.14%	1.31%	0.0E+00	0.00%	0.00%
	Total	3.0E-01	100.00%	1.32%	3.6E-05	100.00%	0.04%
ALL MEDIA		**2.2E+01**			**8.9E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

presence of total uranium in soil and groundwater impacted by the South Field. Total uranium was not detected in background samples.

Tables B.4.15(a), B.4-15(b), B.4-15(c), and through B.4-15(d) (Attachment III) present the background risks and HIs for the Inactive Flyash Pile future on-property RME farmer due to background levels of CPCs in surface soil, groundwater, homegrown produce, and beef and milk, respectively. Tables B.4-16(a) and B.4-16(b) compare the total Inactive Flyash Pile specific risk and HIs to the risks and hazards that can be attributed to naturally occurring levels of CPCs.

Table B.4-16(a) illustrates that the background "floor" against which the Inactive Flyash Pile specific risk can be compared in 6.8×10^{-4}. Review of the tables also indicates the compounds contributing to above background risks for the Inactive Flyash Pile are primarily uranium-234, uranium-235/236, and uranium-238 in groundwater (and subsequently homegrown produce and beef and milk). It is informative to note that the risk due to arsenic and beryllium in soil is within the background range.

Table B.4-16(b) illustrates that the total background HI "floor" associated with RME farmer receptor at the Inactive Flyash Pile is 0.06. The Inactive Flyash Pile specific HI of 22 is attributable almost entirely to the presence of total uranium in groundwater (and subsequently homegrown produce and beef and milk). Total uranium was not detected in background soil, therefore, was not predicted to exist in background groundwater.

Tables B.4-17(a) through B.4-17(c) (Attachment III) present the background risks and HI for the Solid Waste Landfill future on-property RME farmer due to background levels of CPCs. Tables B.4-18(a) and B.4-18(b) compare the total Solid Waste Landfill specific risk and HI to the risks and hazards that can be attributed to the naturally occurring levels of CPCs. These comparisons demonstrate that compounds which were not detected in background soil and uranium-234, uranium-235/236, and uranium-238 contribute to risks in excess of what could exist under naturally occurring conditions.

Table B.4-19(a) through B.4-19(d) (Attachment III) present the background risks and HIs for the Lime Sludge Ponds future on-property RME farmer due to background levels of CPCs. Table B.4-20(a) and B.4-20(b) compare the total Lime Sludge Ponds specific risk and HIs to the risks and hazards that can be attributed to the naturally occurring levels of CPCs. These comparisons demonstrate the compounds which contribute to above background risks for the Lime Sludge Ponds

TABLE B.4-16(a)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
INACTIVE FLYASH PILE: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk	Background	% of Total Medium Risk	% of Total Receptor Risk
Soil	CS-137	3.8E-05	1.956%	1.18%	3.7E-05	5.424%	5.42%
	NP-237	1.5E-05	0.77%	0.46%	0.0E+00	0.00%	0.00%
	PU-238	8.1E-08	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	2.1E-08	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	2.0E-06	0.10%	0.06%	1.3E-06	0.19%	0.19%
	RA-228	2.7E-04	13.80%	8.35%	1.4E-04	20.42%	20.40%
	SR-90	1.4E-07	0.01%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	6.3E-04	32.12%	19.45%	2.6E-04	38.61%	38.58%
	TH-230	2.3E-07	0.01%	0.01%	1.2E-07	0.02%	0.02%
	TH-232	1.8E-07	0.01%	0.01%	8.3E-08	0.01%	0.01%
	U-234	8.0E-07	0.04%	0.02%	9.6E-08	0.01%	0.01%
	U-235/236	4.2E-06	0.22%	0.13%	8.9E-07	0.13%	0.13%
	U-238	1.5E-05	0.75%	0.45%	1.8E-06	0.27%	0.26%
	Total Radiological Risk	9.8E-04	49.79%	30.14%	4.4E-04	65.09%	65.03%
	Arsenic	1.5E-04	7.55%	4.57%	2.6E-05	3.83%	3.82%
	Beryllium	7.9E-04	40.42%	24.47%	2.1E-04	31.06%	31.03%
	Cadmium	8.6E-09	0.00%	0.00%	1.4E-09	0.00%	0.00%
	Chromium	2.1E-07	0.01%	0.01%	2.2E-07	0.03%	0.03%
	Carbazole	2.5E-08	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	4.4E-05	2.24%	1.35%	0.0E+00	0.00%	0.00%
	Total Chemical Risk	9.9E-04	50.21%	30.40%	2.4E-04	34.91%	34.88%
	Total	2.0E-03	100.00%	60.54%	6.7E-04	100.00%	99.91%
Groundwater	NP-237	3.3E-07	0.03%	0.01%	0.0E+00	0.00%	0.00%
	RA-226	0.0E+00	0.00%	0.00%	9.3E-10	0.19%	0.00%
	SR-90	2.0E-08	0.00%	0.00%	3.7E-09	0.74%	0.00%
	TC-99	1.2E-07	0.01%	0.00%	0.0E+00	0.00%	0.00%
	U234	3.7E-04	33.52%	11.33%	1.5E-07	29.69%	0.02%
	U235/236	2.0E-05	1.79%	0.60%	1.3E-08	2.68%	0.00%
	U238	7.1E-04	64.66%	21.86%	3.3E-07	66.69%	0.05%
	Total Radiological Risk	1.1E-03	100.00%	33.80%	4.9E-07	100.00%	0.07%
	Total	1.1E-03	100.00%	33.80%	4.9E-07	100.00%	0.07%
Homegrown Produce (Dust Affected)	CS-137	6.4E-11	0.03%	0.00%	6.1E-11	1.30%	0.00%
	NP-237	8.8E-10	0.45%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	8.6E-11	0.04%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	2.3E-11	0.01%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	1.2E-09	0.60%	0.00%	7.2E-10	15.21%	0.00%
	RA-228	1.1E-09	0.57%	0.00%	5.5E-10	11.76%	0.00%
	SR-90	2.0E-10	0.10%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	7.2E-10	0.37%	0.00%	3.0E-10	6.32%	0.00%
	TH-230	1.7E-10	0.09%	0.00%	9.4E-11	2.00%	0.00%
	TH-232	1.4E-10	0.07%	0.00%	6.3E-11	1.33%	0.00%
	U-234	6.7E-10	0.35%	0.00%	8.0E-11	1.71%	0.00%
	U-235/236	3.3E-11	0.02%	0.00%	6.8E-12	0.14%	0.00%
	U-238	1.2E-09	0.63%	0.00%	1.5E-10	3.10%	0.00%
	Total Radiological Risk	6.4E-09	3.34%	0.00%	2.0E-09	42.88%	0.00%
	Arsenic	1.6E-07	82.88%	0.00%	2.7E-09	56.97%	0.00%
	Beryllium	2.7E-08	13.78%	0.00%	7.0E-12	0.15%	0.00%
	Total Chemical Risk	1.9E-07	96.66%	0.01%	2.7E-09	57.12%	0.00%
	Total	1.9E-07	100.00%	0.01%	4.7E-09	100.00%	0.00%

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TABLE B.4-16(a) (continued)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
INACTIVE FLYASH PILE: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% of Total Medium Risk	% of Total Receptor Risk	Background	% of Total Medium Risk	% of Total Receptor Risk
Homegrown Produce (Groundwater Affected)	NP-237	5.2E-08	0.03%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	0.0E+00	0.00%	0.00%	1.4E-10	0.19%	0.00%
	SR-90	4.0E-09	0.00%	0.00%	7.4E-10	1.00%	0.00%
	U-234	5.5E-05	33.52%	1.70%	2.2E-08	29.62%	0.00%
	U-235/236	2.9E-06	1.79%	0.09%	2.0E-09	2.68%	0.00%
	U-238	1.1E-04	64.66%	3.27%	4.9E-08	66.52%	0.01%
	Total Radiological Risk	1.6E-04	100.00%	5.06%	7.4E-08	100.00%	0.01%
	Total	1.6E-04	100.00%	5.06%	7.4E-08	100.00%	0.01%
Beef/Milk (Dust Affected)	CS-137	2.2E-10	0.78%	0.00%	2.3E-10	24.03%	0.00%
	NP-237	4.7E-12	0.02%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	5.6E-15	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	1.5E-15	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	1.7E-10	0.60%	0.00%	1.2E-10	12.16%	0.00%
	RA-228	1.6E-10	0.55%	0.00%	8.8E-11	9.10%	0.00%
	SR-90	7.2E-11	0.25%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	1.2E-12	0.00%	0.00%	5.6E-13	0.06%	0.00%
	TH-230	3.3E-13	0.00%	0.00%	2.0E-13	0.02%	0.00%
	TH-232	2.6E-13	0.00%	0.00%	1.3E-13	0.01%	0.00%
	U-234	1.3E-10	0.45%	0.00%	1.7E-11	1.74%	0.00%
	U-235/236	6.2E-12	0.02%	0.00%	1.4E-12	0.15%	0.00%
	U-238	2.3E-10	0.80%	0.00%	3.0E-11	3.16%	0.00%
	Total Radiological Risk	9.9E-10	3.47%	0.00%	4.8E-10	50.44%	0.00%
	Arsenic	2.6E-08	89.76%	0.00%	4.8E-10	49.51%	0.00%
	Beryllium	1.9E-09	6.78%	0.00%	5.6E-13	0.06%	0.00%
	Total Chemical Risk	2.8E-08	96.53%	0.00%	4.8E-10	49.56%	0.00%
	Total	2.9E-08	100.00%	0.00%	9.6E-10	100.00%	0.00%
Beef/Milk (Groundwater Affected)	NP-237	1.7E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	0.0E+00	0.00%	0.00%	1.3E-11	0.15%	0.00%
	SR-90	8.7E-10	0.00%	0.00%	1.5E-10	1.75%	0.00%
	U-234	6.4E-06	33.53%	0.20%	2.6E-09	29.40%	0.00%
	U-235/236	3.4E-07	1.79%	0.01%	2.3E-10	2.66%	0.00%
	U-238	1.2E-05	64.68%	0.38%	5.7E-09	66.04%	0.00%
	Total Radiological Risk	1.9E-05	100.00%	0.59%	8.7E-09	100.00%	0.00%
	Total	1.9E-05	100.00%	0.59%	8.7E-09	100.00%	0.00%
ALL MEDIA		**3.2E-03**			**6.8E-04**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

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TABLE B.4-16(b)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
INACTIVE FLYASH PILE: NON-CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% of Total Medium Hazard	% of Total Hazard	Background	% of Total Medium Hazard	% of Total Hazard
Soil	Arsenic	2.8E-01	88.59%	1.25%	4.9E-02	87.02%	86.15%
	Beryllium	1.1E-03	0.35%	0.01%	3.0E-04	0.53%	0.52%
	Cadmium	7.6E-03	2.41%	0.03%	1.3E-03	2.28%	2.26%
	Chromium	5.6E-03	1.77%	0.02%	5.7E-03	10.17%	10.07%
	U-TOTAL	2.2E-02	6.79%	0.10%	0.0E+00	0.00%	0.00%
	Dibenzofuran	3.0E-04	0.10%	0.00%	0.0E+00	0.00%	0.00%
	Total	3.2E-01	100.00%	1.41%	5.6E-02	100.00%	99.00%
Groundwater	Arsenic	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Cadmium	3.6E-02	0.19%	0.16%	0.0E+00	0.00%	0.00%
	Mercury	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Molybdenum	3.1E-02	0.16%	0.14%	4.5E-04	100.00%	0.80%
	U-Total	1.9E+01	99.65%	85.72%	0.0E+00	0.00%	0.00%
	Total	1.9E+01	100.00%	86.02%	4.5E-04	100.00%	0.80%
Homegrown Produce (Dust Affected)	Arsenic	3.0E-04	88.13%	0.00%	5.1E-06	63.43%	0.01%
	Beryllium	1.2E-06	0.36%	0.00%	3.3E-10	0.00%	0.00%
	Cadmium	9.9E-06	2.86%	0.00%	1.7E-09	0.02%	0.00%
	Chromium	6.2E-06	1.79%	0.00%	6.3E-09	0.08%	0.00%
	Molybdenum	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-TOTAL	2.4E-05	6.87%	0.00%	2.9E-06	36.47%	0.01%
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	3.5E-04	100.00%	0.00%	8.1E-06	100.00%	0.01%
Homegrown Produce (Groundwate Affected)	Arsenic	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Cadmium	2.9E-03	0.11%	0.01%	4.2E-09	0.01%	0.00%
	Chromium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Molybdenum	5.0E-03	0.20%	0.02%	7.3E-05	99.99%	0.13%
	U-TOTAL	2.5E+00	99.69%	11.21%	0.0E+00	0.00%	0.00%
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	2.5E+00	100.00%	11.24%	7.3E-05	100.00%	0.13%
Beef/Milk (Dust Affected)	Arsenic	4.9E-05	75.25%	0.00%	9.1E-07	59.48%	0.00%
	Beryllium	9.0E-08	0.14%	0.00%	2.6E-11	0.00%	0.00%
	Cadmium	6.3E-06	9.75%	0.00%	1.2E-09	0.08%	0.00%
	Chromium	5.2E-06	7.95%	0.00%	5.8E-09	0.38%	0.00%
	Molybdenum	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	U-TOTAL	4.5E-06	6.91%	0.00%	6.1E-07	40.06%	0.00%
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	6.5E-05	100.00%	0.00%	1.5E-06	100.00%	0.00%
Beef/Milk (Groundwate Affected)	Arsenic	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Beryllium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Cadmium	1.1E-03	0.37%	0.00%	1.5E-09	0.00%	0.00%
	Chromium	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Molybdenum	2.6E-03	0.86%	0.01%	3.6E-05	100.00%	0.06%
	U-TOTAL	2.9E-01	98.77%	1.31%	0.0E+00	0.00%	0.00%
	Dibenzofuran	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	3.0E-01	100.00%	1.32%	3.6E-05	100.00%	0.06%
ALL MEDIA		**2.2E+01**			**5.7E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

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TABLE 4-18(a)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
SOLID WASTE LANDFILL: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Background	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	2.1E-05	1.88%	1.85%	3.7E-05	5.41%	5.41%
	NP-237	2.3E-05	2.00%	1.97%	0.0E+00	0.00%	0.00%
	PU-238	1.1E-06	0.09%	0.09%	0.0E+00	0.00%	0.00%
	PU-239/240	1.2E-07	0.01%	0.01%	0.0E+00	0.00%	0.00%
	RA-226	1.5E-06	0.13%	0.13%	1.3E-06	0.19%	0.19%
	RA-228	2.0E-04	17.88%	17.60%	1.3E-04	19.92%	19.92%
	SR-90	1.5E-07	0.01%	0.01%	0.0E+00	0.00%	0.00%
	TH-228	3.8E-04	33.42%	32.91%	2.6E-04	38.54%	38.53%
	TH-230	2.4E-06	0.21%	0.20%	4.3E-07	0.06%	0.06%
	TH-232	5.3E-07	0.05%	0.05%	5.0E-07	0.07%	0.07%
	U-234	1.4E-05	1.23%	1.21%	3.7E-07	0.05%	0.05%
	U-235/236	2.9E-05	2.57%	2.53%	1.2E-06	0.17%	0.17%
	U-238	1.7E-04	14.71%	14.48%	1.8E-06	0.26%	0.26%
	Total Radiological Risk	8.4E-04	74.18%	73.06%	4.4E-04	64.69%	64.68%
	Arsenic	3.0E-05	2.67%	2.63%	2.6E-05	3.89%	3.89%
	Beryllium	2.4E-04	21.45%	21.12%	2.1E-04	31.00%	31.00%
	Chromium	3.7E-06	0.33%	0.32%	2.8E-06	0.42%	0.42%
	4,4'-DDE	1.2E-07	0.01%	0.01%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	9.9E-07	0.09%	0.09%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	6.1E-06	0.54%	0.53%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	1.6E-06	0.14%	0.14%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	3.6E-07	0.03%	0.03%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalat	1.9E-09	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	3.8E-09	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	3.6E-08	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	4.0E-06	0.35%	0.35%	0.0E+00	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	2.4E-06	0.21%	0.21%	0.0E+00	0.00%	0.00%
	Total Chemical Risk	2.9E-04	25.82%	25.42%	2.4E-04	35.31%	35.31%
	Total	1.1E-03	100.00%	98.48%	6.8E-04	100.00%	99.99%
Groundwater	TC-99	3.4E-09	100.00%	0.00%	No background groundwater		
	Total Radiological Risk	3.4E-09	100.00%	0.00%	data available		
Homegrown Produce (Dust Affected)	CS-137	9.7E-10	0.01%	0.00%	1.6E-09	2.69%	0.00%
	NP-237	3.4E-08	0.40%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	2.1E-08	0.25%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	2.4E-09	0.03%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	2.9E-08	0.34%	0.00%	1.9E-08	31.42%	0.00%
	RA-228	2.1E-08	0.25%	0.00%	1.4E-08	24.43%	0.00%
	SR-90	5.1E-09	0.06%	0.00%	0.0E+00	0.00%	0.00%
	TC-99	0.0E+00	0.00%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	1.1E-08	0.13%	0.00%	7.8E-09	13.13%	0.00%
	TH-230	1.1E-08	0.13%	0.00%	2.5E-09	4.15%	0.00%
	TH-232	2.3E-09	0.03%	0.00%	1.6E-09	2.76%	0.00%
	U-234	8.5E-08	1.01%	0.01%	2.1E-09	3.55%	0.00%
	U-235/236	5.6E-09	0.07%	0.00%	1.7E-10	0.29%	0.00%
	U-238	2.7E-07	3.22%	0.02%	3.8E-09	6.46%	0.00%
	Total Radiological Risk	5.0E-07	5.93%	0.04%	5.3E-08	88.88%	0.01%
	Arsenic	7.2E-06	84.78%	0.62%	6.2E-09	10.51%	0.00%
	Beryllium	4.2E-07	4.89%	0.04%	3.6E-10	0.60%	0.00%
	Benzo(a)anthracene	2.4E-08	0.28%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	1.4E-07	1.67%	0.01%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	3.7E-08	0.43%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	2.0E-08	0.23%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	8.5E-10	0.01%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	9.4E-08	1.11%	0.01%	0.0E+00	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	5.6E-08	0.66%	0.00%	0.0E+00	0.00%	0.00%
	Total Chemical Risk	8.0E-06	94.07%	0.69%	6.6E-09	11.12%	0.00%
	Total	8.5E-06	100.00%	0.74%	5.9E-08	100.00%	0.01%

TABLE 4-18(a) (continued)
FUTURE LAND USE
SOLID WASTE LANDFILL
SUMMARY OF CONSTITUENTS OF CONCERN (COC): CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Background	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Groundwater Affected)	TC-99	8.3E-09	100.00%	0.00%	No background groundwater data available		
	Total Radiological Risk	8.3E-09	100.00%	0.00%			
Beef/Milk (Dust Affected)	CS-137	3.2E-09	0.04%	0.00%	6.0E-09	47.12%	0.00%
	NP-237	1.7E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	1.4E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	1.5E-13	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	4.1E-09	0.05%	0.00%	3.0E-09	23.77%	0.00%
	RA-228	3.0E-09	0.03%	0.00%	2.3E-09	17.88%	0.00%
	SR-90	2.0E-09	0.02%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	1.9E-11	0.00%	0.00%	1.5E-11	0.12%	0.00%
	TH-230	1.9E-11	0.00%	0.00%	5.1E-12	0.04%	0.00%
	TH-232	4.2E-12	0.00%	0.00%	3.4E-12	0.03%	0.00%
	U-234	1.6E-08	0.17%	0.00%	4.4E-10	3.42%	0.00%
	U-235/236	1.0E-09	0.01%	0.00%	3.7E-11	0.29%	0.00%
	U-238	5.0E-08	0.55%	0.00%	8.0E-10	6.22%	0.00%
	Total Radiological Risk	7.9E-08	0.87%	0.01%	1.3E-08	98.88%	0.00%
	Arsenic	1.3E-07	1.44%	0.01%	.1.3E-10	1.00%	0.00%
	Beryllium	1.5E-08	0.17%	0.00%	1.5E-11	0.11%	0.00%
	4,4'-DDE	9.9E-10	0.01%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	2.8E-08	0.31%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	3.9E-07	4.36%	0.03%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	4.0E-07	4.38%	0.03%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	4.2E-07	4.69%	0.04%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalat	2.0E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	1.8E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	9.8E-10	0.01%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	2.5E-07	2.81%	0.02%	0.0E+00	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	7.3E-06	80.95%	0.63%	0.0E+00	0.00%	0.00%
	Total Chemical Risk	9.0E-06	99.13%	0.78%	1.4E-10	1.12%	0.00%
	Total	9.0E-06	100.00%	0.78%	1.3E-08	100.00%	0.00%
Beef/Milk (Groundwater Affected)	TC-99	1.4E-08	100.00%	0.00%	No background groundwater data available		
	Total Radiological Risk	1.4E-08	100.00%	0.00%			
ALL MEDIA		**1.2E-03**			**6.8E-04**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

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TABLE B.4-18(b)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
SOLID WASTE LANDFILL: NON-CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Background	% Total Medium Risk	% Total Receptor Risk
Soil	Arsenic	5.7E-02	3.87%	3.85%	4.9E-02	62.87%	62.79%
	Beryllium	1.1E-02	0.77%	0.77%	9.7E-03	12.48%	12.47%
	Cadmium	1.5E-02	1.06%	1.05%	9.5E-03	12.13%	12.11%
	Chromium	1.3E-02	0.89%	0.88%	9.8E-03	12.52%	12.51%
	U-TOTAL	1.4	93.41%	92.86%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	6.8E-06	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzofuran	3.5E-05	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	1.5E+00	100.00%	99.41%	7.8E-02	100.00%	99.88%
Homegrown Produce (Dust Affected)	Arsenic	1.6E-03	22.03%	0.11%	1.4E-06	1.76%	0.00%
	Beryllium	9.9E-06	0.14%	0.00%	8.5E-09	0.01%	0.00%
	Cadmium	7.1E-05	0.98%	0.00%	4.3E-08	0.06%	0.00%
	Chromium	2.2E-04	3.04%	0.01%	1.6E-07	0.21%	0.00%
	U-TOTAL	5.3E-03	73.80%	0.36%	7.7E-05	97.96%	0.10%
	Total	7.2E-03	100.00%	0.49%	7.8E-05	100.00%	0.10%
Beef/Milk (Dust Affected)	Arsenic	2.5E-04	17.19%	0.02%	2.4E-07	1.50%	0.00%
	Beryllium	6.9E-07	0.05%	0.00%	6.8E-10	0.00%	0.00%
	Cadmium	4.4E-05	3.03%	0.00%	3.0E-08	0.19%	0.00%
	Chromium	1.8E-04	12.28%	0.01%	1.5E-07	0.93%	0.00%
	U-TOTAL	9.7E-04	67.46%	0.07%	1.6E-05	97.39%	0.02%
	bis(2-Ethylhexyl) phthalate	7.2E-09	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	1.4E-03	100.00%	0.10%	1.6E-05	100.00%	0.02%
ALL MEDIA		**1.5E+00**			**7.8E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

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TABLE 4-20(a)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
LIME SLUDGE PONDS: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Background	% Total Medium Risk	% Total Receptor Risk
Soil	CS-137	5.8E-05	3.16%	3.14%	3.7E-05	5.42%	5.42%
	NP-237	1.4E-05	0.73%	0.73%	0.0E+00	0.00%	0.00%
	PU-238	6.0E-07	0.03%	0.03%	0.0E+00	0.00%	0.00%
	PU-239/240	1.5E-07	0.01%	0.01%	0.0E+00	0.00%	0.00%
	RA-226	2.0E-06	0.11%	0.11%	1.3E-06	0.19%	0.19%
	RA-228	2.0E-04	10.71%	10.65%	1.4E-04	20.42%	20.41%
	SR-90	1.2E-07	0.01%	0.01%	0.0E+00	0.00%	0.00%
	TH-228	6.8E-04	36.64%	36.45%	2.6E-04	38.62%	38.62%
	TH-230	4.9E-06	0.27%	0.26%	1.6E-07	0.02%	0.02%
	TH-232	1.3E-07	0.01%	0.01%	1.1E-07	0.02%	0.02%
	U-234	2.5E-06	0.13%	0.13%	1.2E-07	0.02%	0.02%
	U-235/236	1.8E-05	0.95%	0.94%	8.9E-07	0.13%	0.13%
	U-238	1.2E-04	6.59%	6.56%	1.8E-06	0.27%	0.27%
	Total Radiological Risk	1.1E-03	59.34%	59.05%	4.4E-04	65.11%	65.10%
	Arsenic	3.2E-05	1.74%	1.73%	2.6E-05	3.83%	3.83%
	Beryllium	5.3E-04	28.65%	28.51%	2.1E-04	31.05%	31.05%
	Chromium	6.6E-08	0.00%	0.00%	4.6E-08	0.01%	0.01%
	Aroclor-1254	1.5E-04	8.34%	8.30%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	2.5E-06	0.13%	0.13%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	2.0E-05	1.07%	1.07%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	2.2E-06	0.12%	0.12%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	7.5E-07	0.04%	0.04%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	3.9E-07	0.02%	0.02%	0.0E+00	0.00%	0.00%
	Carbazole	6.9E-09	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	8.7E-08	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	6.4E-06	0.35%	0.34%	0.0E+00	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	3.6E-06	0.19%	0.19%	0.0E+00	0.00%	0.00%
	Total Chemical Risk	7.5E-04	40.66%	40.46%	2.4E-04	34.89%	34.89%
	Total	1.9E-03	100.00%	99.50%	6.7E-04	100.00%	99.99%
Groundwater	SR-90				2.2E-13	100.00%	0.00%
	TC-99	1.6E-07	100.00%	0.01%			
	Total Radiological Risk	1.6E-07	100.00%	0.01%	2.2E-13	100.00%	0.00%
Homegrown Produce (Dust Affected)	CS-137	2.9E-09	0.08%	0.00%	1.8E-09	2.98%	0.00%
	NP-237	2.3E-08	0.67%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	1.8E-08	0.52%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	4.4E-09	0.13%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	3.3E-08	0.95%	0.00%	2.1E-08	34.90%	0.00%
	RA-228	2.3E-08	0.68%	0.00%	1.6E-08	26.91%	0.00%
	SR-90	5.4E-09	0.16%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	2.3E-08	0.66%	0.00%	8.7E-09	14.49%	0.00%
	TH-230	8.3E-08	2.40%	0.00%	2.8E-09	4.60%	0.00%
	TH-232	2.2E-09	0.06%	0.00%	1.8E-09	3.06%	0.00%
	U-234	4.8E-08	1.39%	0.00%	2.4E-09	3.92%	0.00%
	U-235/236	4.0E-09	0.12%	0.00%	2.0E-10	0.33%	0.00%
	U-238	2.8E-07	8.25%	0.02%	4.3E-09	7.10%	0.00%
	Total Radiological Risk	5.5E-07	16.07%	0.03%	5.9E-08	98.31%	0.01%
	Arsenic	1.0E-06	29.36%	0.05%	8.1E-10	1.35%	0.00%
	Beryllium	5.2E-07	15.08%	0.03%	2.1E-10	0.34%	0.00%
	Aroclor-1254	3.6E-07	10.50%	0.02%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	7.7E-08	2.25%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	6.2E-07	17.92%	0.03%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	6.9E-08	2.02%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	2.4E-08	0.69%	0.00%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	5.4E-09	0.16%	0.00%	0.0E+00	0.00%	0.00%
	Carbazole	2.3E-10	0.01%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	2.7E-09	0.08%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	2.0E-07	5.87%	0.01%	0.0E+00	0.00%	0.00%
	Total Chemical Risk	2.9E-06	83.93%	0.16%	1.0E-09	1.69%	0.00%
	Total	3.4E-06	100.00%	0.19%	6.0E-08	100.00%	0.01%

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TABLE 4-20 (a) (continued)
COMPARISON SUMMARY OF BACKGROUND RISKS TO ON-SITE RISKS
LIME SLUDGE PONDS: CARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Risk	% Total Receptor Risk	Background	% Total Medium Risk	% Total Receptor Risk
Homegrown Produce (Groundwater Affected)	SR-90				4.6E-14	100.00%	0.00%
	TC-99	4.5E-08	100.00%	0.00%			
	Total Radiological Risk	4.5E-08	100.00%	0.00%	4.6E-14	100.00%	0.00%
Beef/Milk (Dust Affected)	CS-137	1.1E-08	0.20%	0.00%	6.8E-09	47.18%	0.00%
	NP-237	1.4E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-238	1.3E-12	0.00%	0.00%	0.0E+00	0.00%	0.00%
	PU-239/240	3.2E-13	0.00%	0.00%	0.0E+00	0.00%	0.00%
	RA-226	5.4E-09	0.10%	0.00%	3.4E-09	23.84%	0.00%
	RA-228	3.7E-09	0.07%	0.00%	2.6E-09	17.80%	0.00%
	SR-90	2.1E-09	0.04%	0.00%	0.0E+00	0.00%	0.00%
	TH-228	4.3E-11	0.00%	0.00%	1.6E-11	0.11%	0.00%
	TH-230	1.7E-10	0.00%	0.00%	5.7E-12	0.04%	0.00%
	TH-232	4.6E-12	0.00%	0.00%	3.8E-12	0.03%	0.00%
	U-234	9.9E-09	0.18%	0.00%	4.9E-10	3.41%	0.00%
	U-235/236	8.2E-10	0.01%	0.00%	4.2E-11	0.29%	0.00%
	U-238	5.9E-08	1.07%	0.00%	8.9E-10	6.18%	0.00%
	Total Radiological Risk	9.2E-08	1.67%	0.00%	1.4E-08	98.88%	0.00%
	Arsenic	1.8E-07	3.25%	0.01%	1.4E-10	1.00%	0.00%
	Beryllium	4.2E-08	0.75%	0.00%	1.6E-11	0.11%	0.00%
	Aroclor-1254	1.8E-06	31.97%	0.09%	0.0E+00	0.00%	0.00%
	Benzo(a)anthracene	8.5E-08	1.55%	0.00%	0.0E+00	0.00%	0.00%
	Benzo(a)pyrene	1.6E-06	29.58%	0.09%	0.0E+00	0.00%	0.00%
	Benzo(b)fluoranthene	7.1E-07	12.92%	0.04%	0.0E+00	0.00%	0.00%
	Benzo(k)fluoranthene	4.9E-07	8.87%	0.03%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	2.5E-10	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Chrysene	3.0E-09	0.05%	0.00%	0.0E+00	0.00%	0.00%
	Dibenzo(a,h)anthracene	5.2E-07	9.40%	0.03%	0.0E+00	0.00%	0.00%
	Total Chemical Risk	5.4E-06	98.33%	0.29%	1.6E-10	1.12%	0.00%
	Total	5.5E-06	100.00%	0.30%	1.4E-08	100.00%	0.00%
Beef/Milk (Groundwater Affected)	SR-90				9.1E-15	100.00%	0.00%
	TC-99	6.3E-08	100.00%	0.00%	0.0E+00	0.00%	0.00%
	Total Radiological Risk	6.3E-08	100.00%	0.00%	9.1E-15	100.00%	0.00%
ALL MEDIA		**1.9E-03**			**6.8E-04**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

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TABLE B.4-20(b)
COMPARISON SUMMARY OF BACKGROUND HAZARDS TO ON-SITE HAZARDS
LIME SLUDGE PONDS: NONCARCINOGENS

Medium	Parameter	On-Property Resident Farmer (RME)	% Total Medium Hazard	% Total Receptor Hazard	On-Property Resident Farmer (CT)	% Total Medium Hazard	% Total Receptor Hazard
Soil	Arsenic	5.9E-02	23.79%	22.88%	4.8E-02	51.89%	51.89%
	Beryllium	7.5E-04	0.30%	0.29%	3.4E-02	37.55%	37.55%
	Cadmium	3.0E-03	1.19%	1.15%	1.3E-03	1.40%	1.40%
	Chromium	8.2E-03	3.29%	3.17%	5.7E-03	6.25%	6.25%
	U-TOTAL	1.8E-01	70.92%	68.21%	2.7E-03	2.91%	2.91%
	Aroclor-1254	1.2E-03	0.50%	0.48%	0.0E+00	0.00%	0.00%
	bis(2-Ethylhexyl) phthalate	2.6E-05	0.01%	0.01%	0.0E+00	0.00%	0.00%
	Dibenzofuran	8.9E-07	0.00%	0.00%	0.0E+00	0.00%	0.00%
	Total	2.5E-01	100.00%	96.18%	9.2E-02	100.00%	100.00%
Homegrown Produce (Dust Affected)	Arsenic	1.9E-03	23.98%	0.75%	1.5E-06	82.47%	0.00%
	Beryllium	2.4E-05	0.30%	0.01%	9.5E-09	0.51%	0.00%
	Cadmium	1.1E-04	1.40%	0.04%	4.9E-08	2.60%	0.00%
	Chromium	2.6E-04	3.28%	0.10%	1.8E-07	9.85%	0.00%
	U-TOTAL	5.7E-03	70.81%	2.20%	8.6E-08	4.57%	0.00%
	bis(2-Ethylhexyl) phthalate	1.9E-05	0.24%	0.01%	0.0E+00	0.00%	0.00%
	Total	8.0E-03	100.00%	3.11%	1.9E-06	100.00%	0.00%
Beef/Milk (Dust Affected)	Arsenic	3.4E-04	18.50%	0.13%	2.7E-07	55.21%	0.00%
	Beryllium	1.9E-06	0.10%	0.00%	7.6E-10	0.15%	0.00%
	Cadmium	7.9E-05	4.26%	0.03%	3.4E-08	6.86%	0.00%
	Chromium	2.4E-04	13.10%	0.09%	1.7E-07	34.20%	0.00%
	U-TOTAL	1.2E-03	63.99%	0.46%	1.8E-08	3.58%	0.00%
	bis(2-Ethylhexyl) phthalate	8.9E-07	0.05%	0.00%	0.0E+00	0.00%	0.00%
	Total	1.8E-03	100.00%	0.71%	5.0E-07	100.00%	0.00%
ALL MEDIA		**2.6E-01**			**9.2E-02**		

N/A signifies that exposure of the receptor to the indicated medium is not applicable

are neptunium-237, thorium-230, uranium-234, uranium-235/236, uranium-238, Arochlor-1254, and PAHs in soil.

B.4.3 UNCERTAINTIES

Uncertainty is inherent in any quantitative risk assessment. The objective of the uncertainty analysis is to identify key site-related variables that contribute most to uncertainty, and to characterize the nature and magnitude of impact of these uncertainties on the conclusions of the risk assessment. The uncertainty analysis provides the risk manager with a qualitative summary of information bearing on the level of confidence in the quantitative risk estimation.

Uncertainty is a factor in each stage of the risk assessment process. Uncertainties in the Operable Unit 2 risk assessment are introduced in the initial selection of CPCs used to characterize exposure and risk; the exposure assessment; the toxicity assessment; and the risk characterization. This section address major sources of uncertainty associated with the Operable Unit 2 risk assessment.

B.4.3.1 Uncertainty in Selection of CPCs

There are several sources of uncertainty inherent in the CPC selection process. Constituents to be quantitatively addressed in the risk assessment are selected using an iterative process, which includes removal of essential nutrients, constituents present at levels comparable to background, and low toxicity compounds. The resulting CPCs represent those compounds likely to be of most potential significance in the overall risk assessment based on toxicity, concentration, and prevalence. The constituents eliminated as CPCs for the Operable Unit 2 risk assessment are not expected to contribute significantly to risk and so do not represent a significant source of uncertainty.

Additionally, tentatively identified compounds (TICs) were evaluated. TICs are those volatile and semivolatile organic compounds not included in the Full HSL/Full Radioisotope list for Operable Unit 2, but show high peaks on the chromatogram. For TICs, there is no minimum percentage of accuracy; identification accuracy can be as low as 30 percent and still be reported. Therefore, the assigned identity and concentrations are highly uncertain.

IT Corp. laboratory produced Operable Unit 2 sample reports which included lists of TICs. A compilation of TIC data is presented by subunit in Appendices C through G. In conversations with the laboratory, it was determined that TICs could not be positively identified without a great level of

uncertainty. However, TICs which appeared frequently included benzenedicarboxylic acid, siloxanes, silanes, and silanols. These compounds are likely artifacts of laboratory contamination.

An evaluation of TIC data was conducted during the validation process and were generally qualified as "R" (rejected) or "NJ" (tentatively identified estimated). These chemicals were not positively identified and were therefore not carried through the quantitative risk assessment. In the unlikely event that TICs were found to be present, effects on the risk assessment would be minimal (e.g., risks posed by organic parameters would not exceed those posed by radiological and metal parameters). Since TICs were not positively identified, they will not pose a significant source of uncertainty.

B.4.3.2 Uncertainties in Exposure Assessment

The land use assumptions, exposure scenarios, and receptors evaluated in the Operable Unit 2 risk assessment are largely defined by the Risk Assessment Work Plan Addendum (DOE 1992), subsequent direction by EPA, and a number of professional judgements and assumptions. The primary sources of uncertainty associated with scenario development are the definition of current and future land uses within the boundaries of Operable Unit 2. The exposure scenarios and receptors evaluated in the risk assessment are considered to be conservative, and are expected to result in overestimation of potential health risk.

A trespassing youth is evaluated in the risk assessment as a receptor who may have direct exposure to contaminants in Operable Unit 2 based on current land use. Under the current land use scenario, the trespassing youth is assumed to wander onto the site. This scenario appears reasonable because areas of Operable Unit 2 offer appealing habitat for exploration and wildlife observation and may be an appealing area for a young person.

There is a high degree of uncertainty associated with the RME future land use scenario evaluated for Operable Unit 2, particularly the quantitative assessment of risks for an on-property resident farm family. The probability that residential development will occur within the boundaries of Operable Unit 2 in the foreseeable future is unknown. However, it is reasonable to assume that some level of site control (i.e., access control or institutional controls) will be maintained for Operable Unit 2.

More feasible exposure scenarios for Operable Unit 2 are those addressing off-property receptors. These off-property receptors include the off-property farm family resident who ingests homegrown

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produce and animal products. These exposure scenarios are consistent with current land use patterns and can thus be reasonably expected to occur in the present or future. The exposures for these receptors are those associated with off-site migration of site-related constituents, and result in levels of potential risk that are at least two orders of magnitude lower than those for on-property residential receptors.

Each exposure factor selected for use in this risk assessment has some uncertainty associated with it. Standard assumptions regarding exposure frequency, duration, population characteristics, and activities may not be representative of exposure conditions for all receptors. 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 underestimation of exposure, the Operable Unit 2 risk assessment follows EPA's recommendation and uses RME assumptions that correspond to 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 representing the upper bound exposure conditions.

Estimation of exposure point concentrations using environmental fate and transport modeling introduces a number of potentially significant uncertainties into the risk assessment results. This uncertainty results from the use of generalized assumptions regarding contaminant distribution and intermedia transfer processes, as well as from intrinsic uncertainties in the models applied to estimate environmental concentrations. Section 5.0 and Appendix A of this report provide detailed discussions of the inputs and uncertainties associated with the modeling process. To avoid underestimating the concentrations of contaminants in environmental media, transport parameters were chosen to calculate the upper bound of possible exposure point concentrations (and hence risks). Thus, the uncertainties associated with modeled concentrations may be significant.

The partitioning of contaminants between soil and vegetation (crops for human consumption and food for livestock) is not well characterized for most contaminants. Available data are used to make order-of-magnitude estimates of plant/soil partitioning relationships. The biotransfer factors that express contaminant partitioning between animal intake and animal-based food products (such as meat and dairy products) can only be estimated to within about two orders of magnitude (McKone and Ryan 1989). These limitations have important implications for Operable Unit 2, where food-related pathways are significant for some receptors.

B.4.3.3 Uncertainty in Toxicity Assessment

Considerable uncertainty is associated with the qualitative (hazard assessment) and quantitative (dose-response) toxicity assessment process. The hazard assessment characterizes the nature and strength of evidence of causation, or the likelihood that a constituent 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 International Agency for Research on Cancer (IARC) 1987 or EPA (1986c) schemes. Positive animal cancer test data suggest that humans contain tissue(s) that may also manifest 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, however, positive animal data suggest the nature of the effects (i.e., the target tissues and type of effects) anticipated in humans (EPA 1989c).

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.

Uncertainty in the dose-response evaluation includes the determination of a slope factor for the carcinogenic assessment and derivation of an RfD or RfC for the noncarcinogenic assessment. Uncertainty is introduced from 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. Uncertainty also results from intraspecies, or individual variation. Finally, 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 dose-response factors is mitigated by assuming the 95 percent upper bound for the slope factor. A source of uncertainty regarding quantitative risk estimation for the carcinogenic assessment 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.

Uncertainty in the derivation of RfDs is mitigated by the use of uncertainty and modifying factors. An uncertainty factor is applied in the derivation of the RfD or RfC to mitigate poor quality of the key study or gaps in the database. Additional 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 from 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 a result, a combination of uncertainty and modifying factors may exceed 100, 1000, or more for a particular compound.

To summarize, the uncertainty associated with the toxicity assessment is chemical-specific since it depends on the existing information used to derive the dose-response factor. In general, this uncertainty tends to be high (overestimate risks by two or more orders of magnitude) for the chemical risk assessment, but tends to be low (overestimate risks by an order of magnitude or less) for radionuclides. This difference is the result of animal versus human data used for chemical and radiological compounds, respectively.

B.4.3.4 Uncertainty in Risk Characterization

Uncertainty in risk characterization results from assumptions made regarding additivity of effects from exposure to multiple compounds from various exposure routes. High uncertainty exists when summing ILCR or HIs for several substances across different exposure pathways. This assumes that each substance has a similar effect and/or mode of action. Often compounds affect different organs, have different mechanisms of action, and differ in their fate in the body where additivity is not appropriate. However, the assumption of additivity is made to provide a conservative estimate of risk.

Risk characterization does not consider antagonistic or synergistic effects. Little to no information is available to determine the potential for antagonism or synergism for CPCs. Therefore, this

uncertainty cannot be discussed based on the impact on the risk assessment since it has the potential to either over- or under-estimate potential human health risks.

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 should be considered separately because: (1) chemical CSFs are developed using laboratory experiments and radionuclide toxicity values are based on human epidemiological data, and (2) chemical CSFs represent an upper bound limit value while radionuclide slope factors are "best estimates." Therefore, cancer risks from exposure to radionuclides are presented separately from those from chemical CPCs.

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ATTACHMENT B.I

DESCRIPTION AND RESULTS OF INDOOR RADON MODELING

ATTACHMENT B.I

DESCRIPTION AND RESULTS OF INDOOR RADON MODELING

The modeling results contained in this attachment are reproduced from two reports prepared by Fluor Daniel, Inc.: (1) The Screening Level Indoor Radon Modeling Report for the Operable Unit 2 Remedial Investigation, dated October 21, 1993; and (2) the Screening-Level Indoor Radon Modeling for the Solid Waste Landfill, dated October 22, 1993. These documents and transmittal letters have been reproduced here with the permission of Fluor Daniel, Inc.

The Screening-Level Indoor Radon Modeling Report for the Operable Unit 2 Remedial Investigation appears as Attachment IIa. The Screening-Level Indoor Radon Modeling for the Solid Waste Landfill appears as Attachment IIb.

ATTACHMENT B.I-A

SCREENING-LEVEL INDOOR RADON MODELING REPORT FOR THE OPERABLE UNIT 2 REMEDIAL INVESTIGATION

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ATTACHMENT B.I-B

SCREENING-LEVEL INDOOR RADON MODELING FOR THE SOLID WASTE LANDFILL

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SCREENING-LEVEL INDOOR RADON MODELING

Introduction

This study was conducted to rapidly select or develop appropriate screening-level models for determining potential indoor Rn-222 concentrations from FEMP soil contaminated with Ra-226. The selection criteria include: 1) peer reviewed and published in literature, 2) demonstrated reproducible results, 3) produced reasonable results compared to measured data, 4) compatible with personal computers. In addition, models developed for regulatory agencies were weighted heavily in the selection process. Six models found in literature were initially reviewed: Nazaroff and Sextro (1989); Loureiro (1987); Garbes and Sextro (1989); Johnson and Ettinger (1991); Bruno (1983); and Nielson et al. (1993a and 1993b).

The final form of the model developed by Johnson and Ettinger (1991) addresses contaminants that do not undergo chemical transformation or decay; therefore, this model was dropped from further consideration. The model developed by Garbes and Sextro (1989) addresses the transport of radon through permeable but intact (no cracks or gaps) basement walls. Studies by Bruno (1983), Loureiro et al. (1990), Nazaroff and Sextro (1989), and Nazaroff et al. (1987) indicate that most soil gas enters buildings through cracks in the surface or subsurface flooring or through below-grade gaps around pipes or drains. Therefore, the Garbesi and Sextro (1989) model was dropped from further consideration. The model developed by Loureiro (1987) is not easily adaptable to spreadsheet calculations and had not been compiled for use on personal computers. In addition, the model is more rigorous than necessary for the screening-level analysis anticipated for this study. Therefore, this model was dropped from further consideration. The Loureiro (1987) model may be useful if a more detailed analysis is warranted based on results of the screening-level analysis.

The model developed by Nazaroff and Sextro (1989) is similar to that originally presented by Bruno (1983). The model development presented in Nazaroff and Sextro (1989) is more complete therefore, if it is used as a screening level model for this study. This model was specifically used to estimate indoor radon concentrations for houses with below-grade basements.

Nielson et al. (1993a) have recently completed development of the computer program RAETRAD, Version 3.1, for calculating radon emanation and transport into dwellings. The model is designed for use in the Microsoft Windows 3.1 environment on a personal computer and is available from the EPA

Office of Air Quality Planning and Standards, Air and Energy Engineering Research Laboratory. This model was specifically used in this study to estimate indoor radon concentrations for slab-on-grade houses.

Nazaroff-Sextro Model

Nazaroff and Sextro (1989) originally developed this model to determine indoor Rn-222 concentrations from the measured Rn-222 source potential of the surrounding soil (based on measured Rn-222 concentrations in the soil gas). The source potential can also be calculated from the measured Ra-226 activity concentrations in the soil. Such activity concentrations (in pCi/g) from the South Field are used in this screening-level analysis to calculate the Rn-222 source potential and resulting indoor Rn-222 concentrations. The basic assumption for Nazaroff-Sextro model is that a negative pressure difference exists between the basement and the surrounding soil. This pressure difference is the driving force for soil gas entrainment into the basement.

The significant parameters that must be calculated for this analysis include the release rate of Rn-222 from the soil into the soil gas, G [pCi/(m^3•s)], the radon activity flux (or source potential) into the basement gap or crack, F [pCi/s], and the indoor Rn-222 concentration, C_{in}^{Rn} [pCi/m^3]. The method for calculating G and F is based on fundamental radon production and transport equations.

The following equation can be used to calculate G:

$$G = (10^6)\, E\, \rho_s\, C_S^{Ra}\, \lambda\, (1 - n)/n, \quad \frac{pCi}{m^3 \cdot s}$$

where
- E = radon emanation coefficient,
- ρ_s = density of the soil particles, g/cm^3,
- C_S^{Ra} = Ra-226 concentration in the soil, pCi/g,
- λ = Rn-222 decay constant, 1/s, and
- n = total soil porosity.

Two cases of interest arise when for determining the radon flux into the crack or gap: 1) low soil gas flow rates into the gap and 2) high soil gas flow rates into the gap. For the low-flow case, the radon activity flux is directly proportioned to the pressure difference:

$$F = (2\pi GL\Delta Pk) / [\mu\lambda \ln (2H/r)]$$

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where	L	=	perimeter length of the basement, m,
	ΔP	=	dynamic pressure difference, Pa = kg/(m•^{2}),
	k	=	intrinsic permeability of the soil, m^2,
	μ	=	dynamic viscosity of the soil gas, kg/(m•s),
	H	=	depth of basement floor below the soil surface, m, and
	r	=	half-width of crack or radius of cylindrical gap in basement floor, m.

For the high-flow case, the radon concentration at the crack surface is depleted because of the short travel time of soil gas parcels through the soil, relative to the radon half-life. This depletion regime occurs under the condition:

$$\Delta P\, k > 0.5 n \mu \lambda H^2 \ln (2H/r)$$

When this condition exists, the radon activity flux is given by:

$$F = (4.0) GLH^{2/3} n^{1/3} \left[\frac{\Delta P k}{\mu \lambda \ln (2H/r)}\right]^{2/3}$$

Once the source potential, F, has been determined, the indoor Rn-222 concentration can be calculated:

$$C_{in}^{Rn} = F/Qv$$

where	C_{in}^{Rn}	=	indoor Rn-222 concentration, pCi/m^3, and
	Qv	=	flow rate of outdoor air into the building, m^3/s.

The flow rate of outdoor into the building can be estimated by the volume of the building and the ventilation rate (or air turnover rate):

$$Qv = q\ (l\ w\ h) / 3600$$

where	q	=	ventilation rate, building volumes / hr
	l	=	building length, m,
	w	=	building width, m, and
	h	=	building height, m.

The dimensions defined in this screening analysis are presented on Figure 1.

Several underlying assumptions were made to develop an analytical solution to the screening level model. These assumptions include (Nazaroff and Sextro 1989):

1. The soil has uniform and isotropic properties.
2. The soil containing Ra-226 lies directly beneath and adjacent to the basement.
3. Molecular diffusion can be neglected compared to bulk soil gas flow as a radon transport process.
4. The building has a basement floor with a crack or gap penetrating to the soil beneath the floor and extending around the building perimeter and has uniform width.
5. The moisture content of the soil is low enough that dissolved Rn-222 may be neglected.
6. The soil gas velocity through the soil is described by Darcy's law; the soil gas flow rate is low enough to be in the laminar-linear regime.
7. Pressure disturbances associated with Rn-222 migration in soil are negligible compared to atmospheric pressure; therefore, soil gas and air are treated as incompressible fluids.
8. The system being modeled is at steady-state conditions.
9. The interior of the building can be treated as a single, well-mixed volume.
10. The radon entry rate from soil is equal to the radon source potential.
11. The radon decay rate is much slower than the building ventilation rate.

The potential effect of these assumptions on the estimated indoor radon concentrations are briefly discussed below.

The weather-induced pressure difference developed in homes with basements is typically 1 to 10 Pa (Sextro 1993; Nazaroff et al. 1987; Johnson and Ettinger 1991). Based on this pressure difference, the majority of radon available for transport into the basement lies within approximately 1 meter of the basement floor for soils with moderate-to-low intrinsic permeabilities (Sextro, 1993). The soils in the South Field area can typically be classified as silty loam or silty clay loam (Mulder 1993), which have relatively low intrinsic permeabilities (Kunz 1988). As a result, the first, third, sixth, seventh, and eighth assumptions listed above are valid and provide reasonable results.

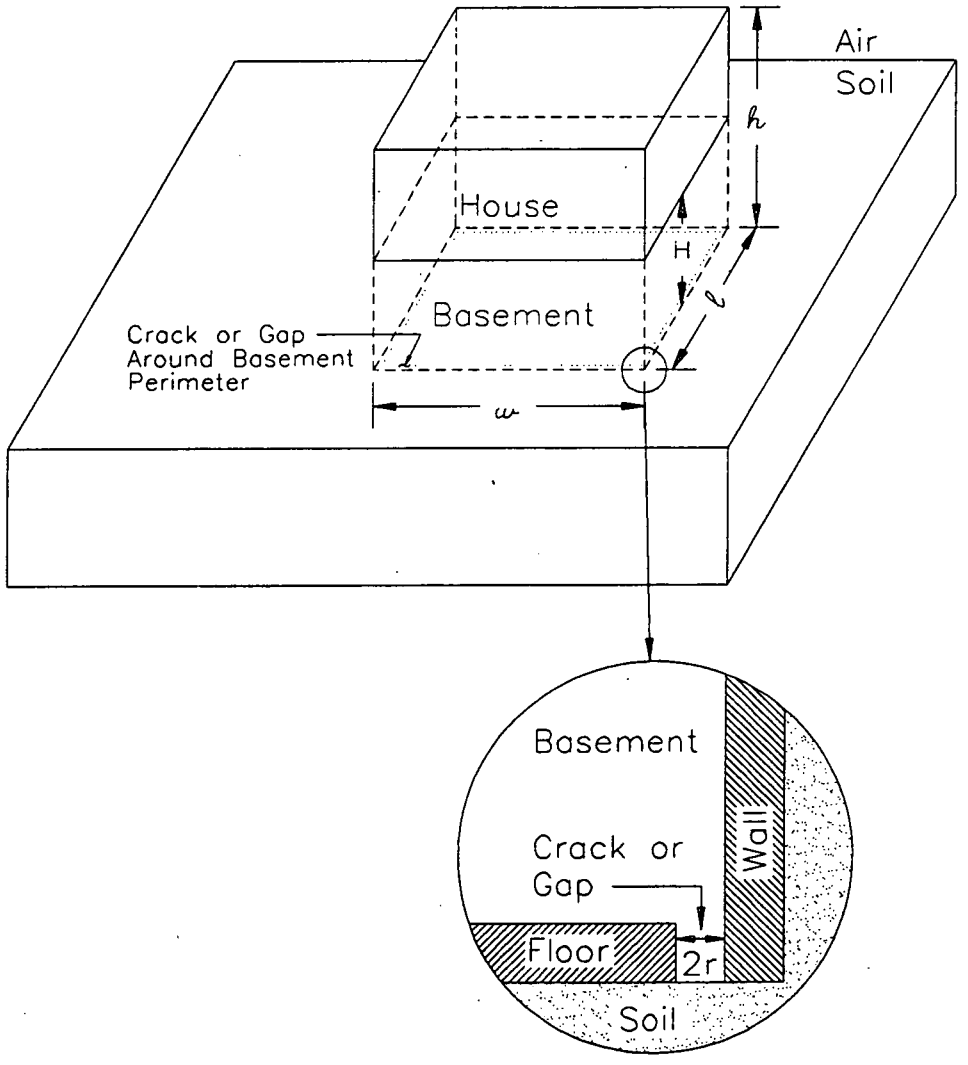

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FIGURE 1
INDOOR RADON STUDY: TYPICAL HOUSE WITH SUBGRADE BASEMENT

The second assumption will provides reasonable-to-conservative (high) results. The fourth assumption may provide high or low estimates, depending on the assumed gap width. The ninth assumption provides reasonable results for a risk assessment, provided that the occupants move about the house and do not spend more than 50 percent of their time in the basement, where elevated levels of radon can occur (Nazaroff et al. 1987). The fifth, tenth and eleventh assumptions tend to provide conservative results by overestimating the total quantity of radon gas available for migration into the basement.

Sextro (1993) has indicated that the assumptions made to develop the analytical model limit its applicability to subgrade floors that are typically 1.5 to 3 meters below the soil surface. This model would not be applicable to slab-on-grade buildings.

Site-specific soil parameters for the South Field were used develop indoor radon concentration estimates. These parameters are presented in Table 1.

Table 1
South Field Soil Parameters

Parameter	Surface Soil (0 to 6")	Subsurface Soil (Below 6")
C^{Ra}_s, pCi/g	30.8	2.919
ρ, g/cm^3	1.7	1.85
n	0.52	0.41
Moisture Content		
Wt%	18.2	20.0
Vol%	31.0	37.0

Source: Garland 1993.

Since the subgrade basement screening model is applicable for basement depths of 1.5 to 3 meters and the effective distance in soil for radon transportation to a basement crack or gap is approximately 1 meter, the surface soil radium concentration is not expected to contribute substantially to radon flow into the basement opening (Sextro 1993). Therefore, the subsurface soil parameters were be used to estimate indoor radon concentrations from subsurface migration of soil gas into basements. Note that the scope of this analysis does not consider above-grade radon or radium transport into the house through open windows or doors.

Two sets of house parameters were analyzed for the subgrade basement model. The first set was taken directly from the Operable Unit 1 Baseline Risk Assessment (DOE 1993) and was used to provide a consistent set of parameters between the operable unit risk assessments. The second set was developed from typical house parameters available in literature for single story houses with basements (Nazaroff et al. 1987; Nazaroff and Sextro 1989; Loureiro et al. 1990; Johnson and Ettinger 1991; and Bruno 1983). The air exchange rate for both houses was assumed to be 0.1 air changes per hour, which is typical for new, tightly constructed homes (Bruno 1983). The house parameters are presented in Table 2.

Table 2
House Parameters for Indoor Radon Analysis

Parameter	House with Basement	OU1 RI Parameters
l, meters	12	20
w, meters	10	10
h, meters	2.33 (per floor)	3
q, 1/hr	0.1	0.1
L, meters	44	60
V, m^3	560	600
Qv, m^3/s	0.0156	0.0167
2r, mm	1	1

Sources: DOE 1993; Nazaroff et al. 1987; Nazaroff and Sextro 1989; Loureiro et al. 1990; Johnson and Ettinger 1991; and Bruno 1983.

RAETRAD Version 3.1

The RAETRAD model computes radon production from radium decay, radon interactions in the solid, liquid, and gas phases of soils and concretes, and radon gas transport and indoor entry by both diffusion (concentration-driven) and advection (with pressure-driven air flow). It solves LaPlace's equation in steady state to define air pressure distributions under and near the house and to obtain air-flow velocities used in the radon calculations. The radon differential equation also is solved in steady state, and incorporates the air velocity field in computing simultaneous diffusive and advective radon transport. The equations are solved numerically in elliptical-cylindrical geometry to represent houses of different size and with varying rectangular aspect (length/width) ratios. Radon entry rates into a house are computed by integrating the total radon transport across the floor surface area. Indoor radon concentrations are also estimated from the computed entry rates divided by the house volume and its air ventilation rate (Nielson et al. 1993a).

As currently developed, RAETRAD specifically addresses slab-on-grade buildings. The underlying equations are such that extension of the program to subgrade floors (ie., basements) can be developed (Rogers 1993). The model can calculate radon diffusion and transport through various soil layers, building foundation materials, and building slab penetrations (cracks, drains, etc.). The model has been validated for slab-on-grade buildings (Nielson, et al., 1993a).

Because RAETRAD can address multiple soil layers, the surface and subsurface soil parameters were used in this analysis. The house and soil configuration is shown in Figure 2.

Study Results

The results of the Nazaroff-Sextro model are presented in Attachment 1, and the model input and RAETRAD model results are presented in Attachment 2. The estimated indoor radon concentration for each case is summarized in Table 3.

Table 3
Estimated Indoor Rn-222 Concentrations, pCi/l

Model	House with Basement		Slab on Grade House
	Typical	OU1 RI	
Nazaroff-Sextro	0.0008	0.001	13.0[a]
RAETRAD	—	—	17.3

a For comparison only. Nazaroff and Sextro model not developed for slab-on-grade homes.

The slab-on-grade house provides the worst-case results with indoor radon concentrations significantly higher than the EPA-recommended action level of 4 pCi/l.

Results for the subgrade basement configuration are approximately four orders of magnitude below the slab-on-grade results. This difference is attributed to the difference in intrinsic permeability of the surface soil and subsurface soil. The subsurface soil is substantially less permeable than the surface soil; therefore, gas migration into a subgrade basement occurs more slowly than migration into the slab-on-grade house. The relationship between the intrinsic permeability, pressure difference, and indoor radon concentration is presented in Figure 3.

Comparing the results for the Nazaroff-Sextro model to the RAETRAD model for slab-on-grade construction indicates relatively good agreement between the models. Therefore, the Nazaroff-Sextro model is expected to provide reasonable results for subgrade basement configurations.

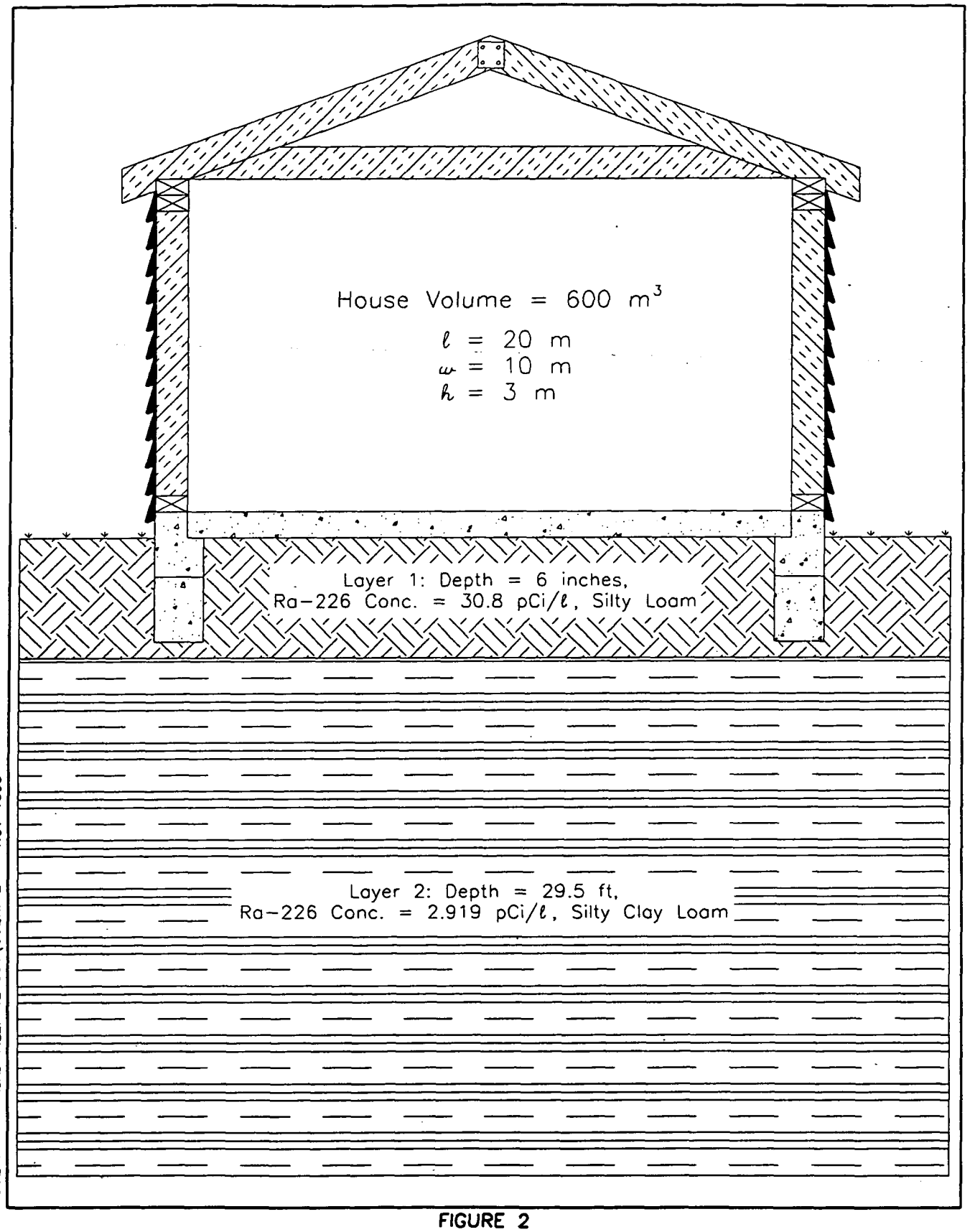
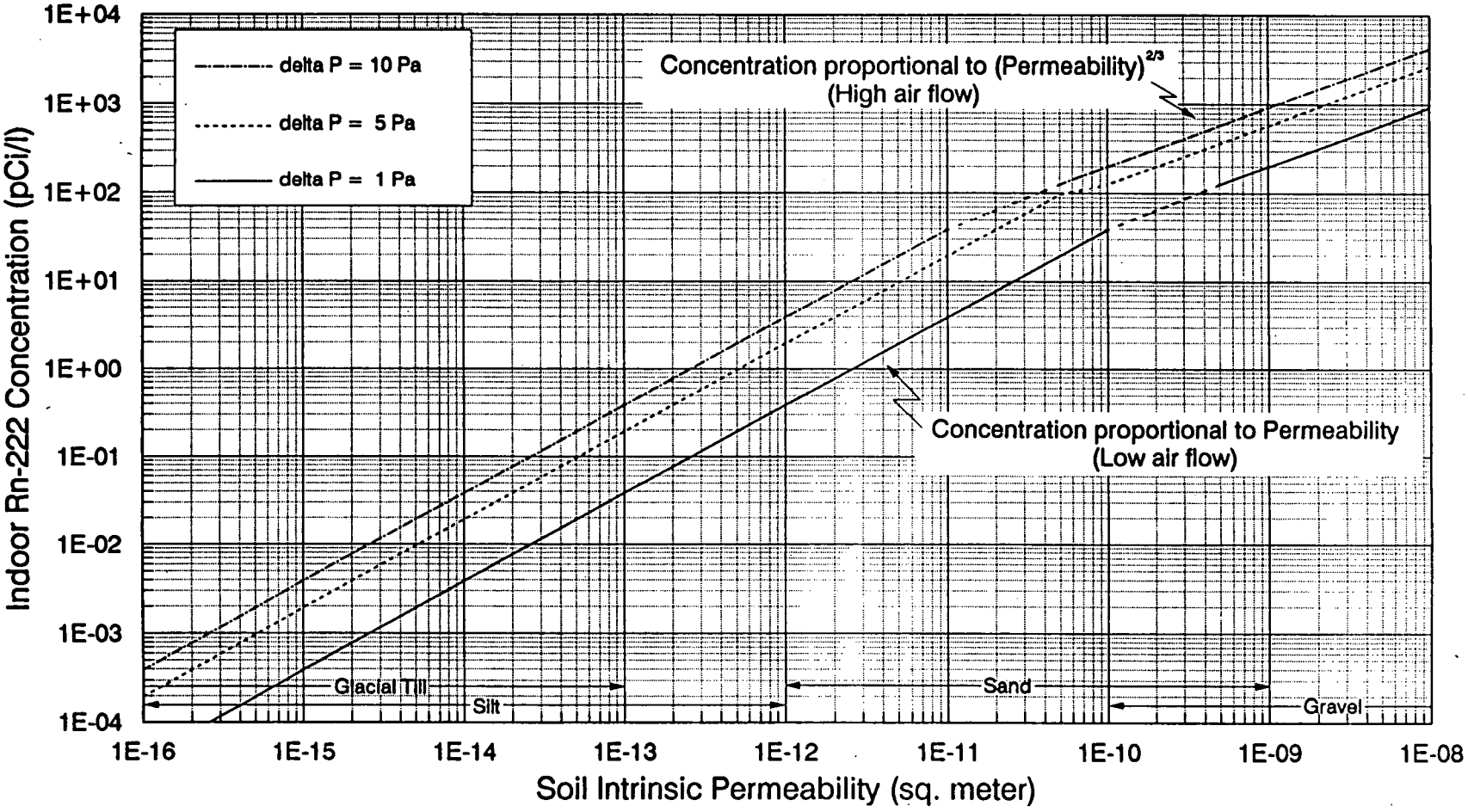


FIGURE 2
INDOOR RADON STUDY: SLAB-ON-GRADE HOUSE BUILT ON SOUTH FIELD

Figure 3

Indoor Radon Concentration vs Soil Permeability for Various Pressure Differentials



House Volume = 600 cu. meters
Basement Perimeter = 60 meters; Depth = 2 meters
Air Exchange Rate = 0.1 1/hr

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ATTACHMENT 1

NAZAROFF-SEXTRO MODEL RESULTS

INDOOR RADON CALCULATION METHOD*

Site-Specific Soil Parameters (Subsurface)
Typical Building Dimensions
Basement Elevation @ 2 m below grade

	Constants:	
E =	Rn emanation coefficient	0.2
Lambda =	Rn-222 decay constant	2.10E-06 1/s
u =	Dynamic viscosity of air in soil pores (@ 20°C)	1.70E-05 kg/ms
	Variables:	
Rho_s =	Density of the soil solid phase = bulk density / (1 - n)	3.14 g/cm^3
C_s^{Ra} =	Ra-226 Concentration in soil, (pCi/g)	2.919 pCi/g
n =	Soil porosity	0.41
DelP =	Dynamic pressure difference between soil surface and basement	5 kg/ms^2
k =	Intrinsic permeability of the soil	5.11E-16 m^2 (silty clay loam)
H =	Depth of basement floor below soil surface	2 m
r =	Half-width of crack or gap in basement floor	0.0005 m
l=	Length of building	12 m
w=	Width of building	10 m
h =	Height of building (Note: h >= H)	4.6667 m
q =	Building air exchange rate (building volumes/hr)	0.1 1/h
	Calculations:	
G =	Rn-222 release rate into soil pore spaces	
G =	E Rho (C_s^{Ra}) Lambda ((1-n)/n) 10^6	5.540 (pCi/m^3s)
K_1 =	Determines which case to analyze in the F equation	
K_1 =	DelP k	2.56E-15
K_2 =	Determines which case to analyze in the F equation	
K_2 =	0.5 n u Lambda H^2 ln (2H/r)	2.63E-10
F =	Rn-222 source term from soil gas, 2 cases: F_{low} or F_{hi}	
F_{low} =	1. Low air flow into basement, F_{low}, if $K_1 <= K_2$	
F_{low} =	(2 Pi G L DelP k)/[u Lambda (ln(2H/r))]	1.22E-02 (pCi/s)
F_{hi} =	2. High air flow into basement, F_{hi}, if $K_1 > K_2$	
F_{hi} =	(4.0) G L $H^{2/3} n^{1/3}$ [(DelP k) / (u Lambda ln(2H/r))]$^{2/3}$	NA (pCi/s)
L =	perimeter of basement floor (2l+2w)	44 (m)
V =	Volume of building (l w h)	560.00 (m^3)
Qv =	Exchange air flow rate (q V)/3600	1.56E-02 (m^3/s)
C_i^{Rn} =	Indoor radon concentration from soil gas source	
C_i^{Rn} =	F/Qv	7.84E-01 (pCi/m^3)
		7.84E-04 (pCi/l)

* Source: Nazaroff, W.W. and R.G. Sextro, "Technique for Measuring the Indoor ^{222}Rn Source Potential of Soil,". Environmental Science and Technology, V. 23, No. 4, pp. 451-458 (Apr 1989).

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INDOOR RADON CALCULATION METHOD*

Site-Specific Soil Parameters (Subsurface)
OU1 RI Building Dimensions
Basement Elevation @ 2 m below grade

	Constants:	
E =	Rn emanation coefficient	0.2
Lambda =	Rn−222 decay constant	2.10E−06 1/s
u =	Dynamic viscosity of air in soil pores (@ 20°C)	1.70E−05 kg/ms
	Variables:	
Rho_s =	Density of the soil solid phase = bulk density / (1 − n)	3.14 g/cm^3
C_s^{Ra} =	Ra−226 Concentration in soil, (pCi/g)	2.919 pCi/g
n =	Soil porosity	0.41
DelP =	Dynamic pressure difference between soil surface and basement	5 kg/ms^2
k =	Intrinsic permeability of the soil	5.11E−16 m^2 (silty clay loam)
H =	Depth of basement floor below soil surface	2 m
r =	Half−width of crack or gap in basement floor	0.0005 m
l=	Length of building	20 m
w=	Width of building	10 m
h =	Height of building (Note: h >= H)	3 m
q =	Building air exchange rate (building volumes/hr)	0.1 1/h
	Calculations:	
G =	Rn−222 release rate into soil pore spaces	
G =	E Rho (C_s^{Ra}) Lambda ((1−n)/n) 10^6	5.540 (pCi/m^3s)
K_1 =	Determines which case to analyze in the F equation	
K_1 =	DelP k	2.56E−15
K_2 =	Determines which case to analyze in the F equation	
K_2 =	0.5 n u Lambda H^2 ln (2H/r)	2.63E−10
F =	Rn−222 source term from soil gas, 2 cases:	
	F_{low} or F_{hi}	
F_{low} =	1. Low air flow into basement, F_{low}, if $K_1 <= K_2$	
F_{low} =	(2 Pi G L DelP k)/[u Lambda (ln(2H/r))]	1.66E−02 (pCi/s)
F_{hi} =	2. High air flow into basement, F_{hi}, if $K_1 > K_2$	
F_{hi} =	(4.0) G L $H^{2/3} n^{1/3}$ [(DelP k) / (u Lambda ln(2H/r)]$^{2/3}$	NA (pCi/s)
L =	perimeter of basement floor (2l+2w)	60 (m)
V =	Volume of building (l w h)	600.00 (m^3)
Qv =	Exchange air flow rate (q V)/3600	1.67E−02 (m^3/s)
C_i^{Rn} =	Indoor radon concentration from soil gas source	
C_i^{Rn} =	F/Qv	9.98E−01 (pCi/m^3)
		9.98E−04 (pCi/l)

* Source: Nazaroff, W.W. and R.G. Sextro, "Technique for Measuring the Indoor ^{222}Rn Source Potential of Soil,". Environmental Science and Technology, V. 23, No. 4, pp. 451−458 (Apr 1989).

INDOOR RADON CALCULATION METHOD*

Site–Specific Soil Parameters (Surface)
OU1 RI Building Dimensions
Slab–on–grade

Constants:

E =	Rn emanation coefficient	0.2	
Lambda =	Rn–222 decay constant	2.10E–06	1/s
u =	Dynamic viscosity of air in soil pores (@ 20°C)	1.70E–05	kg/ms

Variables:

Rho_s =	Density of the soil solid phase = bulk density / (1 – n)	3.54	g/cm^3
C_s^{Ra} =	Ra–226 Concentration in soil, (pCi/g)	30.8	pCi/g
n =	Soil porosity	0.52	
DelP =	Dynamic pressure difference between soil surface and basement	5	kg/ms^2
k =	Intrinsic permeability of the soil	1.32E–12	m^2 (silty clay loam)
H =	Depth of basement floor below soil surface	0.15	m
r =	Half–width of crack or gap in basement floor	0.0005	m
l=	Length of building	20	m
w=	Width of building	10	m
h =	Height of building (Note: h >= H)	3	m
q =	Building air exchange rate (building volumes/hr)	0.1	1/h

Calculations:

G =	Rn–222 release rate into soil pore spaces		
G =	E Rho (C_s^{Ra}) Lambda ((1–n)/n) 10^6	42.271	(pCi/m^3s)
K_1 =	Determines which case to analyze in the F equation		
K_1 =	DelP k	6.60E–12	
K_2 =	Determines which case to analyze in the F equation		
K_2 =	0.5 n u Lambda H^2 ln (2H/r)	1.34E–12	
F =	Rn–222 source term from soil gas, 2 cases: F_{low} or F_{hi}		
F_{low} =	1. Low air flow into basement, F_{low}, if $K_1 <= K_2$		
F_{low} =	(2 Pi G L DelP k)/[u Lambda (ln(2H/r))]	NA	(pCi/s)
F_{hi} =	2. High air flow into basement, F_{hi}, if $K_1 > K_2$		
F_{hi} =	(4.0) G L $H^{2/3}n^{1/3}$ [(DelP k) / (u Lambda ln(2H/r)]$^{2/3}$	2.17E+02	(pCi/s)
L =	perimeter of basement floor (2l+2w)	60	(m)
V =	Volume of building (l w h)	600.00	(m^3)
Qv =	Exchange air flow rate (q V)/3600	1.67E–02	(m^3/s)
C_i^{Rn} =	Indoor radon concentration from soil gas source		
C_i^{Rn} =	F/Qv	1.30E+04	(pCi/m^3)
		1.30E+01	(pCi/l)

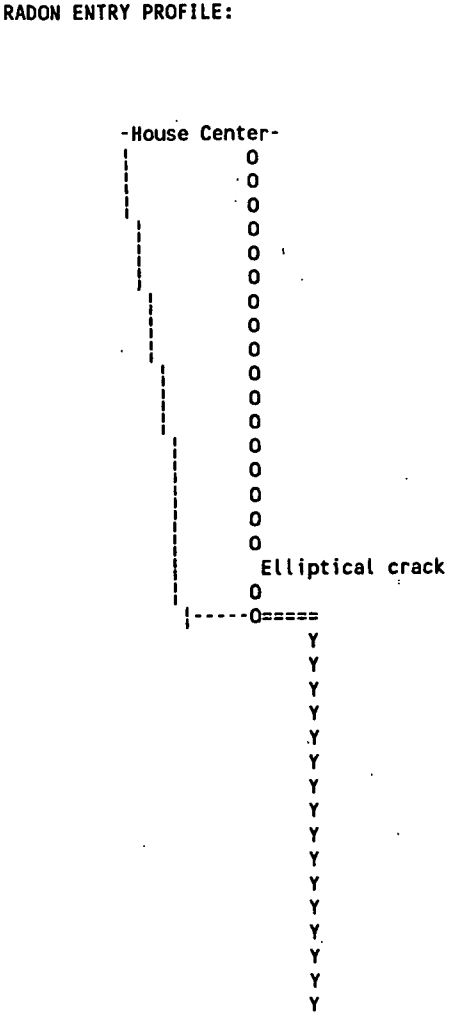
* Source: Nazaroff, W.W. and R.G. Sextro, "Technique for Measuring the Indoor ^{222}Rn Source Potential of Soil,". Environmental Science and Technology, V. 23, No. 4, pp. 451–458 (Apr 1989).

SCENARIO TITLE: OU2 RI: RUN 01, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING PARAMETERS
FILE NAME: OU2RI010

RAETRAD v3.0
RAdon Emanation and TRAnsport into Dwellings
developed by Rogers & Associates Engineering Corporation

==========: ANALYSIS RESULTS :==========

RADON ENTRY PROFILE:



Radial Positn ft		Air Entry Rate cfm	Average Radon Flux pCi/m2s	Radon Entry Rate pCi/s
1.00		4.00E-08	9.14E-02	5.74E-01
2.00		1.20E-07	9.14E-02	1.72E+00
3.00		2.00E-07	9.14E-02	2.87E+00
4.00		2.80E-07	9.14E-02	4.02E+00
5.00		3.61E-07	9.14E-02	5.17E+00
6.00		4.41E-07	9.14E-02	6.32E+00
7.00		5.21E-07	9.14E-02	7.46E+00
8.00		6.02E-07	9.13E-02	8.61E+00
9.00		6.82E-07	9.13E-02	9.75E+00
10.00		7.63E-07	9.12E-02	1.09E+01
11.00		8.44E-07	9.10E-02	1.20E+01
12.00		9.24E-07	9.06E-02	1.31E+01
13.00		1.01E-06	9.01E-02	1.41E+01
14.00		1.09E-06	8.91E-02	1.51E+01
15.00		1.17E-06	8.73E-02	1.59E+01
16.00		1.25E-06	8.43E-02	1.64E+01
17.00		1.32E-06	7.90E-02	1.64E+01
18.00		1.03E-02	4.97E-01	1.09E+02
19.00		3.61E-06	5.86E-02	1.36E+01
20.00		4.69E-06	2.23E-02	5.47E+00
	INDOOR TOTAL	1.03E-02	1.25E-02	2.89E+02
21.00		-9.58E-03	6.71E-01	1.73E+02
22.00		-1.22E-03	4.18E-01	1.13E+02
23.00		-1.57E-04	3.88E-01	1.10E+02
24.00		-2.12E-05	3.84E-01	1.14E+02
25.00		-3.69E-06	3.84E-01	1.18E+02
26.00		-1.33E-06	3.84E-01	1.23E+02
27.00		-9.27E-07	3.84E-01	1.28E+02
28.00		-8.05E-07	3.84E-01	1.33E+02
29.00		-7.36E-07	3.84E-01	1.37E+02
30.00		-6.86E-07	3.84E-01	1.42E+02
31.00		-6.49E-07	3.84E-01	1.47E+02
32.00		-6.21E-07	3.84E-01	1.52E+02
33.00		-6.00E-07	3.84E-01	1.57E+02
34.00		-5.85E-07	3.84E-01	1.62E+02

0394

SCENARIO TITLE: OU2 RI: RUN 01, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING PARAMETERS
FILE NAME: OU2RI010
RUN DATE: 10/21/1993 @ 11:23

RAETRAD v3.0
RAdon Emanation and TRAnsport into Dwellings
developed by Rogers & Associates Engineering Corporation

==========: INPUT PARAMETERS :==========

HOUSE:

Dimensions	: 32.8 x 65.6 ft.	Equiv. ellipse radius	: 19 ft.	Outdoor Pressure	: .00 Pa
Area	: 2152 sq. ft.	Aspect ratio	: 2.000	Indoor Rn Bnd.	: .00 pCi/L
Fill thickness	: 0 units (.0ft.)	Circumference	: 238.8 ft.	Outdoor Rn Bnd.	: .00 pCi/L
Footing depth	: 1 units (.3ft.)	Indoor pressure	: -5.0 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		1.000	-5.00	.00	.10	5603.56	.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	.500	1	.0	2.100	.000	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000	Conc1
1	.500	2	30.8	1.700	.200	.520	.596	.011400	7.90E-03	7.90E-03	1.32E-08	1.32E-08	.001	SiLom
2	29.500	29	2.9	1.850	.200	.410	.902	.005600	1.81E-04	1.81E-04	5.11E-12	5.11E-12	.000	SiCLm
FTG	.250	1	.0	2.100	.000	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000	Conc1

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ATTACHMENT 2

RAETRAD MODEL RESULTS

Y	35.00	-5.76E-07	3.84E-01	1.66E+02
Y	36.00	-5.71E-07	3.84E-01	1.71E+02
Y	37.00	-5.70E-07	3.84E-01	1.76E+02
Y	38.00	-5.73E-07	3.84E-01	1.81E+02
Y	39.00	-5.80E-07	3.84E-01	1.86E+02
Y	40.00	-5.91E-07	3.84E-01	1.91E+02

INDOOR RADON : 17.346 pCi/L (assuming .10 ach & 9.84 ft Height)

CPU Calc. Time: 279.00 seconds

0397

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SCENARIO TITLE: OU2 RI: RUN 01, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING PARAMETERS RAETRAD v3.0
FILE NAME: OU2RI010 RAdon Emanation and TRAnsport into Dwellings
developed by Rogers & Associates Engineering Corporation

Suction Pressures, (- .0010 Pa) depth (ft.)----->

	.0	.5	.8	1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.2	11.2	12.2	13.2	14.2	15.2	16.3	17.3	18.3	19.3	20.3	21.3	22.4
1	4264	4264	4264	4094	3925	3759	3598	3442	3293	3151	3017	2892	2775	2667	2567	2476	2393	2318	2251	2191	2138	2092	2052	2018	1991
2	4264	4264	4264	4093	3923	3756	3594	3438	3288	3146	3012	2887	2770	2662	2562	2471	2388	2314	2247	2187	2134	2088	2048	2015	1987
3	4264	4264	4264	4091	3919	3751	3588	3430	3280	3137	3002	2877	2760	2652	2552	2461	2379	2305	2238	2178	2126	2080	2041	2008	1980
4	4264	4264	4264	4088	3914	3743	3577	3418	3266	3122	2987	2861	2744	2636	2537	2447	2365	2291	2225	2166	2114	2069	2030	1997	1970
5	4264	4264	4264	4084	3906	3732	3563	3401	3248	3102	2966	2840	2723	2615	2517	2427	2346	2273	2207	2149	2098	2054	2015	1983	1957
6	4264	4264	4263	4078	3896	3717	3545	3380	3224	3077	2940	2813	2696	2589	2491	2402	2322	2250	2186	2129	2079	2035	1997	1966	1940
7	4263	4263	4263	4072	3883	3699	3521	3353	3194	3045	2907	2780	2663	2557	2460	2372	2294	2223	2160	2104	2055	2012	1976	1945	1920
8	4263	4263	4263	4063	3866	3675	3492	3319	3157	3007	2868	2741	2624	2519	2423	2337	2260	2191	2130	2075	2028	1986	1951	1921	1897
9	4263	4263	4262	4052	3846	3646	3457	3279	3113	2961	2821	2694	2579	2475	2381	2297	2222	2155	2095	2043	1997	1957	1923	1895	1871
10	4262	4262	4262	4039	3820	3611	3413	3229	3060	2906	2766	2640	2526	2424	2333	2251	2178	2114	2057	2006	1962	1924	1892	1865	1843
11	4262	4262	4262	4022	3788	3566	3359	3170	2997	2842	2702	2577	2466	2367	2278	2200	2130	2068	2014	1966	1925	1889	1858	1832	1811
12	4261	4261	4261	4000	3747	3510	3293	3097	2922	2766	2628	2506	2398	2302	2218	2143	2077	2019	1968	1923	1884	1850	1821	1797	1778
13	4261	4261	4261	3971	3694	3439	3211	3009	2832	2678	2543	2425	2322	2231	2152	2081	2020	1965	1918	1876	1840	1809	1782	1760	1742
14	4260	4260	4260	3931	3623	3347	3108	2902	2726	2576	2446	2335	2238	2153	2080	2015	1958	1908	1865	1827	1794	1765	1741	1721	1704
15	4260	4260	4260	3873	3524	3226	2978	2772	2601	2458	2338	2234	2146	2069	2002	1944	1893	1848	1809	1775	1745	1720	1698	1680	1665
16	4260	4260	4259	3783	3382	3064	2813	2615	2456	2325	2217	2125	2046	1979	1920	1869	1824	1785	1751	1721	1695	1672	1653	1638	1625
17	4264	4264	4257	3627	3169	2844	2607	2429	2289	2177	2085	2007	1941	1884	1834	1791	1753	1720	1691	1665	1643	1624	1608	1594	1583
18	4632	4380	4211	3315	2839	2549	2354	2212	2103	2016	1943	1882	1830	1785	1745	1710	1680	1653	1629	1608	1590	1574	1561	1550	1541
19	3208	3208	3134	2624	2346	2176	2059	1972	1903	1846	1797	1754	1717	1684	1655	1629	1606	1585	1567	1551	1537	1525	1514	1505	1498
20	2789	1645	1645	1736	1767	1765	1747	1724	1698	1673	1648	1625	1603	1583	1565	1548	1532	1518	1505	1494	1484	1475	1467	1460	1455
21	0	0	200	932	1238	1380	1450	1485	1500	1505	1504	1499	1492	1484	1476	1467	1459	1451	1444	1437	1431	1425	1420	1416	1413
22	0	0	24	551	878	1075	1195	1270	1317	1347	1366	1378	1385	1388	1389	1389	1388	1386	1384	1381	1379	1376	1374	1372	1371
23	0	0	3	369	650	850	990	1087	1156	1205	1240	1265	1284	1297	1307	1314	1319	1323	1325	1327	1328	1329	1329	1330	1330
24	0	0	0	272	504	689	830	937	1018	1079	1126	1162	1190	1212	1229	1243	1254	1262	1269	1275	1279	1283	1286	1288	1290
25	0	0	0	213	407	572	706	815	901	970	1025	1069	1104	1133	1157	1176	1192	1205	1216	1225	1233	1239	1244	1248	1251
26	0	0	0	175	340	486	611	716	804	877	936	986	1027	1061	1090	1114	1134	1151	1166	1178	1188	1197	1204	1210	1215
27	0	0	0	149	291	421	537	637	724	797	860	913	958	997	1029	1057	1081	1101	1119	1134	1146	1157	1166	1174	1180
28	0	0	0	130	255	372	478	573	657	731	794	849	897	939	974	1005	1032	1055	1075	1093	1108	1120	1131	1140	1147
29	0	0	0	115	227	333	432	522	602	674	738	794	844	887	925	959	988	1013	1036	1055	1072	1086	1098	1108	1116
30	0	0	0	104	206	303	394	479	557	627	690	747	797	842	882	917	948	975	999	1020	1039	1054	1068	1079	1088
31	0	0	0	95	189	279	364	445	519	587	650	706	757	802	843	880	913	941	967	989	1009	1026	1040	1052	1062
32	0	0	0	88	175	259	340	416	488	554	615	671	722	768	810	848	881	911	938	961	982	1000	1015	1028	1039
33	0	0	0	83	164	244	320	393	462	527	587	642	693	739	781	819	854	885	912	937	958	977	993	1007	1018
34	0	0	0	78	156	231	304	375	441	504	563	617	668	714	757	795	831	862	890	916	938	957	974	988	999
35	0	0	0	75	149	221	292	359	424	485	543	597	647	694	736	775	811	843	872	898	920	940	957	972	984
36	0	0	0	72	143	213	282	347	411	471	528	581	631	677	720	759	795	827	857	883	906	926	944	959	971
37	0	0	0	70	139	207	274	338	400	459	516	568	618	664	707	746	782	815	844	871	894	915	933	948	961
38	0	0	0	68	136	203	268	332	393	451	507	559	608	654	697	737	773	806	835	862	886	907	925	940	953
39	0	0	0	67	134	200	265	328	388	446	501	553	602	648	691	730	766	800	829	856	880	901	919	935	948
40	0	0	0	67	133	199	263	325	386	443	498	550	599	645	688	727	763	797	827	853	877	899	917	932	945

Suction Pressures, (- .0010 Pa) depth (ft.)----->

23.4	24.4	25.4	26.4

0398

1	1969	1952	1942	1936
2	1965	1949	1938	1933
3	1959	1943	1932	1927
4	1949	1933	1922	1917
5	1936	1920	1910	1905
6	1919	1904	1894	1889
7	1900	1885	1876	1871
8	1878	1864	1854	1849
9	1853	1839	1830	1825
10	1825	1812	1803	1799
11	1795	1783	1774	1770
12	1762	1751	1743	1739
13	1728	1717	1710	1707
14	1691	1682	1675	1672
15	1653	1645	1639	1636
16	1614	1607	1602	1599
17	1574	1568	1563	1561
18	1533	1528	1524	1523
19	1492	1488	1485	1484
20	1451	1448	1445	1444
21	1410	1408	1406	1406
22	1369	1368	1368	1367
23	1330	1330	1330	1330
24	1291	1292	1293	1293
25	1254	1256	1257	1258
26	1218	1221	1223	1224
27	1184	1188	1190	1191
28	1152	1157	1159	1161
29	1123	1127	1130	1132
30	1095	1100	1104	1106
31	1070	1075	1079	1081
32	1047	1053	1057	1059
33	1026	1033	1037	1039
34	1009	1015	1020	1022
35	993	1000	1005	1007
36	981	988	993	995
37	970	978	983	985
38	963	970	975	978
39	958	965	970	973
40	955	963	968	970

0399

SCENARIO TITLE: OU2 RI: RUN 01, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING PARAMETERS
FILE NAME: OU2RI010

RAETRAD v3.0
RAdon Emanation and TRAnsport into Dwellings
developed by Rogers & Associates Engineering Corporation

Soil Gas Radon Concentrations (10.00000 pCi/Liter) depth (ft.) ----->

	.0	.5	.8	1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.2	11.2	12.2	13.2	14.2	15.2	16.3	17.3	18.3	19.3	20.3	21.3	22.4
1	2483	2535	2570	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
2	2483	2535	2570	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
3	2483	2535	2570	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
4	2483	2535	2570	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
5	2483	2534	2569	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
6	2483	2534	2569	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
7	2482	2533	2568	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
8	2481	2532	2567	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
9	2479	2530	2566	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
10	2476	2527	2562	927	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
11	2471	2522	2557	926	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
12	2462	2513	2548	925	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
13	2446	2497	2532	924	802	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
14	2419	2469	2503	922	801	792	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
15	2372	2421	2455	918	801	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
16	2290	2337	2370	912	801	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
17	2147	2192	2221	900	800	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
18	1898	1938	1962	880	798	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
19	1589	1624	1610	852	796	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
20	606	992	1006	807	793	792	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
21	0	0	238	753	789	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
22	0	0	148	743	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
23	0	0	138	742	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
24	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
25	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
26	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
27	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
28	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
29	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
30	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
31	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
32	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
33	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
34	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
35	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
36	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
37	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
38	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
39	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
40	0	0	136	741	788	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791

Soil Gas Radon Concentrations (10.00000 pCi/Liter) depth (ft.) ----->

	23.4	24.4	25.4	26.4
1	791	791	791	791
2	791	791	791	791
3	791	791	791	791
4	791	791	791	791
5	791	791	791	791
6	791	791	791	791
7	791	791	791	791
8	791	791	791	791
9	791	791	791	791
10	791	791	791	791
11	791	791	791	791
12	791	791	791	791
13	791	791	791	791
14	791	791	791	791
15	791	791	791	791
16	791	791	791	791
17	791	791	791	791
18	791	791	791	791
19	791	791	791	791
20	791	791	791	791
21	791	791	791	791
22	791	791	791	791
23	791	791	791	791
24	791	791	791	791
25	791	791	791	791
26	791	791	791	791
27	791	791	791	791
28	791	791	791	791
29	791	791	791	791
30	791	791	791	791
31	791	791	791	791
32	791	791	791	791
33	791	791	791	791
34	791	791	791	791
35	791	791	791	791
36	791	791	791	791
37	791	791	791	791
38	791	791	791	791
39	791	791	791	791
40	791	791	791	791

1.0323E-02 1.2472E-02 2.8886E+02
1.7346E+01 1.0000E-01 9.8400E+00

0402

0402

5172

ATTACHMENT B.I-B

SCREENING-LEVEL INDOOR RADON MODELING FOR THE SOLID WASTE LANDFILL

SUMMARY OF SCREENING-LEVEL INDOOR RADON MODELING FOR THE SOLID WASTE LANDFILL

The soil parameters provided by FERMCO (S. Garland, 10/22/93) were used to estimate potential indoor radon concentrations for an on-property house constructed over the Solid Waste Landfill. The methodology and models used are detailed in the previous study report prepared by Fluor Daniel (J. Pehrson, 10/21/93) for a house constructed on the South Field. One change was made the assumptions to address the Solid Waste Landfill. The subsurface soil was assumed to have the characteristics of a loam, which give it slightly higher permeabililties than the silty clay loam assumed for the South Field. This change provides slightly higher radon intrusion rates which may be expected from soil gas in the landfill compared to the intrusion rates for undisturbed soil in the South Field.

A summary of the model results is presented below and the model output is attached.

Estimated Indoor Rn-222 Concentrations (pCi/l)[a] for Houses Constructed over the Solid Waste Landfill

	House with Basement		Slab on Grade
Model	Typical	OU1 RI	House
Nazaroff-Sextro	0.80	1.02	0.39[b]
RAETRAD	----	----	1.07

[a] Average for entire volume of the house.

[b] For comparison only. Nazaroff-Sextro model not developed for slab-on-grade homes.

The results for all house configurations fall below the EPA-recommended action level of 4 pCi/l for residential long-term radon exposure. The indoor radon concentrations for houses built over the landfill would result in less risk than houses built on the South Field; therefore, the worst-case result presented in the previous study provides the highest contribution to risk for the on-property resident.

INDOOR RADON CALCULATION METHOD*

Site-Specific Soil Parameters (Subsurface)
OU1 RI Building Dimensions
Floor Elevation @ 2 m below grade

5172

	Constants:	
E =	Rn emanation coefficient	0.2
Lambda =	Rn-222 decay constant	2.10E-06 1/s
u =	Dynamic viscosity of air in soil pores (@ 20°C)	1.70E-05 kg/ms
	Variables:	
Rho_s =	Density of the soil solid phase = bulk density / (1 - n)	3.2 g/cm^3
C_s^{Ra} =	Ra-226 Concentration in soil, (pCi/g)	1.55 pCi/g
n =	Soil porosity	0.41
DelP =	Dynamic pressure difference between soil surface and basement	5 kg/ms^2
k =	Intrinsic permeability of the soil	9.66E-13 m^2 (silty loam)
H =	Depth of basement floor below soil surface	2 m
r =	Half-width of crack or gap in basement floor	0.0005 m
l=	Length of building	20 m
w=	Width of building	10 m
h =	Height of building (Note: h >= H)	3 m
q =	Building air exchange rate (building volumes/hr)	0.1 1/h
	Calculations:	
G =	Rn-222 release rate into soil pore spaces	
G =	E Rho (C_s^{Ra}) Lambda ((1-n)/n) 10^6	2.998 (pCi/m^3s)
K_1 =	Determines which case to analyze in the F equation	
K_1 =	DelP k	4.83E-12
K_2 =	Determines which case to analyze in the F equation	
K_2 =	0.5 n u Lambda H^2 ln (2H/r)	2.63E-10
F =	Rn-222 source term from soil gas, 2 cases:	
	F_{low} or F_{hi}	
F_{low} =	1. Low air flow into basement, F_{low}, if $K_1 <= K_2$	
F_{low} =	(2 Pi G L DelP k)/[u Lambda (ln(2H/r))]	1.70E+01 (pCi/s)
F_{hi} =	2. High air flow into basement, F_{hi}, if $K_1 > K_2$	
F_{hi} =	(4.0) G L $H^{2/3} n^{1/3}$ [(DelP k) / (u Lambda ln(2H/r))]$^{2/3}$	NA (pCi/s)
L =	perimeter of basement floor (2l+2w)	60 (m)
V =	Volume of building (l w h)	600.00 (m^3)
Qv =	Exchange air flow rate (q V)/3600	1.67E-02 (m^3/s)
C_i^{Rn} =	Indoor radon concentration from soil gas source	
C_i^{Rn} =	F/Qv	1.02E+03 (pCi/m^3)
		1.02E+00 (pCi/l)

* Source: Nazaroff, W.W. and R.G. Sextro, "Technique for Measuring the Indoor ^{222}Rn Source Potential of Soil,". Environmental Science and Technology, V. 23, No. 4, pp. 451-458 (Apr 1989).

0405

INDOOR RADON CALCULATION METHOD*
Site-Specific Soil Parameters (Subsurface)
Typical Building Dimensions
Floor Elevation @ 2 m below grade

E 5172

Constants:

E =	Rn emanation coefficient	0.2	
Lambda =	Rn-222 decay constant	2.10E-06	1/s
u =	Dynamic viscosity of air in soil pores (@ 20°C)	1.70E-05	kg/ms

Variables:

Rho_s =	Density of the soil solid phase = bulk density / (1 - n)	3.2	g/cm^3
C_s^{Ra} =	Ra-226 Concentration in soil, (pCi/g)	1.55	pCi/g
n =	Soil porosity	0.41	
DelP =	Dynamic pressure difference between soil surface and basement	5	kg/ms^2
k =	Intrinsic permeability of the soil	9.66E-13	m^2 (silty loam)
H =	Depth of basement floor below soil surface	2	m
r =	Half-width of crack or gap in basement floor	0.0005	m
l=	Length of building	12	m
w=	Width of building	10	m
h =	Height of building (Note: h >= H)	4.6667	m
q =	Building air exchange rate (building volumes/hr)	0.1	1/h

Calculations:

G =	Rn-222 release rate into soil pore spaces		
G =	E Rho (C_s^{Ra}) Lambda ((1-n)/n) 10^6	2.998	(pCi/m^3s)
K_1 =	Determines which case to analyze in the F equation		
K_1 =	DelP k	4.83E-12	
K_2 =	Determines which case to analyze in the F equation		
K_2 =	0.5 n u Lambda H^2 ln (2H/r)	2.63E-10	
F =	Rn-222 source term from soil gas, 2 cases:		
	F_{low} or F_{hi}		
F_{low} =	1. Low air flow into basement, F_{low}, if $K_1 <= K_2$		
F_{low} =	(2 Pi G L DelP k)/[u Lamoda (ln(2H/r))]	1.25E+01	(pCi/s)
F_{hi} =	2. High air flow into basement, F_{hi}, if $K_1 > K_2$		
F_{hi} =	(4.0) G L $H^{2/3}n^{1/3}$ [(DelP k) / (u Lambda ln(2H/r)]$^{2/3}$	NA	(pCi/s)
L =	perimeter of basement floor (2l+2w)	44	(m)
V =	Volume of building (l w h)	560.00	(m^3)
Qv =	Exchange air flow rate (q V)/3600	1.56E-02	(m^3/s)
C_i^{Rn} =	Indoor radon concentration from soil gas source		
C_i^{Rn} =	F/Qv	8.02E+02	(pCi/m^3)
		8.02E-01	(pCi/l)

* Source: Nazaroff, W.W. and R.G. Sextro, "Technique for Measuring the Indoor ^{222}Rn Source Potential of Soil,". Environmental Science and Technology, V. 23, No. 4, pp. 451-458 (Apr 1989).

0406

5 1502

INDOOR RADON CALCULATION METHOD*

Site-Specific Soil Parameters (Surface)
OU1 RI Building Dimensions
Slab-on-grade

	Constants:	
E =	Rn emanation coefficient	0.2
Lambda =	Rn-222 decay constant	2.10E-06 1/s
u =	Dynamic viscosity of air in soil pores (@ 20°C)	1.70E-05 kg/ms
	Variables:	
Rho_s =	Density of the soil solid phase = bulk density / (1 - n)	3.81 g/cm^3
C_s^{Ra} =	Ra-226 Concentration in soil, (pCi/g)	1.397 pCi/g
n =	Soil porosity	0.52
DelP =	Dynamic pressure difference between soil surface and basement	5 kg/ms^2
k =	Intrinsic permeability of the soil	6.30E-13 m^2 (silty loam)
H =	Depth of basement floor below soil surface	0.15 m
r =	Half-width of crack or gap in basement floor	0.0005 m
l=	Length of building	20 m
w=	Width of building	10 m
h =	Height of building (Note: h >= H)	3 m
q =	Building air exchange rate (building volumes/hr)	0.1 1/h
	Calculations:	
G =	Rn-222 release rate into soil pore spaces	
G =	E Rho (C_s^{Ra}) Lambda ((1-n)/n) 10^6	2.064 (pCi/m^3s)
K_1 =	Determines which case to analyze in the F equation	
K_1 =	DelP k	3.15E-12
K_2 =	Determines which case to analyze in the F equation	
K_2 =	0.5 n u Lambda H^2 ln (2H/r)	1.34E-12
F =	Rn-222 source term from soil gas, 2 cases:	
	F_{low} or F_{hi}	
F_{low} =	1. Low air flow into basement, F_{low}, if $K_1 <= K_2$	
F_{low} =	(2 Pi G L DelP k)/[u Lambda (ln(2H/r))]	NA (pCi/s)
F_{hi} =	2. High air flow into basement, F_{hi}, if $K_1 > K_2$	
F_{hi} =	(4.0) G L $H^{2/3} n^{1/3}$ [(DelP k) / (u Lambda ln(2H/r)]$^{2/3}$	6.47E+00 (pCi/s)
L =	perimeter of basement floor (2l+2w)	60 (m)
V =	Volume of building (l w h)	600.00 (m^3)
Qv =	Exchange air flow rate (q V)/3600	1.67E-02 (m^3/s)
C_i^{Rn} =	Indoor radon concentration from soil gas source	
C_i^{Rn} =	F/Qv	3.88E+02 (pCi/m^3)
		3.88E-01 (pCi/l)

* Source: Nazaroff, W.W. and R.G. Sextro, "Technique for Measuring the Indoor ^{222}Rn Source Potential of Soil,". Environmental Science and Technology, V. 23, No. 4, pp. 451-458 (Apr 1989).

0407

SCENARIO TITLE: OU2 RI: RUN 02, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING DATA, SW LANDFILL — RAETRAD v3.0
FILE NAME: OU2RI020 — RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 10/22/1993 @ 8:24 — developed by Rogers & Associates Engineering Corporation

==========: INPUT PARAMETERS :==========

HOUSE:

Dimensions	32.8 x 65.6 ft.	Equiv. ellipse radius	19 ft.	Outdoor Pressure	.00 Pa
Area	2152 sq. ft.	Aspect ratio	2.000	Indoor Rn Bnd.	.00 pCi/L
Fill thickness	0 units (.0ft.)	Circumference	238.8 ft.	Outdoor Rn Bnd.	.00 pCi/L
Footing depth	1 units (.3ft.)	Indoor pressure	-5.0 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		1.000	-5.00	.00	.10	5603.56	.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	.500	1	.0	2.100	.000	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000	Conc1
1	.500	2	1.4	1.830	.200	.520	.805	.011400	1.37E-03	1.37E-03	3.87E-10	3.87E-10	.000	SiLom
2	29.500	29	1.5	1.890	.200	.410	.646	.019900	5.75E-03	5.75E-03	9.66E-09	9.66E-09	.001	Loam
FTG	.250	1	.0	2.100	.000	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000	Conc1

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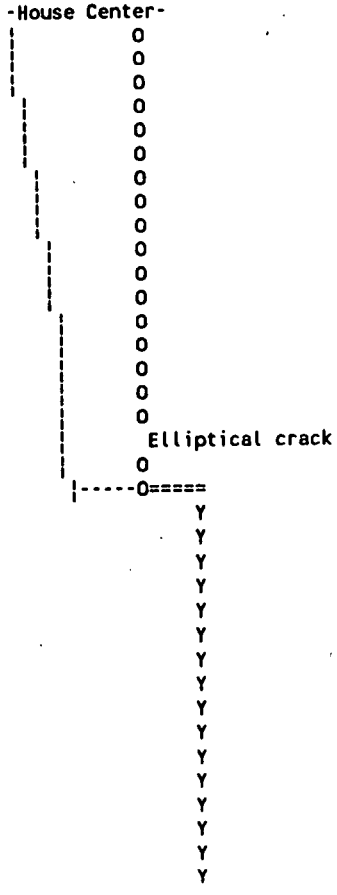
SCENARIO TITLE: OU2 RI: RUN 02, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING DATA, SW LANDFILL
FILE NAME: OU2RI020

RAETRAD v3.0
RAdon Emanation and TRAnsport into Dwellings
developed by Rogers & Associates Engineering Corporation

: ANALYSIS RESULTS :

RADON ENTRY PROFILE:



Radial Positn ft	Air Entry Rate cfm	Average Radon Flux pCi/m2s	Radon Entry Rate pCi/s
1.00	2.55E-07	6.40E-03	4.02E-02
2.00	7.66E-07	6.40E-03	1.21E-01
3.00	1.28E-06	6.40E-03	2.01E-01
4.00	1.79E-06	6.40E-03	2.81E-01
5.00	2.30E-06	6.40E-03	3.62E-01
6.00	2.81E-06	6.40E-03	4.42E-01
7.00	3.32E-06	6.40E-03	5.22E-01
8.00	3.82E-06	6.40E-03	6.03E-01
9.00	4.33E-06	6.40E-03	6.83E-01
10.00	4.83E-06	6.40E-03	7.64E-01
11.00	5.34E-06	6.40E-03	8.44E-01
12.00	5.84E-06	6.40E-03	9.24E-01
13.00	6.33E-06	6.39E-03	1.00E+00
14.00	6.82E-06	6.39E-03	1.08E+00
15.00	7.29E-06	6.39E-03	1.16E+00
16.00	7.72E-06	6.38E-03	1.24E+00
17.00	7.88E-06	6.39E-03	1.33E+00
18.00	2.63E-03	1.72E-02	3.79E+00
19.00	8.90E-06	6.13E-03	1.43E+00
20.00	6.79E-06	3.79E-03	9.28E-01
INDOOR TOTAL	2.72E-03	7.66E-04	1.78E+01
21.00	-2.94E-04	4.21E-02	1.08E+01
22.00	-2.50E-04	3.88E-02	1.05E+01
23.00	-2.20E-04	3.81E-02	1.08E+01
24.00	-1.99E-04	3.78E-02	1.12E+01
25.00	-1.82E-04	3.77E-02	1.16E+01
26.00	-1.70E-04	3.77E-02	1.21E+01
27.00	-1.60E-04	3.77E-02	1.25E+01
28.00	-1.53E-04	3.77E-02	1.30E+01
29.00	-1.47E-04	3.77E-02	1.35E+01
30.00	-1.42E-04	3.77E-02	1.40E+01
31.00	-1.38E-04	3.77E-02	1.44E+01
32.00	-1.36E-04	3.77E-02	1.49E+01
33.00	-1.34E-04	3.77E-02	1.54E+01
34.00	-1.33E-04	3.77E-02	1.59E+01

Y	35.00	-1.32E-04	3.77E-02	1.63E+01
Y	36.00	-1.33E-04	3.77E-02	1.68E+01
Y	37.00	-1.34E-04	3.77E-02	1.73E+01
Y	38.00	-1.35E-04	3.77E-02	1.78E+01
Y	39.00	-1.37E-04	3.77E-02	1.82E+01
Y	40.00	-1.40E-04	3.77E-02	1.87E+01

INDOOR RADON : 1.066 pCi/L (assuming .10 ach & 9.84 ft Height)

CPU Calc. Time: 283.00 seconds

0410

51272

SCENARIO TITLE: OU2 RI: RUN 02, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING DATA, SW LANDFILL
FILE NAME: OU2RI020

RAETRAD v3.0
RAdon Emanation and TRAnsport into Dwellings
developed by Rogers & Associates Engineering Corporation

Suction Pressures, (- .0010 Pa) depth (ft.)----->

	.0	.5	.8	1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.2	11.2	12.2	13.2	14.2	15.2	16.3	17.3	18.3	19.3	20.3	21.3	22.4
1	305	297	290	288	287	284	282	278	275	271	267	263	259	255	251	247	243	240	237	234	231	229	227	225	224
2	305	297	290	289	287	285	282	279	275	271	267	263	259	255	251	247	243	240	237	234	231	229	227	225	223
3	306	298	291	289	288	285	282	279	275	271	267	263	259	255	251	247	243	240	236	233	231	228	226	225	223
4	307	299	292	290	289	286	283	280	276	272	267	263	259	254	250	246	243	239	236	233	230	228	226	224	223
5	308	301	293	292	290	287	284	280	276	272	268	263	259	254	250	246	242	239	235	232	230	227	225	223	222
6	310	302	295	294	292	289	285	282	277	273	268	263	258	254	249	245	241	238	234	231	229	226	224	222	221
7	312	305	297	296	294	291	287	283	278	273	268	263	258	253	249	244	240	237	233	230	228	225	223	221	220
8	315	308	300	299	297	293	289	284	279	274	268	263	258	253	248	243	239	236	232	229	226	224	222	220	219
9	319	311	304	303	300	296	292	286	280	274	268	263	257	252	247	242	238	234	231	228	225	223	220	219	217
10	324	316	309	307	304	300	295	288	282	275	269	262	256	251	245	241	236	233	229	226	223	221	219	217	216
11	329	322	315	313	310	305	298	291	283	276	268	261	255	249	244	239	235	231	227	224	221	219	217	215	214
12	337	330	322	321	317	310	302	293	284	276	268	260	253	247	242	237	232	229	225	222	219	217	215	213	212
13	347	340	332	331	325	316	306	295	285	275	267	259	251	245	239	234	230	226	223	220	217	215	213	211	210
14	361	353	346	344	336	324	311	298	285	274	265	256	249	242	236	231	227	223	220	217	214	212	210	209	208
15	381	374	365	363	350	333	315	299	284	272	262	253	245	239	233	228	224	220	217	214	212	210	208	206	205
16	420	413	396	392	368	341	317	298	282	269	258	249	241	235	229	224	220	217	214	211	209	207	205	204	203
17	610	601	468	439	387	346	316	293	276	263	252	243	236	230	224	220	216	213	210	208	205	204	202	201	200
18	4906	2717	800	506	395	340	307	284	268	255	245	237	230	224	219	215	212	209	206	204	202	200	199	198	197
19	580	571	429	399	351	315	289	270	256	245	236	229	223	218	214	210	207	204	202	200	199	197	196	195	194
20	1802	318	313	312	298	280	265	252	242	233	226	220	215	211	208	205	202	200	198	196	195	194	193	192	191
21	0	0	209	241	248	245	239	232	226	220	215	211	207	204	201	199	197	195	194	192	191	190	189	189	188
22	0	0	169	196	210	214	215	213	210	207	204	201	199	197	195	193	192	190	189	188	187	187	186	186	185
23	0	0	142	165	180	189	193	195	195	194	193	192	190	189	188	187	186	185	185	184	184	183	183	183	182
24	0	0	123	143	158	168	174	178	181	182	182	182	182	182	182	181	181	181	180	180	180	180	180	179	179
25	0	0	108	126	140	151	158	164	168	170	172	173	174	175	175	176	176	176	176	176	176	176	176	176	176
26	0	0	97	113	126	137	145	151	156	160	163	165	167	168	169	170	171	171	172	172	173	173	173	173	174
27	0	0	88	102	115	125	134	141	146	151	155	158	160	162	164	165	166	167	168	169	169	170	170	171	171
28	0	0	81	94	106	116	124	132	138	143	147	151	154	156	158	160	162	163	164	165	166	167	167	168	168
29	0	0	75	87	98	108	116	124	130	136	141	145	148	151	153	156	158	159	161	162	163	164	165	165	166
30	0	0	70	81	92	101	110	117	124	130	135	139	143	146	149	152	154	156	157	159	160	161	162	163	163
31	0	0	66	77	87	96	104	112	118	124	129	134	138	142	145	148	150	152	154	156	157	159	160	160	161
32	0	0	63	73	82	91	99	107	114	120	125	130	134	138	141	144	147	149	152	153	155	156	157	158	159
33	0	0	60	70	79	87	95	103	110	116	121	126	131	135	138	142	144	147	149	151	153	154	156	157	157
34	0	0	58	67	76	84	92	99	106	112	118	123	128	132	136	139	142	145	147	149	151	152	154	155	156
35	0	0	56	65	74	82	90	97	103	110	115	120	125	129	133	137	140	143	145	147	149	151	152	154	155
36	0	0	54	63	72	80	87	95	101	107	113	118	123	127	131	135	138	141	144	146	148	150	151	152	153
37	0	0	53	62	70	78	86	93	99	106	111	117	121	126	130	134	137	140	142	145	147	149	150	151	153
38	0	0	52	61	69	77	85	92	98	104	110	115	120	125	129	133	136	139	142	144	146	148	149	151	152
39	0	0	52	60	69	76	84	91	97	104	109	115	120	124	128	132	135	138	141	143	146	147	149	150	151
40	0	0	52	60	68	76	83	90	97	103	109	114	119	124	128	132	135	138	141	143	145	147	149	150	151

Suction Pressures, (- .0010 Pa) depth (ft.)----->

23.4	24.4	25.4	26.4

0411

0 5172

1	222	222	221	221
2	222	221	221	220
3	222	221	220	220
4	221	220	220	220
5	221	220	219	219
6	220	219	218	218
7	219	218	217	217
8	218	217	216	216
9	216	215	215	214
10	215	214	213	213
11	213	212	211	211
12	211	210	210	209
13	209	208	208	207
14	207	206	205	205
15	204	204	203	203
16	202	201	201	200
17	199	199	198	198
18	196	196	196	195
19	194	193	193	193
20	191	190	190	190
21	188	188	187	187
22	185	185	185	185
23	182	182	182	182
24	179	179	179	179
25	176	176	176	176
26	174	174	174	174
27	171	171	171	171
28	168	169	169	169
29	166	166	167	167
30	164	164	164	165
31	162	162	162	163
32	160	160	161	161
33	158	159	159	159
34	157	157	158	158
35	155	156	156	156
36	154	155	155	155
37	153	154	154	155
38	153	153	154	154
39	152	153	153	154
40	152	153	153	153

0412

C122

SCENARIO TITLE: OU2 RI: RUN 02, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING DATA, SW LANDFILL — RAETRAD v3.0

FILE NAME: OU2R1020 — RAdon Emanation and TRAnsport into Dwellings

developed by Rogers & Associates Engineering Corporation

Soil Gas Radon Concentrations (1.00000 pCi/Liter) depth (ft.) ----->

	.0	.5	.8	1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.2	11.2	12.2	13.2	14.2	15.2	16.3	17.3	18.3	19.3	20.3	21.3	22.4
1	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
2	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
3	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
4	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
5	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
6	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
7	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
8	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
9	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
10	1730	2016	2265	2465	2576	2639	2673	2693	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
11	1730	2016	2264	2465	2576	2638	2673	2692	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
12	1730	2016	2264	2464	2576	2638	2673	2692	2703	2709	2713	2714	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
13	1730	2015	2264	2464	2575	2638	2672	2692	2703	2709	2712	2714	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
14	1729	2015	2263	2463	2574	2637	2671	2691	2702	2709	2712	2714	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
15	1728	2014	2262	2461	2572	2635	2670	2690	2701	2708	2712	2714	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
16	1727	2012	2260	2458	2568	2631	2667	2688	2700	2707	2711	2714	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
17	1729	2014	2258	2449	2558	2623	2661	2684	2698	2706	2711	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
18	1771	2045	2263	2428	2538	2608	2652	2679	2695	2704	2710	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
19	1659	1944	2179	2361	2495	2584	2639	2672	2691	2702	2709	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717	2717
20	1026	1777	2004	2227	2422	2547	2621	2663	2686	2700	2707	2712	2714	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
21	0	0	1195	1968	2323	2504	2601	2653	2682	2697	2706	2711	2714	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
22	0	0	1104	1864	2262	2472	2584	2644	2677	2695	2705	2710	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
23	0	0	1082	1824	2231	2453	2573	2638	2674	2693	2704	2710	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
24	0	0	1074	1808	2216	2442	2566	2634	2671	2692	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
25	0	0	1072	1802	2209	2436	2562	2631	2670	2691	2703	2709	2713	2715	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
26	0	0	1071	1799	2206	2433	2559	2630	2669	2690	2702	2709	2712	2714	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
27	0	0	1070	1798	2205	2432	2558	2629	2668	2690	2702	2709	2712	2714	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
28	0	0	1070	1798	2204	2431	2558	2628	2668	2690	2702	2708	2712	2714	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
29	0	0	1070	1797	2204	2431	2557	2628	2667	2689	2702	2708	2712	2714	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
30	0	0	1070	1797	2204	2430	2557	2628	2667	2689	2702	2708	2712	2714	2716	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
31	0	0	1071	1798	2204	2430	2557	2628	2667	2689	2702	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
32	0	0	1071	1798	2204	2430	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
33	0	0	1071	1798	2204	2430	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
34	0	0	1071	1798	2204	2430	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
35	0	0	1071	1798	2204	2431	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
36	0	0	1071	1798	2204	2431	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
37	0	0	1071	1798	2204	2431	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
38	0	0	1071	1798	2204	2431	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
39	0	0	1071	1798	2204	2431	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717
40	0	0	1071	1798	2204	2431	2557	2628	2667	2689	2701	2708	2712	2714	2715	2716	2717	2717	2717	2717	2717	2717	2717	2717	2717

0413

Soil Gas Radon Concentrations (1.00000 pCi/Liter) depth (ft.) ----->

	23.4	24.4	25.4	26.4
1	2717	2717	2717	2717
2	2717	2717	2717	2717
3	2717	2717	2717	2717
4	2717	2717	2717	2717
5	2717	2717	2717	2717
6	2717	2717	2717	2717
7	2717	2717	2717	2717
8	2717	2717	2717	2717
9	2717	2717	2717	2717
10	2717	2717	2717	2717
11	2717	2717	2717	2717
12	2717	2717	2717	2717
13	2717	2717	2717	2717
14	2717	2717	2717	2717
15	2717	2717	2717	2717
16	2717	2717	2717	2717
17	2717	2717	2717	2717
18	2717	2717	2717	2717
19	2717	2717	2717	2717
20	2717	2717	2717	2717
21	2717	2717	2717	2717
22	2717	2717	2717	2717
23	2717	2717	2717	2717
24	2717	2717	2717	2717
25	2717	2717	2717	2717
26	2717	2717	2717	2717
27	2717	2717	2717	2717
28	2717	2717	2717	2717
29	2717	2717	2717	2717
30	2717	2717	2717	2717
31	2717	2717	2717	2717
32	2717	2717	2717	2717
33	2717	2717	2717	2717
34	2717	2717	2717	2717
35	2717	2717	2717	2717
36	2717	2717	2717	2717
37	2717	2717	2717	2717
38	2717	2717	2717	2717
39	2717	2717	2717	2717
40	2717	2717	2717	2717

0414

5172

2.7232E-03	7.6649E-04	1.7753E+01
1.0660E+00	1.0000E-01	9.8400E+00

5172

0415

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OU2R1020
OU2 R1:  RUN 02, SITE-SPECIFIC SOIL DATA, DEFAULT BUILDING DATA, SW LANDFILL
 30.00  32.80  65.60    -5.00     0.00  0.1000    9.8400
  0.00   0.00   1.000  18.505  37.011  40.000  19.454
   0.250    0.000   1   0   2   1
 18.000  37.000      0.100  -1   0   -5.0000    0.0000   5603.56  0.6000  10.000E-05  60.000E-03
    0.500   1  20   1   1   0.500    0.000  2.100  0.000  2.220E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  13
    0.500   1  40   2   3   0.250    1.397  1.830  0.200  5.200E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00   8
   29.500   1  40   4  29   1.017    1.550  1.890  0.200  4.100E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00   6
    0.250  20  20   2   2   0.250    0.000  2.100  0.000  2.220E-01  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  0.000E+00  13
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ATTACHMENT B.II

TOXICITY PROFILES

ATTACHMENT B.II

TOXICITY PROFILES

These toxicity profiles are excerpted from United States Department of Energy, 1993c, " Feasibility Study Report For Operable Unit 4, Fernald Environmental Management Project, Fernald, Ohio, Remedial Investigation and Feasibility Study, Volume 4 of 4, Comprehensive Response Action Risk Evaluation," U. S. Department of Energy, Fernald Office, Fernald, OH. September, 1993. The references shown in this attachment have been added to the reference list for this Baseline Risk Assessment for Operable Unit 2.

B.II.1 TOXICITY PROFILES: RADIONUCLIDES

This section presents toxicity information for radionuclide compounds. It was assumed that all radionuclides are present in the soils as oxides or carbonates. This represents a conservative assumption because radionuclides clear slowly from environmental media.

B.II.1.1 Actinium-227

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 risk assessments and Comprehensive Response Action Risk Evaluation (CRARE). The U.S. Environmental Protection Agency (EPA) has derived slope factors, and they are presented in Table II.1-1.

B.II.1.2 Americium-241

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 risk assessments and CRAREs. The EPA has derived slope factors, and they are presented in Table II.1-1.

B.II.1.3 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 II.1-1.

TABLE II.1-1

CANCER SLOPE FACTORS FOR RADIONUCLIDES

Radionuclide	ICRP Lung Class[a]	Inhalation Risk/(pCi)	Ingestion Risk/(pCi)	External Exposure (Risk/year per pCi/g soil)
Uranium-233	Y	2.7×10^{-8}	1.6×10^{-11}	4.2×10^{-11}
Uranium-234	Y	2.6×10^{-8}	1.6×10^{-11}	3.0×10^{-11}
Uranium-235	Y	2.5×10^{-8}	1.6×10^{-11}	2.4×10^{-7}
Uranium-235 + Progeny	Y	2.5×10^{-8}	1.6×10^{-11}	2.4×10^{-7}
Uranium-236	Y	2.5×10^{-8}	1.5×10^{-11}	2.4×10^{-11}
Uranium-238	Y	2.4×10^{-8}	1.6×10^{-11}	2.1×10^{-11}
Uranium-238 + Progeny	Y	5.2×10^{-8}	2.8×10^{-11}	3.6×10^{-8}
Thorium-228	Y	7.7×10^{-8}	1.1×10^{-11}	5.5×10^{-10}
Thorium-228 + Progeny	Y	7.8×10^{-8}	5.5×10^{-11}	5.6×10^{-6}
Thorium-230	Y	2.9×10^{-8}	1.3×10^{-11}	5.4×10^{-11}
Thorium-232	Y	2.8×10^{-8}	1.2×10^{-11}	2.6×10^{-11}
Radium-226	W	3.0×10^{-9}	1.2×10^{-10}	1.2×10^{-8}
Radium-226 + Progeny	W	3.0×10^{-9}	1.2×10^{-10}	6.0×10^{-6}
Radium-228	W	6.6×10^{-10}	1.0×10^{-10}	0.0×10^{0}
Radium-228 + Progeny	W	6.9×10^{-10}	1.0×10^{-10}	2.9×10^{-6}
Protactinium-231	Y	3.6×10^{-8}	9.2×10^{-11}	2.6×10^{-8}
Ruthenium-106	Y	4.4×10^{-10}	9.5×10^{12}	0.0×10^{0}
Actinium-227	Y	8.0×10^{-8}	2.8×10^{-10}	2.6×10^{-11}
Actinium-227 + Progeny	Y	8.8×10^{-8}	3.5×10^{-10}	8.5×10^{-7}
Americium-241	W	3.2×10^{-8}	2.4×10^{-10}	4.9×10^{-9}
Lead-210	D	1.3×10^{-9}	5.1×10^{-10}	1.3×10^{-10}
Lead-210 + Progeny	D	4.0×10^{-9}	6.6×10^{-10}	1.6×10^{-10}
Strontium-90	D	5.6×10^{-11}	3.3×10^{-11}	0.0×10^{0}
Strontium-90 + Progeny	D	6.2×10^{-11}	3.6×10^{-11}	0.0×10^{0}
Technetium-99	W	8.3×10^{-12}	1.3×10^{-12}	6.0×10^{-13}
Cesium-137	D	1.9×10^{-11}	2.8×10^{-11}	00×10^{0}
Cesium-137 + Progeny	D	1.9×10^{-11}	2.8×10^{-11}	2.0×10^{-6}
Neptunium-237	W	2.9×10^{-8}	2.2×10^{-10}	7.8×10^{-9}
Neptunium-237 + Progeny	W	2.9×10^{-8}	2.2×10^{-10}	4.3×10^{-7}
Plutonium-238	Y	3.9×10^{-8}	2.2×10^{-10}	2.8×10^{-11}
Plutonium-239	Y	3.8×10^{-8}	2.3×10^{-10}	1.7×10^{-11}
Plutonium-240	Y	3.8×10^{-8}	2.3×10^{-10}	2.7×10^{-11}
Radon-222	Y	7.3×10^{-13}	1.4×10^{-12}	1.2×10^{-9}
Radon-222 + Progeny	Y	7.7×10^{-12}	1.7×10^{-12}	5.9×10^{-6}

[a] Classification recommended by the ICRP for half-time of clearance from the lung: Y = years, W = weeks, D = days.
[b] No data available
SOURCE: HEAST (EPA 1992d)

B.II.1.4 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 II.1-1.

B.II.1.5 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)

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.

B.II.1.6 Protactinium-231

Pharmacokinetics. Experiments with laboratory animals treated orally with different forms of protactinium yielded absorption efficiencies ranging from 0.01 to 1 percent (Burkart and Kopp 1988). The EPA (1992b) reported a gastrointestinal absorption factor of 0.001 equivalent to 0.1 percent. Quantitative inhalation data for protactinium have not been located, but one case of human inhalation yielded a lung clearance half-life 1,000 days (Burkart and Kopp 1988). An ICRP lung class designation of "Y" indicates that clearing inhaled protactinium would be expected to take years.

Absorbed protactinium is distributed principally to the skeleton and, to a lesser extent, to the liver and kidneys. Protactinium in the blood is excreted directly (Burkart and Kopp 1988), but the route and rate of excretion are not specified.

Noncarcinogenic Toxicity. Data regarding the noncarcinogenic effects of protactinium have not been located.

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 protactinium-231 is due to its emission of alpha particles (Burkart and Kopp 1988). The EPA (1992b) presents cancer potency slope factors for protactinium-231 of 9.2×10^{-11} per pCi for ingestion, 3.6×10^{-8} per pCi for inhalation, and 2.6×10^{-8} per pCi yr/g for external exposure.

B.II.1.7 Radium and Radon

Toxicity. No chemical toxic effects of exposure to radium has been documented, and the EPA has not developed an RfD for radium; therefore, the health hazard for radium is associated with potential radiocarcinogenic effects.

Carcinogenicity. Four isotopes of radium occur naturally, Ra-223 (actinium series), Ra-224 and Ra-228 (thorium series), and Ra-226 (uranium series); 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 (1,600 years) of the radium isotopes 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 are for manufacturing luminous dials and instrument faces and for internal radiation therapy. Thus, the bulk of human data on the effects of radium intake are available from studies of radium-dial painters and medical patients who have been 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, significantly reducing the alpha dose to the radium accumulating tissues but increasing the dose in the sinuses. Ultimately, the bone tissues are the principal site of radium accumulation because of the similar chemistry of radium and calcium (NAS 1988). In the bone tissues, 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.

Dose Response Data - Human and Animal. The following discussion of the health effects of radium exposure is summarized from the report of the BEIR IV Committee on radon and other alpha emitters

(NAS 1988). The epidemiological studies of humans were initially stimulated by the appearance of cancer and other adverse health effects associated with occupational exposures to Ra-224, Ra-226, and Ra-228 (by the radium-dial painters). The dial painters had the potential to ingest significant quantities of radium that were known to be harmful. The second most significant study group comprised ankylosing spondylitis patients, who were administered doses of radium solutions for therapeutic reasons. Most of the other studies focused on bone cancer, cancer of the paranasal sinuses, and cancer of the mastoid air cells, because the association of these effects with radium exposure was 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 evaluated as a function of 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 indicated a nonlinear relationship fits the data. A separate analysis of the same bone cancer induction data confirmed 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 over-predict cancer incidence at low doses. Later reassessments presented 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 highly absorbed doses from the therapeutic treatments (Spiess 1969; Spiess and Mays 1970, 1973). In the second study, a cohort of about 1,400 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, 1973). The analyses were consistent with a variety of dose-response relationships; however, none can 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 highly absorbed doses from the quantities of radium they ingested. Excess incidence is evident when compared to the natural incidence, which is very low. After exposure to radium, these types of cancers were expressed later than bone cancers (Evans et al. 1969; Finkel et al. 1969; Rowland et al. 1971; Rundo et al. 1986).

As discussed above, Rn-222 generated in the body persists long enough that it easily diffuses into the bloodstream and accumulates in the sinuses, significantly increasing the dose in the sinuses. Studies of cancers of the sinuses and mastoid cells conducted in beagle dogs injected with a variety of alpha-emitting radionuclides revealed 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 was 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 among the radium-dial painters has been linked to radium ingestion. Martland (1931) demonstrated development of anemias and leukopenia (low leukocyte count) in the dial painters. Evans' study (1966) included leukemia and anemia as possible effects of radium accumulation in the body. Finkel et al. (1969) discovered cases of leukemia and aplastic anemia in studies of the radium-dial painters exposed from 1918 to 1933. Among a cohort of 634 female dial painters first employed before 1930, three deaths were attributed to leukemia (Polednak 1978). This final study exceeded expectations because the natural incidence of leukemia is very low. An epidemiological study of 1,285 women employed as dial painters before 1930, and 1,185 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 include all workers employed before 1970 (Spiers et al. 1983). Ten cases of leukemia were found among the worker cohort of 2,940 persons. The expected number of natural cases for this group would be 9.2. The study concluded 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 presented a cancer risk factor of 200 x 10^{-6} per rad for bone sarcomas from protracted exposure to radium in its report on radon and other alpha emitters (NAS 1988).

B.II.1.8 Radon and Progeny

Toxicity. There are no known toxic effects of exposure to radon gas or its short-lived progeny. However, short-lived radon progeny decays to relatively long-lived lead. Because lead is a chemical toxicant, significant accumulations of radon pose a potential source of lead for exposure pathways to receptors.

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. Lung cancer results when the bronchial epithelium of the lung passages is exposed to alpha particles emitted from decaying radon progeny (i.e., 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 is the isotope of primary concern because its half-life, 3.82 days, and mobility as an inert gas facilitate its outdoor and indoor migration, 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 (3.96 seconds) are generally of less concern because their very short half-lives often result in decay before these can migrate and accumulate in elevated quantities where receptors may be exposed. For example, all three isotopes of radon may be of concern in the air in buildings that contain the appropriate parent radionuclides (in the form of surface contamination or drummed material, for example). At the FEMP, however, Rn-220 and Rn-219 are not expected to be released from a source such as the K-65 silos because their short half-lives cause them to decay before migrating out of the waste matrix or out of the containment provided by the silos.

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 autopsies of European miners (Harting and Hesse 1879). The most important human populations studied with regard to radon progeny exposure were the underground miners exposed to widely differing concentrations of airborne Rn-222 progeny in mines (NCRPM 1984). The lung cancer mortality risk estimates for radon progeny exposure published by the BEIR IV Committee (NAS 1988) were 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 relied 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. Animal models experimentally exposed to airborne radon progeny also developed lung cancers. To supplement the information available from the human epidemiological studies, animal model studies have provided information on the dose-response relationship and the effects of variations in the exposure rate, physical characteristics of the lungs, and air quality. Thus, both human epidemiological data and animal experimental data indicate that exposure to radon progeny induces lung cancer. The data also 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 (i.e., exposure histories and mortality) for the four principal epidemiological study groups of underground miners exposed to radon progeny. From this reevaluation, the committee has estimated the risk of developing fatal lung cancer. The risk from lifetime exposure to radon progeny is 350×10^{-6} excess fatal lung cancers per cumulative working level month (WLM) as exposure. The WLM is defined as the 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, quantified as fatal lung cancer risk, was based primarily on epidemiological studies of humans and is expressed per unit cumulative exposure to progeny (WLM^{-1}). The EPA slope factors

addressing cancer incidence were based on calculated radiation doses to organs and tissues and are expressed per unit radioactivity intake (pCi^{-1}). Thus, the EPA and BEIR IV Committee risk estimates are not directly comparable. The EPA cancer slope factors were used to assess risk attributable to radon and radon progeny exposure. It is also noted that EPA has adopted a nominal risk estimate of 360×10^{-6} per WLM for use in NESHAPS (EPA 1989l). This estimate was based primarily on EPA's consideration of the BEIR IV Committee assessment; however, EPA did average radon risk estimates derived from BEIR IV Committee and ICRP models to calculate the estimate of 360×10^{-6} 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 committee's model was 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 the indoor home environment.

Using the BEIR IV risk factor (NAS 1988) of 350×10^{-6} WLM^{-1} for lung cancer mortality from inhalation of Rn-222 and progeny, and by assuming 51.5 working months per year (8,760 hours per year divided by 170 hours worked per month), 100 pCi Rn/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 1.2×10^{-11} per pCi. The EPA cancer slope factor from HEAST for inhalation of Rn-222 plus progeny is 7.7×10^{-12} per pCi (EPA 1992b). It must be noted that the BEIR IV Committee risk estimate pertains to lung cancer mortality, while the EPA cancer slope factors all pertain to cancer induction rather than cancer fatality.

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B.II.1.9 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.

B.II.1.10 Strontium

Pharmacokinetics. Wenning and Kirsch (1988) reported that the gastrointestinal absorption of soluble strontium compounds ranges from 5 to 25 percent of the ingested dose and the EPA (1992b) has derived a gastrointestinal absorption efficiency factor of 0.3. Insoluble strontium compounds are absorbed to about 5 percent. Data regarding inhalation or dermal absorption has not been located.

Strontium is an alkaline earth metal similar in chemical behavior to calcium (Wenning and Kirsch 1988). About 99 percent of the body burden is in the skeleton. Excretion is principally in the urine.

Noncarcinogenic Toxicity. Stable strontium has induced rachitic changes in the bones, particularly of the young (EPA 1992b). Presumably, Sr-90 would also induce rachitic changes in bone. The concern at FEMP Operable Unit 4, however, is with the radiological effects (carcinogenicity) of Sr-90, rather than the noncarcinogenic toxicity.

Carcinogenicity. The EPA (1992b) has assigned stable strontium to cancer weight-of-evidence Group D, indicating it is not classifiable as to human carcinogenicity. Quantitative cancer risk estimates were not derived for Group D substances. The EPA classifies all radionuclides as 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 1992d). The EPA (1992d) has derived cancer potency slope factors for Sr-90, and its radioactive decay product of 3.6×10^{-11} per pCi for ingestion and 6.2×10^{-11} per pCi for inhalation exposure. There is no slope factor for external exposure to Sr-90, which does not emit penetrating radiation (gamma- or x-rays).

B.II.1.11 Technetium

Noncancer Toxicity. No isotopes of technetium are stable (Clarke and Podbielski 1988). Lethality due to radiation toxicity usually occurs before the nonradiologic effects of technetium become manifest; hence, little is known of the metabolic effects of the element.

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 internal carcinogenicity of Tc-99 is due to its emission of beta particles (Clarke and Podbielski 1988). The EPA (1992b) has derived cancer potency slope factors for Tc-99 of 1.3×10^{-12} per pCi for ingestion, 8.3×10^{-12} per pCi for inhalation, and 6.0×10^{-13} per pCi yr/g for external exposure.

B.II.1.12 Thorium

Toxicity. No toxic effects of exposure to thorium have been documented, and the EPA has not developed an RfD for thorium; therefore, the health hazard for thorium is associated with its potential radiocarcinogenic effects.

Carcinogenicity. Natural thorium is present in the earth's crust as a primordial element. The-232 isotope accounts for approximately 100 percent of the mass abundance of thorium; however, the other isotopes of thorium exist as members of the three natural decay series. The half-life of The-232 is very long (approximately 10 billion years); thus the specific activity is relatively low and the rate of decay is slow. The-232 decays by alpha particle emission, as do most of the progeny in the thorium natural decay series.

Thorium has historically been used as a medical imaging agent, because it is a heavy atom that provides contrast in radiographic imaging. In this role, thorium has been used commercially as Thorotrast, a 25-percent colloidal solution of thorium dioxide. The following discussion of the health effects from thorium exposure is summarized from the report of the BEIR IV Committee on radon and other alpha emitters (NAS 1988).

Thorotrast has been used extensively in the United States, 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 The-232 and its progeny irradiate the tissues for long periods of time at low-dose rates.

Dose-Response Data - Human. The data on human health effects of thorium exposure are based primarily on epidemiological studies of Thorotrast patients. The five long-term studies include German, Portuguese, Japanese, Danish, and American patients. In the German study (van Kaick et al. 1978a and b, 1983, 1984a, 1986), 5,159 Thorotrast patients and 5,151 controls were followed since 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 indicated an excess of malignant cancers, most notably liver cancers and leukemias, among the patients relative to the controls.

The Portuguese study (Abbatt 1973; da Motta et al. 1979; Horta et al. 1978) involved about 2,500 Thorotrast patients and 2,000 controls with a follow-up period of about 30 years. The patients were exposed to Thorotrast 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 were the excess patient liver malignancies compared to the controls.

The Japanese study (Kato et al. 1979, 1983; Mori et al. 1979a, 1979b, 1983, 1986) included 282 Thorotrast patients who were administered Thorotrast for angiography and hepatolienography during World War II. The follow-up period spanned 38 to 46 years, and results revealed that patient mortality from malignant liver cancers, other malignant cancers, blood diseases, and cirrhosis of the liver was significantly higher than in the control group.

The Danish study (Faber 1973, 1977, 1978, 1979, 1983, 1986) involved 1319 Thorotrast injected with Thorotrast from 1935 to 1946. The epidemiological analysis revealed excess gastrointestinal malignancies, liver malignancies, malignancies of the lung, and leukemia deaths in patients compared to control individuals. The excess of liver malignancies and leukemias was most notable in the study.

The American study (Falk et al. 1979) is a preliminary epidemiological assessment of Thorotrast patients exposed from 1964 to 1974. All patients had received Thorotrast for either hepatolienography or cerebral angiography. A liver cancer incidence was 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 indicated an excess of malignant cancers among the Thorotrast patients compared to the controls. The excess malignancies were predominantly of the liver and blood (leukemia) types.

Estimation of Excess Risk from Thorotrast Administration. The human epidemiological evidence from the studies of Thorotrast patients represents the primary source of data from which estimates of risk have been derived (NAS 1988). These data can be used to derive estimates of risk for liver cancer and leukemia; however, such estimates strictly apply only to conditions of intravascular Thorotrast injection. The BEIR IV Committee derived a risk estimate of up to 300 x 10^{-6} per rad of alpha particle radiation to the liver, and emphasized that these estimates are for Thorotrast, not thorium. The emphasis is because the dosimetry of other isotopes of thorium differs from that of The-232 in the Thorotrast colloid form. The BEIR IV Committee also derived a risk estimate of up to 60 x 10^{-6} per rad of alpha radiation to bone marrow for leukemia, and a value of up to 120 x 10^{-6} per rad of alpha radiation to the skeleton without marrow for bone cancer (NAS 1988).

Dose Response Data - Animal. Experimental studies of animals administered modified Thorotrast solutions provide insight into the possible influence of Thorotrast on carcinogenicity in humans from a "foreign body effect" (i.e., from the colloid solution), or a toxicological effect of the thorium in addition to a radiation dose effect. Studies of mice administered Thorotrast solutions fortified with The-230 to increase the specific activity of alpha emission delivering radiation dose to tissues, conventional Thorotrast, and zirconium dioxide solution (Zirconotrast) have provided evidence of increased carcinogenicity of Thorotrast relative to Zirconotrast (Bensted 1967). Rabbits injected with The-230 enriched Thorotrast revealed a shortened latency period associated with the higher specific activity solution (Faber 1973). In mice, rabbits, rats, and dogs, the metabolic distribution of Thorotrast and other colloid solutions, including zirconium and hafnium dioxide colloids, has indicated that: 1) the organ distribution of the Thorotrast and associated progeny in these animals is comparable to that in humans (Riedel et al. 1979, 1983), and 2) the other colloids fail to reveal significantly different effects attributable to their distributions compared to the Thorotrast (Riedel et al. 1979, 1983).

A study of dose response and possible foreign body effect in rats (Wesch et al. 1973, 1983) was conducted by administering different The-230 enrichments of Thorotrast (causing variations in dose rate) and by administering different volumes of Thorotrast (dilutions maintaining constant dose rate).

The results demonstrated that the frequency of cancers follows a linear dependence with dose rate. However, varying the volume of Thorotrast administered did not correlate with frequency of induction. Although cancer risk did not increase with the volume of Thorotrast at a constant dose rate, the latent period was shortened (Wesch et al. 1973; 1983).

In additional studies of rats injected with Zirconotrast enriched with The-228, the number of induced cancers increased, and the induced cancers were similar to those induced in humans by Thorotrast (Wesch 1986). The frequency of cancer induction was found to be dose-rate dependent, and the Zirconotrast without The-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). The EPA-derived slope factors are presented in Table III-1.1.

B.II.1.13 Uranium

Pharmacokinetics. In general, uranium compounds are not easily absorbed across the human gastrointestinal tract. Soluble uranium compounds demonstrate the best absorption. In a study in which patients drank a solution of uranyl nitrate hexahydrate, a water soluble compound, only 0.5 to 5 percent of the dose was absorbed (Hursh et al. 1969). Recent uranium metabolic models estimated absorption from the gastrointestinal tract to the blood to be 0.6 percent (Wrenn et al. 1987). Although human data concerning absorption by dermal exposure are sparse, water-insoluble uranium compounds were not absorbed in significant quantities across the skin (Yuile 1973) and are not believed to pose a significant risk to humans by this exposure route.

Once absorbed into the bloodstream, uranium compounds are metabolically converted to uranyl ions. The uranyl ion acts as a ligand in the systemic circulation, binding to the plasma proteins and bicarbonate. Although this uranyl-bicarbonate complex is stable at the pH of the plasma, the pH of urine favors dissociation of the complex. This leaves the uranyl ion free to bind to the tissues in the proximal tubule wall of the nephrons of the kidneys, resulting in cellular necrosis (Leggett 1989).

As well as being the only soft tissue that stores uranium in any appreciable quantity, the kidneys are the main organs of excretion (Hursh and Spoor 1973). Approximately 70 percent of an intake of

uranium has been estimated to be excreted by the kidneys within 24 hours of intake (Berlin and Rudell 1979). Uranium that is not excreted is stored in the kidneys and bones. Binding to the bone is thought to be caused by the affinity of uranium for the phosphate groups in the bone structure.

Toxicity

Dose-Response Data - Human. Exposure to uranium, a chemical toxicant, leads to nephritis in the kidneys. Data human on exposure to uranium compounds were collected from 1940 to 1960 in acute studies on terminal and volunteer patients. Single injections of 70 to 100 μg/kg of uranium nitrate to terminally ill patients resulted in proteinuria and increased levels of catalase in the urine (Berlin and Rudell 1979; Luessenhop et al. 1958). In another study, patients were given uranyl nitrate injections ranging from 6.3 to 71 μg/kg. One of the early signs of renal damage, the appearance of the enzyme catalase in the urine, occurred in patients receiving 55 to 71 μg/kg (Hursh and Spoor 1973; Leggett 1989).

Dose-Response Data - Animal Models. Animal models have demonstrated a variation of responses in acute intravenous toxicity studies. Rabbits and guinea pigs appear to be the most sensitive. The acute intravenous toxicity of soluble uranium compounds such as uranyl nitrate has been shown to be very high; the approximate dose at which 50 percent of the test organisms do not survive (LD_{50}) for rabbits is 0.1 mg/kg, for guinea pigs 0.3 mg/kg, for rats 1 mg/kg, and for mice 10 to 20 mg/kg (Stokinger 1982).

In chronic animal studies, sublethal threshold doses of uranium have been demonstrated (Leggett 1989). Although the exact mechanism of tolerance is not known, it is believed that regenerated kidney tissue is associated with tolerance. When uranium exposure ceases, the regenerated epithelium transforms into normal renal tubular tissue (Yuile 1973).

An extensive chronic feeding study was performed on rabbits, rats, and dogs for periods of 30 days, one year, and two years (Maynard and Hodge 1949). These animals received uranium doses of 2.8, 14, and 71 mg/kg/day in the diet. Rabbits were maintained for 30 days, dogs for one year, and rats for one to two years. For all species, water soluble compounds were more toxic than insoluble compounds. The lowest observed adverse effect levels (LOAEL) were established for all compounds and each species (Maynard and Hodge 1949). In all cases, the LOAEL could be established within the first 30 days (EPA 1991d). Of the three species, rabbits appeared to be the most sensitive, with

renal damage exhibited at all administered dose levels. The renal damage was judged to be only moderate at the lower doses, but moderately severe at the highest dose. Based on this study, the EPA has established the lowest uranium dose of 2.8 mg/kg/day as the LOAEL (EPA 1991d).

Basis for Reference Dose. The EPA (1991f) has established a RfD for uranium of 3 μg/kg/day. In lieu of a no observed adverse effect level (NOAEL), the RfD was based on the LOAEL of 2.8 mg/kg/day (Maynard and Hodge 1949) and an uncertainty factor of 1,000. The uncertainty factor accounts for intraspecies and interspecies variability in toxicological response and for the use of the LOAEL rather than a NOAEL. No factor was included for the short duration of the exposure (30 days), because it has been shown that chronic nephrotoxic effects can be adequately characterized with experiments of acute/subacute duration (EPA 1991f).

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 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 and damage sensitive tissues of inner layers.

The type of uranium (i.e., natural, enriched, or depleted) under consideration is important because different types of uranium have different specific activities (the amount of radioactivity per unit mass). The value 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.

Dose-Response Data - Human. The following discussion of data concerning human 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 has come 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 those studies of uranium miners intended specifically to 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 on animal experiments involving exposure to uranium. Available human epidemiological studies are discussed below.

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 began appearing in 1959 (Rockstroh 1959). In contrast, other studies have reported little evidence of a health hazard to workers in the uranium processing industry (Ely 1959). The BEIR IV Committee (NAS 1988) cautioned that the validity of epidemiological studies on uranium effects must be considered in the context of the power or ability of the studies to detect an effect if one existed. This 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 (Archer et al. 1973) revealed that 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 because: 1) exposure data were not presented, 2) the excess cases included three diagnostic categories, 3) precautions were not taken (or not stated) to exclude individuals with underground mining exposure through previous

employment, and 4) the analysis was not performed in relation to the length of exposure. Because of its weak epidemiological power, the study did not provide strong evidence that uranium has a specific effect.

Several 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 data based on exposures of short duration (typically one to two years), which does not provide conclusive evidence concerning health effects from long-term (chronic) exposure. A subsequent study of a cohort from the same population examined the lung cancer risk from inhaling uranium dust (Cookfair et al. 1983). The results indicated an increased risk among the group of workers hired at, or over age 45, and the increased magnitude of risk was greater for higher exposures.

The findings of a retrospective study of uranium mill workers from the Colorado Plateau conducted to examine the health risks of uranium exposure in the absence of uranium mining (Waxweiler et al. 1983) were not statistically significant and are mitigated by the small number of deaths for workers employed for at least five years. The results did not reveal an increase in lung cancer deaths nor conclusively demonstrate an increased nephrotoxic effect.

Past epidemiological studies have failed to conclusively demonstrate health effects from chronic exposure to uranium dust involved in uranium mining and milling operations. However, this does not necessarily mean that the epidemiological data conclusively demonstrate the absence of effect. This is because the power of the studies was 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's risk estimate for uranium was 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 demonstrable only 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, then the risk of bone sarcoma induction over a lifetime is estimated to be 1.5×10^{-6}, or 1.5 bone sarcomas per million persons (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, then a lifetime uranium intake 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 5.9×10^{-11} per pCi. A 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.

Dose-Response Data - Animal Models. The following discussion of experimental data concerning adverse health effects of uranium exposure in animal models 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 of human epidemiological evidence presented above identifies 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 have also revealed 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 the 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.

As stated in the discussion of human epidemiological evidence presented above 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 was based on a linear dose-response relationship for Ra-226. Therefore, it was assumed that the response to alpha particles from uranium exposure is similar to the response to alpha particles from Ra-226. This assumption depends 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. U-233 administered to beagle dogs has been shown to initially deposit nonuniformly on bone surfaces; however, redistribution occurred (within approximately one year) to produce a distribution through the bone volume that was 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).

Another concern is the induction of malignant tumors in the lungs from 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 inhaling 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). The affected sites were the tissues of the lungs 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 studies involving dogs have been reanalyzed (Durbin and Wrenn 1975), leading to the conclusion that neoplastic changes (tumor induction) began in the epithelial cells of the lungs in 21 percent of the dogs after a cumulative lung dose of 160 rads.

Another study exposed rats to U-232 and U-233 (as uranyl nitrate) by inhalation, revealing 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 uranyl nitrate could lead to the reasonable expectation that such exposure could 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.

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B.II.2 TOXICITY PROFILES: CHEMICALS

B.II.2.1 2-Chlorophenol

Pharmacokinetics. Chlorophenols are absorbed from the gastrointestinal tract and parenteral sites of injection and are excreted as conjugates of sulfuric and glucuronic acid (Clayton 1981). Various chlorophenols are formed as intermediated metabolites during the microbiological degradation of the herbicides 2,1-D and 2,4,5-T and the pesticides Silvex, Ronnel, lindane, and benzene hexachloride (EPA 1980b).

A study using the rat model observed a tumor incidence increase (69 percent) in those rats receiving 5 ppm of 2-chlorophenol and ethylnitrosourea, as compared to an observed 58 percent in rats receiving ethylnitrosourea only. The effects of 2-chlorophenol on reproduction might be related to the transplacental transfer of 2-chlorophenol (Exon 1983).

Toxicity. Ingestion of 2-chlorophenol causes an increase, then decrease in respiration, blood pressure, and urinary output; fever; increased bowel action; motor weakness; collapse with convulsions; and death. Additional observations observed include damage to the lungs, liver, and kidneys, as well as contact dermatitis (Windholtz 1983). Acute exposures by all routes may cause muscular weakness, gastroenteric disturbances, severe depression, and collapse. Although 2-chlorophenol primarily affects the central nervous system, it may also cause edema of the lungs and injuries to the pancreas and spleen.

In other studies, rats exhibited restlessness and an increased rate of respiration within a few minutes after administration of o-chlorophenol, followed by motor weakness. Tremors, clonic convulsions, dyspnea, and coma set in promptly and continued until death (Clayton 1981). In the rat, monochlorphenols also caused marked injury to the kidneys with red blood cell casts in tubules, fatty infiltration of the liver, and hemorrhages in the intestines.

B.II.2.2 2-Methylnaphthalene

This compound is currently under investigation. Little or no information was available when this CRARE was prepared; however, as information becomes available, it will be incorporated into further CRAREs.

B.II.2.3 4-Chlorophenyl-phenylether

This compound is currently under investigation. Little or no information was available when this CRARE was prepared; however, as information becomes available, it will be incorporated into further CRAREs. The EPA has not derived RfDs, RfCs, or slope factors for this compound.

B.II.2.4 Ammonia

Pharmacokinetics. Ammonia is absorbed by inhalation, ingestion, and probably percutaneously at concentrations high enough to cause skin injury (data are not available on absorption of low concentration, through skin). Excretion is primarily by way of the kidneys; a small amount has been observed to pass through sweat glands (Clayton 1981). Once absorbed, ammonia is converted to an ammonium ion as the hydroxide and as salts, especially as carbonates. The ammonium salts are rapidly converted to urea maintaining an isotonic system (Clayton 1981). Ammonium ions are produced in the body as protein metabolites. Those produced by deamination are rapidly converted in the liver into relatively harmless urea and excreted by the kidneys or are used to make new amino acids. Ammonium ions are also produced in the kidneys, conserving fixed base, thus maintaining electrolyte balance (NIOSH 1974).

The relationship between ammonia production and muscle activity has been studied. The immediate source of ammonia from muscle appears to be a result of the deamination of adenosine monophosphate and is more apparent in fast-twitch than in slow-twitch fibers. More recently, increases in blood ammonia levels have been reported in rats after swimming, and in humans after arm work, maximal cycle ergometry, and treadmill exercise. Elevated blood ammonia has also been linked to a surprising variety of functional, metabolic, and neurological disturbances other than those caused by exercise and fatigue, including the development of hepatic comas, convulsions from ammonia toxicity precipitated by high pressure oxygen breathing, epileptic seizures, and decreased neuronal excitability. In addition, several genetic disorders are characterized by elevated blood ammonia concentrations. Symptoms of neural disability in all of the above conditions have been related to the concentration of ammonia in the blood (Mutch 1983).

Ammonia is a toxic molecule that is the principal by-product of amino acid metabolism. The transport of ammonia in nontoxic form protects the brain against high circulating levels. The interorgan transport of this molecule and the orchestration between tissues is related primarily to the essential role of nitrogen in the maintenance of body nutrition economy and overall metabolic

homeostasis. Efficient handling and disposal of ammonia requires a cooperative effort between tissues to maintain nitrogen homeostasis. The liver is the central organ of ammonia metabolism, but other organs play a key role in the interorgan exchange of this molecule. Alterations in ammonia metabolism occur during critical illness. These changes are adaptive and are designed to maintain metabolic homeostasis. Interorgan cooperation in ammonia metabolism is necessary to insure the proper integration of the metabolic processes that contribute to and are essential for survival during critical illness (Souba 1987).

Ammonia disrupts primarily the Krebs cycle. The adverse effects on the central nervous system and ATP deficiency during the intoxication have often resulted in animal death (Khmel'nitskii 1984).

Toxicity. Ammonia in an aqueous environment exists in equilibrium between the ionized ammonium cation and the nonionized ammonia. This equilibrium can be affected by buffers, pH, temperature, and salinity. Thus, in many cases, it is not possible to assign the associated toxicity to the ionized or nonionized form of the ammonia-nitrogen.

Ammonia has a greater tendency than other alkalies to penetrate and damage the iris, and to cause cataracts from severe burns. Iritis may be accompanied by hypopyon or hemorrhages, extensive loss of pigment, and severe glaucoma (Grant 1986).

An experiment was conducted on six volunteers inhaling ammonia at 21 and 35-mg/m^3 for 10 minutes. Five reported faint to moderate irritation, while one reported no irritation at 35-mg/m^3. Another group was exposed for 5 minutes to 22, 35, 50, and 94-mg/m^3. The 94-mg/m^3 level caused eye irritation with lacrimation, nose, and throat irritation, and in one volunteer, chest irritation (Clayton 1981).

During a controlled experiment, volunteers were exposed to about 500 ppm ammonia for 30 minutes. Observations included irregular, minute ventilation with a cyclic pattern of hyperpnea, increases in blood pressure and pulse rate, variable lacrimation, and general complaints of upper respiratory irritation. Some symptoms persisted for 24 hours following exposure (Silverman 1979).

EPA (1992b) has derived a chronic oral RfD in drinking water of 34 mg/l based on the human taste threshold and on a uncertainty factor of 1. The equivalent chronic oral RfD is 0.97 mg/kg/day

assuming a 70 kg adult ingests 2 liters of water per day. EPA (1993) has derived a RfC of 1×10^{-1} mg/m^3 based on lack of evidence of decreased pulmonary function in an occupational study, and on an uncertainty factor of 30. The equivalent chronic inhalation RfD is 0.03 mg/kg/day, assuming a 70 kg adult inhales 20 m^3 of air per day.

Carcinogenicity. The IRIS computer database (EPA 1993) reports no data for a carcinogenicity assessment for ammonia.

B.II.2.5 Antimony

Toxicity. Chronic oral exposure studies in animal models include two briefly reported lifetime drinking water studies with potassium antimony tartrate in rats and mice that reported reduced longevity in both species and reduced mean heart weight and altered blood chemistry in the rats (EPA 1992d). A verified chronic oral RfD of 0.0004 mg/kg/day was based on the rat study and an uncertainty factor of 1,000.

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 ECG and myocardial changes (Elinder and Friberg 1986). 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. Inhalation RfC values are not available from EPA. The heart, respiratory tract, and skin are the principal target organs for antimony.

Carcinogenicity. Data were not located regarding the human carcinogenicity of antimony. Antimony fed to rats did not produce excess 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). The EPA (1991d) has not evaluated the carcinogenicity of antimony.

B.II.2.6 Aroclors-1248, -1254, -1260

Toxicity. Aroclors-1248, -1254, -1260 are commercially mixtures of polychorinated biphenyls (PCB). Target organs for PCBs include the skin, liver, fetus, and neonate. Epidemiologic studies of women in the United States have associated oral PCB exposure with low birth weight or retarded musculoskeletal or neurobehavioral development of their infants (ATSDR 1991). Oral studies in

animals have 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 exposure in animal models induced developmental effects, including retarded neurobehavioral and learning development in monkeys. Neither verified nor provisional chronic oral RfD values were located for any of the Aroclors.

Occupational exposure to PCBs have been 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). However, concurrent exposure to contaminants have confounded the interpretation of the occupational exposure studies. Animal models exposed by inhalation to Aroclor-1254 vapors exhibited moderate liver degeneration, decreased body weight gain, and slight renal tubular degeneration. Neither verified nor provisional chronic inhalation RfC values are available.

Carcinogenicity. The EPA (1991b) has classified the PCBs as cancer weight-of-evidence Group B2 substances (probable human carcinogens), based on inadequate data for humans but sufficient data for 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 (EPA 1992b).

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 1992d). The EPA (1991b) has presented 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.

B.II.2.7 Arsenic

Toxicity. The only noncarcinogenic 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 (EPA 1992b). Similar effects were observed in persons exposed to high levels of arsenic in water in the western hemisphere. Occupational (predominantly inhalation) exposure was also associated with neurological deficits, anemia, and cardiovascular effects (Ishinishi et al. 1986). The EPA (1991e) has presented an RfD of

0.0003 mg/kg/day for chronic oral exposure, based on a NOAEL from the Chinese data and an uncertainty factor of 1. The principal target organs for arsenic are the skin, nervous system, blood and cardiovascular system.

Carcinogenicity. Inorganic arsenic is clearly a carcinogen in humans (EPA 1992b). Inhalation exposure was 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. Oral exposure to high levels in well water was associated with increased risk of skin cancer. The EPA (1991b) has classified inorganic arsenic in cancer weight-of-evidence Group A (human carcinogen). An inhalation slope factor of 50 per mg/kg/day, based on absorbed arsenic, was derived from occupational data. Applying an absorption factor of 0.3 yielded an inhalation slope factor of 15 per mg/kg/day, based on an ambient or inhaled dose. The slope factor based on the inhaled, rather than absorbed, dose is the correct parameter to use in risk assessments. Assuming a human inhales 20 m^3 of air per day and weighs 70 kg, the EPA (1991b) estimated an inhalation unit risk of 0.0043 $\mu g/m^3$. EPA (1993) proposed an inorganic arsenic ingestion unit risk of 5.0×10^{-5} per mg/l. The equivalent oral slope factor is 1.8 per mg/kg/day assuming a 70 kg adult ingests 2 liters per day. The uncertainties associated with ingested inorganic arsenic are such that estimates could be revised downward as much as an order of magnitude, relative to the risk estimates associated with most other carcinogens.

B.II.2.8 Barium

Toxicity. The acute oral toxicity of barium is manifested by gastrointestinal upset, altered cardiac performance and transient hypertension, and convulsions and muscular paralysis (Reeves 1986). Repeated oral exposures have been associated with hypertension. Occupational exposure to insoluble barium sulfate induced benign pneumoconiosis (ACGIH 1991). The EPA (1993) has derived a verified chronic oral RfD of 0.07 mg/kg/day, based on increased blood pressure in subchronic to chronic human drinking water studies and on an uncertainty factor of 3. A provisional chronic inhalation RfC of 0.0005 mg/m^3 was based on a NOEL for fetotoxicity of 0.8 mg/m^3 in a four-month, intermittent-exposure inhalation study with barium carbonate in the rat, and on an uncertainty factor of 1,000 (EPA, 1992b). The equivalent chronic inhalation RfD value is 0.0001 mg/kg/day, assuming humans inhale 20 m^3 of air per day and weigh 70 kg. Barium is principally a muscle toxin. Its targets are the gastrointestinal system, skeletal muscle, and the cardiovascular system. The fetus also appears to be a target.

Carcinogenicity. The IRIS computer database (EPA 1993) reports no data for a carcinogenicity assessment for barium.

B.II.2.9 Beryllium

Toxicity. Beryllium has a low order of toxicity when ingested because it is poorly absorbed from the gastrointestinal tract (Reeves 1986). Occupational exposure has induced dermatitis, acute pneumonitis, and chronic pulmonary granulomatosis (berylliosis). Berylliosis was also observed in humans living in the vicinity of a beryllium plant. Pulmonary effects also occurred in laboratory animals subjected to inhalation exposure. A verified chronic oral RfD value of 0.005 mg/kg/day was based on a NOAEL of 0.54 mg/kg/day in a lifetime drinking water study with beryllium sulfate in the rat, and on an uncertainty factor of 100 (EPA 1991b). The target organs for inhalation exposure appear to be the lungs; target organs for oral exposure are not identified.

Carcinogenicity. The EPA (1991b) has classified beryllium in cancer weight-of-evidence Group B2 (probable human carcinogen), based on inadequate human data but sufficient animal data. The human data consist of occupational studies that weakly associate exposure with increased risk of lung cancer, but confounding variables were not controlled and the studies lacked sensitivity. A significant increase in lung tumors occurred in three strains of 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 animal models yielded inconclusive results. The EPA (1991c) derived an oral slope factor of 4.3 per mg/kg/day from a slight but statistically nonsignificant increase in total tumors in a lifetime drinking water study with beryllium sulfate in the rat. An inhalation unit risk of 0.0024 per $\mu g/m^3$, equivalent to 8.4 per mg/kg/day (assuming humans inhale 20 m^3 of air per day and weigh 70 kg), was derived from a human occupational study.

B.II.2.10 Cadmium

Toxicity. The EPA (1991b) has presented verified chronic oral RfD values of 0.0005 mg/kg/day for cadmium ingested in water and 0.001 mg/kg/day for cadmium ingested in food. Medium-specific oral RfD values reflected the assumption that cadmium is more efficiently absorbed from water than from food. The RfD values were based on a NOAEL for proteinuria (a sensitive indicator of renal toxicity), determined from several human exposure studies, and on an uncertainty factor of 10.

Occupational exposure to fumes of cadmium induced metal fume fever (ACGIH 1991). The principal target organs for oral exposure to cadmium are the kidneys.

Carcinogenicity. Cadmium is classified as an EPA cancer weight-of-evidence Group B1 substance (probable human carcinogen), based on limited evidence from occupational studies and sufficient evidence of carcinogenicity in rats and mice following inhalation exposure or parenteral injection (EPA 1991b). There is insufficient information to classify cadmium as carcinogenic to humans by the oral route. A provisional inhalation slope factor of 6.1 per mg/kg/day and a unit risk of 0.0018 per $\mu g/m^3$ (assuming inhale 20 m^3 of air per day and humans weigh 70 kg) was based on the incidence of lung cancer in cadmium smelter workers.

B.II.2.11 Chromium (VI)

Toxicity. Little chromium (VI) exists in biological materials, except shortly after exposure, because reduction to chromium (III) occurs rapidly (Langård and Norseth 1986). Chromium (III) is considered a nutritionally essential trace element and is considerably less toxic than chromium (IV). Acute oral exposure of humans to high doses of chromium (VI) induces neurological effects, gastrointestinal hemorrhage and fluid loss, and kidney and liver effects. Parenteral dosing of animals with chromium (VI) was selectively toxic to the kidney tubules. A NOAEL of 2.4 mg Cr (VI)/kg/day in a one-year drinking water study in rats with potassium permanganate, along with an uncertainty factor of 500, formed the basis of a verified RfD for chronic oral exposure of 0.005 mg/kg/day (EPA 1991b).

Occupational (inhalation and dermal) 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 (ACGIH 1991). A provisional chronic inhalation RfC for total chromium of 0.002 $\mu g/m^3$, equivalent to 0.00057 $\mu g/kg/day$ (assuming humans inhale 20 m^3 of air per day and weigh 70 kg), has been derived by EPA (1991b). The derivation was based on human data and an uncertainty factor of 300.

Target organs for dermal and inhalation exposure include the skin and respiratory mucosa.

Carcinogenicity. The EPA (1991e) has classified 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 and 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. A verified inhalation unit risk of 0.012 per $\mu g/m^3$, equivalent to 41 per mg/kg/day (assuming humans inhale 20 m^3 of air per day and weigh 70 kg), was based on increased risk of lung cancer deaths in chromate production workers.

B.II.2.12 Cobalt

Toxicity. Acute, high oral or parenteral doses of cobalt in humans and animals induced myocardial degeneration, often leading to mortality, erythropoiesis, enlarged thyroid, and in animals, renal tubular degeneration (Elinder and Friberg 1986). Chronic ingestion from the consumption of beer containing high concentrations of cobalt has been associated with a condition called "beer-drinkers cardiomyopathy," which includes polycythemia, goiter, and marked myocardial degeneration and mortality. The therapeutic use of 0.16 to 0.32 mg Co/kg/day in anemic, anephric dialysis patients for 12 to 32 weeks induced a significant but reversible rise in blood hemoglobin concentration (EPA 1992b).

Occupational (inhalation and dermal) exposure has been associated with allergic dermatitis, chronic interstitial pneumonitis, reversibly impaired lung function, occupational asthma, and myocardial effects (ACGIH 1991). Cobalt has been 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 1986). The lowest occupational air concentration of cobalt associated with hard metal disease was 0.003 mg Co/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 1986). Similar lung effects have been seen in animals exposed to cobalt by inhalation.

The developmental toxicity of cobalt was tested in rodents treated orally with cobalt chloride (EPA 1992c). Unspecified maternal effects were reported in rats treated with 5.4 to 21.8 mg Co/kg/day from gestation day 14 through lactation day 21. Effects on the offspring included stunted growth at 5.4 mg Co/kg/day and reduced survival at 21.8 mg Co/kg/day. In rats treated with 6.2, 12.4 or 24.8 mg Co/kg/day on gestation days six through 15, maternal effects included reduced food consumption and body weight gain and altered hematologic parameters, although it is unclear at what dose levels these effects occurred. There were no effects on fetal survival, although an

insignificant increase in fetal stunting was observed in rats treated with ≥ 12.4 mg Co/kg/day. In mice, treatment with 81.7 mg Co/kg/day caused reduced maternal weight gain, but had 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 Co/kg/day (EPA 1992c).

Cobalt is nutritionally essential as a cofactor in cyanocobalamin, i.e., vitamin B12 (EPA 1992c). The element is ubiquitous and 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; NRC 1989). Assuming an average weight for children in this age range of 28 kg (NRC 1989), the dietary intakes are equivalent to 0.01 to 0.06 mg/kg/day.

The EPA (1992c) concluded that the oral toxicity data were insufficient to derive an oral RfD for cobalt. The relatively well-characterized dietary intake data, however, can provide useful guidance. The EPA (1992c) 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 Co/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 risk assessments.

The EPA (1990) has derived an interim inhalation RfC from the LOAEL of 0.003 mg Co/m^3 associated with hard metal disease in occupationally exposed humans. 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. Applying an uncertainty factor of 1,000 (the 10 for use of a LOAEL, 10 to protect sensitive individuals, and 10 to account for the disparity between the latency period and exposure duration — not further explained) resulted in an interim chronic RfC of 1 x 10^{-6} mg/m^3. Assuming humans inhale 20 m^3 of air per day and weigh 70 kg, the RfC is equivalent to 2.9 x 10^{-7} mg/kg/day, rounded to 3 x 10^{-7} mg/kg/day.

0448

Important target organs in orally exposed humans are the heart, erythrocyte, and thyroid. Target organs for occupational exposure are the skin, lungs, and heart.

Carcinogenicity. The carcinogenicity of cobalt has not yet been evaluated by the EPA (1992c, 1992d).

B.II.2.13 Copper

Estimates of the absorption of copper from the gastrointestinal tract range from 15 to 97 percent, with an average of approximately 60 percent (ATSDR 1989c). Several factors, including the dose of copper, the presence of other metals in the diet, the form of copper administered, and the presence of substances that inhibit uptake (vitamin C, phytate, fiber), influence the extent of gastrointestinal absorption. The 15-percent estimate is considered sufficiently conservative and well-documented for use in estimating the dermal RfD from an oral RfD.

Quantitative data were not located regarding the uptake of copper from the respiratory tract. The observation of elevated plasma copper levels in some workers in a heavily polluted industrial atmosphere indicated respiratory tract uptake does occur (Aaseth and Norseth 1986). Data were not located regarding the dermal uptake of copper.

Circulating copper is taken up by the liver, transferred to the ceruloplasmin, (high molecular weight protein), reenters the circulation, and accumulates in liver, heart, brain, kidneys, and muscles (Aaseth and Norseth 1986). Excretion is principally through the bile.

Noncarcinogenic 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 has been associated with gastrointestinal disturbances, hemolysis, and liver and kidney lesions. Chronic oral toxicity in humans has not been reported. Chronic oral exposure of animals has been associated with an iron-deficiency type of anemia, hemolysis, and lesions in the liver and kidneys. Occupational exposure has induced 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 available for copper from the EPA. The target organs for copper are the erythrocyte, liver, and kidneys, and for inhalation exposure, the lung.

0449

The EPA (1992a) has concluded that the health effects data were inadequate for deriving a chronic oral RfD for copper. The current drinking water maximum contaminant level goal (MCLG) for copper is 1.3 mg/l, which was based on an LOAEL for gastrointestinal effects in acutely exposed humans, and an uncertainty factor of 2. The MCLG is equivalent to a daily intake from water of 2.6 mg/day, assuming a drinking water ingestion rate of 2 l/day. The MCLG of 1.3 mg/L is an inappropriate basis for deriving a toxicity value for use in CERCLA risk assessment, for three main reasons:

1. The MCLG is based on the effects resulting from acute exposure, and it is not reasonable to assume that a toxicity value designed to protect against effects from short-term exposure would sufficiently protect against effects from chronic exposure.

2. The estimated safe and adequate daily dietary intake of copper for adults is 1.5 to 3.0 mg/day (NRC 1989), which exceeds the equivalent daily intake from drinking water estimated from the MCLG.

3. The estimated adult daily intake of copper from food is 2.0 to 4.0 mg/day (EPA 1985b), which also exceeds the equivalent daily intake from drinking water estimated from the MCLG.

Carcinogenicity. Copper is in cancer weight-of-evidence Group D, meaning it is not classifiable as to human carcinogenicity (EPA 1992c). Quantitative risk estimates are not derived from Group D chemicals.

B.II.2.14 Cyanide

Toxicity. Acute exposure to cyanide induces histotoxic hypoxia (inability of the tissues to use oxygen); death is due to central respiratory arrest (Smith 1991). Chronic dietary exposure to cyanide has induced reduced body weight gain, decreased thyroid activity, myelin degeneration, and reduced fertility in rats (EPA 1992b). The EPA (1993) has presented a verified RfD of 0.02 mg/kg/day for oral exposure to cyanide, based on a NOAEL in a two-year study of rats that consumed food fumigated with hydrogen cyanide, and on an uncertainty factor of 100. The target organs for chronic oral exposure to cyanide appear to be the thyroid and nervous system.

Carcinogenicity. The EPA (1991b) classified cyanide as a cancer weight-of-evidence Group D substance (not classifiable as to human carcinogenicity).

B.II.2.15 DDT

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 (Gilman 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).

Toxicity. 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 (Clayton 1981).

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.

Carcinogenicity. The EPA (1993) 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 (1993) 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.

B.II.2.16 Di-n-octylphthalate

Pharmacokinetics. In general, phthalic acid esters are readily absorbed across the intestinal tract, intraperitoneal cavity, and lungs. Evidence also indicates that these esters can be absorbed through the skin (EPA/ECOA 1980b).

With an oral dose of di-n-octyl phthalate, greater than 90 percent of the phthalate ester or its degradation compounds were eliminated within 24 hours through urine and feces. Of the initial dose, 1 percent remained in the body and traces were still detectable at 21 days (Ikeda 1980).

Absorbed esters of phthalic acid esters distribute rapidly to various organs and tissues (i.e., liver, kidneys, bile) of both humans and animals (EPA 1980b). Studies on the metabolism of di-in-octyl phthalate by rat liver and kidney homogenates have demonstrated that the lower the molecular weight, the faster the rate of metabolism (RCS 1981).

Several studies have been performed using three routes of exposure: 1) ingestion, 2) absorption through skin, and 3) injection. Observations in all three routes included take up, distribution, metabolism, and excretion (EPA 1980b).

0452

In vivo and in vitro studies of phthalates have revealed a ready loss of one alkyl residue to yield a monophthalate, but only a minor loss of both alkyl residues to yield phthalic acid. Instead, the monophthalate is partially excreted without further modification and partially undergoes hydroxylation in the side chain. No products of ring hydroxylation have been identified (Chemical Society 1977).

Toxicity. The acute oral toxicity of alkyl phthalates is low and decreases with an increasing molecular weight (EPA 1980b). Therefore, the only hazard of importance in handling consists of possible eye, skin, and/or mucous membrane irritation from phthalate anhydride, which may occur during synthetization (ILO 1971).

B.II.2.17 Dioxin/Furan

No data were located regarding the pharmacokinetics of the polychlorinated dibenzo-p-dioxins (PCDD) or (PCDF) of concern; however, 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) has been used as a surrogate for other structurally similar members of these chemical classes. Estimates of the gastrointestinal absorption of TCDD ranged from 50 to 86 percent of the administered dose in rats; comparable data were obtained for rats and hamsters (Fries and Morrow 1975; Nolan et al. 1979; Olson et al. 1986). In rats treated dermally with 26 ng TCDD in methanol, dermal absorption after 24 hours approximated 40 percent of that absorbed by the gastrointestinal tract after an equivalent dose in ethanol (Poiger and Schlatter 1980). Dermal absorption from vaseline or polyethylene glycol vehicles was substantially less than from methanol, but quantitative estimates cannot be made from the available data.

In rodents given single oral or intrapeitonel doses, or treated for two years with TCDD in the diet, the highest concentrations and greatest tissue depots occurred in the liver, followed closely by adipose tissue (Piper et al. 1973; Poiger and Schlatter 1979; Rose et al. 1976; Kociba et al. 1976). Concentrations in other tissues were considerably lower than those in fat. Mouse liver continued to sequester TCDD more efficiently with prolonged exposure (Teitelbaum and Poland 1978). In nonhuman primates and guinea pigs, however, greater TCDD concentrations and tissue depots occurred in the adipose tissue than in the liver (Nolan et al. 1979; Van Miller et al. 1976). Data obtained at necropsy from one woman potentially exposed to TCDD showed concentrations in adipose tissue about an order of magnitude higher than levels in the liver (Facchetti et al. 1980). Radioactivity from intravenous dosing with [^{14}C] 2,3,7,8-TCDD has been shown to cross the placenta

of rats and mice; concentrations of fetal tissues were lower than in maternal tissues (Moore et al. 1976; Nau and Bass 1981).

In rodents and guinea pigs, TCDD was metabolized by microsomal mixed-function oxidase enzymes to hydroxylated derivatives that were conjugated with glucuronide or sulfate for excretion via the bile or urine, respectively (Neal et al. 1982; Olson and Bittner 1983). The hydroxylation of several different PCDDs in the rat was postulated to involve formation of arene oxide intermediates (EPA 1985c). In rats, the metabolism of TCDD was inducible but relatively slow, about four orders of magnitude slower than the metabolism of benzo(a)pyrene. There was considerable species variation in the rate of metabolism of TCDD.

Studies with [^{14}C],-2,3,7,8-TCDD showed that fecal excretion accounted for 39 to 99 percent of the total (fecal and urinary) excretion of radioactivity (EPA 1985c). Elimination half-lives (assuming first order kinetics) ranged from 11 to 30 days, inversely correlated with species sensitivity to TCDD. There was considerable interspecies variation in the relative importance of fecal versus urinary excretion and in the elimination half-lives.

Noncarcinogenic Toxicity. The only effect in humans clearly attributable to TCDD was chloracne (ATSDR 1989b). The available data, however, also associated exposure to TCDD with hepatotoxicity and neurotoxicity in humans. In animals, TCDD toxicity 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 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. TCDD is a developmental and reproductive toxicant in animal models. Data were not located regarding the noncarcinogenic toxicity of unsubstituted dibenzofuran or the other PCDFs. No verified or provisional noncarcinogenic toxicity values were located for any of the chemicals of concern in these classes (EPA 1992d, 1992c).

Carcinogenicity. The EPA (1992d) has verified dibenzofuran as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans), based on a lack of cancer data in humans or animals. Data regarding the human carcinogenicity of TCDD obtained from epidemiologic studies of workers exposed to pesticides or to other chlorinated chemicals known to be contaminated with TCDD, are conflicting (ATSDR 1989b). The interpretation of these studies is clouded, because

exposure to TCDD was not quantified, multiple routes of exposure (dermal, inhalation, oral) were involved, and the workers were exposed to other potentially carcinogenic compounds. TCDD, however, is clearly carcinogenic in animal models, inducing thyroid, lung, and liver tumors in orally treated rats and mice (EPA 1985a). 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, TCDD and the hexachlorodibenzo-p-dioxins were assigned to EPA cancer weight-of-evidence Group B2 (probable human carcinogen). Although the PCDDs and PCDFs of concern were not classified, they are treated as probable human carcinogens, for which slope factors are derived.

The EPA (1992d) has presented provisional oral and inhalation slope factors for 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). In the absence of satisfactory congener-specific cancer data, the EPA (1989k) derived toxicity equivalency factors (TEF) for the other PCDDs and PCDFs, by assuming that all manifestations of toxicity for all members of these classes are mediated by a common mechanism (i.e., binding to the intraocular AH receptor of target cells). For polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofurans; 2,3,7,8-TCDD toxicity equivalents will be calculated using the appropriate 1-TEFs/89 Toxicity Equivalent Factors (EPA 1989k).

Considerable uncertainty surrounds the carcinogenic potential of the PCDDs and PCDFs of concern. Although TCDD is classified as a weight-of-evidence Group B2 substance, the homologues of concern are not classified. The appropriateness of estimating cancer potency of (i.e., regulating as carcinogens) compounds not assigned to a cancer weight-of-evidence group is questionable (EPA 1986).

There is uncertainty about the slope factor for TCDD. Additional uncertainty is introduced by the use of the TEFs themselves, most of which were derived not from cancer data, but from in vitro data such as enzyme induction, which is only hypothetically related to a carcinogenic role. For example, the TEF of 0.001 for octabhlorodibenzo-p-dioxins (OCDD) and octachlorodibenzofurans (OCDF) is based on the appearance of "dioxin-like" effects and detectable levels of OCDD late in a 13-week study of male rats treated with OCDD (Couture et al. 1988) and on in vitro evidence of enzyme induction (EPA 1989g). Before the Couture et al. (1988), paper was available, the TEF for these homologues, based on limited in vivo and in vitro data, was 0.0.

B.II.2.18 Lead

Toxicity. The noncarcinogenic toxicity of lead has been well characterized through decades of medical observation and scientific research (EPA 1992d). The primary effects of long-term exposure to levels expected to be encountered in the environment are neurological and hematological. 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. In part, for this reason, the RfD/RfC Work Group considered inappropriate the derivation of an RfC or RfD for inhalation exposure, or an RfD for oral exposure (EPA 1993). The principal target organs of lead are the central nervous system and the hematopoietic system.

Carcinogenicity. Lead is assigned to cancer weight-of-evidence Group B2 (probable human carcinogen), based on inadequate human evidence but sufficient animal evidence (EPA 1991b). Rat and mouse bioassays have shown statistically significant increases in renal tumors following dietary and subcutaneous exposure to several soluble lead salts. The EPA has declined to quantitatively estimate risk for oral exposure to lead because many factors (i.e., 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 (EPA 1992b).

B.II.2.19 Manganese

Toxicity. The EPA (1993) has presented a verified chronic (food) oral RfD of 0.14 mg/kg/day of manganese, based on a NOEL for humans in chronic dietary intake studies and an uncertainty factor of 1, plus a chronic oral (water) RfD of 0.005 mg/kg/day based on a NOEL for humans in a chronic water ingestion study and an uncertainty factor of 1. The EPA (1993) has also presented a chronic inhalation RfC of 0.0004 mg/m^3, based on a LOAEL for respiratory symptoms and psychomotor disturbances in occupationally exposed humans, and on an uncertainty factor of 300. The inhalation RfC is equivalent to 0.00011 mg/kg/day (assuming humans inhale 20 m^3 of air per day and weigh 70 kg. The central nervous system and respiratory tract are the target organs of inhalation exposure to manganese.

Carcinogenicity. The EPA (1993) has classified manganese in cancer weight-of-evidence Group D (not classifiable as to human carcinogenicity).

B.II.2.20 Mercury

Toxicity. Acute oral exposure to high doses of inorganic mercury causes severe damage to the gastrointestinal mucosa, which may lead to bloody diarrhea, shock, circulatory collapse, and death (Berlin 1986). Acute sublethal poisoning induces severe kidney damage, while chronic exposure induces an autoimmune glomerular disease and renal tubular injury. The EPA (1991a) has presented a verified RfD of 0.0003 mg/mg/day for chronic oral exposure to inorganic mercury, based on kidney effects in rats and an uncertainty factor of 1,000. The form of mercury used in these studies was not described. Occupational exposure has induced neurotoxicity (Berlin 1986). The EPA (1991a) has also presented a verified chronic inhalation RfC of 0.0003 mg/m^3, based on occupational data and an uncertainty factor of 30. The RfC is equivalent to 8.6 x 10^{-5} mg/kg/day (assuming humans inhale 20 m^3 of air per day and weigh 70 kg). Target organs for inorganic mercury include the gastrointestinal tract, the central nervous system and kidneys.

Carcinogenicity. The EPA (1991a) has classified mercury in cancer weight-of-evidence Group D (not classifiable as to human carcinogenicity).

B.II.2.21 Molybdenum

Molybdenum is a nutritionally essential trace element (Friberg and Lener 1986). Its most important oxidation states are +2, +3, +4, and +6.

Pharmacokinetics. Molybdenum from soluble compounds is readily absorbed from the gastrointestinal or respiratory tracts (Friberg and Lener 1986). Estimates of gastrointestinal absorption in humans average around 50 percent, with a range of 38 to 72 percent observed in young women, and 77 percent reported for school children. The form or oxidation state of molybdenum used in these studies was not specified. Estimates of gastrointestinal absorption in laboratory animals have ranged from 40 to 85 percent for hexavalent molybdenum. The 38 percent estimate of gastrointestinal absorption is considered sufficiently conservative and well-documented for use in estimating a dermal RfD from an oral RfD.

Inhalation uptake studies with guinea pigs showed that molybdenum disulfide was essentially unabsorbed, but that hexavalent molybdenum was absorbed to an appreciable (unquantified) extent (Friberg and Lener 1986).

Absorbed molybdenum was distributed primarily to the kidneys, liver, and bone in several animal models (Friberg and Lener 1986). Molybdenum appears to accumulate in the liver, cartilage of the long bones, and skin. In humans and most animal models, the kidneys are the principal organs of excretion. The excretion of molybdenum is affected by the level of copper and sulfate in the diet.

Noncarcinogenic Toxicity. Chronic molybdenum poisoning in livestock (teart) has resulted from a molybdenum-copper imbalance and is characterized by anemia, gastrointestinal disturbances, bone disorders, and growth depression (Friberg and Lener 1986). In laboratory animals, excess molybdenum has 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 (1992d) has derived a provisional chronic oral RfD of 0.005 mg/kg/day, based on a LOAEL in humans exposed to high levels in water and diet, and on an uncertainty factor of 30. The effects of concern were increased urinary excretion of uric acid, decreased copper levels in the blood, and pain and swelling in the joints. Target organs for molybdenum toxicity include the erythrocyte, joints, liver, and kidneys.

B.II.2.22 Nickel

Toxicity. The EPA (1991e) has presented a verified RfD of 0.02 for chronic oral exposure to nickel, based on a NOAEL for decreased organ and body weights in a two-year dietary study with nickel sulfate in rats. An uncertainty factor of 300 was used. In a subchronic study with nickel chloride in water, clinical signs of toxicity included lethargy, ataxia, irregular breathing, reduced body temperature, salivation, and discolored extremities (EPA 1992d). These clinical signs suggest the central nervous system may be a target for the toxicity of nickel.

Carcinogenicity. Occupational exposure to nickel has been associated with increased risk of nasal, laryngeal, and lung cancer (ATSDR 1988). Rats inhaling nickel subsulfide increased their incidence of lung tumors. The EPA (1991e) has assigned nickel to cancer weight-of-evidence Group A (human carcinogen) and for nickel refinery dust has presented an inhalation slope factor of 0.84 per mg/kg/day and an inhalation unit risk of 0.00024 per $\mu g/m^3$. The quantitative estimates were derived from the human occupational studies.

B.II.2.23 Selenium

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). NRC (1989) recommended dietary allowances (RDA) for humans range from 10-75 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. The EPA (1991b) has derived a verified RfD of 0.005 mg/kg/day for chronic oral exposure to selenium, based on effects in humans exposed to selenium in high selenium areas. An uncertainty factor of 15 was used. The principal target organs for selenium are the skin, including the nails and hair, and in animals, the hooves and joints.

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 lungs 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, the EPA (1991b) has assigned selenium sulfide to cancer weight-of-evidence Group B2 (probable human carcinogen). Quantitative risk estimates were not derived.

B.II.2.24 Thallium, Soluble Salts

Toxicity. Thallium is highly toxic; acute ingestion in humans or laboratory animals induces gastroenteritis, neurological dysfunction, and renal and liver damage (Kazantzis 1986). Chronic ingestion of more moderate doses characteristically causes alopecia. Thallium was once used medicinally to induce alopecia in cases of ringworm of the scalp, sometimes with disastrous results. In industrial exposure (inhalation, oral, dermal), neurologic signs precede alopecia, suggesting that the nervous system is more sensitive than the hair follicle. The EPA (1991b) has derived a chronic oral RfD of 8×10^{-5} mg/kg/day 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 uncertainty factor of 3,000 was used. Chronic oral RfDs have also been developed for thallium

acetate, thallium carbonate, thallium selenite, thallium chloride and thallium mononitrate based on the study performed with thallium sulfate. These oral RfDs are calculated by analogy to thallium sulfate by correcting for molecular weight differences. These RfDs range from 8×10^{-5} to 9×10^{-5} mg/kg/day. Target organs for thallium include the gastrointestinal tract (acute exposure), central nervous system, skin, kidneys and liver.

Carcinogenicity. The EPA (1991b) has assigned several thallium compounds (thallium acetate, thallium carbonate, thallium chloride, thallium nitrate, and thallium sulfate) to cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans).

B.II.2.25 Vanadium

Toxicity. The oral toxicity of vanadium and its compounds to humans is very low (Lagerkvist et al. 1986), probably because little vanadium is absorbed from the gastrointestinal tract. Effects in humans exposed by inhalation include upper and lower respiratory tract irritation. A provisional chronic oral RfD of 0.007 mg/kg/day was derived from a NOEL in the rat in a lifetime drinking water study with vanadyl sulfate, and from an uncertainty factor of 100 (EPA 1991b). A target organ could not be identified for oral exposure, but the respiratory tract is the target organ for inhalation exposure.

Carcinogenicity. No information was located regarding the carcinogenicity of vanadium.

B.II.2.26 Zinc

Toxicity. Zinc is a nutritionally essential trace element required for the proper function of many metalloenzymes and DNA polymerase, which is required for cell division (Elinder 1986). Acute oral exposure to high doses induces gastrointestinal irritation, while chronic oral toxicity may be manifested as anemia, resulting from impaired gastrointestinal absorption of copper. The inhalation of dust or vapor by occupationally exposed humans has induced pneumonitis and metal fume fever. A chronic oral RfD for zinc of 0.3 mg/kg/day was based on a LOAEL for a decrease in erythrocyte superoxide dismutose in adult female humans after a 10-week zinc diet supplement study and on an uncertainty factor of 3 (EPA 1991b). The primary target organs for zinc include the gastrointestinal tract for oral exposure and the lungs for inhalation exposure.

Carcinogenicity. The EPA (1991b) has assigned zinc to cancer weight-of-evidence Group D (not classifiable as to human carcinogenicity).

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B.II.2.27 1,1,1-Trichloroethane

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. The EPA (1992b) presented a provisional chronic oral RfD for 1,1,1-trichloroethane of 0.09 mg/kg/day based on a NOAEL for slight growth retardation in guinea pigs in subchronic intermittent exposure inhalation studies and an uncertainty factor of 1,000. A provisional subchronic oral RfD of 0.09 mg/kg/day was based on the same NOAEL and and uncertainty factor of 100. A provisional chronic inhalation RfC of 1 mg/m^3 was derived with the same NOAEL and an uncertainty factor of 1,000. 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.

Carcinogenicity. The EPA (1993a) classified 1,1,1-trichloroethane as a cancer weight-of-evidence Group D compound (not classifiable as to human carcinogenicity to humans). There was 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.

B.II.2.28 1,4-Dioxane

Toxicity. The acute oral toxicity of 1,4-dioxane is low; $LD_{50/30}$ values in laboratory animals ranged from 2,000 to 6,000 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 air. Neither oral not 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.

Carcinogenicity. Cancer studies consistently associated drinking water exposure to rats to 1,4-dioxane with increased incidence of nasal cavity and liver tumors (EPA 1993a). 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 as a cancer weight-of-evidence Group B2 (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. Risks associated with inhalation exposure was not estimated.

B.II.2.29 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-chlordane. 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.

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 the 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 conjunction, 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 retained in body fat.

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 NOAEL 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 1,000 was applied; factors of 10 each for inter- and intraspecies variation, and to reflect deficiencies in the database.

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 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 until risk of 0.00037 per $\mu g/m^3$ based on liver tumor incidence in two dietary studies in mice.

B.II.2.30 Chloroform

Toxicity. Oral or inhalation exposure of animals to chloroform was associated with liver or kidney damage (ACGIH 1991; EPA 1993a). 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 1,000. The same value was presented as a provisional subchronic oral RfD (EPA 1992b). 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.

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 1993a). 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 $\mu g/m^3$ 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.

B.II.2.31 4-Chloro-3-methylphenol (p-chloro-m-cresol)

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).

Carcinogenicity. Data were not located regarding the carcinogenicity of 4-chloro-3-methylphenol.

ATTACHMENT B.III

INTAKE AND RISK/HAZARD RESULTS

ATTACHMENT B.III

INTAKE TABLES FOR CARCINOGENIC AND NONCARCINOGENIC RISK

This attachment contains the concentration terms for constituents of concern and intake values calculated for this risk assessment.

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B.4-19(a)	Risks Due to Background Concentrations [Future, On-Property Farmer (RME Values)]Lime Sludge Ponds: Surface Soil	B-III-721
B.4-19(b)	Risks Due to Background Concentrations [Future, On-Property Farmer)] Lime Sludge Pits: Groundwater	B-III-725
B.4-19(c)	Risks Due to Background Concentrations [Future, On-Property Farmer (RME Values)] Lime Sludge Ponds: Home Grown Produce (Dust Affected)	B-III-727
B.4-19(d)	Risks Due to Background Concentrations [Future, On-Property Farmer (RME Values)] Lime Sludge Ponds: Beef and Milk (Dust Affected)	B-III-731

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ATTACHMENT B.III

INTAKE AND RISK/HAZARD RESULTS

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ATTACHMENT B.III

DESCRIPTION AND RESULTS OF INDOOR RADON MODELING

This attachment to Operable Unit 2 Baseline Risk Assessment contains the Intake and Contaminant of Concern tables that support this risk assessment. The first table is a list of tables included in this attachment.

Table B.3.1-2(a)

CONSTITUENTS OF POTENTIAL CONCERN (CPC)

ACTIVE FLYASH PILE: SURFACE FLYASH MATERIAL (pCi/g rad; mg/kg non-rad)

ARAMETE	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc.Term	Groundwater Modelling Screen Conc. (pCI/L rad; ug/L non-rad)
Aluminum	L	14	14	3430.0	11100.0	-	-	-	-	7022.0	8247.4	--	N	a,b	8247.4	--
Antimony	N	14	7	1.5	3.2	1.4	6.3	1.7	2.1	-	-	3.1	N	b	2.1	--
Arsenic	N	14	14	10.4	145.0	-	-	70.0	89.8	-	-	2.3	Y		89.8	0.005
Barium	N	14	14	75.0	349.0	-	-	210.3	253.9	-	-	550	N	h	253.9	260.0
Beryllium	N	14	14	1.5	6.4	-	-	3.9	4.7	-	-	0.03	Y		4.7	0.002
Calcium	U	14	14	1900.0	59800.0	-	-	8365.7	-	-	-	--	N	a,b	59800.0	--
Chromium	N	14	14	6.9	15.4	-	-	12.2	13.3	-	-	39	Y		13.3	18.0
Cobalt	N	14	14	8.9	24.9	-	-	16.5	18.8	-	-	--	Y		18.8	c
Copper	N	14	14	19.9	94.0	-	-	61.4	73.8	-	-	290	N	h	73.8	140.0
Cyanide	N	9	8	0.2	0.5	0.13	0.13	0.3	0.3	-	-	39	N	h	0.3	73.0
Iron	L	14	14	3940.0	16500.0	-	-	-	-	9137.7	11745.4	--	N	a,b	11745.4	--
Lead	N	14	14	21.6	77.4	-	-	47.1	55.4	-	-	--	Y		55.4	d; 1.5
Magnesium	U	14	14	376.0	16600.0	-	-	2189.4	-	-	-	--	N	a,b	16600.0	--
Manganese	U	14	14	15.6	463.0	-	-	115.0	-	-	-	39	N	b	463.0	--
Molybdenum	N	14	14	1.7	12.5	-	-	6.9	8.6	-	-	39	N	h	8.6	18.0
Nickel	N	14	14	15.3	54.2	-	-	34.0	40.1	-	-	160	N	h	40.1	73.0
Potassium	L	14	14	671.0	1760.0	-	-	-	-	1109.5	1275.3	--	N	a,b	1275.3	--
Selenium	N	14	11	1.9	10.3	0.93	2.8	4.5	5.9	-	-	39	N	h	5.9	18.0
Silicon	L	14	14	318.0	1250.0	-	-	-	-	601.6	750.8	--	N	b	750.8	--
Sodium	L	14	14	92.1	302.0	-	-	-	-	176.5	211.6	--	N	a,b	211.6	--
TH-TOTAL	N	15	15	2.9	34.1	-	-	18.7	22.0	-	-	--	Y		22.0	c
Thallium	N	14	14	0.2	4.4	-	-	2.1	2.7	-	-	0.6	Y		2.7	0.26
Toluene	N	11	8	0.0	0.2	0.01	0.012	0.0	0.1	-	-	1600	N	h	0.1	75.0
U-TOTAL	N	14	14	7.9	14.8	-	-	11.6	12.6	-	-	23	Y		12.6	10.0
Vanadium	N	14	14	23.0	66.3	-	-	43.5	50.2	-	-	55	N	h	50.2	20.0
Zinc	L	14	14	39.6	94.5	-	-	-	-	66.1	78.3	2300	N	h	78.3	1100.0

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Table B.3.1-2(a) (continued)

CONSTITUENTS OF POTENTIAL CONCERN (CPC)

ACTIVE FLYASH PILE: SURFACE FLYASH MATERIAL (pCi/g rad; mg/kg non-rad)

ARAMETE	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc.Term	Groundwater Modelling Screen Conc. (pCI/L rad; ug/L non-rad)
NP-237	U	7	7	0.1	5.5	-	-	0.9	-	-	-	0.031	Y*		5.5	0.022
PU-238	L	14	11	0.0	1.1	0.02	1.29	-	-	0.2	0.7	0.36	Y*		0.7	0.022
PU-239/240	L	14	9	0.0	0.7	0.02	0.371	-	-	0.1	0.3	0.34	Y*		0.3	0.021
RA-226	U	14	14	1.3	4.6	-	-	3.1	-	-	-	0.002	Y		4.6	0.04
RA-228	U	14	14	1.0	3.2	-	-	2.5	-	-	-	0.005	Y		3.2	0.048
SR-90	U	14	7	0.2	4.5	0.15	0.324	0.9	-	-	-	2.2	Y		4.5	0.13
TH-228	U	15	15	0.8	3.8	-	-	2.2	-	-	-	0.003	Y		3.8	0.087
TH-230	L	15	15	1.5	6.7	-	-	-	-	3.0	3.7	5.96	Y		3.7	0.37
TH-232	L	15	15	0.9	3.7	-	-	-	-	2.2	2.7	6.3	Y		2.7	0.4
U-234	L	14	14	2.4	4.4	-	-	-	-	3.3	3.6	4.9	Y		3.6	0.3
U-235/236	N	14	12	0.1	0.2	0.08	0.19	0.1	0.2	-	-	0.06	Y		0.2	0.3
U-238	N	14	14	2.9	4.4	-	-	3.4	3.6	-	-	0.36	Y		3.6	0.17

* = no background concentration available L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

Table B.3.1-2(b)

CONSTITUENTS OF POTENTIAL CONCERN (CPC)

ACTIVE FLYASH PILE: SUBSURFACE FLYASH MATERIAL

PARAMETER	UNITS	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	L	14	14	1570	17900			-	-	5803	9456	–	N	a,b	9456	
Antimony	mg/kg	U	6	1	2	2	1.3	3.1	1.317	-	-	-	3.1	N	h	2.000	
Arsenic	mg/kg	N	14	14	9.1	87.8			52.29	64.27	-	-	0.06	Y		64.27	0.005
Barium	mg/kg	L	14	14	56.6	508			-	-	238.2	389.1	550	N	h	389.1	260
Beryllium	mg/kg	N	14	14	0.65	4.6			2.854	3.375	-	-	0.03	Y		3.375	0.002
Cadmium	mg/kg	U	14	1	0.79	0.79	0.47	1.4	0.3532	-	-	-	3.9	Y		0.790	1.8
Calcium	mg/kg	L	14	14	826	6680			-	-	3701	5982	–	N	a,b	5982	
Chromium	mg/kg	L	14	14	4.4	25.8			-	-	13.10	19.70	39	Y		19.70	18
Cobalt	mg/kg	N	14	13	5	21.8	2.5	2.5	12.64	15.16	-	-	–	Y		15.16	c
Copper	mg/kg	N	14	14	24	66.1			47.37	53.48	-	-	290	N	h	53.48	140
Cyanide	mg/kg	N	12	8	0.17	0.69	0.12	0.14	0.2329	0.3270	-	-	39	N	h	0.327	73
Iron	mg/kg	U	14	14	2260	31100			5799	-	-	-	–	N	a,b	31100	
Lead	mg/kg	N	14	14	19.7	68.2			38.71	45.35	-	-	–	Y		45.35	d; 1.5
Magnesium	mg/kg	U	14	14	150	4380			843.8	-	-	-	–	N	a,b	4380	
Manganese	mg/kg	U	14	14	8.2	340			53.49	-	-	-	39	N	h	340.0	
Mercury	mg/kg	U	14	2	0.16	0.19	0.11	0.14	0.0789	-	-	-	2.3	N	h	0.190	1.1
Molybdenum	mg/kg	N	14	11	4.3	18.8	2.5	4.7	8.089	10.674	-	-	39	N	h	10.67	18
Nickel	mg/kg	N	14	14	6.2	45.7			24.44	29.24	-	-	160	N	h	29.24	73
Potassium	mg/kg	N	14	14	326	1230			838.7	966.2	-	-	–	N	a,b	966.2	
Selenium	mg/kg	L	14	12	0.85	11.4	0.47	2.2	-	-	4.005	8.667	39	N	h	8.667	18
Silicon	mg/kg	L	6	6	302	964			-	-	665.5	1874.4	–	N	i	1874	c
Sodium	mg/kg	L	14	14	92.7	312			-	-	193.3	274.3	–	N	a	274.3	
Thallium	mg/kg	N	14	12	0.75	3.1	0.47	0.5	1.657	2.084	-	-	0.6	N	h	2.084	0.26
Vanadium	mg/kg	N	14	14	15	42.6			33.95	37.39	-	-	55	N	h	37.39	20
Zinc	mg/kg	N	14	14	18.9	120			64.14	79.32	-	-	2300	N	h	79.32	
TH-TOTAL	mg/kg	L	16	16	17	45.8			-	-	27.09	35.07	–	Y		35.07	c
U-TOTAL	mg/kg	L	16	16	9.08	31.3			-	-	21.05	29.96	23	Y		29.96	10
Total Organic Carbon	mg/kg	U	4	4	63907	420620			168520	-	-	-	–	N	c,e	420620	
2-Chlorophenol	mg/kg	U	16	1	0.048	0.048	0.4	0.5	0.2	-	-	-	39	N	f	0.048	
2-Methylnaphthalene	mg/kg	U	16	3	0.049	0.16	0.4	0.5	0.2	-	-	-	–	Y		0.160	c
4-Chloro-3-methylphenol	mg/kg	U	16	1	0.058	0.058	0.4	0.5	0.2	-	-	-	–	N	f	0.058	
4-Nitrophenol	mg/kg	U	16	1	0.048	0.048	0.97	2.4	0.8	-	-	-	480	N	f	0.048	
Benzoic acid	mg/kg	U	16	7	0.002	0.1	1.9	2.4	0.6	-	-	-	31000	N	h	0.100	15000
Di-n-butyl phthalate	mg/kg	U	16	4	0.047	0.086	0.4	0.5	0.2	-	-	-	780	N	h	0.086	370
Di-n-octyl phthalate	mg/kg	U	16	1	3	3	0.4	0.5	0.4	-	-	-	160	N	f	3.000	
Naphthalene	mg/kg	U	16	2	0.052	0.082	0.4	0.5	0.2	-	-	-	310	N	h	0.082	150
Pentachlorophenol	mg/kg	U	16	1	0.056	0.056	1	2.4	0.8	-	-	-	1	Y		0.056	0.066
Phenanthrene	mg/kg	U	16	3	0.043	0.072	0.4	0.5	0.2	-	-	-	–	Y		0.072	c
Phenol	mg/kg	U	16	1	0.058	0.058	0.4	0.5	0.2	-	-	-	4700	N	f	0.058	
bis(2-Ethylhexyl) phthalate	mg/kg	U	16	6	0.048	2.7	0.4	0.45	0.4	-	-	-	8.5	Y		2.700	0.57

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Table B.3.1-2(b) (continued)

CONSTITUENTS OF POTENTIAL CONCERN (CPC)

ACTIVE FLYASH PILE: SUBSURFACE FLYASH MATERIAL

PARAMETER	UNITS	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
1,1,1-Trichloroethane	mg/kg	L	15	12	0.012	1.3	0.01	0.01	-	-	0.1	0.5	700	N	h	0.455	130
1,1-Dichloroethane	mg/kg	U	10	1	0.007	0.007	0.01	0.07	0.01	-	-	-	780	N	h	0.007	81
1,1-Dichloroethene	mg/kg	U	10	1	0.007	0.007	0.01	0.07	0.01	-	-	-	0.2	N	h	0.007	0.005
1,2-Dichloroethane	mg/kg	U	9	1	0.007	0.007	0.01	0.07	0.01	-	-	-	1.3	Y		0.007	0.015
2-Butanone	mg/kg	U	7	2	0.004	0.015	0.01	0.07	0.01	-	-	-	4700	N	h	0.015	2200
2-Hexanone	mg/kg	U	5	1	0.01	0.01	0.01	0.06	0.01	-	-	-	-	Y		0.010	c
4-Methyl-2-pentanone	mg/kg	U	6	2	0.011	0.025	0.01	0.06	0.01	-	-	-	390	N	h	0.025	180
Acetone	mg/kg	U	9	2	0.015	0.037	0.01	0.29	0.03	-	-	-	780	N	h	0.037	370
Benzene	mg/kg	U	5	1	0.002	0.002	0.01	0.06	0.01	-	-	-	4.1	Y		0.002	0.035
Bromomethane	mg/kg	U	10	1	0.015	0.015	0.01	0.07	0.02	-	-	-	11	N	h	0.015	0.87
Carbon disulfide	mg/kg	U	11	2	0.007	0.007	0.01	0.07	0.01	-	-	-	780	N	h	0.007	2.1
Chloroethane	mg/kg	U	10	1	0.015	0.015	0.01	0.07	0.02	-	-	-	160	N	h	0.015	71
Chloroform	mg/kg	U	9	1	0.007	0.007	0.01	0.07	0.01	-	-	-	20	Y		0.007	0.02
Chloromethane	mg/kg	U	10	1	0.015	0.015	0.01	0.07	0.02	-	-	-	9.2	N	h	0.015	0.18
Methylene chloride	mg/kg	U	12	5	0.034	0.2	0.01	0.06	0.04	-	-	-	16	Y		0.200	0.51
Toluene	mg/kg	L	12	11	0.012	0.44	0.01	0.01	-	-	0.1	0.3	1600	N	h	0.278	75
Vinyl chloride	mg/kg	U	10	1	0.015	0.015	0.01	0.07	0.02	-	-	-	0.06	Y		0.015	0.002
Xylenes, Total	mg/kg	U	4	1	0.053	0.053	0.01	0.01	0.02	-	-	-	16000	N	h	0.053	1200
GROSS ALPHA	pci/g	L	8	8	35.7	62			-	-	49.80	76.01	-	N*	c,e	76.01	
GROSS BETA	pci/g	L	8	8	30.1	47.2			-	-	41.92	59.29	-	N*	c,e	59.29	
NP-237	pci/g	U	11	5	0.059	0.45	0.6	0.6	0.258	-	-	-	0.031	Y*		0.450	0.022
PB-210	pci/g	U	2	2	1.52	1.63			1.575	-	-	-	0.12	Y		1.630	0.0073
PU-238	pci/g	U	16	4	0.062	0.123	0.32	0.6	0.234	-	-	-	0.36	Y*		0.123	0.022
PU-239/240	pci/g	U	10	3	0.017	0.11	0.03	0.86	0.185	-	-	-	0.34	Y*		0.110	0.021
RA-224	pci/g	U	2	2	3.44	3.74			3.590	-	-	-	0.49	Y		3.740	0.13
RA-226	pci/g	L	16	16	2.53	6.22			-	-	4.13	5.24	0.002	Y		5.240	0.04
RA-228	pci/g	L	16	16	2.23	5.32			-	-	3.39	4.34	0.005	Y		4.336	0.048
SR-90	pci/g	N	16	9	0.65	1.53	0.17	0.9	0.733	0.964	-	-	2.2	Y		0.964	0.13
TH-228	pci/g	U	16	16	1.8	5.79			3.284	-	-	-	0.003	Y		5.790	0.087
TH-230	pci/g	L	16	16	2.4	6.08			-	-	4.36	5.72	5.96	Y		5.717	0.37
TH-232	pci/g	L	16	16	1.89	5.08			-	-	2.98	3.87	6.3	Y		3.866	0.4
U-234	pci/g	L	16	16	3.04	17.3			-	-	5.88	8.90	4.9	Y		8.903	0.3
U-235	pci/g	U	2	1	0.6	0.6	0.4	0.4	0.400	-	-	-	0.06	Y*		0.600	0.3
U-235/236	pci/g	U	16	6	0.125	4.12	0.12	0.6	0.683	-	-	-	0.06	Y		4.120	0.3
U-238 (ALPHA)	pci/g	N	18	18	3.15	12.6			5.848	6.911	-	-	0.36	Y		6.911	0.17
U-238 (GAMMA)	pci/g	U	2	2	6.31	6.55			6.430	-	-	-	0.36	Y*		6.550	0.17

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Table B.3.1-2(c)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
AFP - IFP -SF: Groundwater - 1000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
Ammonia	ug/l	U	20	4	126	560	10	50	101.80	-	-	-	N	g	410.0
Chloride	ug/l	L	20	16	2500	45600	250	1750	-	-	9474	22152	N	g	22152
Fluoride	ug/l	L	20	20	190	1420			-	-	462	587	N	g	586.8
Nitrate	ug/l	N	10	8	60	410	50	50	197.80	280	-	-	N	g	280.5
Phenol	ug/l	U	20	3	20	20	1	5	6.85	-	-	-	N	g	20.0
Phosphorus	ug/l	N	15	12	80	880	25	50	318.00	433	-	-	N	g	433.2
Sulfate	ug/l	N	20	19	10000	203700	30700	30700	91876.00	112451	-	-	N	g	112451
Aluminum	ug/l	U	9	8	69.5	86100	39.45	39.45	21335.56	-	-	-	N	a	86100
Antimony	ug/l	U	9	2	5.7	13.2	1.65	3.15	3.95	-	-	-	N	k	13.2
Arsenic	ug/l	U	9	4	3.4	10.4	0.5	1	3.15	-	-	-	Y		10.4
Barium	ug/l	U	9	9	48.6	565			187.54	-	-	-	N	k	565.0
Beryllium	ug/l	U	9	1	3.7	3.7	0.5	1.2	1.18	-	-	-	Y		3.7
Cadmium	ug/l	U	9	1	34	34	1	2.5	5.33	-	-	-	Y		34.0
Calcium	ug/l	L	9	9	56000	610000			-	-	231910.9	507121.3	N	a	507121
Chromium	ug/l	L	9	5	4.6	89.8	2	7	-	-	28.4	271.9	N	k	89.8
Cobalt	ug/l	U	9	3	24.6	33.4	1.5	5	10.70	-	-	-	Y		33.4
Copper	ug/l	U	9	4	17.3	120	1	10.35	33.26	-	-	-	N	k	120.0
Iron	ug/l	U	9	6	958	131000	9.7	12.3	32443	-	-	-	N	a	131000
Lead	ug/l	U	9	6	1.6	44.9	0.5	1	14.20	-	-	-	Y		44.9
Magnesium	ug/l	L	9	9	18000	250000			-	-	93158	219038	N	a	219038
Manganese	ug/l	U	9	9	11.5	2370			909.17	-	-	-	Y		2370.0
Molybdenum	ug/l	U	9	3	30.9	43.5	1.6	10	15.05	-	-	-	N	k	43.5
Nickel	ug/l	U	9	7	7.2	136	1.5	10	53.83	-	-	-	N	k	136.0
Potassium	ug/l	L	9	8	718	16000	447	447	-	-	7174.9	53168.7	N	a	16000
Selenium	ug/l	U	9	3	3.6	19.5	0.5	1	3.48	-	-	-	N	k	19.5
Silicon	ug/l	U	9	9	6580	102000			33907	-	-	-	N	i	102000
Silver	ug/l	U	9	3	18	35.1	1	5	9.42	-	-	-	N	k	35.1
Sodium	ug/l	L	9	9	8810	15600			-	-	10983	12453	N	a	12453.2
TH-TOTAL	ug/l	U	19	7	0.29	34.2	0.09	2	4.88	-	-	-	N	b	34.2
U-TOTAL	ug/l	U	21	21	1	573			105.65	-	-	-	Y		547.0
Vanadium	ug/l	U	9	4	16.9	205	3.7	7.05	52.30	-	-	-	N	k	205.0
Zinc	ug/l	U	9	6	8.4	330	3	7.6	99.80	-	-	-	N	k	330.0
2-Butanone	ug/l	U	9	1	1	1	5	5	4.56	-	-	-	N	k	1.0
Cyanide	ug/l	U	10	2	1.6	2.4	0.5	1	0.95	-	-	-	N	k	2.4
Di-n-butyl phthalate	ug/l	U	9	1	4	4	5	5	4.89	-	-	-	N	k	4.0

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Table B.3.1-2(c) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
AFP - IFP -SF: Groundwater - 1000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
GROSS ALPHA	pci/l	U	10	5	38	1080	2.01	10	228.84	-	-	-	N	c,e	1080.0
GROSS BETA	pci/l	U	10	8	4.35	638	2.545	5.5	121.82	-	-	-	N	c,e	638.0
NP-237	pci/l	U	19	6	0.22	1.2	0.065	0.5	0.42	-	-	-	Y		1.200
PU-238	pci/l	U	22	4	0.09	0.56	0.03245	0.5	0.31	-	-	-	Y		0.170
PU-239/240	pci/l	U	22	2	0.193	0.2	0.01965	0.5	0.29	-	-	-	Y		0.193
RA-226	pci/l	U	18	2	1.05	1.46	0.045	0.5	0.43	-	-	-	Y		1.460
RA-228	pci/l	U	19	1	5.93	5.93	0.4395	1.7	1.39	-	-	-	Y		5.930
SR-90	pci/l	U	22	3	1.19	3.31	0.299	2.5	1.75	-	-	-	Y		3.050
TH-228	pci/l	U	22	6	0.13	3.87	0.0125	0.5	0.67	-	-	-	Y		2.210
TH-230	pci/l	U	22	11	0.11	6.8	0.069	0.5	0.92	-	-	-	Y		3.900
TH-232	pci/l	U	22	5	0.032	3.75	0.01	0.5	0.59	-	-	-	Y		1.770
U-234	pci/l	U	22	20	0.54	223	0.5	0.5	40.25	-	-	-	Y		216.000
U-235/236	pci/l	U	22	8	0.479	15.7	0.0255	0.5	2.37	-	-	-	Y		10.700
U-238	pci/l	U	22	20	0.47	229	0.5	0.5	40.79	-	-	-	Y		220.000

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

j = below EPA Region III tap water screening level and not a CPC in AFP-IFP-SF soil

k = below EPA Region III tap water screening level of 10E-6 carciongenic risk or 1.0 hazard

Table B.3.1-2(d)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
AFP - IFP -SF: Groundwater - 2000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
Ammonia	ug/l	U	68	6	110	260	25	150	57.43	65.49	88.942	108.43	N	g	120.00
Chloride	ug/l	N	67	63	3000	30000	500	2850	14786	16443	17100.682	21753	N	g	16443
Fluoride	ug/l	L	66	62	90	910	25	250	228.53	262.61	271.570	321.33	N	g	321.33
Nitrate	ug/l	U	64	59	100	5300	50	2500	1629	1916	1978.854	2659.22	N	g	2650
Phenols	ug/l	U	65	14	5	340	5	25	13.75	22.45	21.623	32.91	N	g	21.00
Phosphate	ug/l	U	3	3	280	300			293.33	312.80	293.412		N	g	300.00
Phosphorus	ug/l	L	50	45	30	2710	10	25	322.38	433.46	496.433	863.90	N	g	863.90
Sulfate	ug/l	U	68	68	18600	278000			76255	87567	102117.404	141453	N	g	165000
Sulfide	ug/l	U	44	4	3520	37800	25	250	2478	4548	902.792	1596.39	N	g	28100
Aluminum	ug/l	U	18	13	80.5	184000	39	283.5	18001	39086	9479.514	193074	N	a	184000
Antimony	ug/l	U	18	1	5.1	5.1	0.55	2.5	1.85	2.33	1.912	2.81	N	k	5.10
Arsenic	ug/l	L	18	8	1.2	7.6	0.5	1	1.94	2.83	1.884	3.27	Y		3.27
Barium	ug/l	U	18	18	37.2	1140			173.88	311.69	129.526	251.22	N	k	1140
Beryllium	ug/l	U	18	2	6.1	9.6	0.5	1.35	1.64	2.60	1.439	2.28	Y		9.60
Cadmium	ug/l	U	18	1	5.6	5.6	1	2.5	1.92	2.41	1.923	2.54	N	k	5.60
Calcium	ug/l	U	18	18	83500	1360000			255378	408563	219853.136	347826	N	a	1360000
Chromium	ug/l	U	18	5	5.2	196	2	5	24.52	48.11	15.459	47.89	Y		196.00
Cobalt	ug/l	U	18	2	69	116	1.5	5	12.97	25.31	8.698	23.08	Y		116.00
Copper	ug/l	U	18	3	29.6	332	1	5.3	36.62	74.84	21.012	89.74	N	k	332.00
Iron	ug/l	L	18	16	32.9	370000	14.25	16.45	36778	79323	45294.454	2665394	N	a	370000
Lead	ug/l	L	18	9	1.3	99.2	0.5	1	12.19	24.14	8.142	37.48	Y		37.48
Magnesium	ug/l	U	18	18	20600	413000			74072	122669	61377.282	101763	N	a	413000
Manganese	ug/l	U	18	17	4	6490	5	5	709.94	1464.73	522.007	4369	Y		6490
Mercury	ug/l	U	18	2	0.24	0.4	0.1	0.1	0.12	0.16	0.122	0.14	N	k	0.40
Molybdenum	ug/l	U	18	2	49.5	108	1.5	10	11.77	22.62	8.517	21.21	N	k	108.00
Nickel	ug/l	U	18	4	7.2	339	1.5	10	37.62	76.05	25.290	108.57	N	k	339.00
Potassium	ug/l	U	18	18	1680	27400			5466	8362	4908.802	7501.61	N	a	27400
Selenium	ug/l	U	18	3	1.3	1.5	0.5	5	1.12	1.54	1.085	1.46	N	k	1.50
Silicon	ug/l	U	18	18	3070	83400			13882	23937	10960.814	19714	N	i	83400
Silver	ug/l	U	18	2	61.3	88.9	1	5	10.79	20.61	8.025	24.53	N	k	88.90
Sodium	ug/l	N	18	18	4090	16100			9836	11158	9922.905	11760	N	a	11158
TH-TOTAL	ug/l	U	56	7	0.398	78	0.245	5.5	3.33	5.66	2.378	3.21	N	b	10.00
U-TOTAL	ug/l	L	62	58	2.07	2070	0.5	0.5	180.89	265.55	276.807	804.12	Y		804.12
Vanadium	ug/l	U	18	3	18.5	376	3.45	6.8	43.60	89.13	22.054	68.50	Y		376.00
Zinc	ug/l	U	18	10	7.4	940	2.2	6.95	100.88	206.93	62.754	347.12	N	k	940.00
1,1,1-Trichloroethane	ug/l	U	24	4	1	5	2.5	5	4.23	4.72	4.383	5.39	N	k	2.00

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Table B.3.1-2(d) (continued)

CONSTITUENTS OF POTENTIAL CONCERN (CPC)

AFP - IFP -SF: Groundwater - 2000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
1,1-Dichloroethane	ug/l	U	24	1	9	9	2.5	5	4.75	5.21	4.775	5.35	N	k	9.00
1,2-Dichloroethene	ug/l	U	24	1	5	5	2.5	5	4.58	4.92	4.612	5.09	N	k	5.00
Acetone	ug/l	U	20	6	2	10	0.5	5	4.60	5.32	4.886	6.52	N	b	6.00
bis(2-Ethylhexyl) phthalate	ug/l	U	24	5	2	6	2.5	5	4.56	4.93	4.605	5.17	Y		4.00
Butyl benzyl phthalate	ug/l	U	24	3	1	2	2.5	5	4.44	4.90	4.611	5.64	N	k	1.00
Carbon disulfide	ug/l	U	22	1	26	26	2.5	5	5.39	7.12	5.182	6.39	Y		26.00
Di-n-butyl phthalate	ug/l	U	24	3	4	19	2.5	5	5.44	6.47	5.349	6.04	N	k	5.00
Diethyl phthalate	ug/l	U	24	2	1	20	2.5	5	5.35	6.49	5.360	6.47	N	k	1.00
Tributyl phosphate	ug/l	U	5	1	1	1	5	5	4.20	5.91	4.695	18.05	Y		1.00
Trichloroethene	ug/l	U	24	1	7	7	2.5	5	4.67	5.04	4.696	5.22	Y		7.00
GROSS ALPHA	pci/l	U	18	11	6.97	1410	2.66	5.35	222.83	398.11	308.323	4070.04	N	c,e	1410
GROSS BETA	pci/l	L	18	14	5.05	520	2.065	3.32	96.11	165.77	107.266	697.05	N	c,e	520.00
NP-237	pci/l	U	59	9	0.15	1.1	0.0605	0.5	0.46	0.51	0.535	0.62	Y		0.84
PU-238	pci/l	U	61	8	0.065	0.637	0.022	0.5	0.38	0.42	0.492	0.63	Y		0.16
PU-239/240	pci/l	U	61	2	0.06	0.12	0.0205	0.5	0.36	0.41	0.496	0.67	Y		0.06
RA-226	pci/l	U	55	15	0.13	1.4	0.05	0.5	0.44	0.51	0.523	0.64	Y		1.19
TH-228	pci/l	U	62	5	1.1	9.87	0.0065	0.6	0.58	0.84	0.632	0.86	Y		1.16
TH-230	pci/l	U	61	20	0.186	11.2	0.067	0.6	0.71	1.02	0.675	0.81	Y		1.27
TH-232	pci/l	U	61	7	0.044	8.56	0.0265	0.6	0.55	0.78	0.627	0.89	Y		1.10
U-234	pci/l	U	63	59	0.682	662	0.5	0.5	43.16	64.66	42.511	90.46	Y		199.00
U-235/236	pci/l	U	62	29	0.15	31.7	0.032	0.5	2.20	3.21	1.928	2.93	Y		9.70
U-238	pci/l	U	62	56	0.338	707	0.5	0.5	46.67	69.83	50.153	113.84	Y		206.00

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

j = below EPA Region III tap water screening level and not a CPC in AFP-IFP-SF soil

k = below EPA Region III tap water screening level of 10E-6 carciongenic risk or 1.0 hazard

TABLE B.3.1-2(e)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
ACTIVE FLYASH PILE: NON-SOURCE SEDIMENT

PARAMETER	Units	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Groundwater Modelling Screen Conc. (pCI/L rad; ug/L non-rad)
Aluminum	mg/kg	1	1	7630	7630			--	N	a	--
Arsenic	mg/kg	1	1	10.9	10.9			0.07	Y		0.005
Barium	mg/kg	1	1	71.1	71.1			550	N	h	260
Beryllium	mg/kg	1	1	1.4	1.4			0.03	Y		0.002
Cadmium	mg/kg	2	1	0.75	0.75	0.2	0.2	3.9	Y		1.8
Calcium	mg/kg	1	1	49200	49200			--	N	a	--
Chromium	mg/kg	1	1	11.6	11.6			39	Y		
Cobalt	mg/kg	1	1	9.7	9.7			--	Y		c
Copper	mg/kg	1	1	22.2	22.2			290	N	h	140
Iron	mg/kg	1	1	15600	15600			--	N	a	--
Lead	mg/kg	2	2	12	15.7			--	Y		d; 1.5
Magnesium	mg/kg	1	1	16100	16100			--	N	a	--
Manganese	mg/kg	1	1	433	433			39	Y		
Molybdenum	mg/kg	2	1	1.7	1.7	2	2	39	N	h	18
Nickel	mg/kg	1	1	18.4	18.4			160	N	h	73
Potassium	mg/kg	2	2	871	1120			--	N	a	--
Silicon	mg/kg	1	1	1090	1090			--	N	i	c
Sodium	mg/kg	1	1	140	140			--	N	a	--
Thallium	mg/kg	2	1	0.32	0.32	0.1	0.1	0.6	Y		0.26
Vanadium	mg/kg	1	1	21.5	21.5			55	N	h	20
Zinc	mg/kg	1	1	53.1	53.1			2300	N	h	1100
TH-TOTAL	mg/kg	1	1	8.04	8.04			--	Y		c
U-TOTAL	mg/kg	5	5	4.53	51.8			23	Y		10
CS-137	pCi/g	1	1	0.086	0.086			0.007	Y		
NP-237	pCi/g	1	1	0.038	0.038			0.31	Y		0.022
PU-238	pCi/g	1	1	0.0243	0.0243			0.36	Y		0.022
PU-239/240	pCi/g	1	1	0.049	0.049			0.34	Y		0.021
RA-226	pCi/g	3	3	0.637	1.32			0.002	Y		0.04
RA-228	pCi/g	3	3	0.703	1.08			0.005	Y		0.048
TH-228	pCi/g	1	1	0.824	0.824			0.003	Y		0.087
TH-230	pCi/g	1	1	1.47	1.47			5.96	Y		0.37
TH-232	pCi/g	1	1	0.883	0.883			6.3	Y		0.4
U-234	pCi/g	1	1	2.77	2.77			4.9	Y		0.3
U-235/236	pCi/g	1	1	0.163	0.163			0.06	Y		0.3
U-238	pCi/g	1	1	2.9	2.9			0.36	Y		0.17
4-Methylphenol	mg/kg	2	1	1.7	1.7	0.4	0.4	39	N	h	
Benzoic acid	mg/kg	2	1	0.68	0.68	2	2	31000	N	h	15000
Di-n-butyl phthalate	mg/kg	2	1	0.064	0.064	0.4	0.4	780	Y		370
Phenol	mg/kg	2	1	0.23	0.23	0.4	0.4	4700	N	h	

TABLE B.3.1-2(e) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
ACTIVE FLYASH PILE: NON-SOURCE SEDIMENT

PARAMETER	Units	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Groundwater Modelling Screen Conc. (pCI/L rad; ug/L non-rad)
Ammonia	mg/kg	1	1	50.4	50.4			--	N	g	
Chloride	mg/kg	1	1	230	230			--	N	g	
Fluoride	mg/kg	1	1	7.58	7.58			--	N	g	
Nitrate	mg/kg	1	1	2.76	2.76			--	N	g	
Phosphorus	mg/kg	1	1	37.4	37.4			--	N	g	
Sulfate	mg/kg	1	1	697	697			--	N	g	
Total Organic Nitrogen	mg/kg	1	1	355	355			--	N	g	

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

TABLE B.3.1-4
CURRENT, TRESPASSING YOUTH
ACTIVE FLYASH PILE: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
NP-237	5.67E-05	1.2E-01	2.9E-08	3.4E-09
PU-238	7.21E-06	1.5E-02	3.9E-08	5.8E-10
PU-239/240	3.09E-06	6.4E-03	3.8E-08	2.4E-10
RA-226	4.74E-05	9.8E-02	3.0E-09	2.9E-10
RA-228	3.30E-05	6.8E-02	6.9E-10	4.7E-11
SR-90	4.64E-05	9.6E-02	6.2E-11	6.0E-12
TH-228	3.91E-05	8.1E-02	7.8E-08	6.3E-09
TH-230	3.81E-05	7.9E-02	2.9E-08	2.3E-09
TH-232	2.78E-05	5.8E-02	2.8E-08	1.6E-09
U-234	3.71E-05	7.7E-02	2.6E-08	2.0E-09
U-235/236	2.06E-06	4.3E-03	2.5E-08	1.1E-10
U-238	3.71E-05	7.7E-02	5.2E-08	4.0E-09
			Total Pathway:	2.1E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.48	8.5E+01	2.2E-10	1.9E-08
PU-238	0.72	1.1E+01	2.2E-10	2.5E-09
PU-239/240	0.33	5.2E+00	2.3E-10	1.2E-09
RA-226	4.61	7.2E+01	1.2E-10	8.6E-09
RA-228	3.17	4.9E+01	1.0E-10	4.9E-09
SR-90	4.47	7.0E+01	3.6E-11	2.5E-09
TH-228	3.81	5.9E+01	5.5E-11	3.3E-09
TH-230	3.66	5.7E+01	1.3E-11	7.4E-10
TH-232	2.66	4.2E+01	1.2E-11	5.0E-10
U-234	3.60	5.6E+01	1.6E-11	9.0E-10
U-235/236	0.16	2.5E+00	1.6E-11	3.9E-11
U-238	3.61	5.6E+01	2.8E-11	1.6E-09
			Total Pathway:	4.6E-08

Chemical Risk

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	9.25E-07	1.7E-09	1.5E+01	2.6E-08
Barium	2.62E-06	4.9E-09		
Beryllium	4.84E-08	9.1E-11	8.4E+00	7.7E-10
Chromium	1.37E-07	2.6E-10	4.1E+01	1.1E-08
Cobalt	1.94E-07	3.7E-10		
Copper	7.60E-07	1.4E-09		
Cyanide	3.09E-09	5.8E-12		
Lead	5.71E-07	1.1E-09		
Molybdenum	8.86E-08	1.7E-10		
Nickel	4.13E-07	7.8E-10		
Selenium	6.08E-08	1.1E-10		
Thallium	2.78E-08	5.2E-11		
Toluene	1.03E-09	1.9E-12		
Vanadium	5.17E-07	9.7E-10		
Zinc	8.06E-07	1.5E-09		
TH-Total		0.0E+00		
U-Total		0.0E+00		
			Total Pathway:	3.8E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	89.82	1.3E-06	1.8E+00	2.2E-06
Barium	253.90	3.6E-06		
Beryllium	4.67	6.6E-08	4.3E+00	2.9E-07
Chromium	13.32	1.9E-07		
Cobalt	18.80	2.7E-07		
Copper	73.84	1.0E-06		
Cyanide	0.33	4.7E-09		
Lead	55.44	7.9E-07		
Molybdenum	8.63	1.2E-07		
Nickel	40.11	5.7E-07		
Selenium	5.94	8.4E-08		
Thallium	2.66	3.8E-08		
Toluene	0.07	1.0E-09		
Vanadium	50.24	7.1E-07		
Zinc	78.32	1.1E-06		
TH-Total	22.0	3.1E-07		
U-Total	12.6	1.8E-07		
			Total Pathway:	2.5E-06

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Total Rad + Chem 5.9E-08

Total Rad + Chem 2.6E-06

TABLE B.3.1-4 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	SF(e)	Risk	
Not applicable (1)				NP-237	1.6E+00	4.3E-07	6.7E-07	6.9E-07
				PU-238	2.1E-01	2.8E-11	5.8E-12	3.1E-09
				PU-239/240	9.4E-02	2.2E-11	2.1E-12	1.4E-09
				RA-226	1.3E+00	6.0E-06	7.9E-06	7.9E-06
				RA-228	9.0E-01	2.9E-06	2.6E-06	2.6E-06
				SR-90	1.3E+00	0.0E+00	0.0E+00	2.5E-09
				TH-228	1.1E+00	5.6E-06	6.1E-06	6.1E-06
				TH-230	1.0E+00	5.4E-11	5.6E-11	3.1E-09
				TH-232	7.6E-01	2.6E-11	2.0E-11	2.1E-09
				U-234	1.0E+00	3.0E-11	3.1E-11	2.9E-09
				U-235/236	4.6E-02	2.4E-07	1.1E-08	1.1E-08
				U-238	1.0E+00	3.6E-08	3.7E-08	4.3E-08
Total Pathway:	0.0E+00			Total Pathway:			1.7E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	2.1E-07	1.8E+00	3.9E-07					2.7E-06
Barium	6.1E-06							
Beryllium	1.1E-07	4.3E+02	4.8E-05					4.8E-05
Chromium	3.2E-07							1.1E-08
Cobalt	4.5E-07							
Copper	1.8E-07							
Cyanide	7.9E-09							
Lead	1.3E-06							
Molybdenu	2.1E-07							
Nickel	9.6E-09			Not applicable (2)				
Selenium	1.4E-07							
Thallium	6.3E-08							
Toluene	1.7E-09							
Vanadium	1.2E-07							
Zinc	1.9E-06							
TH-Total	0.0E+00							
U-Total	3.0E-07							
Total Pathway:			4.8E-05	Total Pathway:			0.0E+00	

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TABLE B.3.1-4 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3	Intake	RfD(i)	HQ
NP-237	5.67E-05	1.2E-01		
PU-238	7.21E-06	1.5E-02		
PU-239/24	3.09E-06	6.4E-03		
RA-226	4.74E-05	9.8E-02		
RA-228	3.30E-05	6.8E-02		
SR-90	4.64E-05	9.6E-02		
TH-228	3.91E-05	8.1E-02		
TH-230	3.81E-05	7.9E-02		
TH-232	2.78E-05	5.8E-02		
U-234	3.71E-05	7.7E-02		
U-235/236	2.06E-06	4.3E-03		
U-238	3.71E-05	7.7E-02		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	HQ
NP-237	5.48	8.5E+01		
PU-238	0.72	1.1E+01		
PU-239/240	0.33	5.2E+00		
RA-226	4.61	7.2E+01		
RA-228	3.17	4.9E+01		
SR-90	4.47	7.0E+01		
TH-228	3.81	5.9E+01		
TH-230	3.66	5.7E+01		
TH-232	2.66	4.2E+01		
U-234	3.60	5.6E+01		
U-235/236	0.16	2.5E+00		
U-238	3.61	5.6E+01		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	HQ
Arsenic	9.25E-07	1.0E-08		
Barium	2.62E-06	2.9E-08	1.4E-04	2.1E-04
Beryllium	4.84E-08	5.3E-10		
Chromium	1.37E-07	1.5E-09		
Cobalt	1.94E-07	2.1E-09	5.5E-07	3.9E-03
Copper	7.60E-07	8.4E-09		
Cyanide	3.09E-09	3.4E-11		
Lead	5.71E-07	6.3E-09		
Molybdenu	8.86E-08	9.7E-10		
Nickel	4.13E-07	4.5E-09		
Selenium	6.08E-08	6.7E-10		
Thallium	2.78E-08	3.1E-10		
Toluene	1.03E-09	1.1E-11		
Vanadium	5.17E-07	5.7E-09		
Zinc	8.06E-07	8.9E-09		
TH-Total		0.0E+00		
U-Total		0.0E+00		

Total Pathway: 4.1E-03

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	HQ
Arsenic	89.82	7.4E-06	3.0E-04	2.5E-02
Barium	253.90	2.1E-05	7.0E-02	3.0E-04
Beryllium	4.67	3.9E-07	5.0E-03	7.7E-05
Chromium	13.32	1.1E-06	5.0E-03	2.2E-04
Cobalt	18.80	1.6E-06		
Copper	73.84	6.1E-06	4.0E-02	1.5E-04
Cyanide	0.33	2.7E-08	2.0E-02	1.4E-06
Lead	55.44	4.6E-06		
Molybdenum	8.63	7.1E-07	5.0E-03	1.4E-04
Nickel	40.11	3.3E-06	2.0E-02	1.7E-04
Selenium	5.94	4.9E-07	5.0E-03	9.8E-05
Thallium	2.66	2.2E-07	7.0E-05	3.1E-03
Toluene	0.07	6.0E-09	2.0E-01	3.0E-08
Vanadium	50.24	4.2E-06	7.0E-03	5.9E-04
Zinc	78.32	6.5E-06	3.0E-01	2.2E-05
TH-Total	22.00	1.8E-06		
U-Total	12.60	1.0E-06	3.0E-03	3.5E-04

Total Pathway: 3.0E-02

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Total Rad + Chem 4.1E-03

Total Rad + Chem 3.0E-02

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	RfD(e)	HQ
NP-237	1.6E+00		
PU-238	2.1E-01		
PU-239/240	9.4E-02		
RA-226	1.3E+00		
RA-228	9.0E-01		
SR-90	1.3E+00		
TH-228	1.1E+00		
TH-230	1.0E+00		
TH-232	7.6E-01		
U-234	1.0E+00		
U-235/236	4.6E-02		
U-238	1.0E+00		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm)	HQ
Arsenic	1.2E-05	2.9E-04	4.4E-02
Barium	3.5E-06	6.4E-02	5.5E-05
Beryllium	6.5E-07	5.0E-05	1.3E-02
Chromium	1.9E-06	2.3E-03	8.2E-04
Cobalt	2.6E-06		
Copper	1.0E-05	2.4E-02	4.3E-04
Cyanide	4.6E-09	1.4E-02	3.2E-07
Lead	7.7E-06		
Molybden	1.2E-06	1.9E-03	6.3E-04
Nickel	5.6E-06	1.0E-03	5.6E-03
Selenium	8.3E-07	4.0E-03	2.1E-04
Thallium	3.7E-09	7.0E-05	5.3E-05
Toluene	1.0E-08	2.0E-03	5.1E-06
Vanadium	7.0E-07	3.5E-04	2.0E-03
Zinc	1.1E-05	7.5E-02	1.5E-04
TH-Total	0.0E+00		
U-Total	1.8E-06	1.5E-04	1.2E-02

Total Pathway: 7.8E-02

External Radiation/Soil

Compound	Intake	RfD(o)	HQ

Not applicable

Total Pathway: 0.0E+00

Total
6.9E-02
5.6E-04
1.3E-02
1.0E-03
3.9E-03
5.8E-04
1.7E-06
7.7E-04
5.7E-03
3.1E-04
3.2E-03
5.1E-06
2.6E-03
1.7E-04
1.2E-02

Total Rad + Chem 7.8E-02 | Total Rad + Chem 0.0E+00 | ***Total:*** 1.1E-01

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TABLE B.3.1-5
CURRENT, TRESPASSING YOUTH
ACTIVE FLYASH PILE: SURFACE WATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
NP-237	0.264	7.8E-01	2.2E-10	1.7E-10		1.7E-10
PU-238	0.129	3.8E-01	2.2E-10	8.3E-11	Not applicable	8.3E-11
RA-228	1.7	5.0E+00	1.0E-10	5.0E-10		5.0E-10
U-234	1.5	4.4E+00	1.6E-11	7.1E-11		7.1E-11
U-235/236	0.102	3.0E-01	1.6E-11	4.6E-12		4.6E-12
U-238	1.69	5.0E+00	2.8E-11	1.4E-10		1.4E-10
			Total Pathway:	9.7E-10	Total Pathway:	0.0E+00

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water				
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	
Arsenic	0.0054	1.4E-08	1.75	2.5E-08	Arsenic	1.5E-08	1.8E+00	2.7E-08	5.2E-08
Barium	0.0273	7.3E-08			Barium	7.8E-08			
Manganese	0.0053	1.4E-08			Manganese	1.5E-08			
Selenium	0.001	2.7E-09			Selenium	2.8E-09			
U-TOTAL	0.00418	1.1E-08			U-TOTAL	1.2E-08			
			Total Pathway:	2.5E-08			Total Pathway:	2.7E-08	
			Total Rad + Chem	2.6E-08			Total Rad + Chem	2.7E-08	*Total:* 5.3E-08

TABLE B.3.1-5 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard		
NP-237	0.264	7.8E-01			Not applicable	
PU-238	0.129	3.8E-01				
RA-228	1.7	5.0E+00				
U-234	1.5	4.4E+00				
U-235/236	0.102	3.0E-01				
U-238	1.69	5.0E+00				
			Total Pathway:	0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water					Total
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	PC	Intake	RfD(derm)	Hazard	
Arsenic	0.0054	8.4E-08	3.0E-04	2.8E-04	Arsenic	1.0E-03	8.9E-08	2.9E-04	3.1E-04	5.9E-04
Barium	0.0273	4.3E-07	7.0E-02	6.1E-06	Barium	1.0E-03	4.5E-07	6.4E-02	7.1E-06	1.3E-05
Manganese	0.0053	8.3E-08	1.4E-01	5.9E-07	Manganese	1.0E-03	8.8E-08	4.2E-03	2.1E-05	2.1E-05
Selenium	0.001	1.6E-08	5.0E-03	3.1E-06	Selenium	1.0E-03	1.7E-08	4.0E-03	4.1E-06	7.3E-06
U-TOTAL	0.00418	6.5E-08	3.0E-03	2.2E-05	U-TOTAL	1.0E-03	6.9E-08	1.5E-04	4.6E-04	4.8E-04
			Total Pathway:	3.1E-04				Total Pathway:	8.0E-04	
			Total Rad + Chem	3.1E-04				Total Rad + Chem	8.0E-04	*Total:* 1.1E-03

TABLE B.3.1-6

CURRENT OFF-PROPERTY FARMER

ACTIVE FLYASH PILE: SURFACE SOIL/AIR

CARCINOGENIC RISK

Radiation Risk					
Inhalation/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
NP-237	4.11E-06	4.8E-01	2.9E-08	1.4E-08	1.4E-08
PU-238	5.24E-07	6.1E-02	3.9E-08	2.4E-09	2.4E-09
PU-239/240	2.24E-07	2.6E-02	3.8E-08	9.9E-10	9.9E-10
RA-226	3.44E-06	4.0E-01	3.0E-09	1.2E-09	1.2E-09
RA-228	2.39E-06	2.8E-01	6.9E-10	1.9E-10	1.9E-10
SR-90	3.37E-06	3.9E-01	6.2E-11	2.4E-11	2.4E-11
TH-228	2.84E-06	3.3E-01	7.8E-08	2.6E-08	2.6E-08
TH-230	2.77E-06	3.2E-01	2.9E-08	9.3E-09	9.3E-09
TH-232	2.02E-06	2.3E-01	2.8E-08	6.6E-09	6.6E-09
U-234	2.69E-06	3.1E-01	2.6E-08	8.1E-09	8.1E-09
U-235/236	1.50E-07	1.7E-02	2.5E-08	4.3E-10	4.3E-10
U-238	2.69E-06	3.1E-01	5.2E-08	1.6E-08	1.6E-08
			Total Pathway:	8.5E-08	

Chemical Risk					
Inhalation/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	6.72E-08	4.4E-09	1.5E+01	6.6E-08	6.6E-08
Barium	1.90E-07	1.2E-08			
Beryllium	3.52E-09	2.3E-10	8.4E+00	1.9E-09	1.9E-09
Chromium	9.95E-09	6.4E-10	4.1E+01	2.6E-08	2.6E-08
Cobalt	1.41E-08	9.1E-10			
Copper	5.52E-08	3.6E-09			
Cyanide	2.24E-10	1.5E-11			
Lead	4.14E-08	2.7E-09			
Molybdenum	6.43E-09	4.2E-10			
Nickel	3.00E-08	1.9E-09			
Selenium	4.41E-09	2.9E-10			
Thallium	2.02E-09	1.3E-10			
Toluene	7.48E-11	4.8E-12			
Vanadium	3.75E-08	2.4E-09			
Zinc	5.86E-08	3.8E-09			
			Total Pathway:	9.4E-08	

Total Rad + Chem 1.8E-07 *Total:* 1.8E-07

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NONCARCINOGENIC HAZARD

Radiation Hazard					
Inhalation/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard	
NP-237	4.11E-06				
PU-238	5.24E-07				
PU-239/240	2.24E-07				
RA-226	3.44E-06				
RA-228	2.39E-06				
SR-90	3.37E-06				
TH-228	2.84E-06				
TH-230	2.77E-06				
TH-232	2.02E-06				
U-234	2.69E-06				
U-235/236	1.50E-07				
U-238	2.69E-06				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	6.72E-08	4.4E-09			
Barium	1.90E-07	1.2E-08	1.4E-04	8.8E-05	8.8E-05
Beryllium	3.52E-09	2.3E-10			
Chromium	9.95E-09	6.4E-10			
Cobalt	1.41E-08	9.1E-10			
Copper	5.52E-08	3.6E-09			
Cyanide	2.24E-10	1.5E-11			
Lead	4.14E-08	2.7E-09			
Molybdenum	6.43E-09	4.2E-10			
Nickel	3.00E-08	1.9E-09			
Selenium	4.41E-09	2.9E-10			
Thallium	2.02E-09	1.3E-10			
Toluene	7.48E-11	4.8E-12			
Vanadium	3.75E-08	2.4E-09			
Zinc	5.86E-08	3.8E-09			
			Total Pathway:	8.8E-05	

Total Rad + Chem	8.8E-05	*Total:*	8.8E-05

TABLE B.3.1-7
CURRENT OFF-PROPERTY RESIDENT CHILD
ACTIVE FLYASH PILE: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk					
Inhalation/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
NP-237	4.11E-06	8.6E-03	2.9E-08	2.5E-10	2.5E-10
PU-238	5.24E-07	1.1E-03	3.9E-08	4.3E-11	4.3E-11
PU-239/240	2.24E-07	4.7E-04	3.8E-08	1.8E-11	1.8E-11
RA-226	3.44E-06	7.2E-03	3.0E-09	2.2E-11	2.2E-11
RA-228	2.39E-06	5.0E-03	6.9E-10	3.5E-12	3.5E-12
SR-90	3.37E-06	7.1E-03	6.2E-11	4.4E-13	4.4E-13
TH-228	2.84E-06	6.0E-03	7.8E-08	4.7E-10	4.7E-10
TH-230	2.77E-06	5.8E-03	2.9E-08	1.7E-10	1.7E-10
TH-232	2.02E-06	4.2E-03	2.8E-08	1.2E-10	1.2E-10
U-234	2.69E-06	5.6E-03	2.6E-08	1.5E-10	1.5E-10
U-235/236	1.50E-07	3.2E-04	2.5E-08	7.9E-12	7.9E-12
U-238	2.69E-06	5.6E-03	5.2E-08	2.9E-10	2.9E-10
			Total Pathway:	1.5E-09	

Chemical Risk					
Inhalation/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	6.72E-08	3.7E-10	1.5E+01	5.6E-09	5.6E-09
Barium	1.90E-07	1.0E-09			
Beryllium	3.52E-09	1.9E-11	8.4E+00	1.6E-10	1.6E-10
Chromium	9.95E-09	5.5E-11	4.1E+01	2.2E-09	2.2E-09
Cobalt	1.41E-08	7.7E-11			
Copper	5.52E-08	3.0E-10			
Cyanide	2.24E-10	1.2E-12			
Lead	4.14E-08	2.3E-10			
Molybdenum	6.43E-09	3.5E-11			
Nickel	3.00E-08	1.6E-10			
Selenium	4.41E-09	2.4E-11			
Thallium	2.02E-09	1.1E-11			
Toluene	7.48E-11	4.1E-13			
Vanadium	3.75E-08	2.1E-10			
Zinc	5.86E-08	3.2E-10			
			Total Pathway:	8.0E-09	

Total Rad + Chem	9.5E-09	*Total:*	9.5E-09

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
NP-237	4.11E-06	8.6E-03		
PU-238	5.24E-07	1.1E-03		
PU-239/240	2.24E-07	4.7E-04		
RA-226	3.44E-06	7.2E-03		
RA-228	2.39E-06	5.0E-03		
SR-90	3.37E-06	7.1E-03		
TH-228	2.84E-06	6.0E-03		
TH-230	2.77E-06	5.8E-03		
TH-232	2.02E-06	4.2E-03		
U-234	2.69E-06	5.6E-03		
U-235/236	1.50E-07	3.2E-04		
U-238	2.69E-06	5.6E-03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	Total
Arsenic	6.72E-08	4.3E-09			
Barium	1.90E-07	1.2E-08	1.4E-04	8.7E-05	8.7E-05
Beryllium	3.52E-09	2.3E-10			
Chromium	9.95E-09	6.4E-10			
Cobalt	1.41E-08	9.0E-10			
Copper	5.52E-08	3.5E-09			
Cyanide	2.24E-10	1.4E-11			
Lead	4.14E-08	2.6E-09			
Molybdenum	6.43E-09	4.1E-10			
Nickel	3.00E-08	1.9E-09			
Selenium	4.41E-09	2.8E-10			
Thallium	2.02E-09	1.3E-10			
Toluene	7.48E-11	4.8E-12			
Vanadium	3.75E-08	2.4E-09			
Zinc	5.86E-08	3.7E-09			

Total Pathway: 8.7E-05

Total Rad + Chem 8.7E-05 *Total:* 8.7E-05

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TABLE B.3.1-8(a)

CURRENT OFF-PROPERTY FARMER

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	1.67E-04	3.1E-01	2.2E-10	6.8E-11	NP-237	1.52E-05	1.1E-01	2.2E-10	2.5E-11	9.2E-11
PU-238	1.92E-07	3.5E-04	2.2E-10	7.8E-14	PU-238	3.84E-08	2.8E-04	2.2E-10	6.2E-14	1.4E-13
PU-239/240	8.24E-08	1.5E-04	2.3E-10	3.5E-14	PU-239/240	1.65E-08	1.2E-04	2.3E-10	2.8E-14	6.3E-14
RA-226	6.33E-04	1.2E+00	1.2E-10	1.4E-10	RA-226	1.14E-03	8.4E+00	1.2E-10	1.0E-09	1.1E-09
RA-228	4.26E-04	7.8E-01	1.0E-10	7.8E-11	RA-228	7.66E-04	5.6E+00	1.0E-10	5.6E-10	6.4E-10
SR-90	7.79E-04	1.4E+00	3.6E-11	5.2E-11	SR-90	3.89E-03	2.9E+01	3.6E-11	1.0E-09	1.1E-09
TH-228	1.14E-05	2.1E-02	5.5E-11	1.1E-12	TH-228	9.46E-06	7.0E-02	5.5E-11	3.8E-12	5.0E-12
TH-230	1.22E-05	2.2E-02	1.3E-11	2.9E-13	TH-230	1.02E-05	7.5E-02	1.3E-11	9.7E-13	1.3E-12
TH-232	8.92E-06	1.6E-02	1.2E-11	2.0E-13	TH-232	7.43E-06	5.5E-02	1.2E-11	6.6E-13	8.5E-13
U-234	3.97E-04	7.3E-01	1.6E-11	1.2E-11	U-234	1.19E-03	8.7E+00	1.6E-11	1.4E-10	1.5E-10
U-235/236	2.20E-05	4.0E-02	1.6E-11	6.3E-13	U-235/236	6.61E-05	4.9E-01	1.6E-11	7.5E-12	8.2E-12
U-238	3.97E-04	7.3E-01	2.8E-11	2.0E-11	U-238	1.19E-03	8.7E+00	2.8E-11	2.4E-10	2.7E-10
			Total Pathway:	3.7E-10				Total Pathway:	3.0E-09	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	9.90E-05	1.0E-07	1.8E+00	1.8E-07	Arsenic	2.97E-06	1.2E-08	1.8E+00	2.1E-08	2.0E-07
Barium	2.11E-05	2.2E-08			Barium	4.93E-05	2.0E-07			
Beryllium	2.59E-06	2.7E-09	4.3E+00	1.1E-08	Beryllium	2.33E-09	9.6E-12	4.3E+00	4.1E-11	1.1E-08
Chromium	4.02E-05	4.1E-08			Chromium	1.10E-05	4.5E-08			
Cobalt	2.06E-04	2.1E-07			Cobalt	2.06E-05	8.4E-08			
Copper	4.17E-04	4.3E-07			Copper	6.26E-05	2.6E-07			
Cyanide	3.93E-11	4.0E-14			Cyanide	1.24E-11	5.1E-14			
Lead	9.18E-06	9.4E-09			Lead	7.65E-06	3.1E-08			
Molybdenum	2.94E-05	3.0E-08			Molybdenum	7.34E-06	3.0E-08			
Nickel	1.37E-04	1.4E-07			Nickel	2.28E-05	9.4E-08			
Selenium	4.85E-05	5.0E-08			Selenium	1.29E-05	5.3E-08			
Thallium	5.92E-05	6.1E-08			Thallium	2.96E-06	1.2E-08			
Toluene	7.71E-10	7.9E-13			Toluene	2.44E-10	1.0E-12			
Vanadium	6.91E-05	7.1E-08			Vanadium	5.53E-07	2.3E-09			
Zinc	6.60E-03	6.8E-06			Zinc	6.60E-04	2.7E-06			
U-Total	0.00E+00	0.0E+00			U-Total	0.0E+00	0.0E+00			
			Total Pathway:	1.9E-07				Total Pathway:	2.1E-08	
			Total Rad + Chem	1.9E-07				Total Rad + Chem	2.4E-08	*Total:* 2.1E-07

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TABLE B.3.1-8(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	Total
NP-237	1.7E-04				NP-237	1.52E-05	1.1E-01			
PU-238	1.9E-07				PU-238	3.84E-08	2.8E-04			
PU-239/240	8.2E-08				PU-239/240	1.65E-08	1.2E-04			
RA-226	6.3E-04				RA-226	1.14E-03	8.4E+00			
RA-228	4.3E-04				RA-228	7.66E-04	5.6E+00			
SR-90	7.8E-04				SR-90	3.89E-03	2.9E+01			
TH-228	1.1E-05				TH-228	9.46E-06	7.0E-02			
TH-230	1.2E-05				TH-230	1.02E-05	7.5E-02			
TH-232	8.9E-06				TH-232	7.43E-06	5.5E-02			
U-234	4.0E-04				U-234	1.19E-03	8.7E+00			
U-235/236	2.2E-05				U-235/236	6.61E-05	4.9E-01			
U-238	4.0E-04				U-238	1.19E-03	8.7E+00			
	Total Pathway:	0.0E+00				Total Pathway:	0.0E+00			

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	Total
Arsenic	9.9E-05	1.0E-07	3.0E-04	3.4E-04	Arsenic	2.97E-06	1.2E-08	3.0E-04	4.1E-05	3.8E-04
Barium	2.1E-05	2.2E-08	7.0E-02	3.1E-07	Barium	4.93E-05	2.0E-07	7.0E-02	2.9E-06	3.2E-06
Beryllium	2.6E-06	2.7E-09	5.0E-03	5.3E-07	Beryllium	2.33E-09	9.6E-12	5.0E-03	1.9E-09	5.3E-07
Chromium	4.0E-05	4.1E-08	5.0E-03	8.3E-06	Chromium	1.10E-05	4.5E-08	5.0E-03	9.0E-06	1.7E-05
Cobalt	2.1E-04	2.1E-07			Cobalt	2.06E-05	8.4E-08			
Copper	4.2E-04	4.3E-07	4.0E-02	1.1E-05	Copper	6.26E-05	2.6E-07	4.0E-02	6.4E-06	1.7E-05
Cyanide	3.9E-11	4.0E-14	2.0E-02	2.0E-12	Cyanide	1.24E-11	5.1E-14	2.0E-02	2.6E-12	4.6E-12
Lead	9.2E-06	9.4E-09			Lead	7.65E-06	3.1E-08			
Molybdenum	2.9E-05	3.0E-08	5.0E-03	6.0E-06	Molybdenum	7.34E-06	3.0E-08	5.0E-03	6.0E-06	
Nickel	1.4E-04	1.4E-07	2.0E-02	7.0E-06	Nickel	2.28E-05	9.4E-08	2.0E-02	4.7E-06	1.2E-05
Selenium	4.9E-05	5.0E-08	5.0E-03	1.0E-05	Selenium	1.29E-05	5.3E-08	5.0E-03	1.1E-05	2.1E-05
Thallium	5.9E-05	6.1E-08	7.0E-05	8.7E-04	Thallium	2.96E-06	1.2E-08	7.0E-05	1.7E-04	1.0E-03
Toluene	7.7E-10	7.9E-13	2.0E-01	4.0E-12	Toluene	2.44E-10	1.0E-12	2.0E-01	5.0E-12	9.0E-12
Vanadium	6.9E-05	7.1E-08	7.0E-03	1.0E-05	Vanadium	5.53E-07	2.3E-09	7.0E-03	3.2E-07	1.0E-05
Zinc	6.6E-03	6.8E-06	3.0E-01	2.3E-05	Zinc	6.60E-04	2.7E-06	3.0E-01	9.0E-06	3.2E-05
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
	Total Pathway:	1.3E-03				Total Pathway:	2.6E-04			
	Total Rad + Chem	1.3E-03				Total Rad + Chem	2.6E-04			*Total:* 1.5E-03

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TABLE B.3.1-8 (b)

CURRENT OFF-PROPERTY CHILD

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	1.67E-04	1.0E-02	2.2E-10	2.2E-12	NP-237	1.52E-05	2.2E-02	2.2E-10	4.8E-12	7.0E-12
PU-238	1.92E-07	1.2E-05	2.2E-10	2.6E-15	PU-238	3.84E-08	5.5E-05	2.2E-10	1.2E-14	1.5E-14
PU-239/240	8.24E-08	5.0E-06	2.3E-10	1.2E-15	PU-239/240	1.65E-08	2.4E-05	2.3E-10	5.4E-15	6.6E-15
RA-226	6.33E-04	3.9E-02	1.2E-10	4.6E-12	RA-226	1.14E-03	1.6E+00	1.2E-10	2.0E-10	2.0E-10
RA-228	4.26E-04	2.6E-02	1.0E-10	2.6E-12	RA-228	7.66E-04	1.1E+00	1.0E-10	1.1E-10	1.1E-10
SR-90	7.79E-04	4.7E-02	3.6E-11	1.7E-12	SR-90	3.89E-03	5.6E+00	3.6E-11	2.0E-10	2.0E-10
TH-228	1.14E-05	6.9E-04	5.5E-11	3.8E-14	TH-228	9.46E-06	1.4E-02	5.5E-11	7.4E-13	7.8E-13
TH-230	1.22E-05	7.4E-04	1.3E-11	9.7E-15	TH-230	1.02E-05	1.5E-02	1.3E-11	1.9E-13	2.0E-13
TH-232	8.92E-06	5.4E-04	1.2E-11	6.5E-15	TH-232	7.43E-06	1.1E-02	1.2E-11	1.3E-13	1.3E-13
U-234	3.97E-04	2.4E-02	1.6E-11	3.9E-13	U-234	1.19E-03	1.7E+00	1.6E-11	2.7E-11	2.8E-11
U-235/236	2.20E-05	1.3E-03	1.6E-11	2.1E-14	U-235/236	6.61E-05	9.4E-02	1.6E-11	1.5E-12	1.5E-12
U-238	3.97E-04	2.4E-02	2.8E-11	6.8E-13	U-238	1.19E-03	1.7E+00	2.8E-11	4.8E-11	4.8E-11
			Total Pathway:	1.2E-11				Total Pathway:	5.9E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	9.90E-05	1.6E-08	1.8E+00	2.8E-08	Arsenic	2.97E-06	1.1E-08	1.8E+00	1.9E-08	4.7E-08
Barium	2.11E-05	3.4E-09			Barium	4.93E-05	1.8E-07			
Beryllium	2.59E-06	4.1E-10	4.3E+00	1.8E-09	Beryllium	2.33E-09	8.7E-12	4.3E+00	3.7E-11	1.8E-09
Chromium	4.02E-05	6.4E-09			Chromium	1.10E-05	4.1E-08			
Cobalt	2.06E-04	3.3E-08			Cobalt	2.06E-05	7.7E-08			
Copper	4.17E-04	6.6E-08			Copper	6.26E-05	2.3E-07			
Cyanide	3.93E-11	6.2E-15			Cyanide	1.24E-11	4.6E-14			
Lead	9.18E-06	1.5E-09			Lead	7.65E-06	2.9E-08			
Molybdenum	2.94E-05	4.7E-09			Molybdenum	7.34E-06	2.7E-08			
Nickel	1.37E-04	2.2E-08			Nickel	2.28E-05	8.5E-08			
Selenium	4.85E-05	7.7E-09			Selenium	1.29E-05	4.8E-08			
Thallium	5.92E-05	9.4E-09			Thallium	2.96E-06	1.1E-08			
Toluene	7.71E-10	1.2E-13			Toluene	2.44E-10	9.1E-13			
Vanadium	6.91E-05	1.1E-08			Vanadium	5.53E-07	2.1E-09			
Zinc	6.60E-03	1.0E-06			Zinc	6.60E-04	2.5E-06			
U-Total	0.00E+00	0.0E+00			U-Total	0.00E+00	0.0E+00			
			Total Pathway:	2.9E-08				Total Pathway:	1.9E-08	
			Total Rad + Chem	2.9E-08				Total Rad + Chem	2.0E-08	*Total:* 4.9E-08

TABLE B.3.1-8 (b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	onc'n in Beef (pCi/kg	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	
NP-237	1.7E-04				NP-237	1.52E-05	2.2E-02			
PU-238	1.9E-07				PU-238	3.84E-08	5.5E-05			
PU-239/240	8.2E-08				PU-239/240	1.65E-08	2.4E-05			
RA-226	6.3E-04				RA-226	1.14E-03	1.6E+00			
RA-228	4.3E-04				RA-228	7.66E-04	1.1E+00			
SR-90	7.8E-04				SR-90	3.89E-03	5.6E+00			
TH-228	1.1E-05				TH-228	9.46E-06	1.4E-02			
TH-230	1.2E-05				TH-230	1.02E-05	1.5E-02			
TH-232	8.9E-06				TH-232	7.43E-06	1.1E-02			
U-234	4.0E-04				U-234	1.19E-03	1.7E+00			
U-235/236	2.2E-05				U-235/236	6.61E-05	9.4E-02			
U-238	4.0E-04				U-238	1.19E-03	1.7E+00			
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	9.9E-05	1.8E-07	3.0E-04	6.1E-04	Arsenic	2.97E-06	1.3E-07	3.0E-04	4.3E-04	1.0E-03
Barium	2.1E-05	3.9E-08	7.0E-02	5.6E-07	Barium	4.93E-05	2.1E-06	7.0E-02	3.1E-05	3.1E-05
Beryllium	2.6E-06	4.8E-09	5.0E-03	9.6E-07	Beryllium	2.33E-09	1.0E-10	5.0E-03	2.0E-08	9.8E-07
Chromium	4.0E-05	7.5E-08	5.0E-03	1.5E-05	Chromium	1.10E-05	4.8E-07	5.0E-03	9.5E-05	1.1E-04
Cobalt	2.1E-04	3.8E-07			Cobalt	2.06E-05	8.9E-07			
Copper	4.2E-04	7.7E-07	4.0E-02	1.9E-05	Copper	6.26E-05	2.7E-06	4.0E-02	6.8E-05	8.7E-05
Cyanide	3.9E-11	7.3E-14	2.0E-02	3.6E-12	Cyanide	1.24E-11	5.4E-13	2.0E-02	2.7E-11	3.1E-11
Lead	9.2E-06	1.7E-08			Lead	7.65E-06	3.3E-07			
Molybdenu	2.9E-05	5.4E-08	5.0E-03	1.1E-05	Molybdenum	7.34E-06	3.2E-07	5.0E-03	6.4E-05	7.5E-05
Nickel	1.4E-04	2.5E-07	2.0E-02	1.3E-05	Nickel	2.28E-05	9.9E-07	2.0E-02	5.0E-05	6.2E-05
Selenium	4.9E-05	9.0E-08	5.0E-03	1.8E-05	Selenium	1.29E-05	5.6E-07	5.0E-03	1.1E-04	1.3E-04
Thallium	5.9E-05	1.1E-07	7.0E-05	1.6E-03	Thallium	2.96E-06	1.3E-07	7.0E-05	1.8E-03	3.4E-03
Toluene	7.7E-10	1.4E-12	2.0E-01	7.1E-12	Toluene	2.44E-10	1.1E-11	2.0E-01	5.3E-11	6.0E-11
Vanadium	6.9E-05	1.3E-07	7.0E-03	1.8E-05	Vanadium	5.53E-07	2.4E-08	7.0E-03	3.4E-06	2.2E-05
Zinc	6.6E-03	1.2E-05	3.0E-01	4.1E-05	Zinc	6.60E-04	2.9E-05	3.0E-01	9.6E-05	1.4E-04
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	2.3E-03				Total Pathway:	2.8E-03	
			Total Rad + Chem	2.3E-03				Total Rad + Chem	2.8E-03	*Total:* 5.1E-03

TABLE B.3.1-9 (a)

CURRENT OFF-PROPERTY FARMER

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	4.80E-02	7.2E+01	2.2E-10	1.6E-08	1.6E-08
PU-238	5.91E-03	8.8E+00	2.2E-10	1.9E-09	1.9E-09
PU-239/240	2.53E-03	3.8E+00	2.3E-10	8.7E-10	8.7E-10
RA-226	3.91E-02	5.8E+01	1.2E-10	7.0E-09	7.0E-09
RA-228	2.72E-02	4.1E+01	1.0E-10	4.1E-09	4.1E-09
SR-90	5.08E-02	7.6E+01	3.6E-11	2.7E-09	2.7E-09
TH-228	3.20E-02	4.8E+01	5.5E-11	2.6E-09	2.6E-09
TH-230	3.13E-02	4.7E+01	1.3E-11	6.1E-10	6.1E-10
TH-232	2.28E-02	3.4E+01	1.2E-11	4.1E-10	4.1E-10
U-234	3.05E-02	4.6E+01	1.6E-11	7.3E-10	7.3E-10
U-235/236	1.69E-03	2.5E+00	1.6E-11	3.9E-11	3.9E-11
U-238	3.05E-02	4.6E+01	2.8E-11	1.3E-09	1.3E-09
			Total Pathway:	3.8E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.69E-04	6.4E-07	1.8E+00	1.1E-06	1.1E-06
Barium	2.25E-03	1.9E-06			
Beryllium	3.99E-05	3.3E-08	4.3E+00	1.4E-07	1.4E-07
Chromium	1.12E-04	9.4E-08			
Cobalt	1.59E-04	1.3E-07			
Copper	6.42E-04	5.4E-07			
Cyanide	7.11E-06	5.9E-09			
Lead	4.75E-04	4.0E-07			
Molybdenum	7.87E-05	6.6E-08			
Nickel	3.45E-04	2.9E-07			
Selenium	4.99E-05	4.2E-08			
Thallium	2.28E-05	1.9E-08			
Toluene	9.12E-07	7.6E-10			
Vanadium	4.25E-04	3.6E-07			
Zinc	9.89E-04	8.3E-07			
U-Total	0.00E+00	0.0E+00			
			Total Pathway:	1.3E-06	

Total Rad + Chem	1.3E-06	*Total:*	1.3E-06

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NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
NP-237	4.8E-02				
PU-238	5.9E-03				
PU-239/240	2.5E-03				
RA-226	3.9E-02				
RA-228	2.7E-02				
SR-90	5.1E-02				
TH-228	3.2E-02				
TH-230	3.1E-02				
TH-232	2.3E-02				
U-234	3.1E-02				
U-235/236	1.7E-03				
U-238	3.1E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.7E-04	6.4E-07	3.0E-04	2.1E-03	2.1E-03
Barium	2.3E-03	1.9E-06	7.0E-02	2.7E-05	2.7E-05
Beryllium	4.0E-05	3.3E-08	5.0E-03	6.7E-06	6.7E-06
Chromium	1.1E-04	9.4E-08	5.0E-03	1.9E-05	1.9E-05
Cobalt	1.6E-04	1.3E-07			
Copper	6.4E-04	5.4E-07	4.0E-02	1.3E-05	1.3E-05
Cyanide	7.1E-06	5.9E-09	2.0E-02	3.0E-07	3.0E-07
Lead	4.8E-04	4.0E-07			
Molybdenum	7.9E-05	6.6E-08	5.0E-03	1.3E-05	1.3E-05
Nickel	3.5E-04	2.9E-07	2.0E-02	1.4E-05	1.4E-05
Selenium	5.0E-05	4.2E-08	5.0E-03	8.3E-06	8.3E-06
Thallium	2.3E-05	1.9E-08	7.0E-05	2.7E-04	2.7E-04
Toluene	9.1E-07	7.6E-10	2.0E-01	3.8E-09	3.8E-09
Vanadium	4.2E-04	3.6E-07	7.0E-03	5.1E-05	5.1E-05
Zinc	9.9E-04	8.3E-07	3.0E-01	2.8E-06	2.8E-06
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	2.6E-03	

Total Rad + Chem	2.6E-03	*Total:*	2.6E-03

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TABLE B.3.1-9 (b)

CURRENT OFF-PROPERTY CHILD

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	4.80E-02	5.3E+00	2.2E-10	1.2E-09	1.2E-09
PU-238	5.91E-03	6.6E-01	2.2E-10	1.4E-10	1.4E-10
PU-239/240	2.53E-03	2.8E-01	2.3E-10	6.5E-11	6.5E-11
RA-226	3.91E-02	4.3E+00	1.2E-10	5.2E-10	5.2E-10
RA-228	2.72E-02	3.0E+00	1.0E-10	3.0E-10	3.0E-10
SR-90	5.08E-02	5.7E+00	3.6E-11	2.0E-10	2.0E-10
TH-228	3.20E-02	3.6E+00	5.5E-11	2.0E-10	2.0E-10
TH-230	3.13E-02	3.5E+00	1.3E-11	4.5E-11	4.5E-11
TH-232	2.28E-02	2.5E+00	1.2E-11	3.1E-11	3.1E-11
U-234	3.05E-02	3.4E+00	1.6E-11	5.4E-11	5.4E-11
U-235/236	1.69E-03	1.9E-01	1.6E-11	2.9E-12	2.9E-12
U-238	3.05E-02	3.4E+00	2.8E-11	9.5E-11	9.5E-11
			Total Pathway:	2.8E-09	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.69E-04	2.2E-07	1.8E+00	3.9E-07	3.9E-07
Barium	2.25E-03	6.5E-07			
Beryllium	3.99E-05	1.2E-08	4.3E+00	5.0E-08	5.0E-08
Chromium	1.12E-04	3.3E-08			
Cobalt	1.59E-04	4.6E-08			
Copper	6.42E-04	1.9E-07			
Cyanide	7.11E-06	2.1E-09			
Lead	4.75E-04	1.4E-07			
Molybdenum	7.87E-05	2.3E-08			
Nickel	3.45E-04	1.0E-07			
Selenium	4.99E-05	1.4E-08			
Thallium	2.28E-05	6.6E-09			
Toluene	9.12E-07	2.6E-10			
Vanadium	4.25E-04	1.2E-07			
Zinc	9.89E-04	2.9E-07			
U-Total	0.00E+00	0.0E+00			
			Total Pathway:	4.4E-07	

Total Rad + Chem 4.4E-07 *Total:* 4.4E-07

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
NP-237	4.8E-02				
PU-238	5.9E-03				
PU-239/240	2.5E-03				
RA-226	3.9E-02				
RA-228	2.7E-02				
SR-90	5.1E-02				
TH-228	3.2E-02				
TH-230	3.1E-02				
TH-232	2.3E-02				
U-234	3.1E-02				
U-235/236	1.7E-03				
U-238	3.1E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.7E-04	2.6E-06	3.0E-04	8.7E-03	8.7E-03
Barium	2.3E-03	7.6E-06	7.0E-02	1.1E-04	1.1E-04
Beryllium	4.0E-05	1.4E-07	5.0E-03	2.7E-05	2.7E-05
Chromium	1.1E-04	3.8E-07	5.0E-03	7.6E-05	7.6E-05
Cobalt	1.6E-04	5.4E-07			
Copper	6.4E-04	2.2E-06	4.0E-02	5.4E-05	5.4E-05
Cyanide	7.1E-06	2.4E-08	2.0E-02	1.2E-06	1.2E-06
Lead	4.8E-04	1.6E-06			
Molybdenum	7.9E-05	2.7E-07	5.0E-03	5.3E-05	5.3E-05
Nickel	3.5E-04	1.2E-06	2.0E-02	5.9E-05	5.9E-05
Selenium	5.0E-05	1.7E-07	5.0E-03	3.4E-05	3.4E-05
Thallium	2.3E-05	7.7E-08	7.0E-05	1.1E-03	1.1E-03
Toluene	9.1E-07	3.1E-09	2.0E-01	1.5E-08	1.5E-08
Vanadium	4.2E-04	1.4E-06	7.0E-03	2.1E-04	2.1E-04
Zinc	9.9E-04	3.4E-06	3.0E-01	1.1E-05	1.1E-05
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	1.0E-02	

Total Rad + Chem	1.0E-02	*Total:*	1.0E-02

TABLE B.3.1-10

CURRENT USER OF MILK AND MEAT

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg	Intake	SF(o)	Risk	Compound	onc'n in Milk (pCi/L	Intake	SF(o)	Risk	
NP-237	5.06E-03	9.3E+00	2.2E-10	2.0E-09	NP-237	4.60E-04	3.4E+00	2.2E-10	7.4E-10	2.8E-09
PU-238	5.82E-06	1.1E-02	2.2E-10	2.4E-12	PU-238	1.16E-06	8.6E-03	2.2E-10	1.9E-12	4.2E-12
PU-239/240	2.50E-06	4.6E-03	2.3E-10	1.1E-12	PU-239/240	5.00E-07	3.7E-03	2.3E-10	8.4E-13	1.9E-12
RA-226	1.92E-02	3.5E+01	1.2E-10	4.2E-09	RA-226	3.46E-02	2.5E+02	1.2E-10	3.1E-08	3.5E-08
RA-228	1.29E-02	2.4E+01	1.0E-10	2.4E-09	RA-228	2.32E-02	1.7E+02	1.0E-10	1.7E-08	1.9E-08
SR-90	2.37E-02	4.3E+01	3.6E-11	1.6E-09	SR-90	1.18E-01	8.7E+02	3.6E-11	3.1E-08	3.3E-08
TH-228	3.45E-04	6.3E-01	5.5E-11	3.5E-11	TH-228	2.87E-04	2.1E+00	5.5E-11	1.2E-10	1.5E-10
TH-230	3.70E-04	6.8E-01	1.3E-11	8.8E-12	TH-230	3.08E-04	2.3E+00	1.3E-11	2.9E-11	3.8E-11
TH-232	2.70E-04	5.0E-01	1.2E-11	5.9E-12	TH-232	2.25E-04	1.7E+00	1.2E-11	2.0E-11	2.6E-11
U-234	1.20E-02	2.2E+01	1.6E-11	3.5E-10	U-234	3.61E-02	2.7E+02	1.6E-11	4.2E-09	4.6E-09
U-235/236	6.68E-04	1.2E+00	1.6E-11	1.9E-11	U-235/236	2.00E-03	1.5E+01	1.6E-11	2.3E-10	2.5E-10
U-238	1.20E-02	2.2E+01	2.8E-11	6.2E-10	U-238	3.61E-02	2.7E+02	2.8E-11	7.4E-09	8.0E-09
			Total Pathway:	1.1E-08				Total Pathway:	9.2E-08	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L	Intake	SF(o)	Risk	
Arsenic	3.00E-03	3.1E-06	1.8E+00	5.4E-06	Arsenic	9.01E-05	3.7E-07	1.8E+00	6.5E-07	6.1E-06
Barium	6.40E-04	6.6E-07			Barium	1.49E-03	6.1E-06			
Beryllium	7.86E-05	8.1E-08	4.3E+00	3.5E-07	Beryllium	7.07E-08	2.9E-10	4.3E+00	1.2E-09	3.5E-07
Chromium	1.22E-03	1.3E-06			Chromium	3.33E-04	1.4E-06			
Cobalt	6.23E-03	6.4E-06			Cobalt	6.23E-04	2.6E-06			
Copper	1.26E-02	1.3E-05			Copper	1.89E-03	7.8E-06			
Cyanide	1.19E-09	1.2E-12			Cyanide	3.77E-10	1.5E-12			
Lead	2.79E-04	2.9E-07			Lead	2.33E-04	9.6E-07			
Molybdenum	8.88E-04	9.1E-07			Molybdenum	2.22E-04	9.1E-07			
Nickel	4.15E-03	4.3E-06			Nickel	6.91E-04	2.8E-06			
Selenium	1.47E-03	1.5E-06			Selenium	3.92E-04	1.6E-06			
Thallium	1.79E-03	1.8E-06			Thallium	8.95E-05	3.7E-07			
Toluene	2.34E-08	2.4E-11			Toluene	7.39E-09	3.0E-11			
Vanadium	2.09E-03	2.1E-06			Vanadium	1.67E-05	6.9E-08			
Zinc	2.01E-01	2.1E-04			Zinc	2.01E-02	8.2E-05			
U-Total	0.00E+00	0.0E+00			U-Total	0.0E+00	0.0E+00			
			Total Pathway:	5.7E-06				Total Pathway:	6.5E-07	
			Total Rad + Chem	5.8E-06				Total Rad + Chem	7.4E-07	*Total:* 6.5E-06

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TABLE B.3.1-10 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	5.1E-03			
PU-238	5.8E-06			
PU-239/240	2.5E-06			
RA-226	1.9E-02			
RA-228	1.3E-02			
SR-90	2.4E-02			
TH-228	3.4E-04			
TH-230	3.7E-04			
TH-232	2.7E-04			
U-234	1.2E-02			
U-235/236	6.7E-04			
U-238	1.2E-02			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
NP-237	4.60E-04	3.4E+00		
PU-238	1.16E-06	8.6E-03		
PU-239/240	5.00E-07	3.7E-03		
RA-226	3.46E-02	2.5E+02		
RA-228	2.32E-02	1.7E+02		
SR-90	1.18E-01	8.7E+02		
TH-228	2.87E-04	2.1E+00		
TH-230	3.08E-04	2.3E+00		
TH-232	2.25E-04	1.7E+00		
U-234	3.61E-02	2.7E+02		
U-235/236	2.00E-03	1.5E+01		
U-238	3.61E-02	2.7E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	3.0E-03	3.1E-06	3.0E-04	1.0E-02
Barium	6.4E-04	6.6E-07	7.0E-02	9.4E-06
Beryllium	7.9E-05	8.1E-08	5.0E-03	1.6E-05
Chromium	1.2E-03	1.3E-06	5.0E-03	2.5E-04
Cobalt	6.2E-03	6.4E-06		
Copper	1.3E-02	1.3E-05	4.0E-02	3.2E-04
Cyanide	1.2E-09	1.2E-12	2.0E-02	6.1E-11
Lead	2.8E-04	2.9E-07		
Molybdenum	8.9E-04	9.1E-07	5.0E-03	1.8E-04
Nickel	4.1E-03	4.3E-06	2.0E-02	2.1E-04
Selenium	1.5E-03	1.5E-06	5.0E-03	3.0E-04
Thallium	1.8E-03	1.8E-06	7.0E-05	2.6E-02
Toluene	2.3E-08	2.4E-11	2.0E-01	1.2E-10
Vanadium	2.1E-03	2.1E-06	7.0E-03	3.1E-04
Zinc	2.0E-01	2.1E-04	3.0E-01	6.9E-04
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00

Total Pathway: 3.9E-02

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	9.01E-05	3.7E-07	3.0E-04	1.2E-03
Barium	1.49E-03	6.1E-06	7.0E-02	8.8E-05
Beryllium	7.07E-08	2.9E-10	5.0E-03	5.8E-08
Chromium	3.33E-04	1.4E-06	5.0E-03	2.7E-04
Cobalt	6.23E-04	2.6E-06		
Copper	1.89E-03	7.8E-06	4.0E-02	1.9E-04
Cyanide	3.77E-10	1.5E-12	2.0E-02	7.7E-11
Lead	2.33E-04	9.6E-07		
Molybdenu	2.22E-04	9.1E-07	5.0E-03	1.8E-04
Nickel	6.91E-04	2.8E-06	2.0E-02	1.4E-04
Selenium	3.92E-04	1.6E-06	5.0E-03	3.2E-04
Thallium	8.95E-05	3.7E-07	7.0E-05	5.3E-03
Toluene	7.39E-09	3.0E-11	2.0E-01	1.5E-10
Vanadium	1.67E-05	6.9E-08	7.0E-03	9.8E-06
Zinc	2.01E-02	8.2E-05	3.0E-01	2.7E-04
U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00

Total Pathway: 8.0E-03

Total
1.2E-02
9.7E-05
1.6E-05
5.2E-04
5.2E-04
1.4E-10
3.5E-04
6.2E-04
3.2E-02
2.7E-10
3.2E-04
9.6E-04
0.0E+00

Total Rad + Chem 3.9E-02

Total Rad + Chem 8.0E-03 *Total:* 4.7E-02

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TABLE B.3.1-11
CURRENT, GROUNDSKEEPER
ACTIVE FLYASH PILE: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
NP-237	5.67E-05	9.9E-01	2.9E-08	2.9E-08
PU-238	7.21E-06	1.3E-01	3.9E-08	4.9E-09
PU-239/240	3.09E-06	5.4E-02	3.8E-08	2.1E-09
RA-226	4.74E-05	8.3E-01	3.0E-09	2.5E-09
RA-228	3.30E-05	5.8E-01	6.9E-10	4.0E-10
SR-90	4.64E-05	8.1E-01	6.2E-11	5.0E-11
TH-228	3.91E-05	6.8E-01	7.8E-08	5.3E-08
TH-230	3.81E-05	6.7E-01	2.9E-08	1.9E-08
TH-232	2.78E-05	4.9E-01	2.8E-08	1.4E-08
U-234	3.71E-05	6.5E-01	2.6E-08	1.7E-08
U-235/236	2.06E-06	3.6E-02	2.5E-08	9.0E-10
U-238	3.71E-05	6.5E-01	5.2E-08	3.4E-08
			Total Pathway:	1.8E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.48	4.8E+02	2.2E-10	1.1E-07
PU-238	0.72	6.3E+01	2.2E-10	1.4E-08
PU-239/240	0.33	2.9E+01	2.3E-10	6.6E-09
RA-226	4.61	4.0E+02	1.2E-10	4.8E-08
RA-228	3.17	2.8E+02	1.0E-10	2.8E-08
SR-90	4.47	3.9E+02	3.6E-11	1.4E-08
TH-228	3.81	3.3E+02	5.5E-11	1.8E-08
TH-230	3.66	3.2E+02	1.3E-11	4.2E-09
TH-232	2.66	2.3E+02	1.2E-11	2.8E-09
U-234	3.60	3.1E+02	1.6E-11	5.0E-09
U-235/236	0.16	1.4E+01	1.6E-11	2.2E-10
U-238	3.61	3.2E+02	2.8E-11	8.8E-09
				2.6E-07

Chemical Risk

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	9.25E-07	9.1E-09	1.5E+01	1.4E-07
Barium	2.62E-06	2.6E-08		
Beryllium	4.84E-08	4.7E-10	8.4E+00	4.0E-09
Chromium	1.37E-07	1.3E-09	4.1E+01	5.5E-08
Cobalt	1.94E-07	1.9E-09		
Copper	7.60E-07	7.4E-09		
Cyanide	3.09E-09	3.0E-11		
Lead	5.71E-07	5.6E-09		
Molybdenum	8.86E-08	8.7E-10		
Nickel	4.13E-07	4.0E-09	8.4E-01	3.4E-09
Selenium	6.08E-08	5.9E-10		
Thallium	2.78E-08	2.7E-10		
Toluene	1.03E-09	1.0E-11		
Vanadium	5.17E-07	5.1E-09		
Zinc	8.06E-07	7.9E-09		
U-TOTAL		0.0E+00		
TH-TOTAL		0.0E+00		
			Total Pathway:	2.0E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	89.82	4.4E-06	1.8E+00	7.7E-06
Barium	253.90	1.2E-05		
Beryllium	4.67	2.3E-07	4.3E+00	9.8E-07
Chromium	13.32	6.5E-07		
Cobalt	18.80	9.2E-07		
Copper	73.84	3.6E-06		
Cyanide	0.33	1.6E-08		
Lead	55.44	2.7E-06		
Molybdenum	8.63	4.2E-07		
Nickel	40.11	2.0E-06		
Selenium	5.94	2.9E-07		
Thallium	2.66	1.3E-07		
Toluene	0.07	3.6E-09		
Vanadium	50.24	2.5E-06		
Zinc	78.32	3.8E-06		
U-TOTAL	22.0	1.1E-06		
TH-TOTAL	12.6	6.2E-07		
			Total Pathway:	8.7E-06

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TABLE B.3.1-11 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	SF(e)	Risk
NP-237	4.2E+00	4.3E-07	1.8E-06
PU-238	5.6E-01	2.8E-11	1.6E-11
PU-239/24	2.5E-01	2.7E-11	6.9E-12
RA-226	3.5E+00	1.2E-08	4.3E-08
RA-228	2.4E+00	2.9E-06	7.1E-06
SR-90	3.4E+00	0.0E+00	0.0E+00
TH-228	2.9E+00	5.6E-06	1.6E-05
TH-230	2.8E+00	5.4E-11	1.5E-10
TH-232	2.0E+00	2.6E-11	5.3E-11
U-234	2.8E+00	3.0E-11	8.3E-11
U-235/236	1.2E-01	2.4E-07	3.0E-08
U-238	2.8E+00	3.6E-08	1.0E-07

Total Pathway: 2.5E-05

Total

1.9E-06
1.9E-08
8.7E-09
9.3E-08
7.1E-06
1.4E-08
1.7E-05
2.4E-08
1.6E-08
2.2E-08
3.1E-08
1.4E-07
2.6E-05

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk
Arsenic	2.5E-07	1.84E+00	4.7E-07
Barium	7.1E-06		
Beryllium	1.3E-07	4.30E+02	5.7E-05
Chromium	3.7E-07		
Cobalt	5.3E-07		
Copper	2.1E-07		
Cyanide	9.3E-09		
Lead	1.6E-06		
Molybdenum	2.4E-07		
Nickel	5.6E-08		
Selenium	1.7E-07		
Thallium	7.5E-08		
Toluene	6.2E-09		
Vanadium	1.4E-07		
Zinc	2.2E-06		
U-TOTAL	6.2E-08		
TH-TOTAL	3.6E-07		

Total Pathway: 5.7E-05

External Radiation/Soil

Compound	Intake	SF(o)	Risk

Not applicable

Total Pathway: 0.0E+00

Total

8.3E-06
5.8E-05
5.5E-08
3.4E-09

6.6E-05

Total Rad + Chem: 9.2E-05

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NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	HQ
NP-237	5.67E-05	9.9E-01		
PU-238	7.21E-06	1.3E-01		
PU-239/24	3.09E-06	5.4E-02		
RA-226	4.74E-05	8.3E-01		
RA-228	3.30E-05	5.8E-01		
SR-90	4.64E-05	8.1E-01		
TH-228	3.91E-05	6.8E-01		
TH-230	3.81E-05	6.7E-01		
TH-232	2.78E-05	4.9E-01		
U-234	3.71E-05	6.5E-01		
U-235/236	2.06E-06	3.6E-02		
U-238	3.71E-05	6.5E-01		
		Total Pathway:		0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	HQ
NP-237	5.48	4.8E+02		
PU-238	0.72	6.3E+01		
PU-239/240	0.33	2.9E+01		
RA-226	4.61	4.0E+02		
RA-228	3.17	2.8E+02		
SR-90	4.47	3.9E+02		
TH-228	3.81	3.3E+02		
TH-230	3.66	3.2E+02		
TH-232	2.66	2.3E+02		
U-234	3.60	3.1E+02		
U-235/236	0.16	1.4E+01		
U-238	3.61	3.2E+02		
		Total Pathway:		0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	HQ
Arsenic	9.3E-07	2.5E-08		
Barium	2.6E-06	7.2E-08	1.4E-04	5.1E-04
Beryllium	4.8E-08	1.3E-09		
Chromium	1.4E-07	3.8E-09		
Cobalt	1.9E-07	5.3E-09	5.5E-07	9.7E-03
Copper	7.6E-07	2.1E-08		
Cyanide	3.1E-09	8.5E-11		
Lead	5.7E-07	1.6E-08		
Molybdenu	8.9E-08	2.4E-09		
Nickel	4.1E-07	1.1E-08		
Selenium	6.1E-08	1.7E-09		
Thallium	2.8E-08	7.6E-10		
Toluene	1.0E-09	2.8E-11		
Vanadium	5.2E-07	1.4E-08		
Zinc	8.1E-07	2.2E-08		
U-TOTAL	0.0E+00	0.0E+00		
TH-TOTA	0.0E+00	0.0E+00		
		Total Pathway:		1.0E-02

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	HQ
Arsenic	89.82	1.2E-05	3.0E-04	4.1E-02
Barium	253.90	3.5E-05	7.0E-02	5.0E-04
Beryllium	4.67	6.4E-07	5.0E-03	1.3E-04
Chromium	13.32	1.8E-06	5.0E-03	3.7E-04
Cobalt	18.80	2.6E-06		
Copper	73.84	1.0E-05	4.0E-02	2.5E-04
Cyanide	0.33	4.5E-08	2.0E-02	2.3E-06
Lead	55.44	7.6E-06		
Molybdenum	8.63	1.2E-06	5.0E-03	2.4E-04
Nickel	40.11	5.5E-06	2.0E-02	2.7E-04
Selenium	5.94	8.1E-07	5.0E-03	1.6E-04
Thallium	2.66	3.6E-07	7.0E-05	5.2E-03
Toluene	0.07	1.0E-08	2.0E-01	5.0E-08
Vanadium	50.24	6.9E-06	7.0E-03	9.8E-04
Zinc	78.32	1.1E-05	3.0E-01	3.6E-05
U-TOTAL	22.03	3.0E-06	3.0E-03	1.0E-03
TH-TOTAL	12.63	1.7E-06		
		Total Pathway:		5.0E-02

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NONCARCINOGENIC HAZARD

Radiation Hazard	
Dermal Contact/Soil	Total
Not Applicable	

Chemical Hazard				
Dermal Contact/Soil				
Compound	Intake	RfD(derm)	HQ	
Arsenic	7.1E-06	2.9E-04	2.5E-02	6.6E-02
Barium	2.0E-06	6.4E-02	3.1E-05	1.0E-03
Beryllium	3.7E-07	5.0E-05	7.4E-03	7.5E-03
Chromium	1.0E-06	2.3E-03	4.7E-04	8.3E-04
Cobalt	1.5E-06			9.7E-03
Copper	5.8E-06	2.4E-02	2.4E-04	5.0E-04
Cyanide	2.6E-09	1.4E-02	1.8E-07	2.4E-06
Lead	4.4E-06			
Molybdenum	6.8E-07	1.9E-03	3.6E-04	5.9E-04
Nickel	3.2E-06	1.0E-03	3.2E-03	3.4E-03
Selenium	4.7E-07	4.0E-03	1.2E-04	2.8E-04
Thallium	2.1E-09	7.0E-05	3.0E-05	5.2E-03
Toluene	5.7E-09	2.0E-03	2.9E-06	2.9E-06
Vanadium	4.0E-07	3.5E-04	1.1E-03	2.1E-03
Zinc	6.2E-06	7.5E-02	8.2E-05	1.2E-04
U-TOTAL	1.7E-07	1.5E-04	1.2E-03	2.2E-03
TH-TOTAL	9.9E-07			
		Total Pathway:	3.9E-02	

9.9E-02

TABLE B.3.1-12(a)
FUTURE OFF-PROPERTY FARMER
ACTIVE FLYASH PILE: SURFACE SOIL/AIR
CARCINOGENIC RISK

Radiation Risk					
Inhalation/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
NP-237	4.11E-06	4.8E-01	2.9E-08	1.4E-08	1.4E-08
PU-238	5.24E-07	6.1E-02	3.9E-08	2.4E-09	2.4E-09
PU-239/240	2.24E-07	2.6E-02	3.8E-08	9.9E-10	9.9E-10
RA-226	3.44E-06	4.0E-01	3.0E-09	1.2E-09	1.2E-09
RA-228	2.39E-06	2.8E-01	6.9E-10	1.9E-10	1.9E-10
SR-90	3.37E-06	3.9E-01	6.2E-11	2.4E-11	2.4E-11
TH-228	2.84E-06	3.3E-01	7.8E-08	2.6E-08	2.6E-08
TH-230	2.77E-06	3.2E-01	2.9E-08	9.3E-09	9.3E-09
TH-232	2.02E-06	2.3E-01	2.8E-08	6.6E-09	6.6E-09
U-234	2.69E-06	3.1E-01	2.6E-08	8.1E-09	8.1E-09
U-235/236	1.50E-07	1.7E-02	2.5E-08	4.3E-10	4.3E-10
U-238	2.69E-06	3.1E-01	5.2E-08	1.6E-08	1.6E-08
			Total Pathway:	8.5E-08	

Chemical Risk					
Inhalation/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	6.72E-08	4.4E-09	1.5E+01	6.6E-08	6.6E-08
Barium	1.90E-07	1.2E-08			
Beryllium	3.52E-09	2.3E-10	8.4E+00	1.9E-09	1.9E-09
Chromium	9.95E-09	6.4E-10	4.1E+01	2.6E-08	2.6E-08
Cobalt	1.41E-08	9.1E-10			
Copper	5.52E-08	3.6E-09			
Cyanide	2.24E-10	1.5E-11			
Lead	4.14E-08	2.7E-09			
Molybdenum	6.43E-09	4.2E-10			
Nickel	3.00E-08	1.9E-09			
Selenium	4.41E-09	2.9E-10			
Thallium	2.02E-09	1.3E-10			
Toluene	7.48E-11	4.8E-12			
Vanadium	3.75E-08	2.4E-09			
Zinc	5.86E-08	3.8E-09			
			Total Pathway:	9.4E-08	

Total Rad + Chem 1.8E-07 *Total:* 1.8E-07

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TABLE B.3.1-12(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Inhalation/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard	
NP-237	4.11E-06				
PU-238	5.24E-07				
PU-239/240	2.24E-07				
RA-226	3.44E-06				
RA-228	2.39E-06				
SR-90	3.37E-06				
TH-228	2.84E-06				
TH-230	2.77E-06				
TH-232	2.02E-06				
U-234	2.69E-06				
U-235/236	1.50E-07				
U-238	2.69E-06				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	6.72E-08	4.4E-09			
Barium	1.90E-07	1.2E-08	1.4E-04	8.8E-05	8.8E-05
Beryllium	3.52E-09	2.3E-10			
Chromium	9.95E-09	6.4E-10			
Cobalt	1.41E-08	9.1E-10			
Copper	5.52E-08	3.6E-09			
Cyanide	2.24E-10	1.5E-11			
Lead	4.14E-08	2.7E-09			
Molybdenum	6.43E-09	4.2E-10			
Nickel	3.00E-08	1.9E-09			
Selenium	4.41E-09	2.9E-10			
Thallium	2.02E-09	1.3E-10			
Toluene	7.48E-11	4.8E-12			
Vanadium	3.75E-08	2.4E-09			
Zinc	5.86E-08	3.8E-09			
			Total Pathway:	8.8E-05	

Total Rad + Chem	8.8E-05	*Total:*	8.8E-05

TABLE B.3.1-12 (b)
FUTURE OFF-PROPERTY RESIDENT CHILD
ACTIVE FLYASH PILE: SURFACE SOIL/AIR
CARCINOGENIC RISK

Radiation Risk					
Inhalation/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
NP-237	4.11E-06	8.6E-03	2.9E-08	2.5E-10	2.5E-10
PU-238	5.24E-07	1.1E-03	3.9E-08	4.3E-11	4.3E-11
PU-239/240	2.24E-07	4.7E-04	3.8E-08	1.8E-11	1.8E-11
RA-226	3.44E-06	7.2E-03	3.0E-09	2.2E-11	2.2E-11
RA-228	2.39E-06	5.0E-03	6.9E-10	3.5E-12	3.5E-12
SR-90	3.37E-06	7.1E-03	6.2E-11	4.4E-13	4.4E-13
TH-228	2.84E-06	6.0E-03	7.8E-08	4.7E-10	4.7E-10
TH-230	2.77E-06	5.8E-03	2.9E-08	1.7E-10	1.7E-10
TH-232	2.02E-06	4.2E-03	2.8E-08	1.2E-10	1.2E-10
U-234	2.69E-06	5.6E-03	2.6E-08	1.5E-10	1.5E-10
U-235/236	1.50E-07	3.2E-04	2.5E-08	7.9E-12	7.9E-12
U-238	2.69E-06	5.6E-03	5.2E-08	2.9E-10	2.9E-10
			Total Pathway:	1.5E-09	

Chemical Risk					
Inhalation/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	6.72E-08	3.7E-10	1.5E+01	5.6E-09	5.6E-09
Barium	1.90E-07	1.0E-09			
Beryllium	3.52E-09	1.9E-11	8.4E+00	1.6E-10	1.6E-10
Chromium	9.95E-09	5.5E-11	4.1E+01	2.2E-09	2.2E-09
Cobalt	1.41E-08	7.7E-11			
Copper	5.52E-08	3.0E-10			
Cyanide	2.24E-10	1.2E-12			
Lead	4.14E-08	2.3E-10			
Molybdenum	6.43E-09	3.5E-11			
Nickel	3.00E-08	1.6E-10			
Selenium	4.41E-09	2.4E-11			
Thallium	2.02E-09	1.1E-11			
Toluene	7.48E-11	4.1E-13			
Vanadium	3.75E-08	2.1E-10			
Zinc	5.86E-08	3.2E-10			
			Total Pathway:	8.0E-09	

Total Rad + Chem	9.5E-09	*Total:*	9.5E-09

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TABLE B.3.1-12 (b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Inhalation/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard	
NP-237	4.11E-06	8.6E-03			
PU-238	5.24E-07	1.1E-03			
PU-239/240	2.24E-07	4.7E-04			
RA-226	3.44E-06	7.2E-03			
RA-228	2.39E-06	5.0E-03			
SR-90	3.37E-06	7.1E-03			
TH-228	2.84E-06	6.0E-03			
TH-230	2.77E-06	5.8E-03			
TH-232	2.02E-06	4.2E-03			
U-234	2.69E-06	5.6E-03			
U-235/236	1.50E-07	3.2E-04			
U-238	2.69E-06	5.6E-03			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	6.72E-08	4.3E-09			
Barium	1.90E-07	1.2E-08	1.4E-04	8.7E-05	8.7E-05
Beryllium	3.52E-09	2.3E-10			
Chromium	9.95E-09	6.4E-10			
Cobalt	1.41E-08	9.0E-10			
Copper	5.52E-08	3.5E-09			
Cyanide	2.24E-10	1.4E-11			
Lead	4.14E-08	2.6E-09			
Molybdenum	6.43E-09	4.1E-10			
Nickel	3.00E-08	1.9E-09			
Selenium	4.41E-09	2.8E-10			
Thallium	2.02E-09	1.3E-10			
Toluene	7.48E-11	4.8E-12			
Vanadium	3.75E-08	2.4E-09			
Zinc	5.86E-08	3.7E-09			
			Total Pathway:	8.7E-05	

Total Rad + Chem	8.7E-05	*Total:*	8.7E-05

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TABLE B.3.1-13(a)

FUTURE OFF-PROPERTY FARMER

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	1.67E-04	3.1E-01	2.2E-10	6.8E-11	NP-237	1.52E-05	1.1E-01	2.2E-10	2.5E-11	9.2E-11
PU-238	1.92E-07	3.5E-04	2.2E-10	7.8E-14	PU-238	3.84E-08	2.8E-04	2.2E-10	6.2E-14	1.4E-13
PU-239/240	8.24E-08	1.5E-04	2.3E-10	3.5E-14	PU-239/240	1.65E-08	1.2E-04	2.3E-10	2.8E-14	6.3E-14
RA-226	6.33E-04	1.2E+00	1.2E-10	1.4E-10	RA-226	1.14E-03	8.4E+00	1.2E-10	1.0E-09	1.1E-09
RA-228	4.26E-04	7.8E-01	1.0E-10	7.8E-11	RA-228	7.66E-04	5.6E+00	1.0E-10	5.6E-10	6.4E-10
SR-90	7.79E-04	1.4E+00	3.6E-11	5.2E-11	SR-90	3.89E-03	2.9E+01	3.6E-11	1.0E-09	1.1E-09
TH-228	1.14E-05	2.1E-02	5.5E-11	1.1E-12	TH-228	9.46E-06	7.0E-02	5.5E-11	3.8E-12	5.0E-12
TH-230	1.22E-05	2.2E-02	1.3E-11	2.9E-13	TH-230	1.02E-05	7.5E-02	1.3E-11	9.7E-13	1.3E-12
TH-232	8.92E-06	1.6E-02	1.2E-11	2.0E-13	TH-232	7.43E-06	5.5E-02	1.2E-11	6.6E-13	8.5E-13
U-234	3.97E-04	7.3E-01	1.6E-11	1.2E-11	U-234	1.19E-03	8.7E+00	1.6E-11	1.4E-10	1.5E-10
U-235/236	2.20E-05	4.0E-02	1.6E-11	6.3E-13	U-235/236	6.61E-05	4.9E-01	1.6E-11	7.5E-12	8.2E-12
U-238	3.97E-04	7.3E-01	2.8E-11	2.0E-11	U-238	1.19E-03	8.7E+00	2.8E-11	2.4E-10	2.7E-10
			Total Pathway:	3.7E-10				Total Pathway:	3.0E-09	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	9.90E-05	1.0E-07	1.8E+00	1.8E-07	Arsenic	2.97E-06	1.2E-08	1.8E+00	2.1E-08	2.0E-07
Barium	2.11E-05	2.2E-08			Barium	4.93E-05	2.0E-07			
Beryllium	2.59E-06	2.7E-09	4.3E+00	1.1E-08	Beryllium	2.33E-09	9.6E-12	4.3E+00	4.1E-11	1.1E-08
Chromium	4.02E-05	4.1E-08			Chromium	1.10E-05	4.5E-08			
Cobalt	2.06E-04	2.1E-07			Cobalt	2.06E-05	8.4E-08			
Copper	4.17E-04	4.3E-07			Copper	6.26E-05	2.6E-07			
Cyanide	3.93E-11	4.0E-14			Cyanide	1.24E-11	5.1E-14			
Lead	9.18E-06	9.4E-09			Lead	7.65E-06	3.1E-08			
Molybdenum	0.00E+00	0.0E+00			Molybdenu	0.00E+00	0.0E+00			
Nickel	1.37E-04	1.4E-07			Nickel	2.28E-05	9.4E-08			
Selenium	4.85E-05	5.0E-08			Selenium	1.29E-05	5.3E-08			
Thallium	5.92E-05	6.1E-08			Thallium	2.96E-06	1.2E-08			
Toluene	7.71E-10	7.9E-13			Toluene	2.44E-10	1.0E-12			
Vanadium	6.91E-05	7.1E-08			Vanadium	5.53E-07	2.3E-09			
Zinc	6.60E-03	6.8E-06			Zinc	6.60E-04	2.7E-06			
U-Total	0.00E+00	0.0E+00			U-Total	0.00E+00	0.0E+00			
			Total Pathway:	1.9E-07				Total Pathway:	2.1E-08	
			Total Rad + Chem	1.9E-07				Total Rad + Chem	2.4E-08	*Total:* 2.1E-07

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TABLE B.3.1-13(a) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	
NP-237	1.7E-04				NP-237	1.5E-05				
PU-238	1.9E-07				PU-238	3.8E-08				
PU-239/240	8.2E-08				PU-239/240	1.6E-08				
RA-226	6.3E-04				RA-226	1.1E-03				
RA-228	4.3E-04				RA-228	7.7E-04				
SR-90	7.8E-04				SR-90	3.9E-03				
TH-228	1.1E-05				TH-228	9.5E-06				
TH-230	1.2E-05				TH-230	1.0E-05				
TH-232	8.9E-06				TH-232	7.4E-06				
U-234	4.0E-04				U-234	1.2E-03				
U-235/236	2.2E-05				U-235/236	6.6E-05				
U-238	4.0E-04				U-238	1.2E-03				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	9.9E-05	1.0E-07	3.0E-04	3.4E-04	Arsenic	2.97E-06	1.2E-08	3.0E-04	4.1E-05	3.8E-04
Barium	2.1E-05	2.2E-08	7.0E-02	3.1E-07	Barium	4.93E-05	2.0E-07	7.0E-02	2.9E-06	3.2E-06
Beryllium	2.6E-06	2.7E-09	5.0E-03	5.3E-07	Beryllium	2.33E-09	9.6E-12	5.0E-03	1.9E-09	5.3E-07
Chromium	4.0E-05	4.1E-08	5.0E-03	8.3E-06	Chromium	1.10E-05	4.5E-08	5.0E-03	9.0E-06	1.7E-05
Cobalt	2.1E-04	2.1E-07			Cobalt	2.06E-05	8.4E-08			
Copper	4.2E-04	4.3E-07	4.0E-02	1.1E-05	Copper	6.26E-05	2.6E-07	4.0E-02	6.4E-06	1.7E-05
Cyanide	3.9E-11	4.0E-14	2.0E-02	2.0E-12	Cyanide	1.24E-11	5.1E-14	2.0E-02	2.6E-12	4.6E-12
Lead	9.2E-06	9.4E-09			Lead	7.65E-06	3.1E-08			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00	
Nickel	1.4E-04	1.4E-07	2.0E-02	7.0E-06	Nickel	2.28E-05	9.4E-08	2.0E-02	4.7E-06	1.2E-05
Selenium	4.9E-05	5.0E-08	5.0E-03	1.0E-05	Selenium	1.29E-05	5.3E-08	5.0E-03	1.1E-05	2.1E-05
Thallium	5.9E-05	6.1E-08	7.0E-05	8.7E-04	Thallium	2.96E-06	1.2E-08	7.0E-05	1.7E-04	1.0E-03
Toluene	7.7E-10	7.9E-13	2.0E-01	4.0E-12	Toluene	2.44E-10	1.0E-12	2.0E-01	5.0E-12	9.0E-12
Vanadium	6.9E-05	7.1E-08	7.0E-03	1.0E-05	Vanadium	5.53E-07	2.3E-09	7.0E-03	3.2E-07	1.0E-05
Zinc	6.6E-03	6.8E-06	3.0E-01	2.3E-05	Zinc	6.60E-04	2.7E-06	3.0E-01	9.0E-06	3.2E-05
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	1.3E-03				Total Pathway:	2.6E-04	
			Total Rad + Chem	1.3E-03				Total Rad + Chem	2.6E-04	*Total:* 1.5E-03

TABLE B.3.1-13(a) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk		
NP-237	2.49E-04	4.6E-01	2.2E-10	1.0E-10	NP-237	2.26E-05	1.7E-01	2.2E-10	3.7E-11	1.4E-10	2.3E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.4E-13
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	6.3E-14
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.1E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	6.4E-10
SR-90	2.93E-03	5.4E+00	3.6E-11	1.9E-10	SR-90	1.46E-02	1.1E+02	3.6E-11	3.9E-09	4.1E-09	5.2E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	5.0E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.3E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	8.5E-13
U-234	9.24E-02	1.7E+02	1.6E-11	2.7E-09	U-234	2.77E-01	2.0E+03	1.6E-11	3.3E-08	3.5E-08	3.5E-08
U-235/236	4.93E-03	9.1E+00	1.6E-11	1.4E-10	U-235/236	1.48E-02	1.1E+02	1.6E-11	1.7E-09	1.8E-09	1.8E-09
U-238	1.02E-01	1.9E+02	2.8E-11	5.2E-09	U-238	3.06E-01	2.2E+03	2.8E-11	6.3E-08	6.8E-08	6.8E-08
			Total Pathway:	8.4E-09				Total Pathway:	1.0E-07		

Chemical Risk

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	6.92E-09	7.1E-12	1.8E+00	1.2E-11	Arsenic	2.07E-10	8.5E-13	1.8E+00	1.5E-12	1.4E-11	2.0E-07
Barium	2.70E-02	2.8E-05			Barium	6.31E-02	2.6E-04				
Beryllium	6.79E-11	7.0E-14	4.3E+00	3.0E-13	Beryllium	6.11E-14	2.5E-16	4.3E+00	1.1E-15	3.0E-13	1.1E-08
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00			Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00			Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00			Cyanide	0.00E+00	0.0E+00				
Lead	3.13E-07	3.2E-10			Lead	2.61E-07	1.1E-09				
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00				
Nickel	0.00E+00	0.0E+00			Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00			Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00			Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00			Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00			Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00			Zinc	0.00E+00	0.0E+00				
U-Total	3.63E-04	3.7E-07			U-Total	1.09E-03	4.5E-06				
			Total Pathway:	1.3E-11				Total Pathway:	1.5E-12		
			Total Rad + Chem	8.4E-09				Total Rad + Chem	1.0E-07	*Total:* 1.1E-07	3.2E-07

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	2.5E-04			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	0.0E+00			
RA-228	0.0E+00			
SR-90	2.9E-03			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	9.2E-02			
U-235/236	4.9E-03			
U-238	1.0E-01			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
NP-237	2.3E-05			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	0.0E+00			
RA-228	0.0E+00			
SR-90	1.5E-02			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	2.8E-01			
U-235/236	1.5E-02			
U-238	3.1E-01			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	6.9E-09	7.1E-12	3.0E-04	2.4E-08
Barium	2.7E-02	2.8E-05	7.0E-02	4.0E-04
Beryllium	6.8E-11	7.0E-14	5.0E-03	1.4E-11
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.0E+00	0.0E+00		
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Lead	3.1E-07	3.2E-10		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	3.6E-04	3.7E-07	3.0E-03	1.2E-04

Total Pathway: 5.2E-04

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	2.07E-10	8.5E-13	3.0E-04	2.8E-09
Barium	6.31E-02	2.6E-04	7.0E-02	3.7E-03
Beryllium	6.11E-14	2.5E-16	5.0E-03	5.0E-14
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Lead	2.61E-07	1.1E-09		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.00E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.00E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.00E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.00E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	1.09E-03	4.5E-06	3.0E-03	1.5E-03

Total Pathway: 5.2E-03

	Total	Total Dust & Groundwater Affected
	2.7E-08	3.8E-04
	4.1E-03	4.1E-03
	1.4E-11	5.3E-07
	0.0E+00	1.7E-05
	0.0E+00	1.7E-05
	0.0E+00	4.6E-12
	0.0E+00	1.2E-05
	0.0E+00	2.1E-05
	0.0E+00	1.0E-03
	0.0E+00	9.0E-12
	0.0E+00	1.0E-05
	0.0E+00	3.2E-05
	1.6E-03	1.6E-03

Total Rad + Chem 5.2E-04

Total Rad + Chem 5.2E-03

Total:	5.7E-03	7.3E-03

TABLE B.3.1-13(b)

FUTURE OFF-PROPERTY CHILD

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	1.67E-04	1.0E-02	2.2E-10	2.2E-12	NP-237	1.52E-05	2.2E-02	2.2E-10	4.8E-12	7.0E-12
PU-238	1.92E-07	1.2E-05	2.2E-10	2.6E-15	PU-238	3.84E-08	5.5E-05	2.2E-10	1.2E-14	1.5E-14
PU-239/240	8.24E-08	5.0E-06	2.3E-10	1.2E-15	PU-239/240	1.65E-08	2.4E-05	2.3E-10	5.4E-15	6.6E-15
RA-226	6.33E-04	3.9E-02	1.2E-10	4.6E-12	RA-226	1.14E-03	1.6E+00	1.2E-10	2.0E-10	2.0E-10
RA-228	4.26E-04	2.6E-02	1.0E-10	2.6E-12	RA-228	7.66E-04	1.1E+00	1.0E-10	1.1E-10	1.1E-10
SR-90	7.79E-04	4.7E-02	3.6E-11	1.7E-12	SR-90	3.89E-03	5.6E+00	3.6E-11	2.0E-10	2.0E-10
TH-228	1.14E-05	6.9E-04	5.5E-11	3.8E-14	TH-228	9.46E-06	1.4E-02	5.5E-11	7.4E-13	7.8E-13
TH-230	1.22E-05	7.4E-04	1.3E-11	9.7E-15	TH-230	1.02E-05	1.5E-02	1.3E-11	1.9E-13	2.0E-13
TH-232	8.92E-06	5.4E-04	1.2E-11	6.5E-15	TH-232	7.43E-06	1.1E-02	1.2E-11	1.3E-13	1.3E-13
U-234	3.97E-04	2.4E-02	1.6E-11	3.9E-13	U-234	1.19E-03	1.7E+00	1.6E-11	2.7E-11	2.8E-11
U-235/236	2.20E-05	1.3E-03	1.6E-11	2.1E-14	U-235/236	6.61E-05	9.4E-02	1.6E-11	1.5E-12	1.5E-12
U-238	3.97E-04	2.4E-02	2.8E-11	6.8E-13	U-238	1.19E-03	1.7E+00	2.8E-11	4.8E-11	4.8E-11
			Total Pathway:	1.2E-11				Total Pathway:	5.9E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	9.90E-05	1.6E-08	1.8E+00	2.8E-08	Arsenic	2.97E-06	1.1E-08	1.8E+00	1.9E-08	4.7E-08
Barium	2.11E-05	3.4E-09			Barium	4.93E-05	1.8E-07			
Beryllium	2.59E-06	4.1E-10	4.3E+00	1.8E-09	Beryllium	2.33E-09	8.7E-12	4.3E+00	3.7E-11	1.8E-09
Chromium	4.02E-05	6.4E-09			Chromium	1.10E-05	4.1E-08			
Cobalt	2.06E-04	3.3E-08			Cobalt	2.06E-05	7.7E-08			
Copper	4.17E-04	6.6E-08			Copper	6.26E-05	2.3E-07			
Cyanide	3.93E-11	6.2E-15			Cyanide	1.24E-11	4.6E-14			
Lead	9.18E-06	1.5E-09			Lead	7.65E-06	2.9E-08			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
Nickel	1.37E-04	2.2E-08			Nickel	2.28E-05	8.5E-08			
Selenium	4.85E-05	7.7E-09			Selenium	1.29E-05	4.8E-08			
Thallium	5.92E-05	9.4E-09			Thallium	2.96E-06	1.1E-08			
Toluene	7.71E-10	1.2E-13			Toluene	2.44E-10	9.1E-13			
Vanadium	6.91E-05	1.1E-08			Vanadium	5.53E-07	2.1E-09			
Zinc	6.60E-03	1.0E-06			Zinc	6.60E-04	2.5E-06			
U-Total	0.00E+00	0.0E+00			U-Total	0.00E+00	0.0E+00			
			Total Pathway:	2.9E-08				Total Pathway:	1.9E-08	
			Total Rad + Chem	2.9E-08				Total Rad + Chem	2.0E-08	*Total:* 4.9E-08

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TABLE B.3.1-13(b) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	1.7E-04			
PU-238	1.9E-07			
PU-239/240	8.2E-08			
RA-226	6.3E-04			
RA-228	4.3E-04			
SR-90	7.8E-04			
TH-228	1.1E-05			
TH-230	1.2E-05			
TH-232	8.9E-06			
U-234	4.0E-04			
U-235/236	2.2E-05			
U-238	4.0E-04			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
NP-237	1.52E-05	2.2E-02		
PU-238	3.84E-08	5.5E-05		
PU-239/240	1.65E-08	2.4E-05		
RA-226	1.14E-03	1.6E+00		
RA-228	7.66E-04	1.1E+00		
SR-90	3.89E-03	5.6E+00		
TH-228	9.46E-06	1.4E-02		
TH-230	1.02E-05	1.5E-02		
TH-232	7.43E-06	1.1E-02		
U-234	1.19E-03	1.7E+00		
U-235/236	6.61E-05	9.4E-02		
U-238	1.19E-03	1.7E+00		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	9.9E-05	1.8E-07	3.0E-04	6.1E-04
Barium	2.1E-05	3.9E-08	7.0E-02	5.6E-07
Beryllium	2.6E-06	4.8E-09	5.0E-03	9.6E-07
Chromium	4.0E-05	7.5E-08	5.0E-03	1.5E-05
Cobalt	2.1E-04	3.8E-07		
Copper	4.2E-04	7.7E-07	4.0E-02	1.9E-05
Cyanide	3.9E-11	7.3E-14	2.0E-02	3.6E-12
Lead	9.2E-06	1.7E-08		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	1.4E-04	2.5E-07	2.0E-02	1.3E-05
Selenium	4.9E-05	9.0E-08	5.0E-03	1.8E-05
Thallium	5.9E-05	1.1E-07	7.0E-05	1.6E-03
Toluene	7.7E-10	1.4E-12	2.0E-01	7.1E-12
Vanadium	6.9E-05	1.3E-07	7.0E-03	1.8E-05
Zinc	6.6E-03	1.2E-05	3.0E-01	4.1E-05
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00

Total Pathway: 2.3E-03

Total Rad + Chem 2.3E-03

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	2.97E-06	1.3E-07	3.0E-04	4.3E-04
Barium	4.93E-05	2.1E-06	7.0E-02	3.1E-05
Beryllium	2.33E-09	1.0E-10	5.0E-03	2.0E-08
Chromium	1.10E-05	4.8E-07	5.0E-03	9.5E-05
Cobalt	2.06E-05	8.9E-07		
Copper	6.26E-05	2.7E-06	4.0E-02	6.8E-05
Cyanide	1.24E-11	5.4E-13	2.0E-02	2.7E-11
Lead	7.65E-06	3.3E-07		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	2.28E-05	9.9E-07	2.0E-02	5.0E-05
Selenium	1.29E-05	5.6E-07	5.0E-03	1.1E-04
Thallium	2.96E-06	1.3E-07	7.0E-05	1.8E-03
Toluene	2.44E-10	1.1E-11	2.0E-01	5.3E-11
Vanadium	5.53E-07	2.4E-08	7.0E-03	3.4E-06
Zinc	6.60E-04	2.9E-05	3.0E-01	9.6E-05
U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00

Total Pathway: 2.7E-03

Total Rad + Chem 2.7E-03

Total	
	1.0E-03
	3.1E-05
	9.8E-07
	1.1E-04
	8.7E-05
	3.1E-11
	0.0E+00
	6.2E-05
	1.3E-04
	3.4E-03
	6.0E-11
	2.2E-05
	1.4E-04
	0.0E+00

Total: 5.0E-03

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TABLE B.3.1-13(b) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
NP-237	2.49E-04	1.5E-02	2.2E-10	3.3E-12
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	2.93E-03	1.8E-01	3.6E-11	6.4E-12
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	9.24E-02	5.6E+00	1.6E-11	9.0E-11
U-235/236	4.93E-03	3.0E-01	1.6E-11	4.7E-12
U-238	1.02E-01	6.2E+00	2.8E-11	1.7E-10

Total Pathway: 2.8E-10

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk
NP-237	2.26E-05	3.2E-02	2.2E-10	7.1E-12
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	1.46E-02	2.1E+01	3.6E-11	7.5E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	2.77E-01	4.0E+02	1.6E-11	6.3E-09
U-235/236	1.48E-02	2.1E+01	1.6E-11	3.3E-10
U-238	3.06E-01	4.4E+02	2.8E-11	1.2E-08

Total Pathway: 2.0E-08

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.92E-09	1.1E-12	1.8E+00	1.9E-12
Barium	2.70E-02	4.3E-06		
Beryllium	6.79E-11	1.1E-14	4.3E+00	4.6E-14
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	3.13E-07	5.0E-11		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	3.63E-04	5.8E-08		

Total Pathway: 2.0E-12

Total Rad + Chem 2.8E-10

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	2.07E-10	7.7E-13	1.8E+00	1.4E-12
Barium	6.31E-02	2.4E-04		
Beryllium	6.11E-14	2.3E-16	4.3E+00	9.8E-16
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	2.61E-07	9.7E-10		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	1.09E-03	4.1E-06		

Total Pathway: 1.4E-12

Total Rad + Chem 2.0E-08

	Total	Total Dust & Groundwater
NP-237	1.0E-11	1.7E-11
PU-238	0.0E+00	1.5E-14
PU-239/240	0.0E+00	6.6E-15
RA-226	0.0E+00	2.0E-10
RA-228	0.0E+00	1.1E-10
SR-90	7.6E-10	9.6E-10
TH-228	0.0E+00	7.8E-13
TH-230	0.0E+00	2.0E-13
TH-232	0.0E+00	1.3E-13
U-234	6.4E-09	6.5E-09
U-235/236	3.3E-10	3.3E-10
U-238	1.2E-08	1.2E-08
Chromium	3.3E-12	4.7E-08
Beryllium	4.7E-14	1.8E-09
Total:	2.0E-08	6.9E-08

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TABLE B.3.1-13(b) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk						Total Dust & Groundwater
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	Total	Total
NP-237	2.5E-04				NP-237	2.26E-05	3.2E-02				
PU-238	0.0E+00				PU-238	0.00E+00	0.0E+00				
PU-239/240	0.0E+00				PU-239/240	0.00E+00	0.0E+00				
RA-226	0.0E+00				RA-226	0.00E+00	0.0E+00				
RA-228	0.0E+00				RA-228	0.00E+00	0.0E+00				
SR-90	2.9E-03				SR-90	1.46E-02	2.1E+01				
TH-228	0.0E+00				TH-228	0.00E+00	0.0E+00				
TH-230	0.0E+00				TH-230	0.00E+00	0.0E+00				
TH-232	0.0E+00				TH-232	0.00E+00	0.0E+00				
U-234	9.2E-02				U-234	2.77E-01	4.0E+02				
U-235/236	4.9E-03				U-235/236	1.48E-02	2.1E+01				
U-238	1.0E-01				U-238	3.06E-01	4.4E+02				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		

Chemical Hazard

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	Total	Dust & Groundwater Total
Arsenic	6.9E-09	1.3E-11	3.0E-04	4.3E-08	Arsenic	2.07E-10	9.0E-12	3.0E-04	3.0E-08	7.3E-08	1.0E-03
Barium	2.7E-02	5.0E-05	7.0E-02	7.2E-04	Barium	6.31E-02	2.7E-03	7.0E-02	3.9E-02	4.0E-02	4.0E-02
Beryllium	6.8E-11	1.3E-13	5.0E-03	2.5E-11	Beryllium	6.11E-14	2.7E-15	5.0E-03	5.3E-13	2.6E-11	9.8E-07
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.1E-04
Cobalt	0.0E+00	0.0E+00			Cobalt	0.00E+00	0.0E+00				
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00	Copper	0.00E+00	0.0E+00	4.0E-02	0.0E+00	0.0E+00	8.7E-05
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Cyanide	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	3.1E-11
Lead	3.1E-07	5.8E-10			Lead	2.61E-07	1.1E-08				
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	0.0E+00
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Nickel	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	6.2E-05
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Selenium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.3E-04
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00	Thallium	0.00E+00	0.0E+00	7.0E-05	0.0E+00	0.0E+00	3.4E-03
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	Toluene	0.00E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	6.0E-11
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00	Vanadium	0.00E+00	0.0E+00	7.0E-03	0.0E+00	0.0E+00	2.2E-05
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00	Zinc	0.00E+00	0.0E+00	3.0E-01	0.0E+00	0.0E+00	1.4E-04
U-Total	3.6E-04	6.7E-07	3.0E-03	2.2E-04	U-Total	1.09E-03	4.7E-05	3.0E-03	1.6E-02	1.6E-02	1.6E-02
			Total Pathway:	9.4E-04				Total Pathway:	5.5E-02		
			Total Rad + Chem	9.4E-04				Total Rad + Chem	5.5E-02	*Total:* 5.6E-02	6.1E-02

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TABLE B.3.1-14(a)

FUTURE OFF-PROPERTY FARMER

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	4.80E-02	7.2E+01	2.2E-10	1.6E-08	1.6E-08
PU-238	5.91E-03	8.8E+00	2.2E-10	1.9E-09	1.9E-09
PU-239/240	2.53E-03	3.8E+00	2.3E-10	8.7E-10	8.7E-10
RA-226	3.91E-02	5.8E+01	1.2E-10	7.0E-09	7.0E-09
RA-228	2.72E-02	4.1E+01	1.0E-10	4.1E-09	4.1E-09
SR-90	5.08E-02	7.6E+01	3.6E-11	2.7E-09	2.7E-09
TH-228	3.20E-02	4.8E+01	5.5E-11	2.6E-09	2.6E-09
TH-230	3.13E-02	4.7E+01	1.3E-11	6.1E-10	6.1E-10
TH-232	2.28E-02	3.4E+01	1.2E-11	4.1E-10	4.1E-10
U-234	3.05E-02	4.6E+01	1.6E-11	7.3E-10	7.3E-10
U-235/236	1.69E-03	2.5E+00	1.6E-11	3.9E-11	3.9E-11
U-238	3.05E-02	4.6E+01	2.8E-11	1.3E-09	1.3E-09
			Total Pathway:	3.8E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.69E-04	6.4E-07	1.8E+00	1.1E-06	1.1E-06
Barium	2.25E-03	1.9E-06			
Beryllium	3.99E-05	3.3E-08	4.3E+00	1.4E-07	1.4E-07
Chromium	1.12E-04	9.4E-08			
Cobalt	1.59E-04	1.3E-07			
Copper	6.42E-04	5.4E-07			
Cyanide	7.11E-06	5.9E-09			
Lead	4.75E-04	4.0E-07			
Molybdenum	7.87E-05	6.6E-08			
Nickel	3.45E-04	2.9E-07			
Selenium	4.99E-05	4.2E-08			
Thallium	2.28E-05	1.9E-08			
Toluene	9.12E-07	7.6E-10			
Vanadium	4.25E-04	3.6E-07			
Zinc	9.89E-04	8.3E-07			
U-Total	0.0E+00	0.0E+00			
			Total Pathway:	1.3E-06	

Total Rad + Chem 1.3E-06 *Total:* 1.3E-06

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TABLE B.3.1-14(a) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
NP-237	4.8E-02				
PU-238	5.9E-03				
PU-239/240	2.5E-03				
RA-226	3.9E-02				
RA-228	2.7E-02				
SR-90	5.1E-02				
TH-228	3.2E-02				
TH-230	3.1E-02				
TH-232	2.3E-02				
U-234	3.1E-02				
U-235/236	1.7E-03				
U-238	3.1E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.7E-04	6.4E-07	3.0E-04	2.1E-03	2.1E-03
Barium	2.3E-03	1.9E-06	7.0E-02	2.7E-05	2.7E-05
Beryllium	4.0E-05	3.3E-08	5.0E-03	6.7E-06	6.7E-06
Chromium	1.1E-04	9.4E-08	5.0E-03	1.9E-05	1.9E-05
Cobalt	1.6E-04	1.3E-07			
Copper	6.4E-04	5.4E-07	4.0E-02	1.3E-05	1.3E-05
Cyanide	7.1E-06	5.9E-09	2.0E-02	3.0E-07	3.0E-07
Lead	4.8E-04	4.0E-07			
Molybdenum	7.9E-05	6.6E-08	5.0E-03	1.3E-05	1.3E-05
Nickel	3.5E-04	2.9E-07	2.0E-02	1.4E-05	1.4E-05
Selenium	5.0E-05	4.2E-08	5.0E-03	8.3E-06	8.3E-06
Thallium	2.3E-05	1.9E-08	7.0E-05	2.7E-04	2.7E-04
Toluene	9.1E-07	7.6E-10	2.0E-01	3.8E-09	3.8E-09
Vanadium	4.2E-04	3.6E-07	7.0E-03	5.1E-05	5.1E-05
Zinc	9.9E-04	8.3E-07	3.0E-01	2.8E-06	2.8E-06
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	2.6E-03	
			Total Rad + Chem	2.6E-03	*Total:* 2.6E-03

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TABLE B.3.1-14(a) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
NP-237	1.28E-01	1.9E+02	2.2E-10	4.2E-08	4.2E-08	5.8E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.9E-09
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	8.7E-10
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	7.0E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	4.1E-09
SR-90	3.61E-01	5.4E+02	3.6E-11	1.9E-08	1.9E-08	2.2E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.6E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	6.1E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	4.1E-10
U-234	1.27E+01	1.9E+04	1.6E-11	3.0E-07	3.0E-07	3.0E-07
U-235/236	6.76E-01	1.0E+03	1.6E-11	1.6E-08	1.6E-08	1.6E-08
U-238	1.40E+01	2.1E+04	2.8E-11	5.9E-07	5.9E-07	5.9E-07
			Total Pathway:	9.7E-07		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	9.60E-08	8.0E-11	1.8E+00	1.4E-10	1.4E-10	1.1E-06
Barium	5.20E+00	4.3E-03				
Beryllium	1.87E-09	1.6E-12	4.3E+00	6.7E-12	6.7E-12	1.4E-07
Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00				
Lead	2.90E-05	2.4E-08				
Molybdenum	0.00E+00	0.0E+00				
Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00				
U-Total	4.98E-02	4.2E-05				
			Total Pathway:	1.5E-10		

Total Rad + Chem	9.7E-07	*Total:* 9.7E-07	2.3E-06

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ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard						Total Dust & Groundwater Affected
Ingestion/Homegrown Produce					Total	
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
NP-237	1.3E-01					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	3.6E-01					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	1.3E+01					
U-235/236	6.8E-01					
U-238	1.4E+01					
				Total Pathway:	0.0E+00	

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	9.6E-08	8.0E-11	3.0E-04	2.7E-07	2.7E-07	2.1E-03
Barium	5.2E+00	4.3E-03	7.0E-02	6.2E-02	6.2E-02	6.2E-02
Beryllium	1.9E-09	1.6E-12	5.0E-03	3.1E-10	3.1E-10	6.7E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.9E-05
Cobalt	0.0E+00	0.0E+00				
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00	0.0E+00	1.3E-05
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	3.0E-07
Lead	2.9E-05	2.4E-08				
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.3E-05
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.4E-05
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	8.3E-06
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00	0.0E+00	2.7E-04
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	3.8E-09
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00	0.0E+00	5.1E-05
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00	0.0E+00	2.8E-06
U-Total	5.0E-02	4.2E-05	3.0E-03	1.4E-02	1.4E-02	1.4E-02
				Total Pathway:	7.6E-02	
				Total Rad + Chem	7.6E-02	*Total:* 7.6E-02	7.8E-02

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TABLE B.3.1-14(b)

FUTURE OFF-PROPERTY CHILD

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	4.80E-02	5.3E+00	2.2E-10	1.2E-09	1.2E-09
PU-238	5.91E-03	6.6E-01	2.2E-10	1.4E-10	1.4E-10
PU-239/240	2.53E-03	2.8E-01	2.3E-10	6.5E-11	6.5E-11
RA-226	3.91E-02	4.3E+00	1.2E-10	5.2E-10	5.2E-10
RA-228	2.72E-02	3.0E+00	1.0E-10	3.0E-10	3.0E-10
SR-90	5.08E-02	5.7E+00	3.6E-11	2.0E-10	2.0E-10
TH-228	3.20E-02	3.6E+00	5.5E-11	2.0E-10	2.0E-10
TH-230	3.13E-02	3.5E+00	1.3E-11	4.5E-11	4.5E-11
TH-232	2.28E-02	2.5E+00	1.2E-11	3.1E-11	3.1E-11
U-234	3.05E-02	3.4E+00	1.6E-11	5.4E-11	5.4E-11
U-235/236	1.69E-03	1.9E-01	1.6E-11	2.9E-12	2.9E-12
U-238	3.05E-02	3.4E+00	2.8E-11	9.5E-11	9.5E-11
			Total Pathway:	2.8E-09	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.69E-04	2.2E-07	1.8E+00	3.9E-07	3.9E-07
Barium	2.25E-03	6.5E-07			
Beryllium	3.99E-05	1.2E-08	4.3E+00	5.0E-08	5.0E-08
Chromium	1.12E-04	3.3E-08			
Cobalt	1.59E-04	4.6E-08			
Copper	6.42E-04	1.9E-07			
Cyanide	7.11E-06	2.1E-09			
Lead	4.75E-04	1.4E-07			
Molybdenum	7.87E-05	2.3E-08			
Nickel	3.45E-04	1.0E-07			
Selenium	4.99E-05	1.4E-08			
Thallium	2.28E-05	6.6E-09			
Toluene	9.12E-07	2.6E-10			
Vanadium	4.25E-04	1.2E-07			
Zinc	9.89E-04	2.9E-07			
U-Total	0.0E+00	0.0E+00			
			Total Pathway:	4.4E-07	

Total Rad + Chem	4.4E-07	*Total:*	4.4E-07

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TABLE B.3.1-14(b) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
NP-237	4.8E-02				
PU-238	5.9E-03				
PU-239/240	2.5E-03				
RA-226	3.9E-02				
RA-228	2.7E-02				
SR-90	5.1E-02				
TH-228	3.2E-02				
TH-230	3.1E-02				
TH-232	2.3E-02				
U-234	3.1E-02				
U-235/236	1.7E-03				
U-238	3.1E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.7E-04	2.6E-06	3.0E-04	8.7E-03	8.7E-03
Barium	2.3E-03	7.6E-06	7.0E-02	1.1E-04	1.1E-04
Beryllium	4.0E-05	1.4E-07	5.0E-03	2.7E-05	2.7E-05
Chromium	1.1E-04	3.8E-07	5.0E-03	7.6E-05	7.6E-05
Cobalt	1.6E-04	5.4E-07			
Copper	6.4E-04	2.2E-06	4.0E-02	5.4E-05	5.4E-05
Cyanide	7.1E-06	2.4E-08	2.0E-02	1.2E-06	1.2E-06
Lead	4.8E-04	1.6E-06			
Molybdenum	7.9E-05	2.7E-07	5.0E-03	5.3E-05	5.3E-05
Nickel	3.5E-04	1.2E-06	2.0E-02	5.9E-05	5.9E-05
Selenium	5.0E-05	1.7E-07	5.0E-03	3.4E-05	3.4E-05
Thallium	2.3E-05	7.7E-08	7.0E-05	1.1E-03	1.1E-03
Toluene	9.1E-07	3.1E-09	2.0E-01	1.5E-08	1.5E-08
Vanadium	4.2E-04	1.4E-06	7.0E-03	2.1E-04	2.1E-04
Zinc	9.9E-04	3.4E-06	3.0E-01	1.1E-05	1.1E-05
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	1.0E-02	

Total Rad + Chem	1.0E-02	*Total:*	1.0E-02

TABLE B.3.1-14(b) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk — Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
NP-237	1.28E-01	1.4E+01	2.2E-10	3.1E-09	3.1E-09	4.3E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.4E-10
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	6.5E-11
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	5.2E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	3.0E-10
SR-90	3.61E-01	4.0E+01	3.6E-11	1.4E-09	1.4E-09	1.6E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.0E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	4.5E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	3.1E-11
U-234	1.27E+01	1.4E+03	1.6E-11	2.3E-08	2.3E-08	2.3E-08
U-235/236	6.76E-01	7.5E+01	1.6E-11	1.2E-09	1.2E-09	1.2E-09
U-238	1.40E+01	1.6E+03	2.8E-11	4.4E-08	4.4E-08	4.4E-08
			Total Pathway:	7.2E-08		

Chemical Risk — Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	9.60E-08	2.8E-11	1.8E+00	4.9E-11	4.9E-11	3.9E-07
Barium	5.20E+00	1.5E-03				
Beryllium	1.87E-09	5.4E-13	4.3E+00	2.3E-12	2.3E-12	5.0E-08
Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00				
Lead	2.90E-05	8.4E-09				
Molybdenum	0.00E+00	0.0E+00				
Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00				
U-Total	5.0E-02	1.4E-05				
			Total Pathway:	5.1E-11		

Total Rad + Chem	7.2E-08	*Total:* 7.2E-08	5.2E-07

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard						Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total	
NP-237	1.3E-01					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	3.6E-01					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	1.3E+01					
U-235/236	6.8E-01					
U-238	1.4E+01					
				Total Pathway:	0.0E+00	

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	9.6E-08	3.3E-10	3.0E-04	1.1E-06	1.1E-06	8.7E-03
Barium	5.2E+00	1.8E-02	7.0E-02	2.5E-01	2.5E-01	2.5E-01
Beryllium	1.9E-09	6.3E-12	5.0E-03	1.3E-09	1.3E-09	2.7E-05
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	7.6E-05
Cobalt	0.0E+00	0.0E+00				
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00	0.0E+00	5.4E-05
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.2E-06
Lead	2.9E-05	9.8E-08				
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.3E-05
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	5.9E-05
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.4E-05
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00	0.0E+00	1.1E-03
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	1.5E-08
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00	0.0E+00	2.1E-04
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00	0.0E+00	1.1E-05
U-Total	5.0E-02	1.7E-04	3.0E-03	5.6E-02	5.6E-02	5.6E-02
				Total Pathway:	3.1E-01	
				Total Rad + Chem	3.1E-01	*Total:* 3.1E-01	3.2E-01

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TABLE B.3.1-15(a)
FUTURE, OFF-PROPERTY FARMER
ACTIVE FLYASH PILE: GROUNDWATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	2.5E-02	1.2E+03	2.2E-10	2.7E-07	Not applicable
SR-90	5.2E-02	2.5E+03	3.6E-11	9.2E-08	
U234	2.6E+00	1.3E+05	1.6E-11	2.0E-06	
U235/236	1.4E-01	6.7E+03	1.6E-11	1.1E-07	
U238	2.9E+00	1.4E+05	2.8E-11	3.9E-06	
			Total Pathway:	6.4E-06	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	1.93E-08	5.3E-10	1.8E+00	9.3E-10	Arsenic	2.0E-09		
Beryllium	3.8E-10	1.0E-11	4.3E+00	4.5E-11	Beryllium	3.9E-11		
Lead	5.82E-06	1.6E-07			Lead	6.0E-07		
U-Total	1.02E-02	2.8E-04			U-Total	1.0E-03		
1,2-Dichloroethane	0.00E+00	0.0E+00	9.1E-02	0.0E+00	1,2-Dichloroethane	0.0E+00	9.10E-02	0.0E+00
Vinyl chloride	0.00E+00	0.0E+00	1.9E+00	0.0E+00	Vinyl chloride	0.0E+00	3.00E-01	0.0E+00
			Total Pathway:	9.7E-10			Total Pathway:	0.0E+00
			Total Rad + Chem	6.4E-06			Total Rad + Chem	0.0E+00

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TABLE B.3.1-15(a) (continued)

CARCINOGENIC RISK

Radiation Risk		Total
Dermal Contact/Groundwater		
Not applicable		2.7E-07
		9.2E-08
		2.0E-06
		1.1E-07
		3.9E-06
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	3.9E-12	1.8E+00	7.1E-12	9.3E-10
Beryllium	7.6E-14	4.3E+02	3.3E-11	7.7E-11
Lead	4.6E-12			
U-Total	2.0E-06			
1,2-Dichloroethane	0.0E+00			0.0E+00
Vinyl chloride	0.0E+00	1.9E+00	0.0E+00	0.0E+00
Total Pathway:			4.0E-11	

Total Rad + Chem	4.0E-11	*Total:*	6.4E-06

TABLE B.3.1-15(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	2.5E-02	1.2E+03			Not applicable
RA-226	5.2E-02	2.5E+03			
U234	2.6E+00	1.3E+05			
U235/236	1.4E-01	6.7E+03			
U238	2.9E+00	1.4E+05			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	1.9E-08	5.3E-10	3.0E-04	1.8E-06	Arsenic	2.0E-09		
Beryllium	3.8E-10	1.0E-11	5.0E-03	2.1E-09	Beryllium	3.9E-11		
Lead	5.8E-06	1.6E-07			Lead	6.0E-07		
U-Total	1.0E-02	2.8E-04	3.0E-03	9.3E-02	U-Total	1.0E-03		
1,2-Dichloroethane	0.0E+00	0.0E+00			1,2-Dichloroethane	0.0E+00		
Vinyl chloride	0.0E+00	0.0E+00			Vinyl chloride	0.0E+00		
		Total Pathway:		9.3E-02		Total Pathway:		0.0E+00
		Total Rad + Chem		9.3E-02		Total Rad + Chem		0.0E+00

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TABLE B.3.1-15(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard	
Dermal Contact/Groundwater	Total
Not applicable	
Total Pathway:	0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	3.9E-12	2.9E-04	1.4E-08	1.8E-06
Beryllium	7.6E-14	5.0E-05	1.5E-09	3.6E-09
Lead	4.6E-12			
U-Total	2.0E-06	1.5E-04	1.4E-02	1.1E-01
1,2-Dichloroethane	0.0E+00			
Vinyl chloride	0.0E+00			
Total Pathway:			1.4E-02	

Total Rad + Chem	1.4E-02	*Total:*	1.1E-01

TABLE B.3.1-15(b)

FUTURE, OFF-PROPERTY CHILD

ACTIVE FLYASH PILE: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	2.5E-02	5.3E+01	2.2E-10	1.2E-08	Not applicable
SR-90	5.2E-02	1.1E+02	3.6E-11	3.9E-09	
U234	2.6E+00	5.4E+03	1.6E-11	8.7E-08	
U235/236	1.4E-01	2.9E+02	1.6E-11	4.6E-09	
U238	2.9E+00	6.0E+03	2.8E-11	1.7E-07	
			Total Pathway:	2.7E-07	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	1.93E-08	1.1E-10	1.8E+00	1.9E-10	Arsenic	7.9E-10		
Beryllium	3.80E-10	2.1E-12	4.3E+00	9.0E-12	Beryllium	1.6E-11		
Lead	5.82E-06	3.2E-08			Lead	2.4E-07		
U-Total	1.02E-02				U-Total	4.2E-04		
1,2-Dichloroethane	0.00E+00	0.0E+00	9.1E-02	0.0E+00	1,2-Dichloroethane	0.0E+00	9.10E-02	0.0E+00
Vinyl chloride	0.00E+00	0.0E+00	1.9E+00	0.0E+00	Vinyl chloride	0.0E+00	3.00E-01	0.0E+00
			Total Pathway:	1.9E-10			Total Pathway:	0.0E+00
			Total Rad + Chem	2.7E-07			Total Rad + Chem	0.0E+00

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TABLE B.3.1-15(b) (continued)

CARCINOGENIC RISK

Radiation Risk				
Dermal Contact/Groundwater				Total
Not applicable				1.2E-08
				3.9E-09
				8.7E-08
				4.6E-09
				1.7E-07
Total Pathway: 0.0E+00				

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	5.4E-13	1.8E+00	9.9E-13	1.9E-10
Beryllium	1.1E-14	4.3E+02	4.5E-12	1.3E-11
Lead	6.5E-13			
U-Total	2.8E-07			
1,2-Dichloroethane	0.0E+00			0.0E+00
Vinyl chloride	0.0E+00	1.9E+00	0.0E+00	0.0E+00
Total Pathway: 5.5E-12				

Total Rad + Chem 5.5E-12 *Total:* 2.7E-07

TABLE B.3.1-15(b) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	2.5E-02	5.3E+01			Not applicable
RA-226	5.2E-02	1.1E+02			
U234	2.6E+00	5.4E+03			
U235/236	1.4E-01	2.9E+02			
U238	2.9E+00	6.0E+03			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	1.9E-08	1.2E-09	3.0E-04	4.1E-06	Arsenic	9.3E-09		
Beryllium	3.8E-10	2.4E-11	5.0E-03	4.9E-09	Beryllium	1.8E-10		
Lead	5.8E-06	3.7E-07			Lead	2.8E-06		
U-Total	1.0E-02	6.5E-04	3.0E-03	2.2E-01	U-Total	4.9E-03		
1,2-Dichloroethan	0.0E+00	0.0E+00			1,2-Dichloroethan	0.0E+00		
Vinyl chloride	0.0E+00	0.0E+00			Vinyl chloride	0.0E+00		
		Total Pathway:		2.2E-01		Total Pathway:		0.0E+00
		Total Rad + Chem		2.2E-01		Total Rad + Chem		0.0E+00

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TABLE B.3.1-15(b) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard	
Dermal Contact/Groundwater	Total
Not applicable	
Total Pathway:	0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	6.3E-12	2.9E-04	2.2E-08	4.1E-06
Beryllium	1.2E-13	5.0E-05	2.5E-09	7.3E-09
Lead	7.5E-12			
U-Total	3.3E-06	3.0E-05	1.1E-01	3.3E-01
1,2-Dichloroethane	0.0E+00			
Vinyl chloride	0.0E+00			
Total Pathway:			1.1E-01	

Total Rad + Chem	1.1E-01	*Total:*	3.3E-01

TABLE B.3.1-16
FUTURE, EXPANDED TRESPASSER
ACTIVE FLYASH PILE: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
NP-237	5.67E-05	2.0E-01	2.9E-08	5.9E-09
PU-238	7.21E-06	2.6E-02	3.9E-08	1.0E-09
PU-239/240	3.09E-06	1.1E-02	3.8E-08	4.2E-10
RA-226	4.74E-05	1.7E-01	3.0E-09	5.1E-10
RA-228	3.30E-05	1.2E-01	6.9E-10	8.1E-11
SR-90	4.64E-05	1.7E-01	6.2E-11	1.0E-11
TH-228	3.91E-05	1.4E-01	7.8E-08	1.1E-08
TH-230	3.81E-05	1.4E-01	2.9E-08	3.9E-09
TH-232	2.78E-05	9.9E-02	2.8E-08	2.8E-09
U-234	3.71E-05	1.3E-01	2.6E-08	3.4E-09
U-235/236	2.06E-06	7.4E-03	2.5E-08	1.8E-10
U-238	3.71E-05	1.3E-01	5.2E-08	6.9E-09
			Total Pathway:	3.6E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.48	2.0E-01	2.2E-10	4.5E-11
PU-238	0.72	2.7E-02	2.2E-10	5.9E-12
PU-239/240	0.33	1.2E-02	2.3E-10	2.8E-12
RA-226	4.61	1.7E-01	1.2E-10	2.1E-11
RA-228	3.17	1.2E-01	1.0E-10	1.2E-11
SR-90	4.47	1.7E-01	3.6E-11	6.0E-12
TH-228	3.81	1.4E-01	5.5E-11	7.8E-12
TH-230	3.66	1.4E-01	1.3E-11	1.8E-12
TH-232	2.66	9.9E-02	1.2E-11	1.2E-12
U-234	3.60	1.3E-01	1.6E-11	2.1E-12
U-235/236	0.16	6.0E-03	1.6E-11	9.3E-14
U-238	3.61	1.3E-01	2.8E-11	3.8E-12
			Total Pathway:	1.1E-10

Chemical Risk

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	9.25E-07	2.6E-09	1.5E+01	3.9E-08
Barium	2.62E-06	7.2E-09		
Beryllium	4.84E-08	1.3E-10	8.4E+00	1.1E-09
Chromium	1.37E-07	3.8E-10	4.1E+01	1.6E-08
Cobalt	1.94E-07	5.4E-10		
Copper	7.60E-07	2.1E-09		
Cyanide	3.09E-09	8.5E-12		
Lead	5.71E-07	1.6E-09		
Molybdenum	8.86E-08	2.5E-10		
Nickel	4.13E-07	1.1E-09		
Selenium	6.08E-08	1.7E-10		
Thallium	2.78E-08	7.7E-11		
Toluene	1.03E-09	2.8E-12		
Vanadium	5.17E-07	1.4E-09		
Zinc	8.06E-07	2.2E-09		
TH-Total		0.0E+00		
U-Total		0.0E+00		
			Total Pathway:	5.5E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	89.82	2.4E-06	1.8E+00	4.2E-06
Barium	253.90	6.8E-06		
Beryllium	4.67	1.2E-07	4.3E+00	5.4E-07
Chromium	13.32	3.6E-07		
Cobalt	18.80	5.0E-07		
Copper	73.84	2.0E-06		
Cyanide	0.33	8.8E-09		
Lead	55.44	1.5E-06		
Molybdenum	8.63	2.3E-07		
Nickel	40.11	1.1E-06		
Selenium	5.94	1.6E-07		
Thallium	2.66	7.1E-08		
Toluene	0.07	1.9E-09		
Vanadium	50.24	1.3E-06		
Zinc	78.32	2.1E-06		
TH-Total	22.0	5.9E-07		
U-Total	12.6	3.4E-07		
			Total Pathway:	4.7E-06

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Total Rad + Chem 9.1E-08

Total Rad + Chem 4.7E-06

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TABLE B.3.1-16 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	SF(e)	Risk	
Not applicable (1)				NP-237	2.2E+00	4.3E-07	9.3E-07	9.3E-07
				PU-238	2.8E-01	2.8E-11	7.9E-12	1.0E-09
				PU-239/240	1.3E-01	2.2E-11	2.9E-12	4.3E-10
				RA-226	1.8E+00	6.0E-06	1.1E-05	1.1E-05
				RA-228	1.2E+00	2.9E-06	3.6E-06	3.6E-06
				SR-90	1.8E+00	0.0E+00	0.0E+00	1.6E-11
				TH-228	1.5E+00	5.6E-06	8.4E-06	8.4E-06
				TH-230	1.4E+00	5.4E-11	7.8E-11	4.0E-09
				TH-232	1.0E+00	2.6E-11	2.7E-11	2.8E-09
				U-234	1.4E+00	3.0E-11	4.2E-11	3.5E-09
				U-235/236	6.3E-02	2.4E-07	1.5E-08	1.5E-08
				U-238	1.4E+00	3.6E-08	5.1E-08	5.8E-08
Total Pathway:	0.0E+00			Total Pathway:			2.4E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	9.3E-07	1.8E+00	1.7E-06					5.9E-06
Barium	2.6E-05							
Beryllium	4.9E-07	4.3E+02	2.1E-04					2.1E-04
Chromium	1.4E-06							1.6E-08
Cobalt	2.0E-06							
Copper	7.7E-07							
Cyanide	3.4E-08							
Lead	5.8E-06							
Molybdenum	9.0E-07							
Nickel	4.2E-08			Not applicable (2)				
Selenium	6.2E-07							
Thallium	2.8E-07							
Toluene	7.6E-09							
Vanadium	5.2E-07							
Zinc	8.1E-06							
TH-Total	0.0E+00							
U-Total	1.3E-06							
Total Pathway:	2.1E-04			Total Pathway:			0.0E+00	

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Total Rad + Chem 2.1E-04 | 2.4E-05 | *Total:* 2.4E-04

TABLE B.3.1-16 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3	Intake	RfD(i)	HQ
NP-237	5.67E-05	2.0E-01		
PU-238	7.21E-06	2.6E-02		
PU-239/240	3.09E-06	1.1E-02		
RA-226	4.74E-05	1.7E-01		
RA-228	3.30E-05	1.2E-01		
SR-90	4.64E-05	1.7E-01		
TH-228	3.91E-05	1.4E-01		
TH-230	3.81E-05	1.4E-01		
TH-232	2.78E-05	9.9E-02		
U-234	3.71E-05	1.3E-01		
U-235/236	2.06E-06	7.4E-03		
U-238	3.71E-05	1.3E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	HQ
NP-237	5.48	2.0E-01		
PU-238	0.72	2.7E-02		
PU-239/240	0.33	1.2E-02		
RA-226	4.61	1.7E-01		
RA-228	3.17	1.2E-01		
SR-90	4.47	1.7E-01		
TH-228	3.81	1.4E-01		
TH-230	3.66	1.4E-01		
TH-232	2.66	9.9E-02		
U-234	3.60	1.3E-01		
U-235/236	0.16	6.0E-03		
U-238	3.61	1.3E-01		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	HQ
Arsenic	9.25E-07	1.2E-08		
Barium	2.62E-06	3.5E-08	1.4E-04	2.5E-04
Beryllium	4.84E-08	6.4E-10		
Chromium	1.37E-07	1.8E-09		
Cobalt	1.94E-07	2.6E-09	5.5E-07	4.7E-03
Copper	7.60E-07	1.0E-08		
Cyanide	3.09E-09	4.1E-11		
Lead	5.71E-07	7.6E-09		
Molybdenum	8.86E-08	1.2E-09		
Nickel	4.13E-07	5.5E-09		
Selenium	6.08E-08	8.1E-10		
Thallium	2.78E-08	3.7E-10		
Toluene	1.03E-09	1.4E-11		
Vanadium	5.17E-07	6.9E-09		
Zinc	8.06E-07	1.1E-08		
TH-Total		0.0E+00		
U-Total		0.0E+00		

Total Pathway: 5.0E-03

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	HQ
Arsenic	89.82	1.0E-05	3.0E-04	3.4E-02
Barium	253.90	2.9E-05	7.0E-02	4.1E-04
Beryllium	4.67	5.3E-07	5.0E-03	1.1E-04
Chromium	13.32	1.5E-06	5.0E-03	3.0E-04
Cobalt	18.80	2.1E-06		
Copper	73.84	8.3E-06	4.0E-02	2.1E-04
Cyanide	0.33	3.7E-08	2.0E-02	1.9E-06
Lead	55.44	6.3E-06		
Molybdenum	8.63	9.8E-07	5.0E-03	2.0E-04
Nickel	40.11	4.5E-06	2.0E-02	2.3E-04
Selenium	5.94	6.7E-07	5.0E-03	1.3E-04
Thallium	2.66	3.0E-07	7.0E-05	4.3E-03
Toluene	0.07	8.2E-09	2.0E-01	4.1E-08
Vanadium	50.24	5.7E-06	7.0E-03	8.1E-04
Zinc	78.32	8.9E-06	3.0E-01	3.0E-05
TH-Total	22.00	2.5E-06		
U-Total	12.60	1.4E-06	3.0E-03	4.7E-04

Total Pathway: 4.1E-02

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Total Rad + Chem 5.0E-03

Total Rad + Chem 4.1E-02

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TABLE B.3.1-16 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	HQ
Not applicable	NP-237	2.2E+00		
	PU-238	2.8E-01		
	PU-239/240	1.3E-01		
	RA-226	1.8E+00		
	RA-228	1.2E+00		
	SR-90	1.8E+00		
	TH-228	1.5E+00		
	TH-230	1.4E+00		
	TH-232	1.0E+00		
	U-234	1.4E+00		
	U-235/236	6.3E-02		
	U-238	1.4E+00		
Total Pathway: 0.0E+00			Total Pathway:	0.0E+00

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	HQ	Compound	Intake	RfD(o)	HQ	
Arsenic	3.7E-05	2.9E-04	1.3E-01					1.6E-01
Barium	1.0E-05	6.4E-02	1.6E-04					8.2E-04
Beryllium	1.9E-06	5.0E-05	3.8E-02					3.9E-02
Chromium	5.5E-06	2.3E-03	2.4E-03					2.7E-03
Cobalt	7.7E-06							4.7E-03
Copper	3.0E-05	2.4E-02	1.3E-03					1.5E-03
Cyanide	1.4E-08	1.4E-02	9.5E-07					2.8E-06
Lead	2.3E-05							
Molybdenum	3.5E-06	1.9E-03	1.9E-03					2.1E-03
Nickel	1.6E-05	1.0E-03	1.6E-02		Not applicable			1.7E-02
Selenium	2.4E-06	4.0E-03	6.1E-04					7.5E-04
Thallium	1.1E-08	7.0E-05	1.6E-04					4.5E-03
Toluene	3.0E-08	2.0E-03	1.5E-05					1.5E-05
Vanadium	2.1E-06	3.5E-04	5.9E-03					6.7E-03
Zinc	3.2E-05	7.5E-02	4.3E-04					4.6E-04
TH-Total	0.0E+00							
U-Total	5.2E-06	1.5E-04	3.5E-02					3.5E-02
	Total Pathway:		2.3E-01		Total Pathway:		0.0E+00	

FER\CRU2RI\ABQ\AFSLEXTY.XLS\1/26/94; 8:00 AM	Total Rad + Chem	2.3E-01	Total Rad + Chem	0.0E+00	***Total:*** 2.8E-01

TABLE B.3.1-17
FUTURE, EXPANDED TRESPASSER
ACTIVE FLYASH PILE: SURFACE WATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
NP-237	0.264	2.0E+01	2.2E-10	4.4E-09		4.4E-09
PU-238	0.129	9.7E+00	2.2E-10	2.1E-09	Not applicable	2.1E-09
RA-228	1.7	1.3E+02	1.0E-10	1.3E-08		1.3E-08
U-234	1.5	1.1E+02	1.6E-11	1.8E-09		1.8E-09
U-235/236	0.102	7.7E+00	1.6E-11	1.2E-10		1.2E-10
U-238	1.69	1.3E+02	2.8E-11	3.6E-09		3.6E-09
			Total Pathway:	2.5E-08	Total Pathway: 0.0E+00	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water					
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	PC	Intake	SF(derm)	Risk	
Arsenic	0.0054	2.6E-07	1.75	4.5E-07	Arsenic	1.0E-03	5.2E-08	1.8E+00	9.1E-08	5.4E-07
Barium	0.0273	1.3E-06			Barium	1.0E-03	2.6E-07			
Manganese	0.0053	2.5E-07			Manganese	1.0E-03	5.1E-08			
Selenium	0.001	4.8E-08			Selenium	1.0E-03	9.6E-09			
U-TOTAL	0.00418	2.0E-07			U-TOTAL	1.0E-03	4.0E-08			
			Total Pathway:	4.5E-07				Total Pathway:	9.1E-08	
			Total Rad + Chem	4.8E-07				Total Rad + Chem	9.1E-08	*Total:* 5.7E-07

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TABLE B.3.1-17 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water

Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	0.264	2.0E+01		
PU-238	0.129	9.7E+00		
RA-228	1.7	1.3E+02		
U-234	1.5	1.1E+02		
U-235/236	0.102	7.7E+00		
U-238	1.69	1.3E+02		

Total Pathway: 0.0E+00

Dermal Contact/Surface Water

Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Surface Water

Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0054	8.7E-07	3.0E-04	2.9E-03
Barium	0.0273	4.4E-06	7.0E-02	6.3E-05
Manganese	0.0053	8.5E-07	1.4E-01	6.1E-06
Selenium	0.001	1.6E-07	5.0E-03	3.2E-05
U-TOTAL	0.00418	6.7E-07	3.0E-03	2.2E-04

Total Pathway: 3.2E-03

Dermal Contact/Surface Water

Compound	PC	Intake	RfD(derm)	Hazard
Arsenic	1.0E-03	1.7E-07	2.9E-04	5.8E-04
Barium	1.0E-03	8.6E-07	6.4E-02	1.3E-05
Manganese	1.0E-03	1.7E-07	4.2E-03	4.0E-05
Selenium	1.0E-03	3.1E-08	4.0E-03	7.8E-06
U-TOTAL	1.0E-03	1.3E-07	1.5E-04	8.7E-04

Total Pathway: 1.5E-03

Total
3.5E-03
7.6E-05
4.6E-05
4.0E-05
1.1E-03

Total Rad + Chem 3.2E-03

Total Rad + Chem 1.5E-03 | *Total:* 4.7E-03

FUTURE, EXPANDED TRESPASSER
ACTIVE FLYASH PILE: SEDIMENT

TABLE B.3.1-17(a)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
NP-237	4.13E-05	4.8E+00		
PU-238	5.25E-06	6.1E-01		
PU-239/240	2.25E-06	2.6E-01		
RA-226	3.45E-05	4.0E+00		
RA-228	2.40E-05	2.8E+00		
SR-90	3.38E-05	3.9E+00		
TH-228	2.85E-05	3.3E+00		
TH-230	2.78E-05	3.2E+00		
TH-232	2.03E-05	2.4E+00		
U-234	2.70E-05	3.1E+00		
U-235/236	1.50E-06	1.7E-01		
U-238	2.70E-05	3.1E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
NP-237	5.5E+00	2.4E+04		
PU-238	7.2E-01	3.2E+03		
PU-239/240	3.3E-01	1.5E+03		
RA-226	4.6E+00	2.0E+04		
RA-228	3.2E+00	1.4E+04		
SR-90	4.5E+00	2.0E+04		
TH-228	3.8E+00	1.7E+04		
TH-230	3.7E+00	1.6E+04		
TH-232	2.7E+00	1.2E+04		
U-234	3.6E+00	1.6E+04		
U-235/236	1.6E-01	7.1E+02		
U-238	3.6E+00	1.6E+04		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	6.74E-07	4.4E-08		
Barium	1.90E-06	1.2E-07	1.4E-04	8.8E-04
Beryllium	3.53E-08	2.3E-09		
Chromium	9.98E-08	6.5E-09		
Cobalt	1.41E-07	9.1E-09		
Copper	5.54E-07	3.6E-08		
Cyanide	2.25E-09	1.5E-10		
Lead	4.16E-07	2.7E-08		
Molybdenum	6.45E-08	4.2E-09		
Nickel	3.01E-07	2.0E-08		
Selenium	4.43E-08	2.9E-09		
Thallium	2.03E-08	1.3E-09		
Toluene	7.50E-10	4.9E-11		
Vanadium	3.77E-07	2.4E-08		
Zinc	5.87E-07	3.8E-08		

Total Pathway: 8.8E-04

Total Rad + Chem 8.8E-04

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	89.8	2.2E-04	3.0E-04	7.4E-01
Barium	253.9	6.3E-04	7.0E-02	8.9E-03
Beryllium	4.7	1.2E-05	5.0E-03	2.3E-03
Chromium	13.3	3.3E-05	5.0E-03	6.6E-03
Cobalt	18.8	4.6E-05		
Copper	73.8	1.8E-04	4.0E-02	4.6E-03
Cyanide	0.3	8.2E-07	2.0E-02	4.1E-05
Lead	55.4	1.4E-04		
Molybdenum	8.6	2.1E-05	5.0E-03	4.3E-03
Nickel	40.1	9.9E-05	2.0E-02	4.9E-03
Selenium	5.9	1.5E-05	5.0E-03	2.9E-03
Thallium	2.7	6.6E-06	7.0E-05	9.4E-02
Toluene	0.1	1.8E-07	2.0E-01	9.0E-07
Vanadium	50.2	1.2E-04	7.0E-03	1.8E-02
Zinc	78.3	1.9E-04	3.0E-01	6.4E-04

Total Pathway: 0.9

Total Rad + Chem 0.9

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TABLE B.3.1-17(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	RfD(e)	Hazard
NP-237	2.3E+02		
PU-238	3.0E+01		
PU-239/240	1.4E+01		
RA-226	1.9E+02		
RA-228	1.3E+02		
SR-90	1.9E+02		
TH-228	1.6E+02		
TH-230	1.5E+02		
TH-232	1.1E+02		
U-234	1.5E+02		
U-235/236	6.7E+00		
U-238	1.5E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm)	Hazard	Total
Arsenic	7.1E-06	2.9E-04	2.5E-02	0.8
Barium	2.0E-04	6.4E-02	3.1E-03	1.3E-02
Beryllium	3.7E-06	5.0E-05	7.4E-02	7.6E-02
Chromium	1.0E-05	2.3E-03	4.7E-03	1.1E-02
Cobalt	1.5E-05			
Copper	5.8E-06	2.4E-02	2.4E-04	4.8E-03
Cyanide	2.6E-07	1.4E-02	1.8E-05	5.9E-05
Lead	4.4E-05			
Molybdenum	6.8E-06	1.9E-03	3.6E-03	7.8E-03
Nickel	1.6E-06	1.0E-03	1.6E-03	6.5E-03
Selenium	4.7E-06	4.0E-03	1.2E-03	4.1E-03
Thallium	2.1E-06	7.0E-05	3.0E-02	0.1
Toluene	1.7E-07	6.0E-03	2.9E-05	3.0E-05
Vanadium	4.0E-06	3.5E-04	1.1E-02	2.9E-02
Zinc	6.2E-05	7.5E-02	8.2E-04	1.5E-03

Total Pathway: 0.2

External Radiation/Soil

Compound	Intake	RfD(o)	Hazard

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 0.2

Total Rad + Chem 0.0E+00

Total: 1.0

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TABLE B.3.1-18 (a)
FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER
ACTIVE FLYASH PILE: SURFACE MATERIAL (RME VALUES)
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
NP-237	4.13E-05	4.8E+00	2.9E-08	1.4E-07
PU-238	5.25E-06	6.1E-01	3.9E-08	2.4E-08
PU-239/240	2.25E-06	2.6E-01	3.8E-08	9.9E-09
RA-226	3.45E-05	4.0E+00	3.0E-09	1.2E-08
RA-228	2.40E-05	2.8E+00	6.9E-10	1.9E-09
SR-90	3.38E-05	3.9E+00	6.2E-11	2.4E-10
TH-228	2.85E-05	3.3E+00	7.8E-08	2.6E-07
TH-230	2.78E-05	3.2E+00	2.9E-08	9.3E-08
TH-232	2.03E-05	2.4E+00	2.8E-08	6.6E-08
U-234	2.70E-05	3.1E+00	2.6E-08	8.1E-08
U-235/236	1.50E-06	1.7E-01	2.5E-08	4.3E-09
U-238	2.70E-05	3.1E+00	5.2E-08	1.6E-07

Total Pathway: 8.5E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.5E+00	2.4E+04	2.2E-10	5.3E-06
PU-238	7.2E-01	3.2E+03	2.2E-10	7.0E-07
PU-239/240	3.3E-01	1.5E+03	2.3E-10	3.3E-07
RA-226	4.6E+00	2.0E+04	1.2E-10	2.4E-06
RA-228	3.2E+00	1.4E+04	1.0E-10	1.4E-06
SR-90	4.5E+00	2.0E+04	3.6E-11	7.1E-07
TH-228	3.8E+00	1.7E+04	5.5E-11	9.2E-07
TH-230	3.7E+00	1.6E+04	1.3E-11	2.1E-07
TH-232	2.7E+00	1.2E+04	1.2E-11	1.4E-07
U-234	3.6E+00	1.6E+04	1.6E-11	2.5E-07
U-235/236	1.6E-01	7.1E+02	1.6E-11	1.1E-08
U-238	3.6E+00	1.6E+04	2.8E-11	4.5E-07

Total Pathway: 1.3E-05

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.74E-07	4.4E-08	1.5E+01	6.6E-07
Barium	1.90E-06	1.2E-07		
Beryllium	3.53E-08	2.3E-09	8.4E+00	1.9E-08
Chromium	9.98E-08	6.5E-09	4.1E+01	2.7E-07
Cobalt	1.41E-07	9.1E-09		
Copper	5.54E-07	3.6E-08		
Cyanide	2.25E-09	1.5E-10		
Lead	4.16E-07	2.7E-08		
Molybdenum	6.45E-08	4.2E-09		
Nickel	3.01E-07	2.0E-08		
Selenium	4.43E-08	2.9E-09		
Thallium	2.03E-08	1.3E-09		
Toluene	7.50E-10	4.9E-11		
Vanadium	3.77E-07	2.4E-08		
Zinc	5.87E-07	3.8E-08		

Total Pathway: 9.4E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	9.0E+01	2.2E-04	1.8E+00	3.9E-04
Barium	2.5E+02	6.3E-04		
Beryllium	4.7E+00	1.2E-05		
Chromium	1.3E+01	3.3E-05		
Cobalt	1.9E+01	4.6E-05		
Copper	7.4E+01	1.8E-04		
Cyanide	3.3E-01	8.2E-07		
Lead	5.5E+01	1.4E-04		
Molybdenum	8.6E+00	2.1E-05		
Nickel	4.0E+01	9.9E-05		
Selenium	5.9E+00	1.5E-05		
Thallium	2.7E+00	6.6E-06		
Toluene	7.3E-02	1.8E-07		
Vanadium	5.0E+01	1.2E-04		
Zinc	7.8E+01	1.9E-04		

Total Pathway: 3.9E-04

Total Rad + Chem 1.8E-06

Total Rad + Chem 4.0E-04

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TABLE B.3.1-18(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Conc'n (pCi/g)	Intake	SF(e)	Risk	Total
NP-237	5.5E+00	2.3E+02	4.3E-07	9.8E-05	1.0E-04
PU-238	7.2E-01	3.0E+01	2.8E-11	8.4E-10	7.2E-07
PU-239/240	3.3E-01	1.4E+01	2.7E-11	3.7E-10	3.5E-07
RA-226	4.6E+00	1.9E+02	1.2E-08	2.3E-06	4.7E-06
RA-228	3.2E+00	1.3E+02	2.9E-06	3.8E-04	3.8E-04
SR-90	4.5E+00	1.9E+02	0.0E+00	0.0E+00	7.1E-07
TH-228	3.8E+00	1.6E+02	5.6E-06	8.9E-04	8.9E-04
TH-230	3.7E+00	1.5E+02	5.4E-11	8.2E-09	3.1E-07
TH-232	2.7E+00	1.1E+02	2.6E-11	2.9E-09	2.1E-07
U-234	3.6E+00	1.5E+02	3.0E-11	4.5E-09	3.4E-07
U-235/236	1.6E-01	6.7E+00	2.4E-07	1.6E-06	1.6E-06
U-238	3.6E+00	1.5E+02	3.6E-08	5.4E-06	6.0E-06

Total Pathway: 1.4E-03

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	
Arsenic	7.1E-06	1.8E+00	1.3E-05	4.0E-04
Barium	2.0E-04			
Beryllium	3.7E-06			1.9E-08
Chromium	1.0E-05			2.7E-07
Cobalt	1.5E-05			
Copper	5.8E-06			
Cyanide	2.6E-07			
Lead	4.4E-05			
Molybdenum	6.8E-06			
Nickel	1.6E-06			
Selenium	4.7E-06			
Thallium	2.1E-06			
Toluene	1.7E-07			
Vanadium	4.0E-06			
Zinc	6.2E-05			

Total Pathway: 1.3E-05

External Radiation/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 1.3E-05

Total Rad + Chem 1.4E-03 *Total:* 1.8E-03

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TABLE B.3.1-18(b)
FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT CHILD
ACTIVE FLYASH PILE: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
NP-237	4.13E-05	8.7E-02	2.9E-08	2.5E-09
PU-238	5.25E-06	1.1E-02	3.9E-08	4.3E-10
PU-239/240	2.25E-06	4.7E-03	3.8E-08	1.8E-10
RA-226	3.45E-05	7.2E-02	3.0E-09	2.2E-10
RA-228	2.40E-05	5.0E-02	6.9E-10	3.5E-11
SR-90	3.38E-05	7.1E-02	6.2E-11	4.4E-12
TH-228	2.85E-05	6.0E-02	7.8E-08	4.7E-09
TH-230	2.78E-05	5.8E-02	2.9E-08	1.7E-09
TH-232	2.03E-05	4.3E-02	2.8E-08	1.2E-09
U-234	2.70E-05	5.7E-02	2.6E-08	1.5E-09
U-235/236	1.50E-06	3.2E-03	2.5E-08	7.9E-11
U-238	2.70E-05	5.7E-02	5.2E-08	2.9E-09
			Total Pathway:	1.5E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.48	2.3E+03	2.2E-10	5.1E-07
PU-238	0.72	3.0E+02	2.2E-10	6.7E-08
PU-239/240	0.33	1.4E+02	2.3E-10	3.2E-08
RA-226	4.61	1.9E+03	1.2E-10	2.3E-07
RA-228	3.17	1.3E+03	1.0E-10	1.3E-07
SR-90	4.47	1.9E+03	3.6E-11	6.8E-08
TH-228	3.81	1.6E+03	5.5E-11	8.8E-08
TH-230	3.66	1.5E+03	1.3E-11	2.0E-08
TH-232	2.66	1.1E+03	1.2E-11	1.3E-08
U-234	3.60	1.5E+03	1.6E-11	2.4E-08
U-235/236	0.16	6.7E+01	1.6E-11	1.0E-09
U-238	3.61	1.5E+03	2.8E-11	4.2E-08
			Total Pathway:	1.2E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.74E-07	3.7E-09	1.5E+01	5.6E-08
Barium	1.90E-06	1.0E-08		
Beryllium	3.53E-08	1.9E-10	8.4E+00	1.6E-09
Chromium	9.98E-08	5.5E-10	4.1E+01	2.2E-08
Cobalt	1.41E-07	7.7E-10		
Copper	5.54E-07	3.0E-09		
Cyanide	2.25E-09	1.2E-11		
Lead	4.16E-07	2.3E-09		
Molybdenum	6.45E-08	3.5E-10		
Nickel	3.01E-07	1.6E-09		
Selenium	4.43E-08	2.4E-10		
Thallium	2.03E-08	1.1E-10		
Toluene	7.50E-10	4.1E-12		
Vanadium	3.77E-07	2.1E-09		
Zinc	5.87E-07	3.2E-09		
			Total Pathway:	8.0E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	89.82	9.8E-05	1.8E+00	1.7E-04
Barium	253.90	2.8E-04		
Beryllium	4.67	5.1E-06	4.3E+00	2.2E-05
Chromium	13.32	1.5E-05		
Cobalt	18.80	2.1E-05		
Copper	73.84	8.1E-05		
Cyanide	0.33	3.6E-07		
Lead	55.44	6.1E-05		
Molybdenum	8.63	9.5E-06		
Nickel	40.11	4.4E-05		
Selenium	5.94	6.5E-06		
Thallium	2.66	2.9E-06		
Toluene	0.07	8.0E-08		
Vanadium	50.24	5.5E-05		
Zinc	78.32	8.6E-05		
			Total Pathway:	1.9E-04

Total Rad + Chem 9.5E-08

Total Rad + Chem 2.0E-04

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TABLE B.3.1-18(b) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable (1)	NP-237	1.7E+01	4.3E-07	7.3E-06	7.9E-06
	PU-238	2.2E+00	2.8E-11	6.3E-11	6.7E-08
	PU-239/240	1.0E+00	2.2E-11	2.3E-11	3.2E-08
	RA-226	1.4E+01	6.0E-06	8.6E-05	8.6E-05
	RA-228	9.9E+00	2.9E-06	2.9E-05	2.9E-05
	SR-90	1.4E+01	0.0E+00	0.0E+00	6.8E-08
	TH-228	1.2E+01	5.6E-06	6.6E-05	6.7E-05
	TH-230	1.1E+01	5.4E-11	6.2E-10	2.2E-08
	TH-232	8.3E+00	2.6E-11	2.2E-10	1.5E-08
	U-234	1.1E+01	3.0E-11	3.4E-10	2.6E-08
	U-235/236	5.0E-01	2.4E-07	1.2E-07	1.2E-07
	U-238	1.1E+01	3.6E-08	4.0E-07	4.5E-07
Total Pathway: 0.0E+00			Total Pathway:	1.9E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	8.9E-07	1.8E+00	1.6E-06					1.7E-04
Barium	2.5E-05							
Beryllium	4.6E-07	4.3E+02	2.0E-04					2.2E-04
Chromium	1.3E-06							2.2E-08
Cobalt	1.9E-06							
Copper	7.3E-07							
Cyanide	3.3E-08							
Lead	5.5E-06							
Molybdenum	8.5E-07							
Nickel	4.0E-08			Not applicable (2)				
Selenium	5.9E-07							
Thallium	2.6E-07							
Toluene	7.2E-09							
Vanadium	5.0E-07							
Zinc	7.7E-06							
Total Pathway: 2.0E-04				Total Pathway: 0.0E+00				

Total Rad + Chem 2.0E-04 1.9E-04 *Total:* 5.8E-04

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NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
NP-237	4.13E-05	8.7E-02		
PU-238	5.25E-06	1.1E-02		
PU-239/240	2.25E-06	4.7E-03		
RA-226	3.45E-05	7.2E-02		
RA-228	2.40E-05	5.0E-02		
SR-90	3.38E-05	7.1E-02		
TH-228	2.85E-05	6.0E-02		
TH-230	2.78E-05	5.8E-02		
TH-232	2.03E-05	4.3E-02		
U-234	2.70E-05	5.7E-02		
U-235/236	1.50E-06	3.2E-03		
U-238	2.70E-05	5.7E-02		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	HQ
NP-237	5.48	2.3E+03		
PU-238	0.72	3.0E+02		
PU-239/240	0.33	1.4E+02		
RA-226	4.61	1.9E+03		
RA-228	3.17	1.3E+03		
SR-90	4.47	1.9E+03		
TH-228	3.81	1.6E+03		
TH-230	3.66	1.5E+03		
TH-232	2.66	1.1E+03		
U-234	3.60	1.5E+03		
U-235/236	0.16	6.7E+01		
U-238	3.61	1.5E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	6.74E-07	4.3E-08		
Barium	1.90E-06	1.2E-07	1.4E-04	8.7E-04
Beryllium	3.53E-08	2.3E-09		
Chromium	9.98E-08	6.4E-09		
Cobalt	1.41E-07	9.0E-09		
Copper	5.54E-07	3.5E-08		
Cyanide	2.25E-09	1.4E-10		
Lead	4.16E-07	2.7E-08		
Molybdenum	6.45E-08	4.1E-09		
Nickel	3.01E-07	1.9E-08		
Selenium	4.43E-08	2.8E-09		
Thallium	2.03E-08	1.3E-09		
Toluene	7.50E-10	4.8E-11		
Vanadium	3.77E-07	2.4E-08		
Zinc	5.87E-07	3.8E-08		

Total Pathway: 8.7E-04

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	HQ
Arsenic	89.82	1.1E-03	3.0E-04	3.8E+00
Barium	253.90	3.2E-03	7.0E-02	4.6E-02
Beryllium	4.67	6.0E-05	5.0E-03	1.2E-02
Chromium	13.32	1.7E-04	5.0E-03	3.4E-02
Cobalt	18.80	2.4E-04		
Copper	73.84	9.4E-04	4.0E-02	2.4E-02
Cyanide	0.33	4.2E-06	2.0E-02	2.1E-04
Lead	55.44	7.1E-04		
Molybdenum	8.63	1.1E-04	5.0E-03	2.2E-02
Nickel	40.11	5.1E-04	2.0E-02	2.6E-02
Selenium	5.94	7.6E-05	5.0E-03	1.5E-02
Thallium	2.66	3.4E-05	7.0E-05	4.9E-01
Toluene	0.07	9.3E-07	2.0E-01	4.7E-06
Vanadium	50.24	6.4E-04	7.0E-03	9.2E-02
Zinc	78.32	1.0E-03	3.0E-01	3.3E-03

Total Pathway: 4.6E+00

Total Rad + Chem 8.7E-04

Total Rad + Chem 4.6E+00

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TABLE B.3.1-18(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	HQ
Not applicable	NP-237	1.7E+01		
	PU-238	2.2E+00		
	PU-239/240	1.0E+00		
	RA-226	1.4E+01		
	RA-228	9.9E+00		
	SR-90	1.4E+01		
	TH-228	1.2E+01		
	TH-230	1.1E+01		
	TH-232	8.3E+00		
	U-234	1.1E+01		
	U-235/236	5.0E-01		
	U-238	1.1E+01		
Total Pathway: 0.0E+00			Total Pathway:	0.0E+00

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	HQ	Compound	Intake	RfD(o)	HQ	
Arsenic	1.0E-04	2.9E-04	3.6E-01					4.2
Barium	2.9E-05	6.4E-02	4.6E-04					4.8E-02
Beryllium	5.4E-06	5.0E-05	1.1E-01					0.1
Chromium	1.5E-05	2.3E-03	6.8E-03					4.1E-02
Cobalt	2.2E-05							
Copper	8.5E-05	2.4E-02	3.5E-03					2.7E-02
Cyanide	3.8E-08	1.4E-02	2.6E-06					2.1E-04
Lead	6.4E-05							
Molybdenum	9.9E-06	1.9E-03	5.2E-03					2.7E-02
Nickel	4.6E-05	1.0E-03	4.6E-02					7.2E-02
Selenium	6.8E-06	4.0E-03	1.7E-03					1.7E-02
Thallium	3.1E-08	7.0E-05	4.4E-04					0.5
Toluene	8.4E-08	2.0E-03	4.2E-05					4.7E-05
Vanadium	5.8E-06	3.5E-04	1.7E-02					0.1
Zinc	9.0E-05	7.5E-02	1.2E-03					4.5E-03
	Total Pathway:		5.5E-01		Total Pathway:		0.0E+00	
	Total Rad + Chem		5.5E-01		Total Rad + Chem		0.0E+00	***Total:*** 5.1

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TABLE B.3.1-19(a)

FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER

ACTIVE FLYASH PILE: GROUNDWATER (RME VALUES)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	3.14E-04	1.5E+01	2.2E-10	3.4E-09	
SR-90	5.47E-01	2.7E+04	3.6E-11	9.7E-07	Not applicable
U234	1.98E+01	9.7E+05	1.6E-11	1.5E-05	
U235/236	1.05E+00	5.2E+04	1.6E-11	8.3E-07	
U238	2.18E+01	1.1E+06	2.8E-11	3.0E-05	
			Total Pathway:	4.7E-05	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	4.77E-14	1.3E-15	1.8E+00	2.3E-15	Arsenic	4.9E-15		
Beryllium	4.73E-16	1.3E-17	4.3E+00	5.6E-17	Beryllium	4.9E-17		
Lead	2.06E-09	5.6E-11			Lead	2.1E-10		
U-Total	7.76E-02	2.1E-03			U-Total	8.0E-03		
1,2-Dichloroethane	0.00E+00	0.0E+00	9.1E-02	0.0E+00	1,2-Dichloroethane	0.0E+00	9.10E-02	0.0E+00
Vinyl chloride	0.00E+00	0.0E+00	1.9E+00	0.0E+00	Vinyl chloride	0.0E+00	3.00E-01	0.0E+00
			Total Pathway:	2.3E-15			Total Pathway:	0.0E+00
			Total Rad + Chem	4.7E-05			Total Rad + Chem	0.0E+00

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TABLE B.3.1-19(a) (continued)

CARCINOGENIC RISK

Radiation Risk				
Dermal Contact/Groundwater				Total
Not applicable				3.4E-09
				9.7E-07
				1.5E-05
				8.3E-07
				3.0E-05
Total Pathway: 0.0E+00				

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	9.5E-18	1.8E+00	1.8E-17	2.3E-15
Beryllium	9.4E-20	4.3E+02	4.1E-17	9.6E-17
Lead	1.6E-15			
U-Total	1.5E-05			
1,2-Dichloroethane	0.0E+00			0.0E+00
Vinyl chloride	0.0E+00	1.9E+00	0.0E+00	0.0E+00
Total Pathway:			5.8E-17	

Total Rad + Chem 5.8E-17 *Total:* 4.7E-05

TABLE B.3.1-19(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	3.1E-04	1.5E+01			Not applicable
SR-90	5.5E-01	2.7E+04			
U234	19.8	9.7E+05			
U235/236	1.1E+00	5.2E+04			
U238	21.8	1.1E+06			
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	4.8E-14	1.3E-15	3.0E-04	4.4E-12	Arsenic	4.9E-15		
Beryllium	4.7E-16	1.3E-17	5.0E-03	2.6E-15	Beryllium	4.9E-17		
Lead	2.1E-09	5.6E-11			Lead	2.1E-10		
U-Total	7.8E-02	2.1E-03	3.0E-03	7.1E-01	U-Total	8.0E-03		
1,2-Dichloroethane	0.0E+00	0.0E+00			1,2-Dichloroethane	0.0E+00		
Vinyl chloride	0.0E+00	0.0E+00			Vinyl chloride	0.0E+00		
			Total Pathway:	7.1E-01			Total Pathway:	0.0E+00
			Total Rad + Chem	7.1E-01			Total Rad + Chem	0.0E+00

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TABLE B.3.1-19(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard				
Dermal Contact/Groundwater				**Total**
Not applicable				
		Total Pathway:	0.0E+00	

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	9.5E-18	2.9E-04	3.3E-14	4.4E-12
Beryllium	9.4E-20	5.0E-05	1.9E-15	4.5E-15
Lead	1.6E-15			
U-Total	1.5E-05	1.5E-04	1.0E-01	8.1E-01
1,2-Dichloroethane	0.0E+00			
Vinyl chloride	0.0E+00			
		Total Pathway:	1.0E-01	

Total Rad + Chem	1.0E-01	*Total:*	8.1E-01

TABLE B.3.1-19(b)

FUTURE, ON-PROPERTY (SOUTH FIELD) CHILD

ACTIVE FLYASH PILE: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	3.14E-04	6.6E-01	2.2E-10	1.5E-10	
SR-90	5.47E-01	1.1E+03	3.6E-11	4.1E-08	Not applicable
U234	1.98E+01	4.1E+04	1.6E-11	6.6E-07	
U235/236	1.05E+00	2.2E+03	1.6E-11	3.5E-08	
U238	2.18E+01	4.6E+04	2.8E-11	1.3E-06	
			Total Pathway:	2.0E-06	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	4.77E-14	2.6E-16	1.8E+00	4.6E-16	Arsenic	2.0E-15		
Beryllium	4.73E-16	2.6E-18	4.3E+00	1.1E-17	Beryllium	1.9E-17		
Lead	2.06E-09	1.1E-11			Lead	8.5E-11		
U-Total	7.76E-02	4.3E-04			U-Total	3.2E-03		
1,2-Dichloroethane	0.00E+00	0.0E+00	9.1E-02	0.0E+00	1,2-Dichloroethane	0.0E+00	9.10E-02	0.0E+00
Vinyl chloride	0.00E+00	0.0E+00	1.9E+00	0.0E+00	Vinyl chloride	0.0E+00	3.00E-01	0.0E+00
			Total Pathway:	4.7E-16			Total Pathway:	0.0E+00
			Total Rad + Chem	2.0E-06			Total Rad + Chem	0.0E+00

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CARCINOGENIC RISK

Radiation Risk				
Dermal Contact/Groundwater				
Not applicable				1.5E-10
				4.1E-08
				6.6E-07
				3.5E-08
				1.3E-06
Total Pathway:			0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	1.3E-18	1.8E+00	2.4E-18	4.6E-16
Beryllium	1.3E-20	4.3E+02	5.6E-18	1.7E-17
Lead	2.3E-16			
U-Total	2.2E-06			
1,2-Dichloroethane	0.0E+00			0.0E+00
Vinyl chloride	0.0E+00	1.9E+00	0.0E+00	0.0E+00
Total Pathway:			8.1E-18	

Total Rad + Chem	8.1E-18	*Total:*	2.0E-06

NON-CARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.0	6.6E-01			Not applicable
SR-90	5.5E-01	1.1E+03			
U234	19.8	4.1E+04			
U235/236	1.1	2.2E+03			
U238	21.8	4.6E+04			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	4.8E-14	3.0E-15	3.0E-04	1.0E-11	Arsenic	2.3E-14		
Beryllium	4.7E-16	3.0E-17	5.0E-03	6.0E-15	Beryllium	2.3E-16		
Lead	2.1E-09	1.3E-10			Lead	9.9E-10		
U-Total	7.8E-02	5.0E-03	3.0E-03	1.7E+00	U-Total	3.7E-02		
1,2-Dichloroethane	0.0E+00	0.0E+00			1,2-Dichloroethane	0.0E+00		
Vinyl chloride	0.0E+00	0.0E+00			Vinyl chloride	0.0E+00		
		Total Pathway:		1.7E+00		Total Pathway:		0.0E+00
		Total Rad + Chem		1.7E+00		Total Rad + Chem		0.0E+00

TABLE B.3.1-19(b)(continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	1.5E-17	2.9E-04	5.4E-14	1.0E-11
Beryllium	1.5E-19	5.0E-05	3.1E-15	9.1E-15
Lead	2.7E-15			
U-Total	2.5E-05	1.5E-04	1.7E-01	1.8E+00
1,2-Dichloroethane	0.0E+00			
Vinyl chloride	0.0E+00			

Total Pathway: 1.7E-01

Total Rad + Chem 1.7E-01 *Total:* 1.8E+00

TABLE B.3.1-20(a)

FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	1.45E+00	2.2E+03	2.2E-10	4.8E-07	4.8E-07
PU-238	1.79E-01	2.7E+02	2.2E-10	5.9E-08	5.9E-08
PU-239/240	7.68E-02	1.1E+02	2.3E-10	2.6E-08	2.6E-08
RA-226	1.19E+00	1.8E+03	1.2E-10	2.1E-07	2.1E-07
RA-228	8.22E-01	1.2E+03	1.0E-10	1.2E-07	1.2E-07
SR-90	1.54E+00	2.3E+03	3.6E-11	8.3E-08	8.3E-08
TH-228	9.73E-01	1.5E+03	5.5E-11	8.0E-08	8.0E-08
TH-230	9.48E-01	1.4E+03	1.3E-11	1.8E-08	1.8E-08
TH-232	6.91E-01	1.0E+03	1.2E-11	1.2E-08	1.2E-08
U-234	9.25E-01	1.4E+03	1.6E-11	2.2E-08	2.2E-08
U-235/236	5.13E-02	7.7E+01	1.6E-11	1.2E-09	1.2E-09
U-238	9.25E-01	1.4E+03	2.8E-11	3.9E-08	3.9E-08
			Total Pathway:	1.2E-06	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	2.33E-02	1.9E-05	1.8E+00	3.4E-05	3.4E-05
Barium	6.82E-02	5.7E-05			
Beryllium	1.21E-03	1.0E-06	4.3E+00	4.4E-06	4.4E-06
Chromium	3.41E-03	2.9E-06			
Cobalt	4.82E-03	4.0E-06			
Copper	1.94E-02	1.6E-05			
Cyanide	2.16E-04	1.8E-07			
Lead	1.44E-02	1.2E-05			
Molybdenum	2.38E-03	2.0E-06			
Nickel	1.05E-02	8.7E-06			
Selenium	1.51E-03	1.3E-06			
Thallium	6.91E-04	5.8E-07			
Toluene	2.77E-05	2.3E-08			
Vanadium	1.29E-02	1.1E-05			
Zinc	3.01E-02	2.5E-05			
U-Total	0.00E+00	0.0E+00			
			Total Pathway:	3.8E-05	

Total Rad + Chem 4.0E-05 *Total:* 4.0E-05

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ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk — Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
NP-237	1.60E-03	2.4E+00	2.2E-10	5.3E-10	5.3E-10	4.8E-07
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	5.9E-08
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	2.6E-08
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.1E-07
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.2E-07
SR-90	3.81E+00	5.7E+03	3.6E-11	2.0E-07	2.0E-07	2.9E-07
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	8.0E-08
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.8E-08
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.2E-08
U-234	9.70E+01	1.4E+05	1.6E-11	2.3E-06	2.3E-06	2.3E-06
U-235/236	5.17E+00	7.7E+03	1.6E-11	1.2E-07	1.2E-07	1.2E-07
U-238	1.07E+02	1.6E+05	2.8E-11	4.5E-06	4.5E-06	4.5E-06
			Total Pathway:	7.1E-06		

Chemical Risk — Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
Arsenic	2.37E-13	2.0E-16	1.8E+00	3.5E-16	3.5E-16	3.4E-05
Barium	0.00E+00	0.0E+00				
Beryllium	2.32E-15	1.9E-18	4.3E+00	8.4E-18	8.4E-18	4.4E-06
Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00				
Lead	1.03E-08	8.6E-12				
Molybdenum	0.00E+00	0.0E+00				
Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00				
U-Total	3.81E-01	3.2E-04				
			Total Pathway:	3.6E-16		

Total Rad + Chem	7.1E-06	*Total:*	7.1E-06	4.7E-05

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ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	1.5E+00			
PU-238	1.8E-01			
PU-239/240	7.7E-02			
RA-226	1.2E+00			
RA-228	8.2E-01			
SR-90	1.5E+00			
TH-228	9.7E-01			
TH-230	9.5E-01			
TH-232	6.9E-01			
U-234	9.2E-01			
U-235/236	5.1E-02			
U-238	9.2E-01			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	2.3E-02	1.9E-05	3.0E-04	6.5E-02	0.1
Barium	6.8E-02	5.7E-05	7.0E-02	8.1E-04	8.1E-04
Beryllium	1.2E-03	1.0E-06	5.0E-03	2.0E-04	2.0E-04
Chromium	3.4E-03	2.9E-06	5.0E-03	5.7E-04	5.7E-04
Cobalt	4.8E-03	4.0E-06			
Copper	1.9E-02	1.6E-05	4.0E-02	4.1E-04	4.1E-04
Cyanide	2.2E-04	1.8E-07	2.0E-02	9.0E-06	9.0E-06
Lead	1.4E-02	1.2E-05			
Molybdenum	2.4E-03	2.0E-06	5.0E-03	4.0E-04	4.0E-04
Nickel	1.0E-02	8.7E-06	2.0E-02	4.4E-04	4.4E-04
Selenium	1.5E-03	1.3E-06	5.0E-03	2.5E-04	2.5E-04
Thallium	6.9E-04	5.8E-07	7.0E-05	8.3E-03	8.3E-03
Toluene	2.8E-05	2.3E-08	2.0E-01	1.2E-07	1.2E-07
Vanadium	1.3E-02	1.1E-05	7.0E-03	1.5E-03	1.5E-03
Zinc	3.0E-02	2.5E-05	3.0E-01	8.4E-05	8.4E-05
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00

Total Pathway: 7.8E-02

Total Rad + Chem 7.8E-02 | *Total:* 7.8E-02

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TABLE B.3.1-20(a) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	1.6E-03			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	0.0E+00			
RA-228	0.0E+00			
SR-90	3.8E+00			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	9.7E+01			
U-235/236	5.2E+00			
U-238	1.1E+02			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
Arsenic	2.4E-13	2.0E-16	3.0E-04	6.6E-13	6.6E-13	6.5E-02
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00	0.0E+00	8.1E-04
Beryllium	2.3E-15	1.9E-18	5.0E-03	3.9E-16	3.9E-16	2.0E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.7E-04
Cobalt	0.0E+00	0.0E+00				
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00	0.0E+00	4.1E-04
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	9.0E-06
Lead	1.0E-08	8.6E-12				
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	4.0E-04
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	4.4E-04
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.5E-04
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00	0.0E+00	8.3E-03
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	1.2E-07
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00	0.0E+00	1.5E-03
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00	0.0E+00	8.4E-05
U-Total	3.8E-01	3.2E-04	3.0E-03	1.1E-01	1.1E-01	1.1E-01

Total Pathway: 1.1E-01

Total Rad + Chem 1.1E-01 | *Total:* 1.1E-01 | 1.8E-01

TABLE B.3.1-20(b)

FUTURE ON-PROPERTY (SOUTH FIELD) CHILD

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	1.45E+00	1.6E+02	2.2E-10	3.6E-08	3.6E-08
PU-238	1.79E-01	2.0E+01	2.2E-10	4.4E-09	4.4E-09
PU-239/240	7.68E-02	8.5E+00	2.3E-10	2.0E-09	2.0E-09
RA-226	1.19E+00	1.3E+02	1.2E-10	1.6E-08	1.6E-08
RA-228	8.22E-01	9.2E+01	1.0E-10	9.2E-09	9.2E-09
SR-90	1.54E+00	1.7E+02	3.6E-11	6.2E-09	6.2E-09
TH-228	9.73E-01	1.1E+02	5.5E-11	6.0E-09	6.0E-09
TH-230	9.48E-01	1.1E+02	1.3E-11	1.4E-09	1.4E-09
TH-232	6.91E-01	7.7E+01	1.2E-11	9.2E-10	9.2E-10
U-234	9.25E-01	1.0E+02	1.6E-11	1.6E-09	1.6E-09
U-235/236	5.13E-02	5.7E+00	1.6E-11	8.9E-11	8.9E-11
U-238	9.25E-01	1.0E+02	2.8E-11	2.9E-09	2.9E-09
			Total Pathway:	8.6E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	2.33E-02	6.8E-06	1.8E+00	1.2E-05	1.2E-05
Barium	6.82E-02	2.0E-05			
Beryllium	1.21E-03	3.5E-07	4.3E+00	1.5E-06	1.5E-06
Chromium	3.41E-03	9.9E-07			
Cobalt	4.82E-03	1.4E-06			
Copper	1.94E-02	5.6E-06			
Cyanide	2.16E-04	6.3E-08			
Lead	1.44E-02	4.2E-06			
Molybdenum	2.38E-03	6.9E-07			
Nickel	1.05E-02	3.0E-06			
Selenium	1.51E-03	4.4E-07			
Thallium	6.91E-04	2.0E-07			
Toluene	2.77E-05	8.0E-09			
Vanadium	1.29E-02	3.7E-06			
Zinc	3.01E-02	8.7E-06			
U-Total	0.00E+00	0.0E+00			
			Total Pathway:	1.3E-05	

Total Rad + Chem	1.3E-05	*Total:*	1.3E-05

TABLE B.3.1-20(b) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
NP-237	1.60E-03	1.8E-01	2.2E-10	3.9E-11	3.9E-11	3.6E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	4.4E-09
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	2.0E-09
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.6E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	9.2E-09
SR-90	3.81E+00	4.2E+02	3.6E-11	1.5E-08	1.5E-08	2.1E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	6.0E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.4E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	9.2E-10
U-234	9.70E+01	1.1E+04	1.6E-11	1.7E-07	1.7E-07	1.7E-07
U-235/236	5.17E+00	5.8E+02	1.6E-11	8.9E-09	8.9E-09	9.0E-09
U-238	1.07E+02	1.2E+04	2.8E-11	3.3E-07	3.3E-07	3.4E-07
			Total Pathway:	5.3E-07		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	2.37E-13	6.9E-17	1.8E+00	1.2E-16	1.2E-16	1.2E-05
Barium	0.00E+00	0.0E+00				
Beryllium	2.32E-15	6.7E-19	4.3E+00	2.9E-18	2.9E-18	1.5E-06
Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00				
Lead	1.03E-08	3.0E-12				
Molybdenum	0.00E+00	0.0E+00				
Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00				
U-Total	3.81E-01	1.1E-04				
			Total Pathway:	1.2E-16		

Total Rad + Chem	5.3E-07	*Total:* 5.3E-07	1.4E-05

TABLE B.3.1.20(b) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
NP-237	1.5E+00				
PU-238	1.8E-01				
PU-239/240	7.7E-02				
RA-226	1.2E+00				
RA-228	8.2E-01				
SR-90	1.5E+00				
TH-228	9.7E-01				
TH-230	9.5E-01				
TH-232	6.9E-01				
U-234	9.2E-01				
U-235/236	5.1E-02				
U-238	9.2E-01				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	2.3E-02	7.9E-05	3.0E-04	0.3	0.3
Barium	6.8E-02	2.3E-04	7.0E-02	3.3E-03	3.3E-03
Beryllium	1.2E-03	4.1E-06	5.0E-03	8.2E-04	8.2E-04
Chromium	3.4E-03	1.2E-05	5.0E-03	2.3E-03	2.3E-03
Cobalt	4.8E-03	1.6E-05			
Copper	1.9E-02	6.6E-05	4.0E-02	1.6E-03	1.6E-03
Cyanide	2.2E-04	7.3E-07	2.0E-02	3.7E-05	3.7E-05
Lead	1.4E-02	4.9E-05			
Molybdenum	2.4E-03	8.1E-06	5.0E-03	1.6E-03	1.6E-03
Nickel	1.0E-02	3.5E-05	2.0E-02	1.8E-03	1.8E-03
Selenium	1.5E-03	5.1E-06	5.0E-03	1.0E-03	1.0E-03
Thallium	6.9E-04	2.3E-06	7.0E-05	3.3E-02	3.3E-02
Toluene	2.8E-05	9.4E-08	2.0E-01	4.7E-07	4.7E-07
Vanadium	1.3E-02	4.4E-05	7.0E-03	6.2E-03	6.2E-03
Zinc	3.0E-02	1.0E-04	3.0E-01	3.4E-04	3.4E-04
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	0.3	

Total Rad + Chem	0.3	*Total:*	0.3

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TABLE B.3.1-20(b) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
NP-237	1.6E-03					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	3.8E+00					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	9.7E+01					
U-235/236	5.2E+00					
U-238	1.1E+02					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	2.4E-13	8.0E-16	3.0E-04	2.7E-12	2.7E-12	2.6E-01
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00	0.0E+00	3.3E-03
Beryllium	2.3E-15	7.9E-18	5.0E-03	1.6E-15	1.6E-15	8.2E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.3E-03
Cobalt	0.0E+00	0.0E+00				
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00	0.0E+00	1.6E-03
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	3.7E-05
Lead	1.0E-08	3.5E-11				
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.6E-03
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.8E-03
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.0E-03
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00	0.0E+00	3.3E-02
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	4.7E-07
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00	0.0E+00	6.2E-03
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00	0.0E+00	3.4E-04
U-Total	3.8E-01	1.3E-03	3.0E-03	4.3E-01	4.3E-01	4.3E-01
			Total Pathway:	0.4		
			Total Rad + Chem	0.4	*Total:* 4.3E-01	7.5E-01

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TABLE B.3.1-21(a)

FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	5.06E-03	9.3E+00	2.2E-10	2.0E-09	NP-237	4.60E-04	3.4E+00	2.2E-10	7.4E-10	2.8E-09
PU-238	5.82E-06	1.1E-02	2.2E-10	2.4E-12	PU-238	1.16E-06	8.6E-03	2.2E-10	1.9E-12	4.2E-12
PU-239/240	2.50E-06	4.6E-03	2.3E-10	1.1E-12	PU-239/240	5.00E-07	3.7E-03	2.3E-10	8.4E-13	1.9E-12
RA-226	1.92E-02	3.5E+01	1.2E-10	4.2E-09	RA-226	3.46E-02	2.5E+02	1.2E-10	3.1E-08	3.5E-08
RA-228	1.29E-02	2.4E+01	1.0E-10	2.4E-09	RA-228	2.32E-02	1.7E+02	1.0E-10	1.7E-08	1.9E-08
SR-90	2.37E-02	4.3E+01	3.6E-11	1.6E-09	SR-90	1.18E-01	8.7E+02	3.6E-11	3.1E-08	3.3E-08
TH-228	3.45E-04	6.3E-01	5.5E-11	3.5E-11	TH-228	2.87E-04	2.1E+00	5.5E-11	1.2E-10	1.5E-10
TH-230	3.70E-04	6.8E-01	1.3E-11	8.8E-12	TH-230	3.08E-04	2.3E+00	1.3E-11	2.9E-11	3.8E-11
TH-232	2.70E-04	5.0E-01	1.2E-11	5.9E-12	TH-232	2.25E-04	1.7E+00	1.2E-11	2.0E-11	2.6E-11
U-234	1.20E-02	2.2E+01	1.6E-11	3.5E-10	U-234	3.61E-02	2.7E+02	1.6E-11	4.2E-09	4.6E-09
U-235/236	6.68E-04	1.2E+00	1.6E-11	1.9E-11	U-235/236	2.00E-03	1.5E+01	1.6E-11	2.3E-10	2.5E-10
U-238	1.20E-02	2.2E+01	2.8E-11	6.2E-10	U-238	3.61E-02	2.7E+02	2.8E-11	7.4E-09	8.0E-09
			Total Pathway:	1.1E-08				Total Pathway:	9.2E-08	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	3.00E-03	3.1E-06	1.8E+00	5.4E-06	Arsenic	9.01E-05	3.7E-07	1.8E+00	6.5E-07	6.1E-06
Barium	6.40E-04	6.6E-07			Barium	1.49E-03	6.1E-06			
Beryllium	7.86E-05	8.1E-08	4.3E+00	3.5E-07	Beryllium	7.07E-08	2.9E-10	4.3E+00	1.2E-09	3.5E-07
Chromium	1.22E-03	1.3E-06			Chromium	3.33E-04	1.4E-06			
Cobalt	6.23E-03	6.4E-06			Cobalt	6.23E-04	2.6E-06			
Copper	1.26E-02	1.3E-05			Copper	1.89E-03	7.8E-06			
Cyanide	1.19E-09	1.2E-12			Cyanide	3.77E-10	1.5E-12			
Lead	2.79E-04	2.9E-07			Lead	2.33E-04	9.6E-07			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
Nickel	4.15E-03	4.3E-06			Nickel	6.91E-04	2.8E-06			
Selenium	1.47E-03	1.5E-06			Selenium	3.92E-04	1.6E-06			
Thallium	1.79E-03	1.8E-06			Thallium	8.95E-05	3.7E-07			
Toluene	2.34E-08	2.4E-11			Toluene	7.39E-09	3.0E-11			
Vanadium	2.09E-03	2.1E-06			Vanadium	1.67E-05	6.9E-08			
Zinc	2.01E-01	2.1E-04			Zinc	2.01E-02	8.2E-05			
U-Total	0.00E+00	0.0E+00			U-Total	0.00E+00	0.0E+00			
			Total Pathway:	5.7E-06				Total Pathway:	6.5E-07	
			Total Rad + Chem	5.8E-06				Total Rad + Chem	7.4E-07	*Total:* 6.5E-06

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TABLE B.3.1-21(a) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk		
NP-237	3.10E-06	5.7E-03	2.2E-10	1.3E-12	NP-237	2.82E-07	2.1E-03	2.2E-10	4.6E-13	1.7E-12	2.8E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	4.2E-12
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.9E-12
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.5E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.9E-08
SR-90	3.09E-02	5.7E+01	3.6E-11	2.0E-09	SR-90	1.54E-01	1.1E+03	3.6E-11	4.1E-08	4.3E-08	7.6E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.5E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	3.8E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	2.6E-11
U-234	7.07E-01	1.3E+03	1.6E-11	2.1E-08	U-234	2.12E+00	1.6E+04	1.6E-11	2.5E-07	2.7E-07	2.7E-07
U-235/236	3.77E-02	6.9E+01	1.6E-11	1.1E-09	U-235/236	1.13E-01	8.3E+02	1.6E-11	1.3E-08	1.4E-08	1.4E-08
U-238	7.80E-01	1.4E+03	2.8E-11	4.0E-08	U-238	2.34E+00	1.7E+04	2.8E-11	4.8E-07	5.2E-07	5.3E-07
			Total Pathway:	6.4E-08				Total Pathway:	7.8E-07		

Chemical Risk

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	1.71E-14	1.8E-17	1.8E+00	3.1E-17	Arsenic	5.13E-16	2.1E-18	1.8E+00	3.7E-18	3.4E-17	6.1E-06
Barium	0.00E+00	0.0E+00			Barium	0.00E+00	0.0E+00				
Beryllium	8.45E-17	8.7E-20	4.3E+00	3.7E-19	Beryllium	7.60E-20	3.1E-22	4.3E+00	1.3E-21	3.7E-19	3.5E-07
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00			Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00			Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00			Cyanide	0.00E+00	0.0E+00				
Lead	1.11E-10	1.1E-13			Lead	9.24E-11	3.8E-13				
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00				
Nickel	0.00E+00	0.0E+00			Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00			Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00			Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00			Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00			Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00			Zinc	0.00E+00	0.0E+00				
U-Total	2.78E-03	2.9E-06			U-Total	8.33E-03	3.4E-05				
			Total Pathway:	3.1E-17				Total Pathway:	3.7E-18		
			Total Rad + Chem	6.4E-08				Total Rad + Chem	7.8E-07	*Total:* 8.5E-07	7.4E-06

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TABLE B.3.1-21(a) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	5.1E-03			
PU-238	5.8E-06			
PU-239/240	2.5E-06			
RA-226	1.9E-02			
RA-228	1.3E-02			
SR-90	2.4E-02			
TH-228	3.4E-04			
TH-230	3.7E-04			
TH-232	2.7E-04			
U-234	1.2E-02			
U-235/236	6.7E-04			
U-238	1.2E-02			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
NP-237	4.60E-04			
PU-238	1.16E-06			
PU-239/240	5.00E-07			
RA-226	3.46E-02			
RA-228	2.32E-02			
SR-90	1.18E-01			
TH-228	2.87E-04			
TH-230	3.08E-04			
TH-232	2.25E-04			
U-234	3.61E-02			
U-235/236	2.00E-03			
U-238	3.61E-02			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	3.0E-03	3.1E-06	3.0E-04	1.0E-02
Barium	6.4E-04	6.6E-07	7.0E-02	9.4E-06
Beryllium	7.9E-05	8.1E-08	5.0E-03	1.6E-05
Chromium	1.2E-03	1.3E-06	5.0E-03	2.5E-04
Cobalt	6.2E-03	6.4E-06		
Copper	1.3E-02	1.3E-05	4.0E-02	3.2E-04
Cyanide	1.2E-09	1.2E-12	2.0E-02	6.1E-11
Lead	2.8E-04	2.9E-07		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	4.1E-03	4.3E-06	2.0E-02	2.1E-04
Selenium	1.5E-03	1.5E-06	5.0E-03	3.0E-04
Thallium	1.8E-03	1.8E-06	7.0E-05	2.6E-02
Toluene	2.3E-08	2.4E-11	2.0E-01	1.2E-10
Vanadium	2.1E-03	2.1E-06	7.0E-03	3.1E-04
Zinc	2.0E-01	2.1E-04	3.0E-01	6.9E-04
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00

Total Pathway: 3.9E-02

Total Rad + Chem 3.9E-02

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	9.01E-05	3.7E-07	3.0E-04	1.2E-03
Barium	1.49E-03	6.1E-06	7.0E-02	8.8E-05
Beryllium	7.07E-08	2.9E-10	5.0E-03	5.8E-08
Chromium	3.33E-04	1.4E-06	5.0E-03	2.7E-04
Cobalt	6.23E-04	2.6E-06		
Copper	1.89E-03	7.8E-06	4.0E-02	1.9E-04
Cyanide	3.77E-10	1.5E-12	2.0E-02	7.7E-11
Lead	2.33E-04	9.6E-07		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	6.91E-04	2.8E-06	2.0E-02	1.4E-04
Selenium	3.92E-04	1.6E-06	5.0E-03	3.2E-04
Thallium	8.95E-05	3.7E-07	7.0E-05	5.3E-03
Toluene	7.39E-09	3.0E-11	2.0E-01	1.5E-10
Vanadium	1.67E-05	6.9E-08	7.0E-03	9.8E-06
Zinc	2.01E-02	8.2E-05	3.0E-01	2.7E-04
U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00

Total Pathway: 7.8E-03

Total Rad + Chem 7.8E-03

Total	
	1.2E-02
	9.7E-05
	1.6E-05
	5.2E-04
	5.2E-04
	1.4E-10
	3.5E-04
	6.2E-04
	3.2E-02
	2.7E-10
	3.2E-04
	9.6E-04
	0.0E+00
Total:	4.6E-02

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TABLE B.3.1-21(a) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	3.1E-06			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	0.0E+00			
RA-228	0.0E+00			
SR-90	3.1E-02			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	7.1E-01			
U-235/236	3.8E-02			
U-238	7.8E-01			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
NP-237	2.82E-07			
PU-238	0.00E+00			
PU-239/240	0.00E+00			
RA-226	0.00E+00			
RA-228	0.00E+00			
SR-90	1.54E-01			
TH-228	0.00E+00			
TH-230	0.00E+00			
TH-232	0.00E+00			
U-234	2.12E+00			
U-235/236	1.13E-01			
U-238	2.34E+00			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.7E-14	1.8E-17	3.0E-04	5.9E-14
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	8.4E-17	8.7E-20	5.0E-03	1.7E-17
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.0E+00	0.0E+00		
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Lead	1.1E-10	1.1E-13		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	2.8E-03	2.9E-06	3.0E-03	9.5E-04

Total Pathway: 9.5E-04

Total Rad + Chem 9.5E-04

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	5.13E-16	2.1E-18	3.0E-04	7.0E-15
Barium	0.00E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	7.60E-20	3.1E-22	5.0E-03	6.2E-20
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Lead	9.24E-11	3.8E-13		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.00E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.00E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.00E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.00E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	8.33E-03	3.4E-05	3.0E-03	1.1E-02

Total Pathway: 1.1E-02

Total Rad + Chem 1.1E-02

	Total	Total Dust & Groundwater Affected
	6.6E-14	1.2E-02
	0.0E+00	9.7E-05
	1.7E-17	1.6E-05
	0.0E+00	5.2E-04
	0.0E+00	5.2E-04
	0.0E+00	1.4E-10
	0.0E+00	3.5E-04
	0.0E+00	6.2E-04
	0.0E+00	3.2E-02
	0.0E+00	2.7E-10
	0.0E+00	3.2E-04
	0.0E+00	9.6E-04
	1.2E-02	1.2E-02
Total:	1.2E-02	5.9E-02

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TABLE B.3.1-21(b)

FUTURE ON-PROPERTY (SOUTH FIELD) CHILD

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	5.06E-03	3.1E-01	2.2E-10	6.8E-11	NP-237	4.60E-04	6.6E-01	2.2E-10	1.4E-10	2.1E-10
PU-238	5.82E-06	3.5E-04	2.2E-10	7.8E-14	PU-238	1.16E-06	1.7E-03	2.2E-10	3.7E-13	4.4E-13
PU-239/240	2.50E-06	1.5E-04	2.3E-10	3.5E-14	PU-239/240	5.00E-07	7.1E-04	2.3E-10	1.6E-13	2.0E-13
RA-226	1.92E-02	1.2E+00	1.2E-10	1.4E-10	RA-226	3.46E-02	4.9E+01	1.2E-10	5.9E-09	6.1E-09
RA-228	1.29E-02	7.8E-01	1.0E-10	7.8E-11	RA-228	2.32E-02	3.3E+01	1.0E-10	3.3E-09	3.4E-09
SR-90	2.37E-02	1.4E+00	3.6E-11	5.2E-11	SR-90	1.18E-01	1.7E+02	3.6E-11	6.1E-09	6.1E-09
TH-228	3.45E-04	2.1E-02	5.5E-11	1.2E-12	TH-228	2.87E-04	4.1E-01	5.5E-11	2.3E-11	2.4E-11
TH-230	3.70E-04	2.3E-02	1.3E-11	2.9E-13	TH-230	3.08E-04	4.4E-01	1.3E-11	5.7E-12	6.0E-12
TH-232	2.70E-04	1.6E-02	1.2E-11	2.0E-13	TH-232	2.25E-04	3.2E-01	1.2E-11	3.9E-12	4.1E-12
U-234	1.20E-02	7.3E-01	1.6E-11	1.2E-11	U-234	3.61E-02	5.2E+01	1.6E-11	8.2E-10	8.4E-10
U-235/236	6.68E-04	4.1E-02	1.6E-11	6.3E-13	U-235/236	2.00E-03	2.9E+00	1.6E-11	4.4E-11	4.5E-11
U-238	1.20E-02	7.3E-01	2.8E-11	2.1E-11	U-238	3.61E-02	5.2E+01	2.8E-11	1.4E-09	1.5E-09
			Total Pathway:	3.7E-10				Total Pathway:	1.8E-08	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	3.00E-03	4.8E-07	1.8E+00	8.4E-07	Arsenic	9.01E-05	3.4E-07	1.8E+00	5.9E-07	1.4E-06
Barium	6.40E-04	1.0E-07			Barium	1.49E-03	5.6E-06			
Beryllium	7.86E-05	1.2E-08	4.3E+00	5.4E-08	Beryllium	7.07E-08	2.6E-10	4.3E+00	1.1E-09	5.5E-08
Chromium	1.22E-03	1.9E-07			Chromium	3.33E-04	1.2E-06			
Cobalt	6.23E-03	9.9E-07			Cobalt	6.23E-04	2.3E-06			
Copper	1.26E-02	2.0E-06			Copper	1.89E-03	7.1E-06			
Cyanide	1.19E-09	1.9E-13			Cyanide	3.77E-10	1.4E-12			
Lead	2.79E-04	4.4E-08			Lead	2.33E-04	8.7E-07			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
Nickel	4.15E-03	6.6E-07			Nickel	6.91E-04	2.6E-06			
Selenium	1.47E-03	2.3E-07			Selenium	3.92E-04	1.5E-06			
Thallium	1.79E-03	2.8E-07			Thallium	8.95E-05	3.3E-07			
Toluene	2.34E-08	3.7E-12			Toluene	7.39E-09	2.8E-11			
Vanadium	2.09E-03	3.3E-07			Vanadium	1.67E-05	6.2E-08			
Zinc	2.01E-01	3.2E-05			Zinc	2.01E-02	7.5E-05			
U-Total	0.00E+00	0.0E+00			U-Total	0.00E+00	0.0E+00			
			Total Pathway:	8.9E-07				Total Pathway:	5.9E-07	
			Total Rad + Chem	8.9E-07				Total Rad + Chem	6.1E-07	*Total:* 1.5E-06

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TABLE B.3.1-21(b) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
NP-237	3.10E-06	1.9E-04	2.2E-10	4.2E-14
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	3.09E-02	1.9E+00	3.6E-11	6.8E-11
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	7.07E-01	4.3E+01	1.6E-11	6.9E-10
U-235/236	3.77E-02	2.3E+00	1.6E-11	3.6E-11
U-238	7.80E-01	4.8E+01	2.8E-11	1.3E-09

Total Pathway: 2.1E-09

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk
NP-237	2.82E-07	4.0E-04	2.2E-10	8.9E-14
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	1.54E-01	2.2E+02	3.6E-11	7.9E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	2.12E+00	3.0E+03	1.6E-11	4.8E-08
U-235/236	1.13E-01	1.6E+02	1.6E-11	2.5E-09
U-238	2.34E+00	3.3E+03	2.8E-11	9.4E-08

Total Pathway: 1.5E-07

Compound	Total	Total Dust & Groundwater Affected
NP-237	1.3E-13	2.1E-10
PU-238	0.0E+00	4.4E-13
PU-239/240	0.0E+00	2.0E-13
RA-226	0.0E+00	6.1E-09
RA-228	0.0E+00	3.4E-09
SR-90	8.0E-09	1.4E-08
TH-228	0.0E+00	2.4E-11
TH-230	0.0E+00	6.0E-12
TH-232	0.0E+00	4.1E-12
U-234	4.9E-08	5.0E-08
U-235/236	2.5E-09	2.6E-09
U-238	9.5E-08	9.6E-08

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	1.71E-14	2.7E-18	1.8E+00	4.8E-18
Barium	0.00E+00	0.0E+00		
Beryllium	8.45E-17	1.3E-20	4.3E+00	5.8E-20
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	1.11E-10	1.8E-14		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	2.78E-03	4.4E-07		

Total Pathway: 4.8E-18

Total Rad + Chem 2.1E-09

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	5.13E-16	1.9E-18	1.8E+00	3.3E-18
Barium	0.00E+00	0.0E+00		
Beryllium	7.60E-20	2.8E-22	4.3E+00	1.2E-21
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	9.24E-11	3.4E-13		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	8.33E-03	3.1E-05		

Total Pathway: 3.3E-18

Total Rad + Chem 1.5E-07

Compound	Total	Total Dust & Groundwater Affected
Arsenic	8.1E-18	1.4E-06
Beryllium	5.9E-20	5.5E-08

Total: 1.5E-07 | 1.7E-06

TABLE B.3.1-21(b) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	5.1E-03				NP-237	4.60E-04	6.6E-01			
PU-238	5.8E-06				PU-238	1.16E-06	1.7E-03			
PU-239/240	2.5E-06				PU-239/240	5.00E-07	7.1E-04			
RA-226	1.9E-02				RA-226	3.46E-02	4.9E+01			
RA-228	1.3E-02				RA-228	2.32E-02	3.3E+01			
SR-90	2.4E-02				SR-90	1.18E-01	1.7E+02			
TH-228	3.4E-04				TH-228	2.87E-04	4.1E-01			
TH-230	3.7E-04				TH-230	3.08E-04	4.4E-01			
TH-232	2.7E-04				TH-232	2.25E-04	3.2E-01			
U-234	1.2E-02				U-234	3.61E-02	5.2E+01			
U-235/236	6.7E-04				U-235/236	2.00E-03	2.9E+00			
U-238	1.2E-02				U-238	3.61E-02	5.2E+01			
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	3.0E-03	5.6E-06	3.0E-04	1.9E-02	Arsenic	9.01E-05	3.9E-06	3.0E-04	1.3E-02	3.2E-02
Barium	6.4E-04	1.2E-06	7.0E-02	1.7E-05	Barium	1.49E-03	6.5E-05	7.0E-02	9.3E-04	9.4E-04
Beryllium	7.9E-05	1.5E-07	5.0E-03	2.9E-05	Beryllium	7.07E-08	3.1E-09	5.0E-03	6.1E-07	3.0E-05
Chromium	1.2E-03	2.3E-06	5.0E-03	4.5E-04	Chromium	3.33E-04	1.4E-05	5.0E-03	2.9E-03	3.3E-03
Cobalt	6.2E-03	1.2E-05			Cobalt	6.23E-04	2.7E-05			
Copper	1.3E-02	2.3E-05	4.0E-02	5.9E-04	Copper	1.89E-03	8.2E-05	4.0E-02	2.1E-03	2.6E-03
Cyanide	1.2E-09	2.2E-12	2.0E-02	1.1E-10	Cyanide	3.77E-10	1.6E-11	2.0E-02	8.2E-10	9.3E-10
Lead	2.8E-04	5.2E-07			Lead	2.33E-04	1.0E-05			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00	
Nickel	4.1E-03	7.7E-06	2.0E-02	3.8E-04	Nickel	6.91E-04	3.0E-05	2.0E-02	1.5E-03	1.9E-03
Selenium	1.5E-03	2.7E-06	5.0E-03	5.5E-04	Selenium	3.92E-04	1.7E-05	5.0E-03	3.4E-03	4.0E-03
Thallium	1.8E-03	3.3E-06	7.0E-05	4.7E-02	Thallium	8.95E-05	3.9E-06	7.0E-05	5.6E-02	1.0E-01
Toluene	2.3E-08	4.3E-11	2.0E-01	2.2E-10	Toluene	7.39E-09	3.2E-10	2.0E-01	1.6E-09	1.8E-09
Vanadium	2.1E-03	3.9E-06	7.0E-03	5.5E-04	Vanadium	1.67E-05	7.3E-07	7.0E-03	1.0E-04	6.6E-04
Zinc	2.0E-01	3.7E-04	3.0E-01	1.2E-03	Zinc	2.01E-02	8.7E-04	3.0E-01	2.9E-03	4.1E-03
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	7.0E-02				Total Pathway:	8.2E-02	
			Total Rad + Chem	7.0E-02				Total Rad + Chem	8.2E-02	*Total:* 1.5E-01

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TABLE B.3.1-21(b) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	3.1E-06			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	0.0E+00			
RA-228	0.0E+00			
SR-90	3.1E-02			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	7.1E-01			
U-235/236	3.8E-02			
U-238	7.8E-01			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard
NP-237	2.82E-07	4.0E-04		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	0.00E+00	0.0E+00		
RA-228	0.00E+00	0.0E+00		
SR-90	1.54E-01	2.2E+02		
TH-228	0.00E+00	0.0E+00		
TH-230	0.00E+00	0.0E+00		
TH-232	0.00E+00	0.0E+00		
U-234	2.12E+00	3.0E+03		
U-235/236	1.13E-01	1.6E+02		
U-238	2.34E+00	3.3E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.7E-14	3.2E-17	3.0E-04	1.1E-13
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	8.4E-17	1.6E-19	5.0E-03	3.1E-17
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.0E+00	0.0E+00		
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Lead	1.1E-10	2.1E-13		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	2.8E-03	5.1E-06	3.0E-03	1.7E-03

Total Pathway: 1.7E-03

Total Rad + Chem 1.7E-03

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	5.13E-16	2.2E-17	3.0E-04	7.4E-14
Barium	0.00E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	7.60E-20	3.3E-21	5.0E-03	6.6E-19
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Lead	9.24E-11	4.0E-12		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.00E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.00E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.00E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.00E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	8.33E-03	3.6E-04	3.0E-03	1.2E-01

Total Pathway: 1.2E-01

Total Rad + Chem 1.2E-01

Total	Total Dust & Groundwater Affected
1.8E-13	3.2E-02
0.0E+00	9.4E-04
3.2E-17	3.0E-05
0.0E+00	3.3E-03
0.0E+00	2.6E-03
0.0E+00	9.3E-10
0.0E+00	1.9E-03
0.0E+00	4.0E-03
0.0E+00	1.0E-01
0.0E+00	1.8E-09
0.0E+00	6.6E-04
0.0E+00	4.1E-03
1.2E-01	1.2E-01
Total: 1.2E-01	2.7E-01

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TABLE B.3.1-22
FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER
ACTIVE FLYASH PILE: SURFACE MATERIAL (CT VALUES)
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
NP-237	4.13E-05	3.6E-01	2.9E-08	1.0E-08
PU-238	5.25E-06	4.5E-02	3.9E-08	1.8E-09
PU-239/240	2.25E-06	1.9E-02	3.8E-08	7.4E-10
RA-226	3.45E-05	3.0E-01	3.0E-09	8.9E-10
RA-228	2.40E-05	2.1E-01	6.9E-10	1.4E-10
SR-90	3.38E-05	2.9E-01	6.2E-11	1.8E-11
TH-228	2.85E-05	2.5E-01	7.8E-08	1.9E-08
TH-230	2.78E-05	2.4E-01	2.9E-08	7.0E-09
TH-232	2.03E-05	1.8E-01	2.8E-08	4.9E-09
U-234	2.70E-05	2.3E-01	2.6E-08	6.1E-09
U-235/236	1.50E-06	1.3E-02	2.5E-08	3.2E-10
U-238	2.70E-05	2.3E-01	5.2E-08	1.2E-08

Total Pathway: 6.3E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.5E+00	1.7E+03	2.2E-10	3.6E-07
PU-238	7.2E-01	2.2E+02	2.2E-10	4.8E-08
PU-239/240	3.3E-01	1.0E+02	2.3E-10	2.3E-08
RA-226	4.6E+00	1.4E+03	1.2E-10	1.7E-07
RA-228	3.2E+00	9.6E+02	1.0E-10	9.6E-08
SR-90	4.5E+00	1.3E+03	3.6E-11	4.9E-08
TH-228	3.8E+00	1.2E+03	5.5E-11	6.3E-08
TH-230	3.7E+00	1.1E+03	1.3E-11	1.4E-08
TH-232	2.7E+00	8.0E+02	1.2E-11	9.6E-09
U-234	3.6E+00	1.1E+03	1.6E-11	1.7E-08
U-235/236	1.6E-01	4.8E+01	1.6E-11	7.7E-10
U-238	3.6E+00	1.1E+03	2.8E-11	3.0E-08

Total Pathway: 8.8E-07

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.74E-07	3.3E-09	1.5E+01	4.9E-08
Barium	1.90E-06	9.2E-09		
Beryllium	3.53E-08	1.7E-10	8.4E+00	1.4E-09
Chromium	9.98E-08	4.8E-10	4.1E+01	2.0E-08
Cobalt	1.41E-07	6.8E-10		
Copper	5.54E-07	2.7E-09		
Cyanide	2.25E-09	1.1E-11		
Lead	4.16E-07	2.0E-09		
Molybdenum	6.45E-08	3.1E-10		
Nickel	3.01E-07	1.5E-09		
Selenium	4.43E-08	2.1E-10		
Thallium	2.03E-08	9.8E-11		
Toluene	7.50E-10	3.6E-12		
Vanadium	3.77E-07	1.8E-09		
Zinc	5.87E-07	2.8E-09		

Total Pathway: 7.0E-08

Total Rad + Chem 1.3E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	9.0E+01	1.5E-05	1.8E+00	2.7E-05
Barium	2.5E+02	4.3E-05		
Beryllium	4.7E+00	7.9E-07		
Chromium	1.3E+01	2.2E-06		
Cobalt	1.9E+01	3.2E-06		
Copper	7.4E+01	1.2E-05		
Cyanide	3.3E-01	5.6E-08		
Lead	5.5E+01	9.4E-06		
Molybdenum	8.6E+00	1.5E-06		
Nickel	4.0E+01	6.8E-06		
Selenium	5.9E+00	1.0E-06		
Thallium	2.7E+00	4.5E-07		
Toluene	7.3E-02	1.2E-08		
Vanadium	5.0E+01	8.5E-06		
Zinc	7.8E+01	1.3E-05		

Total Pathway: 2.7E-05

Total Rad + Chem 2.7E-05

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TABLE B.3.1-22 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Conc'n (pCi/g)	Intake	SF(e)	Risk	Total
NP-237	5.5E+00	2.2E+01	4.3E-07	9.4E-06	9.8E-06
PU-238	7.2E-01	2.9E+00	2.8E-11	8.0E-11	5.0E-08
PU-239/240	3.3E-01	1.3E+00	2.7E-11	3.6E-11	2.4E-08
RA-226	4.6E+00	1.8E+01	1.2E-08	2.2E-07	3.9E-07
RA-228	3.2E+00	1.3E+01	2.9E-06	3.7E-05	3.7E-05
SR-90	4.5E+00	1.8E+01	0.0E+00	0.0E+00	4.9E-08
TH-228	3.8E+00	1.5E+01	5.6E-06	8.5E-05	8.5E-05
TH-230	3.7E+00	1.5E+01	5.4E-11	7.9E-10	2.2E-08
TH-232	2.7E+00	1.1E+01	2.6E-11	2.8E-10	1.5E-08
U-234	3.6E+00	1.4E+01	3.0E-11	4.3E-10	2.4E-08
U-235/236	1.6E-01	6.4E-01	2.4E-11	1.5E-11	1.1E-09
U-238	3.6E+00	1.4E+01	3.6E-08	5.2E-07	5.6E-07

Total Pathway: 1.3E-04

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	Total
Arsenic	6.2E-07	1.8E+00	1.1E-06	2.8E-05
Barium	1.8E-05			
Beryllium	3.2E-07			1.4E-09
Chromium	9.2E-07			2.0E-08
Cobalt	1.3E-06			
Copper	5.1E-07			
Cyanide	2.3E-08			
Lead	3.8E-06			
Molybdenum	6.0E-07			
Nickel	1.4E-07			
Selenium	4.1E-07			
Thallium	1.8E-07			
Toluene	1.5E-08			
Vanadium	3.5E-07			
Zinc	5.4E-06			

Total Pathway: 1.1E-06

External Radiation/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 1.1E-06

Total Rad + Chem 1.3E-04 *Total:* 1.6E-04

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TABLE B.3.1-22 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
NP-237	4.13E-05	3.6E-01		
PU-238	5.25E-06	4.5E-02		
PU-239/240	2.25E-06	1.9E-02		
RA-226	3.45E-05	3.0E-01		
RA-228	2.40E-05	2.1E-01		
SR-90	3.38E-05	2.9E-01		
TH-228	2.85E-05	2.5E-01		
TH-230	2.78E-05	2.4E-01		
TH-232	2.03E-05	1.8E-01		
U-234	2.70E-05	2.3E-01		
U-235/236	1.50E-06	1.3E-02		
U-238	2.70E-05	2.3E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
NP-237	5.5E+00	1.7E+03		
PU-238	7.2E-01	2.2E+02		
PU-239/240	3.3E-01	1.0E+02		
RA-226	4.6E+00	1.4E+03		
RA-228	3.2E+00	9.6E+02		
SR-90	4.5E+00	1.3E+03		
TH-228	3.8E+00	1.2E+03		
TH-230	3.7E+00	1.1E+03		
TH-232	2.7E+00	8.0E+02		
U-234	3.6E+00	1.1E+03		
U-235/236	1.6E-01	4.8E+01		
U-238	3.6E+00	1.1E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	6.74E-07	2.5E-08		
Barium	1.90E-06	7.1E-08	1.4E-04	5.1E-04
Beryllium	3.53E-08	1.3E-09		
Chromium	9.98E-08	3.7E-09		
Cobalt	1.41E-07	5.3E-09		
Copper	5.54E-07	2.1E-08		
Cyanide	2.25E-09	8.4E-11		
Lead	4.16E-07	1.6E-08		
Molybdenum	6.45E-08	2.4E-09		
Nickel	3.01E-07	1.1E-08		
Selenium	4.43E-08	1.7E-09		
Thallium	2.03E-08	7.6E-10		
Toluene	7.50E-10	2.8E-11		
Vanadium	3.77E-07	1.4E-08		
Zinc	5.87E-07	2.2E-08		

Total Pathway: 5.1E-04

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	89.8	1.2E-04	3.0E-04	3.9E-01
Barium	253.9	3.3E-04	7.0E-02	4.8E-03
Beryllium	4.7	6.1E-06	5.0E-03	1.2E-03
Chromium	13.3	1.7E-05	5.0E-03	3.5E-03
Cobalt	18.8	2.5E-05		
Copper	73.8	9.7E-05	4.0E-02	2.4E-03
Cyanide	0.3	4.3E-07	2.0E-02	2.2E-05
Lead	55.4	7.3E-05		
Molybdenum	8.6	1.1E-05	5.0E-03	2.3E-03
Nickel	40.1	5.3E-05	2.0E-02	2.6E-03
Selenium	5.9	7.8E-06	5.0E-03	1.6E-03
Thallium	2.7	3.5E-06	7.0E-05	5.0E-02
Toluene	0.1	9.6E-08	2.0E-01	4.8E-07
Vanadium	50.2	6.6E-05	7.0E-03	9.4E-03
Zinc	78.3	1.0E-04	3.0E-01	3.4E-04

Total Pathway: 0.5

Total Rad + Chem 5.1E-04

Total Rad + Chem 0.5

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TABLE B.3.1-22 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e) Hazard	
Not applicable	NP-237	2.2E+01		
	PU-238	2.9E+00		
	PU-239/240	1.3E+00		
	RA-226	1.8E+01		
	RA-228	1.3E+01		
	SR-90	1.8E+01		
	TH-228	1.5E+01		
	TH-230	1.5E+01		
	TH-232	1.1E+01		
	U-234	1.4E+01		
	U-235/236	6.4E-01		
	U-238	1.4E+01		
Total Pathway: 0.0E+00			Total Pathway: 0.0E+00	

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	6.2E-07	2.9E-04	2.2E-03					0.4
Barium	1.8E-05	6.4E-02	2.8E-04					5.5E-03
Beryllium	3.2E-07	5.0E-05	6.5E-03					7.7E-03
Chromium	9.2E-07	2.3E-03	4.1E-04					3.9E-03
Cobalt	1.3E-06							
Copper	5.1E-07	2.4E-02	2.1E-05					2.4E-03
Cyanide	2.3E-08	1.4E-02	1.6E-06					2.3E-05
Lead	3.8E-06			Not applicable				
Molybdenum	6.0E-07	1.9E-03	3.1E-04					2.6E-03
Nickel	1.4E-07	1.0E-03	1.4E-04					2.8E-03
Selenium	4.1E-07	4.0E-03	1.0E-04					1.7E-03
Thallium	1.8E-07	7.0E-05	2.6E-03					0.1
Toluene	1.5E-08	6.0E-03	2.5E-06					3.0E-06
Vanadium	3.5E-07	3.5E-04	9.9E-04					1.0E-02
Zinc	5.4E-06	7.5E-02	7.2E-05					4.2E-04
Total Pathway: 0.0				Total Pathway: 0.0E+00				
Total Rad + Chem 0.0				Total Rad + Chem 0.0E+00				*Total:* 0.5

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TABLE B.3.1-23

FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER

ACTIVE FLYASH PILE: GROUNDWATER (CT VALUES)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	3.14E-04	1.1E+00	2.2E-10	2.4E-10	
SR-90	5.47E-01	1.9E+03	3.6E-11	6.8E-08	Not applicable
U234	1.98E+01	6.8E+04	1.6E-11	1.1E-06	
U235/236	1.05E+00	3.6E+03	1.6E-11	5.8E-08	
U238	2.18E+01	7.6E+04	2.8E-11	2.1E-06	
			Total Pathway:	3.3E-06	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	4.77E-14	9.2E-17	1.8E+00	1.6E-16	Arsenic	5.0E-16		
Beryllium	4.73E-16	9.2E-19	4.3E+00	3.9E-18	Beryllium	4.9E-18		
Lead	2.06E-09	4.0E-12			Lead	2.1E-11		
U-Total	7.76E-02	1.5E-04			U-Total	8.1E-04		
1,2-Dichloroethane	0.00E+00	0.0E+00	9.1E-02	0.0E+00	1,2-Dichloroethane	0.0E+00	9.10E-02	0.0E+00
Vinyl chloride	0.00E+00	0.0E+00	1.9E+00	0.0E+00	Vinyl chloride	0.0E+00	3.00E-01	0.0E+00
			Total Pathway:	1.7E-16			Total Pathway:	0.0E+00
			Total Rad + Chem	3.3E-06			Total Rad + Chem	0.0E+00

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TABLE B.3.1-23 (continued)

CARCINOGENIC RISK

Radiation Risk			
Dermal Contact/Groundwater			
Not applicable			2.4E-10
			6.8E-08
			1.1E-06
			5.8E-08
			2.1E-06
Total Pathway:	0.0E+00		

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	6.9E-19	1.8E+00	1.3E-18	1.6E-16
Beryllium	6.8E-21	4.3E+02	2.9E-18	6.9E-18
Lead	1.2E-16			
U-Total	1.1E-06			
1,2-Dichloroethane	0.0E+00			0.0E+00
Vinyl chloride	0.0E+00	1.9E+00	0.0E+00	0.0E+00
Total Pathway:			4.2E-18	

Total Rad + Chem 4.2E-18 *Total:* 3.3E-06

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TABLE B.3.1-23 (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	3.1E-04	1.1E+00			Not applicable
SR-90	5.5E-01	1.9E+03			
U234	19.8	6.8E+04			
U235/236	1.1E+00	3.6E+03			
U238	21.8	7.6E+04			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	4.8E-14	7.2E-16	3.0E-04	2.4E-12	Arsenic	3.9E-15		
Beryllium	4.7E-16	7.1E-18	5.0E-03	1.4E-15	Beryllium	3.8E-17		
Lead	2.1E-09	3.1E-11			Lead	1.7E-10		
U-Total	7.8E-02	1.2E-03	3.0E-03	3.9E-01	U-Total	6.3E-03		
1,2-Dichloroethane	0.0E+00	0.0E+00			1,2-Dichloroethane	0.0E+00		
Vinyl chloride	0.0E+00	0.0E+00			Vinyl chloride	0.0E+00		
		Total Pathway:		3.9E-01		Total Pathway:		0.0E+00
		Total Rad + Chem		3.9E-01		Total Rad + Chem		0.0E+00

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TABLE B.3.1-23 (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	5.4E-18	2.9E-04	1.9E-14	2.4E-12
Beryllium	5.3E-20	5.0E-05	1.1E-15	2.5E-15
Lead	9.3E-16			
U-Total	8.7E-06	1.5E-04	5.8E-02	4.5E-01
1,2-Dichloroethane	0.0E+00			
Vinyl chloride	0.0E+00			

Total Pathway: 5.8E-02

Total Rad + Chem 5.8E-02 *Total:* 4.5E-01

TABLE B.3.1-24

FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (CT VALUES)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	1.45E+00	1.4E+02	2.2E-10	3.1E-08	3.1E-08
PU-238	1.79E-01	1.7E+01	2.2E-10	3.8E-09	3.8E-09
PU-239/240	7.68E-02	7.4E+00	2.3E-10	1.7E-09	1.7E-09
RA-226	1.19E+00	1.1E+02	1.2E-10	1.4E-08	1.4E-08
RA-228	8.22E-01	7.9E+01	1.0E-10	7.9E-09	7.9E-09
SR-90	1.54E+00	1.5E+02	3.6E-11	5.4E-09	5.4E-09
TH-228	9.73E-01	9.4E+01	5.5E-11	5.2E-09	5.2E-09
TH-230	9.48E-01	9.2E+01	1.3E-11	1.2E-09	1.2E-09
TH-232	6.91E-01	6.7E+01	1.2E-11	8.0E-10	8.0E-10
U-234	9.25E-01	8.9E+01	1.6E-11	1.4E-09	1.4E-09
U-235/236	5.13E-02	5.0E+00	1.6E-11	7.7E-11	7.7E-11
U-238	9.25E-01	8.9E+01	2.8E-11	2.5E-09	2.5E-09
			Total Pathway:	7.5E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	2.33E-02	1.3E-06	1.8E+00	2.2E-06	2.2E-06
Barium	6.82E-02	3.7E-06			
Beryllium	1.21E-03	6.5E-08	4.3E+00	2.8E-07	2.8E-07
Chromium	3.41E-03	1.8E-07			
Cobalt	4.82E-03	2.6E-07			
Copper	1.94E-02	1.0E-06			
Cyanide	2.16E-04	1.2E-08			
Lead	1.44E-02	7.8E-07			
Molybdenum	2.38E-03	1.3E-07			
Nickel	1.05E-02	5.6E-07			
Selenium	1.51E-03	8.2E-08			
Thallium	6.91E-04	3.7E-08			
Toluene	2.77E-05	1.5E-09			
Vanadium	1.29E-02	6.9E-07			
Zinc	3.01E-02	1.6E-06			
U-Total	0.00E+00	0.0E+00			
			Total Pathway:	2.5E-06	

Total Rad + Chem	2.6E-06	*Total:*	2.6E-06

TABLE B.3.1-24 (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
NP-237	1.60E-03	1.5E-01	2.2E-10	3.4E-11	3.4E-11	3.1E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.8E-09
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.7E-09
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.4E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	7.9E-09
SR-90	3.81E+00	3.7E+02	3.6E-11	1.3E-08	1.3E-08	1.9E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	5.2E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.2E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	8.0E-10
U-234	9.70E+01	9.4E+03	1.6E-11	1.5E-07	1.5E-07	1.5E-07
U-235/236	5.17E+00	5.0E+02	1.6E-11	7.7E-09	7.7E-09	7.8E-09
U-238	1.07E+02	1.0E+04	2.8E-11	2.9E-07	2.9E-07	2.9E-07
			Total Pathway:	4.6E-07		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	2.37E-13	1.3E-17	1.8E+00	2.2E-17	2.2E-17	2.2E-06
Barium	0.00E+00	0.0E+00				
Beryllium	2.32E-15	1.3E-19	4.3E+00	5.4E-19	5.4E-19	2.8E-07
Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00				
Lead	1.03E-08	5.5E-13				
Molybdenum	0.00E+00	0.0E+00				
Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00				
U-Total	3.81E-01	2.1E-05				
			Total Pathway:	2.3E-17		

Total Rad + Chem	4.6E-07	*Total:* 4.6E-07	3.0E-06

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TABLE B.3.1-24(continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
NP-237	1.5E+00				
PU-238	1.8E-01				
PU-239/240	7.7E-02				
RA-226	1.2E+00				
RA-228	8.2E-01				
SR-90	1.5E+00				
TH-228	9.7E-01				
TH-230	9.5E-01				
TH-232	6.9E-01				
U-234	9.2E-01				
U-235/236	5.1E-02				
U-238	9.2E-01				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	2.3E-02	9.8E-06	3.0E-04	3.3E-02	3.3E-02
Barium	6.8E-02	2.9E-05	7.0E-02	4.1E-04	4.1E-04
Beryllium	1.2E-03	5.1E-07	5.0E-03	1.0E-04	1.0E-04
Chromium	3.4E-03	1.4E-06	5.0E-03	2.9E-04	2.9E-04
Cobalt	4.8E-03	2.0E-06			
Copper	1.9E-02	8.2E-06	4.0E-02	2.0E-04	2.0E-04
Cyanide	2.2E-04	9.0E-08	2.0E-02	4.5E-06	4.5E-06
Lead	1.4E-02	6.1E-06			
Molybdenum	2.4E-03	1.0E-06	5.0E-03	2.0E-04	2.0E-04
Nickel	1.0E-02	4.4E-06	2.0E-02	2.2E-04	2.2E-04
Selenium	1.5E-03	6.3E-07	5.0E-03	1.3E-04	1.3E-04
Thallium	6.9E-04	2.9E-07	7.0E-05	4.1E-03	4.1E-03
Toluene	2.8E-05	1.2E-08	2.0E-01	5.8E-08	5.8E-08
Vanadium	1.3E-02	5.4E-06	7.0E-03	7.7E-04	7.7E-04
Zinc	3.0E-02	1.3E-05	3.0E-01	4.2E-05	4.2E-05
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	3.9E-02	

Total Rad + Chem	3.9E-02	*Total:*	3.9E-02

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TABLE B.3.1-24 (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
NP-237	1.6E-03					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	3.8E+00					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	9.7E+01					
U-235/236	5.2E+00					
U-238	1.1E+02					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	2.4E-13	1.0E-16	3.0E-04	3.3E-13	3.3E-13	3.3E-02
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00	0.0E+00	4.1E-04
Beryllium	2.3E-15	9.8E-19	5.0E-03	2.0E-16	2.0E-16	1.0E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.9E-04
Cobalt	0.0E+00	0.0E+00				
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00	0.0E+00	2.0E-04
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	4.5E-06
Lead	1.0E-08	4.3E-12				
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.0E-04
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.2E-04
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.3E-04
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00	0.0E+00	4.1E-03
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	5.8E-08
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00	0.0E+00	7.7E-04
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00	0.0E+00	4.2E-05
U-Total	3.8E-01	1.6E-04	3.0E-03	5.3E-02	5.3E-02	5.3E-02
			Total Pathway:	5.3E-02		
			Total Rad + Chem	5.3E-02	*Total:* 5.3E-02	9.2E-02

TABLE B.3.1-25

FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (CT VALUES)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	5.06E-03	6.3E-01	2.2E-10	1.4E-10	NP-237	4.60E-04	1.8E-01	2.2E-10	4.0E-11	1.8E-10
PU-238	5.82E-06	7.2E-04	2.2E-10	1.6E-13	PU-238	1.16E-06	4.6E-04	2.2E-10	1.0E-13	2.6E-13
PU-239/240	2.50E-06	3.1E-04	2.3E-10	7.1E-14	PU-239/240	5.00E-07	2.0E-04	2.3E-10	4.6E-14	1.2E-13
RA-226	1.92E-02	2.4E+00	1.2E-10	2.9E-10	RA-226	3.46E-02	1.4E+01	1.2E-10	1.6E-09	1.9E-09
RA-228	1.29E-02	1.6E+00	1.0E-10	1.6E-10	RA-228	2.32E-02	9.2E+00	1.0E-10	9.2E-10	1.1E-09
SR-90	2.37E-02	2.9E+00	3.6E-11	1.1E-10	SR-90	1.18E-01	4.7E+01	3.6E-11	1.7E-09	1.8E-09
TH-228	3.45E-04	4.3E-02	5.5E-11	2.3E-12	TH-228	2.87E-04	1.1E-01	5.5E-11	6.3E-12	8.6E-12
TH-230	3.70E-04	4.6E-02	1.3E-11	6.0E-13	TH-230	3.08E-04	1.2E-01	1.3E-11	1.6E-12	2.2E-12
TH-232	2.70E-04	3.3E-02	1.2E-11	4.0E-13	TH-232	2.25E-04	8.9E-02	1.2E-11	1.1E-12	1.5E-12
U-234	1.20E-02	1.5E+00	1.6E-11	2.4E-11	U-234	3.61E-02	1.4E+01	1.6E-11	2.3E-10	2.5E-10
U-235/236	6.68E-04	8.3E-02	1.6E-11	1.3E-12	U-235/236	2.00E-03	7.9E-01	1.6E-11	1.2E-11	1.4E-11
U-238	1.20E-02	1.5E+00	2.8E-11	4.2E-11	U-238	3.61E-02	1.4E+01	2.8E-11	4.0E-10	4.4E-10
			Total Pathway:	7.6E-10				Total Pathway:	4.9E-09	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	3.00E-03	2.1E-07	1.8E+00	3.6E-07	Arsenic	9.01E-05	2.0E-08	1.8E+00	3.5E-08	4.0E-07
Barium	6.40E-04	4.4E-08			Barium	1.49E-03	3.3E-07			
Beryllium	7.86E-05	5.4E-09	4.3E+00	2.3E-08	Beryllium	7.07E-08	1.6E-11	4.3E+00	6.7E-11	2.3E-08
Chromium	1.22E-03	8.5E-08			Chromium	3.33E-04	7.4E-08			
Cobalt	6.23E-03	4.3E-07			Cobalt	6.23E-04	1.4E-07			
Copper	1.26E-02	8.7E-07			Copper	1.89E-03	4.2E-07			
Cyanide	1.19E-09	8.2E-14			Cyanide	3.77E-10	8.3E-14			
Lead	2.79E-04	1.9E-08			Lead	2.33E-04	5.1E-08			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
Nickel	4.15E-03	2.9E-07			Nickel	6.91E-04	1.5E-07			
Selenium	1.47E-03	1.0E-07			Selenium	3.92E-04	8.7E-08			
Thallium	1.79E-03	1.2E-07			Thallium	8.95E-05	2.0E-08			
Toluene	2.34E-08	1.6E-12			Toluene	7.39E-09	1.6E-12			
Vanadium	2.09E-03	1.4E-07			Vanadium	1.67E-05	3.7E-09			
Zinc	2.01E-01	1.4E-05			Zinc	2.01E-02	4.4E-06			
TH-Total	3.83E-01	2.6E-05			TH-Total	1.18E-03	2.6E-07			
U-Total	3.83E-01	2.6E-05			U-Total	1.18E-03	2.6E-07			
			Total Pathway:	3.9E-07				Total Pathway:	3.5E-08	
			Total Rad + Chem	3.9E-07				Total Rad + Chem	4.0E-08	*Total:* 4.3E-07

TABLE B.3.1-25(continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
NP-237	3.10E-06	3.8E-04	2.2E-10	8.4E-14
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	3.09E-02	3.8E+00	3.6E-11	1.4E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	7.07E-01	8.7E+01	1.6E-11	1.4E-09
U-235/236	3.77E-02	4.7E+00	1.6E-11	7.2E-11
U-238	7.80E-01	9.7E+01	2.8E-11	2.7E-09

Total Pathway: 4.3E-09

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk
NP-237	2.82E-07	1.1E-04	2.2E-10	2.5E-14
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	1.54E-01	6.1E+01	3.6E-11	2.2E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	2.12E+00	8.4E+02	1.6E-11	1.3E-08
U-235/236	1.13E-01	4.5E+01	1.6E-11	6.9E-10
U-238	2.34E+00	9.3E+02	2.8E-11	2.6E-08

Total Pathway: 4.2E-08

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	1.71E-14	1.2E-18	1.8E+00	2.1E-18
Barium	0.00E+00	0.0E+00		
Beryllium	8.45E-17	5.8E-21	4.3E+00	2.5E-20
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	1.11E-10	7.7E-15		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	2.78E-03	1.9E-07		

Total Pathway: 2.1E-18

Total Rad + Chem 4.3E-09

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	5.13E-16	1.1E-19	1.8E+00	2.0E-19
Barium	0.00E+00	0.0E+00		
Beryllium	7.60E-20	1.7E-23	4.3E+00	7.2E-23
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	9.24E-11	2.0E-14		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	8.33E-03	1.8E-06		

Total Pathway: 2.0E-19

Total Rad + Chem 4.2E-08

	Total	Total Dust & Groundwater Affected
	1.1E-13	1.8E-10
	0.0E+00	2.6E-13
	0.0E+00	1.2E-13
	0.0E+00	1.9E-09
	0.0E+00	1.1E-09
	2.3E-09	4.1E-09
	0.0E+00	8.6E-12
	0.0E+00	2.2E-12
	0.0E+00	1.5E-12
	1.5E-08	1.5E-08
	7.7E-10	7.8E-10
	2.9E-08	2.9E-08
	2.3E-18	4.0E-07
	2.5E-20	2.3E-08
Total:	4.7E-08	4.7E-07

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TABLE B.3.1-25 (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	5.1E-03				NP-237	4.60E-04				
PU-238	5.8E-06				PU-238	1.16E-06				
PU-239/240	2.5E-06				PU-239/240	5.00E-07				
RA-226	1.9E-02				RA-226	3.46E-02				
RA-228	1.3E-02				RA-228	2.32E-02				
SR-90	2.4E-02				SR-90	1.18E-01				
TH-228	3.4E-04				TH-228	2.87E-04				
TH-230	3.7E-04				TH-230	3.08E-04				
TH-232	2.7E-04				TH-232	2.25E-04				
U-234	1.2E-02				U-234	3.61E-02				
U-235/236	6.7E-04				U-235/236	2.00E-03				
U-238	1.2E-02				U-238	3.61E-02				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	3.0E-03	1.6E-06	3.0E-04	5.4E-03	Arsenic	9.01E-05	1.6E-07	3.0E-04	5.2E-04	5.9E-03
Barium	6.4E-04	3.4E-07	7.0E-02	4.9E-06	Barium	1.49E-03	2.6E-06	7.0E-02	3.7E-05	4.2E-05
Beryllium	7.9E-05	4.2E-08	5.0E-03	8.5E-06	Beryllium	7.07E-08	1.2E-10	5.0E-03	2.4E-08	8.5E-06
Chromium	1.2E-03	6.6E-07	5.0E-03	1.3E-04	Chromium	3.33E-04	5.7E-07	5.0E-03	1.1E-04	2.5E-04
Cobalt	6.2E-03	3.4E-06			Cobalt	6.23E-04	1.1E-06			
Copper	1.3E-02	6.8E-06	4.0E-02	1.7E-04	Copper	1.89E-03	3.3E-06	4.0E-02	8.2E-05	2.5E-04
Cyanide	1.2E-09	6.4E-13	2.0E-02	3.2E-11	Cyanide	3.77E-10	6.5E-13	2.0E-02	3.2E-11	6.5E-11
Lead	2.8E-04	1.5E-07			Lead	2.33E-04	4.0E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00	
Nickel	4.1E-03	2.2E-06	2.0E-02	1.1E-04	Nickel	6.91E-04	1.2E-06	2.0E-02	5.9E-05	1.7E-04
Selenium	1.5E-03	7.9E-07	5.0E-03	1.6E-04	Selenium	3.92E-04	6.8E-07	5.0E-03	1.4E-04	2.9E-04
Thallium	1.8E-03	9.6E-07	7.0E-05	1.4E-02	Thallium	8.95E-05	1.5E-07	7.0E-05	2.2E-03	1.6E-02
Toluene	2.3E-08	1.3E-11	2.0E-01	6.3E-11	Toluene	7.39E-09	1.3E-11	2.0E-01	6.4E-11	1.3E-10
Vanadium	2.1E-03	1.1E-06	7.0E-03	1.6E-04	Vanadium	1.67E-05	2.9E-08	7.0E-03	4.1E-06	1.6E-04
Zinc	2.0E-01	1.1E-04	3.0E-01	3.6E-04	Zinc	2.01E-02	3.5E-05	3.0E-01	1.2E-04	4.7E-04
TH-Total	3.8E-01	2.1E-04			TH-Total	1.18E-03	2.0E-06			
U-Total	3.8E-01	2.1E-04	3.0E-03	6.9E-02	U-Total	1.18E-03	2.0E-06	3.0E-03	6.7E-04	6.9E-02
			Total Pathway:	8.9E-02				Total Pathway:	3.9E-03	
			Total Rad + Chem	8.9E-02				Total Rad + Chem	3.9E-03	*Total:* 9.3E-02

TABLE B.3.1-25(continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	3.1E-06			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	0.0E+00			
RA-228	0.0E+00			
SR-90	3.1E-02			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	7.1E-01			
U-235/236	3.8E-02			
U-238	7.8E-01			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard
NP-237	2.82E-07			
PU-238	0.00E+00			
PU-239/240	0.00E+00			
RA-226	0.00E+00			
RA-228	0.00E+00			
SR-90	1.54E-01			
TH-228	0.00E+00			
TH-230	0.00E+00			
TH-232	0.00E+00			
U-234	2.12E+00			
U-235/236	1.13E-01			
U-238	2.34E+00			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.7E-14	9.2E-18	3.0E-04	3.1E-14
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	8.4E-17	4.5E-20	5.0E-03	9.1E-18
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.0E+00	0.0E+00		
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Lead	1.1E-10	6.0E-14		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	2.8E-03	1.5E-06	3.0E-03	5.0E-04

Total Pathway: 5.0E-04

Total Rad + Chem 5.0E-04

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	5.13E-16	8.8E-19	3.0E-04	2.9E-15
Barium	0.00E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	7.60E-20	1.3E-22	5.0E-03	2.6E-20
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Lead	9.24E-11	1.6E-13		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.00E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.00E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.00E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.00E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	8.33E-03	1.4E-05	3.0E-03	4.8E-03

Total Pathway: 4.8E-03

Total Rad + Chem 4.8E-03

	Total	Total Dust & Groundwater Affected
	3.4E-14	5.9E-03
	0.0E+00	4.2E-05
	9.1E-18	8.5E-06
	0.0E+00	2.5E-04
	0.0E+00	2.5E-04
	0.0E+00	6.5E-11
	0.0E+00	0.0E+00
	0.0E+00	1.7E-04
	0.0E+00	2.9E-04
	0.0E+00	1.6E-02
	0.0E+00	1.3E-10
	0.0E+00	1.6E-04
	0.0E+00	4.7E-04
	5.3E-03	5.3E-03
Total:	5.3E-03	2.9E-02

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TABLE B.3.1-26(a)

FUTURE, GREAT MIAMI RIVER USER, ADULT

ACTIVE FLYASH PILE: SEDIMENT

Carcinogenic Risk

Radiation Risk

Ingestion of Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.3E+00	1.6E+02	2.2E-10	3.5E-08
PU-238	7.0E-01	2.1E+01	2.2E-10	4.6E-09
PU-239/24	3.0E-01	9.0E+00	2.3E-10	2.1E-09
RA-226	4.6E+00	1.4E+02	1.2E-10	1.7E-08
RA-228	3.2E+00	9.6E+01	1.0E-10	9.6E-09
SR-90	4.5E+00	1.3E+02	3.6E-11	4.9E-09
TH-228	3.8E+00	1.1E+02	5.5E-11	6.3E-09
TH-230	3.7E+00	1.1E+02	1.3E-11	1.4E-09
TH-232	2.7E+00	8.1E+01	1.2E-11	9.7E-10
U-234	3.2E+00	9.7E+01	1.6E-11	1.5E-09
U-235/236	1.8E-01	5.4E+00	1.6E-11	8.6E-11
U-238	3.2E+00	9.6E+01	2.8E-11	2.7E-09
			Total Pathway	8.6E-08

Dermal Contact/Sediment

Not Applicable

Total Pathway 0.0E+00

External Radiation/Sediment

Compound	Intake	SF(e)	Risk	Total
NP-237	2.8E+00	4.3E-07	1.2E-06	1.2E-06
PU-238	3.7E-01	2.8E-11	1.0E-11	4.6E-09
PU-239/240	1.6E-01	2.7E-11	4.3E-12	2.1E-09
RA-226	2.4E+00	1.2E-08	2.9E-08	4.6E-08
RA-228	1.7E+00	2.9E-06	4.9E-06	4.9E-06
SR-90	2.4E+00	0.0E+00	0.0E+00	4.9E-09
TH-228	2.0E+00	5.6E-06	1.1E-05	1.1E-05
TH-230	2.0E+00	5.4E-11	1.1E-10	1.6E-09
TH-232	1.4E+00	2.6E-11	3.7E-11	1.0E-09
U-234	1.7E+00	3.0E-11	5.1E-11	1.6E-09
U-235/236	9.5E-02	2.4E-07	2.3E-08	2.3E-08
U-238	1.7E+00	3.6E-08	6.1E-08	6.4E-08
		Total Pathway	1.7E-05	1.8E-05

Chemical Risk

Ingestion of Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	9.0E+02	1.5E-05	1.8E+00	2.6E-05
Beryllium	4.7E+00	7.9E-08	4.3E+00	3.4E-07
Chromium	1.3E+01	2.2E-07		
Lead	5.5E+01	9.2E-07		
Thallium	2.7E+00	4.5E-08		
U-TOTAL	7.0E+01	1.2E-06		
			Total Pathway	2.7E-05

Dermal Contact/Sediment

Compound	ABS	Intake	SF(derm)	Risk
Arsenic	1.00E-03	3.5E-06	1.8E+00	6.4E-06
Beryllium	1.00E-02	1.8E-07	4.3E+02	7.8E-05
Chromium	1.00E-02	5.1E-07		
Lead	1.00E-02	2.1E-06		
Thallium		0.0E+00		
U-TOTAL		0.0E+00		
			Total Pathway	8.4E-05

External Radiation

Not Applicable

Total Pathway 0.0E+00

	3.3E-05
	7.8E-05
Total Pathway	1.1E-04
Total Rad + Chem	1.3E-04

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TABLE B.3.1-26 (a) (continued)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Sediment				Dermal Contact/Sediment			External Radiation			Total
Compound	Intake	RfD(o)	Hazard							
NP-237	2.1E-07									
PU-238	2.7E-08									
PU-239/24	1.2E-08									
RA-226	1.8E-07									
RA-228	1.3E-07						Not Applicable			
SR-90	1.8E-07									
TH-228	1.5E-07									
TH-230	1.5E-07									
TH-232	1.1E-07									
U-234	1.3E-07									
U-235/236	7.0E-09									
U-238	1.3E-07									
		Total Pathway	0.0E+00			Total Pathway	0.0E+00		Total Pathwa	0.0E+00

Chemical Hazard

Ingestion/Sediment				Dermal Contact/Sediment				External Radiation		
Compound	Intake	RfD(o)	Hazard	Compoun	Intake	RfD(derm)	Hazard			
Arsenic	3.5E-05	3.0E-04	1.2E-01	Arsenic	8.1E-06	2.9E-04	2.8E-02			1.5E-01
Beryllium	1.8E-07	5.0E-03	3.7E-05	Beryllium	4.2E-07	5.0E-05	8.5E-03	Not Applicable		8.5E-03
Chromium	5.2E-07	5.0E-03	1.0E-04	Chromium	1.2E-06	2.3E-03	5.3E-04			6.4E-04
Lead	2.1E-06			Lead	4.9E-06					
Thallium	1.1E-07	7.00E-05	1.5E-03	Thallium	2.4E-07	7.0E-05	3.5E-03			5.0E-03
U-TOTAL	2.7E-06	3.00E-03	9.1E-04	U-TOTAL	6.3E-07	1.5E-04	4.2E-03			5.1E-03
		Total Pathway	1.2E-01			Total Pathway	4.5E-02		Total Pathwa 0.0E+00	1.6E-01
									Total Rad + Chem	1.6E-01

TABLE B.3.1-26(b)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
ACTIVE FLYASH PILE: SEDIMENT
Carcinogenic Risk

Radiation Risk

Ingestion of Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	5.3E+00	6.4E+01	2.2E-10	1.4E-08
PU-238	7.0E-01	8.4E+00	2.2E-10	1.8E-09
PU-239/24	3.0E-01	3.6E+00	2.3E-10	8.3E-10
RA-226	4.6E+00	5.5E+01	1.2E-10	6.6E-09
RA-228	3.2E+00	3.9E+01	1.0E-10	3.9E-09
SR-90	4.5E+00	5.4E+01	3.6E-11	1.9E-09
TH-228	3.8E+00	4.6E+01	5.5E-11	2.5E-09
TH-230	3.7E+00	4.4E+01	1.3E-11	5.8E-10
TH-232	2.7E+00	3.2E+01	1.2E-11	3.9E-10
U-234	3.2E+00	3.9E+01	1.6E-11	6.2E-10
U-235/236	1.8E-01	2.1E+00	1.6E-11	3.4E-11
U-238	3.2E+00	3.9E+01	2.8E-11	1.1E-09
			Total Pathway	3.4E-08

Dermal Contact/Sediment

Not Applicable

Total Pathway 0.0E+00

External Radiation/Sediment

Compound	Intake	SF(e)	Risk
NP-237	1.1E+00	4.3E-07	4.8E-07
PU-238	1.5E-01	2.8E-11	4.1E-12
PU-239/240	6.3E-02	2.7E-11	1.7E-12
RA-226	9.7E-01	1.2E-08	1.2E-08
RA-228	6.8E-01	2.9E-06	2.0E-06
SR-90	9.5E-01	0.0E+00	0.0E+00
TH-228	8.0E-01	5.6E-06	4.5E-06
TH-230	7.8E-01	5.4E-11	4.2E-11
TH-232	5.7E-01	2.6E-11	1.5E-11
U-234	6.8E-01	3.0E-11	2.0E-11
U-235/236	3.8E-02	2.4E-07	9.1E-09
U-238	6.8E-01	3.6E-08	2.4E-08
		Total Pathway	7.0E-06

Total

5.0E-07
1.8E-09
8.3E-10
1.8E-08
2.0E-06
1.9E-09
4.5E-06
6.2E-10
4.0E-10
6.4E-10
9.1E-09
2.6E-08
7.0E-06

Chemical Risk

Ingestion of Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	9.0E+02	9.8E-06	1.8E+00	1.7E-05
Beryllium	4.7E+00	5.1E-08	4.3E+00	2.2E-07
Chromium	1.3E+01	1.5E-07		
Lead	5.5E+01	6.0E-07		
Thallium	2.7E+00	2.9E-08		
U-TOTAL	7.0E+01	7.7E-07		
			Total Pathway	1.7E-05

Dermal Contact/Sediment

Compound	ABS	Intake	SF(derm)	Risk
Arsenic	1.00E-03	1.6E-06	1.8E+00	3.0E-06
Beryllium	1.00E-02	8.6E-08	4.3E+02	3.7E-05
Chromium	1.00E-02	2.4E-07		
Lead	1.00E-02	1.0E-06		
Thallium		0.0E+00		
U-TOTAL		0.0E+00		
			Total Pathway	4.0E-05

External Radiation

Not Applicable

Total Pathway 0.0E+00

Total Rad + Chem

2.0E-05
3.7E-05
5.7E-05
6.5E-05

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TABLE B.3.1-26 (b) (continued)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Sediment				Dermal Contact/Sediment	External Radiation	Total
Compound	Intake	RfD(o)	Hazard			
NP-237	3.4E-07					
PU-238	4.4E-08					
PU-239/24	1.9E-08					
RA-226	2.9E-07					
RA-228	2.0E-07				Not Applicable	
SR-90	2.9E-07					
TH-228	2.4E-07					
TH-230	2.4E-07					
TH-232	1.7E-07					
U-234	2.1E-07					
U-235/236	1.1E-08					
U-238	2.0E-07					
	Total Pathway		0.0E+00	Total Pathway 0.0E+00	Total Pathwa 0.0E+00	

Chemical Hazard

Ingestion/Sediment				Dermal Contact/Sediment					External Radiation	
Compound	Intake	RfD(o)	Hazard	Compoun	nc'n (mg/k	ABS	Intake	RfD(derm)	Hazard	
Arsenic	5.7E-05	3.0E-04	1.9E-01	Arsenic	9.0E+02	1.0E-03	9.6E-06	2.9E-04	3.4E-02	2.2E-01
Beryllium	3.0E-07	5.0E-03	6.0E-05	Beryllium	4.7E+00	1.0E-02	5.0E-07	5.0E-05	1.0E-02	1.0E-02
Chromium	8.5E-07	5.0E-03		Chromium	1.3E+01	1.0E-02	1.4E-06	2.3E-03	6.3E-04	6.3E-04
Lead	3.5E-06			Lead	5.5E+01	1.0E-02	5.9E-06			
Thallium	1.7E-07	7.00E-05	2.5E-03	Thallium	2.7E+00	1.00E-02	2.9E-07	7.0E-05	4.1E-03	6.6E-03
U-TOTAL	4.5E-06	3.00E-03	1.5E-03	U-TOTAL	7.0E+01	1.00E-03	7.5E-07	1.5E-04	5.0E-03	6.5E-03
	Total Pathway		1.9E-01				Total Pathway		5.4E-02	Total Pathwa 0.0E+00 2.5E-01
										Total Rad + Chem 2.5E-01

Table B.3.2-2(a)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOUTH FIELD - SURFACE SOIL

PARAMETER	UNITS	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aroclor-1254	mg/kg	U	21	1	0.089	0.089	0.039	0.05	0.025	-	-	-	0.013	Y		0.089	0.001
Aroclor-1260	mg/kg	U	21	2	0.038	0.052	0.04	0.05	0.024	-	-	-	0.013	Y		0.052	0.001
Dieldrin	mg/kg	U	21	1	0.0097	0.0097	0.0039	0.005	0.003	-	-	-	0.0075	Y		0.010	0.0005
Endrin ketone	mg/kg	U	20	1	0.0059	0.0059	0.0039	0.005	0.002	-	-	-	--	Y		0.006	c
Acenaphthene	mg/kg	U	20	1	0.14	0.14	0.39	4	0.302	-	-	-	470	N	h	0.140	220
Acenaphthylene	mg/kg	U	21	5	0.055	1.2	0.41	0.5	0.266	-	-	-	--	Y		1.200	c
Anthracene	mg/kg	U	21	6	0.059	0.73	0.41	0.5	0.236	-	-	-	2300	N	h	0.730	1100
Benzo(a)anthracene	mg/kg	U	21	12	0.044	5.5	0.41	0.5	0.572	-	-	-	0.16	Y		5.500	0.011
Benzo(a)pyrene	mg/kg	U	21	12	0.051	9.4	0.41	0.5	0.890	-	-	-	0.016	Y		9.400	0.0011
Benzo(b)fluoranthene	mg/kg	U	21	12	0.046	6.2	0.41	0.5	0.687	-	-	-	0.011	Y		6.200	0.011
Benzo(g,h,i)perylene	mg/kg	U	21	12	0.051	6.2	0.41	0.48	0.636	-	-	-	--	Y		6.200	c
Benzo(k)fluoranthene	mg/kg	U	21	13	0.049	7.3	0.41	0.5	0.707	-	-	-	1.6	Y		7.300	0.11
Benzoic acid	mg/kg	U	17	10	0.052	0.27	1.9	2.2	0.475	-	-	-	31000	N	h	0.270	15000
Carbazole	mg/kg	U	21	3	0.048	0.17	0.41	4	0.285	-	-	-	6	Y		0.170	0.4
Chrysene	mg/kg	U	21	13	0.06	6	0.41	0.5	0.647	-	-	-	1600	Y		6.000	110
Dibenzo(a,h)anthracene	mg/kg	U	21	7	0.043	1.9	0.41	0.5	0.317	-	-	-	0.016	Y		1.900	0.0011
Dibenzofuran	mg/kg	U	21	1	0.13	0.13	0.39	4	0.297	-	-	-	--	Y		0.130	c
Dimethyl phthalate	mg/kg	U	21	1	0.062	0.062	0.39	4	0.294	-	-	-	78000	N	h	0.062	37000
Fluoranthene	mg/kg	L	21	16	0.045	9.2	0.43	0.48	-	-	0.672	1.849	310	N	h	1.849	150
Fluorene	mg/kg	U	21	1	0.22	0.22	0.39	4	0.301	-	-	-	310	N	h	0.220	220
Indeno(1,2,3-cd)pyrene	mg/kg	U	21	10	0.045	6	0.41	0.5	0.628	-	-	-	0.16	Y		6.000	0.011
Phenanthrene	mg/kg	U	21	9	0.048	2.3	0.41	0.5	0.368	-	-	-	--	Y		2.300	c
Pyrene	mg/kg	U	21	13	0.062	8.2	0.41	0.5	0.799	-	-	-	230	N	h	8.200	110
bis(2-Ethylhexyl) phthalate	mg/kg	U	21	19	0.064	0.11	0.45	4	0.181	-	-	-	8.5	Y		0.110	0.57
Acetone	mg/kg	U	21	5	0.007	0.068	0.01	0.041	0.012	-	-	-	780	N	h	0.068	370
Methylene chloride	mg/kg	U	21	2	0.003	0.005	0.006	0.014	0.006	-	-	-	16	Y		0.005	0.51

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

* = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991.

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

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Table B.3.2-2(a)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOUTH FIELD - SURFACE SOIL

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)
e = qualitative use only
f = detected only once; not detected in other subunit media
g = for use in describing general aqueous chemistry; not quantitated in risk assessment
h = below soil screening level
i = low toxicity by expected exposure route

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Table B.3.2-2(b)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

PARAMETER	Units	Dist.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est. Mean	UCL(L)	NPar.95	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	N	93	93	2130	22800			9360	10072	-	-		-	N	a,b	10072	
Antimony	mg/kg	U	69	17	1.2	29.7	0.24	13.8	3.74	-	-	-	18.7	3.1	N	b	18.70	
Arsenic	mg/kg	L	93	93	1.5	81.8			-	-	10.22	12.06		0.08	Y		12.06	0.005
Barium	mg/kg	L	93	93	8	1080			-	-	146.9	181.3		550	N	h	181.3	260
Beryllium	mg/kg	L	93	76	0.31	8.7	0.39	1.7	-	-	1.212	1.438		0.03	Y		1.438	0.002
Boron	mg/kg	N	7	5	17.1	36	22.7	23.1	23.36	30.75	-	-			N	i	30.75	
Cadmium	mg/kg	L	93	33	0.47	4.9	0.41	4.4	-	-	1.034	1.216		3.9	Y		1.216	1.8
Calcium	mg/kg	L	93	93	1620	252000			-	-	83986	124191		-	N	a,b	124191	
Chromium	mg/kg	L	93	91	3.6	38.2	5	7.7	-	-	15.06	16.77		39	Y		16.77	
Cobalt	mg/kg	N	93	88	3	23.2	5	8.5	8.71	9.37	-	-		-	N	b	9.369	c
Copper	mg/kg	L	93	91	7	436	7.7	9.3	-	-	25.90	29.81		290	N	h	29.81	140
Cyanide	mg/kg	U	90	28	0.12	2.6	0.1	0.3	0.210	-	-	-	0.78	39	N	h	0.780	73
Iron	mg/kg	N	93	93	3430	44100			17834	19229	-	-		-	N	a,b	19229	
Lead	mg/kg	L	93	93	3.3	1140			-	-	22.44	26.08		-	Y		26.08	d; 1.5
Magnesium	mg/kg	N	93	93	377	55900			16545	18890	-	-		-	N	a,b	18890	
Manganese	mg/kg	N	93	93	22.7	1200			479.8	525.3	-	-		39	N	b	525.3	
Mercury	mg/kg	U	90	16	0.12	1.3	0.09	0.19	0.111	-	-	-	0.44	2.3	N	h	0.440	1.1
Molybdenum	mg/kg	N	93	67	0.72	17.5	1.1	17.5	5.98	6.69	-	-		39	N	h	6.694	18
Nickel	mg/kg	L	93	89	8.1	82.3	10.1	17.5	-	-	21.30	23.45		160	N	b	23.45	73
Potassium	mg/kg	L	93	93	456	2900			-	-	1163	1260		-	N	a,b	1260	
Selenium	mg/kg	U	87	18	0.73	11.1	0.2	0.53	0.804	-	-	-	4.1	39	N	b	4.100	18
Silicon	mg/kg	L	72	72	5.5	3370			-	-	846.7	992.1		-	N	b	992.1	c
Silver	mg/kg	N	93	64	0.49	18.2	0.41	8.7	4.60	5.24	-	-			N	h	5.244	
Sodium	mg/kg	L	93	89	37.5	883	71.9	237	-	-	171.0	191.7			N	a	191.7	
Thallium	mg/kg	U	93	14	0.19	3.6	0.16	0.59	0.316	-	-	-	0.88	0.6	N	b	0.880	0.26
Vanadium	mg/kg	N	93	93	9.8	53.2			26.16	27.68	-	-		55	N	h	27.68	26
Zinc	mg/kg	L	93	91	9.4	508	11.9	12.9	-	-	58.96	66.44		2300	N	b	66.44	1100.0
TH-TOTAL	mg/kg	L	108	108	2.41	158			-	-	12.27	13.65		-	N	b	13.65	c
U-TOTAL	mg/kg	L	118	116	1.05	3580	2.77	4.5	-	-	69.11	103.84		23	Y		103.84	10
CS-137	pci/g	U	116	15	0.07	0.55	0.07	0.95	0.1031	-	-	-			Y		0.240	
GROSS ALPHA	pci/g	L	87	65	7.81	2030	8.94	10.9	-	-	66.26	95.24		-	N	c,e	95.24	
GROSS BETA	pci/g	L	87	67	12.41	1810			-	-	67.00	87.98		-	N	c,e	87.98	
NP-237	pci/g	L	105	53	0.0321	37.3	0.03	0.6	-	-	0.3839	0.4893		0.031	Y		0.489	0.022
PB-210	pci/g	L	10	10	0.71	16.8			-	-	2.398	6.014		0.12	Y		6.014	0.0094

Table B.3.2-2(b) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

PARAMETER	Units	Dist.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est. Mean	UCL(L)	NPar.95	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Cons. Term	Groundwater Modelling Screen Cons. (pCi/L rad; ug/L non-rad)
PU-238	pci/g	U	121	46	0.016	1.85	0.0179	1	0.2002	-	-	-		0.36	Y*		0.270	0.022
PU-239/240	pci/g	U	118	32	0.0147	1.77	0.01	1	0.1801	-	-	-		0.34	Y*		0.130	0.021
RA-224	pci/g	N	10	10	1.02	3.49			2.684	3.133	-	-		0.49	Y		3.133	0.13
RA-226	pci/g	L	116	112	0.492	42.3	0.3	1.02	-	-	2.430	2.919		0.002	Y		2.919	0.04
RA-228	pci/g	L	115	111	0.34	19	0.442	0.54	-	-	1.485	1.656		0.005	Y		1.656	0.046
RU-106	pci/g	U	116	11	1	1.8	0.104	8.95	0.5812	-	-	-		8.35	Y		1.300	0.5
SR-90	pci/g	L	113	43	0.26	2.39	0.15	0.603	-	-	0.4841	0.5602		2.2	Y		0.560	0.13
TC-99	pci/g	U	90	4	0.9	1.1	0.207	0.9	0.2785	-	-	-		60.6	Y		0.900	0.27
TH-228	pci/g	L	111	108	0.308	20.3	0.5	0.6	-	-	1.479	1.681		0.003	Y		1.681	0.087
TH-230	pci/g	L	111	111	0.8	121			-	-	3.562	4.263		5.98	Y		4.263	0.37
TH-232	pci/g	L	111	108	0.264	17.5	0.6	0.6	-	-	1.333	1.495		8.3	Y		1.495	0.4
U-234	pci/g	L	121	119	0.49	1380	0.6	0.6	-	-	18.38	28.72		4.9	Y		28.72	0.3
U-235	pci/g	L	10	8	0.57	12.7	0.4	3.3	-	-	2.887	17.063		0.06	Y		12.70	0.3
U-235/236	pci/g	L	121	86	0.0196	66.8	0.6	0.6	-	-	1.300	2.017		0.06	Y		2.017	0.3
U-238 (ALPHA)	pci/g	L	120	118	0.385	1570	0.6	0.6	-	-	19.45	30.42		0.36	Y		30.42	0.17
U-238 (GAMMA)	pci/g	L	9	9	1.47	180			-	-	24.60	240.34		0.36	Y		180.00	0.17
2-Methylnaphthalene	mg/kg	U	101	7	0.05	0.091	0.34	0.93	0.203	-	-	-	0.056	--	Y		0.056	c
4-Methylphenol	mg/kg	U	100	2	0.01	0.054	0.34	0.93	0.209	-	-	-	0.01	39	N	h	0.010	18
Acenaphthylene	mg/kg	U	100	1	0.41	0.41	0.34	0.93	0.215	-	-	-	0.41	--	Y		0.410	c
Anthracene	mg/kg	U	100	6	0.003	0.25	0.34	0.93	0.205	-	-	-	0.049	2300	N	h	0.049	1100
Benzo(a)anthracene	mg/kg	U	100	15	0.008	1.1	0.34	0.93	0.208	-	-	-	0.13	0.16	Y		0.130	0.011
Benzo(a)pyrene	mg/kg	U	99	13	0.003	1.8	0.34	0.93	0.212	-	-	-	0.11	0.016	Y		0.110	0.0011
Benzo(b)fluoranthene	mg/kg	U	99	13	0.005	1.6	0.34	0.93	0.219	-	-	-	0.14	0.011	Y		0.140	0.011
Benzo(g,h,i)perylene	mg/kg	U	99	9	0.004	1.2	0.34	0.93	0.211	-	-	-	0.059	--	Y		0.059	
Benzo(k)fluoranthene	mg/kg	U	99	10	0.008	1.8	0.34	0.93	0.215	-	-	-	0.084	1.6	Y		0.084	0.11
Benzoic acid	mg/kg	U	82	11	0.044	0.15	1.7	4.2	0.907	-	-	-	0.057	31000	N	h	0.057	15000
Carbazole	mg/kg	U	73	2	0.001	0.051	0.34	0.57	0.199	-	-	-	0.001	6	Y		0.001	0.4
Chrysene	mg/kg	U	100	15	0.008	1.4	0.34	0.93	0.210	-	-	-	0.15	1600	Y		0.150	110
Di-n-butyl phthalate	mg/kg	U	100	6	0.043	0.11	0.051	0.93	0.202	-	-	-	0.046	780	N	h	0.046	370
Di-n-octyl phthalate	mg/kg	U	100	1	0.21	0.21	0.34	0.93	0.213	-	-	-	0.21	160	Y		0.210	73
Dibenzo(a,h)anthracene	mg/kg	U	99	2	0.002	0.44	0.34	0.93	0.213	-	-	-	0.002	0.016	Y		0.002	0.0011
Diethyl phthalate	mg/kg	U	101	3	0.052	0.18	0.34	0.93	0.210	-	-	-	0.052	6300	Y		0.052	2900
Fluoranthene	mg/kg	U	101	19	0.016	1.8	0.34	0.93	0.222	-	-	-	0.26	310	N	h	0.260	150
Indeno(1,2,3-cd)pyrene	mg/kg	U	99	7	0.004	0.21	0.34	0.93	0.203	-	-	-	0.046	0.16	Y		0.046	0.011

Table B.3.2-2(b) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

PARAMETER	Units	Dist.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est. Mean	UCL(L)	NPar.95	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Isophorone	mg/kg	U	100	1	0.004	0.004	0.34	0.93	0.211	-	-	-	0.004	130	N	h	0.004	8.4
Naphthalene	mg/kg	U	100	4	0.053	0.081	0.34	0.93	0.207	-	-	-	0.053	310	N	h	0.053	150
Phenanthrene	mg/kg	U	100	18	0.01	0.37	0.34	0.93	0.200	-	-	-	0.21	--			0.210	c
Phenol	mg/kg	U	100	1	0.002	0.002	0.34	0.93	0.211	-	-	-	0.002	4700	N	h	0.002	2200
Pyrene	mg/kg	U	103	22	0.014	1.4	0.34	0.93	0.211	-	-	-	0.22	230	N	h	0.220	110
Tributyl phosphate	mg/kg	U	17	3	0.002	0.2	0.35	0.44	0.190	-	-	-	0.2	--	Y		0.200	
bis(2-Ethylhexyl) phthalate	mg/kg	U	99	39	0.002	2.8	0.34	0.93	0.269	-	-	-	0.86	8.5	Y		0.860	0.57
1,1,1-Trichloroethane	mg/kg	U	102	19	0.001	0.82	0.005	1.6	0.029	-	-	-	0.05	700	N	h	0.050	130
2-Butanone	mg/kg	U	99	6	0.001	0.042	0.006	1.6	0.016	-	-	-	0.002	4700	N	h	0.002	2200
2-Hexanone	mg/kg	U	91	1	0.003	0.003	0.006	1.6	0.016	-	-	-	0.003	--	Y		0.003	c
4-Methyl-2-pentanone	mg/kg	U	92	6	0.001	0.008	0.007	1.6	0.018	-	-	-	0.001	390	N	h	0.001	180
Acetone	mg/kg	U	100	34	0.003	0.19	0.01	1.6	0.021	-	-	-	0.056	780	N	h	0.056	370
Carbon disulfide	mg/kg	U	101	3	0.002	0.02	0.005	1.6	0.014	-	-	-	0.002	780	N	h	0.002	2.1
Chlorobenzene	mg/kg	U	90	1	0.014	0.014	0.005	1.6	0.015	-	-	-	0.014	160	N	h	0.014	3.9
Chloroform	mg/kg	U	100	2	0.003	0.007	0.005	1.6	0.014	-	-	-	0.003	20	Y		0.003	0.02
Chloromethane	mg/kg	U	100	1	0.052	0.052	0.01	1.6	0.016	-	-	-	0.052	9.2	N	h	0.052	0.18
Methylene chloride	mg/kg	U	101	9	0.002	0.18	0.005	0.089	0.013	-	-	-	0.054	160	Y		0.054	0.51
Styrene	mg/kg	U	91	1	0.002	0.002	0.005	1.6	0.015	-	-	-	0.002	1600	N	h	0.002	160
Tetrachloroethene	mg/kg	U	91	1	0.001	0.001	0.005	1.6	0.015	-	-	-	0.001	2.3	Y		0.001	0.13
Toluene	mg/kg	U	97	43	0.001	1.8	0.005	0.37	0.045	-	-	-	0.11	1600	N	h	0.110	75
Trichloroethene	mg/kg	U	95	1	0.002	0.002	0.005	1.6	0.015	-	-	-	0.002	11	Y		0.002	0.18
Vinyl Acetate	mg/kg	U	87	1	0.002	0.002	0.01	0.083	0.008	-	-	-	0.002	7800	N	h	0.002	3700
Xylenes, Total	mg/kg	U	90	2	0.001	0.002	0.005	1.6	0.015	-	-	-	0.001	16000	N	h	0.001	1200
Total Organic Carbon	mg/kg	N	6	6	7840	192011			104698	177750	-	-		--	N	c,e	177750	
Octachlorodibenzo-p-dioxin	mg/kg	L	10	10	0.00012	0.0036			-	-	0.001	0.004		--	Y		0.004	
Tetrachlorodibenzofuran	mg/kg	U	10	1	0.000018	0.000018	0.000023	0.00017	2.4E-05	-	-	-	0.000018	--	Y		1.8E-05	
Aroclor-1254	mg/kg	U	101	23	0.032	1.1	0.034	0.37	0.091	-	-	-	0.43	0.013	Y		0.43	0.001
Aroclor-1260	mg/kg	U	101	2	0.089	0.39	0.034	1.8	0.065	-	-	-	0.089	0.013	Y		0.089	0.001
Dieldrin	mg/kg	U	100	1	0.016	0.016	0.0034	0.18	0.006	-	-	-	0.016	0.0075	Y		0.016	0.0005
Endrin ketone	mg/kg	U	100	1	0.0053	0.0053	0.0034	0.18	0.006	-	-	-	0.0053	--	Y		0.005	c
alpha-Chlordane	mg/kg	U	100	2	0.0033	0.008	0.0018	0.92	0.025	-	-	-	0.0033	0.092	Y		0.003	0.0061
gamma-Chlordane	mg/kg	U	100	1	0.0072	0.0072	0.0018	0.92	0.025	-	-	-	0.0072	0.092	Y		0.007	0.0061

Table B.3.2-2(continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, August 6, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

Table 3.3-2(c)
CONTAMINANTS OF POTENTIAL CONCERN (CPC)
SOUTH FIELD -- SURFACE WATER

Parameter	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	AVG	CPC	Reason for Elimination
Alkalinity	mg/l	2	2	315	355.3			335.2	N	g
Chloride	mg/l	2	2	3.7	4.4			4.05	N	g
Fluoride	mg/l	2	2	0.36	0.4			0.380	N	g
Phosphorus	mg/l	1	1	0.07	0.07			0.070	N	g
Sulfate	mg/l	2	2	71.74	87.61			79.7	N	g
Total Kjeldahl Nitrogen	mg/l	2	2	0.22	0.35			0.285	N	g
Total Organic Carbon	mg/l	2	2	2.44	3.44			2.94	N	g
Total Organic Nitrogen	mg/l	2	2	0.22	0.35			0.285	N	g
Total Phosphorous	mg/l	1	1	0.05	0.05			0.050	N	g
Aluminum	ug/l	2	2	178	183			180.5	N	a
Barium	ug/l	2	2	49.7	54.4			52.1	N	j
Calcium	ug/l	2	2	103000	109000			106000	N	a
Magnesium	ug/l	2	2	30000	38200			34100	N	a
Potassium	ug/l	2	2	1050	1270			1160	N	a
Silicon	ug/l	2	2	4220	5840			5030	N	j
Sodium	ug/l	2	2	4260	5050			4655	N	a
U-TOTAL	ug/l	2	2	340	487			413.5	Y	
GROSS ALPHA	pci/l	2	2	205	224			214.5	N	c,e
GROSS BETA	pci/l	2	2	97	119			108.0	N	c,e
U-234	pci/l	2	2	110	159			134.5	Y	
U-235/236	pci/l	2	2	7.4	7.47			7.44	Y	
U-238	pci/l	2	2	136	174			155.0	Y	

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

j = below EPA Region III tap water screening level and not a CPC in IFP soil

Table 3.3-2(d)
CHEMICALS OF POTENTIAL CONCERN (CPC)
SOUTH FIELD -- SEDIMENT

Parameter	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	AVG	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	3	3	5750	12000			8823	--	N	a	--
Arsenic	mg/kg	3	3	7.7	75.6			30.4	0.06	Y		0.005
Barium	mg/kg	3	3	52.9	212			124.6	550	N	h	260
Beryllium	mg/kg	3	2	1.1	4.6	0.46	0.46	1.98	0.03	Y		0.002
Calcium	mg/kg	3	3	19300	83500			41733	--	N	a	--
Chromium	mg/kg	3	3	6.8	19.2			13.9	39	Y		18
Cobalt	mg/kg	3	3	3.7	19.4			11.4	--	Y		c
Copper	mg/kg	3	3	8	122			51.8	290	N	h	140
Cyanide	mg/kg	3	2	0.18	0.54	0.16	0.16	0.267	39	N	h	73
Iron	mg/kg	3	3	10100	22300			14267	--	N	a	--
Lead	mg/kg	3	3	27	91.5			56.4	--	Y		d; 1.5
Magnesium	mg/kg	3	3	4510	20200			10390	--	N	a	--
Manganese	mg/kg	3	3	236	896			536.0	39	Y		18
Mercury	mg/kg	3	1	0.19	0.19	0.14	0.16	0.113	2.3	N	h	1.1
Molybdenum	mg/kg	3	1	6.3	6.3	4.6	6.3	3.92	39	N	h	18
Nickel	mg/kg	3	3	7.1	36.4			23.3	160	N	h	73
Potassium	mg/kg	3	3	597	1920			1326	--	N	a	--
Selenium	mg/kg	3	2	0.86	5.9	0.55	0.55	2.35	39	N	h	18
Silicon	mg/kg	3	3	640	1670			1187	--	N	i	c
Silver	mg/kg	3	2	2.9	6.5	3.2	3.2	3.67	39	N	h	18
Sodium	mg/kg	3	3	67.1	237			153.0	--	N	a	
Thallium	mg/kg	3	1	4.4	4.4	0.55	0.61	1.66	0.6	Y		0.26
Vanadium	mg/kg	3	3	15.3	53.6			33.6	55	N	h	20
Zinc	mg/kg	3	3	24.9	118			70.5	2300	N	h	1100
TH-TOTAL	mg/kg	3	3	7.93	23.4			13.6	--	Y		c
U-TOTAL	mg/kg	3	3	15.2	30.1			21.8	23	Y		10
CS-137	pci/g	3	2	0.258	0.4	0.13	0.13	0.241	0.007	Y		0.17
GROSS ALPHA	pci/g	3	3	29.1	61.4			41.333	--	N	c,e	--
GROSS BETA	pci/g	3	3	32.6	58.2			42.333	--	N	c,e	--
NP-237	pci/g	3	3	0.28	0.42			0.341	0.031	Y		0.022
PU-238	pci/g	3	3	0.057	1.9			0.686	0.36	Y		0.022
PU-239/240	pci/g	3	2	0.067	0.37	0.02	0.02	0.149	0.34	Y		0.021
RA-226	pci/g	3	3	1.57	2.96			2.070	0.002	Y		0.04
RA-228	pci/g	3	3	0.93	2.53			1.567	0.005	Y		0.048
RU-106	pci/g	3	0			0.6	0.94	0.365	0.005	Y		0.048
SR-90	pci/g	3	2	0.546	1.01	0.43	0.43	0.590	2.2	Y		0.13

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Table 3.3-2(d) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOUTH FIELD -- SEDIMENT

Parameter	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	AVG	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Groundwater Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
TC-99	pci/g	3	0			0.22	0.356	0.149	60.8	Y		0.27
TH-228	pci/g	3	3	1.03	2.8			1.630	0.003	Y		0.087
TH-230	pci/g	3	3	1.83	8.96			5.233	5.96	Y		0.37
TH-232	pci/g	3	3	0.87	2.57			1.493	6.3	Y		0.4
U-234	pci/g	3	3	3.62	7.95			5.567	4.9	Y		0.3
U-235/236	pci/g	3	3	0.255	0.41			0.318	0.06	Y		0.3
U-238	pci/g	3	3	5.21	8.75			6.72	0.36	Y		0.17
Aroclor-1254	mg/kg	3	1	0.096	0.096	0.052	0.061	0.051	0.013	Y		0.001
Benzo(a)anthracene	mg/kg	3	1	0.066	0.066	0.51	0.61	0.209	0.16	Y		0.011
Benzo(a)pyrene	mg/kg	2	1	0.11	0.11	0.61	0.61	0.208	0.016	Y		0.0011
Benzo(b)fluoranthene	mg/kg	2	1	0.11	0.11	0.61	0.61	0.208	0.011	Y		0.011
Benzo(g,h,i)perylene	mg/kg	2	1	0.12	0.12	0.61	0.61	0.213	--	Y		c
Benzo(k)fluoranthene	mg/kg	2	2	0.074	0.12			0.097	1.6	Y		0.11
Benzoic acid	mg/kg	3	2	0.099	0.16	2.5	2.5	0.503	31000	N	h	15000
Chrysene	mg/kg	3	3	0.067	0.11			0.088	1600	Y		110
Fluoranthene	mg/kg	3	3	0.074	0.13			0.108	310	N	h	150
Indeno(1,2,3-cd)pyrene	mg/kg	2	1	0.099	0.099	0.61	0.61	0.202	0.16	Y		0.011
Phenanthrene	mg/kg	3	1	0.063	0.063	0.54	0.61	0.213	--	Y		c
Phenol	mg/kg	3	1	0.056	0.056	0.51	0.61	0.205	4700	N	h	2200
Pyrene	mg/kg	3	3	0.071	0.11			0.097	230	N	h	110
bis(2-Ethylhexyl) phthalate	mg/kg	3	3	0.074	0.13			0.108	8.5	Y		0.57
Toluene	mg/kg	3	1	0.008	0.008	0.015	0.016	0.008	1600	N	h	75

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

• = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

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TABLE B.3.2-4
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	4.4E-06	9.2E-03	1.9E-11	1.7E-13
NP-237	2.0E-06	4.2E-03	2.9E-08	1.2E-10
PU-238	1.1E-06	2.2E-03	3.9E-08	8.6E-11
PU-239/240	4.5E-07	9.4E-04	3.8E-08	3.6E-11
RA-226	2.7E-04	5.7E-01	3.0E-09	1.7E-09
RA-228	3.5E-05	7.1E-02	6.9E-10	4.9E-11
SR-90	8.9E-06	1.8E-02	6.2E-11	1.1E-12
TC-99	1.3E-03	2.6E+00	8.3E-12	2.2E-11
TH-228	3.9E-05	8.1E-02	7.8E-08	6.3E-09
TH-230	1.2E-04	2.5E-01	2.9E-08	7.4E-09
TH-232	3.6E-05	7.4E-02	2.8E-08	2.1E-09
U-234	7.7E-05	1.6E-01	2.6E-08	4.2E-09
U-235/236	3.7E-06	7.7E-03	2.5E-08	1.9E-10
U-238	8.3E-05	1.7E-01	5.2E-08	8.9E-09
			Total Pathway:	3.1E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.50	7.8E+00	2.8E-11	2.2E-10
NP-237	0.23	3.6E+00	2.2E-10	7.8E-10
PU-238	0.12	1.9E+00	2.2E-10	4.1E-10
PU-239/240	0.05	8.0E-01	2.3E-10	1.8E-10
RA-226	30.80	4.8E+02	1.2E-10	5.8E-08
RA-228	3.88	6.1E+01	1.0E-10	6.1E-09
SR-90	1.00	1.6E+01	3.6E-11	5.6E-10
TC-99	142	2.2E+03	1.3E-12	2.9E-09
TH-228	4.41	6.9E+01	5.5E-11	3.8E-09
TH-230	13.80	2.2E+02	1.3E-11	2.8E-09
TH-232	3.99	6.2E+01	1.2E-11	7.5E-10
U-234	8.66	1.4E+02	1.6E-11	2.2E-09
U-235/236	0.42	6.5E+00	1.6E-11	1.0E-10
U-238	9.31	1.5E+02	2.8E-11	4.1E-09
			Total Pathway:	8.2E-08

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.5E-08	1.2E-10	1.5E+00	1.8E-10
Beryllium	8.4E-09	1.6E-11	8.4E+00	1.3E-10
Chromium	1.2E-07	2.3E-10	4.1E+01	9.6E-09
Lead	2.2E-07	4.1E-10		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	2.6E-07	5.0E-10		
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	4.9E-08	9.2E-11	8.9E-01	8.2E-11
Benzo(a)pyrene	8.4E-08	1.6E-10	6.1E+00	9.6E-10
Benzo(b)fluoranthene	5.5E-08	1.0E-10	7.5E-01	7.8E-11
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	6.5E-08	1.2E-10	3.2E-01	3.9E-11
bis(2-Ethylhexyl) phthalate	9.8E-10	1.8E-12		
Carbazole	1.5E-09	2.8E-12		
Chrysene	5.3E-08	1.0E-10	2.7E-02	2.7E-12
Dibenzo(a,h)anthracene	1.7E-08	3.2E-11	6.8E+00	2.2E-10
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	5.3E-08	1.0E-10	1.7E+00	1.7E-10
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	4.5E-11	8.4E-14	2.0E-03	1.7E-16
Aroclor-1254	7.9E-10	1.5E-12		
Aroclor-1260	4.6E-10	8.7E-13		
Dieldrin	8.9E-11	1.7E-13	1.6E+01	2.7E-12
Endrin ketone	0.0E+00	0.0E+00		
			Total Pathway:	1.1E-08
			Total Rad + Chem	4.3E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	1.0E-07	1.8E+00	1.8E-07
Beryllium	0.94	1.3E-08	4.3E+00	5.8E-08
Chromium	13.90	2.0E-07		
Lead	24.58	3.5E-07		
TH-TOTAL	36.70	5.2E-07		
U-TOTAL	29.58	4.2E-07		
Acenaphthylene	1.20	1.7E-08		
Benzo(a)anthracene	5.50	7.8E-08	1.1E+00	8.6E-08
Benzo(a)pyrene	9.40	1.3E-07	7.3E+00	9.7E-07
Benzo(b)fluoranthene	6.20	8.8E-08	9.0E-01	7.9E-08
Benzo(g,h,i)perylene	6.20	8.8E-08		
Benzo(k)fluoranthene	7.30	1.0E-07	3.8E-01	3.9E-08
bis(2-Ethylhexyl) phthalate	0.11	1.6E-09	1.4E-02	2.2E-11
Carbazole	0.17	2.4E-09	2.0E-02	4.8E-11
Chrysene	6.00	8.5E-08	3.2E-02	2.7E-09
Dibenzo(a,h)anthracene	1.90	2.7E-08	8.1E+00	2.2E-07
Dibenzofuran	0.13	1.8E-09		
Indeno(1,2,3-cd)pyrene	6.00	8.5E-08	2.0E+00	1.7E-07
Phenanthrene	2.30	3.3E-08		
Methylene chloride	0.01	7.1E-11	7.5E-03	5.3E-13
Aroclor-1254	0.09	1.3E-09	7.7E+00	9.7E-09
Aroclor-1260	0.05	7.4E-10	7.7E+00	5.7E-09
Dieldrin	0.01	1.4E-10	1.6E+01	2.2E-09
Endrin ketone	0.01	8.4E-11		
			Total Pathway:	1.8E-06
			Total Rad + Chem	1.9E-06

TABLE B.3.2-4(continued)
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.4E-01	2.0E-06	2.8E-07	2.8E-07
	NP-237	6.5E-02	4.3E-07	2.8E-08	2.9E-08
	PU-238	3.4E-02	2.8E-11	9.5E-13	5.0E-10
	PU-239/24	1.5E-02	2.7E-11	3.9E-13	2.2E-10
	RA-226	8.8E+00	1.2E-08	1.1E-07	1.6E-07
	RA-228	1.1E+00	2.9E-06	3.2E-06	3.2E-06
	SR-90	2.8E-01	0.0E+00	0.0E+00	5.6E-10
	TC-99	4.0E+01	6.0E-13	2.4E-11	2.9E-09
	TH-228	1.3E+00	5.6E-06	7.0E-06	7.0E-06
	TH-230	3.9E+00	5.4E-11	2.1E-10	1.0E-08
	TH-232	1.1E+00	2.6E-11	3.0E-11	2.8E-09
	U-234	2.5E+00	3.0E-11	7.4E-11	6.4E-09
	U-235/236	1.2E-01	2.4E-07	2.9E-08	2.9E-08
	U-238	2.7E+00	3.6E-08	9.6E-08	1.1E-07
Total Pathway: 0.0E+00			Total Pathway:	1.1E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	1.7E-08	1.8E+00	3.2E-08					2.1E-07
Beryllium	2.2E-08	4.3E+02	9.7E-06					9.7E-06
Chromium	3.3E-07							9.6E-09
Lead	5.9E-07							
TH-TOTAL	0.0E+00							
U-TOTAL	7.1E-07							
Acenaphthylene	8.6E-07							
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					8.6E-08
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					9.8E-07
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00	Not applicable				
Benzo(g,h,i)perylene	4.4E-06							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					
bis(2-Ethylhexyl) phthalate	1.0E-09	1.6E-02	1.6E-11					3.8E-11
Carbazole	0.0E+00	2.0E-02	0.0E+00					4.8E-11
Chrysene	0.0E+00	7.4E-02	0.0E+00					
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					
Phenanthrene	1.6E-06							
Methylene chloride	4.8E-09	7.5E-03	3.6E-11					3.6E-11
Aroclor-1254	6.4E-08	1.0E+01	6.5E-07					6.6E-07
Aroclor-1260	3.7E-08	1.0E+01	3.8E-07					3.9E-07
Dieldrin	6.9E-09	1.8E+01	1.2E-07					1.3E-07
Endrin ketone	4.2E-09							
	Total Pathway:		1.1E-05		Total Pathway:		0.0E+00	
	Total Rad + Chem		1.1E-05				1.1E-05	*Total:* 2.4E-05

TABLE B.3.2-4(continued)
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Risk

Radiation Hazard

Inhalation of Particulates/Soil				
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	4.44E-06	9.2E-03		
NP-237	2.03E-06	4.2E-03		
PU-238	1.07E-06	2.2E-03		
PU-239/240	4.54E-07	9.4E-04		
RA-226	2.74E-04	5.7E-01		
RA-228	3.45E-05	7.1E-02		
SR-90	8.90E-06	1.8E-02		
TC-99	1.26E-03	2.6E+00		
TH-228	3.92E-05	8.1E-02		
TH-230	1.23E-04	2.5E-01		
TH-232	3.55E-05	7.4E-02		
U-234	7.71E-05	1.6E-01		
U-235/236	3.73E-06	7.7E-03		
U-238	8.29E-05	1.7E-01		
		Total Pathway:	0.0E+00	

Ingestion/Soil				
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	7.8E+00		
NP-237	0.23	3.6E+00		
PU-238	0.12	1.9E+00		
PU-239/240	0.05	8.0E-01		
RA-226	30.80	4.8E+02		
RA-228	3.88	6.1E+01		
SR-90	1.00	1.6E+01		
TC-99	142.00	2.2E+03		
TH-228	4.41	6.9E+01		
TH-230	13.80	2.2E+02		
TH-232	3.99	6.2E+01		
U-234	8.66	1.4E+02		
U-235/236	0.42	6.5E+00		
U-238	9.31	1.5E+02		
		Total Pathway:	0.0E+00	

Chemical Hazard

Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	6.47E-08	7.1E-10		
Beryllium	8.38E-09	9.2E-11		
Chromium	1.24E-07	1.4E-09		
Lead	2.19E-07	2.4E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.63E-07	2.9E-09		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	4.90E-08	5.4E-10		
Benzo(a)pyrene	8.37E-08	9.2E-10		
Benzo(b)fluoranthene	5.52E-08	6.1E-10		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	6.50E-08	7.1E-10		
bis(2-Ethylhexyl) phthalate	9.79E-10	1.1E-11		
Carbazole	1.51E-09	1.7E-11		
Chrysene	5.34E-08	5.9E-10		
Dibenzo(a,h)anthracene	1.69E-08	1.9E-10		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	5.34E-08	5.9E-10		
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	4.45E-11	4.9E-13	8.2E-01	6.0E-13
Aroclor-1254	7.92E-10	8.7E-12		
Aroclor-1260	4.63E-10	5.1E-12		
Dieldrin	8.90E-11	9.8E-13		
Endrin ketone	0.00E+00	0.0E+00		
		Total Pathway:	6.0E-13	

Ingestion/Soil				
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.27	6.0E-07	3.0E-04	2.0E-03
Beryllium	0.94	7.8E-08	5.0E-03	1.6E-05
Chromium	13.90	1.2E-06	5.0E-03	2.3E-04
Lead	24.58	2.0E-06		
TH-TOTAL	36.70	3.0E-06		
U-TOTAL	29.58	2.4E-06	3.0E-03	8.2E-04
Acenaphthylene	1.20	9.9E-08	6.0E-02	1.7E-06
Benzo(a)anthracene	5.50	4.6E-07		
Benzo(a)pyrene	9.40	7.8E-07		
Benzo(b)fluoranthene	6.20	5.1E-07		
Benzo(g,h,i)perylene	6.20	5.1E-07		
Benzo(k)fluoranthene	7.30	6.0E-07		
bis(2-Ethylhexyl) phthalate	0.11	9.1E-09	2.0E-02	4.6E-07
Carbazole	0.17	1.4E-08		
Chrysene	6.00	5.0E-07		
Dibenzo(a,h)anthracene	1.90	1.6E-07		
Dibenzofuran	0.13	1.1E-08	4.0E-03	2.7E-06
Indeno(1,2,3-cd)pyrene	6.00	5.0E-07		
Phenanthrene	2.30	1.9E-07		
Methylene chloride	0.01	4.1E-10	6.1E-02	6.8E-09
Aroclor-1254	0.09	7.4E-09		
Aroclor-1260	0.05	4.3E-09		
Dieldrin	0.01	8.0E-10	5.0E-05	1.6E-05
Endrin ketone	0.01	4.9E-10	3.0E-04	1.6E-06
		Total Pathway:		3.1E-03

Total Rad + Chem 6.0E-13

Total Rad + Chem 3.1E-03

TABLE B.3.2-4(continued)
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Risk

Radiation Hazard					
Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	RfD(e)	Hazard	
Not applicable				CS-137	1.4E-01			
				NP-237	6.5E-02			
				PU-238	3.4E-02			
				PU-239/240	1.5E-02			
				RA-226	8.8E+00			
				RA-228	1.1E+00			
				SR-90	2.8E-01			
				TC-99	4.0E+01			
				TH-228	1.3E+00			
				TH-230	3.9E+00			
				TH-232	1.1E+00			
				U-234	2.5E+00			
				U-235/236	1.2E-01			
				U-238	2.7E+00			
Total Pathway:	0.0E+00			Total Pathway:	0.0E+00			

Chemical Hazard								
Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	1.0E-07	2.9E-04	3.5E-04					2.4E-03
Beryllium	1.3E-07	5.0E-05	2.6E-03					2.6E-03
Chromium	1.9E-06	2.3E-03	8.6E-04					1.1E-03
Lead	3.4E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	4.1E-06	1.5E-04	2.7E-02					2.8E-02
Acenaphthylene	5.0E-06	2.6E-02	1.9E-04					2.0E-04
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00			Not applicable				
Benzo(g,h,i)perylene	2.6E-05							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	6.1E-09	1.8E-02	3.4E-07					8.0E-07
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-05	0.0E+00					2.7E-06
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	9.6E-06							
Methylene chloride	2.8E-08	6.1E-02	4.6E-07					4.6E-07
Aroclor-1254	3.7E-07							
Aroclor-1260	2.2E-07							
Dieldrin	4.0E-08	4.5E-05	9.0E-04					9.2E-04
Endrin ketone	2.5E-08	2.7E-04	9.1E-05					
Total Pathway:	3.2E-02			Total Pathway:	0.0E+00			
Total Rad + Chem	3.2E-02				0.0E+00		*otal:*	3.6E-02

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TABLE B.3.2-5
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SURFACE WATER
Carcinogenic Risk

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
U-234	159	4.7E+02	1.6E-11	7.5E-09	Not Applicable	7.5E-09
U-235/236	7.47	2.2E+01	1.6E-11	3.5E-10		3.5E-10
U-238	174.0	5.1E+02	2.8E-11	1.4E-08		1.4E-08
			Total Pathway:	2.2E-08	Total Pathway:	0.0E+00

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk
U-TOTAL	0.487	1.3E-06			U-TOTAL	5.5E-06		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	2.2E-08			Total Rad + Chem	0.0E+00

Total: 2.2E-08

TABLE B.3.2-5 (continued)
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SURFACE WATER
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
U-234		0.0E+00			Not Applicable
U-235/236		0.0E+00			
U-238		0.0E+00			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
U-TOTAL	4.9E-01	7.6E-06	3.0E-03	2.5E-03	U-TOTAL	3.2E-05	1.5E-04	0.2	0.2
		Total Pathway:		2.5E-03			Total Pathway:	0.2	
		Total Rad + Chem		2.5E-03			Total Rad + Chem	0.2	*Total:* 0.2

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TABLE B.3.2-6
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SEDIMENT
Carcinogenic Risk

Radiation Risk

Ingestion/Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.400	6.2E+00	2.8E-11	1.7E-10
NP-237	0.420	6.6E+00	2.2E-10	1.4E-09
PU-238	1.900	3.0E+01	2.2E-10	6.5E-09
PU-239/240	0.370	5.8E+00	2.3E-10	1.3E-09
RA-226	2.960	4.6E+01	1.2E-10	5.5E-09
RA-228	2.530	3.9E+01	1.0E-10	3.9E-09
RU-106	0.000	0.0E+00	9.0E-12	0.0E+00
SR-90	1.010	1.6E+01	3.6E-11	5.7E-10
TC-99	0.000	0.0E+00	1.3E-12	0.0E+00
TH-228	2.800	4.4E+01	5.5E-11	2.4E-09
TH-230	8.960	1.4E+02	1.3E-11	1.8E-09
TH-232	2.570	4.0E+01	1.2E-11	4.8E-10
U-234	7.950	1.2E+02	1.6E-11	2.0E-09
U-235/236	0.410	6.4E+00	1.6E-11	1.0E-10
U-238	8.750	1.4E+02	2.8E-11	3.8E-09
			Total Pathway:	2.4E-08

Dermal Contact/Sediment

Not applicable

Total Pathway: 0.0E+00

External Radiation/Sediment

Compound	Intake	SF(e)	Risk
CS-137	1.1E-01	2.0E-06	2.3E-07
NP-237	1.2E-01	4.3E-07	5.1E-08
PU-238	5.4E-01	2.8E-11	1.5E-11
PU-239/240	1.1E-01	2.7E-11	2.8E-12
RA-226	8.4E-01	1.2E-08	1.0E-08
RA-228	7.2E-01	2.9E-06	2.1E-06
RU-106	0.0E+00	0.0E+00	0.0E+00
SR-90	2.9E-01	0.0E+00	0.0E+00
TC-99	0.0E+00	6.0E-13	0.0E+00
TH-228	8.0E-01	5.6E-06	4.5E-06
TH-230	2.6E+00	5.4E-11	1.4E-10
TH-232	7.3E-01	2.6E-11	1.9E-11
U-234	2.3E+00	3.0E-11	6.8E-11
U-235/236	1.2E-01	2.4E-07	2.8E-08
U-238	2.5E+00	3.6E-08	9.0E-08
		Total Pathway:	6.8E-06

Total

2.3E-07
5.3E-08
6.5E-09
1.3E-09
1.6E-08
2.1E-06
0.0E+00
5.7E-10
0.0E+00
4.5E-06
2.0E-09
5.0E-10
2.1E-09
2.8E-08
9.4E-08

Chemical Risk

Ingestion/Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	75.60	1.1E-06	1.8E+00	1.9E-06
Beryllium	4.60	6.5E-08	4.3E+00	2.8E-07
Chromium	19.20	2.7E-07		
Cobalt	19.40	2.8E-07		
Lead	91.50	1.3E-06		
Manganese	896.00	1.3E-05		
TH-TOTAL	23.40	3.3E-07		
Thallium	4.40	6.2E-08		
U-TOTAL	30.10	4.3E-07		
Benzo(a)anthracene	0.07	9.4E-10	1.1E+00	1.0E-09
Benzo(a)pyrene	0.11	1.6E-09	7.3E+00	1.1E-08
Benzo(b)fluoranthene	0.11	1.6E-09	9.0E-01	1.4E-09
Benzo(g,h,i)perylene	0.12	1.7E-09		
Benzo(k)fluoranthene	0.12	1.7E-09	3.8E-01	6.5E-10
bis(2-Ethylhexyl) phthalate	0.13	1.8E-09	1.4E-02	2.6E-11
Chrysene	0.11	1.6E-09	3.2E-02	5.0E-11
Indeno(1,2,3-cd)pyrene	0.10	1.4E-09	2.0E+00	2.8E-09
Phenanthrene	0.06	8.9E-10		
Aroclor-1254	0.10	1.4E-09	7.7E+00	1.0E-08
			Total Pathway:	2.2E-06
			Total Rad + Chem	2.2E-06

Dermal Contact/Sediment

Compound	Intake	SF(derm)	Risk
Arsenic	1.8E-07	1.8E+00	3.3E-07
Beryllium	1.1E-07	4.3E+02	4.6E-05
Chromium	4.5E-07		
Cobalt	4.6E-07		
Lead	2.2E-06		
Manganese	2.1E-05		
TH-TOTAL	0.0E+00		
Thallium	1.0E-07		
U-TOTAL	7.1E-07		
Benzo(a)anthracene	0.0E+00		
Benzo(a)pyrene	0.0E+00		
Benzo(b)fluoranthene	0.0E+00		
Benzo(g,h,i)perylene	8.5E-08		
Benzo(k)fluoranthene	0.0E+00		
bis(2-Ethylhexyl) phthalate	1.2E-09	1.6E-02	1.9E-11
Chrysene	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00		
Phenanthrene	4.4E-08		
Aroclor-1254	6.8E-08	1.0E+01	6.9E-07
		Total Pathway:	4.8E-05
		Total Rad + Chem	4.8E-05

External Radiation/Sediment

Compound	Intake	SF(e)	Risk
		Total Pathway:	0.0E+00
		Total Rad + Chem	6.8E-06

Total

2.2E-06
4.7E-05
1.0E-09
1.1E-08
4.5E-11
7.1E-07
Total: 5.7E-05

TABLE B.3.2-6(continued)
CURRENT, TRESPASSING YOUTH
SOUTH FIELD: SEDIMENT
Non-carcinogenic Risk

Radiation Hazard

Ingestion/Sediment					Dermal Contact/Sediment	Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard		
CS-137	0.40	6.2E+00			Not applicable	
NP-237	0.42	6.6E+00				
PU-238	1.90	3.0E+01				
PU-239/240	0.37	5.8E+00				
RA-226	2.96	4.6E+01				
RA-228	2.53	3.9E+01				
RU-106	0.00	0.0E+00				
SR-90	1.01	1.6E+01				
TC-99	0.00	0.0E+00				
TH-228	2.80	4.4E+01				
TH-230	8.96	1.4E+02				
TH-232	2.57	4.0E+01				
U-234	7.95	1.2E+02				
U-235/236	0.41	6.4E+00				
U-238	8.75	1.4E+02				
		Total Pathway:		0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Sediment					Dermal Contact/Sediment				Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	75.60	6.3E-06	3.0E-04	2.1E-02	Arsenic	1.0E-06	2.9E-04	3.6E-03	2.5E-02
Beryllium	4.60	3.8E-07	5.0E-03	7.6E-05	Beryllium	6.3E-07	5.0E-05	1.3E-02	1.3E-02
Chromium	19.20	1.6E-06	5.0E-03	3.2E-04	Chromium	2.6E-06	2.3E-03	1.2E-03	1.5E-03
Cobalt	19.40	1.6E-06			Cobalt	2.7E-06			
Lead	91.50	7.6E-06			Lead	1.3E-05			
Manganese	896.00	7.4E-05	1.4E-01	5.3E-04	Manganese	1.2E-04	4.2E-03	2.9E-02	3.0E-02
TH-TOTAL	23.40	1.9E-06			TH-TOTAL	0.0E+00			
Thallium	4.40	3.6E-07	7.0E-05	5.2E-03	Thallium	6.0E-07	7.0E-05	8.6E-03	1.4E-02
U-TOTAL	30.10	2.5E-06	3.0E-03	8.3E-04	U-TOTAL	4.1E-06	1.5E-04	2.8E-02	2.8E-02
Benzo(a)anthracene	0.07	5.5E-09			Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	0.11	9.1E-09			Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	0.11	9.1E-09			Benzo(b)fluoranthene	0.0E+00			
Benzo(g,h,i)perylene	0.12	9.9E-09			Benzo(g,h,i)perylene	4.9E-07			
Benzo(k)fluoranthene	0.12	9.9E-09			Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl) phthalate	0.13	1.1E-08	2.0E-02	5.4E-07	bis(2-Ethylhexyl) phthalate	7.1E-09	1.0E-03	7.1E-06	7.7E-06
Chrysene	0.11	9.1E-09			Chrysene	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.10	8.2E-09			Indeno(1,2,3-cd)pyrene	0.0E+00			
Phenanthrene	0.06	5.2E-09			Phenanthrene	2.6E-07			
Aroclor-1254	0.10	8.0E-09			Aroclor-1254	3.9E-07			
			Total Pathway:	2.8E-02			Total Pathway:	8.3E-02	
			Total Rad + Chem	2.8E-02			Total Rad + Chem	8.3E-02	*Total:* 1.1E-01

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TABLE B.3.2-7(a)
CURRENT, OFF-PROPERTY RESIDENT FARMER
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	3.65E-07	4.2E-02	1.9E-11	8.0E-13	8.0E-13
NP-237	1.67E-07	1.9E-02	2.9E-08	5.6E-10	5.6E-10
PU-238	8.78E-08	1.0E-02	3.9E-08	4.0E-10	4.0E-10
PU-239/240	3.73E-08	4.3E-03	3.8E-08	1.6E-10	1.6E-10
RA-226	2.25E-05	2.6E+00	3.0E-09	7.8E-09	7.8E-09
RA-228	2.84E-06	3.3E-01	6.6E-10	2.2E-10	2.2E-10
SR-90	7.32E-07	8.5E-02	6.2E-11	5.3E-12	5.3E-12
TC-99	1.04E-04	1.2E+01	8.3E-12	1.0E-10	1.0E-10
TH-228	3.23E-06	3.7E-01	7.8E-08	2.9E-08	2.9E-08
TH-230	1.01E-05	1.2E+00	2.9E-08	3.4E-08	3.4E-08
TH-232	2.92E-06	3.4E-01	2.8E-08	9.5E-09	9.5E-09
U-234	6.33E-06	7.3E-01	2.6E-08	1.9E-08	1.9E-08
U-235/236	3.07E-07	3.6E-02	2.5E-08	8.9E-10	8.9E-10
U-238	6.81E-06	7.9E-01	5.2E-08	4.1E-08	4.1E-08
			Total Pathway:	1.4E-07	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	5.32E-09	3.4E-10	1.5E+00	5.2E-10	5.2E-10
Beryllium	6.89E-10	4.5E-11	8.4E+00	3.8E-10	3.8E-10
Chromium	1.02E-08	6.6E-10	41	2.7E-08	2.7E-08
Lead	1.80E-08	1.2E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.16E-08	1.4E-09			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.02E-09	2.6E-10	8.9E-01	2.3E-10	2.3E-10
Benzo(a)pyrene	6.88E-09	4.5E-10	6.1E+00	2.7E-09	2.7E-09
Benzo(b)fluoranthene	4.54E-09	2.9E-10	7.5E-01	2.2E-10	2.2E-10
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.34E-09	3.5E-10	3.2E-01	1.1E-10	1.1E-10
bis(2-Ethylhexyl) phthalate	8.05E-11	5.2E-12			
Carbazole	1.24E-10	8.0E-12			
Chrysene	4.39E-09	2.8E-10	2.7E-02	7.7E-12	7.7E-12
Dibenzo(a,h)anthracene	1.39E-09	9.0E-11	6.8E+00	6.1E-10	6.1E-10
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.39E-09	2.8E-10	1.7E+00	4.8E-10	4.8E-10
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	3.66E-12	2.4E-13	2.0E-03	4.7E-16	4.7E-16
Aroclor-1254	6.51E-11	4.2E-12			
Aroclor-1260	3.80E-11	2.5E-12			
Dieldrin	7.32E-12	4.7E-13	1.6E+01	7.6E-12	7.6E-12
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	3.2E-08	
			Total Rad + Chem	1.8E-07	*Total:* 1.8E-07

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TABLE B.3.2-7(a) (continued)
CURRENT, OFF-PROPERTY RESIDENT FARMER
SOUTH FIELD: SURFACE SOIL
Noncarcinogenic Hazard

Radiation Hazard					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	3.65E-07				
NP-237	1.67E-07				
PU-238	8.78E-08				
PU-239/240	3.73E-08				
RA-226	2.25E-05				
RA-228	2.84E-06				
SR-90	7.32E-07				
TC-99	1.04E-04				
TH-228	3.23E-06				
TH-230	1.01E-05				
TH-232	2.92E-06				
U-234	6.33E-06				
U-235/236	3.07E-07				
U-238					
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	5.32E-09	3.4E-10			
Beryllium	6.89E-10	4.5E-11			
Chromium	1.02E-08	6.6E-10			
Lead	1.80E-08	1.2E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.16E-08	1.4E-09			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.02E-09	2.6E-10			
Benzo(a)pyrene	6.88E-09	4.5E-10			
Benzo(b)fluoranthene	4.54E-09	2.9E-10			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.34E-09	3.5E-10			
bis(2-Ethylhexyl) phthalate	8.05E-11	5.2E-12			
Carbazole	1.24E-10	8.0E-12			
Chrysene	4.39E-09	2.8E-10			
Dibenzo(a,h)anthracene	1.39E-09	9.0E-11			
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.39E-09	2.8E-10			
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	3.66E-12	2.4E-13	8.2E-01	2.9E-13	2.9E-13
Aroclor-1254	6.51E-11	4.2E-12			
Aroclor-1260	3.80E-11	2.5E-12			
Dieldrin	7.32E-12	4.7E-13			
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	2.9E-13	
			Total Rad + Chem	2.9E-13	*Total:* 2.9E-13

TABLE B.3.2-7(b)
CURRENT, OFF-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	3.65E-07	7.7E-04	1.9E-11	1.5E-14	1.5E-14
NP-237	1.67E-07	3.5E-04	2.9E-08	1.0E-11	1.0E-11
PU-238	8.78E-08	1.8E-04	3.9E-08	7.2E-12	7.2E-12
PU-239/240	3.73E-08	7.8E-05	3.8E-08	3.0E-12	3.0E-12
RA-226	2.25E-05	4.7E-02	3.0E-09	1.4E-10	1.4E-10
RA-228	2.84E-06	6.0E-03	6.6E-10	3.9E-12	3.9E-12
SR-90	7.32E-07	1.5E-03	6.2E-11	9.5E-14	9.5E-14
TC-99	1.04E-04	2.2E-01	8.3E-12	1.8E-12	1.8E-12
TH-228	3.23E-06	6.8E-03	7.8E-08	5.3E-10	5.3E-10
TH-230	1.01E-05	2.1E-02	2.9E-08	6.2E-10	6.2E-10
TH-232	2.92E-06	6.1E-03	2.8E-08	1.7E-10	1.7E-10
U-234	6.33E-06	1.3E-02	2.6E-08	3.5E-10	3.5E-10
U-235/236	3.07E-07	6.4E-04	2.5E-08	1.6E-11	1.6E-11
U-238	6.81E-06	1.4E-02	5.2E-08	7.4E-10	7.4E-10
			Total Pathway:	2.6E-09	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	5.32E-09	2.9E-11	1.5E+00	4.4E-11	4.4E-11
Beryllium	6.89E-10	3.8E-12	8.4E+00	3.2E-11	3.2E-11
Chromium	1.02E-08	5.6E-11	4.1E+01	2.3E-09	2.3E-09
Lead	1.80E-08	9.9E-11			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.16E-08	1.2E-10			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.02E-09	2.2E-11	8.9E-01	2.0E-11	2.0E-11
Benzo(a)pyrene	6.88E-09	3.8E-11	6.1E+00	2.3E-10	2.3E-10
Benzo(b)fluoranthene	4.54E-09	2.5E-11	7.5E-01	1.9E-11	1.9E-11
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.34E-09	2.9E-11	3.2E-01	9.4E-12	9.4E-12
bis(2-Ethylhexyl) phthalate	8.05E-11	4.4E-13			
Carbazole	1.24E-10	6.8E-13			
Chrysene	4.39E-09	2.4E-11	2.7E-02	6.5E-13	6.5E-13
Dibenzo(a,h)anthracene	1.39E-09	7.6E-12	6.8E+00	5.2E-11	5.2E-11
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.39E-09	2.4E-11	1.7E+00	4.1E-11	4.1E-11
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	3.66E-12	2.0E-14	2.0E-03	4.0E-17	4.0E-17
Aroclor-1254	6.51E-11	3.6E-13			
Aroclor-1260	3.80E-11	2.1E-13			
Dieldrin	7.32E-12	4.0E-14	1.6E+01	6.4E-13	6.4E-13
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	2.7E-09	
			Total Rad + Chem	5.3E-09	*Total:* 5.3E-09

TABLE B.3.2-7(b) (continued)
CURRENT, OFF-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Noncarcinogenic Hazard

Radiation Hazard					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	3.65E-07				
NP-237	1.67E-07				
PU-238	8.78E-08				
PU-239/240	3.73E-08				
RA-226	2.25E-05				
RA-228	2.84E-06				
SR-90	7.32E-07				
TC-99	1.04E-04				
TH-228	3.23E-06				
TH-230	1.01E-05				
TH-232	2.92E-06				
U-234	6.33E-06				
U-235/236	3.07E-07				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	5.32E-09	3.4E-10			
Beryllium	6.89E-10	4.4E-11			
Chromium	1.02E-08	6.5E-10			
Lead	1.80E-08	1.2E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.16E-08	1.4E-09			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.02E-09	2.6E-10			
Benzo(a)pyrene	6.88E-09	4.4E-10			
Benzo(b)fluoranthene	4.54E-09	2.9E-10			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.34E-09	3.4E-10			
bis(2-Ethylhexyl) phthalate	8.05E-11	5.1E-12			
Carbazole	1.24E-10	7.9E-12			
Chrysene	4.39E-09	2.8E-10			
Dibenzo(a,h)anthracene	1.39E-09	8.9E-11			
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.39E-09	2.8E-10			
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	3.66E-12	2.3E-13	8.2E-01	2.8E-13	2.8E-13
Aroclor-1254	6.51E-11	4.2E-12			
Aroclor-1260	3.80E-11	2.4E-12			
Dieldrin	7.32E-12	4.7E-13			
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	2.8E-13	

Total Rad + Chem 2.8E-13 | *Total:* 2.8E-13

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TABLE B.3.2-8(a)
CURRENT OFF-PROPERTY FARMER
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	2.12E-04	3.9E-01	2.8E-11	1.1E-11	CS-137	7.42E-05	5.5E-01	2.8E-11	1.5E-11	2.6E-11
NP-237	2.65E-07	4.9E-04	2.2E-10	1.1E-13	NP-237	2.41E-08	1.8E-04	2.2E-10	3.9E-14	1.5E-13
PU-238	1.26E-09	2.3E-06	2.2E-10	5.1E-16	PU-238	2.52E-10	1.9E-06	2.2E-10	4.1E-16	9.2E-16
PU-239	5.35E-10	9.8E-07	2.3E-10	2.3E-16	PU-239	1.07E-10	7.9E-07	2.3E-10	1.8E-16	4.1E-16
RA-226	1.63E-04	3.0E-01	1.2E-10	3.6E-11	RA-226	2.93E-04	2.2E+00	1.2E-10	2.6E-10	2.9E-10
RA-228	1.98E-05	3.6E-02	1.0E-10	3.6E-12	RA-228	3.56E-05	2.6E-01	1.0E-10	2.6E-11	3.0E-11
SR-90	6.36E-06	1.2E-02	3.6E-11	4.2E-13	SR-90	3.18E-05	2.3E-01	3.6E-11	8.4E-12	8.8E-12
TC-99	2.68E-02	4.9E+01	1.3E-12	6.4E-11	TC-99	3.15E-02	2.3E+02	1.3E-12	3.0E-10	3.6E-10
TH-228	5.04E-07	9.3E-04	5.5E-11	5.1E-14	TH-228	4.20E-07	3.1E-03	5.5E-11	1.7E-13	2.2E-13
TH-230	1.74E-06	3.2E-03	1.3E-11	4.2E-14	TH-230	1.45E-06	1.1E-02	1.3E-11	1.4E-13	1.8E-13
TH-232	5.05E-07	9.3E-04	1.2E-11	1.1E-14	TH-232	4.21E-07	3.1E-03	1.2E-11	3.7E-14	4.8E-14
U-234	3.65E-05	6.7E-02	1.6E-11	1.1E-12	U-234	1.10E-04	8.1E-01	1.6E-11	1.3E-11	1.4E-11
U-235	1.76E-06	3.2E-03	1.6E-11	5.2E-14	U-235	5.29E-06	3.9E-02	1.6E-11	6.2E-13	6.7E-13
U-238	3.92E-05	7.2E-02	2.8E-11	2.0E-12	U-238	1.18E-04	8.6E-01	2.8E-11	2.4E-11	2.6E-11
			Total Pathway:	1.2E-10				Total Pathway:	6.5E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	3.07E-07	3.2E-10	1.8E+00	5.5E-10	Arsenic	9.22E-09	3.8E-11	1.8E+00	6.6E-11	6.2E-10
Beryllium	1.98E-08	2.0E-11	4.3E+00	8.8E-11	Beryllium	1.78E-11	7.3E-14	4.3E+00	3.2E-13	8.8E-11
Chromium	1.61E-06	1.7E-09			Chromium	4.39E-07	1.8E-09			
Lead	1.56E-07	1.6E-10			Lead	1.30E-07	5.3E-10			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.23E-07	1.3E-10			U-TOTAL	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	6.87E-07	7.1E-10	1.1E+00	7.8E-10	Benzo(a)anthracene	2.17E-07	8.9E-10	1.1E+00	9.8E-10	1.8E-09
Benzo(a)pyrene	2.81E-06	2.9E-09	7.3E+00	2.1E-08	Benzo(a)pyrene	8.87E-07	3.6E-09	7.3E+00	2.7E-08	4.8E-08
Benzo(b)fluoranthene	7.21E-06	7.4E-09	9.0E-01	6.7E-09	Benzo(b)fluoranthene	2.28E-06	9.4E-09	9.0E-01	8.4E-09	1.5E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.73E-05	1.8E-08	3.8E-01	6.7E-09	Benzo(k)fluoranthene	5.46E-06	2.2E-08	3.8E-01	8.5E-09	1.5E-08
bis(2-Ethylhexyl)phthalat	3.26E-10	3.4E-13	1.4E-02	4.7E-15	bis(2-Ethylhexyl)phthalat	1.03E-10	4.2E-13	1.4E-02	5.9E-15	1.1E-14
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	7.57E-07	7.8E-10	3.2E-02	2.5E-11	Chrysene	2.39E-07	9.8E-10	3.2E-02	3.1E-11	5.6E-11
Dibenzo(a,h)anthracene	5.58E-07	5.7E-10	8.1E+00	4.6E-09	Dibenzo(a,h)anthracene	1.76E-07	7.2E-10	8.1E+00	5.9E-09	1.1E-08
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	8.57E-05	8.8E-08	2.0E+00	1.8E-07	Indeno(1,2,3-cd)pyrene	2.71E-05	1.1E-07	2.0E+00	2.2E-07	1.8E-07
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	2.53E-13	2.6E-16	7.5E-03	1.9E-18	Methylene chloride	7.99E-14	3.3E-16	7.5E-03	2.5E-18	4.4E-18
Aroclor 1254	5.01E-08	5.1E-11	7.7E+00	4.0E-10	Aroclor 1254	1.58E-08	6.5E-11	7.7E+00	5.0E-10	9.0E-10
Aroclor 1260	3.52E-08	3.6E-11	7.7E+00	2.8E-10	Aroclor 1260	1.11E-08	4.6E-11	7.7E+00	3.5E-10	6.3E-10
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	2.2E-07				Total Pathway:	2.7E-07	
			Total Rad + Chem	2.2E-07				Total Rad + Chem	2.7E-07	*Total:* 4.9E-07

TABLE B.3.2-8(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	2.1E-04	3.9E-01			CS-137	7.42E-05	5.5E-01			
NP-237	2.7E-07	4.9E-04			NP-237	2.41E-08	1.8E-04			
PU-238	1.3E-09	2.3E-06			PU-238	2.52E-10	1.9E-06			
PU-239	5.4E-10	9.8E-07			PU-239	1.07E-10	7.9E-07			
RA-226	1.6E-04	3.0E-01			RA-226	2.93E-04	2.2E+00			
RA-228	2.0E-05	3.6E-02			RA-228	3.56E-05	2.6E-01			
SR-90	6.4E-06	1.2E-02			SR-90	3.18E-05	2.3E-01			
TC-99	2.7E-02	4.9E+01			TC-99	3.15E-02	2.3E+02			
TH-228	5.0E-07	9.3E-04			TH-228	4.20E-07	3.1E-03			
TH-230	1.7E-06	3.2E-03			TH-230	1.45E-06	1.1E-02			
TH-232	5.0E-07	9.3E-04			TH-232	4.21E-07	3.1E-03			
U-234	3.7E-05	6.7E-02			U-234	1.10E-04	8.1E-01			
U-235	1.8E-06	3.2E-03			U-235	5.29E-06	3.9E-02			
U-238	3.9E-05	7.2E-02			U-238	1.18E-04	8.6E-01			
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	3.1E-07	3.2E-10	3.0E-04	1.1E-06	Arsenic	9.2E-09	3.8E-11	3.0E-04	1.3E-07	1.2E-06
Beryllium	2.0E-08	2.0E-11	5.0E-03	4.1E-09	Beryllium	1.8E-11	7.3E-14	5.0E-03	1.5E-11	4.1E-09
Chromium	1.6E-06	1.7E-09	5.0E-03	3.3E-07	Chromium	4.4E-07	1.8E-09	5.0E-03	3.6E-07	6.9E-07
Lead	1.6E-07	1.6E-10			Lead	1.3E-07	5.3E-10			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	1.2E-07	1.3E-10	3.0E-03	4.2E-08	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	4.2E-08
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	6.9E-07	7.1E-10			Benzo(a)anthracene	2.2E-07	8.9E-10			
Benzo(a)pyrene	2.8E-06	2.9E-09			Benzo(a)pyrene	8.9E-07	3.6E-09			
Benzo(b)fluoranthene	7.2E-06	7.4E-09			Benzo(b)fluoranthene	2.3E-06	9.4E-09			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.7E-05	1.8E-08			Benzo(k)fluoranthene	5.5E-06	2.2E-08			
bis(2-Ethylhexyl)phthalate	3.3E-10	3.4E-13	2.0E-02	1.7E-11	bis(2-Ethylhexyl)phthalate	1.0E-10	4.2E-13	2.0E-02	2.1E-11	3.8E-11
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	7.6E-07	7.8E-10			Chrysene	2.4E-07	9.8E-10			
Dibenzo(a,h)anthracene	5.6E-07	5.7E-10			Dibenzo(a,h)anthracene	1.8E-07	7.2E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	8.6E-05	8.8E-08			Indeno(1,2,3-cd)pyrene	2.7E-05	1.1E-07			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	2.5E-13	2.6E-16	6.1E-02	4.3E-15	Methylene chloride	8.0E-14	3.3E-16	6.1E-02	5.4E-15	9.6E-15
Aroclor 1254	5.0E-08	5.1E-11			Aroclor 1254	1.6E-08	6.5E-11			
Aroclor 1260	3.5E-08	3.6E-11			Aroclor 1260	1.1E-08	4.6E-11			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00			
			Total Pathway:	1.4E-06				Total Pathway:	4.9E-07	
			Total Rad + Chem	1.4E-06				Total Rad + Chem	4.9E-07	*Total:* 1.9E-06

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TABLE B.3.2-8(b)
CURRENT OFF-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	2.12E-04	1.3E-02	2.8E-11	3.6E-13	CS-137	7.42E-05	1.1E-01	2.8E-11	3.0E-12	3.3E-12
NP-237	2.65E-07	1.6E-05	2.2E-10	3.6E-15	NP-237	2.41E-08	3.4E-05	2.2E-10	7.6E-15	1.1E-14
PU-238	1.26E-09	7.7E-08	2.2E-10	1.7E-17	PU-238	2.52E-10	3.6E-07	2.2E-10	7.9E-17	9.6E-17
PU-239	5.35E-10	3.3E-08	2.3E-10	7.5E-18	PU-239	1.07E-10	1.5E-07	2.3E-10	3.5E-17	4.3E-17
RA-226	1.63E-04	9.9E-03	1.2E-10	1.2E-12	RA-226	2.93E-04	4.2E-01	1.2E-10	5.0E-11	5.1E-11
RA-228	1.98E-05	1.2E-03	1.0E-10	1.2E-13	RA-228	3.56E-05	5.1E-02	1.0E-10	5.1E-12	5.2E-12
SR-90	6.36E-06	3.9E-04	3.6E-11	1.4E-14	SR-90	3.18E-05	4.5E-02	3.6E-11	1.6E-12	1.6E-12
TC-99	2.68E-02	1.6E+00	1.3E-12	2.1E-12	TC-99	3.15E-02	4.5E+01	1.3E-12	5.8E-11	6.1E-11
TH-228	5.04E-07	3.1E-05	5.5E-11	1.7E-15	TH-228	4.20E-07	6.0E-04	5.5E-11	3.3E-14	3.5E-14
TH-230	1.74E-06	1.1E-04	1.3E-11	1.4E-15	TH-230	1.45E-06	2.1E-03	1.3E-11	2.7E-14	2.8E-14
TH-232	5.05E-07	3.1E-05	1.2E-11	3.7E-16	TH-232	4.21E-07	6.0E-04	1.2E-11	7.2E-15	7.6E-15
U-234	3.65E-05	2.2E-03	1.6E-11	3.6E-14	U-234	1.10E-04	1.6E-01	1.6E-11	2.5E-12	2.5E-12
U-235	1.76E-06	1.1E-04	1.6E-11	1.7E-15	U-235	5.29E-06	7.6E-03	1.6E-11	1.2E-13	1.2E-13
U-238	3.92E-05	2.4E-03	2.8E-11	6.7E-14	U-238	1.18E-04	1.7E-01	2.8E-11	4.7E-12	4.8E-12
			Total Pathway:	3.9E-12				Total Pathway:	1.3E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	3.07E-07	4.9E-11	1.8E+00	8.5E-11	Arsenic	9.22E-09	3.4E-11	1.8E+00	6.0E-11	1.5E-10
Beryllium	1.98E-08	3.1E-12	4.3E+00	1.4E-11	Beryllium	1.78E-11	6.6E-14	4.3E+00	2.9E-13	1.4E-11
Chromium	1.61E-06	2.6E-10			Chromium	4.39E-07	1.6E-09			
Lead	1.56E-07	2.5E-11			Lead	1.30E-07	4.8E-10			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.23E-07	2.0E-11			U-TOTAL	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	6.87E-07	1.1E-10	1.1E+00	1.2E-10	Benzo(a)anthracene	2.17E-07	8.1E-10	1.1E+00	8.9E-10	1.0E-09
Benzo(a)pyrene	2.81E-06	4.5E-10	7.3E+00	3.3E-09	Benzo(a)pyrene	8.87E-07	3.3E-09	7.3E+00	2.4E-08	2.7E-08
Benzo(b)fluoranthene	7.21E-06	1.1E-09	9.0E-01	1.0E-09	Benzo(b)fluoranthene	2.28E-06	8.5E-09	9.0E-01	7.7E-09	8.7E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.73E-05	2.7E-09	3.8E-01	1.0E-09	Benzo(k)fluoranthene	5.46E-06	2.0E-08	3.8E-01	7.7E-09	8.8E-09
bis(2-Ethylhexyl)phthalate	3.26E-10	5.2E-14	1.4E-02	7.3E-16	bis(2-Ethylhexyl)phthalate	1.03E-10	3.8E-13	1.4E-02	5.4E-15	6.1E-15
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	7.57E-07	1.2E-10	3.2E-02	3.8E-12	Chrysene	2.39E-07	8.9E-10	3.2E-02	2.9E-11	3.2E-11
Dibenzo(a,h)anthracene	5.58E-07	8.9E-11	8.1E+00	7.2E-10	Dibenzo(a,h)anthracene	1.76E-07	6.6E-10	8.1E+00	5.3E-09	6.0E-09
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	8.57E-05	1.4E-08	2.0E+00	2.7E-08	Indeno(1,2,3-cd)pyrene	2.71E-05	1.0E-07	2.0E+00	2.0E-07	2.7E-08
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	2.53E-13	4.0E-17	7.5E-03	3.0E-19	Methylene chloride	7.99E-14	3.0E-16	7.5E-03	2.2E-18	2.5E-18
Aroclor 1254	5.01E-08	8.0E-12	7.7E+00	6.1E-11	Aroclor 1254	1.58E-08	5.9E-11	7.7E+00	4.5E-10	5.2E-10
Aroclor 1260	3.52E-08	5.6E-12	7.7E+00	4.3E-11	Aroclor 1260	1.11E-08	4.2E-11	7.7E+00	3.2E-10	3.6E-10
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	3.4E-08				Total Pathway:	2.5E-07	
			Total Rad + Chem	3.4E-08				Total Rad + Chem	2.5E-07	Total: 2.9E-07

TABLE B.3.2-8(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	2.1E-04	1.3E-02			CS-137	7.42E-05				
NP-237	2.7E-07	1.6E-05			NP-237	2.41E-08				
PU-238	1.3E-09	7.7E-08			PU-238	2.52E-10				
PU-239	5.4E-10	3.3E-08			PU-239	1.07E-10				
RA-226	1.6E-04	9.9E-03			RA-226	2.93E-04				
RA-228	2.0E-05	1.2E-03			RA-228	3.56E-05				
SR-90	6.4E-06	3.9E-04			SR-90	3.18E-05				
TC-99	2.7E-02	1.6E+00			TC-99	3.15E-02				
TH-228	5.0E-07	3.1E-05			TH-228	4.20E-07				
TH-230	1.7E-06	1.1E-04			TH-230	1.45E-06				
TH-232	5.0E-07	3.1E-05			TH-232	4.21E-07				
U-234	3.7E-05	2.2E-03			U-234	1.10E-04				
U-235	1.8E-06	1.1E-04			U-235	5.29E-06				
U-238	3.9E-05	2.4E-03								
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	3.1E-07	5.7E-10	3.0E-04	1.9E-06	Arsenic	9.2E-09	4.0E-10	3.0E-04	1.3E-06	3.2E-06
Beryllium	2.0E-08	3.7E-11	5.0E-03	7.3E-09	Beryllium	1.8E-11	7.8E-13	5.0E-03	1.6E-10	7.5E-09
Chromium	1.6E-06	3.0E-09	5.0E-03	6.0E-07	Chromium	4.4E-07	1.9E-08	5.0E-03	3.8E-06	4.4E-06
Lead	1.6E-07	2.9E-10			Lead	1.3E-07	5.6E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	1.2E-07	2.3E-10	3.0E-03	7.6E-08	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	7.6E-08
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	6.9E-07	1.3E-09			Benzo(a)anthracene	2.2E-07	9.4E-09			
Benzo(a)pyrene	2.8E-06	5.2E-09			Benzo(a)pyrene	8.9E-07	3.9E-08			
Benzo(b)fluoranthene	7.2E-06	1.3E-08			Benzo(b)fluoranthene	2.3E-06	9.9E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.7E-05	3.2E-08			Benzo(k)fluoranthene	5.5E-06	2.4E-07			
bis(2-Ethylhexyl)phthalate	3.3E-10	6.1E-13	2.0E-02	3.0E-11	bis(2-Ethylhexyl)phthalate	1.0E-10	4.5E-12	2.0E-02	2.2E-10	2.5E-10
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	7.6E-07	1.4E-09			Chrysene	2.4E-07	1.0E-08			
Dibenzo(a,h)anthracene	5.6E-07	1.0E-09			Dibenzo(a,h)anthracene	1.8E-07	7.7E-09			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	8.6E-05	1.6E-07			Indeno(1,2,3-cd)pyrene	2.7E-05	1.2E-06			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	2.5E-13	4.7E-16	6.1E-02	7.7E-15	Methylene chloride	8.0E-14	3.5E-15	6.1E-02	5.7E-14	6.5E-14
Aroclor 1254	5.0E-08	9.3E-11			Aroclor 1254	1.6E-08	6.9E-10			
Aroclor 1260	3.5E-08	6.5E-11			Aroclor 1260	1.1E-08	4.8E-10			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00			
			Total Pathway:	2.6E-06				Total Pathway:	5.2E-06	
			Total Rad + Chem	2.6E-06				Total Rad + Chem	5.2E-06	*Total:* 7.7E-06

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TABLE B.3.2-9(a)
CURRENT OFF-PROPERTY FARMER
SOUTH FIELD: HOME GROWN PRODUCE
CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.65E-04	2.5E-01	2.8E-11	6.9E-12	6.9E-12
NP-237	7.61E-05	1.1E-01	2.2E-10	2.5E-11	2.5E-11
PU-238	3.88E-05	5.8E-02	2.2E-10	1.3E-11	1.3E-11
PU-239	1.65E-05	2.5E-02	2.3E-10	5.7E-12	5.7E-12
RA-226	1.00E-02	1.5E+01	1.2E-10	1.8E-09	1.8E-09
RA-228	1.26E-03	1.9E+00	1.0E-10	1.9E-10	1.9E-10
SR-90	3.59E-04	5.4E-01	3.6E-11	1.9E-11	1.9E-11
TC-99	5.55E-02	8.3E+01	1.3E-12	1.1E-10	1.1E-10
TH-228	1.42E-03	2.1E+00	5.5E-11	1.2E-10	1.2E-10
TH-230	4.47E-03	6.7E+00	1.3E-11	8.7E-11	8.7E-11
TH-232	1.29E-03	1.9E+00	1.2E-11	2.3E-11	2.3E-11
U-234	2.81E-03	4.2E+00	1.6E-11	6.7E-11	6.7E-11
U-235	1.36E-04	2.0E-01	1.6E-11	3.2E-12	3.2E-12
U-238	3.02E-03	4.5E+00	2.8E-11	1.3E-10	1.3E-10
			Total Pathway:	2.6E-09	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	2.38E-06	2.0E-09	1.8E+00	3.5E-09	3.5E-09
Beryllium	3.05E-07	2.6E-10	4.3E+00	1.1E-09	1.1E-09
Chromium	4.50E-06	3.8E-09			
Lead	8.07E-06	6.7E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	9.48E-06	7.9E-09			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.73E-06	1.4E-09	1.1E+00	1.6E-09	1.6E-09
Benzo(a)pyrene	2.95E-06	2.5E-09	7.3E+00	1.8E-08	1.8E-08
Benzo(b)fluoranthene	1.95E-06	1.6E-09	9.0E-01	1.5E-09	1.5E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	2.34E-06	2.0E-09	3.8E-01	7.4E-10	7.4E-10
bis(2-Ethylhexyl)phthalate	1.72E-08	1.4E-11	1.4E-02	2.0E-13	2.0E-13
Carbazole	5.56E-08	4.6E-11	2.0E-02	9.3E-13	9.3E-13
Chrysene	1.91E-06	1.6E-09	3.2E-02	5.1E-11	5.1E-11
Dibenzo(a,h)anthracene	6.04E-07	5.0E-10	8.1E+00	4.1E-09	4.1E-09
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.90E-06	1.6E-09	2.0E+00	3.2E-09	3.2E-09
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	5.55E-09	4.6E-12	7.5E-03	3.5E-14	3.5E-14
Aroclor 1254	2.88E-08	2.4E-11	7.7E+00	1.9E-10	1.9E-10
Aroclor 1260	1.68E-08	1.4E-11	7.7E+00	1.1E-10	1.1E-10
Dieldrin	3.26E-09	2.7E-12	1.6E+01	4.4E-11	4.4E-11
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	3.4E-08	
			Total Rad + Chem	3.7E-08	*Total:* 3.7E-08

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137		1.7E-04	2.5E-01		
NP-237		7.6E-05	1.1E-01		
PU-238		3.9E-05	5.8E-02		
PU-239		1.6E-05	2.5E-02		
RA-226		1.0E-02	1.5E+01		
RA-228		1.3E-03	1.9E+00		
SR-90		3.6E-04	5.4E-01		
TC-99		5.6E-02	8.3E+01		
TH-228		1.4E-03	2.1E+00		
TH-230		4.5E-03	6.7E+00		
TH-232		1.3E-03	1.9E+00		
U-234		2.8E-03	4.2E+00		
U-235		1.4E-04	2.0E-01		
U-238		3.0E-03	4.5E+00		
			Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	2.4E-06	2.0E-09	3.0E-04	6.6E-06	6.6E-06
Beryllium	3.1E-07	2.6E-10	5.0E-03	5.1E-08	5.1E-08
Chromium	4.5E-06	3.8E-09	5.0E-03	7.5E-07	7.5E-07
Lead	8.1E-06	6.7E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	9.5E-06	7.9E-09	3.0E-03	2.6E-06	2.6E-06
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	1.7E-06	1.4E-09			
Benzo(a)pyrene	2.9E-06	2.5E-09			
Benzo(b)fluoranthene	2.0E-06	1.6E-09			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	2.3E-06	2.0E-09			
bis(2-Ethylhexyl)phthalate	1.7E-08	1.4E-11	2.0E-02	7.2E-10	7.2E-10
Carbazole	5.6E-08	4.6E-11			
Chrysene	1.9E-06	1.6E-09			
Dibenzo(a,h)anthracene	6.0E-07	5.0E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	1.9E-06	1.6E-09			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	5.6E-09	4.6E-12	6.1E-02	7.6E-11	7.6E-11
Aroclor 1254	2.9E-08	2.4E-11			
Aroclor 1260	1.7E-08	1.4E-11			
Dieldrin	3.3E-09	2.7E-12	5.0E-05	5.4E-08	5.4E-08
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	1.0E-05	
			Total Rad + Chem	1.0E-05	*Total:* 1.0E-05

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TABLE B.3.2-9(b)
CURRENT OFF-PROPERTY CHILD
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.65E-04	1.8E-02	2.8E-11	5.2E-13	5.2E-13
NP-237	7.61E-05	8.5E-03	2.2E-10	1.9E-12	1.9E-12
PU-238	3.88E-05	4.3E-03	2.2E-10	9.5E-13	9.5E-13
PU-239	1.65E-05	1.8E-03	2.3E-10	4.2E-13	4.2E-13
RA-226	1.00E-02	1.1E+00	1.2E-10	1.3E-10	1.3E-10
RA-228	1.26E-03	1.4E-01	1.0E-10	1.4E-11	1.4E-11
SR-90	3.59E-04	4.0E-02	3.6E-11	1.4E-12	1.4E-12
TC-99	5.55E-02	6.2E+00	1.3E-12	8.0E-12	8.0E-12
TH-228	1.42E-03	1.6E-01	5.5E-11	8.7E-12	8.7E-12
TH-230	4.47E-03	5.0E-01	1.3E-11	6.5E-12	6.5E-12
TH-232	1.29E-03	1.4E-01	1.2E-11	1.7E-12	1.7E-12
U-234	2.81E-03	3.1E-01	1.6E-11	5.0E-12	5.0E-12
U-235	1.36E-04	1.5E-02	1.6E-11	2.4E-13	2.4E-13
U-238	3.02E-03	3.4E-01	2.8E-11	9.4E-12	9.4E-12
			Total Pathway:	1.9E-10	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	2.38E-06	6.9E-10	1.8E+00	1.2E-09	1.2E-09
Beryllium	3.05E-07	8.9E-11	4.3E+00	3.8E-10	3.8E-10
Chromium	4.50E-06	1.3E-09			
Lead	8.07E-06	2.3E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	9.48E-06	2.8E-09			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.73E-06	5.0E-10	1.1E+00	5.5E-10	5.5E-10
Benzo(a)pyrene	2.95E-06	8.6E-10	7.3E+00	6.3E-09	6.3E-09
Benzo(b)fluoranthene	1.95E-06	5.7E-10	9.0E-01	5.1E-10	5.1E-10
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	2.34E-06	6.8E-10	3.8E-01	2.6E-10	2.6E-10
bis(2-Ethylhexyl)phthalate	1.72E-08	5.0E-12	1.4E-02	7.0E-14	7.0E-14
Carbazole	5.56E-08	1.6E-11	2.0E-02	3.2E-13	3.2E-13
Chrysene	1.91E-06	5.5E-10	3.2E-02	1.8E-11	1.8E-11
Dibenzo(a,h)anthracene	6.04E-07	1.8E-10	8.1E+00	1.4E-09	1.4E-09
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.90E-06	5.5E-10	2.0E+00	1.1E-09	1.1E-09
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	5.55E-09	1.6E-12	7.5E-03	1.2E-14	1.2E-14
Aroclor 1254	2.88E-08	8.4E-12	7.7E+00	6.4E-11	6.4E-11
Aroclor 1260	1.68E-08	4.9E-12	7.7E+00	3.8E-11	3.8E-11
Dieldrin	3.26E-09	9.5E-13	1.6E+01	1.5E-11	1.5E-11
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	1.2E-08	

Total Rad + Chem	1.2E-08	*Total:*	1.2E-08

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TABLE B.3.2-9(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	1.7E-04	1.8E-02			
NP-237	7.6E-05	8.5E-03			
PU-238	3.9E-05	4.3E-03			
PU-239	1.6E-05	1.8E-03			
RA-226	1.0E-02	1.1E+00			
RA-228	1.3E-03	1.4E-01			
SR-90	3.6E-04	4.0E-02			
TC-99	5.6E-02	6.2E+00			
TH-228	1.4E-03	1.6E-01			
TH-230	4.5E-03	5.0E-01			
TH-232	1.3E-03	1.4E-01			
U-234	2.8E-03	3.1E-01			
U-235	1.4E-04	1.5E-02			
U-238	3.0E-03	3.4E-01			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	2.4E-06	8.1E-09	3.0E-04	2.7E-05	2.7E-05
Beryllium	3.1E-07	1.0E-09	5.0E-03	2.1E-07	2.1E-07
Chromium	4.5E-06	1.5E-08	5.0E-03	3.1E-06	3.1E-06
Lead	8.1E-06	2.7E-08			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	9.5E-06	3.2E-08	3.0E-03	1.1E-05	1.1E-05
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	1.7E-06	5.9E-09			
Benzo(a)pyrene	2.9E-06	1.0E-08			
Benzo(b)fluoranthene	2.0E-06	6.6E-09			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	2.3E-06	7.9E-09			
bis(2-Ethylhexyl)phthalate	1.7E-08	5.8E-11	2.0E-02	2.9E-09	2.9E-09
Carbazole	5.6E-08	1.9E-10			
Chrysene	1.9E-06	6.5E-09			
Dibenzo(a,h)anthracene	6.0E-07	2.0E-09			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	1.9E-06	6.4E-09			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	5.6E-09	1.9E-11	6.1E-02	3.1E-10	3.1E-10
Aroclor 1254	2.9E-08	9.8E-11			
Aroclor 1260	1.7E-08	5.7E-11			
Dieldrin	3.3E-09	1.1E-11	5.0E-05	2.2E-07	2.2E-07
Endrin ketone	0.0E+00	0.0E+00			
			Total Pathway:	4.1E-05	
			Total Rad + Chem	4.1E-05	*Total:* 4.1E-05

TABLE B.3.2-10
CURRENT USER OF MILK AND MEAT
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.82E-03	3.4E+00	2.8E-11	9.4E-11	CS-137	6.39E-04	4.7E+00	2.8E-11	1.3E-10	2.3E-10
NP-237	2.29E-06	4.2E-03	2.2E-10	9.3E-13	NP-237	2.08E-07	1.5E-03	2.2E-10	3.4E-13	1.3E-12
PU-238	1.09E-08	2.0E-05	2.2E-10	4.4E-15	PU-238	2.17E-09	1.6E-05	2.2E-10	3.5E-15	7.9E-15
PU-239	4.63E-09	8.5E-06	2.3E-10	2.0E-15	PU-239	9.25E-10	6.8E-06	2.3E-10	1.6E-15	3.5E-15
RA-226	1.40E-03	2.6E+00	1.2E-10	3.1E-10	RA-226	2.51E-03	1.8E+01	1.2E-10	2.2E-09	2.5E-09
RA-228	1.71E-04	3.1E-01	1.0E-10	3.1E-11	RA-228	3.07E-04	2.3E+00	1.0E-10	2.3E-10	2.6E-10
SR-90	5.49E-05	1.0E-01	3.6E-11	3.6E-12	SR-90	2.75E-04	2.0E+00	3.6E-11	7.3E-11	7.6E-11
TC-99	2.30E-01	4.2E+02	1.3E-12	5.5E-10	TC-99	2.71E-01	2.0E+03	1.3E-12	2.6E-09	3.1E-09
TH-228	4.36E-06	8.0E-03	5.5E-11	4.4E-13	TH-228	3.64E-06	2.7E-02	5.5E-11	1.5E-12	1.9E-12
TH-230	1.50E-05	2.8E-02	1.3E-11	3.6E-13	TH-230	1.25E-05	9.2E-02	1.3E-11	1.2E-12	1.6E-12
TH-232	4.34E-06	8.0E-03	1.2E-11	9.6E-14	TH-232	3.62E-06	2.7E-02	1.2E-11	3.2E-13	4.1E-13
U-234	3.15E-04	5.8E-01	1.6E-11	9.3E-12	U-234	9.44E-04	6.9E+00	1.6E-11	1.1E-10	1.2E-10
U-235	1.53E-05	2.8E-02	1.6E-11	4.5E-13	U-235	4.59E-05	3.4E-01	1.6E-11	5.4E-12	5.8E-12
U-238	3.38E-04	6.2E-01	2.8E-11	1.7E-11	U-238	1.01E-03	7.5E+00	2.8E-11	2.1E-10	2.3E-10
			Total Pathway:	1.0E-09				Total Pathway:	5.6E-09	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	2.64E-06	2.7E-09	1.8E+00	4.8E-09	Arsenic	7.93E-08	3.3E-10	1.8E+00	5.7E-10	5.3E-09
Beryllium	1.71E-07	1.8E-10	4.3E+00	7.6E-10	Beryllium	1.54E-10	6.3E-13	4.3E+00	2.7E-12	7.6E-10
Chromium	1.39E-05	1.4E-08			Chromium	3.79E-06	1.6E-08			
Lead	1.34E-06	1.4E-09			Lead	1.12E-06	4.6E-09			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.07E-06	1.1E-09			U-TOTAL	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	5.94E-06	6.1E-09	1.1E+00	6.7E-09	Benzo(a)anthracene	1.88E-06	7.7E-09	1.1E+00	8.5E-09	1.5E-08
Benzo(a)pyrene	2.42E-05	2.5E-08	7.3E+00	1.8E-07	Benzo(a)pyrene	7.64E-06	3.1E-08	7.3E+00	2.3E-07	4.1E-07
Benzo(b)fluoranthene	6.22E-05	6.4E-08	9.0E-01	5.8E-08	Benzo(b)fluoranthene	1.97E-05	8.1E-08	9.0E-01	7.3E-08	1.3E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.49E-04	1.5E-07	3.8E-01	5.8E-08	Benzo(k)fluoranthene	4.70E-05	1.9E-07	3.8E-01	7.3E-08	1.3E-07
bis(2-Ethylhexyl)phthalate	2.81E-09	2.9E-12	1.4E-02	4.0E-14	bis(2-Ethylhexyl)phthalate	8.90E-10	3.7E-12	1.4E-02	5.1E-14	9.2E-14
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	6.53E-06	6.7E-09	3.2E-02	2.1E-10	Chrysene	2.06E-06	8.5E-09	3.2E-02	2.7E-10	4.9E-10
Dibenzo(a,h)anthracene	4.81E-06	4.9E-09	8.1E+00	4.0E-08	Dibenzo(a,h)anthracene	1.52E-06	6.3E-09	8.1E+00	5.1E-08	9.1E-08
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	7.39E-04	7.6E-07	2.0E+00	1.5E-06	Indeno(1,2,3-cd)pyrene	2.34E-04	9.6E-07	2.0E+00	1.9E-06	3.4E-06
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	2.18E-12	2.2E-15	7.5E-03	1.7E-17	Methylene chloride	6.88E-13	2.8E-15	7.5E-03	2.1E-17	3.8E-17
Aroclor 1254	4.32E-07	4.4E-10	7.7E+00	3.4E-09	Aroclor 1254	1.37E-07	5.6E-10	7.7E+00	4.3E-09	7.7E-09
Aroclor 1260	3.04E-07	3.1E-10	7.7E+00	2.4E-09	Aroclor 1260	9.60E-08	3.9E-10	7.7E+00	3.0E-09	5.4E-09
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	1.9E-06				Total Pathway:	2.4E-06	
			Total Rad + Chem	1.9E-06				Total Rad + Chem	2.4E-06	*Total:* 4.2E-06

TABLE B.3.2-10 (continued)
CURRENT USER OF MILK AND MEAT
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	1.8E-03	3.4E+00		
NP-237	2.3E-06	4.2E-03		
PU-238	1.1E-08	2.0E-05		
PU-239	4.6E-09	8.5E-06		
RA-226	1.4E-03	2.6E+00		
RA-228	1.7E-04	3.1E-01		
SR-90	5.5E-05	1.0E-01		
TC-99	2.3E-01	4.2E+02		
TH-228	4.4E-06	8.0E-03		
TH-230	1.5E-05	2.8E-02		
TH-232	4.3E-06	8.0E-03		
U-234	3.1E-04	5.8E-01		
U-235	1.5E-05	2.8E-02		
U-238	3.4E-04	6.2E-01		
		Total Pathway:		0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard
CS-137	6.39E-04			
NP-237	2.08E-07			
PU-238	2.17E-09			
PU-239	9.25E-10			
RA-226	2.51E-03			
RA-228	3.07E-04			
SR-90	2.75E-04			
TC-99	2.71E-01			
TH-228	3.64E-06			
TH-230	1.25E-05			
TH-232	3.62E-06			
U-234	9.44E-04			
U-235	4.59E-05			

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	2.6E-06	2.7E-09	3.0E-04	9.1E-06
Beryllium	1.7E-07	1.8E-10	5.0E-03	3.5E-08
Chromium	1.4E-05	1.4E-08	5.0E-03	2.9E-06
Lead	1.3E-06	1.4E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.1E-06	1.1E-09	3.0E-03	3.7E-07
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	5.9E-06	6.1E-09		
Benzo(a)pyrene	2.4E-05	2.5E-08		
Benzo(b)fluoranthene	6.2E-05	6.4E-08		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.5E-04	1.5E-07		
bis(2-Ethylhexyl)phthalate	2.8E-09	2.9E-12	2.0E-02	1.4E-10
Carbazole	0.0E+00	0.0E+00		
Chrysene	6.5E-06	6.7E-09		
Dibenzo(a,h)anthracene	4.8E-06	4.9E-09		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	7.4E-04	7.6E-07		
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	2.2E-12	2.2E-15	6.1E-02	3.7E-14
Aroclor 1254	4.3E-07	4.4E-10		
Aroclor 1260	3.0E-07	3.1E-10		
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00
Endrin ketone	0.0E+00	0.0E+00		
		Total Pathway:		1.2E-05
		Total Rad + Chem		1.2E-05

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard
Arsenic	7.9E-08	3.3E-10	3.0E-04	1.1E-06
Beryllium	1.5E-10	6.3E-13	5.0E-03	1.3E-10
Chromium	3.8E-06	1.6E-08	5.0E-03	3.1E-06
Lead	1.1E-06	4.6E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	1.9E-06	7.7E-09		
Benzo(a)pyrene	7.6E-06	3.1E-08		
Benzo(b)fluoranthene	2.0E-05	8.1E-08		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	4.7E-05	1.9E-07		
bis(2-Ethylhexyl)phthalate	8.9E-10	3.7E-12	2.0E-02	1.8E-10
Carbazole	0.0E+00	0.0E+00		
Chrysene	2.1E-06	8.5E-09		
Dibenzo(a,h)anthracene	1.5E-06	6.3E-09		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	2.3E-04	9.6E-07		
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	6.9E-13	2.8E-15	6.1E-02	4.6E-14
Aroclor 1254	1.4E-07	5.6E-10		
Aroclor 1260	9.6E-08	3.9E-10		
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00
Endrin ketone	0.0E+00	0.0E+00		
		Total Pathway:		4.2E-06
		Total Rad + Chem		4.2E-06

Total

	1.0E-05
	3.5E-08
	6.0E-06
	3.7E-07
	3.3E-10
	0.0E+00
	8.3E-14
	0.0E+00
	0.0E+00
Total:	1.7E-05

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TABLE B.3.2-11
CURRENT, GROUNDSKEEPER
SOUTH FIELD: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	4.4E-06	7.8E-02	1.9E-11	1.5E-12
NP-237	2.0E-06	3.6E-02	2.9E-08	1.0E-09
PU-238	1.1E-06	1.9E-02	3.9E-08	7.3E-10
PU-239/240	4.5E-07	7.9E-03	3.8E-08	3.0E-10
RA-226	2.7E-04	4.8E+00	3.0E-09	1.4E-08
RA-228	3.5E-05	6.0E-01	6.9E-10	4.2E-10
SR-90	8.9E-06	1.6E-01	6.2E-11	9.7E-12
TC-99	1.3E-03	2.2E+01	8.3E-12	1.8E-10
TH-228	3.9E-05	2.2E+01	7.8E-08	1.7E-06
TH-230	1.2E-04	6.9E-01	2.9E-08	2.0E-08
TH-232	3.6E-05	2.2E+00	2.8E-08	6.0E-08
U-234	7.7E-05	6.2E-01	2.6E-08	1.6E-08
U-235/236	3.7E-06	1.3E+00	2.5E-08	3.4E-08
U-238	8.3E-05	6.5E-02	5.2E-08	3.4E-09
			Total Pathway:	1.9E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	5.0E-01	4.4E+01	2.8E-11	1.2E-09
NP-237	2.3E-01	2.0E+01	2.2E-10	4.4E-09
PU-238	1.2E-01	1.0E+01	2.2E-10	2.3E-09
PU-239/240	5.1E-02	4.5E+00	2.3E-10	1.0E-09
RA-226	3.1E+01	2.7E+03	1.2E-10	3.2E-07
RA-228	3.9E+00	3.4E+02	1.0E-10	3.4E-08
SR-90	1.0E+00	8.8E+01	3.6E-11	3.2E-09
TC-99	1.4E+02	1.2E+04	1.3E-12	1.6E-08
TH-228	4.4E+00	3.9E+02	5.5E-11	2.1E-08
TH-230	1.4E+01	1.2E+03	1.3E-11	1.6E-08
TH-232	4.0E+00	3.5E+02	1.2E-11	4.2E-09
U-234	8.7E+00	7.6E+02	1.6E-11	1.2E-08
U-235/236	4.2E-01	3.7E+01	1.6E-11	5.9E-10
U-238	9.3E+00	8.1E+02	2.8E-11	2.3E-08
			Total Pathway:	4.6E-07

Chemical Risk

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.5E-08	6.3E-10	1.5E+00	9.6E-10
Beryllium	8.4E-09	8.2E-11	8.4E+00	6.9E-10
Chromium	1.2E-07	1.2E-09	4.1E+01	5.0E-08
Lead	2.2E-07	2.1E-09		0.0E+00
TH-TOTAL	0.0E+00	0.0E+00		0.0E+00
U-TOTAL	2.6E-07	2.6E-09		0.0E+00
Acenaphthylene	0.0E+00	0.0E+00		0.0E+00
Benzo(a)anthracene	4.9E-08	4.8E-10	8.9E-01	4.3E-10
Benzo(a)pyrene	8.4E-08	8.2E-10	6.1E+00	5.0E-09
Benzo(b)fluoranthene	5.5E-08	5.4E-10	7.5E-01	4.1E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		0.0E+00
Benzo(k)fluoranthene	6.5E-08	6.4E-10	3.2E-01	2.0E-10
bis(2-Ethylhexyl) phthalate	9.8E-10	9.6E-12		0.0E+00
Carbazole	1.5E-09	1.5E-11		0.0E+00
Chrysene	5.3E-08	5.2E-10	2.7E-02	1.4E-11
Dibenzo(a,h)anthracene	1.7E-08	1.7E-10	6.8E+00	1.1E-09
Dibenzofuran	0.0E+00	0.0E+00		0.0E+00
Indeno(1,2,3-cd)pyrene	5.3E-08	5.2E-10	1.7E+00	8.9E-10
Phenanthrene	0.0E+00	0.0E+00		0.0E+00
Methylene chloride	4.5E-11	4.4E-13	2.0E-03	8.7E-16
Aroclor-1254	7.9E-10	7.7E-12		0.0E+00
Aroclor-1260	4.6E-10	4.5E-12		0.0E+00
Dieldrin	8.9E-11	8.7E-13	1.6E+01	1.4E-11
Endrin ketone	0.0E+00	0.0E+00		0.0E+00
			Total pathway:	5.9E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.3E+00	3.6E-07	1.8E+00	6.2E-07
Beryllium	9.4E-01	4.6E-08	4.3E+00	2.0E-07
Chromium	1.4E+01	6.8E-07		
Lead	2.5E+01	1.2E-06		
TH-TOTAL	3.7E+01	1.8E-06		
U-TOTAL	3.0E+01	1.4E-06		
Acenaphthylene	1.2E+00	5.9E-08		
Benzo(a)anthracene	5.5E+00	2.7E-07	1.1E+00	3.0E-07
Benzo(a)pyrene	9.4E+00	4.6E-07	7.3E+00	3.4E-06
Benzo(b)fluoranthene	6.2E+00	3.0E-07	9.0E-01	2.7E-07
Benzo(g,h,i)perylene	6.2E+00	3.0E-07		
Benzo(k)fluoranthene	7.3E+00	3.6E-07	3.8E-01	1.4E-07
bis(2-Ethylhexyl) phthalate	1.1E-01	5.4E-09	1.4E-02	7.5E-11
Carbazole	1.7E-01	8.3E-09	2.0E-02	1.7E-10
Chrysene	6.0E+00	2.9E-07	3.2E-02	9.4E-09
Dibenzo(a,h)anthracene	1.9E+00	9.3E-08	8.1E+00	7.5E-07
Dibenzofuran	1.3E-01	6.4E-09		
Indeno(1,2,3-cd)pyrene	6.0E+00	2.9E-07	2.0E+00	5.9E-07
Phenanthrene	2.3E+00	1.1E-07		
Methylene chloride	5.0E-03	2.4E-10	7.5E-03	1.8E-12
Aroclor-1254	8.9E-02	4.4E-09	7.7E+00	3.4E-08
Aroclor-1260	5.2E-02	2.5E-09	7.7E+00	2.0E-08
Dieldrin	9.7E-03	4.7E-10	1.6E+01	7.6E-09
Endrin ketone	5.9E-03	2.9E-10		
			Total Pathway:	6.3E-06

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TABLE B.3.2-11 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	SF(e)	Risk	
Not applicable				CS-137	3.8E-01	2.0E-06	7.7E-07	7.7E-07
				NP-237	1.8E-01	4.3E-07	7.6E-08	8.1E-08
				PU-238	9.2E-02	2.8E-11	2.6E-12	3.0E-09
				PU-239/240	4.0E-02	2.7E-11	1.1E-12	1.3E-09
				RA-226	2.4E+01	1.2E-08	2.8E-07	6.2E-07
				RA-228	3.0E+00	2.90E-06	8.7E-06	8.7E-06
				SR-90	7.7E-01	0.0E+00	0.0E+00	3.2E-09
				TC-99	1.1E+02	6.0E-13	6.6E-11	1.6E-08
				TH-228	1.1E+02	5.6E-06	6.1E-04	6.1E-04
				TH-230	3.4E+00	5.4E-11	1.8E-10	3.6E-08
				TH-232	1.1E+01	2.6E-11	2.8E-10	6.5E-08
				U-234	3.1E+00	3.0E-11	9.2E-11	2.8E-08
				U-235/236	6.7E+00	2.4E-07	1.6E-06	1.6E-06
				U-238	3.2E-01	3.6E-08	1.2E-08	3.8E-08
		Total Pathway:	0.0E+00			Total Pathway:	6.2E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	2.0E-08	1.8E+00	3.8E-08					6.6E-07
Beryllium	2.7E-08	4.30E+02	1.1E-05					1.2E-05
Chromium	3.9E-07		0.0E+00					5.0E-08
Lead	6.9E-07		0.0E+00					
TH-TOTAL	0.0E+00		0.0E+00					
U-TOTAL	8.3E-07		0.0E+00					
Acenaphthylene	1.0E-06		0.0E+00					
Benzo(a)anthracene	0.0E+00	2.56E+00	0.0E+00					3.0E-07
Benzo(a)pyrene	0.0E+00	1.70E+01	0.0E+00					3.4E-06
Benzo(b)fluoranthene	0.0E+00	2.09E+00	0.0E+00					2.7E-07
Benzo(g,h,i)perylene	5.2E-06		0.0E+00	Not applicable				
Benzo(k)fluoranthene	0.0E+00	8.84E-01	0.0E+00					1.4E-07
bis(2-Ethylhexyl) phthalate	1.2E-09	1.56E-02	1.9E-11					9.5E-11
Carbazole	0.0E+00	2.00E-02	0.0E+00					1.7E-10
Chrysene	0.0E+00	3.56E-02	0.0E+00					9.4E-09
Dibenzo(a,h)anthracene	0.0E+00	9.00E+00	0.0E+00					7.5E-07
Dibenzofuran	0.0E+00		0.0E+00					
Indeno(1,2,3-cd)pyrene	0.0E+00	2.22E+00	0.0E+00					5.9E-07
Phenanthrene	1.9E-06		0.0E+00					
Methylene chloride	5.6E-09	7.50E-03	4.2E-11					4.4E-11
Aroclor-1254	7.5E-08	1.03E+01	7.7E-07					8.0E-07
Aroclor-1260	4.4E-08	1.03E+01	4.5E-07					4.7E-07
Dieldrin	8.2E-09	1.78E+01	1.5E-07					1.5E-07
Endrin ketone	5.0E-09		0.0E+00					
		Total Pathway:	1.3E-05			Total Pathway:	0.0E+00	6.5E-04

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NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
CS-137	7.8E-02		
NP-237	3.6E-02		
PU-238	1.9E-02		
PU-239/240	7.9E-03		
RA-226	4.8E+00		
RA-228	6.0E-01		
SR-90	1.6E-01		
TC-99	2.2E+01		
TH-228	6.9E-01		
TH-230	2.2E+00		
TH-232	6.2E-01		
U-234	1.3E+00		
U-235/236	6.5E-02		
U-238	1.5E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
CS-137	4.4E+01		
NP-237	2.0E+01		
PU-238	1.0E+01		
PU-239/240	4.5E+00		
RA-226	2.7E+03		
RA-228	3.4E+02		
SR-90	8.8E+01		
TC-99	1.2E+04		
TH-228	3.9E+02		
TH-230	1.2E+03		
TH-232	3.5E+02		
U-234	7.6E+02		
U-235/236	3.7E+01		
U-238	8.1E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
Arsenic	1.8E-09		
Beryllium	2.3E-10		
Chromium	3.4E-09		
Lead	6.0E-09		
TH-TOTAL	0.0E+00		
U-TOTAL	7.2E-09		
Acenaphthylene	0.0E+00		
Benzo(a)anthracene	1.3E-09		
Benzo(a)pyrene	2.3E-09		
Benzo(b)fluoranthene	1.5E-09		
Benzo(g,h,i)perylene	0.0E+00		
Benzo(k)fluoranthene	1.8E-09		
bis(2-Ethylhexyl) phthalate	2.7E-11		
Carbazole	4.1E-11		
Chrysene	1.5E-09		
Dibenzo(a,h)anthracene	4.6E-10		
Dibenzofuran	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.5E-09		
Phenanthrene	0.0E+00		
Methylene chloride	1.2E-12	8.2E-01	1.5E-12
Aroclor-1254	2.2E-11		
Aroclor-1260	1.3E-11		
Dieldrin	2.4E-12		
Endrin ketone	0.0E+00		

Total Pathway: 1.5E-12

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
Arsenic	1.0E-06	3.0E-04	3.3E-03
Beryllium	1.3E-07	5.0E-03	2.6E-05
Chromium	1.9E-06	5.0E-03	3.8E-04
Lead	3.4E-06		
TH-TOTAL	5.0E-06		
U-TOTAL	4.1E-06	3.0E-03	1.4E-03
Acenaphthylene	1.6E-07		
Benzo(a)anthracene	7.5E-07		
Benzo(a)pyrene	1.3E-06		
Benzo(b)fluoranthene	8.5E-07		
Benzo(g,h,i)perylene	8.5E-07		
Benzo(k)fluoranthene	1.0E-06		
bis(2-Ethylhexyl) phthalate	1.5E-08	2.0E-02	7.5E-07
Carbazole	2.3E-08		
Chrysene	8.2E-07		
Dibenzo(a,h)anthracene	2.6E-07		
Dibenzofuran	1.8E-08	4.0E-03	4.5E-06
Indeno(1,2,3-cd)pyrene	8.2E-07		
Phenanthrene	3.2E-07		
Methylene chloride	6.8E-10	6.1E-02	1.1E-08
Aroclor-1254	1.2E-08		
Aroclor-1260	7.1E-09		
Dieldrin	1.3E-09	5.0E-05	2.7E-05
Endrin ketone	8.1E-10	3.0E-04	4.4E-06

Total Pathway: 5.1E-03

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TABLE B.3.2-11 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard	Total
Dermal Contact/Soil	
Not Applicable	

Chemical Hazard				Total
Dermal Contact/Soil				
Compound	Intake	RfD(derm)	HQ	
Arsenic	5.7E-08	2.9E-04	2.0E-04	3.5E-03
Beryllium	7.4E-08	5.0E-05	1.5E-03	1.5E-03
Chromium	1.1E-06	2.3E-03	4.9E-04	8.7E-04
Lead	1.9E-06			
TH-TOTAL	0.0E+00			
U-TOTAL	2.3E-06	1.5E-04	1.6E-02	1.7E-02
Acenaphthylene	2.8E-06			
Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	0.0E+00			
Benzo(g,h,i)perylene	1.5E-05			
Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl) phthalate	3.5E-09	1.8E-02	1.8E-02	1.8E-02
Carbazole	0.0E+00			
Chrysene	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00			
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00	4.5E-06
Indeno(1,2,3-cd)pyrene	0.0E+00			
Phenanthrene	5.4E-06			
Methylene chloride	1.6E-08	6.1E-02	2.6E-07	2.7E-07
Aroclor-1254	2.1E-07			
Aroclor-1260	1.2E-07			
Dieldrin	2.3E-08	4.5E-05	5.1E-04	5.4E-04
Endrin ketone	1.4E-08	2.7E-04	5.2E-05	5.6E-05
		Total Pathway:	3.6E-02	4.1E-02

TABLE B.3.2-12(a)
FUTURE, OFF-PROPERTY RESIDENT FARMER
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.30E-05	1.5E+00	1.9E-11	2.9E-11	2.9E-11
NP-237	5.93E-06	6.9E-01	2.9E-08	2.0E-08	2.0E-08
PU-238	3.12E-06	3.6E-01	3.9E-08	1.4E-08	1.4E-08
PU-239/240	1.33E-06	1.5E-01	3.8E-08	5.9E-09	5.9E-09
RA-226	8.01E-04	9.3E+01	3.0E-09	2.8E-07	2.8E-07
RA-228	1.01E-04	1.2E+01	6.6E-10	7.7E-09	7.7E-09
SR-90	2.60E-05	3.0E+00	6.2E-11	1.9E-10	1.9E-10
TC-99	3.69E-03	4.3E+02	8.3E-12	3.5E-09	3.5E-09
TH-228	1.15E-04	1.3E+01	7.8E-08	1.0E-06	1.0E-06
TH-230	3.59E-04	4.2E+01	2.9E-08	1.2E-06	1.2E-06
TH-232	1.04E-04	1.2E+01	2.8E-08	3.4E-07	3.4E-07
U-234	2.25E-04	2.6E+01	2.6E-08	6.8E-07	6.8E-07
U-235/236	1.09E-05	1.3E+00	2.5E-08	3.2E-08	3.2E-08
U-238	2.42E-04	2.8E+01	5.2E-08	1.5E-06	1.5E-06
			Total Pathway:	5.1E-06	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.89E-07	1.2E-08	1.5E+00	1.8E-08	1.8E-08
Beryllium	2.45E-08	1.6E-09	8.4E+00	1.3E-08	1.3E-08
Chromium	3.61E-07	2.3E-08	4.1E+01	9.6E-07	9.6E-07
Lead	6.39E-07	4.1E-08			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	7.69E-07	5.0E-08			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.43E-07	9.3E-09	8.9E-01	8.2E-09	8.2E-09
Benzo(a)pyrene	2.44E-07	1.6E-08	6.1E+00	9.6E-08	9.6E-08
Benzo(b)fluoranthene	1.61E-07	1.0E-08	7.5E-01	7.8E-09	7.8E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.90E-07	1.2E-08	3.2E-01	3.9E-09	3.9E-09
bis(2-Ethylhexyl) phthalate	2.86E-09	1.9E-10			
Carbazole	4.42E-09	2.9E-10			
Chrysene	1.56E-07	1.0E-08	2.7E-02	2.7E-10	2.7E-10
Dibenzo(a,h)anthracene	4.94E-08	3.2E-09	6.8E+00	2.2E-08	2.2E-08
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.56E-07	1.0E-08	1.7E+00	1.7E-08	1.7E-08
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-10	8.4E-12	2.0E-03	1.7E-14	1.7E-14
Aroclor-1254	2.31E-09	1.5E-10			
Aroclor-1260	1.35E-09	8.7E-11			
Dieldrin	2.60E-10	1.7E-11	1.6E+01	2.7E-10	2.7E-10
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	1.1E-06	
			Total Rad + Chem	6.2E-06	*Total:* 6.2E-06

TABLE B.3.2-12(a) (continued)
FUTURE, OFF-PROPERTY RESIDENT FARMER
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	1.30E-05				
NP-237	5.93E-06				
PU-238	3.12E-06				
PU-239/240	1.33E-06				
RA-226	8.01E-04				
RA-228	1.01E-04				
SR-90	2.60E-05				
TC-99	3.69E-03				
TH-228	1.15E-04				
TH-230	3.59E-04				
TH-232	1.04E-04				
U-234	2.25E-04				
U-235/236	1.09E-05				
U-238	2.42E-04				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	1.89E-07	1.2E-08			
Beryllium	2.45E-08	1.6E-09			
Chromium	3.61E-07	2.3E-08	5.5E-07	4.3E-02	4.3E-02
Lead	6.39E-07	4.1E-08			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	7.69E-07	5.0E-08			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.43E-07	9.3E-09			
Benzo(a)pyrene	2.44E-07	1.6E-08			
Benzo(b)fluoranthene	1.61E-07	1.0E-08			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.90E-07	1.2E-08			
bis(2-Ethylhexyl) phthalate	2.86E-09	1.9E-10			
Carbazole	4.42E-09	2.9E-10			
Chrysene	1.56E-07	1.0E-08			
Dibenzo(a,h)anthracene	4.94E-08	3.2E-09			
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.56E-07	1.0E-08			
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-10	8.4E-12	8.2E-01	1.0E-11	1.0E-11
Aroclor-1254	2.31E-09	1.5E-10			
Aroclor-1260	1.35E-09	8.7E-11			
Dieldrin	2.60E-10	1.7E-11			
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	4.3E-02	4.3E-02
			Total Rad + Chem	4.3E-02	*Total:* 4.3E-02

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TABLE B.3.2-12(b)
FUTURE, OFF-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.30E-05	2.7E-02	1.9E-11	5.2E-13	5.2E-13
NP-237	5.93E-06	1.2E-02	2.9E-08	3.6E-10	3.6E-10
PU-238	3.12E-06	6.6E-03	3.9E-08	2.6E-10	2.6E-10
PU-239/240	1.33E-06	2.8E-03	3.8E-08	1.1E-10	1.1E-10
RA-226	8.01E-04	1.7E+00	3.0E-09	5.0E-09	5.0E-09
RA-228	1.01E-04	2.1E-01	6.6E-10	1.4E-10	1.4E-10
SR-90	2.60E-05	5.5E-02	6.2E-11	3.4E-12	3.4E-12
TC-99	3.69E-03	7.7E+00	8.3E-12	6.4E-11	6.4E-11
TH-228	1.15E-04	2.4E-01	7.8E-08	1.9E-08	1.9E-08
TH-230	3.59E-04	7.5E-01	2.9E-08	2.2E-08	2.2E-08
TH-232	1.04E-04	2.2E-01	2.8E-08	6.1E-09	6.1E-09
U-234	2.25E-04	4.7E-01	2.6E-08	1.2E-08	1.2E-08
U-235/236	1.09E-05	2.3E-02	2.5E-08	5.7E-10	5.7E-10
U-238	2.42E-04	5.1E-01	5.2E-08	2.6E-08	2.6E-08
			Total Pathway:	9.2E-08	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.89E-07	1.0E-09	1.5E+00	1.6E-09	1.6E-09
Beryllium	2.45E-08	1.3E-10	8.4E+00	1.1E-09	1.1E-09
Chromium	3.61E-07	2.0E-09	4.1E+01	8.1E-08	8.1E-08
Lead	6.39E-07	3.5E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	7.69E-07	4.2E-09			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.43E-07	7.8E-10	8.9E-01	7.0E-10	7.0E-10
Benzo(a)pyrene	2.44E-07	1.3E-09	6.1E+00	8.2E-09	8.2E-09
Benzo(b)fluoranthene	1.61E-07	8.8E-10	7.5E-01	6.6E-10	6.6E-10
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.90E-07	1.0E-09	3.2E-01	3.3E-10	3.3E-10
bis(2-Ethylhexyl) phthalate	2.86E-09	1.6E-11			
Carbazole	4.42E-09	2.4E-11			
Chrysene	1.56E-07	8.5E-10	2.7E-02	2.3E-11	2.3E-11
Dibenzo(a,h)anthracene	4.94E-08	2.7E-10	6.8E+00	1.8E-09	1.8E-09
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.56E-07	8.5E-10	1.7E+00	1.5E-09	1.5E-09
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-10	7.1E-13	2.0E-03	1.4E-15	1.4E-15
Aroclor-1254	2.31E-09	1.3E-11			
Aroclor-1260	1.35E-09	7.4E-12			
Dieldrin	2.60E-10	1.4E-12	1.6E+01	2.3E-11	2.3E-11
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	9.7E-08	
			Total Rad + Chem	1.9E-07	*Total:* 1.9E-07

TABLE B.3.2-12(b) (continued)
FUTURE, OFF-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	1.30E-05	2.7E-02			
NP-237	5.93E-06	1.2E-02			
PU-238	3.12E-06	6.6E-03			
PU-239/240	1.33E-06	2.8E-03			
RA-226	8.01E-04	1.7E+00			
RA-228	1.01E-04	2.1E-01			
SR-90	2.60E-05	5.5E-02			
TC-99	3.69E-03	7.7E+00			
TH-228	1.15E-04	2.4E-01			
TH-230	3.59E-04	7.5E-01			
TH-232	1.04E-04	2.2E-01			
U-234	2.25E-04	4.7E-01			
U-235/236	1.09E-05	2.3E-02			
U-238	2.42E-04	5.1E-01			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	1.89E-07	1.2E-08			
Beryllium	2.45E-08	1.6E-09			
Chromium	3.61E-07	2.3E-08	5.5E-07	4.2E-02	4.2E-02
Lead	6.39E-07	4.1E-08			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	7.69E-07	4.9E-08			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.43E-07	9.1E-09			
Benzo(a)pyrene	2.44E-07	1.6E-08			
Benzo(b)fluoranthene	1.61E-07	1.0E-08			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.90E-07	1.2E-08			
bis(2-Ethylhexyl) phthalate	2.86E-09	1.8E-10			
Carbazole	4.42E-09	2.8E-10			
Chrysene	1.56E-07	1.0E-08			
Dibenzo(a,h)anthracene	4.94E-08	3.2E-09			
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.56E-07	1.0E-08			
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-10	8.3E-12	8.2E-01	1.0E-11	1.0E-11
Aroclor-1254	2.31E-09	1.5E-10			
Aroclor-1260	1.35E-09	8.6E-11			
Dieldrin	2.60E-10	1.7E-11			
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	4.2E-02	
			Total Rad + Chem	4.2E-02	*Total:* 4.2E-02

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TABLE B.3.2-13(a)
FUTURE OFF-PROPERTY FARMER
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	6.01E-03	1.1E+01	2.8E-11	3.1E-10	CS-137	2.10E-03	1.5E+01	2.8E-11	4.3E-10	7.4E-10
NP-237	7.51E-06	1.4E-02	2.2E-10	3.0E-12	NP-237	6.82E-07	5.0E-03	2.2E-10	1.1E-12	4.1E-12
PU-238	3.58E-08	6.6E-05	2.2E-10	1.4E-14	PU-238	7.16E-09	5.3E-05	2.2E-10	1.2E-14	2.6E-14
PU-239	1.52E-08	2.8E-05	2.3E-10	6.4E-15	PU-239	3.04E-09	2.2E-05	2.3E-10	5.1E-15	1.2E-14
RA-226	4.59E-03	8.4E+00	1.2E-10	1.0E-09	RA-226	8.26E-03	6.1E+01	1.2E-10	7.3E-09	8.3E-09
RA-228	5.59E-04	1.0E+00	1.0E-10	1.0E-10	RA-228	1.01E-03	7.4E+00	1.0E-10	7.4E-10	8.4E-10
SR-90	1.86E-04	3.4E-01	3.6E-11	1.2E-11	SR-90	9.28E-04	6.8E+00	3.6E-11	2.5E-10	2.6E-10
TC-99	8.60E-01	1.6E+03	1.3E-12	2.1E-09	TC-99	1.01E+00	7.4E+03	1.3E-12	9.7E-09	1.2E-08
TH-228	1.43E-05	2.6E-02	5.5E-11	1.4E-12	TH-228	1.19E-05	8.8E-02	5.5E-11	4.8E-12	6.3E-12
TH-230	4.95E-05	9.1E-02	1.3E-11	1.2E-12	TH-230	4.12E-05	3.0E-01	1.3E-11	3.9E-12	5.1E-12
TH-232	1.43E-05	2.6E-02	1.2E-11	3.1E-13	TH-232	1.19E-05	8.7E-02	1.2E-11	1.0E-12	1.4E-12
U-234	1.03E-03	1.9E+00	1.6E-11	3.0E-11	U-234	3.10E-03	2.3E+01	1.6E-11	3.6E-10	4.0E-10
U-235	5.00E-05	9.2E-02	1.6E-11	1.5E-12	U-235	1.50E-04	1.1E+00	1.6E-11	1.8E-11	1.9E-11
U-238	1.11E-03	2.0E+00	2.8E-11	5.7E-11	U-238	3.34E-03	2.5E+01	2.8E-11	6.9E-10	7.4E-10
			Total Pathway:	3.6E-09				Total Pathway:	1.9E-08	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	8.70E-06	8.9E-09	1.8E+00	1.6E-08	Arsenic	2.61E-07	1.1E-09	1.8E+00	1.9E-09	1.8E-08
Beryllium	5.61E-07	5.8E-10	4.3E+00	2.5E-09	Beryllium	5.05E-10	2.1E-12	4.3E+00	8.9E-12	2.5E-09
Chromium	4.58E-05	4.7E-08			Chromium	1.25E-05	5.1E-08			
Lead	4.41E-06	4.5E-09			Lead	3.68E-06	1.5E-08			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.53E-06	3.6E-09			U-TOTAL	1.06E-05	4.4E-08			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.95E-05	2.0E-08	1.1E+00	2.2E-08	Benzo(a)anthracene	6.17E-06	2.5E-08	1.1E+00	2.8E-08	5.0E-08
Benzo(a)pyrene	7.94E-05	8.2E-08	7.3E+00	6.0E-07	Benzo(a)pyrene	2.51E-05	1.0E-07	7.3E+00	7.5E-07	1.3E-06
Benzo(b)fluoranthene	2.04E-04	2.1E-07	9.0E-01	1.9E-07	Benzo(b)fluoranthene	6.45E-05	2.7E-07	9.0E-01	2.4E-07	4.3E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.89E-04	5.0E-07	3.8E-01	1.9E-07	Benzo(k)fluoranthene	1.55E-04	6.3E-07	3.8E-01	2.4E-07	4.3E-07
bis(2-Ethylhexyl)phthalate	9.25E-09	9.5E-12	1.4E-02	1.3E-13	bis(2-Ethylhexyl)phthalate	2.92E-09	1.2E-11	1.4E-02	1.7E-13	3.0E-13
Carbazole	1.08E-06	1.1E-09	2.0E-02	2.2E-11	Carbazole	3.42E-07	1.4E-09	2.0E-02	2.8E-11	5.0E-11
Chrysene	2.15E-05	2.2E-08	3.2E-02	7.1E-10	Chrysene	6.79E-06	2.8E-08	3.2E-02	8.9E-10	1.6E-09
Dibenzo(a,h)anthracene	1.58E-05	1.6E-08	8.1E+00	1.3E-07	Dibenzo(a,h)anthracene	5.00E-06	2.1E-08	8.1E+00	1.7E-07	3.0E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.43E-03	2.5E-06	2.0E+00	5.0E-06	Indeno(1,2,3-cd)pyrene	7.68E-04	3.2E-06	2.0E+00	6.3E-06	1.1E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	7.15E-12	7.3E-15	7.5E-03	5.5E-17	Methylene chloride	2.26E-12	9.3E-15	7.5E-03	7.0E-17	1.2E-16
Aroclor 1254	1.44E-06	1.5E-09	7.7E+00	1.1E-08	Aroclor 1254	4.54E-07	1.9E-09	7.7E+00	1.4E-08	2.6E-08
Aroclor 1260	1.01E-06	1.0E-09	7.7E+00	8.0E-09	Aroclor 1260	3.20E-07	1.3E-09	7.7E+00	1.0E-08	1.8E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	6.2E-06				Total Pathway:	7.8E-06	
FER\CR...ABQ\SBFOFFFD.XLS\1/26/94; 8:48 AM			Total Rad + Chem	6.2E-06				Total Rad + Chem	7.8E-06	*Total:* 1.4E-05

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TABLE B.3.2-13(a) (continued)

SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	7.4E-10
NP-237	4.52E-06	8.3E-03	2.2E-10	1.8E-12	NP-237	4.11E-07	3.0E-03	2.2E-10	6.7E-13	2.5E-12	6.6E-12
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.6E-14
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.2E-14
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	8.3E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	8.4E-10
SR-90	5.20E-05	9.6E-02	3.6E-11	3.4E-12	SR-90	2.60E-04	1.9E+00	3.6E-11	6.9E-11	7.2E-11	3.3E-10
TC-99	1.82E+00	3.3E+03	1.3E-12	4.3E-09	TC-99	2.14E+00	1.6E+04	1.3E-12	2.0E-08	2.5E-08	3.7E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	6.3E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	5.1E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.4E-12
U-234	8.59E-01	1.6E+03	1.6E-11	2.5E-08	U-234	2.58E+00	1.9E+04	1.6E-11	3.0E-07	3.3E-07	3.3E-07
U-235	4.58E-02	8.4E+01	1.6E-11	1.3E-09	U-235	1.37E-01	1.0E+03	1.6E-11	1.6E-08	1.8E-08	1.8E-08
U-238	9.48E-01	1.7E+03	2.8E-11	4.9E-08	U-238	2.84E+00	2.1E+04	2.8E-11	5.9E-07	6.3E-07	6.3E-07
			Total Pathway:	8.0E-08				Total Pathway:	9.3E-07		

Chemical Risk

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.8E-08
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.5E-09
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Lead	1.10E-18	1.1E-21			Lead	9.20E-19	3.8E-21				
Molybdenum	1.16E-07	1.2E-10			Molybdenum	2.89E-08	1.2E-10				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	3.38E-03	3.5E-06			U-TOTAL	1.01E-02	4.2E-05				
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	5.0E-08
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	1.3E-06
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	4.3E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	4.3E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	3.0E-13
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	5.0E-11
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.6E-09
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	3.0E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	1.1E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	1.2E-16
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	2.6E-08
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.8E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		

FUTURE OFF-PROPERTY FARMER Total Rad + Chem 8.0E-08 Total Rad + Chem 9.3E-07 *Total:* 1.0E-06 1.5E-05

FER\CRU2RI\ABQ\SBFOFFFW.XLS\1/26/94; 8:59 AM

TABLE B.3.2-13(a) (continued)

SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	6.0E-03	1.1E+01			CS-137	2.10E-03				
NP-237	7.5E-06	1.4E-02			NP-237	6.82E-07				
PU-238	3.6E-08	6.6E-05			PU-238	7.16E-09				
PU-239	1.5E-08	2.8E-05			PU-239	3.04E-09				
RA-226	4.6E-03	8.4E+00			RA-226	8.26E-03				
RA-228	5.6E-04	1.0E+00			RA-228	1.01E-03				
SR-90	1.9E-04	3.4E-01			SR-90	9.28E-04				
TC-99	8.6E-01	1.6E+03			TC-99	1.01E+00				
TH-228	1.4E-05	2.6E-02			TH-228	1.19E-05				
TH-230	4.9E-05	9.1E-02			TH-230	4.12E-05				
TH-232	1.4E-05	2.6E-02			TH-232	1.19E-05				
U-234	1.0E-03	1.9E+00			U-234	3.10E-03				
U-235	5.0E-05	9.2E-02			U-235	1.50E-04				
U-238	1.1E-03	2.0E+00								

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	8.7E-06	8.9E-09	3.0E-04	3.0E-05	Arsenic	2.6E-07	1.1E-09	3.0E-04	3.6E-06	3.3E-05
Beryllium	5.6E-07	5.8E-10	5.0E-03	1.2E-07	Beryllium	5.1E-10	2.1E-12	5.0E-03	4.2E-10	1.2E-07
Chromium	4.6E-05	4.7E-08	5.0E-03	9.4E-06	Chromium	1.2E-05	5.1E-08	5.0E-03	1.0E-05	2.0E-05
Lead	4.4E-06	4.5E-09			Lead	3.7E-06	1.5E-08			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.5E-06	3.6E-09	3.0E-03	1.2E-06	U-TOTAL	1.1E-05	4.4E-08	3.0E-03	1.5E-05	1.6E-05
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	2.0E-05	2.0E-08			Benzo(a)anthracene	6.2E-06	2.5E-08			
Benzo(a)pyrene	7.9E-05	8.2E-08			Benzo(a)pyrene	2.5E-05	1.0E-07			
Benzo(b)fluoranthene	2.0E-04	2.1E-07			Benzo(b)fluoranthene	6.5E-05	2.7E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.9E-04	5.0E-07			Benzo(k)fluoranthene	1.5E-04	6.3E-07			
bis(2-Ethylhexyl)phthalate	9.2E-09	9.5E-12	2.0E-02	4.7E-10	bis(2-Ethylhexyl)phthalate	2.9E-09	1.2E-11	2.0E-02	6.0E-10	1.1E-09
Carbazole	1.1E-06	1.1E-09			Carbazole	3.4E-07	1.4E-09			
Chrysene	2.1E-05	2.2E-08			Chrysene	6.8E-06	2.8E-08			
Dibenzo(a,h)anthracene	1.6E-05	1.6E-08			Dibenzo(a,h)anthracene	5.0E-06	2.1E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.4E-03	2.5E-06			Indeno(1,2,3-cd)pyrene	7.7E-04	3.2E-06			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	7.1E-12	7.3E-15	6.1E-02	1.2E-13	Methylene chloride	2.3E-12	9.3E-15	6.1E-02	1.5E-13	2.7E-13
Aroclor 1254	1.4E-06	1.5E-09			Aroclor 1254	4.5E-07	1.9E-09			
Aroclor 1260	1.0E-06	1.0E-09			Aroclor 1260	3.2E-07	1.3E-09			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	

Total Pathway: 4.1E-05 Total Pathway: 2.8E-05

Total Rad + Chem 4.1E-05 Total Rad + Chem 2.8E-05 *Total:* 6.9E-05

TABLE B.3.2-13(a) (continued)

SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef: Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Ingestion/Milk: Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00					
NP-237	4.5E-06	8.3E-03			NP-237	4.11E-07					
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00					
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00					
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00					
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00					
SR-90	5.2E-05	9.6E-02			SR-90	2.60E-04					
TC-99	1.8E+00	3.3E+03			TC-99	2.14E+00					
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00					
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00					
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00					
U-234	8.6E-01	1.6E+03			U-234	2.58E+00					
U-235	4.6E-02	8.4E+01			U-235	1.37E-01					
U-238	9.5E-01	1.7E+03									
	Total Pathway:	0.0E+00									

Chemical Hazard

Ingestion/Beef: Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Ingestion/Milk: Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	0.0E+00
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	0.0E+00
Lead	1.1E-18	1.1E-21			Lead	9.2E-19	3.8E-21				
Molybdenum	1.2E-07	1.2E-10	5.0E-03	2.4E-08	Molybdenum	2.9E-08	1.2E-10	5.0E-03	2.4E-08	4.8E-08	4.8E-08
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	3.4E-03	3.5E-06	3.0E-03	1.2E-03	U-TOTAL	1.0E-02	4.2E-05	3.0E-03	1.4E-02	1.5E-02	1.5E-02
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	0.0E+00
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
		Total Pathway:		1.2E-03			Total Pathway:		1.4E-02		
		Total Rad + Chem		1.2E-03			Total Rad + Chem		1.4E-02	*Total:* 1.5E-02	1.5E-02

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TABLE B.3.2-13(b)
FUTURE OFF-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	6.01E-03	3.7E-01	2.8E-11	1.0E-11	CS-137	2.10E-03	3.0E+00	2.8E-11	8.4E-11	9.4E-11
NP-237	7.51E-06	4.6E-04	2.2E-10	1.0E-13	NP-237	6.82E-07	9.7E-04	2.2E-10	2.1E-13	3.1E-13
PU-238	3.58E-08	2.2E-06	2.2E-10	4.8E-16	PU-238	7.16E-09	1.0E-05	2.2E-10	2.2E-15	2.7E-15
PU-239	1.52E-08	9.3E-07	2.3E-10	2.1E-16	PU-239	3.04E-09	4.3E-06	2.3E-10	1.0E-15	1.2E-15
RA-226	4.59E-03	2.8E-01	1.2E-10	3.4E-11	RA-226	8.26E-03	1.2E+01	1.2E-10	1.4E-09	1.4E-09
RA-228	5.59E-04	3.4E-02	1.0E-10	3.4E-12	RA-228	1.01E-03	1.4E+00	1.0E-10	1.4E-10	1.5E-10
SR-90	1.86E-04	1.1E-02	3.6E-11	4.1E-13	SR-90	9.28E-04	1.3E+00	3.6E-11	4.8E-11	4.8E-11
TC-99	8.60E-01	5.2E+01	1.3E-12	6.8E-11	TC-99	1.01E+00	1.4E+03	1.3E-12	1.9E-09	1.9E-09
TH-228	1.43E-05	8.7E-04	5.5E-11	4.8E-14	TH-228	1.19E-05	1.7E-02	5.5E-11	9.4E-13	9.8E-13
TH-230	4.95E-05	3.0E-03	1.3E-11	3.9E-14	TH-230	4.12E-05	5.9E-02	1.3E-11	7.7E-13	8.0E-13
TH-232	1.43E-05	8.7E-04	1.2E-11	1.0E-14	TH-232	1.19E-05	1.7E-02	1.2E-11	2.0E-13	2.1E-13
U-234	1.03E-03	6.3E-02	1.6E-11	1.0E-12	U-234	3.10E-03	4.4E+00	1.6E-11	7.1E-11	7.2E-11
U-235	5.00E-05	3.0E-03	1.6E-11	4.9E-14	U-235	1.50E-04	2.1E-01	1.6E-11	3.4E-12	3.5E-12
U-238	1.11E-03	6.8E-02	2.8E-11	1.9E-12	U-238	3.34E-03	4.8E+00	2.8E-11	1.3E-10	1.4E-10
			Total Pathway:	1.2E-10				Total Pathway:	3.8E-09	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	8.70E-06	1.4E-09	1.8E+00	2.4E-09	Arsenic	2.61E-07	9.7E-10	1.8E+00	1.7E-09	4.1E-09
Beryllium	5.61E-07	8.9E-11	4.3E+00	3.8E-10	Beryllium	5.05E-10	1.9E-12	4.3E+00	8.1E-12	3.9E-10
Chromium	4.58E-05	7.3E-09			Chromium	1.25E-05	4.7E-08			
Lead	4.41E-06	7.0E-10			Lead	3.68E-06	1.4E-08			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.53E-06	5.6E-10			U-TOTAL	1.06E-05	3.9E-08			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.95E-05	3.1E-09	1.1E+00	3.4E-09	Benzo(a)anthracene	6.17E-06	2.3E-08	1.1E+00	2.5E-08	2.9E-08
Benzo(a)pyrene	7.94E-05	1.3E-08	7.3E+00	9.2E-08	Benzo(a)pyrene	2.51E-05	9.4E-08	7.3E+00	6.8E-07	7.8E-07
Benzo(b)fluoranthene	2.04E-04	3.2E-08	9.0E-01	2.9E-08	Benzo(b)fluoranthene	6.45E-05	2.4E-07	9.0E-01	2.2E-07	2.5E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.89E-04	7.8E-08	3.8E-01	3.0E-08	Benzo(k)fluoranthene	1.55E-04	5.8E-07	3.8E-01	2.2E-07	2.5E-07
bis(2-Ethylhexyl)phthalate	9.25E-09	1.5E-12	1.4E-02	2.1E-14	bis(2-Ethylhexyl)phthalate	2.92E-09	1.1E-11	1.4E-02	1.5E-13	1.7E-13
Carbazole	1.08E-06	1.7E-10	2.0E-02	3.4E-12	Carbazole	3.42E-07	1.3E-09	2.0E-02	2.5E-11	2.9E-11
Chrysene	2.15E-05	3.4E-09	3.2E-02	1.1E-10	Chrysene	6.79E-06	2.5E-08	3.2E-02	8.1E-10	9.2E-10
Dibenzo(a,h)anthracene	1.58E-05	2.5E-09	8.1E+00	2.0E-08	Dibenzo(a,h)anthracene	5.00E-06	1.9E-08	8.1E+00	1.5E-07	1.7E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.43E-03	3.9E-07	2.0E+00	7.7E-07	Indeno(1,2,3-cd)pyrene	7.68E-04	2.9E-06	2.0E+00	5.7E-06	6.5E-06
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	7.15E-12	1.1E-15	7.5E-03	8.5E-18	Methylene chloride	2.26E-12	8.4E-15	7.5E-03	6.3E-17	7.2E-17
Aroclor 1254	1.44E-06	2.3E-10	7.7E+00	1.8E-09	Aroclor 1254	4.54E-07	1.7E-09	7.7E+00	1.3E-08	1.5E-08
Aroclor 1260	1.01E-06	1.6E-10	7.7E+00	1.2E-09	Aroclor 1260	3.20E-07	1.2E-09	7.7E+00	9.2E-09	1.0E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	9.5E-07				Total Pathway:	7.0E-06	

FER\CR[illegible]ABQ\SBFOFCFD.XLS\1/26/94; 8:49 AM	Total Rad + Chem	9.5E-07	Total Rad + Chem	7.0E-06	*Total:*	8.0E-06

TABLE B.3.2-13(b) (continued)

SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	4.52E-06	2.8E-04	2.2E-10	6.1E-14
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	5.20E-05	3.2E-03	3.6E-11	1.1E-13
TC-99	1.82E+00	1.1E+02	1.3E-12	1.4E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	8.59E-01	5.2E+01	1.6E-11	8.4E-10
U-235	4.58E-02	2.8E+00	1.6E-11	4.5E-11
U-238	9.48E-01	5.8E+01	2.8E-11	1.6E-09
			Total Pathway:	2.6E-09

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	4.11E-07	5.9E-04	2.2E-10	1.3E-13
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	2.60E-04	3.7E-01	3.6E-11	1.3E-11
TC-99	2.14E+00	3.1E+03	1.3E-12	4.0E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	2.58E+00	3.7E+03	1.6E-11	5.9E-08
U-235	1.37E-01	2.0E+02	1.6E-11	3.1E-09
U-238	2.84E+00	4.1E+03	2.8E-11	1.1E-07
			Total Pathway:	1.8E-07

Total	Total Dust & Groundwater Affected
0.0E+00	9.4E-11
1.9E-13	5.0E-13
0.0E+00	2.7E-15
0.0E+00	1.2E-15
0.0E+00	1.4E-09
0.0E+00	1.5E-10
1.3E-11	6.2E-11
4.1E-09	6.1E-09
0.0E+00	9.8E-13
0.0E+00	8.0E-13
0.0E+00	2.1E-13
6.0E-08	6.0E-08
3.2E-09	3.2E-09
1.2E-07	1.2E-07

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Chromium	0.00E+00	0.0E+00		
Lead	1.10E-18	1.8E-22		
Molybdenum	1.16E-07	1.8E-11		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.38E-03	5.4E-07		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00
Endrin ketone	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00
			Total Rad + Chem	2.6E-09

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Chromium	0.00E+00	0.0E+00		
Lead	9.20E-19	3.4E-21		
Molybdenum	2.89E-08	1.1E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.01E-02	3.8E-05		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00
Endrin ketone	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00
			Total Rad + Chem	1.8E-07

Total	Total Dust & Groundwater Affected
0.0E+00	4.1E-09
0.0E+00	3.9E-10
0.0E+00	2.9E-08
0.0E+00	7.8E-07
0.0E+00	2.5E-07
0.0E+00	2.5E-07
0.0E+00	1.7E-13
0.0E+00	2.9E-11
0.0E+00	9.2E-10
0.0E+00	1.7E-07
0.0E+00	6.5E-06
0.0E+00	7.2E-17
0.0E+00	1.5E-08
0.0E+00	1.0E-08
0.0E+00	0.0E+00
Total: 1.8E-07	8.2E-06

TABLE B.3.2-13(b) (continued)
FUTURE OFF-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	6.0E-03	3.7E-01			CS-137	2.10E-03	3.0E+00			
NP-237	7.5E-06	4.6E-04			NP-237	6.82E-07	9.7E-04			
PU-238	3.6E-08	2.2E-06			PU-238	7.16E-09	1.0E-05			
PU-239	1.5E-08	9.3E-07			PU-239	3.04E-09	4.3E-06			
RA-226	4.6E-03	2.8E-01			RA-226	8.26E-03	1.2E+01			
RA-228	5.6E-04	3.4E-02			RA-228	1.01E-03	1.4E+00			
SR-90	1.9E-04	1.1E-02			SR-90	9.28E-04	1.3E+00			
TC-99	8.6E-01	5.2E+01			TC-99	1.01E+00	1.4E+03			
TH-228	1.4E-05	8.7E-04			TH-228	1.19E-05	1.7E-02			
TH-230	4.9E-05	3.0E-03			TH-230	4.12E-05	5.9E-02			
TH-232	1.4E-05	8.7E-04			TH-232	1.19E-05	1.7E-02			
U-234	1.0E-03	6.3E-02			U-234	3.10E-03	4.4E+00			
U-235	5.0E-05	3.0E-03			U-235	1.50E-04	2.1E-01			
U-238	1.1E-03	6.8E-02			U-238	3.34E-03	4.8E+00			
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	8.7E-06	1.6E-08	3.0E-04	5.4E-05	Arsenic	2.6E-07	1.1E-08	3.0E-04	3.8E-05	9.2E-05
Beryllium	5.6E-07	1.0E-09	5.0E-03	2.1E-07	Beryllium	5.1E-10	2.2E-11	5.0E-03	4.4E-09	2.1E-07
Chromium	4.6E-05	8.5E-08	5.0E-03	1.7E-05	Chromium	1.2E-05	5.4E-07	5.0E-03	1.1E-04	1.3E-04
Lead	4.4E-06	8.2E-09			Lead	3.7E-06	1.6E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.5E-06	6.5E-09	3.0E-03	2.2E-06	U-TOTAL	1.1E-05	4.6E-07	3.0E-03	1.5E-04	1.6E-04
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	2.0E-05	3.6E-08			Benzo(a)anthracene	6.2E-06	2.7E-07			
Benzo(a)pyrene	7.9E-05	1.5E-07			Benzo(a)pyrene	2.5E-05	1.1E-06			
Benzo(b)fluoranthene	2.0E-04	3.8E-07			Benzo(b)fluoranthene	6.5E-05	2.8E-06			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.9E-04	9.1E-07			Benzo(k)fluoranthene	1.5E-04	6.7E-06			
bis(2-Ethylhexyl)phthalate	9.2E-09	1.7E-11	2.0E-02	8.6E-10	bis(2-Ethylhexyl)phthalate	2.9E-09	1.3E-10	2.0E-02	6.4E-09	7.2E-09
Carbazole	1.1E-06	2.0E-09			Carbazole	3.4E-07	1.5E-08			
Chrysene	2.1E-05	4.0E-08			Chrysene	6.8E-06	3.0E-07			
Dibenzo(a,h)anthracene	1.6E-05	2.9E-08			Dibenzo(a,h)anthracene	5.0E-06	2.2E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.4E-03	4.5E-06			Indeno(1,2,3-cd)pyrene	7.7E-04	3.3E-05			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	7.1E-12	1.3E-14	6.1E-02	2.2E-13	Methylene chloride	2.3E-12	9.8E-14	6.1E-02	1.6E-12	1.8E-12
Aroclor 1254	1.4E-06	2.7E-09			Aroclor 1254	4.5E-07	2.0E-08			
Aroclor 1260	1.0E-06	1.9E-09			Aroclor 1260	3.2E-07	1.4E-08			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	7.3E-05				Total Pathway:	3.0E-04	

Total Rad + Chem 7.3E-05 | Total Rad + Chem 3.0E-04 | *Total:* 3.7E-04

TABLE B.3.2-13(b) (continued)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00	0.0E+00				
NP-237	4.5E-06	2.8E-04			NP-237	4.11E-07	5.9E-04				
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00				
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00	0.0E+00				
SR-90	5.2E-05	3.2E-03			SR-90	2.60E-04	3.7E-01				
TC-99	1.8E+00	1.1E+02			TC-99	2.14E+00	3.1E+03				
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00	0.0E+00				
U-234	8.6E-01	5.2E+01			U-234	2.58E+00	3.7E+03				
U-235	4.6E-02	2.8E+00			U-235	1.37E-01	2.0E+02				
U-238	9.5E-01	5.8E+01			U-238	2.84E+00	4.1E+03				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	9.2E-05
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.1E-07
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.3E-04
Lead	1.1E-18	2.0E-21			Lead	9.2E-19	4.0E-20				
Molybdenum	1.2E-07	2.1E-10	5.0E-03	4.3E-08	Molybdenum	2.9E-08	1.3E-09	5.0E-03	2.5E-07	2.9E-07	2.9E-07
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	3.4E-03	6.3E-06	3.0E-03	2.1E-03	U-TOTAL	1.0E-02	4.4E-04	3.0E-03	1.5E-01	1.5E-01	1.5E-01
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	7.2E-09
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	1.8E-12
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
			Total Pathway:	2.1E-03				Total Pathway:	1.5E-01		
			Total Rad + Chem	2.1E-03				Total Rad + Chem	1.5E-01	*Total:* 1.5E-01	1.5E-01

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TABLE B.3.2-14(a)
FUTURE OFF-PROPERTY FARMER
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	4.69E-03	7.0E+00	2.8E-11	2.0E-10	2.0E-10
NP-237	2.15E-03	3.2E+00	2.2E-10	7.1E-10	7.1E-10
PU-238	1.10E-03	1.6E+00	2.2E-10	3.6E-10	3.6E-10
PU-239	4.67E-04	7.0E-01	2.3E-10	1.6E-10	1.6E-10
RA-226	2.83E-01	4.2E+02	1.2E-10	5.1E-08	5.1E-08
RA-228	3.57E-02	5.3E+01	1.0E-10	5.3E-09	5.3E-09
SR-90	1.18E-02	1.8E+01	3.6E-11	6.4E-10	6.4E-10
TC-99	2.22E+00	3.3E+03	1.3E-12	4.3E-09	4.3E-09
TH-228	4.04E-02	6.0E+01	5.5E-11	3.3E-09	3.3E-09
TH-230	1.27E-01	1.9E+02	1.3E-11	2.5E-09	2.5E-09
TH-232	3.66E-02	5.5E+01	1.2E-11	6.6E-10	6.6E-10
U-234	7.95E-02	1.2E+02	1.6E-11	1.9E-09	1.9E-09
U-235	3.85E-03	5.7E+00	1.6E-11	9.2E-11	9.2E-11
U-238	8.56E-02	1.3E+02	2.8E-11	3.6E-09	3.6E-09
			Total Pathway:	7.5E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	6.75E-05	5.6E-08	1.8E+00	9.9E-08	9.9E-08
Beryllium	8.65E-06	7.2E-09	4.3E+00	3.1E-08	3.1E-08
Chromium	1.28E-04	1.1E-07			
Lead	2.28E-04	1.9E-07			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.71E-04	2.3E-07			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.92E-05	4.1E-08	1.1E+00	4.5E-08	4.5E-08
Benzo(a)pyrene	8.35E-05	7.0E-08	7.3E+00	5.1E-07	5.1E-07
Benzo(b)fluoranthene	5.53E-05	4.6E-08	9.0E-01	4.2E-08	4.2E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	6.64E-05	5.5E-08	3.8E-01	2.1E-08	2.1E-08
bis(2-Ethylhexyl)phthalate	4.88E-07	4.1E-10	1.4E-02	5.7E-12	5.7E-12
Carbazole	1.62E-06	1.4E-09	2.0E-02	2.7E-11	2.7E-11
Chrysene	5.42E-05	4.5E-08	3.2E-02	1.4E-09	1.4E-09
Dibenzo(a,h)anthracene	1.71E-05	1.4E-08	8.1E+00	1.2E-07	1.2E-07
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	5.38E-05	4.5E-08	2.0E+00	9.0E-08	9.0E-08
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.57E-07	1.3E-10	7.5E-03	9.8E-13	9.8E-13
Aroclor 1254	8.19E-07	6.8E-10	7.7E+00	5.3E-09	5.3E-09
Aroclor 1260	4.78E-07	4.0E-10	7.7E+00	3.1E-09	3.1E-09
Dieldrin	9.39E-08	7.8E-11	1.6E+01	1.3E-09	1.3E-09
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	9.6E-07	
			Total Rad + Chem	1.0E-06	*Total:* 1.0E-06

TABLE B.3.2-14(a) (continued)
FUTURE OFF-PROPERTY FARMER
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)
Carcinogenic Risk

Radiation Risk						Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce							
	Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.0E-10
	NP-237	2.33E-03	3.5E+00	2.2E-10	7.7E-10	7.7E-10	1.5E-09
	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.6E-10
	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.6E-10
	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	5.1E-08
	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	5.3E-09
	SR-90	6.21E-03	9.3E+00	3.6E-11	3.3E-10	3.3E-10	9.7E-10
	TC-99	9.04E+00	1.4E+04	1.3E-12	1.8E-08	1.8E-08	2.2E-08
	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	3.3E-09
	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.5E-09
	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	6.6E-10
	U-234	1.18E+02	1.8E+05	1.6E-11	2.8E-06	2.8E-06	2.8E-06
	U-235	6.28E+00	9.4E+03	1.6E-11	1.5E-07	1.5E-07	1.5E-07
	U-238	1.30E+02	1.9E+05	2.8E-11	5.4E-06	5.4E-06	5.4E-06
				Total Pathway:	8.4E-06		

Chemical Risk							
Ingestion/Homegrown Produce							
	Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
	Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	9.9E-08
	Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	3.1E-08
	Chromium	0.00E+00	0.0E+00				
	Lead	1.02E-16	8.5E-20				
	Molybdenum	5.61E-07	4.7E-10				
	TH-TOTAL	0.00E+00	0.0E+00				
	U-TOTAL	4.64E-01	3.9E-04				
	Acenaphthylene	0.00E+00	0.0E+00				
	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	4.5E-08
	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	5.1E-07
	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	4.2E-08
	Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.1E-08
	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	5.7E-12
	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.7E-11
	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.4E-09
	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	1.2E-07
	Dibenzofuran	0.00E+00	0.0E+00				
	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	9.0E-08
	Phenanthrene	0.00E+00	0.0E+00				
	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	9.8E-13
	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	5.3E-09
	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	3.1E-09
	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	1.3E-09
	Endrin ketone	0.00E+00	0.0E+00				
				Total Pathway:	0.0E+00		
				Total Rad + Chem	8.4E-06	*Total:* 8.4E-06	9.5E-06

TABLE B.3.2-14(a) (continued)
FUTURE OFF-PROPERTY FARMER
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	4.7E-03	7.0E+00			
NP-237	2.2E-03	3.2E+00			
PU-238	1.1E-03	1.6E+00			
PU-239	4.7E-04	7.0E-01			
RA-226	2.8E-01	4.2E+02			
RA-228	3.6E-02	5.3E+01			
SR-90	1.2E-02	1.8E+01			
TC-99	2.2E+00	3.3E+03			
TH-228	4.0E-02	6.0E+01			
TH-230	1.3E-01	1.9E+02			
TH-232	3.7E-02	5.5E+01			
U-234	8.0E-02	1.2E+02			
U-235	3.8E-03	5.7E+00			
U-238	8.6E-02	1.3E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	6.8E-05	5.6E-08	3.0E-04	1.9E-04	1.9E-04
Beryllium	8.6E-06	7.2E-09	5.0E-03	1.4E-06	1.4E-06
Chromium	1.3E-04	1.1E-07	5.0E-03	2.1E-05	2.1E-05
Lead	2.3E-04	1.9E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	2.3E-07	3.0E-03	7.6E-05	7.6E-05
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	4.9E-05	4.1E-08			
Benzo(a)pyrene	8.3E-05	7.0E-08			
Benzo(b)fluoranthene	5.5E-05	4.6E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.6E-05	5.5E-08			
bis(2-Ethylhexyl)phthalate	4.9E-07	4.1E-10	2.0E-02	2.0E-08	2.0E-08
Carbazole	1.6E-06	1.4E-09			
Chrysene	5.4E-05	4.5E-08			
Dibenzo(a,h)anthracene	1.7E-05	1.4E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	5.4E-05	4.5E-08			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	1.6E-07	1.3E-10	6.1E-02	2.2E-09	2.2E-09
Aroclor 1254	8.2E-07	6.8E-10			
Aroclor 1260	4.8E-07	4.0E-10			
Dieldrin	9.4E-08	7.8E-11	5.0E-05	1.6E-06	1.6E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	2.9E-04	
			Total Rad + Chem	2.9E-04	*Total:* 2.9E-04

TABLE B.3.2-14(a) (continued)
FUTURE OFF-PROPERTY FARMER
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				0.0E+00
NP-237	2.3E-03	3.5E+00				0.0E+00
PU-238	0.0E+00	0.0E+00				0.0E+00
PU-239	0.0E+00	0.0E+00				0.0E+00
RA-226	0.0E+00	0.0E+00				0.0E+00
RA-228	0.0E+00	0.0E+00				0.0E+00
SR-90	6.2E-03	9.3E+00				0.0E+00
TC-99	9.0E+00	1.4E+04				0.0E+00
TH-228	0.0E+00	0.0E+00				0.0E+00
TH-230	0.0E+00	0.0E+00				0.0E+00
TH-232	0.0E+00	0.0E+00				0.0E+00
U-234	1.2E+02	1.8E+05				0.0E+00
U-235	6.3E+00	9.4E+03				0.0E+00
U-238	1.3E+02	1.9E+05				0.0E+00
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.9E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.4E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.1E-05
Lead	1.0E-16	8.5E-20				
Molybdenum	5.6E-07	4.7E-10	5.0E-03	9.4E-08	9.4E-08	9.4E-08
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	4.6E-01	3.9E-04	3.0E-03	1.3E-01	1.3E-01	1.3E-01
Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.0E-08
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	2.2E-09
Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	1.6E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
			Total Pathway:	1.3E-01		
			Total Rad + Chem	1.3E-01	*Total:* 1.3E-01	1.3E-01

TABLE B.3.2-14(b)
FUTURE OFF-PROPERTY CHILD
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	4.69E-03	5.2E-01	2.8E-11	1.5E-11	1.5E-11
NP-237	2.15E-03	2.4E-01	2.2E-10	5.3E-11	5.3E-11
PU-238	1.10E-03	1.2E-01	2.2E-10	2.7E-11	2.7E-11
PU-239	4.67E-04	5.2E-02	2.3E-10	1.2E-11	1.2E-11
RA-226	2.83E-01	3.2E+01	1.2E-10	3.8E-09	3.8E-09
RA-228	3.57E-02	4.0E+00	1.0E-10	4.0E-10	4.0E-10
SR-90	1.18E-02	1.3E+00	3.6E-11	4.7E-11	4.7E-11
TC-99	2.22E+00	2.5E+02	1.3E-12	3.2E-10	3.2E-10
TH-228	4.04E-02	4.5E+00	5.5E-11	2.5E-10	2.5E-10
TH-230	1.27E-01	1.4E+01	1.3E-11	1.8E-10	1.8E-10
TH-232	3.66E-02	4.1E+00	1.2E-11	4.9E-11	4.9E-11
U-234	7.95E-02	8.9E+00	1.6E-11	1.4E-10	1.4E-10
U-235	3.85E-03	4.3E-01	1.6E-11	6.8E-12	6.8E-12
U-238	8.56E-02	9.5E+00	2.8E-11	2.7E-10	2.7E-10
			Total Pathway:	5.5E-09	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	6.75E-05	2.0E-08	1.8E+00	3.4E-08	3.4E-08
Beryllium	8.65E-06	2.5E-09	4.3E+00	1.1E-08	1.1E-08
Chromium	1.28E-04	3.7E-08			
Lead	2.28E-04	6.6E-08			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.71E-04	7.9E-08			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.92E-05	1.4E-08	1.1E+00	1.6E-08	1.6E-08
Benzo(a)pyrene	8.35E-05	2.4E-08	7.3E+00	1.8E-07	1.8E-07
Benzo(b)fluoranthene	5.53E-05	1.6E-08	9.0E-01	1.4E-08	1.4E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	6.64E-05	1.9E-08	3.8E-01	7.3E-09	7.3E-09
bis(2-Ethylhexyl)phthalate	4.88E-07	1.4E-10	1.4E-02	2.0E-12	2.0E-12
Carbazole	1.62E-06	4.7E-10	2.0E-02	9.4E-12	9.4E-12
Chrysene	5.42E-05	1.6E-08	3.2E-02	5.0E-10	5.0E-10
Dibenzo(a,h)anthracene	1.71E-05	5.0E-09	8.1E+00	4.0E-08	4.0E-08
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	5.38E-05	1.6E-08	2.0E+00	3.1E-08	3.1E-08
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.57E-07	4.6E-11	7.5E-03	3.4E-13	3.4E-13
Aroclor 1254	8.19E-07	2.4E-10	7.7E+00	1.8E-09	1.8E-09
Aroclor 1260	4.78E-07	1.4E-10	7.7E+00	1.1E-09	1.1E-09
Dieldrin	9.39E-08	2.7E-11	1.6E+01	4.4E-10	4.4E-10
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	3.3E-07	
			Total Rad + Chem	3.4E-07	*Total:* 3.4E-07

TABLE B.3.2-14(b) (continued)

SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk — Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.5E-11
NP-237	2.33E-03	2.6E-01	2.2E-10	5.7E-11	5.7E-11	1.1E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.7E-11
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.2E-11
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.8E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	4.0E-10
SR-90	6.21E-03	6.9E-01	3.6E-11	2.5E-11	2.5E-11	7.2E-11
TC-99	9.04E+00	1.0E+03	1.3E-12	1.3E-09	1.3E-09	1.6E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.5E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.8E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	4.9E-11
U-234	1.18E+02	1.3E+04	1.6E-11	2.1E-07	2.1E-07	2.1E-07
U-235	6.28E+00	7.0E+02	1.6E-11	1.1E-08	1.1E-08	1.1E-08
U-238	1.30E+02	1.4E+04	2.8E-11	4.1E-07	4.1E-07	4.1E-07
			Total Pathway:	6.3E-07		

Chemical Risk — Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	3.4E-08
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.1E-08
Chromium	0.00E+00	0.0E+00				
Lead	1.02E-16	3.0E-20				
Molybdenum	5.61E-07	1.6E-10				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	4.64E-01	1.3E-04				
Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	1.6E-08
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	1.8E-07
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	1.4E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	7.3E-09
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	2.0E-12
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	9.4E-12
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	5.0E-10
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	4.0E-08
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	3.1E-08
Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	3.4E-13
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.8E-09
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.1E-09
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	4.4E-10
Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	6.3E-07	*Total:* 6.3E-07	9.7E-07

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TABLE B.3.2-14(b) (continued)
FUTURE OFF-PROPERTY CHILD
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	4.7E-03	5.2E-01			
NP-237	2.2E-03	2.4E-01			
PU-238	1.1E-03	1.2E-01			
PU-239	4.7E-04	5.2E-02			
RA-226	2.8E-01	3.2E+01			
RA-228	3.6E-02	4.0E+00			
SR-90	1.2E-02	1.3E+00			
TC-99	2.2E+00	2.5E+02			
TH-228	4.0E-02	4.5E+00			
TH-230	1.3E-01	1.4E+01			
TH-232	3.7E-02	4.1E+00			
U-234	8.0E-02	8.9E+00			
U-235	3.8E-03	4.3E-01			
U-238	8.6E-02	9.5E+00			
			Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	6.8E-05	2.3E-07	3.0E-04	7.6E-04	7.6E-04
Beryllium	8.6E-06	2.9E-08	5.0E-03	5.9E-06	5.9E-06
Chromium	1.3E-04	4.3E-07	5.0E-03	8.7E-05	8.7E-05
Lead	2.3E-04	7.7E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	9.2E-07	3.0E-03	3.1E-04	3.1E-04
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	4.9E-05	1.7E-07			
Benzo(a)pyrene	8.3E-05	2.8E-07			
Benzo(b)fluoranthene	5.5E-05	1.9E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.6E-05	2.2E-07			
bis(2-Ethylhexyl)phthalate	4.9E-07	1.7E-09	2.0E-02	8.3E-08	8.3E-08
Carbazole	1.6E-06	5.5E-09			
Chrysene	5.4E-05	1.8E-07			
Dibenzo(a,h)anthracene	1.7E-05	5.8E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	5.4E-05	1.8E-07			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	1.6E-07	5.3E-10	6.1E-02	8.7E-09	8.7E-09
Aroclor 1254	8.2E-07	2.8E-09			
Aroclor 1260	4.8E-07	1.6E-09			
Dieldrin	9.4E-08	3.2E-10	5.0E-05	6.4E-06	6.4E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	1.2E-03	
			Total Rad + Chem	1.2E-03	*Total:* 1.2E-03

TABLE B.3.2-14(b) (continued)

SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	2.3E-03	2.6E-01				
PU-238	0.0E+00	0.0E+00				
PU-239	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	6.2E-03	6.9E-01				
TC-99	9.0E+00	1.0E+03				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	1.2E+02	1.3E+04				
U-235	6.3E+00	7.0E+02				
U-238	1.3E+02	1.4E+04				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	7.6E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.9E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	8.7E-05
Lead	1.0E-16	3.5E-19				
Molybdenum	5.6E-07	1.9E-09	5.0E-03	3.8E-07	3.8E-07	3.8E-07
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	4.6E-01	1.6E-03	3.0E-03	5.2E-01	5.2E-01	5.2E-01
Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	8.3E-08
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	8.7E-09
Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	6.4E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
			Total Pathway:	5.2E-01		
			Total Rad + Chem	5.2E-01	*Total:* 5.2E-01	5.3E-01

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TABLE B.3-15(a)
FUTURE, OFF-PROPERTY FARMER
SOUTH FIELD: GROUNDWATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk
NP-237	4.6E-04	2.2E+01	2.2E-10	4.9E-09
RA-226	0	0.0E+00	1.2E-10	0.0E+00
RA-228	0	0.0E+00	1.0E-10	0.0E+00
SR-90	9.3E-04	4.6E+01	3.6E-11	1.6E-09
TC-99	9.8E-01	4.8E+04	1.3E-12	6.2E-08
U234	24	1.2E+06	1.6E-11	1.9E-05
U235/236	1.3	6.3E+04	1.6E-11	1.0E-06
U238	26.5	1.3E+06	2.8E-11	3.6E-05

Total Pathway: 5.6E-05

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	SF(o)	Risk
Arsenic	0	0.0E+00	1.8E+00	0.0E+00
Beryllium	0	0.0E+00	4.3E+00	0.0E+00
Cadmium	2.7E-10	7.5E-12		
Lead	2.05E-17	5.6E-19		
Mercury	0	0.0E+00		
Molybdenum	1.04E-07	2.8E-09		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00
U-Total	9.5E-02	2.6E-03		

Total Pathway: 0.0E+00

Inhalation/Groundwater

Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	2.8E-11		
Lead	2.1E-18		
Mercury	0.0E+00		
Molybdenum	1.1E-08		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	9.7E-03		

Total Pathway: 0.0E+00

Total Rad + Chem 5.6E-05

Total Rad + Chem 0.0E+00

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TABLE B.3.15(a) (continued)

CARCINOGENIC RISK

Radiation Risk				Total
Dermal Contact/Groundwater				
Not applicable				4.9E-09
				0.0E+00
				0.0E+00
				1.6E-09
				6.2E-08
				1.9E-05
				1.0E-06
				3.6E-05
		Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	5.5E-14			
Lead	1.6E-23			
Mercury	0.0E+00			
Molybdenum	2.1E-11			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	1.9E-05			
		Total Pathway:	0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 5.6E-05

TABLE B.3.15(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	4.6E-04	2.2E+01		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
SR-90	9.3E-04	4.6E+01		
TC-99	9.8E-01	4.8E+04		
U234	2.4E+01	1.2E+06		
U235/236	1.3E+00	6.3E+04		
U238	2.7E+01	1.3E+06		

Total Pathway: 0.0E+00

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	2.7E-10	7.5E-12	5.0E-04	1.5E-08
Lead	2.1E-17	5.6E-19		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Molybdenum	1.0E-07	2.8E-09	5.0E-03	5.7E-07
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		
U-Total	9.5E-02	2.6E-03	3.0E-03	8.6E-01

Total Pathway: 8.6E-01

Inhalation/Groundwater

Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	2.8E-11		
Lead	2.1E-18		
Mercury	0.0E+00		
Molybdenum	1.1E-08		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	9.7E-03		

Total Pathway: 0.0E+00

Total Rad + Chem 8.6E-01

Total Rad + Chem 0.0E+00

TABLE B.3.15(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard	
Dermal Contact/Groundwater	Total
Not applicable	
Total Pathway:	0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	5.5E-14	2.5E-05	2.2E-09	1.7E-08
Lead	1.6E-23			
Mercury	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	2.1E-11	1.9E-03	1.1E-08	5.8E-07
Tetrachlorodibenzofuran	0.0E+00			
U-Total	1.9E-05	1.5E-04	1.3E-01	9.9E-01
Total Pathway:			1.3E-01	

Total Rad + Chem	1.3E-01	*Total:*	9.9E-01

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TABLE B.3.3-15(b)

FUTURE, OFF-PROPERTY CHILD

SOUTH FIELD: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	4.6E-04	9.6E-01	2.2E-10	2.1E-10	Not applicable
RA-226	0	0.0E+00	1.2E-10	0.0E+00	
RA-228	0	0.0E+00	1.0E-10	0.0E+00	
SR-90	9.3E-04	2.0E+00	3.6E-11	7.0E-11	
TC-99	0.98	2.1E+03	1.3E-12	2.7E-09	
U234	24	5.0E+04	1.6E-11	8.1E-07	
U235/236	1.28	2.7E+03	1.6E-11	4.3E-08	
U238	26.5	5.6E+04	2.8E-11	1.6E-06	
			Total Pathway:	2.4E-06	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	2.7E-10	1.5E-12			Cadmium	1.1E-11		
Lead	2.05E-17	1.1E-19			Lead	8.4E-19		
Mercury	0	0.0E+00			Mercury	0.0E+00		
Molybdenum	1.04E-07	5.7E-10			Molybdenum	4.3E-09		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	9.5E-02	5.2E-04			U-Total	3.9E-03		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	2.4E-06			Total Rad + Chem	0.0E+00

TABLE B.3.3-15(b) (continued)

CARCINOGENIC RISK

Radiation Risk		Total
Dermal Contact/Groundwater		
Not applicable		2.1E-10
		0.0E+00
		0.0E+00
		7.0E-11
		2.7E-09
		8.1E-07
		4.3E-08
		1.6E-06
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	7.6E-15			
Lead	2.3E-24			0.0E+00
Mercury	0.0E+00			0.0E+00
Molybdenum	2.9E-12			0.0E+00
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	2.6E-06			
Total Pathway:			0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 2.4E-06

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	4.6E-04	9.6E-01		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
SR-90	9.3E-04	2.0E+00		
TC-99	9.8E-01	2.1E+03		
U234	2.4E+01	5.0E+04		
U235/236	1.3E+00	2.7E+03		
U238	2.7E+01	5.6E+04		

Total Pathway: 0.0E+00

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	2.7E-10	1.8E-11	5.0E-04	3.5E-08
Lead	2.1E-17	1.3E-18		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Molybdenum	1.0E-07	6.6E-09	5.0E-03	1.3E-06
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		
U-Total	9.5E-02	6.0E-03	3.0E-03	2.0E+00

Total Pathway: 2.0E+00

Inhalation/Groundwater

Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	1.3E-10		
Lead	9.8E-18		
Mercury	0.0E+00		
Molybdenum	5.0E-08		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	4.5E-02		

Total Pathway: 0.0E+00

Total Rad + Chem 2.0E+00

Total Rad + Chem 0.0E+00

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TABLE B.3.3-15(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard	
Dermal Contact/Groundwater	**Total**
Not applicable	
Total Pathway:	0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	8.9E-14	2.5E-05	3.5E-09	3.9E-08
Lead	2.7E-23			
Mercury	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	3.4E-11	1.9E-03	1.8E-08	1.3E-06
Tetrachlorodibenzofuran	0.0E+00			
U-Total	3.1E-05	1.5E-04	4.6E-09	2.0E+00
Total Pathway:			2.6E-08	

Total Rad + Chem 2.6E-08 *Total:* 2.0E+00

TABLE B.3.2-16
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	onc'n in Air (pCi/m	Intake	SF(i)	Risk
CS-137	1.8E-04	6.4E-01	1.9E-11	1.2E-11
NP-237	8.2E-05	2.9E-01	2.9E-08	8.5E-09
PU-238	4.3E-05	1.5E-01	3.9E-08	6.0E-09
PU-239/240	1.8E-05	6.5E-02	3.8E-08	2.5E-09
RA-226	1.1E-02	3.9E+01	3.0E-09	1.2E-07
RA-228	1.4E-03	5.0E+00	6.9E-10	3.4E-09
SR-90	3.6E-04	1.3E+00	6.2E-11	7.9E-11
TC-99	5.1E-02	1.8E+02	8.3E-12	1.5E-09
TH-228	1.6E-03	5.6E+00	7.8E-08	4.4E-07
TH-230	4.9E-03	1.8E+01	2.9E-08	5.1E-07
TH-232	1.4E-03	5.1E+00	2.8E-08	1.4E-07
U-234	3.1E-03	1.1E+01	2.6E-08	2.9E-07
U-235/236	1.5E-04	5.4E-01	2.5E-08	1.3E-08
U-238	3.3E-03	1.2E+01	5.2E-08	6.2E-07
			Total Pathway:	2.2E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.50	1.9E-02	2.8E-11	5.2E-13
NP-237	0.23	8.5E-03	2.2E-10	1.9E-12
PU-238	0.12	4.5E-03	2.2E-10	9.8E-13
PU-239/240	0.05	1.9E-03	2.3E-10	4.4E-13
RA-226	30.80	1.1E+00	1.2E-10	1.4E-10
RA-228	3.88	1.4E-01	1.0E-10	1.4E-11
SR-90	1.00	3.7E-02	3.6E-11	1.3E-12
TC-99	142.00	5.3E+00	1.3E-12	6.9E-12
TH-228	4.41	1.6E-01	5.5E-11	9.0E-12
TH-230	13.80	5.1E-01	1.3E-11	6.7E-12
TH-232	3.99	1.5E-01	1.2E-11	1.8E-12
U-234	8.66	3.2E-01	1.6E-11	5.2E-12
U-235/236	0.42	1.6E-02	1.6E-11	2.5E-13
U-238	9.31	3.5E-01	2.8E-11	9.7E-12
			Total Pathway:	2.0E-10

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.6E-06	7.2E-09	1.5E+00	1.1E-08
Beryllium	3.4E-07	9.3E-10	8.4E+00	7.8E-09
Chromium	5.0E-06	1.4E-08	4.1E+01	5.6E-07
Lead	8.8E-06	2.4E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.1E-05	2.9E-08		
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	2.0E-06	5.5E-09	8.9E-01	4.9E-09
Benzo(a)pyrene	3.4E-06	9.3E-09	6.1E+00	5.7E-08
Benzo(b)fluoranthene	2.2E-06	6.1E-09	7.5E-01	4.6E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	2.6E-06	7.2E-09	3.2E-01	2.3E-09
bis(2-Ethylhexyl) phthalate	3.9E-08	1.1E-10		
Carbazole	6.1E-08	1.7E-10		
Chrysene	2.2E-06	5.9E-09	2.7E-02	1.6E-10
Dibenzo(a,h)anthracene	6.8E-07	1.9E-09	6.8E+00	1.3E-08
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.2E-06	5.9E-09	1.7E+00	1.0E-08
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	1.8E-09	5.0E-12	2.0E-03	9.9E-15
Aroclor-1254	3.2E-08	8.8E-11		
Aroclor-1260	1.9E-08	5.1E-11		
Dieldrin	3.6E-09	9.9E-12	1.6E+01	1.6E-10
Endrin ketone	0.0E+00	0.0E+00		
			Total Pathway:	6.8E-07
			Total Rad + Chem	2.8E

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	1.9E-07	1.8E+00	3.4E-07
Beryllium	0.94	2.5E-08	4.3E+00	1.1E-07
Chromium	13.90	3.7E-07		
Lead	24.58	6.6E-07		
TH-TOTAL	36.70	9.8E-07		
U-TOTAL	29.58	7.9E-07		
Acenaphthylene	1.20	3.2E-08		
Benzo(a)anthracene	5.50	1.5E-07	1.1E+00	1.6E-07
Benzo(a)pyrene	9.40	2.5E-07	7.3E+00	1.8E-06
Benzo(b)fluoranthene	6.20	1.7E-07	9.0E-01	1.5E-07
Benzo(g,h,i)perylene	6.20	1.7E-07		
Benzo(k)fluoranthene	7.30	1.9E-07	3.8E-01	7.4E-08
bis(2-Ethylhexyl) phthalate	0.11	2.9E-09	1.4E-02	4.1E-11
Carbazole	0.17	4.5E-09	2.0E-02	9.1E-11
Chrysene	6.00	1.6E-07	3.2E-02	5.1E-09
Dibenzo(a,h)anthracene	1.90	5.1E-08	8.1E+00	4.1E-07
Dibenzofuran	0.13	3.5E-09		
Indeno(1,2,3-cd)pyrene	6.00	1.6E-07	2.0E+00	3.2E-07
Phenanthrene	2.30	6.1E-08		
Methylene chloride	0.01	1.3E-10	7.5E-03	1.0E-12
Aroclor-1254	0.09	2.4E-09	7.7E+00	1.8E-08
Aroclor-1260	0.05	1.4E-09	7.7E+00	1.1E-08
Dieldrin	0.01	2.6E-10	1.6E+01	4.1E-09
Endrin ketone	0.01	1.6E-10		
			Total Pathway:	3.4E-06
			Total Rad + Chem	3.4E-06

TABLE B.3.2-16 (continued)
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	2.0E-01	2.0E-06	3.9E-07	3.9E-07
	NP-237	9.0E-02	4.3E-07	3.9E-08	4.7E-08
	PU-238	4.7E-02	2.8E-11	1.3E-12	6.0E-09
	PU-239/240	2.0E-02	2.7E-11	5.4E-13	2.5E-09
	RA-226	1.2E+01	1.2E-08	1.5E-07	2.6E-07
	RA-228	1.5E+00	2.90E-06	4.4E-06	4.4E-06
	SR-90	3.9E-01	0.0E+00	0.0E+00	8.1E-11
	TC-99	5.6E+01	6.0E-13	3.3E-11	1.5E-09
	TH-228	1.7E+00	5.6E-06	9.7E-06	1.0E-05
	TH-230	5.4E+00	5.4E-11	2.9E-10	5.1E-07
	TH-232	1.6E+00	2.6E-11	4.1E-11	1.4E-07
	U-234	3.4E+00	3.0E-11	1.0E-10	2.9E-07
	U-235/236	1.6E-01	2.4E-07	3.9E-08	5.3E-08
	U-238	3.7E+00	3.6E-08	1.3E-07	7.5E-07
Total Pathway: 0.0E+00			Total Pathway:	1.5E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	7.6E-08	1.8E+00	1.4E-07					4.9E-07
Beryllium	9.8E-08	4.30E+02	4.2E-05					4.2E-05
Chromium	1.4E-06							5.6E-07
Lead	2.6E-06			Not applicable				
TH-TOTAL	0.0E+00							
U-TOTAL	3.1E-06							
Acenaphthylene	3.7E-06							
Benzo(a)anthracene	0.0E+00	2.56E+00	0.0E+00					1.7E-07
Benzo(a)pyrene	0.0E+00	1.70E+01	0.0E+00					1.9E-06
Benzo(b)fluoranthene	0.0E+00	2.09E+00	0.0E+00					1.5E-07
Benzo(g,h,i)perylene	1.9E-05							
Benzo(k)fluoranthene	0.0E+00	8.84E-01	0.0E+00					7.6E-08
bis(2-Ethylhexyl) phthalate	4.6E-09	1.56E-02	7.1E-11					1.1E-10
Carbazole	0.0E+00	2.00E-02	0.0E+00					9.1E-11
Chrysene	0.0E+00	7.44E-02	0.0E+00					5.3E-09
Dibenzo(a,h)anthracene	0.0E+00	1.88E+01	0.0E+00					4.2E-07
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.65E+00	0.0E+00					3.3E-07
Phenanthrene	7.2E-06							
Methylene chloride	2.1E-08	7.50E-03	1.6E-10					1.6E-10
Aroclor-1254	2.8E-07	1.03E+01	2.8E-06					2.9E-06
Aroclor-1260	1.6E-07	1.03E+01	1.7E-06					1.7E-06
Dieldrin	3.0E-08	1.78E+01	5.4E-07					5.4E-07
Endrin ketone	0.0E+00							
	Total Pathway:		4.7E-05		Total Pathway:		0.0E+00	
	Total Rad + Chem		4.7E-05		Total Rad + Chem		1.5E-05	*Total:* 6.8E-05

TABLE B.3.2-16 (continued)
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.8E-04	6.4E-01		
NP-237	8.2E-05	2.9E-01		
PU-238	4.3E-05	1.5E-01		
PU-239/240	1.8E-05	6.5E-02		
RA-226	1.1E-02	3.9E+01		
RA-228	1.4E-03	5.0E+00		
SR-90	3.6E-04	1.3E+00		
TC-99	5.1E-02	1.8E+02		
TH-228	1.6E-03	5.6E+00		
TH-230	4.9E-03	1.8E+01		
TH-232	1.4E-03	5.1E+00		
U-234	3.1E-03	1.1E+01		
U-235/236	1.5E-04	5.4E-01		
U-238	3.3E-03	1.2E+01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	1.9E-02		
NP-237	0.23	8.5E-03		
PU-238	0.12	4.5E-03		
PU-239/240	0.05	1.9E-03		
RA-226	30.80	1.1E+00		
RA-228	3.88	1.4E-01		
SR-90	1.00	3.7E-02		
TC-99	142.00	5.3E+00		
TH-228	4.41	1.6E-01		
TH-230	13.80	5.1E-01		
TH-232	3.99	1.5E-01		
U-234	8.66	3.2E-01		
U-235/236	0.42	1.6E-02		
U-238	9.31	3.5E-01		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.60E-06	3.5E-08		
Beryllium	3.37E-07	4.5E-09		
Chromium	4.98E-06	6.6E-08		
Lead	8.80E-06	1.2E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.06E-05	1.4E-07		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	1.97E-06	2.6E-08		
Benzo(a)pyrene	3.37E-06	4.5E-08		
Benzo(b)fluoranthene	2.22E-06	3.0E-08		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	2.61E-06	3.5E-08		
bis(2-Ethylhexyl) phthalate	3.94E-08	5.2E-10		
Carbazole	6.09E-08	8.1E-10		
Chrysene	2.15E-06	2.9E-08		
Dibenzo(a,h)anthracene	6.80E-07	9.1E-09		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.15E-06	2.9E-08		
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	1.79E-09	2.4E-11	8.2E-01	2.9E-11
Aroclor-1254	3.19E-08	4.3E-10		
Aroclor-1260	1.86E-08	2.5E-10		
Dieldrin	3.58E-09	4.8E-11		
Endrin ketone	0.00E+00	0.0E+00		

Total Pathway: 2.9E-11

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.27	8.2E-07	3.0E-04	2.7E-03
Beryllium	0.94	1.1E-07	5.0E-03	2.1E-05
Chromium	13.90	1.6E-06	5.0E-03	3.1E-04
Lead	24.58	2.8E-06		
TH-TOTAL	36.70	4.1E-06		
U-TOTAL	29.58	3.3E-06	3.0E-03	1.1E-03
Acenaphthylene	1.20	1.4E-07		
Benzo(a)anthracene	5.50	6.2E-07		
Benzo(a)pyrene	9.40	1.1E-06		
Benzo(b)fluoranthene	6.20	7.0E-07		
Benzo(g,h,i)perylene	6.20	7.0E-07		
Benzo(k)fluoranthene	7.30	8.3E-07		
bis(2-Ethylhexyl) phthalate	0.11	1.2E-08	2.0E-02	6.2E-07
Carbazole	0.17	1.9E-08		
Chrysene	6.00	6.8E-07		
Dibenzo(a,h)anthracene	1.90	2.1E-07		
Dibenzofuran	0.13	1.5E-08	4.0E-03	3.7E-06
Indeno(1,2,3-cd)pyrene	6.00	6.8E-07		
Phenanthrene	2.30	2.6E-07		
Methylene chloride	0.01	5.7E-10	6.1E-02	9.3E-09
Aroclor-1254	0.09	1.0E-08		
Aroclor-1260	0.05	5.9E-09		
Dieldrin	0.01	1.1E-09	5.0E-05	2.2E-05
Endrin ketone	0.01	6.7E-10	3.0E-04	2.2E-06

Total Pathway: 4.2E-03

Total Rad + Chem 4.2E-03

TABLE B.3.2-16 (continued)
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	Hazard	
Not applicable	CS-137	2.0E-01			
	NP-237	9.0E-02			
	PU-238	4.7E-02			
	PU-239/240	2.0E-02			
	RA-226	1.2E+01			
	RA-228	1.5E+00			
	SR-90	3.9E-01			
	TC-99	5.6E+01			
	TH-228	1.7E+00			
	TH-230	5.4E+00			
	TH-232	1.6E+00			
	U-234	3.4E+00			
	U-235/236	1.6E-01			
	U-238	3.7E+00			
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	3.0E-07	2.9E-04	1.0E-03					3.8E-03
Beryllium	3.9E-07	5.0E-05	7.8E-03					7.8E-03
Chromium	5.7E-06	2.3E-03	2.5E-03					2.9E-03
Lead	1.0E-05			Not applicable				
TH-TOTAL	0.0E+00							
U-TOTAL	1.2E-05	1.5E-04	8.1E-02					8.2E-02
Acenaphthylene	1.5E-05							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	7.7E-05							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	1.8E-08	1.8E-02	1.0E-06					1.6E-06
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					3.7E-06
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	2.8E-05							
Methylene chloride	8.2E-08	6.1E-02	1.3E-06					1.4E-06
Aroclor-1254	1.1E-06							
Aroclor-1260	6.4E-07							
Dieldrin	1.2E-07	4.5E-05	2.7E-03					2.7E-03
Endrin ketone	7.3E-08	2.7E-04	2.7E-04					2.7E-04
	Total Pathway:		9.5E-02		Total Pathway:		0.0E+00	
	Total Rad + Chem		9.5E-02		Total Rad + Chem		0.0E+00	*Total:* 1.0E-01

TABLE B.3.2-17
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SEDIMENT
Carcinogenic Risk

Radiation Risk

Ingestion/Sediment					Dermal Contact/Sediment	External Radiation/Sediment			Total
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk		Compound	Intake	SF(e)	Risk	
CS-137	0.400	1.1E-02	2.8E-11	3.0E-13		CS-137	8.0E-02	2.0E-06	1.6E-07	1.6E-07
NP-237	0.420	1.1E-02	2.2E-10	2.5E-12	Not applicable	NP-237	8.4E-02	4.3E-07	3.6E-08	3.6E-08
PU-238	1.900	5.1E-02	2.2E-10	1.1E-11		PU-238	3.8E-01	2.8E-11	1.1E-11	2.2E-11
PU-239/240	0.370	9.9E-03	2.3E-10	2.3E-12		PU-239/24	7.4E-02	2.7E-11	2.0E-12	4.3E-12
RA-226	2.960	7.9E-02	1.2E-10	9.5E-12		RA-226	5.9E-01	1.2E-08	7.1E-09	7.1E-09
RA-228	2.530	6.8E-02	1.0E-10	6.8E-12		RA-228	5.1E-01	2.9E-06	1.5E-06	1.5E-06
RU-106	0.000	0.0E+00	9.0E-12	0.0E+00		RU-106	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SR-90	1.010	2.7E-02	3.6E-11	9.7E-13		SR-90	2.0E-01	0.0E+00	0.0E+00	9.7E-13
TC-99	0.000	0.0E+00	1.3E-12	0.0E+00		TC-99	0.0E+00	6.0E-13	0.0E+00	0.0E+00
TH-228	2.800	7.5E-02	5.5E-11	4.1E-12		TH-228	5.6E-01	5.6E-06	3.2E-06	3.2E-06
TH-230	8.960	2.4E-01	1.3E-11	3.1E-12		TH-230	1.8E+00	5.4E-11	9.7E-11	1.0E-10
TH-232	2.570	6.9E-02	1.2E-11	8.3E-13		TH-232	5.2E-01	2.6E-11	1.3E-11	1.4E-11
U-234	7.950	2.1E-01	1.6E-11	3.4E-12		U-234	1.6E+00	3.0E-11	4.8E-11	5.1E-11
U-235/236	0.410	1.1E-02	1.6E-11	1.8E-13		U-235/236	8.2E-02	2.4E-07	2.0E-08	2.0E-08
U-238	8.750	2.3E-01	2.8E-11	6.6E-12		U-238	1.8E+00	3.6E-08	6.3E-08	6.3E-08
			Total Pathway:	5.2E-11	Total Pathway: 0.0E+00			Total Pathway:	4.9E-06	

Chemical Risk

Ingestion/Sediment					Dermal Contact/Sediment				External Radiation/Sediment				
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(e)	Risk	
Arsenic	75.6	1.3E-06	1.8E+00	2.3E-06	Arsenic	5.4E-07	1.8E+00	1.0E-06					3.3E-06
Beryllium	4.600	7.9E-08	4.3E+00	3.4E-07	Beryllium	3.3E-07	4.3E+02	1.4E-04					1.4E-04
Chromium	19.2	3.3E-07			Chromium	1.4E-06							
Cobalt	19.4	3.3E-07			Cobalt	1.4E-06							
Lead	91.5	1.6E-06			Lead	6.6E-06							
Manganese	896.0	1.5E-05			Manganese	6.4E-05							
TH-TOTAL	23.4	4.0E-07			TH-TOTAL	0.0E+00							
Thallium	4.400	7.5E-08			Thallium	3.2E-07							
U-TOTAL	30.1	5.1E-07			U-TOTAL	2.2E-06							
Benzo(a)anthracene	0.066	1.1E-09	1.1E+00	1.2E-09	Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					1.2E-09
Benzo(a)pyrene	0.110	1.9E-09	7.3E+00	1.4E-08	Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					1.4E-08
Benzo(b)fluoranthene	0.110	1.9E-09	9.0E-01	1.7E-09	Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					1.7E-09
Benzo(g,h,i)perylene	0.120	2.1E-09			Benzo(g,h,i)perylene	2.6E-07							
Benzo(k)fluoranthene	0.120	2.1E-09	3.8E-01	7.8E-10	Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					7.8E-10
bis(2-Ethylhexyl) phthalate	0.130	2.2E-09	1.4E-02	3.1E-11	bis(2-Ethylhexyl) phthalate	3.7E-09	1.6E-02	7.0E-11					1.0E-10
Chrysene	0.110	1.9E-09	3.2E-02	6.0E-11	Chrysene	0.0E+00	7.4E-02	0.0E+00					
Indeno(1,2,3-cd)pyrene	0.099	1.7E-09	2.0E+00	3.4E-09	Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					
Phenanthrene	0.063	1.1E-09			Phenanthrene	1.4E-07							
Aroclor-1254	0.096	1.6E-09	7.7E+00	1.3E-08	Aroclor-1254	2.1E-07	1.9E-02	3.9E-09					1.6E-08
			Total Pathway:	2.6E-06			Total Pathway:	1.4E-04			Total Pathway:	0.0E+00	
			Total Rad + Chem	2.6E-06			Total Rad + Chem	1.4E-04			Total Rad + Chem	4.9E-06	*Total:* 1.5E-04

TABLE B.3.2-17 (continued)
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SEDIMENT
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Sediment					Dermal Contact/Sediment	Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard		
CS-137	0.40	1.1E-02			Not applicable	
NP-237	0.42	1.1E-02				
PU-238	1.90	5.1E-02				
PU-239/240	0.37	9.9E-03				
RA-226	2.96	7.9E-02				
RA-228	2.53	6.8E-02				
RU-106	0.00	0.0E+00				
SR-90	1.01	2.7E-02				
TC-99	0.00	0.0E+00				
TH-228	2.80	7.5E-02				
TH-230	8.96	2.4E-01				
TH-232	2.57	6.9E-02				
U-234	7.95	2.1E-01				
U-235/236	0.41	1.1E-02				
U-238	8.75	2.3E-01				
		Total Pathway:		0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Sediment					Dermal Contact/Sediment				Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	75.60	4.3E-06	3.0E-04	1.4E-02	Arsenic	1.7E-06	2.9E-04	5.9E-03	2.0E-02
Beryllium	4.60	2.6E-07	5.0E-03	5.3E-05	Beryllium	1.0E-06	5.0E-05	2.1E-02	2.1E-02
Chromium	19.20	1.1E-06	5.0E-03	2.2E-04	Chromium	4.3E-06	2.3E-03	1.9E-03	2.1E-03
Cobalt	19.40	1.1E-06			Cobalt	4.3E-06			
Lead	91.50	5.2E-06			Lead	2.1E-05			
Manganese	896.00	5.1E-05	1.4E-01	3.7E-04	Manganese	2.0E-04	4.2E-03	4.8E-02	4.8E-02
TH-TOTAL	23.40	1.3E-06			TH-TOTAL	0.0E+00			
Thallium	4.40	2.5E-07	7.0E-05	3.6E-03	Thallium	9.9E-07	7.0E-05	1.4E-02	1.8E-02
U-TOTAL	30.10	1.7E-06	3.0E-03	5.7E-04	U-TOTAL	6.7E-06	1.5E-04	4.5E-02	4.6E-02
Benzo(a)anthracene	0.07	3.8E-09			Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	0.11	6.3E-09			Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	0.11	6.3E-09			Benzo(b)fluoranthene	0.0E+00			
Benzo(g,h,i)perylene	0.12	6.9E-09			Benzo(g,h,i)perylene	8.1E-07			
Benzo(k)fluoranthene	0.12	6.9E-09			Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl) phthalate	0.13	7.4E-09	2.0E-02	3.7E-07	bis(2-Ethylhexyl) phthalate	1.2E-08	1.8E-02	6.5E-07	1.0E-06
Chrysene	0.11	6.3E-09			Chrysene	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.10	5.7E-09			Indeno(1,2,3-cd)pyrene	0.0E+00			
Phenanthrene	0.06	3.6E-09			Phenanthrene	4.2E-07			
Aroclor-1254	0.10	5.5E-09			Aroclor-1254	6.5E-07			
		Total Pathway:		1.9E-02		Total Pathway:		1.4E-01	
		Total Rad + Chem		1.9E-02		Total Rad + Chem		1.4E-01	*Total:* 0.2

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TABLE B.3.2-18
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SURFACE WATER
Carcinogenic Risk

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk		
U-234	159	1.2E+04	1.6E-11	1.9E-07		1.9E-07
U-235/236	7	5.6E+02	1.6E-11	9.0E-09	Not applicable	9.0E-09
U-238	174	1.3E+04	2.8E-11	3.7E-07		3.7E-07
			Total Pathway:	5.7E-07	Total Pathway: 0.0E+00	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk
U-TOTAL	4.9E-01	2.3E-05			U-TOTAL	3.7E-03		
			Total Pathway:	0.0E+00		Total Pathway:		0.0E+00
			Total Rad + Chem	5.7E-07		Total Rad + Chem		0.0E+00

Total: 5.7E-07

TABLE B.3.2-18 (continued)
FUTURE, EXPANDED TRESPASSER
SOUTH FIELD: SURFACE WATER
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard		
U-234	159.0	1.2E+04			Not applicable	
U-235/236	7.5	5.6E+02				
U-238	174.0	1.3E+04				
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00	

Chemical Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water						
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Conc'n (mg/L)	PC	Intake	RfD(derm)	Hazard	
U-TOTAL	4.9E-01	7.8E-05	3.0E-03	2.6E-02	U-TOTAL	4.9E-01	1.0E-03	1.5E-05	1.5E-04	1.0E-01	1.3E-01
			Total Pathway:	2.6E-02					Total Pathway:	1.0E-01	
											1.3E-01
			Total Rad + Chem	2.6E-02					Total Rad + Chem	1.0E-01	*Total:* 1.3E-01

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TABLE B.3.2-19(a)
FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.8E-04	2.1E+01	1.9E-11	3.9E-10
NP-237	8.2E-05	9.5E+00	2.9E-08	2.7E-07
PU-238	4.3E-05	5.0E+00	3.9E-08	1.9E-07
PU-239/240	1.8E-05	2.1E+00	3.8E-08	8.1E-08
RA-226	1.1E-02	1.3E+03	3.0E-09	3.8E-06
RA-228	1.4E-03	1.6E+02	6.9E-10	1.1E-07
SR-90	3.6E-04	4.1E+01	6.2E-11	2.6E-09
TC-99	5.1E-02	5.9E+03	8.3E-12	4.9E-08
TH-228	1.6E-03	1.8E+02	7.8E-08	1.4E-05
TH-230	4.9E-03	5.7E+02	2.9E-08	1.7E-05
TH-232	1.4E-03	1.7E+02	2.8E-08	4.6E-06
U-234	3.1E-03	3.6E+02	2.6E-08	9.3E-06
U-235/236	1.5E-04	1.7E+01	2.5E-08	4.3E-07
U-238	3.3E-03	3.9E+02	5.2E-08	2.0E-05
			Total Pathway:	7.0E-05

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.50	2.2E+03	2.8E-11	6.2E-08
NP-237	0.23	1.0E+03	2.2E-10	2.2E-07
PU-238	0.12	5.3E+02	2.2E-10	1.2E-07
PU-239/240	0.05	2.3E+02	2.3E-10	5.2E-08
RA-226	30.80	1.4E+05	1.2E-10	1.6E-05
RA-228	3.88	1.7E+04	1.0E-10	1.7E-06
SR-90	1.00	4.4E+03	3.6E-11	1.6E-07
TC-99	142.00	6.3E+05	1.3E-12	8.1E-07
TH-228	4.41	1.9E+04	5.5E-11	1.1E-06
TH-230	13.80	6.1E+04	1.3E-11	7.9E-07
TH-232	3.99	1.8E+04	1.2E-11	2.1E-07
U-234	8.66	3.8E+04	1.6E-11	6.1E-07
U-235/236	0.42	1.8E+03	1.6E-11	3.0E-08
U-238	9.31	4.1E+04	2.8E-11	1.1E-06
			Total Pathway:	2.3E-05

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.6E-06	1.7E-07	1.5E+00	2.5E-07
Beryllium	3.4E-07	2.2E-08	8.4E+00	1.8E-07
Chromium	5.0E-06	3.2E-07	4.1E+01	1.3E-05
Lead	8.8E-06	5.7E-07		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.1E-05	6.9E-07		
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	2.0E-06	1.3E-07	8.9E-01	1.1E-07
Benzo(a)pyrene	3.4E-06	2.2E-07	6.1E+00	1.3E-06
Benzo(b)fluoranthene	2.2E-06	1.4E-07	7.5E-01	1.1E-07
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	2.6E-06	1.7E-07	3.2E-01	5.4E-08
bis(2-Ethylhexyl) phthalate	3.9E-08	2.6E-09		
Carbazole	6.1E-08	3.9E-09		
Chrysene	2.2E-06	1.4E-07	2.7E-02	3.8E-09
Dibenzo(a,h)anthracene	6.8E-07	4.4E-08	6.8E+00	3.0E-07
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.2E-06	1.4E-07	1.7E+00	2.4E-07
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	1.8E-09	1.2E-10	2.0E-03	2.3E-13
Aroclor-1254	3.2E-08	2.1E-09		
Aroclor-1260	1.9E-08	1.2E-09		
Dieldrin	3.6E-09	2.3E-10	1.6E+01	3.7E-09
Endrin ketone	0.0E+00	0.0E+00		
			Total Pathway:	1.6E-05
			Total Rad + Chem	8.6E-05

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	1.8E-05	1.8E+00	3.1E-05
Beryllium	0.94	2.3E-06	4.3E+00	1.0E-05
Chromium	13.90	3.4E-05		
Lead	24.58	6.1E-05		
TH-TOTAL	36.70	9.0E-05		
U-TOTAL	29.58	7.3E-05		
Acenaphthylene	1.20	3.0E-06		
Benzo(a)anthracene	5.50	1.4E-05	1.1E+00	1.5E-05
Benzo(a)pyrene	9.40	2.3E-05	7.3E+00	1.7E-04
Benzo(b)fluoranthene	6.20	1.5E-05	9.0E-01	1.4E-05
Benzo(g,h,i)perylene	6.20	1.5E-05		
Benzo(k)fluoranthene	7.30	1.8E-05	3.8E-01	6.8E-06
bis(2-Ethylhexyl) phthalate	0.11	2.7E-07	1.4E-02	3.8E-09
Carbazole	0.17	4.2E-07	2.0E-02	8.4E-09
Chrysene	6.00	1.5E-05	3.2E-02	4.7E-07
Dibenzo(a,h)anthracene	1.90	4.7E-06	8.1E+00	3.8E-05
Dibenzofuran	0.13	3.2E-07		
Indeno(1,2,3-cd)pyrene	6.00	1.5E-05	2.0E+00	3.0E-05
Phenanthrene	2.30	5.7E-06		
Methylene chloride	0.01	1.2E-08	7.5E-03	9.2E-11
Aroclor-1254	0.09	2.2E-07	7.7E+00	1.7E-06
Aroclor-1260	0.05	1.3E-07	7.7E+00	9.9E-07
Dieldrin	0.01	2.4E-08	1.6E+01	3.8E-07
Endrin ketone	0.01	1.5E-08		
			Total Pathway:	3.2E-04
			Total Rad + Chem	3.4E-04

TABLE B.3.2-19(a) (continued)
FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	2.1E+01	2.0E-06	4.1E-05	4.1E-05
	NP-237	9.5E+00	4.3E-07	4.1E-06	4.6E-06
	PU-238	5.0E+00	2.8E-11	1.4E-10	3.1E-07
	PU-239/240	2.1E+00	2.7E-11	5.8E-11	1.3E-07
	RA-226	1.3E+03	1.2E-08	1.5E-05	3.5E-05
	RA-228	1.6E+02	2.90E-06	4.7E-04	4.7E-04
	SR-90	4.2E+01	0.0E+00	0.0E+00	1.6E-07
	TC-99	5.9E+03	6.0E-13	3.5E-09	8.7E-07
	TH-228	1.8E+02	5.6E-06	1.0E-03	1.0E-03
	TH-230	5.7E+02	5.4E-11	3.1E-08	1.7E-05
	TH-232	1.7E+02	2.6E-11	4.3E-09	4.9E-06
	U-234	3.6E+02	3.0E-11	1.1E-08	1.0E-05
	U-235/236	1.7E+01	2.4E-07	4.2E-06	4.6E-06
	U-238	3.9E+02	3.6E-08	1.4E-05	3.5E-05
Total Pathway: 0.0E+00			Total Pathway:	1.6E-03	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	5.7E-07	1.8E+00	1.1E-06					3.3E-05
Beryllium	7.4E-07	4.30E+02	3.2E-04					3.3E-04
Chromium	1.1E-05			Not applicable				1.3E-05
Lead	1.9E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	2.3E-05							
Acenaphthylene	2.8E-05							
Benzo(a)anthracene	0.0E+00	2.56E+00	0.0E+00					1.5E-05
Benzo(a)pyrene	0.0E+00	1.70E+01	0.0E+00					1.7E-04
Benzo(b)fluoranthene	0.0E+00	2.09E+00	0.0E+00					1.4E-05
Benzo(g,h,i)perylene	1.5E-04							
Benzo(k)fluoranthene	0.0E+00	8.84E-01	0.0E+00					6.9E-06
bis(2-Ethylhexyl) phthalate	3.5E-08	1.56E-02	5.4E-10					4.3E-09
Carbazole	0.0E+00	2.00E-02	0.0E+00					8.4E-09
Chrysene	0.0E+00	3.56E-02	0.0E+00					4.8E-07
Dibenzo(a,h)anthracene	0.0E+00	9.00E+00	0.0E+00					3.8E-05
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	2.22E+00	0.0E+00					3.0E-05
Phenanthrene	5.4E-05							
Methylene chloride	1.6E-07	7.50E-03	1.2E-09					1.3E-09
Aroclor-1254	2.1E-06	1.03E+01	2.2E-05					2.3E-05
Aroclor-1260	1.2E-06	1.03E+01	1.3E-05					1.4E-05
Dieldrin	2.3E-07	1.78E+01	4.1E-06					4.5E-06
Endrin ketone	0.0E+00							
		Total Pathway:	3.6E-04			Total Pathway:	0.0E+00	2.4E-03
		Total Rad + Chem	3.6E-04				1.6E-03	*Total:* 2.4E-03

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TABLE B.3.2-19(a) (continued)
FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.8E-04	2.1E+01		
NP-237	8.2E-05	9.5E+00		
PU-238	4.3E-05	5.0E+00		
PU-239/240	1.8E-05	2.1E+00		
RA-226	1.1E-02	1.3E+03		
RA-228	1.4E-03	1.6E+02		
SR-90	3.6E-04	4.1E+01		
TC-99	5.1E-02	5.9E+03		
TH-228	1.6E-03	1.8E+02		
TH-230	4.9E-03	5.7E+02		
TH-232	1.4E-03	1.7E+02		
U-234	3.1E-03	3.6E+02		
U-235/236	1.5E-04	1.7E+01		
U-238	3.3E-03	3.9E+02		
		Total Pathway:	0.0E+00	

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	2.2E+03		
NP-237	0.23	1.0E+03		
PU-238	0.12	5.3E+02		
PU-239/240	0.05	2.3E+02		
RA-226	30.80	1.4E+05		
RA-228	3.88	1.7E+04		
SR-90	1.00	4.4E+03		
TC-99	142.00	6.3E+05		
TH-228	4.41	1.9E+04		
TH-230	13.80	6.1E+04		
TH-232	3.99	1.8E+04		
U-234	8.66	3.8E+04		
U-235/236	0.42	1.8E+03		
U-238	9.31	4.1E+04		
		Total Pathway:	0.0E+00	

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.60E-06	1.7E-07		
Beryllium	3.37E-07	2.2E-08		
Chromium	4.98E-06	3.2E-07		
Lead	8.80E-06	5.7E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.06E-05	6.9E-07		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	1.97E-06	1.3E-07		
Benzo(a)pyrene	3.37E-06	2.2E-07		
Benzo(b)fluoranthene	2.22E-06	1.4E-07		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	2.61E-06	1.7E-07		
bis(2-Ethylhexyl) phthalate	3.94E-08	2.6E-09		
Carbazole	6.09E-08	3.9E-09		
Chrysene	2.15E-06	1.4E-07		
Dibenzo(a,h)anthracene	6.80E-07	4.4E-08		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.15E-06	1.4E-07		
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	1.79E-09	1.2E-10	8.2E-01	1.4E-10
Aroclor-1254	3.19E-08	2.1E-09		
Aroclor-1260	1.86E-08	1.2E-09		
Dieldrin	3.58E-09	2.3E-10		
Endrin ketone	0.00E+00	0.0E+00		
		Total Pathway:		1.4E-10
		Total Rad + Chem		1.4E-10

Ingestion/Soil

Compound	Conc'n (mg/kg	Intake	RfD(o)	Hazard
Arsenic	7.27	1.8E-05	3.0E-04	6.0E-02
Beryllium	0.94	2.3E-06	5.0E-03	4.6E-04
Chromium	13.90	3.4E-05	5.0E-03	6.9E-03
Lead	24.58	6.1E-05		
TH-TOTAL	36.70	9.0E-05		
U-TOTAL	29.58	7.3E-05	3.0E-03	0.0
Acenaphthylene	1.20	3.0E-06		
Benzo(a)anthracene	5.50	1.4E-05		
Benzo(a)pyrene	9.40	2.3E-05		
Benzo(b)fluoranthene	6.20	1.5E-05		
Benzo(g,h,i)perylene	6.20	1.5E-05		
Benzo(k)fluoranthene	7.30	1.8E-05		
bis(2-Ethylhexyl) phthalate	0.11	2.7E-07	2.0E-02	1.4E-05
Carbazole	0.17	4.2E-07		
Chrysene	6.00	1.5E-05		
Dibenzo(a,h)anthracene	1.90	4.7E-06		
Dibenzofuran	0.13	3.2E-07	4.0E-03	8.0E-05
Indeno(1,2,3-cd)pyrene	6.00	1.5E-05		
Phenanthrene	2.30	5.7E-06		
Methylene chloride	0.01	1.2E-08	6.1E-02	2.0E-07
Aroclor-1254	0.09	2.2E-07		
Aroclor-1260	0.05	1.3E-07		
Dieldrin	0.01	2.4E-08	5.0E-05	4.8E-04
Endrin ketone	0.01	1.5E-08	3.0E-04	4.8E-05
			Total Pathway:	0.1
			Total Rad + Chem	0.1

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TABLE B.3.2-19(a) (continued)
FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	RfD(e)	Hazard
CS-137	2.1E+01		
NP-237	9.5E+00		
PU-238	5.0E+00		
PU-239/24	2.1E+00		
RA-226	1.3E+03		
RA-228	1.6E+02		
SR-90	4.2E+01		
TC-99	5.9E+03		
TH-228	1.8E+02		
TH-230	5.7E+02		
TH-232	1.7E+02		
U-234	3.6E+02		
U-235/236	1.7E+01		
U-238	3.9E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm)	Hazard
Arsenic	5.7E-07	2.9E-04	2.0E-03
Beryllium	7.4E-07	5.0E-05	1.5E-02
Chromium	1.1E-05	2.3E-03	4.9E-03
Lead	1.9E-05		
TH-TOTAL	0.0E+00		
U-TOTAL	2.3E-05	1.5E-04	0.2
Acenaphthylene	2.8E-05		
Benzo(a)anthracene	0.0E+00		
Benzo(a)pyrene	0.0E+00		
Benzo(b)fluoranthene	0.0E+00		
Benzo(g,h,i)perylene	1.5E-04		
Benzo(k)fluoranthene	0.0E+00		
bis(2-Ethylhexyl) phthalate	3.5E-08	1.8E-02	1.9E-06
Carbazole	0.0E+00		
Chrysene	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00		
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00		
Phenanthrene	5.4E-05		
Methylene chloride	1.6E-07	6.1E-02	2.6E-06
Aroclor-1254	2.1E-06		
Aroclor-1260	1.2E-06		
Dieldrin	2.3E-07	4.5E-05	5.1E-03
Endrin ketone	1.4E-07	2.7E-04	5.2E-04

Total Pathway: 0.2

External Radiation/Soil

Compound	Intake	RfD(o)	Hazard

Not applicable

Total Pathway: 0.0E+00

Total
6.2E-02
1.5E-02
1.2E-02
1.8E-01
1.5E-05
8.0E-05
2.8E-06
5.6E-03
5.6E-04

Total Rad + Chem 0.2

0.0E+00 *Total:* 0.3

TABLE B.3.2-19(b)
FUTURE, ON-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.8E-04	3.8E-01	1.9E-11	7.1E-12
NP-237	8.2E-05	1.7E-01	2.9E-08	5.0E-09
PU-238	4.3E-05	9.0E-02	3.9E-08	3.5E-09
PU-239/240	1.8E-05	3.8E-02	3.8E-08	1.5E-09
RA-226	1.1E-02	2.3E+01	3.0E-09	6.9E-08
RA-228	1.4E-03	2.9E+00	6.9E-10	2.0E-09
SR-90	3.6E-04	7.5E-01	6.2E-11	4.7E-11
TC-99	5.1E-02	1.1E+02	8.3E-12	8.9E-10
TH-228	1.6E-03	3.3E+00	7.8E-08	2.6E-07
TH-230	4.9E-03	1.0E+01	2.9E-08	3.0E-07
TH-232	1.4E-03	3.0E+00	2.8E-08	8.4E-08
U-234	3.1E-03	6.5E+00	2.6E-08	1.7E-07
U-235/236	1.5E-04	3.2E-01	2.5E-08	7.9E-09
U-238	3.3E-03	7.0E+00	5.2E-08	3.6E-07
			Total Pathway:	1.3E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.50	2.1E+02	2.8E-11	5.9E-09
NP-237	0.23	9.6E+01	2.2E-10	2.1E-08
PU-238	0.12	5.0E+01	2.2E-10	1.1E-08
PU-239/240	0.05	2.2E+01	2.3E-10	5.0E-09
RA-226	30.80	1.3E+04	1.2E-10	1.6E-06
RA-228	3.88	1.6E+03	1.0E-10	1.6E-07
SR-90	1.00	4.2E+02	3.6E-11	1.5E-08
TC-99	142.00	6.0E+04	1.3E-12	7.8E-08
TH-228	4.41	1.9E+03	5.5E-11	1.0E-07
TH-230	13.80	5.8E+03	1.3E-11	7.5E-08
TH-232	3.99	1.7E+03	1.2E-11	2.0E-08
U-234	8.66	3.6E+03	1.6E-11	5.8E-08
U-235/236	0.42	1.8E+02	1.6E-11	2.8E-09
U-238	9.31	3.9E+03	2.8E-11	1.1E-07
			Total Pathway:	2.2E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.6E-06	1.4E-08	1.5E+00	2.2E-08
Beryllium	3.4E-07	1.8E-09	8.4E+00	1.6E-08
Chromium	5.0E-06	2.7E-08	4.1E+01	1.1E-06
Lead	8.8E-06	4.8E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.1E-05	5.8E-08		
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	2.0E-06	1.1E-08	8.9E-01	9.6E-09
Benzo(a)pyrene	3.4E-06	1.8E-08	6.1E+00	1.1E-07
Benzo(b)fluoranthene	2.2E-06	1.2E-08	7.5E-01	9.1E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	2.6E-06	1.4E-08	3.2E-01	4.6E-09
bis(2-Ethylhexyl) phthalate	3.9E-08	2.2E-10		
Carbazole	6.1E-08	3.3E-10		
Chrysene	2.2E-06	1.2E-08	2.7E-02	3.2E-10
Dibenzo(a,h)anthracene	6.8E-07	3.7E-09	6.8E+00	2.5E-08
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.2E-06	1.2E-08	1.7E+00	2.0E-08
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	1.8E-09	9.8E-12	2.0E-03	2.0E-14
Aroclor-1254	3.2E-08	1.7E-10		
Aroclor-1260	1.9E-08	1.0E-10		
Dieldrin	3.6E-09	2.0E-11	1.6E+01	3.1E-10
Endrin ketone	0.0E+00	0.0E+00		
			Total Pathway:	1.3E-06
			Total Rad + Chem	2.6E-06

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	8.0E-06	1.8E+00	1.4E-05
Beryllium	9.4E-01	1.0E-06	4.3E+00	4.4E-06
Chromium	13.90	1.5E-05		
Lead	24.58	2.7E-05		
TH-TOTAL	36.70	4.0E-05		
U-TOTAL	29.58	3.2E-05		
Acenaphthylene	1.20	1.3E-06		
Benzo(a)anthracene	5.50	6.0E-06	1.1E+00	6.6E-06
Benzo(a)pyrene	9.40	1.0E-05	7.3E+00	7.5E-05
Benzo(b)fluoranthene	6.20	6.8E-06	9.0E-01	6.1E-06
Benzo(g,h,i)perylene	6.20	6.8E-06		
Benzo(k)fluoranthene	7.30	8.0E-06	3.8E-01	3.0E-06
bis(2-Ethylhexyl) phthalate	1.1E-01	1.2E-07	1.4E-02	1.7E-09
Carbazole	1.7E-01	1.9E-07	2.0E-02	3.7E-09
Chrysene	6.00	6.6E-06	3.2E-02	2.1E-07
Dibenzo(a,h)anthracene	1.90	2.1E-06	8.1E+00	1.7E-05
Dibenzofuran	1.3E-01	1.4E-07		
Indeno(1,2,3-cd)pyrene	6.00	6.6E-06	2.0E+00	1.3E-05
Phenanthrene	2.30	2.5E-06		
Methylene chloride	5.0E-03	5.5E-09	7.5E-03	4.1E-11
Aroclor-1254	8.9E-02	9.8E-08	7.7E+00	7.5E-07
Aroclor-1260	5.2E-02	5.7E-08	7.7E+00	4.4E-07
Dieldrin	9.7E-03	1.1E-08	1.6E+01	1.7E-07
Endrin ketone	5.9E-03	6.5E-09		
			Total Pathway:	1.4E-04
			Total Rad + Chem	1.4E-04

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TABLE B.3.2-19(b) (continued)
FUTURE, ON-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.6E+00	2.0E-06	3.1E-06	3.1E-06
	NP-237	7.1E-01	4.3E-07	3.1E-07	3.3E-07
	PU-238	3.7E-01	2.8E-11	1.0E-11	1.5E-08
	PU-239/240	1.6E-01	2.7E-11	4.3E-12	6.4E-09
	RA-226	9.6E+01	1.2E-08	1.2E-06	2.8E-06
	RA-228	1.2E+01	2.90E-06	3.5E-05	3.5E-05
	SR-90	3.1E+00	0.0E+00	0.0E+00	1.5E-08
	TC-99	4.4E+02	6.0E-13	2.7E-10	7.9E-08
	TH-228	1.4E+01	5.6E-06	7.7E-05	7.7E-05
	TH-230	4.3E+01	5.4E-11	2.3E-09	3.8E-07
	TH-232	1.2E+01	2.6E-11	3.2E-10	1.0E-07
	U-234	2.7E+01	3.0E-11	8.1E-10	2.3E-07
	U-235/236	1.3E+00	2.4E-07	3.1E-07	3.2E-07
	U-238	2.9E+01	3.6E-08	1.0E-06	1.5E-06
Total Pathway: 0.0E+00			Total Pathway:	1.2E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	8.0E-08	1.8E+00	1.5E-07					1.4E-05
Beryllium	1.0E-07	4.30E+02	4.4E-05					4.9E-05
Chromium	1.5E-06			Not applicable				1.1E-06
Lead	2.7E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	3.2E-06							
Acenaphthylene	3.9E-06							
Benzo(a)anthracene	0.0E+00	2.56E+00	0.0E+00					6.6E-06
Benzo(a)pyrene	0.0E+00	1.70E+01	0.0E+00					7.5E-05
Benzo(b)fluoranthene	0.0E+00	2.09E+00	0.0E+00					6.1E-06
Benzo(g,h,i)perylene	2.0E-05							
Benzo(k)fluoranthene	0.0E+00	8.84E-01	0.0E+00					3.0E-06
bis(2-Ethylhexyl) phthalate	4.8E-09	1.56E-02	7.5E-11					1.8E-09
Carbazole	0.0E+00	2.00E-02	0.0E+00					3.7E-09
Chrysene	0.0E+00	3.56E-02	0.0E+00					2.1E-07
Dibenzo(a,h)anthracene	0.0E+00	9.00E+00	0.0E+00					1.7E-05
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	2.22E+00	0.0E+00					1.3E-05
Phenanthrene	7.6E-06							
Methylene chloride	2.2E-08	7.50E-03	1.6E-10					2.1E-10
Aroclor-1254	2.9E-07	1.03E+01	3.0E-06					3.8E-06
Aroclor-1260	1.7E-07	1.03E+01	1.8E-06					2.2E-06
Dieldrin	3.2E-08	1.78E+01	5.7E-07					7.4E-07
Endrin ketone	0.0E+00							
		Total Pathway:	5.0E-05			Total Pathway:	0.0E+00	3.1E-04
		Total Rad + Chem	5.0E-05				1.2E-04	*Total:* 3.1E-04

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TABLE B.3.2-19(b) (continued)
FUTURE, ON-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.8E-04	3.8E-01		
NP-237	8.2E-05	1.7E-01		
PU-238	4.3E-05	9.0E-02		
PU-239/240	1.8E-05	3.8E-02		
RA-226	1.1E-02	2.3E+01		
RA-228	1.4E-03	2.9E+00		
SR-90	3.6E-04	7.5E-01		
TC-99	5.1E-02	1.1E+02		
TH-228	1.6E-03	3.3E+00		
TH-230	4.9E-03	1.0E+01		
TH-232	1.4E-03	3.0E+00		
U-234	3.1E-03	6.5E+00		
U-235/236	1.5E-04	3.2E-01		
U-238	3.3E-03	7.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	2.1E+02		
NP-237	0.23	9.6E+01		
PU-238	0.12	5.0E+01		
PU-239/240	0.05	2.2E+01		
RA-226	30.80	1.3E+04		
RA-228	3.88	1.6E+03		
SR-90	1.00	4.2E+02		
TC-99	142.00	6.0E+04		
TH-228	4.41	1.9E+03		
TH-230	13.80	5.8E+03		
TH-232	3.99	1.7E+03		
U-234	8.66	3.6E+03		
U-235/236	0.42	1.8E+02		
U-238	9.31	3.9E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.60E-06	1.7E-07		
Beryllium	3.37E-07	2.2E-08		
Chromium	4.98E-06	3.2E-07		
Lead	8.80E-06	5.6E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.06E-05	6.8E-07		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	1.97E-06	1.3E-07		
Benzo(a)pyrene	3.37E-06	2.2E-07		
Benzo(b)fluoranthene	2.22E-06	1.4E-07		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	2.61E-06	1.7E-07		
bis(2-Ethylhexyl) phthalate	3.94E-08	2.5E-09		
Carbazole	6.09E-08	3.9E-09		
Chrysene	2.15E-06	1.4E-07		
Dibenzo(a,h)anthracene	6.80E-07	4.3E-08		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.15E-06	1.4E-07		
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	1.79E-09	1.1E-10	8.2E-01	1.4E-10
Aroclor-1254	3.19E-08	2.0E-09		
Aroclor-1260	1.86E-08	1.2E-09		
Dieldrin	3.58E-09	2.3E-10		
Endrin ketone	0.00E+00	0.0E+00		

Total Pathway: 0.0

Ingestion/Soil

Compound	Conc'n (mg/kg	Intake	RfD(o)	Hazard
Arsenic	7.27	9.3E-05	3.0E-04	3.1E-01
Beryllium	0.94	1.2E-05	5.0E-03	2.4E-03
Chromium	13.90	1.8E-04	5.0E-03	3.6E-02
Lead	24.58	3.1E-04		
TH-TOTAL	36.70	4.7E-04		
U-TOTAL	29.58	3.8E-04	3.0E-03	1.3E-01
Acenaphthylene	1.20	1.5E-05		
Benzo(a)anthracene	5.50	7.0E-05		
Benzo(a)pyrene	9.40	1.2E-04		
Benzo(b)fluoranthene	6.20	7.9E-05		
Benzo(g,h,i)perylene	6.20	7.9E-05		
Benzo(k)fluoranthene	7.30	9.3E-05		
bis(2-Ethylhexyl) phthalate	0.11	1.4E-06	2.0E-02	7.0E-05
Carbazole	0.17	2.2E-06		
Chrysene	6.00	7.7E-05		
Dibenzo(a,h)anthracene	1.90	2.4E-05		
Dibenzofuran	0.13	1.7E-06	4.0E-03	4.2E-04
Indeno(1,2,3-cd)pyrene	6.00	7.7E-05		
Phenanthrene	2.30	2.9E-05		
Methylene chloride	0.01	6.4E-08	6.1E-02	1.0E-06
Aroclor-1254	0.09	1.1E-06		
Aroclor-1260	0.05	6.6E-07		
Dieldrin	0.01	1.2E-07	5.0E-05	2.5E-03
Endrin ketone	0.01	7.5E-08	3.0E-04	2.5E-04

Total Pathway: 4.8E-01

Total Rad + Chem 0.0

Total Rad + Chem 4.8E-01

TABLE B.3.2-19(b) (continued)
FUTURE, ON-PROPERTY RESIDENT CHILD
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			
	Compound	Intake	RfD(e)	Hazard
Not applicable	CS-137	1.6E+00		
	NP-237	7.1E-01		
	PU-238	3.7E-01		
	PU-239/24	1.6E-01		
	RA-226	9.6E+01		
	RA-228	1.2E+01		
	SR-90	3.1E+00		
	TC-99	4.4E+02		
	TH-228	1.4E+01		
	TH-230	4.3E+01		
	TH-232	1.2E+01		
	U-234	2.7E+01		
	U-235/236	1.3E+00		
	U-238	2.9E+01		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	9.3E-07	2.9E-04	3.3E-03					3.1E-01
Beryllium	1.2E-06	5.0E-05	2.4E-02					2.7E-02
Chromium	1.8E-05	2.3E-03	7.9E-03	Not applicable				4.3E-02
Lead	3.1E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	3.8E-05	1.5E-04	0.3					3.8E-01
Acenaphthylene	4.6E-05							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	2.4E-04							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	5.6E-08	1.8E-02	3.1E-06					7.3E-05
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					4.2E-04
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	8.8E-05							
Methylene chloride	2.6E-07	6.1E-02	4.2E-06					5.2E-06
Aroclor-1254	3.4E-06							
Aroclor-1260	2.0E-06							
Dieldrin	3.7E-07	4.5E-05	8.3E-03					1.1E-02
Endrin ketone	2.3E-07	2.7E-04	8.4E-04					1.1E-03
		Total Pathway:	0.3			Total Pathway:	0.0E+00	
		Total Rad + Chem	0.3				0.0E+00	*Total:* 0.8

TABLE B.3.2-20(a)

FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER

SOUTH FIELD: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.031	1.5E+03	2.2E-10	3.3E-07	
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	Not applicable
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	1.1E-02	5.5E+02	3.60E-11	2.0E-08	
TC-99	1.8E+00	8.9E+04	1.3E-12	1.2E-07	
U234	469	2.3E+07	1.6E-11	3.7E-04	
U235/236	25	1.2E+06	1.6E-11	2.0E-05	
U238	517	2.5E+07	2.8E-11	7.1E-04	
			Total Pathway:	1.1E-03	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	1.6E-05			Cadmium	5.9E-05		
Lead	1.4E-03	3.9E-05			Lead	1.5E-04		
Mercury	0.0E+00	0.0E+00			Mercury	0.0E+00		
Molybdenum	5.6E-03	1.5E-04			Molybdenum	5.7E-04		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.84	5.0E-02			U-Total	1.9E-01		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	1.1E-03			Total Rad + Chem	0.0E+00

CARCINOGENIC RISK

Radiation Risk	
Dermal Contact/Groundwater	
Not applicable	3.3E-07
	0.0E+00
	0.0E+00
	2.0E-08
	1.2E-07
	3.7E-04
	2.0E-05
	7.1E-04
Total Pathway:	0.0E+00

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	1.1E-07			
Lead	1.1E-09			
Mercury	0.0E+00			
Molybdenum	1.1E-06			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	3.7E-04			
		Total Pathway:	0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 1.1E-03

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TABLE B.3.2-20(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	0.0	1.5E+03		
RA-226	0.0	0.0E+00		
RA-228	0.0	0.0E+00		
SR-90	0.0	5.5E+02		
TC-99	1.8	8.9E+04		
U234	469.0	2.3E+07		
U235/236	25.0	1.2E+06		
U238	517.0	2.5E+07		

Total Pathway: 0.0E+00

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	5.7E-04	1.6E-05	5.0E-04	3.1E-02
Lead	1.4E-03	3.9E-05		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Molybdenum	5.6E-03	1.5E-04	5.0E-03	3.1E-02
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		
U-Total	1.8E+00	5.0E-02	3.00E-03	1.7E+01

Total Pathway: 1.7E+01

Inhalation/Groundwater

Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	5.9E-05		
Lead	1.5E-04		
Mercury	0.0E+00		
Molybdenum	5.7E-04		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.9E-01		

Total Pathway: 0.0E+00

Total Rad + Chem 1.7E+01

Total Rad + Chem 0.0E+00

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NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	1.1E-07	2.5E-05	4.6E-03	3.6E-02
Lead	4.00E-06	1.1E-09			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	1.1E-06	1.9E-03	5.9E-04	3.1E-02
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	3.7E-04	1.5E-04	2.4E+00	19.3

Total Pathway: 2.5E+00

Total Rad + Chem 2.5E+00 *Total:* 19.3

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TABLE B.3.2-20(b)

FUTURE, ON-PROPERTY (SOUTH FIELD) CHILD

SOUTH FIELD: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.031	6.5E+01	2.2E-10	1.4E-08	Not applicable
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	1.1E-02	2.4E+01	3.60E-11	8.5E-10	
TC-99	1.8E+00	3.8E+03	1.3E-12	5.0E-09	
U234	469	9.8E+05	1.6E-11	1.6E-05	
U235/236	25	5.3E+04	1.6E-11	8.4E-07	
U238	517	1.1E+06	2.8E-11	3.0E-05	
			Total Pathway:	4.7E-05	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	3.1E-06			Cadmium	2.4E-05		
Lead	1.4E-03	7.8E-06			Lead	5.9E-05		
Mercury	0.0E+00	0.0E+00			Mercury	0.0E+00		
Molybdenum	5.6E-03	3.1E-05			Molybdenum	2.3E-04		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.84	1.0E-02			U-Total	7.6E-02		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	4.7E-05			Total Rad + Chem	0.0E+00

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CARCINOGENIC RISK

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		1.4E-08
		0.0E+00
		0.0E+00
		8.5E-10
		5.0E-09
		1.6E-05
		8.4E-07
		3.0E-05
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	1.6E-08			
Lead	1.6E-10			
Mercury	0.0E+00			
Molybdenum	1.6E-07			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	5.1E-05			
		Total Pathway:	0.0E+00	

Total Rad + Chem	0.0E+00	*Total:*	4.7E-05

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TABLE B.3.2-20(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	3.1E-02	6.5E+01			Not applicable
RA-226	0.0	0.0E+00			
RA-228	0.0	0.0E+00			
SR-90	1.1E-02	2.4E+01			
TC-99	1.8	3.8E+03			
U234	469.0	9.8E+05			
U235/236	25.0	5.3E+04			
U238	517.0	1.1E+06			
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	3.7E-05	5.0E-04	7.3E-02	Cadmium	2.7E-04		
Lead	1.4E-03	9.1E-05			Lead	6.9E-04		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Mercury	0.0E+00		
Molybdenum	5.6E-03	3.6E-04	5.0E-03	7.1E-02	Molybdenum	2.7E-03		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.8E+00	1.2E-01	3.00E-03	3.9E+01	U-Total	8.8E-01		
			Total Pathway:	3.9E+01			Total Pathway:	0.0E+00
			Total Rad + Chem	3.9E+01			Total Rad + Chem	0.0E+00

NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	1.9E-07	2.5E-05	7.4E-03	8.1E-02
Lead	4.00E-06	1.9E-09			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	1.8E-06	1.9E-03	9.5E-04	7.2E-02
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	6.0E-04	1.5E-04	4.0E+00	43.2
			Total Pathway:	4.0E+00	

Total Rad + Chem 4.0E+00 *Total:* 43.3

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TABLE B.3.2-21(a)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.88E-02	5.8E+01	2.8E-11	1.6E-09	1.6E-09
NP-237	1.79E-02	2.7E+01	2.2E-10	5.9E-09	5.9E-09
PU-238	9.14E-03	1.4E+01	2.2E-10	3.0E-09	3.0E-09
PU-239	3.87E-03	5.8E+00	2.3E-10	1.3E-09	1.3E-09
RA-226	2.35E+00	3.5E+03	1.2E-10	4.2E-07	4.2E-07
RA-228	2.95E-01	4.4E+02	1.0E-10	4.4E-08	4.4E-08
SR-90	9.81E-02	1.5E+02	3.6E-11	5.3E-09	5.3E-09
TC-99	1.84E+01	2.7E+04	1.3E-12	3.6E-08	3.6E-08
TH-228	3.34E-01	5.0E+02	5.5E-11	2.7E-08	2.7E-08
TH-230	1.04E+00	1.6E+03	1.3E-11	2.0E-08	2.0E-08
TH-232	3.03E-01	4.5E+02	1.2E-11	5.4E-09	5.4E-09
U-234	6.59E-01	9.8E+02	1.6E-11	1.6E-08	1.6E-08
U-235	3.19E-02	4.8E+01	1.6E-11	7.6E-10	7.6E-10
U-238	7.08E-01	1.1E+03	2.8E-11	3.0E-08	3.0E-08
			Total Pathway:	6.2E-07	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.59E-04	4.7E-07	1.8E+00	8.2E-07	8.2E-07
Beryllium	7.17E-05	6.0E-08	4.3E+00	2.6E-07	2.6E-07
Chromium	1.05E-03	8.8E-07			
Lead	1.89E-03	1.6E-06			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.25E-03	1.9E-06			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.07E-04	3.4E-07	1.1E+00	3.7E-07	3.7E-07
Benzo(a)pyrene	6.91E-04	5.8E-07	7.3E+00	4.2E-06	4.2E-06
Benzo(b)fluoranthene	4.58E-04	3.8E-07	9.0E-01	3.4E-07	3.4E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.49E-04	4.6E-07	3.8E-01	1.7E-07	1.7E-07
bis(2-Ethylhexyl)phthalate	4.04E-06	3.4E-09	1.4E-02	4.7E-11	4.7E-11
Carbazole	1.34E-05	1.1E-08	2.0E-02	2.2E-10	2.2E-10
Chrysene	4.48E-04	3.7E-07	3.2E-02	1.2E-08	1.2E-08
Dibenzo(a,h)anthracene	1.42E-04	1.2E-07	8.1E+00	9.6E-07	9.6E-07
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.45E-04	3.7E-07	2.0E+00	7.4E-07	7.4E-07
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-06	1.1E-09	7.5E-03	8.1E-12	8.1E-12
Aroclor 1254	6.78E-06	5.7E-09	7.7E+00	4.4E-08	4.4E-08
Aroclor 1260	3.96E-06	3.3E-09	7.7E+00	2.5E-08	2.5E-08
Dieldrin	7.79E-07	6.5E-10	1.6E+01	1.0E-08	1.0E-08
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	8.0E-06	
			Total Rad + Chem	8.6E-06	*Total:* 8.6E-06

TABLE B.3.2-21(a) (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						Total Dust & Groundwater Affected
Ingestion/Homegrown Produce					Total	
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.6E-09
NP-237	1.58E-01	2.4E+02	2.2E-10	5.2E-08	5.2E-08	5.8E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.0E-09
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.3E-09
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	4.2E-07
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	4.4E-08
SR-90	7.49E-02	1.1E+02	3.6E-11	4.0E-09	4.0E-09	9.3E-09
TC-99	1.68E+01	2.5E+04	1.3E-12	3.3E-08	3.3E-08	6.8E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.7E-08
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.0E-08
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	5.4E-09
U-234	2.30E+03	3.4E+06	1.6E-11	5.5E-05	5.5E-05	5.5E-05
U-235	1.23E+02	1.8E+05	1.6E-11	2.9E-06	2.9E-06	2.9E-06
U-238	2.54E+03	3.8E+06	2.8E-11	1.1E-04	1.1E-04	1.1E-04
			Total Pathway:	1.6E-04		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	8.2E-07
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.6E-07
Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00				
Molybdenum	3.02E-02	2.5E-05				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	9.03E+00	7.5E-03				
Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	3.7E-07
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	4.2E-06
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	3.4E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	1.7E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	4.7E-11
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.2E-10
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.2E-08
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	9.6E-07
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	
Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	8.1E-12
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	4.4E-08
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	2.5E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	1.0E-08
Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	1.6E-04	*Total:* 1.6E-04	1.7E-04

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TABLE B.3.2-21(a) (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	3.9E-02				
NP-237	1.8E-02				
PU-238	9.1E-03				
PU-239	3.9E-03				
RA-226	2.3E+00				
RA-228	3.0E-01				
SR-90	9.8E-02				
TC-99	1.8E+01				
TH-228	3.3E-01				
TH-230	1.0E+00				
TH-232	3.0E-01				
U-234	6.6E-01				
U-235	3.2E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	5.6E-04	4.7E-07	3.0E-04	1.6E-03	1.6E-03
Beryllium	7.2E-05	6.0E-08	5.0E-03	1.2E-05	1.2E-05
Chromium	1.1E-03	8.8E-07	5.0E-03	1.8E-04	1.8E-04
Lead	1.9E-03	1.6E-06			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.2E-03	1.9E-06	3.0E-03	6.3E-04	6.3E-04
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	4.1E-04	3.4E-07			
Benzo(a)pyrene	6.9E-04	5.8E-07			
Benzo(b)fluoranthene	4.6E-04	3.8E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	4.6E-07			
bis(2-Ethylhexyl)phthalate	4.0E-06	3.4E-09	2.0E-02	1.7E-07	1.7E-07
Carbazole	1.3E-05	1.1E-08			
Chrysene	4.5E-04	3.7E-07			
Dibenzo(a,h)anthracene	1.4E-04	1.2E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	4.4E-04	3.7E-07			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	1.3E-06	1.1E-09	6.1E-02	1.8E-08	1.8E-08
Aroclor 1254	6.8E-06	5.7E-09			
Aroclor 1260	4.0E-06	3.3E-09			
Dieldrin	7.8E-07	6.5E-10	5.0E-05	1.3E-05	1.3E-05
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	2.4E-03	

Total Rad + Chem	2.4E-03	*Total:*	2.4E-03

TABLE B.3.2-21(a) (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00					
NP-237	1.6E-01					
PU-238	0.0E+00					
PU-239	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	7.5E-02					
TC-99	1.7E+01					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	2.3E+03					
U-235	1.2E+02					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.6E-03
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.2E-05
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.8E-04
Lead	0.0E+00	0.0E+00				
Molybdenum	3.0E-02	2.5E-05	5.0E-03	5.0E-03	5.0E-03	5.0E-03
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	9.0E+00	7.5E-03	3.0E-03	2.5E+00	2.5E+00	2.5E+00
Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.7E-07
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	1.8E-08
Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	1.3E-05
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
			Total Pathway:	2.5E+00		
			Total Rad + Chem	2.5E+00	*Total:* 2.5E+00	2.5E+00

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TABLE B.3.2-21(b)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.88E-02	4.3E+00	2.8E-11	1.2E-10	1.2E-10
NP-237	1.79E-02	2.0E+00	2.2E-10	4.4E-10	4.4E-10
PU-238	9.14E-03	1.0E+00	2.2E-10	2.2E-10	2.2E-10
PU-239	3.87E-03	4.3E-01	2.3E-10	9.9E-11	9.9E-11
RA-226	2.35E+00	2.6E+02	1.2E-10	3.1E-08	3.1E-08
RA-228	2.95E-01	3.3E+01	1.0E-10	3.3E-09	3.3E-09
SR-90	9.81E-02	1.1E+01	3.6E-11	3.9E-10	3.9E-10
TC-99	1.84E+01	2.0E+03	1.3E-12	2.7E-09	2.7E-09
TH-228	3.34E-01	3.7E+01	5.5E-11	2.0E-09	2.0E-09
TH-230	1.04E+00	1.2E+02	1.3E-11	1.5E-09	1.5E-09
TH-232	3.03E-01	3.4E+01	1.2E-11	4.0E-10	4.0E-10
U-234	6.59E-01	7.3E+01	1.6E-11	1.2E-09	1.2E-09
U-235	3.19E-02	3.5E+00	1.6E-11	5.7E-11	5.7E-11
U-238	7.08E-01	7.9E+01	2.8E-11	2.2E-09	2.2E-09
			Total Pathway:	4.6E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.59E-04	1.6E-07	1.8E+00	2.8E-07	2.8E-07
Beryllium	7.17E-05	2.1E-08	4.3E+00	9.0E-08	9.0E-08
Chromium	1.05E-03	3.1E-07			
Lead	1.89E-03	5.5E-07			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.25E-03	6.5E-07			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.07E-04	1.2E-07	1.1E+00	1.3E-07	1.3E-07
Benzo(a)pyrene	6.91E-04	2.0E-07	7.3E+00	1.5E-06	1.5E-06
Benzo(b)fluoranthene	4.58E-04	1.3E-07	9.0E-01	1.2E-07	1.2E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.49E-04	1.6E-07	3.8E-01	6.1E-08	6.1E-08
bis(2-Ethylhexyl)phthalate	4.04E-06	1.2E-09	1.4E-02	1.6E-11	1.6E-11
Carbazole	1.34E-05	3.9E-09	2.0E-02	7.8E-11	7.8E-11
Chrysene	4.48E-04	1.3E-07	3.2E-02	4.2E-09	4.2E-09
Dibenzo(a,h)anthracene	1.42E-04	4.1E-08	8.1E+00	3.3E-07	3.3E-07
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.45E-04	1.3E-07	2.0E+00	2.6E-07	2.6E-07
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-06	3.8E-10	7.5E-03	2.8E-12	2.8E-12
Aroclor 1254	6.78E-06	2.0E-09	7.7E+00	1.5E-08	1.5E-08
Aroclor 1260	3.96E-06	1.2E-09	7.7E+00	8.9E-09	8.9E-09
Dieldrin	7.79E-07	2.3E-10	1.6E+01	3.6E-09	3.6E-09
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	2.8E-06	

Total Rad + Chem	2.8E-06	*Total:*	2.8E-06

TABLE B.3.2-21(b) (continued)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.2E-10
NP-237	1.58E-01	1.8E+01	2.2E-10	3.9E-09	3.9E-09	4.3E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.2E-10
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	9.9E-11
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.1E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	3.3E-09
SR-90	7.49E-02	8.3E+00	3.6E-11	3.0E-10	3.0E-10	6.9E-10
TC-99	1.68E+01	1.9E+03	1.3E-12	2.4E-09	2.4E-09	5.1E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.0E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.5E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	4.0E-10
U-234	2.30E+03	2.6E+05	1.6E-11	4.1E-06	4.1E-06	4.1E-06
U-235	1.23E+02	1.4E+04	1.6E-11	2.2E-07	2.2E-07	2.2E-07
U-238	2.54E+03	2.8E+05	2.8E-11	7.9E-06	7.9E-06	7.9E-06
			Total Pathway:	1.2E-05		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	2.8E-07
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	9.0E-08
Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00				
Molybdenum	3.02E-02	8.8E-06				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	9.03E+00	2.6E-03				
Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	1.3E-07
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	1.5E-06
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	1.2E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	6.1E-08
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.6E-11
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	7.8E-11
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	4.2E-09
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	3.3E-07
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	
Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	2.8E-12
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.5E-08
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	8.9E-09
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	3.6E-09
Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	1.2E-05	*Total:* 1.2E-05	1.5E-05

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TABLE B.3.2-21(b) (continued)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	3.9E-02				
NP-237	1.8E-02				
PU-238	9.1E-03				
PU-239	3.9E-03				
RA-226	2.3E+00				
RA-228	3.0E-01				
SR-90	9.8E-02				
TC-99	1.8E+01				
TH-228	3.3E-01				
TH-230	1.0E+00				
TH-232	3.0E-01				
U-234	6.6E-01				
U-235	3.2E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	5.6E-04	1.9E-06	3.0E-04	6.3E-03	6.3E-03
Beryllium	7.2E-05	2.4E-07	5.0E-03	4.9E-05	4.9E-05
Chromium	1.1E-03	3.6E-06	5.0E-03	7.1E-04	7.1E-04
Lead	1.9E-03	6.4E-06			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.2E-03	7.6E-06	3.0E-03	2.5E-03	2.5E-03
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	4.1E-04	1.4E-06			
Benzo(a)pyrene	6.9E-04	2.3E-06			
Benzo(b)fluoranthene	4.6E-04	1.6E-06			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	1.9E-06			
bis(2-Ethylhexyl)phthalate	4.0E-06	1.4E-08	2.0E-02	6.8E-07	6.8E-07
Carbazole	1.3E-05	4.5E-08			
Chrysene	4.5E-04	1.5E-06			
Dibenzo(a,h)anthracene	1.4E-04	4.8E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	4.4E-04	1.5E-06			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	1.3E-06	4.4E-09	6.1E-02	7.2E-08	7.2E-08
Aroclor 1254	6.8E-06	2.3E-08			
Aroclor 1260	4.0E-06	1.3E-08			
Dieldrin	7.8E-07	2.6E-09	5.0E-05	5.3E-05	5.3E-05
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	9.7E-03	

Total Rad + Chem 9.7E-03 | *Total:* 9.7E-03

TABLE B.3.2-21(b) (continued)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00					
NP-237	1.6E-01					
PU-238	0.0E+00					
PU-239	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	7.5E-02					
TC-99	1.7E+01					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	2.3E+03					
U-235	1.2E+02					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	6.3E-03
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	4.9E-05
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	7.1E-04
Lead	0.0E+00	0.0E+00				
Molybdenum	3.0E-02	1.0E-04	5.0E-03	2.0E-02	2.0E-02	2.0E-02
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	9.0E+00	3.1E-02	3.0E-03	1.0E+01	1.0E+01	1.0E+01
Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	6.8E-07
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	7.2E-08
Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	5.3E-05
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
			Total Pathway:	1.0E+01		
			Total Rad + Chem	1.0E+01	*Total:* 1.0E+01	1.0E+01

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February 18, 1994

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TABLE B.3.2-22(a)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	5.20E-02	9.6E+01	2.8E-11	2.7E-09	CS-137	1.82E-02	1.3E+02	2.8E-11	3.7E-09	6.4E-09
NP-237	6.51E-05	1.2E-01	2.2E-10	2.6E-11	NP-237	5.92E-06	4.4E-02	2.2E-10	9.6E-12	3.6E-11
PU-238	3.08E-07	5.7E-04	2.2E-10	1.2E-13	PU-238	6.15E-08	4.5E-04	2.2E-10	1.0E-13	2.2E-13
PU-239	1.31E-07	2.4E-04	2.3E-10	5.6E-14	PU-239	2.63E-08	1.9E-04	2.3E-10	4.4E-14	1.0E-13
RA-226	3.34E-02	6.1E+01	1.2E-10	7.4E-09	RA-226	6.01E-02	4.4E+02	1.2E-10	5.3E-08	6.0E-08
RA-228	4.84E-03	8.9E+00	1.0E-10	8.9E-10	RA-228	8.71E-03	6.4E+01	1.0E-10	6.4E-09	7.3E-09
SR-90	1.61E-03	3.0E+00	3.6E-11	1.1E-10	SR-90	8.06E-03	5.9E+01	3.6E-11	2.1E-09	2.2E-09
TC-99	7.46E+00	1.4E+04	1.3E-12	1.8E-08	TC-99	8.78E+00	6.5E+04	1.3E-12	8.4E-08	1.0E-07
TH-228	1.24E-04	2.3E-01	5.5E-11	1.3E-11	TH-228	1.03E-04	7.6E-01	5.5E-11	4.2E-11	5.4E-11
TH-230	4.27E-04	7.9E-01	1.3E-11	1.0E-11	TH-230	3.56E-04	2.6E+00	1.3E-11	3.4E-11	4.4E-11
TH-232	1.23E-04	2.3E-01	1.2E-11	2.7E-12	TH-232	1.03E-04	7.6E-01	1.2E-11	9.1E-12	1.2E-11
U-234	8.96E-03	1.6E+01	1.6E-11	2.6E-10	U-234	2.69E-02	2.0E+02	1.6E-11	3.2E-09	3.4E-09
U-235	4.33E-04	8.0E-01	1.6E-11	1.3E-11	U-235	1.30E-03	9.5E+00	1.6E-11	1.5E-10	1.7E-10
U-238	9.63E-03	1.8E+01	2.8E-11	5.0E-10	U-238	2.89E-02	2.1E+02	2.8E-11	5.9E-09	6.4E-09
			Total Pathway:	3.0E-08				Total Pathway:	1.6E-07	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	7.53E-05	7.7E-08	1.8E+00	1.4E-07	Arsenic	2.26E-06	9.3E-09	1.8E+00	1.6E-08	1.5E-07
Beryllium	4.87E-06	5.0E-09	4.3E+00	2.1E-08	Beryllium	4.38E-09	1.8E-11	4.3E+00	7.7E-11	2.2E-08
Chromium	3.96E-04	4.1E-07			Chromium	1.08E-04	4.4E-07			
Lead	3.82E-05	3.9E-08			Lead	3.18E-05	1.3E-07			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.06E-05	3.1E-08			U-TOTAL	9.17E-05	3.8E-07			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.69E-04	1.7E-07	1.1E+00	1.9E-07	Benzo(a)anthracene	5.34E-05	2.2E-07	1.1E+00	2.4E-07	4.3E-07
Benzo(a)pyrene	6.87E-04	7.1E-07	7.3E+00	5.2E-06	Benzo(a)pyrene	2.17E-04	8.9E-07	7.3E+00	6.5E-06	1.2E-05
Benzo(b)fluoranthene	1.76E-03	1.8E-06	9.0E-01	1.6E-06	Benzo(b)fluoranthene	5.58E-04	2.3E-06	9.0E-01	2.1E-06	3.7E-06
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.23E-03	4.3E-06	3.8E-01	1.7E-06	Benzo(k)fluoranthene	1.34E-03	5.5E-06	3.8E-01	2.1E-06	3.7E-06
bis(2-Ethylhexyl)phthalate	7.98E-08	8.2E-11	1.4E-02	1.1E-12	bis(2-Ethylhexyl)phthalate	2.52E-08	1.0E-10	1.4E-02	1.5E-12	2.6E-12
Carbazole	9.27E-06	9.5E-09	2.0E-02	1.9E-10	Carbazole	2.95E-06	1.2E-08	2.0E-02	2.4E-10	4.3E-10
Chrysene	1.86E-04	1.9E-07	3.2E-02	6.1E-09	Chrysene	5.87E-05	2.4E-07	3.2E-02	7.7E-09	1.4E-08
Dibenzo(a,h)anthracene	1.37E-04	1.4E-07	8.1E+00	1.1E-06	Dibenzo(a,h)anthracene	4.33E-05	1.8E-07	8.1E+00	1.4E-06	2.6E-06
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.10E-02	2.2E-05	2.0E+00	4.3E-05	Indeno(1,2,3-cd)pyrene	6.65E-03	2.7E-05	2.0E+00	5.5E-05	9.8E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	6.18E-11	6.3E-14	7.5E-03	4.8E-16	Methylene chloride	1.95E-11	8.0E-14	7.5E-03	6.0E-16	1.1E-15
Aroclor 1254	1.24E-05	1.3E-08	7.7E+00	9.8E-08	Aroclor 1254	3.93E-06	1.6E-08	7.7E+00	1.2E-07	2.2E-07
Aroclor 1260	8.74E-06	9.0E-09	7.7E+00	6.9E-08	Aroclor 1260	2.76E-06	1.1E-08	7.7E+00	8.7E-08	1.6E-07
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	5.3E-05				Total Pathway:	6.7E-05	
			Total Rad + Chem	5.3E-05				Total Rad + Chem	6.7E-05	*Total:* 1.2E-04

TABLE B.3.2-22(a) (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	3.06E-04	5.6E-01	2.2E-10	1.2E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	6.27E-04	1.2E+00	3.6E-11	4.1E-11
TC-99	3.38E+00	6.2E+03	1.3E-12	8.1E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	1.68E+01	3.1E+04	1.6E-11	4.9E-07
U-235	8.95E-01	1.6E+03	1.6E-11	2.6E-08
U-238	1.85E+01	3.4E+04	2.8E-11	9.5E-07
			Total Pathway:	1.5E-06

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	2.78E-05	2.0E-01	2.2E-10	4.5E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	3.13E-03	2.3E+01	3.6E-11	8.3E-10
TC-99	3.97E+00	2.9E+04	1.3E-12	3.8E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	5.03E+01	3.7E+05	1.6E-11	5.9E-06
U-235	2.68E+00	2.0E+04	1.6E-11	3.2E-07
U-238	5.55E+01	4.1E+05	2.8E-11	1.1E-05
			Total Pathway:	1.8E-05

Total	Total Dust & Groundwater Affected
0.0E+00	6.4E-09
1.7E-10	2.0E-10
0.0E+00	2.2E-13
0.0E+00	1.0E-13
0.0E+00	6.0E-08
0.0E+00	7.3E-09
8.7E-10	3.1E-09
4.6E-08	1.5E-07
0.0E+00	5.4E-11
0.0E+00	4.4E-11
0.0E+00	1.2E-11
6.4E-06	6.4E-06
3.4E-07	3.4E-07
1.2E-05	1.2E-05

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Chromium	0.00E+00	0.0E+00		
Lead	0.00E+00	0.0E+00		
Molybdenum	6.22E-03	6.4E-06		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	6.58E-02	6.8E-05		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00
Endrin ketone	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00
			Total Rad + Chem	1.5E-06

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Chromium	0.00E+00	0.0E+00		
Lead	0.00E+00	0.0E+00		
Molybdenum	1.56E-03	6.4E-06		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.98E-01	8.1E-04		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00
Endrin ketone	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00
			Total Rad + Chem	1.8E-05

Total	Total Dust & Groundwater Affected
0.0E+00	1.5E-07
0.0E+00	2.2E-08
0.0E+00	4.3E-07
0.0E+00	1.2E-05
0.0E+00	3.7E-06
0.0E+00	3.7E-06
0.0E+00	2.6E-12
0.0E+00	4.3E-10
0.0E+00	1.4E-08
0.0E+00	2.6E-06
0.0E+00	9.8E-05
0.0E+00	1.1E-15
0.0E+00	2.2E-07
0.0E+00	1.6E-07
0.0E+00	0.0E+00
Total: 1.9E-05	1.4E-04

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TABLE B.3.2-22(a) (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	5.2E-02	9.6E+01			CS-137	1.82E-02				
NP-237	6.5E-05	1.2E-01			NP-237	5.92E-06				
PU-238	3.1E-07	5.7E-04			PU-238	6.15E-08				
PU-239	1.3E-07	2.4E-04			PU-239	2.63E-08				
RA-226	3.3E-02	6.1E+01			RA-226	6.01E-02				
RA-228	4.8E-03	8.9E+00			RA-228	8.71E-03				
SR-90	1.6E-03	3.0E+00			SR-90	8.06E-03				
TC-99	7.5E+00	1.4E+04			TC-99	8.78E+00				
TH-228	1.2E-04	2.3E-01			TH-228	1.03E-04				
TH-230	4.3E-04	7.9E-01			TH-230	3.56E-04				
TH-232	1.2E-04	2.3E-01			TH-232	1.03E-04				
U-234	9.0E-03	1.6E+01			U-234	2.69E-02				
U-235	4.3E-04	8.0E-01			U-235	1.30E-03				
U-238	9.6E-03	1.8E+01								
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	7.5E-05	7.7E-08	3.0E-04	2.6E-04	Arsenic	2.3E-06	9.3E-09	3.0E-04	3.1E-05	2.9E-04
Beryllium	4.9E-06	5.0E-09	5.0E-03	1.0E-06	Beryllium	4.4E-09	1.8E-11	5.0E-03	3.6E-09	1.0E-06
Chromium	4.0E-04	4.1E-07	5.0E-03	8.1E-05	Chromium	1.1E-04	4.4E-07	5.0E-03	8.9E-05	1.7E-04
Lead	3.8E-05	3.9E-08			Lead	3.2E-05	1.3E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.1E-05	3.1E-08	3.0E-03	1.0E-05	U-TOTAL	9.2E-05	3.8E-07	3.0E-03	1.3E-04	1.4E-04
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	1.7E-04	1.7E-07			Benzo(a)anthracene	5.3E-05	2.2E-07			
Benzo(a)pyrene	6.9E-04	7.1E-07			Benzo(a)pyrene	2.2E-04	8.9E-07			
Benzo(b)fluoranthene	1.8E-03	1.8E-06			Benzo(b)fluoranthene	5.6E-04	2.3E-06			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.2E-03	4.3E-06			Benzo(k)fluoranthene	1.3E-03	5.5E-06			
bis(2-Ethylhexyl)phthalate	8.0E-08	8.2E-11	2.0E-02	4.1E-09	bis(2-Ethylhexyl)phthalate	2.5E-08	1.0E-10	2.0E-02	5.2E-09	9.3E-09
Carbazole	9.3E-06	9.5E-09			Carbazole	2.9E-06	1.2E-08			
Chrysene	1.9E-04	1.9E-07			Chrysene	5.9E-05	2.4E-07			
Dibenzo(a,h)anthracene	1.4E-04	1.4E-07			Dibenzo(a,h)anthracene	4.3E-05	1.8E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.1E-02	2.2E-05			Indeno(1,2,3-cd)pyrene	6.6E-03	2.7E-05			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	6.2E-11	6.3E-14	6.1E-02	1.0E-12	Methylene chloride	2.0E-11	8.0E-14	6.1E-02	1.3E-12	2.4E-12
Aroclor 1254	1.2E-05	1.3E-08			Aroclor 1254	3.9E-06	1.6E-08			
Aroclor 1260	8.7E-06	9.0E-09			Aroclor 1260	2.8E-06	1.1E-08			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00			
			Total Pathway:	3.5E-04				Total Pathway:	2.5E-04	
			Total Rad + Chem	3.5E-04				Total Rad + Chem	2.5E-04	*Total:* 6.0E-04

TABLE B.3.2-22(a) (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00					0.0E+00
NP-237	3.1E-04	5.6E-01			NP-237	2.78E-05					0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00					0.0E+00
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00					0.0E+00
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00					0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00					0.0E+00
SR-90	6.3E-04	1.2E+00			SR-90	3.13E-03					0.0E+00
TC-99	3.4E+00	6.2E+03			TC-99	3.97E+00					0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00					0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00					0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00					0.0E+00
U-234	1.7E+01	3.1E+04			U-234	5.03E+01					0.0E+00
U-235	8.9E-01	1.6E+03			U-235	2.68E+00					0.0E+00
U-238	1.9E+01	3.4E+04									0.0E+00
			Total Pathway:	0.0E+00							

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.9E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.0E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.7E-04
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
Molybdenum	6.2E-03	6.4E-06	5.0E-03	1.3E-03	Molybdenum	1.6E-03	6.4E-06	5.0E-03	1.3E-03	2.6E-03	2.6E-03
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	6.6E-02	6.8E-05	3.0E-03	2.3E-02	U-TOTAL	2.0E-01	8.1E-04	3.0E-03	2.7E-01	2.9E-01	2.9E-01
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	9.3E-09
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	2.4E-12
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00				
			Total Pathway:	2.4E-02				Total Pathway:	2.7E-01		
			Total Rad + Chem	2.4E-02				Total Rad + Chem	2.7E-01	*Total:* 3.0E-01	3.0E-01

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TABLE B.3.2-22(b)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	5.20E-02	3.2E+00	2.8E-11	8.9E-11	CS-137	1.82E-02	2.6E+01	2.8E-11	7.3E-10	8.2E-10
NP-237	6.51E-05	4.0E-03	2.2E-10	8.7E-13	NP-237	5.92E-06	8.5E-03	2.2E-10	1.9E-12	2.7E-12
PU-238	3.08E-07	1.9E-05	2.2E-10	4.1E-15	PU-238	6.15E-08	8.8E-05	2.2E-10	1.9E-14	2.3E-14
PU-239	1.31E-07	8.0E-06	2.3E-10	1.8E-15	PU-239	2.63E-08	3.8E-05	2.3E-10	8.6E-15	1.0E-14
RA-226	3.34E-02	2.0E+00	1.2E-10	2.4E-10	RA-226	6.01E-02	8.6E+01	1.2E-10	1.0E-08	1.1E-08
RA-228	4.84E-03	2.9E-01	1.0E-10	2.9E-11	RA-228	8.71E-03	1.2E+01	1.0E-10	1.2E-09	1.3E-09
SR-90	1.61E-03	9.8E-02	3.6E-11	3.5E-12	SR-90	8.06E-03	1.2E+01	3.6E-11	4.1E-10	4.2E-10
TC-99	7.46E+00	4.5E+02	1.3E-12	5.9E-10	TC-99	8.78E+00	1.3E+04	1.3E-12	1.6E-08	1.7E-08
TH-228	1.24E-04	7.5E-03	5.5E-11	4.2E-13	TH-228	1.03E-04	1.5E-01	5.5E-11	8.1E-12	8.5E-12
TH-230	4.27E-04	2.6E-02	1.3E-11	3.4E-13	TH-230	3.56E-04	5.1E-01	1.3E-11	6.6E-12	6.9E-12
TH-232	1.23E-04	7.5E-03	1.2E-11	9.0E-14	TH-232	1.03E-04	1.5E-01	1.2E-11	1.8E-12	1.9E-12
U-234	8.96E-03	5.5E-01	1.6E-11	8.7E-12	U-234	2.69E-02	3.8E+01	1.6E-11	6.1E-10	6.2E-10
U-235	4.33E-04	2.6E-02	1.6E-11	4.2E-13	U-235	1.30E-03	1.9E+00	1.6E-11	3.0E-11	3.0E-11
U-238	9.63E-03	5.9E-01	2.8E-11	1.6E-11	U-238	2.89E-02	4.1E+01	2.8E-11	1.2E-09	1.2E-09
			Total Pathway:	9.8E-10				Total Pathway:	3.1E-08	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	7.53E-05	1.2E-08	1.8E+00	2.1E-08	Arsenic	2.26E-06	8.4E-09	1.8E+00	1.5E-08	3.6E-08
Beryllium	4.87E-06	7.7E-10	4.3E+00	3.3E-09	Beryllium	4.38E-09	1.6E-11	4.3E+00	7.0E-11	3.4E-09
Chromium	3.96E-04	6.3E-08			Chromium	1.08E-04	4.0E-07			
Lead	3.82E-05	6.1E-09			Lead	3.18E-05	1.2E-07			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.06E-05	4.9E-09			U-TOTAL	9.17E-05	3.4E-07			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.69E-04	2.7E-08	1.1E+00	2.9E-08	Benzo(a)anthracene	5.34E-05	2.0E-07	1.1E+00	2.2E-07	2.5E-07
Benzo(a)pyrene	6.87E-04	1.1E-07	7.3E+00	8.0E-07	Benzo(a)pyrene	2.17E-04	8.1E-07	7.3E+00	5.9E-06	6.7E-06
Benzo(b)fluoranthene	1.76E-03	2.8E-07	9.0E-01	2.5E-07	Benzo(b)fluoranthene	5.58E-04	2.1E-06	9.0E-01	1.9E-06	2.1E-06
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.23E-03	6.7E-07	3.8E-01	2.6E-07	Benzo(k)fluoranthene	1.34E-03	5.0E-06	3.8E-01	1.9E-06	2.2E-06
bis(2-Ethylhexyl)phthalate	7.98E-08	1.3E-11	1.4E-02	1.8E-13	bis(2-Ethylhexyl)phthalate	2.52E-08	9.4E-11	1.4E-02	1.3E-12	1.5E-12
Carbazole	9.27E-06	1.5E-09	2.0E-02	2.9E-11	Carbazole	2.95E-06	1.1E-08	2.0E-02	2.2E-10	2.5E-10
Chrysene	1.86E-04	3.0E-08	3.2E-02	9.4E-10	Chrysene	5.87E-05	2.2E-07	3.2E-02	7.0E-09	7.9E-09
Dibenzo(a,h)anthracene	1.37E-04	2.2E-08	8.1E+00	1.8E-07	Dibenzo(a,h)anthracene	4.33E-05	1.6E-07	8.1E+00	1.3E-06	1.5E-06
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.10E-02	3.3E-06	2.0E+00	6.7E-06	Indeno(1,2,3-cd)pyrene	6.65E-03	2.5E-05	2.0E+00	5.0E-05	5.6E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	6.18E-11	9.8E-15	7.5E-03	7.4E-17	Methylene chloride	1.95E-11	7.3E-14	7.5E-03	5.5E-16	6.2E-16
Aroclor 1254	1.24E-05	2.0E-09	7.7E+00	1.5E-08	Aroclor 1254	3.93E-06	1.5E-08	7.7E+00	1.1E-07	1.3E-07
Aroclor 1260	8.74E-06	1.4E-09	7.7E+00	1.1E-08	Aroclor 1260	2.76E-06	1.0E-08	7.7E+00	7.9E-08	9.0E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	8.2E-06				Total Pathway:	6.1E-05	
			Total Rad + Chem	8.2E-06				Total Rad + Chem	6.1E-05	*Total:* 6.9E-0

FER\...ABQ\SBFONRCD.XLS\2/2/94; 10:21 AM

TABLE B.3.2-22(b) (continued)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	8.2E-10
NP-237	3.06E-04	1.9E-02	2.2E-10	4.1E-12	NP-237	2.78E-05	4.0E-02	2.2E-10	8.7E-12	1.3E-11	1.6E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.3E-14
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.0E-14
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.1E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.3E-09
SR-90	6.27E-04	3.8E-02	3.6E-11	1.4E-12	SR-90	3.13E-03	4.5E+00	3.6E-11	1.6E-10	1.6E-10	5.8E-10
TC-99	3.38E+00	2.1E+02	1.3E-12	2.7E-10	TC-99	3.97E+00	5.7E+03	1.3E-12	7.4E-09	7.6E-09	2.5E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	8.5E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	6.9E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.9E-12
U-234	1.68E+01	1.0E+03	1.6E-11	1.6E-08	U-234	5.03E+01	7.2E+04	1.6E-11	1.2E-06	1.2E-06	1.2E-06
U-235	8.95E-01	5.4E+01	1.6E-11	8.7E-10	U-235	2.68E+00	3.8E+03	1.6E-11	6.1E-08	6.2E-08	6.2E-08
U-238	1.85E+01	1.1E+03	2.8E-11	3.2E-08	U-238	5.55E+01	7.9E+04	2.8E-11	2.2E-06	2.3E-06	2.3E-06
			Total Pathway:	4.9E-08				Total Pathway:	3.4E-06		

Chemical Risk

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	3.6E-08
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	3.4E-09
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00			Lead	0.00E+00	0.0E+00				
Molybdenum	6.22E-03	9.9E-07			Molybdenum	1.56E-03	5.8E-06				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	6.58E-02	1.0E-05			U-TOTAL	1.98E-01	7.4E-04				
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	2.5E-07
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	6.7E-06
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	2.1E-06
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.2E-06
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.5E-12
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.5E-10
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	7.9E-09
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	1.5E-06
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	5.6E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	6.2E-16
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.3E-07
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	9.0E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	4.9E-08				Total Rad + Chem	3.4E-06	*Total:* 3.5E-06	7.3E-05

TABLE B.3.2-22(b) (continued)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	5.2E-02	3.2E+00		
NP-237	6.5E-05	4.0E-03		
PU-238	3.1E-07	1.9E-05		
PU-239	1.3E-07	8.0E-06		
RA-226	3.3E-02	2.0E+00		
RA-228	4.8E-03	2.9E-01		
SR-90	1.6E-03	9.8E-02		
TC-99	7.5E+00	4.5E+02		
TH-228	1.2E-04	7.5E-03		
TH-230	4.3E-04	2.6E-02		
TH-232	1.2E-04	7.5E-03		
U-234	9.0E-03	5.5E-01		
U-235	4.3E-04	2.6E-02		
U-238	9.6E-03	5.9E-01		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard
CS-137	1.82E-02			
NP-237	5.92E-06			
PU-238	6.15E-08			
PU-239	2.63E-08			
RA-226	6.01E-02			
RA-228	8.71E-03			
SR-90	8.06E-03			
TC-99	8.78E+00			
TH-228	1.03E-04			
TH-230	3.56E-04			
TH-232	1.03E-04			
U-234	2.69E-02			
U-235	1.30E-03			

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.5E-05	1.4E-07	3.0E-04	4.7E-04
Beryllium	4.9E-06	9.0E-09	5.0E-03	1.8E-06
Chromium	4.0E-04	7.3E-07	5.0E-03	1.5E-04
Lead	3.8E-05	7.1E-08		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.1E-05	5.7E-08	3.0E-03	1.9E-05
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	1.7E-04	3.1E-07		
Benzo(a)pyrene	6.9E-04	1.3E-06		
Benzo(b)fluoranthene	1.8E-03	3.3E-06		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	4.2E-03	7.8E-06		
bis(2-Ethylhexyl)phthalate	8.0E-08	1.5E-10	2.0E-02	7.4E-09
Carbazole	9.3E-06	1.7E-08		
Chrysene	1.9E-04	3.4E-07		
Dibenzo(a,h)anthracene	1.4E-04	2.5E-07		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	2.1E-02	3.9E-05		
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	6.2E-11	1.1E-13	6.1E-02	1.9E-12
Aroclor 1254	1.2E-05	2.3E-08		
Aroclor 1260	8.7E-06	1.6E-08		
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00
Endrin ketone	0.0E+00	0.0E+00		

Total Pathway: 6.3E-04
Total Rad + Chem 6.3E-04

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard
Arsenic	2.3E-06	9.8E-08	3.0E-04	3.3E-04
Beryllium	4.4E-09	1.9E-10	5.0E-03	3.8E-08
Chromium	1.1E-04	4.7E-06	5.0E-03	9.4E-04
Lead	3.2E-05	1.4E-06		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	9.2E-05	4.0E-06	3.0E-03	1.3E-03
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	5.3E-05	2.3E-06		
Benzo(a)pyrene	2.2E-04	9.5E-06		
Benzo(b)fluoranthene	5.6E-04	2.4E-05		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.3E-03	5.8E-05		
bis(2-Ethylhexyl)phthalate	2.5E-08	1.1E-09	2.0E-02	5.5E-08
Carbazole	2.9E-06	1.3E-07		
Chrysene	5.9E-05	2.6E-06		
Dibenzo(a,h)anthracene	4.3E-05	1.9E-06		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	6.6E-03	2.9E-04		
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	2.0E-11	8.5E-13	6.1E-02	1.4E-11
Aroclor 1254	3.9E-06	1.7E-07		
Aroclor 1260	2.8E-06	1.2E-07		
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00
Endrin ketone	0.0E+00	0.0E+00		

Total Pathway: 2.6E-03
Total Rad + Chem 2.6E-03

Total
7.9E-04
1.8E-06
1.1E-03
0.0E+00
1.3E-03
6.2E-08
0.0E+00
1.6E-11
0.0E+00

Total: 3.2E-03

TABLE B.3.2-22(b) (continued)
FUTURE ON-PROPERTY CHILD
SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00					0.0E+00
NP-237	3.1E-04	1.9E-02			NP-237	2:78E-05					0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00					0.0E+00
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00					0.0E+00
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00					0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00					0.0E+00
SR-90	6.3E-04	3.8E-02			SR-90	3.13E-03					0.0E+00
TC-99	3.4E+00	2.1E+02			TC-99	3.97E+00					0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00					0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00					0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00					0.0E+00
U-234	1.7E+01	1.0E+03			U-234	5.03E+01					0.0E+00
U-235	8.9E-01	5.4E+01			U-235	2.68E+00					0.0E+00
U-238	1.9E+01	1.1E+03									0.0E+00
			Total Pathway:	0.0E+00							

Chemical Hazard

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	7.9E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.8E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.1E-03
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
Molybdenum	6.2E-03	1.2E-05	5.0E-03	2.3E-03	Molybdenum	1.6E-03	6.8E-05	5.0E-03	1.4E-02	1.6E-02	1.6E-02
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	6.6E-02	1.2E-04	3.0E-03	4.1E-02	U-TOTAL	2.0E-01	8.6E-03	3.0E-03	2.9E+00	2.9E+00	2.9E+00
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	6.2E-08
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	1.6E-11
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00				
			Total Pathway:	4.3E-02				Total Pathway:	2.9E+00		
			Total Rad + Chem	4.3E-02				Total Rad + Chem	2.9E+00	*Total:* 2.9E+00	2.9E+00

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TABLE B.3.2-23
FUTURE, ON-PROPERTY RESIDENT FARMER (CT VALUES)
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.8E-04	1.5E+00	1.9E-11	2.9E-11
NP-237	8.2E-05	7.0E-01	2.9E-08	2.0E-08
PU-238	4.3E-05	3.7E-01	3.9E-08	1.4E-08
PU-239/240	1.8E-05	1.6E-01	3.8E-08	6.0E-09
RA-226	1.1E-02	9.5E+01	3.0E-09	2.8E-07
RA-228	1.4E-03	1.2E+01	6.9E-10	8.3E-09
SR-90	3.6E-04	3.1E+00	6.2E-11	1.9E-10
TC-99	5.1E-02	4.4E+02	8.3E-12	3.6E-09
TH-228	1.6E-03	1.4E+01	7.8E-08	1.1E-06
TH-230	4.9E-03	4.3E+01	2.9E-08	1.2E-06
TH-232	1.4E-03	1.2E+01	2.8E-08	3.5E-07
U-234	3.1E-03	2.7E+01	2.6E-08	7.0E-07
U-235/236	1.5E-04	1.3E+00	2.5E-08	3.2E-08
U-238	3.3E-03	2.9E+01	5.2E-08	1.5E-06
			Total Pathway:	5.2E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.50	1.5E+02	2.8E-11	4.2E-09
NP-237	0.23	6.9E+01	2.2E-10	1.5E-08
PU-238	0.12	3.6E+01	2.2E-10	7.9E-09
PU-239/240	0.05	1.5E+01	2.3E-10	3.6E-09
RA-226	30.80	9.3E+03	1.2E-10	1.1E-06
RA-228	3.88	1.2E+03	1.0E-10	1.2E-07
SR-90	1.00	3.0E+02	3.6E-11	1.1E-08
TC-99	142.00	4.3E+04	1.3E-12	5.6E-08
TH-228	4.41	1.3E+03	5.5E-11	7.3E-08
TH-230	13.80	4.2E+03	1.3E-11	5.4E-08
TH-232	3.99	1.2E+03	1.2E-11	1.4E-08
U-234	8.66	2.6E+03	1.6E-11	4.2E-08
U-235/236	0.42	1.3E+02	1.6E-11	2.0E-09
U-238	9.31	2.8E+03	2.8E-11	7.9E-08
			Total Pathway:	1.6E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.6E-06	1.3E-08	1.5E+00	1.9E-08
Beryllium	3.4E-07	1.6E-09	8.4E+00	1.4E-08
Chromium	5.0E-06	2.4E-08	4.1E+01	9.8E-07
Lead	8.8E-06	4.2E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.1E-05	5.1E-08		
Acenaphthylene	0.0E+00	0.0E+00		
Benzo(a)anthracene	2.0E-06	9.5E-09	8.9E-01	8.5E-09
Benzo(a)pyrene	3.4E-06	1.6E-08	6.1E+00	9.9E-08
Benzo(b)fluoranthene	2.2E-06	1.1E-08	7.5E-01	8.0E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	2.6E-06	1.3E-08	3.2E-01	4.0E-09
bis(2-Ethylhexyl) phthalate	3.9E-08	1.9E-10		
Carbazole	6.1E-08	2.9E-10		
Chrysene	2.2E-06	1.0E-08	2.7E-02	2.8E-10
Dibenzo(a,h)anthracene	6.8E-07	3.3E-09	6.8E+00	2.2E-08
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.2E-06	1.0E-08	1.7E+00	1.8E-08
Phenanthrene	0.0E+00	0.0E+00		
Methylene chloride	1.8E-09	8.6E-12	2.0E-03	1.7E-14
Aroclor-1254	3.2E-08	1.5E-10		
Aroclor-1260	1.9E-08	9.0E-11		
Dieldrin	3.6E-09	1.7E-11	1.6E+01	2.8E-10
Endrin ketone	0.0E+00	0.0E+00		
			Total Pathway:	1.2E-06
			Total Rad + Chem	6.4E-06

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	1.2E-06	1.8E+00	2.1E-06
Beryllium	9.4E-01	1.6E-07	4.3E+00	6.8E-07
Chromium	13.90	2.3E-06		
Lead	24.58	4.2E-06		
TH-TOTAL	36.70	6.2E-06		
U-TOTAL	29.58	5.0E-06		
Acenaphthylene	1.20	2.0E-07		
Benzo(a)anthracene	5.50	9.3E-07	1.1E+00	1.0E-06
Benzo(a)pyrene	9.40	1.6E-06	7.3E+00	1.2E-05
Benzo(b)fluoranthene	6.20	1.0E-06	9.0E-01	9.4E-07
Benzo(g,h,i)perylene	6.20	1.0E-06		
Benzo(k)fluoranthene	7.30	1.2E-06	3.8E-01	4.7E-07
bis(2-Ethylhexyl) phthalate	1.1E-01	1.9E-08	1.4E-02	2.6E-10
Carbazole	1.7E-01	2.9E-08	2.0E-02	5.7E-10
Chrysene	6.00	1.0E-06	3.2E-02	3.2E-08
Dibenzo(a,h)anthracene	1.90	3.2E-07	8.1E+00	2.6E-06
Dibenzofuran	1.3E-01	2.2E-08		
Indeno(1,2,3-cd)pyrene	6.00	1.0E-06	2.0E+00	2.0E-06
Phenanthrene	2.30	3.9E-07		
Methylene chloride	5.0E-03	8.4E-10	7.5E-03	6.3E-12
Aroclor-1254	8.9E-02	1.5E-08	7.7E+00	1.2E-07
Aroclor-1260	5.2E-02	8.8E-09	7.7E+00	6.8E-08
Dieldrin	9.7E-03	1.6E-09	1.6E+01	2.6E-08
Endrin ketone	5.9E-03	1.0E-09		
			Total Pathway:	2.2E-05
			Total Rad + Chem	2.3E-05

TABLE B.3.2-23 (continued)
FUTURE, ON-PROPERTY RESIDENT FARMER (CT VALUES)
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	SF(e)	Risk	
CS-137	2.0E+00	2.0E-06	4.0E-06	4.0E-06
NP-237	9.1E-01	4.3E-07	3.9E-07	4.3E-07
PU-238	4.8E-01	2.8E-11	1.3E-11	2.2E-08
PU-239/240	2.0E-01	2.7E-11	5.5E-12	9.6E-09
RA-226	1.2E+02	1.2E-08	1.5E-06	2.9E-06
RA-228	1.5E+01	2.90E-06	4.5E-05	4.5E-05
SR-90	4.0E+00	0.0E+00	0.0E+00	1.1E-08
TC-99	5.7E+02	6.0E-13	3.4E-10	6.0E-08
TH-228	1.8E+01	5.6E-06	9.8E-05	1.0E-04
TH-230	5.5E+01	5.4E-11	3.0E-09	1.3E-06
TH-232	1.6E+01	2.6E-11	4.1E-10	3.6E-07
U-234	3.4E+01	3.0E-11	1.0E-09	7.4E-07
U-235/236	1.7E+00	2.4E-07	4.0E-07	4.3E-07
U-238	3.7E+01	3.6E-08	1.3E-06	2.9E-06

Total Pathway: 1.5E-04

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	
Arsenic	5.0E-08	1.8E+00	9.3E-08	2.3E-06
Beryllium	6.5E-08	4.30E+02	2.8E-05	2.9E-05
Chromium	9.6E-07			9.8E-07
Lead	1.7E-06			
TH-TOTAL	0.0E+00			
U-TOTAL	2.0E-06			
Acenaphthylene	2.5E-06			
Benzo(a)anthracene	0.0E+00	2.56E+00	0.0E+00	1.0E-06
Benzo(a)pyrene	0.0E+00	1.70E+01	0.0E+00	1.2E-05
Benzo(b)fluoranthene	0.0E+00	2.09E+00	0.0E+00	9.5E-07
Benzo(g,h,i)perylene	1.3E-05			
Benzo(k)fluoranthene	0.0E+00	8.84E-01	0.0E+00	4.7E-07
bis(2-Ethylhexyl) phthalate	3.0E-09	1.56E-02	4.7E-11	3.1E-10
Carbazole	0.0E+00	2.00E-02	0.0E+00	5.7E-10
Chrysene	0.0E+00	3.56E-02	0.0E+00	3.3E-08
Dibenzo(a,h)anthracene	0.0E+00	9.00E+00	0.0E+00	2.6E-06
Dibenzofuran	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	2.22E+00	0.0E+00	2.0E-06
Phenanthrene	4.8E-06			
Methylene chloride	1.4E-08	7.50E-03	1.0E-10	1.1E-10
Aroclor-1254	1.8E-07	1.03E+01	1.9E-06	2.0E-06
Aroclor-1260	1.1E-07	1.03E+01	1.1E-06	1.2E-06
Dieldrin	2.0E-08	1.78E+01	3.6E-07	3.8E-07
Endrin ketone	0.0E+00			

Total Pathway: 3.1E-05

External Radiation/Soil

Compound	Intake	SF(o)	Risk
Not applicable			

Total Pathway: 0.0E+00

2.1E-04

Total Rad + Chem 3.1E-05

1.5E-04 *Total:* 2.1E-04

TABLE B.3.2-23 (continued)
FUTURE, ON-PROPERTY RESIDENT FARMER (CT VALUES)
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.8E-04	1.5E+00		
NP-237	8.2E-05	7.0E-01		
PU-238	4.3E-05	3.7E-01		
PU-239/240	1.8E-05	1.6E-01		
RA-226	1.1E-02	9.5E+01		
RA-228	1.4E-03	1.2E+01		
SR-90	3.6E-04	3.1E+00		
TC-99	5.1E-02	4.4E+02		
TH-228	1.6E-03	1.4E+01		
TH-230	4.9E-03	4.3E+01		
TH-232	1.4E-03	1.2E+01		
U-234	3.1E-03	2.7E+01		
U-235/236	1.5E-04	1.3E+00		
U-238	3.3E-03	2.9E+01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	1.5E+02		
NP-237	0.23	6.9E+01		
PU-238	0.12	3.6E+01		
PU-239/240	0.05	1.5E+01		
RA-226	30.80	9.3E+03		
RA-228	3.88	1.2E+03		
SR-90	1.00	3.0E+02		
TC-99	142.00	4.3E+04		
TH-228	4.41	1.3E+03		
TH-230	13.80	4.2E+03		
TH-232	3.99	1.2E+03		
U-234	8.66	2.6E+03		
U-235/236	0.42	1.3E+02		
U-238	9.31	2.8E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	2.60E-06	9.8E-08		
Beryllium	3.37E-07	1.3E-08		
Chromium	4.98E-06	1.9E-07		
Lead	8.80E-06	3.3E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.06E-05	4.0E-07		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	1.97E-06	7.4E-08		
Benzo(a)pyrene	3.37E-06	1.3E-07		
Benzo(b)fluoranthene	2.22E-06	8.3E-08		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	2.61E-06	9.8E-08		
bis(2-Ethylhexyl) phthalate	3.94E-08	1.5E-09		
Carbazole	6.09E-08	2.3E-09		
Chrysene	2.15E-06	8.1E-08		
Dibenzo(a,h)anthracene	6.80E-07	2.6E-08		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.15E-06	8.1E-08		
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	1.79E-09	6.7E-11	8.2E-01	8.2E-11
Aroclor-1254	3.19E-08	1.2E-09		
Aroclor-1260	1.86E-08	7.0E-10		
Dieldrin	3.58E-09	1.3E-10		
Endrin ketone	0.00E+00	0.0E+00		

Total Pathway: 8.2E-11

Total Rad + Chem 8.2E-

Ingestion/Soil

Compound	Conc'n (mg/kg	Intake	RfD(o)	Hazard
Arsenic	7.27	9.5E-06	3.0E-04	3.2E-02
Beryllium	0.94	1.2E-06	5.0E-03	2.5E-04
Chromium	13.90	1.8E-05	5.0E-03	3.7E-03
Lead	24.58	3.2E-05		
TH-TOTAL	36.70	4.8E-05		
U-TOTAL	29.58	3.9E-05	3.0E-03	1.3E-02
Acenaphthylene	1.20	1.6E-06		
Benzo(a)anthracene	5.50	7.2E-06		
Benzo(a)pyrene	9.40	1.2E-05		
Benzo(b)fluoranthene	6.20	8.1E-06		
Benzo(g,h,i)perylene	6.20	8.1E-06		
Benzo(k)fluoranthene	7.30	9.6E-06		
bis(2-Ethylhexyl) phthalate	0.11	1.4E-07	2.0E-02	7.2E-06
Carbazole	0.17	2.2E-07		
Chrysene	6.00	7.9E-06		
Dibenzo(a,h)anthracene	1.90	2.5E-06		
Dibenzofuran	0.13	1.7E-07	4.0E-03	4.3E-05
Indeno(1,2,3-cd)pyrene	6.00	7.9E-06		
Phenanthrene	2.30	3.0E-06		
Methylene chloride	0.01	6.6E-09	6.1E-02	1.1E-07
Aroclor-1254	0.09	1.2E-07		
Aroclor-1260	0.05	6.8E-08		
Dieldrin	0.01	1.3E-08	5.0E-05	2.5E-04
Endrin ketone	0.01	7.7E-09	3.0E-04	2.6E-05

Total Pathway: 4.9E-02

Total Rad + Chem 4.9E-02

TABLE B.3.2-23 (continued)
FUTURE, ON-PROPERTY RESIDENT FARMER (CT VALUES)
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	RfD(e)	Hazard
CS-137	2.0E+00		
NP-237	9.1E-01		
PU-238	4.8E-01		
PU-239/24	2.0E-01		
RA-226	1.2E+02		
RA-228	1.5E+01		
SR-90	4.0E+00		
TC-99	5.7E+02		
TH-228	1.8E+01		
TH-230	5.5E+01		
TH-232	1.6E+01		
U-234	3.4E+01		
U-235/236	1.7E+00		
U-238	3.7E+01		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm)	Hazard	
Arsenic	3.9E-07	2.9E-04	1.4E-03	3.3E-02
Beryllium	5.1E-07	5.0E-05	1.0E-02	1.0E-02
Chromium	7.5E-06	2.3E-03	3.3E-03	7.0E-03
Lead	1.3E-05			
TH-TOTAL	0.0E+00			
U-TOTAL	1.6E-05	1.5E-04	0.1	1.2E-01
Acenaphthylene	1.9E-05			
Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	0.0E+00			
Benzo(g,h,i)perylene	1.0E-04			
Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl) phthalate	2.4E-08	1.8E-02	1.3E-06	8.5E-06
Carbazole	0.0E+00			
Chrysene	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00			
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00	4.3E-05
Indeno(1,2,3-cd)pyrene	0.0E+00			
Phenanthrene	3.7E-05			
Methylene chloride	1.1E-07	6.1E-02	1.8E-06	1.9E-06
Aroclor-1254	1.4E-06			
Aroclor-1260	8.4E-07			
Dieldrin	1.6E-07	4.5E-05	3.5E-03	3.7E-03
Endrin ketone	9.5E-08	2.7E-04	3.5E-04	3.8E-04

Total Pathway: 0.1

External Radiation/Soil

Compound	Intake	RfD(o)	Hazard

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 0.1

0.0E+00

Total: 0.2

TABLE B.3.2-24

FUTURE, ON-PROPERTY FARMER

SOUTH FIELD: GROUNDWATER (CT VALUES)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.031	1.1E+02	2.2E-10	2.4E-08	Not applicable
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	1.1E-02	3.9E+01	3.60E-11	1.4E-09	
TC-99	1.8E+00	6.3E+03	1.3E-12	8.2E-09	
U234	469	1.6E+06	1.6E-11	2.6E-05	
U235/236	25	8.7E+04	1.6E-11	1.4E-06	
U238	517	1.8E+06	2.8E-11	5.0E-05	
			Total Pathway:	7.8E-05	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	1.1E-06			Cadmium	5.9E-06		
Lead	1.4E-03	2.8E-06			Lead	1.5E-05		
Mercury	0.0E+00	0.0E+00			Mercury	0.0E+00		
Molybdenum	5.6E-03	1.1E-05			Molybdenum	5.8E-05		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.84	3.6E-03			U-Total	1.9E-02		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	7.8E-05			Total Rad + Chem	0.0E+00

CARCINOGENIC RISK

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		2.4E-08
		0.0E+00
		0.0E+00
		1.4E-09
		8.2E-09
		2.6E-05
		1.4E-06
		5.0E-05
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	1.0E-08			
Lead	1.0E-10			
Mercury	0.0E+00			
Molybdenum	9.8E-08			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	3.2E-05			
Total Pathway:			0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 7.8E-05

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TABLE B.3.2-24 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	3.1E-02	1.1E+02			Not applicable
RA-226	0.0	0.0E+00			
RA-228	0.0	0.0E+00			
SR-90	1.1E-02	3.9E+01			
TC-99	1.8	6.3E+03			
U234	469.0	1.6E+06			
U235/236	25.0	8.7E+04			
U238	517.0	1.8E+06			
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	8.6E-06	5.0E-04	1.7E-02	Cadmium	4.6E-05		
Lead	1.4E-03	2.2E-05			Lead	1.2E-04		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Mercury	0.0E+00		
Molybdenum	5.6E-03	8.4E-05	5.0E-03	1.7E-02	Molybdenum	4.5E-04		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.8E+00	2.8E-02	3.00E-03	9.2E+00	U-Total	1.5E-01		
			Total Pathway:	9.3E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	9.3E+00			Total Rad + Chem	0.0E+00

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TABLE B.3.2-24 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	7.8E-08	2.5E-05	3.1E-03	2.0E-02
Lead	4.00E-06	7.8E-10			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	7.6E-07	1.9E-03	4.0E-04	1.7E-02
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	2.5E-04	1.5E-04	1.7E+00	10.9
			Total Pathway:	1.7E+00	

Total Rad + Chem 1.7E+00 *Total:* 11.0

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TABLE B.3.2-25
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.88E-02	3.7E+00	2.8E-11	1.0E-10	1.0E-10
NP-237	1.79E-02	1.7E+00	2.2E-10	3.8E-10	3.8E-10
PU-238	9.14E-03	8.8E-01	2.2E-10	1.9E-10	1.9E-10
PU-239	3.87E-03	3.7E-01	2.3E-10	8.6E-11	8.6E-11
RA-226	2.35E+00	2.3E+02	1.2E-10	2.7E-08	2.7E-08
RA-228	2.95E-01	2.8E+01	1.0E-10	2.8E-09	2.8E-09
SR-90	9.81E-02	9.5E+00	3.6E-11	3.4E-10	3.4E-10
TC-99	1.84E+01	1.8E+03	1.3E-12	2.3E-09	2.3E-09
TH-228	3.34E-01	3.2E+01	5.5E-11	1.8E-09	1.8E-09
TH-230	1.04E+00	1.0E+02	1.3E-11	1.3E-09	1.3E-09
TH-232	3.03E-01	2.9E+01	1.2E-11	3.5E-10	3.5E-10
U-234	6.59E-01	6.4E+01	1.6E-11	1.0E-09	1.0E-09
U-235	3.19E-02	3.1E+00	1.6E-11	4.9E-11	4.9E-11
U-238	7.08E-01	6.8E+01	2.8E-11	1.9E-09	1.9E-09
			Total Pathway:	4.0E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.59E-04	3.0E-08	1.8E+00	5.3E-08	5.3E-08
Beryllium	7.17E-05	3.9E-09	4.3E+00	1.7E-08	1.7E-08
Chromium	1.05E-03	5.7E-08			
Lead	1.89E-03	1.0E-07			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.25E-03	1.2E-07			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.07E-04	2.2E-08	1.1E+00	2.4E-08	2.4E-08
Benzo(a)pyrene	6.91E-04	3.7E-08	7.3E+00	2.7E-07	2.7E-07
Benzo(b)fluoranthene	4.58E-04	2.5E-08	9.0E-01	2.2E-08	2.2E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.49E-04	3.0E-08	3.8E-01	1.1E-08	1.1E-08
bis(2-Ethylhexyl)phthalate	4.04E-06	2.2E-10	1.4E-02	3.1E-12	3.1E-12
Carbazole	1.34E-05	7.2E-10	2.0E-02	1.4E-11	1.4E-11
Chrysene	4.48E-04	2.4E-08	3.2E-02	7.7E-10	7.7E-10
Dibenzo(a,h)anthracene	1.42E-04	7.6E-09	8.1E+00	6.2E-08	6.2E-08
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.45E-04	2.4E-08	2.0E+00	4.8E-08	4.8E-08
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-06	7.0E-11	7.5E-03	5.3E-13	5.3E-13
Aroclor 1254	6.78E-06	3.7E-10	7.7E+00	2.8E-09	2.8E-09
Aroclor 1260	3.96E-06	2.1E-10	7.7E+00	1.6E-09	1.6E-09
Dieldrin	7.79E-07	4.2E-11	1.6E+01	6.7E-10	6.7E-10
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	5.2E-07	
			Total Rad + Chem	5.6E-07	*Total:* 5.6E-07

TABLE B.3.2-25 (continued)
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						Total Dust & Groundwater
Ingestion/Homegrown Produce					Total	Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.0E-10
NP-237	1.58E-01	1.5E+01	2.2E-10	3.4E-09	3.4E-09	3.7E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.9E-10
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	8.6E-11
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.7E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.8E-09
SR-90	7.49E-02	7.2E+00	3.6E-11	2.6E-10	2.6E-10	6.0E-10
TC-99	1.68E+01	1.6E+03	1.3E-12	2.1E-09	2.1E-09	4.4E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.8E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.3E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	3.5E-10
U-234	2.30E+03	2.2E+05	1.6E-11	3.6E-06	3.6E-06	3.6E-06
U-235	1.23E+02	1.2E+04	1.6E-11	1.9E-07	1.9E-07	1.9E-07
U-238	2.54E+03	2.5E+05	2.8E-11	6.9E-06	6.9E-06	6.9E-06
			Total Pathway:	1.1E-05		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	5.3E-08
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.7E-08
Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00				
Molybdenum	3.02E-02	1.6E-06				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	9.03E+00	4.9E-04				
Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	2.4E-08
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	2.7E-07
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	2.2E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	1.1E-08
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	3.1E-12
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.4E-11
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	7.7E-10
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	6.2E-08
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	
Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	5.3E-13
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	2.8E-09
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.6E-09
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	6.7E-10
Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	1.1E-05	*Total:* 1.1E-05	1.1E-05

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TABLE B.3.2-25 (continued)
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard					Total
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	3.9E-02				
NP-237	1.8E-02				
PU-238	9.1E-03				
PU-239	3.9E-03				
RA-226	2.3E+00				
RA-228	3.0E-01				
SR-90	9.8E-02				
TC-99	1.8E+01				
TH-228	3.3E-01				
TH-230	1.0E+00				
TH-232	3.0E-01				
U-234	6.6E-01				
U-235	3.2E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	5.6E-04	2.3E-07	3.0E-04	7.8E-04	7.8E-04
Beryllium	7.2E-05	3.0E-08	5.0E-03	6.0E-06	6.0E-06
Chromium	1.1E-03	4.4E-07	5.0E-03	8.9E-05	8.9E-05
Lead	1.9E-03	7.9E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.2E-03	9.4E-07	3.0E-03	3.1E-04	3.1E-04
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	4.1E-04	1.7E-07			
Benzo(a)pyrene	6.9E-04	2.9E-07			
Benzo(b)fluoranthene	4.6E-04	1.9E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	2.3E-07			
bis(2-Ethylhexyl)phthalate	4.0E-06	1.7E-09	2.0E-02	8.5E-08	8.5E-08
Carbazole	1.3E-05	5.6E-09			
Chrysene	4.5E-04	1.9E-07			
Dibenzo(a,h)anthracene	1.4E-04	5.9E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	4.4E-04	1.9E-07			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	1.3E-06	5.5E-10	6.1E-02	8.9E-09	8.9E-09
Aroclor 1254	6.8E-06	2.8E-09			
Aroclor 1260	4.0E-06	1.7E-09			
Dieldrin	7.8E-07	3.3E-10	5.0E-05	6.5E-06	6.5E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	1.2E-03	

Total Rad + Chem 1.2E-03 | *Total:* 1.2E-03

TABLE B.3.2-25 (continued)
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00					
NP-237	1.6E-01					
PU-238	0.0E+00					
PU-239	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	7.5E-02					
TC-99	1.7E+01					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	2.3E+03					
U-235	1.2E+02					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	7.8E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	6.0E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	8.9E-05
Lead	0.0E+00	0.0E+00				
Molybdenum	3.0E-02	1.3E-05	5.0E-03	2.5E-03	2.5E-03	2.5E-03
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	9.0E+00	3.8E-03	3.0E-03	1.3E+00	1.3E+00	1.3E+00
Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	8.5E-08
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	8.9E-09
Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	6.5E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	1.3E+00		
			Total Rad + Chem	1.3E+00	*Total:* 1.3E+00	1.3E+00

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TABLE B.3.2-26
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	5.20E-02	6.4E+00	2.8E-11	1.8E-10	CS-137	1.82E-02	7.2E+00	2.8E-11	2.0E-10	3.8E-10
NP-237	6.51E-05	8.1E-03	2.2E-10	1.8E-12	NP-237	5.92E-06	2.3E-03	2.2E-10	5.2E-13	2.3E-12
PU-238	3.08E-07	3.8E-05	2.2E-10	8.4E-15	PU-238	6.15E-08	2.4E-05	2.2E-10	5.4E-15	1.4E-14
PU-239	1.31E-07	1.6E-05	2.3E-10	3.7E-15	PU-239	2.63E-08	1.0E-05	2.3E-10	2.4E-15	6.1E-15
RA-226	3.34E-02	4.1E+00	1.2E-10	5.0E-10	RA-226	6.01E-02	2.4E+01	1.2E-10	2.9E-09	3.4E-09
RA-228	4.84E-03	6.0E-01	1.0E-10	6.0E-11	RA-228	8.71E-03	3.5E+00	1.0E-10	3.5E-10	4.0E-10
SR-90	1.61E-03	2.0E-01	3.6E-11	7.2E-12	SR-90	8.06E-03	3.2E+00	3.6E-11	1.1E-10	1.2E-10
TC-99	7.46E+00	9.2E+02	1.3E-12	1.2E-09	TC-99	8.78E+00	3.5E+03	1.3E-12	4.5E-09	5.7E-09
TH-228	1.24E-04	1.5E-02	5.5E-11	8.4E-13	TH-228	1.03E-04	4.1E-02	5.5E-11	2.2E-12	3.1E-12
TH-230	4.27E-04	5.3E-02	1.3E-11	6.9E-13	TH-230	3.56E-04	1.4E-01	1.3E-11	1.8E-12	2.5E-12
TH-232	1.23E-04	1.5E-02	1.2E-11	1.8E-13	TH-232	1.03E-04	4.1E-02	1.2E-11	4.9E-13	6.7E-13
U-234	8.96E-03	1.1E+00	1.6E-11	1.8E-11	U-234	2.69E-02	1.1E+01	1.6E-11	1.7E-10	1.9E-10
U-235	4.33E-04	5.4E-02	1.6E-11	8.6E-13	U-235	1.30E-03	5.1E-01	1.6E-11	8.2E-12	9.1E-12
U-238	9.63E-03	1.2E+00	2.8E-11	3.3E-11	U-238	2.89E-02	1.1E+01	2.8E-11	3.2E-10	3.5E-10
			Total Pathway:	2.0E-09				Total Pathway:	8.5E-09	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	7.53E-05	5.2E-09	1.8E+00	9.1E-09	Arsenic	2.26E-06	5.0E-10	1.8E+00	8.8E-10	1.0E-08
Beryllium	4.87E-06	3.4E-10	4.3E+00	1.4E-09	Beryllium	4.38E-09	9.7E-13	4.3E+00	4.2E-12	1.5E-09
Chromium	3.96E-04	2.7E-08			Chromium	1.08E-04	2.4E-08			
Lead	3.82E-05	2.6E-09			Lead	3.18E-05	7.1E-09			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.06E-05	2.1E-09			U-TOTAL	9.17E-05	2.0E-08			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.69E-04	1.2E-08	1.1E+00	1.3E-08	Benzo(a)anthracene	5.34E-05	1.2E-08	1.1E+00	1.3E-08	2.6E-08
Benzo(a)pyrene	6.87E-04	4.8E-08	7.3E+00	3.5E-07	Benzo(a)pyrene	2.17E-04	4.8E-08	7.3E+00	3.5E-07	7.0E-07
Benzo(b)fluoranthene	1.76E-03	1.2E-07	9.0E-01	1.1E-07	Benzo(b)fluoranthene	5.58E-04	1.2E-07	9.0E-01	1.1E-07	2.2E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.23E-03	2.9E-07	3.8E-01	1.1E-07	Benzo(k)fluoranthene	1.34E-03	3.0E-07	3.8E-01	1.1E-07	2.2E-07
bis(2-Ethylhexyl)phthalate	7.98E-08	5.5E-12	1.4E-02	7.7E-14	bis(2-Ethylhexyl)phthalate	2.52E-08	5.6E-12	1.4E-02	7.8E-14	1.6E-13
Carbazole	9.27E-06	6.4E-10	2.0E-02	1.3E-11	Carbazole	2.95E-06	6.5E-10	2.0E-02	1.3E-11	2.6E-11
Chrysene	1.86E-04	1.3E-08	3.2E-02	4.1E-10	Chrysene	5.87E-05	1.3E-08	3.2E-02	4.2E-10	8.3E-10
Dibenzo(a,h)anthracene	1.37E-04	9.5E-09	8.1E+00	7.7E-08	Dibenzo(a,h)anthracene	4.33E-05	9.6E-09	8.1E+00	7.8E-08	1.5E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.10E-02	1.5E-06	2.0E+00	2.9E-06	Indeno(1,2,3-cd)pyrene	6.65E-03	1.5E-06	2.0E+00	2.9E-06	5.9E-06
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	6.18E-11	4.3E-15	7.5E-03	3.2E-17	Methylene chloride	1.95E-11	4.3E-15	7.5E-03	3.2E-17	6.5E-17
Aroclor 1254	1.24E-05	8.6E-10	7.7E+00	6.6E-09	Aroclor 1254	3.93E-06	8.7E-10	7.7E+00	6.7E-09	1.3E-08
Aroclor 1260	8.74E-06	6.0E-10	7.7E+00	4.7E-09	Aroclor 1260	2.76E-06	6.1E-10	7.7E+00	4.7E-09	9.4E-09
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	3.6E-06				Total Pathway:	3.6E-06	
			Total Rad + Chem	3.6E-06				Total Rad + Chem	3.6E-06	*Total:* 7.2E-06

TABLE B.3.2-26 (continued)
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	3.8E-10
NP-237	3.06E-04	3.8E-02	2.2E-10	8.3E-12	NP-237	2.78E-05	1.1E-02	2.2E-10	2.4E-12	1.1E-11	1.3E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.4E-14
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	6.1E-15
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.4E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	4.0E-10
SR-90	6.27E-04	7.8E-02	3.6E-11	2.8E-12	SR-90	3.13E-03	1.2E+00	3.6E-11	4.5E-11	4.7E-11	1.7E-10
TC-99	3.38E+00	4.2E+02	1.3E-12	5.4E-10	TC-99	3.97E+00	1.6E+03	1.3E-12	2.0E-09	2.6E-09	8.3E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	3.1E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.5E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	6.7E-13
U-234	1.68E+01	2.1E+03	1.6E-11	3.3E-08	U-234	5.03E+01	2.0E+04	1.6E-11	3.2E-07	3.5E-07	3.5E-07
U-235	8.95E-01	1.1E+02	1.6E-11	1.8E-09	U-235	2.68E+00	1.1E+03	1.6E-11	1.7E-08	1.9E-08	1.9E-08
U-238	1.85E+01	2.3E+03	2.8E-11	6.4E-08	U-238	5.55E+01	2.2E+04	2.8E-11	6.2E-07	6.8E-07	6.8E-07
			Total Pathway:	1.0E-07				Total Pathway:	9.5E-07		

Chemical Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.0E-08
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.5E-09
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00			Lead	0.00E+00	0.0E+00				
Molybdenum	6.22E-03	4.3E-07			Molybdenum	1.56E-03	3.4E-07				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	6.58E-02	4.6E-06			U-TOTAL	1.98E-01	4.4E-05				
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	2.6E-08
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	7.0E-07
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	2.2E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.2E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.6E-13
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.6E-11
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	8.3E-10
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	1.5E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	5.9E-06
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	6.5E-17
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.3E-08
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	9.4E-09
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	1.0E-07				Total Rad + Chem	9.5E-07	*Total:* 1.1E-06	8.3E-06

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TABLE B.3.2-26 (continued)
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	5.2E-02	6.4E+00			CS-137	1.82E-02				
NP-237	6.5E-05	8.1E-03			NP-237	5.92E-06				
PU-238	3.1E-07	3.8E-05			PU-238	6.15E-08				
PU-239	1.3E-07	1.6E-05			PU-239	2.63E-08				
RA-226	3.3E-02	4.1E+00			RA-226	6.01E-02				
RA-228	4.8E-03	6.0E-01			RA-228	8.71E-03				
SR-90	1.6E-03	2.0E-01			SR-90	8.06E-03				
TC-99	7.5E+00	9.2E+02			TC-99	8.78E+00				
TH-228	1.2E-04	1.5E-02			TH-228	1.03E-04				
TH-230	4.3E-04	5.3E-02			TH-230	3.56E-04				
TH-232	1.2E-04	1.5E-02			TH-232	1.03E-04				
U-234	9.0E-03	1.1E+00			U-234	2.69E-02				
U-235	4.3E-04	5.4E-02			U-235	1.30E-03				
U-238	9.6E-03	1.2E+00								
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	7.5E-05	4.1E-08	3.0E-04	1.4E-04	Arsenic	2.3E-06	3.9E-09	3.0E-04	1.3E-05	1.5E-04
Beryllium	4.9E-06	2.6E-09	5.0E-03	5.2E-07	Beryllium	4.4E-09	7.5E-12	5.0E-03	1.5E-09	5.3E-07
Chromium	4.0E-04	2.1E-07	5.0E-03	4.3E-05	Chromium	1.1E-04	1.9E-07	5.0E-03	3.7E-05	8.0E-05
Lead	3.8E-05	2.1E-08			Lead	3.2E-05	5.5E-08			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.1E-05	1.6E-08	3.0E-03	5.5E-06	U-TOTAL	9.2E-05	1.6E-07	3.0E-03	5.3E-05	5.8E-05
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	1.7E-04	9.1E-08			Benzo(a)anthracene	5.3E-05	9.2E-08			
Benzo(a)pyrene	6.9E-04	3.7E-07			Benzo(a)pyrene	2.2E-04	3.7E-07			
Benzo(b)fluoranthene	1.8E-03	9.5E-07			Benzo(b)fluoranthene	5.6E-04	9.6E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.2E-03	2.3E-06			Benzo(k)fluoranthene	1.3E-03	2.3E-06			
bis(2-Ethylhexyl)phthalate	8.0E-08	4.3E-11	2.0E-02	2.1E-09	bis(2-Ethylhexyl)phthalate	2.5E-08	4.3E-11	2.0E-02	2.2E-09	4.3E-09
Carbazole	9.3E-06	5.0E-09			Carbazole	2.9E-06	5.1E-09			
Chrysene	1.9E-04	1.0E-07			Chrysene	5.9E-05	1.0E-07			
Dibenzo(a,h)anthracene	1.4E-04	7.4E-08			Dibenzo(a,h)anthracene	4.3E-05	7.5E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.1E-02	1.1E-05			Indeno(1,2,3-cd)pyrene	6.6E-03	1.1E-05			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	6.2E-11	3.3E-14	6.1E-02	5.5E-13	Methylene chloride	2.0E-11	3.4E-14	6.1E-02	5.5E-13	1.1E-12
Aroclor 1254	1.2E-05	6.7E-09			Aroclor 1254	3.9E-06	6.8E-09			
Aroclor 1260	8.7E-06	4.7E-09			Aroclor 1260	2.8E-06	4.8E-09			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00			
			Total Pathway:	1.8E-04				Total Pathway:	1.0E-04	
			Total Rad + Chem	1.8E-04				Total Rad + Chem	1.0E-04	*Total:* 2.9E-04

TABLE B.3.2-26 (continued)
FUTURE ON-PROPERTY FARMER (CT VALUES)
SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00					0.0E+00
NP-237	3.1E-04	3.8E-02			NP-237	2.78E-05					0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00					0.0E+00
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00					0.0E+00
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00					0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00					0.0E+00
SR-90	6.3E-04	7.8E-02			SR-90	3.13E-03					0.0E+00
TC-99	3.4E+00	4.2E+02			TC-99	3.97E+00					0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00					0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00					0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00					0.0E+00
U-234	1.7E+01	2.1E+03			U-234	5.03E+01					0.0E+00
U-235	8.9E-01	1.1E+02			U-235	2.68E+00					0.0E+00
U-238	1.9E+01	2.3E+03									0.0E+00
			Total Pathway:	0.0E+00							

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.5E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.3E-07
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	8.0E-05
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
Molybdenum	6.2E-03	3.3E-06	5.0E-03	6.7E-04	Molybdenum	1.6E-03	2.7E-06	5.0E-03	5.4E-04	1.2E-03	1.2E-03
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	6.6E-02	3.5E-05	3.0E-03	1.2E-02	U-TOTAL	2.0E-01	3.4E-04	3.0E-03	1.1E-01	1.3E-01	1.3E-01
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	4.3E-09
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	1.1E-12
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00				
			Total Pathway:	1.2E-02				Total Pathway:	1.1E-01		
			Total Rad + Chem	1.2E-02				Total Rad + Chem	1.1E-01	*Total:* 1.3E-01	1.3E-01

TABLE B.3.2-27
FUTURE, ON-SUBUNIT HOMEBUILDER
SOUTH FIELD: SUBSURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.56E-05	6.47E-03	1.9E-11	1.2E-13
NP-237	3.18E-05	1.32E-02	2.9E-08	3.8E-10
PB-210	3.91E-04	1.62E-01	4.0E-09	6.5E-10
PU-238	1.76E-05	7.28E-03	3.9E-08	2.8E-10
PU-239/240	8.45E-06	3.51E-03	3.8E-08	1.3E-10
RA-224	2.04E-04	8.45E-02	1.2E-09	1.0E-10
RA-226	1.90E-04	7.87E-02	3.0E-09	2.4E-10
RA-228	1.08E-04	4.47E-02	6.6E-10	2.9E-11
RU-106	8.45E-05	3.51E-02	4.4E-10	1.5E-11
SR-90	3.64E-05	1.51E-02	6.2E-11	9.4E-13
TC-99	5.85E-05	2.43E-02	8.3E-12	2.0E-13
TH-228	1.08E-04	4.48E-02	7.8E-08	3.5E-09
TH-230	2.77E-04	1.15E-01	2.9E-08	3.3E-09
TH-232	9.72E-05	4.03E-02	2.8E-08	1.1E-09
U-234	1.87E-03	7.75E-01	2.6E-08	2.0E-08
U-235	8.26E-04	3.43E-01	2.5E-08	8.6E-09
U-235/236	1.31E-04	5.44E-02	2.5E-08	1.4E-09
U-238	1.98E-03	8.21E-01	5.2E-08	4.3E-08
			Total Pathway:	8.3E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.240	2.2E+00	2.8E-11	6.0E-11
NP-237	0.489	4.4E+00	2.2E-10	9.7E-10
PB-210	6.014	5.4E+01	6.6E-10	3.6E-08
PU-238	0.270	2.4E+00	2.2E-10	5.3E-10
PU-239/240	0.130	1.2E+00	2.3E-10	2.7E-10
RA-224	3.133	2.8E+01	3.8E-11	1.1E-09
RA-226	2.919	2.6E+01	1.2E-10	3.2E-09
RA-228	1.656	1.5E+01	1.0E-10	1.5E-09
RU-106	1.300	1.2E+01	9.0E-12	1.1E-10
SR-90	0.560	5.0E+00	3.6E-11	1.8E-10
TC-99	0.9	8.1E+00	1.3E-12	1.1E-11
TH-228	1.7	1.5E+01	5.5E-11	8.2E-10
TH-230	4.3	3.8E+01	1.3E-11	5.0E-10
TH-232	1.5	1.3E+01	1.2E-11	1.6E-10
U-234	28.7	2.6E+02	1.6E-11	4.1E-09
U-235	12.7	1.1E+02	1.6E-11	1.8E-09
U-235/236	2.0	1.8E+01	1.6E-11	2.9E-10
U-238	30.4	2.7E+02	2.8E-11	7.7E-09
			Total Pathway:	5.9E-08

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	7.84E-07	1.82E-10	1.51E+01	2.7E-09
Beryllium	9.35E-08	2.17E-11	8.4E+00	1.8E-10
Cadmium	7.91E-08	1.83E-11		
Chromium	1.09E-06	2.53E-10	4.1E+01	1.0E-08
Lead	1.83E-06	4.24E-10		
U-TOTAL	6.75E-06	1.57E-09		
Octachlorodibenzo-p-dioxin	2.34E-10	5.43E-14		
alpha-Chlordane	2.15E-10	4.98E-14	1.3E+00	6.5E-14
Aroclor-1254	2.80E-08	6.49E-12		
Aroclor-1260	5.79E-09	1.34E-12		
Dieldrin	1.04E-09	2.41E-13	1.60E+01	3.9E-12
Endrin ketone	3.45E-10	7.99E-14		
gamma-Chlordane	4.68E-10	1.09E-13	1.3E+00	1.4E-13
2-Methylnaphthalene	3.64E-09	8.45E-13		
Acenaphthylene	2.67E-08	6.18E-12		
Benzo(a)anthracene	8.45E-09	1.96E-12	8.8E-01	1.7E-12
Benzo(a)pyrene	7.15E-09	1.66E-12	6.1E+00	1.0E-11
Benzo(b)fluoranthene	9.10E-09	2.11E-12	7.5E-01	1.6E-12
Benzo(g,h,i)perylene	3.84E-09	8.90E-13		
Benzo(k)fluoranthene	5.46E-09	1.27E-12	3.2E-01	4.0E-13
Carbazole	6.50E-11	1.51E-14		
Chrysene	9.75E-09	2.26E-12	2.7E-02	6.1E-14
Di-n-octyl phthalate	1.37E-08	3.17E-12		
Dibenzo(a,h)anthracene	1.30E-10	3.02E-14	6.8E+00	2.0E-13
Indeno(1,2,3-cd)pyrene	2.99E-09	6.94E-13	1.7E+00	1.2E-12
Phenanthrene	1.37E-08	3.17E-12		
Tributyl phosphate	1.30E-08	3.02E-12		
2-Hexanone	1.95E-10	4.52E-14		
bis(2-Ethylhexyl) phthalate	5.59E-08	1.30E-11		
Chloroform	1.95E-10	4.52E-14	8.10E-02	3.7E-15
Methylene chloride	3.51E-09	8.14E-13	2.00E-03	1.6E-15
Tetrachloroethene	6.50E-11	1.51E-14	2.00E-03	3.0E-17
Trichloroethene	1.30E-10	3.02E-14	6.00E-03	1.8E-16
			Total Pathway:	1.3E-08
			Total Rad + Chem	

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	12.06	6.1E-08	1.8E+00	1.1E-07
Beryllium	1.44	7.2E-09	4.3E+00	3.1E-08
Cadmium	1.22	6.1E-09		
Chromium	16.77	8.4E-08		
Lead	28.08	1.4E-07		
U-TOTAL	103.84	5.2E-07		
Octachlorodibenzo-p-dioxin	3.6E-03	1.8E-11		
alpha-Chlordane	3.3E-03	1.7E-11	1.3E+00	2.2E-11
Aroclor-1254	0.43	2.2E-09	7.7E+00	1.7E-08
Aroclor-1260	0.09	4.5E-10	7.7E+00	3.4E-09
Dieldrin	0.02	8.1E-11	1.6E+01	1.3E-09
Endrin ketone	5.3E-03	2.7E-11		
gamma-Chlordane	7.2E-03	3.6E-11	1.3E+00	4.7E-11
2-Methylnaphthalene	5.6E-02	2.8E-10	2.4E-01	6.8E-11
Acenaphthylene	0.41	2.1E-09		
Benzo(a)anthracene	0.13	6.5E-10	1.1E+00	6.9E-10
Benzo(a)pyrene	1.1E-01	5.5E-10	7.3E+00	4.0E-09
Benzo(b)fluoranthene	1.4E-01	7.0E-10	9.0E-01	6.3E-10
Benzo(g,h,i)perylene	0.06	3.0E-10		
Benzo(k)fluoranthene	0.08	4.2E-10	3.8E-01	1.6E-10
Carbazole	1.0E-03	5.0E-12	2.0E-02	1.0E-13
Chrysene	0.15	7.5E-10	3.2E-02	2.4E-11
Di-n-octyl phthalate	0.21	1.1E-09		
Dibenzo(a,h)anthracene	2.0E-03	1.0E-11	8.1E+00	8.2E-11
Indeno(1,2,3-cd)pyrene	0.05	2.3E-10	2.0E+00	4.7E-10
Phenanthrene	0.21	1.1E-09		
Tributyl phosphate	0.20	1.0E-09		
2-Hexanone	3.0E-03	1.5E-11		
bis(2-Ethylhexyl) phthalate	0.86	4.3E-09	1.4E-02	6.1E-11
Chloroform	3.0E-03	1.5E-11	6.1E-03	9.2E-14
Methylene chloride	0.05	2.7E-10	7.5E-03	2.0E-12
Tetrachloroethene	1.0E-03	5.0E-12	5.2E-02	2.6E-13
Trichloroethene	2.0E-03	1.0E-11	1.1E-02	1.1E-13
			Total Pathway:	1.7E-07
			Total Rad + Chem	2.2E-07

TABLE B.3.2-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOUTH FIELD: SUBSURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil				
Not applicable				
Total Pathway: 0.0E+00				

External Radiation/Soil				
Compound	Intake	SF(e)	Risk	
CS-137	1.0E-02	2.0E-06	2.1E-08	2.1E-08
NP-237	2.1E-02	4.3E-07	9.0E-09	1.0E-08
PB-210	2.6E-01	1.6E-10	4.1E-11	3.6E-08
PU-238	1.2E-02	2.8E-11	3.2E-13	8.2E-10
PU-239/240	5.6E-03	2.7E-11	1.5E-13	4.0E-10
RA-224	1.3E-01	2.3E-08	3.1E-09	4.3E-09
RA-226	1.2E-01	1.20E-08	1.5E-09	4.9E-09
RA-228	7.1E-02	2.90E-06	2.1E-07	2.1E-07
RU-106	5.6E-02	0.0E+00	0.0E+00	1.2E-10
SR-90	2.4E-02	0.0E+00	0.0E+00	1.8E-10
TC-99	3.9E-02	6.0E-13	2.3E-14	1.1E-11
TH-228	7.1E-02	5.6E-06	4.0E-07	4.0E-07
TH-230	1.8E-01	5.4E-11	9.9E-12	3.8E-09
TH-232	6.4E-02	2.6E-11	1.7E-12	1.3E-09
U-234	1.2E+00	3.0E-11	3.7E-11	2.4E-08
U-235	5.4E-01	2.4E-07	1.3E-07	1.4E-07
U-235/236	8.6E-02	2.4E-11	2.1E-12	1.7E-09
U-238	1.3E+00	3.6E-08	4.7E-08	9.7E-08
		Total Pathway:	8.2E-07	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	1.7E-09	1.8E+00	3.1E-09					1.1E-07
Beryllium	2.0E-09	4.3E+02	8.6E-07					9.0E-07
Cadmium	1.7E-09			Not applicable				
Chromium	2.3E-08							1.0E-08
Lead	3.9E-08							
U-TOTAL	1.5E-07							
Octachlorodibenzo-p-dioxin	0.0E+00							
alpha-Chlordane	0.0E+00	1.3E+00	0.0E+00					2.2E-11
Aroclor-1254	1.8E-08	1.0E+01	1.9E-07					2.0E-07
Aroclor-1260	3.7E-09	1.0E+01	3.8E-08					4.2E-08
Dieldrin	6.7E-10	1.8E+01	1.2E-08					1.3E-08
Endrin ketone	0.0E+00							
gamma-Chlordane	0.0E+00	1.3E+00	0.0E+00					4.7E-11
2-Methylnaphthalene	0.0E+00	2.4E-01	0.0E+00					6.8E-11
Acenaphthylene	1.7E-08							
Benzo(a)anthracene	0.0E+00	2.5E+00	0.0E+00					6.9E-10
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					4.1E-09
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					6.3E-10
Benzo(g,h,i)perylene	2.5E-09							
Benzo(k)fluoranthene	0.0E+00	8.9E-01	0.0E+00					1.6E-10
Carbazole	0.0E+00							1.0E-13
Chrysene	0.0E+00	7.5E-02	0.0E+00					2.4E-11
Di-n-octyl phthalate	8.8E-09							
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					8.2E-11
Indeno(1,2,3-cd)pyrene	2.6E-11	4.7E+00	1.2E-10					5.9E-10
Phenanthrene	8.8E-09							
Tributyl phosphate	8.4E-09							
2-Hexanone	1.3E-10							
bis(2-Ethylhexyl) phthalate	4.8E-10	1.6E-02	7.5E-12					6.8E-11
Chloroform	0.0E+00	6.1E-03	0.0E+00					9.6E-14
Methylene chloride	3.0E-09	7.5E-03	2.3E-11					2.5E-11
Tetrachloroethene	5.6E-11	5.8E-02	3.2E-12					3.5E-12
Trichloroethene	0.0E+00	1.1E-02	0.0E+00					1.1E-13
		Total Pathway:	1.1E-06			Total Pathway:	0.0E+00	
		Total Rad + Chem	1.1E-06				8.2E-07	*Total:* 2.2E-06

TABLE B.3.2-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOUTH FIELD: SUBSURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.56E-05	6.47E-03		
NP-237	3.18E-05	1.32E-02		
PB-210	3.91E-04	1.62E-01		
PU-238	1.76E-05	7.28E-03		
PU-239/240	8.45E-06	3.51E-03		
RA-224	2.04E-04	8.45E-02		
RA-226	1.90E-04	7.87E-02		
RA-228	1.08E-04	4.47E-02		
RU-106	8.45E-05	3.51E-02		
SR-90	3.64E-05	1.51E-02		
TC-99	5.85E-05	2.43E-02		
TH-228	1.08E-04	4.48E-02		
TH-230	2.77E-04	1.15E-01		
TH-232	9.72E-05	4.03E-02		
U-234	1.87E-03	7.75E-01		
U-235	8.26E-04	3.43E-01		
U-235/236	1.31E-04	5.44E-02		
U-238	1.98E-03	8.21E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.24	2.2E+00		
NP-237	0.49	4.4E+00		
PB-210	6.01	5.4E+01		
PU-238	0.27	2.4E+00		
PU-239/240	0.13	1.2E+00		
RA-224	3.13	2.8E+01		
RA-226	2.92	2.6E+01		
RA-228	1.66	1.5E+01		
RU-106	1.30	1.2E+01		
SR-90	0.56	5.0E+00		
TC-99	0.90	8.1E+00		
TH-228	1.66	1.5E+01		
TH-230	4.26	3.8E+01		
TH-232	1.50	1.3E+01		
U-234	28.72	2.6E+02		
U-235	12.70	1.1E+02		
U-235/236	2.02	1.8E+01		
U-238	30.42	2.7E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	7.84E-07	1.27E-08		
Beryllium	9.35E-08	1.52E-09		
Cadmium	7.91E-08	1.28E-09		
Chromium	1.09E-06	1.77E-08		
Lead	1.83E-06	2.96E-08		
U-TOTAL	6.75E-06	1.10E-07		
Octachlorodibenzo-p-dioxin	2.34E-10	3.80E-12	1.50E+05	5.7E-07
alpha-Chlordane	2.15E-10	3.48E-12		
Aroclor-1254	2.80E-08	4.54E-10		
Aroclor-1260	5.79E-09	9.40E-11		
Dieldrin	1.04E-09	1.69E-11		
Endrin ketone	3.45E-10	5.60E-12		
gamma-Chlordane	4.68E-10	7.60E-12		
2-Methylnaphthalene	3.64E-09	5.91E-11		
Acenaphthylene	2.67E-08	4.33E-10		
Benzo(a)anthracene	8.45E-09	1.37E-10		
Benzo(a)pyrene	7.15E-09	1.16E-10		
Benzo(b)fluoranthene	9.10E-09	1.48E-10		
Benzo(g,h,i)perylene	3.84E-09	6.23E-11		
Benzo(k)fluoranthene	5.46E-09	8.87E-11		
Carbazole	6.50E-11	1.06E-12		
Chrysene	9.75E-09	1.58E-10		
Di-n-octyl phthalate	1.37E-08	2.22E-10		
Dibenzo(a,h)anthracene	1.30E-10	2.11E-12		
Indeno(1,2,3-od)pyrene	2.99E-09	4.86E-11		
Phenanthrene	1.37E-08	2.22E-10		
Tributyl phosphate	1.30E-08	2.11E-10		
2-Hexanone	1.95E-10	3.17E-12		
bis(2-Ethylhexyl) phthalate	5.59E-08	9.08E-10		
Chloroform	1.95E-10	3.17E-12		
Methylene chloride	3.51E-09	5.70E-11	8.2E-01	4.7E-11
Tetrachloroethene	6.50E-11	1.06E-12		
Trichloroethene	1.30E-10	2.11E-12		

Total Pathway: 5.7E-07
Total Rad + Chem 5.7

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	12.1	4.2E-06	3.0E-04	1.4E-02
Beryllium	1.4	5.1E-07	5.0E-03	1.0E-04
Cadmium	1.2	4.3E-07	1.0E-03	4.3E-04
Chromium	16.8	5.9E-06	5.0E-03	1.2E-03
Lead	28.08	9.9E-06		
U-TOTAL	103.84	3.7E-05	3.0E-03	1.2E-02
Octachlorodibenzo-p-dioxin	0.004	1.3E-09	1.5E+05	8.5E-15
alpha-Chlordane	0.003	1.2E-09	6.0E-05	1.9E-05
Aroclor-1254	0.430	1.5E-07		
Aroclor-1260	0.089	3.1E-08		
Dieldrin	0.016	5.6E-09	5.0E-05	1.1E-04
Endrin ketone	0.005	1.9E-09	3.0E-04	6.2E-06
gamma-Chlordane	0.007	2.5E-09	6.0E-05	4.2E-05
2-Methylnaphthalene	5.6E-02	2.0E-08		
Acenaphthylene	0.410	1.4E-07		
Benzo(a)anthracene	0.130	4.6E-08		
Benzo(a)pyrene	1.1E-01	3.9E-08		
Benzo(b)fluoranthene	1.4E-01	4.9E-08		
Benzo(g,h,i)perylene	0.059	2.1E-08		
Benzo(k)fluoranthene	0.084	3.0E-08		
Carbazole	0.001	3.5E-10		
Chrysene	0.150	5.3E-08		
Di-n-octyl phthalate	0.210	7.4E-08	2.00E-02	3.7E-06
Dibenzo(a,h)anthracene	0.002	7.0E-10		
Indeno(1,2,3-od)pyrene	0.046	1.6E-08		
Phenanthrene	0.210	7.4E-08		
Tributyl phosphate	0.200	7.0E-08	5.00E-03	1.4E-05
2-Hexanone	0.003	1.1E-09		
bis(2-Ethylhexyl) phthalate	0.86	3.0E-07	2.00E-02	1.5E-05
Chloroform	0.003	1.1E-09	1.00E-02	1.1E-07
Methylene chloride	0.054	1.9E-08	6.10E-02	3.1E-07
Tetrachloroethene	0.001	3.5E-10	1.00E-02	3.5E-08
Trichloroethene	2.0E-03	7.0E-10	6.00E-03	1.2E-07

Total Pathway: 2.8E-02
Total Rad + Chem 2.8E-02

TABLE B.3.2-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOUTH FIELD: SUBSURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	RfD(e)	Hazard
CS-137	1.0E-02		
NP-237	2.1E-02		
PB-210	2.6E-01		
PU-238	1.2E-02		
PU-239/240	5.6E-03		
RA-224	1.3E-01		
RA-226	1.2E-01		
RA-228	7.1E-02		
RU-106	5.6E-02		
SR-90	2.4E-02		
TC-99	3.9E-02		
TH-228	7.1E-02		
TH-230	1.8E-01		
TH-232	6.4E-02		
U-234	1.2E+00		
U-235	5.4E-01		
U-235/236	8.6E-02		
U-238	1.3E+00		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	ABS	Intake	RfD(derm)	Hazard
Arsenic	1.0E-03	1.2E-07	2.9E-04	4.1E-04
Beryllium	1.0E-02	1.4E-07	5.0E-05	2.8E-03
Cadmium	1.0E-02	1.2E-07	5.0E-05	2.4E-03
Chromium	1.0E-02	1.6E-06	2.3E-03	7.3E-04
Lead	1.0E-02	2.7E-06		
U-TOTAL	1.0E-02	1.0E-05	1.5E-04	6.8E-02
Octachlorodibenzo-p-dioxin		0.0E+00		
alpha-Chlordane		0.0E+00	6.0E-05	0.0E+00
Aroclor-1254	3.0E-01	1.3E-06		
Aroclor-1260	3.0E-01	2.6E-07		
Dieldrin	3.0E-01	4.7E-08	4.5E-05	1.0E-03
Endrin ketone	3.0E-01	1.6E-08	2.7E-04	5.8E-05
gamma-Chlordane		0.0E+00	6.0E-05	0.0E+00
2-Methylnaphthalene		0.0E+00		
Acenaphthylene	3.0E-01	1.2E-06		
Benzo(a)anthracene		0.0E+00		
Benzo(a)pyrene		0.0E+00		
Benzo(b)fluoranthene		0.0E+00		
Benzo(g,h,i)perylene	3.0E-01	1.7E-07		
Benzo(k)fluoranthene		0.0E+00		
Carbazole		0.0E+00		
Chrysene		0.0E+00		
Di-n-octyl phthalate	3.0E-01	6.2E-07	1.8E-02	3.4E-05
Dibenzo(a,h)anthracene		0.0E+00		
Indeno(1,2,3-cd)pyrene	4.0E-03	1.8E-09		
Phenanthrene	3.0E-01	6.2E-07		
Tributyl phosphate	3.0E-01	5.9E-07	4.5E-03	1.3E-04
2-Hexanone	3.0E-01	8.8E-09		
bis(2-Ethylhexyl) phthalate	4.0E-03	3.4E-08	1.8E-02	1.9E-06
Chloroform		0.0E+00	1.0E-02	0.0E+00
Methylene chloride	4.0E-01	2.1E-07	6.1E-02	3.5E-06
Tetrachloroethene	4.0E-01	3.9E-09	9.0E-03	4.3E-07
Trichloroethene		0.0E+00		

Total Pathway: 0.1

External Radiation/Soil

Compound	Intake	RfD(o)	Hazard
Not applicable			

Total Pathway: 0.0E+00

	1.5E-02
	2.9E-03
	2.8E-03
	1.9E-03
	8.0E-02
	1.9E-05
	1.2E-03
	4.2E-05
	3.8E-05
	1.4E-04
	1.7E-05
	1.1E-07
	3.8E-06
	4.7E-07
	1.2E-07

Total Rad + Chem 0.1

0.0E+00 *Total:* 0.1

TABLE B.3.2-28(a)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOUTH FIELD: SURFACE WATER

Carcinogenic Risk

Radiation Risk

Ingestion of Surface Water					Dermal Contact/Surface Water
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk	
CS-137	2.1E-09	5.7E-08	2.8E-11	1.6E-18	
NP-237	3.2E-04	8.7E-03	2.2E-10	1.9E-12	
PU-238	7.0E-09	1.9E-07	2.2E-10	4.2E-17	
PU-239/240	8.2E-07	2.2E-05	2.3E-10	5.1E-15	
RA-226	3.1E-05	8.5E-04	1.2E-10	1.0E-13	
RA-228	1.4E-08	3.9E-07	1.0E-10	3.9E-17	Not Applicable
SR-90	2.2E-04	6.0E-03	3.6E-11	2.2E-13	
TC-99	5.1E-01	1.4E+01	1.3E-12	1.8E-11	
TH-228	7.9E-07	2.2E-05	5.5E-11	1.2E-15	
TH-230	2.5E-06	6.7E-05	1.3E-11	8.8E-16	
TH-232	7.1E-07	1.9E-05	1.2E-11	2.3E-16	
U-234	3.2E-03	8.6E-02	1.6E-11	1.4E-12	
U-235/236	1.5E-04	4.2E-03	1.6E-11	6.7E-14	
U-238	3.4E-03	9.3E-02	2.8E-11	2.6E-12	
			Total Pathway:	2.4E-11	Total Pathway: 0.0E+00

Chemical Risk

Ingestion of Surface Water					Dermal Contact/Surface Water			
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk
Arsenic	2.1E-08	3.2E-13	1.8E+00	5.6E-13	Arsenic	1.8E-13	1.8E+00	3.3E-13
Beryllium	2.2E-06	3.3E-11	4.3E+00	1.4E-10	Beryllium	1.8E-11	4.3E+02	7.9E-09
Chromium	1.1E-04	1.7E-09			Chromium	1.9E-09		
Lead	3.7E-04	5.6E-09			Lead	1.3E-11		
U-TOTAL	1.1E-02	1.6E-07			U-TOTAL			
Acenaphthylene	5.3E-06	8.0E-11			Acenaphthylene	7.8E-09		
Benzo(a)anthracene	4.3E-06	6.6E-11	1.1E+00	7.3E-11	Benzo(a)anthracene		2.6E+00	
Benzo(a)pyrene	3.1E-06	4.7E-11	7.3E+00	3.4E-10	Benzo(a)pyrene		1.7E+01	
Benzo(b)fluoranthene	5.2E-07	8.0E-12	9.0E-01	7.2E-12	Benzo(b)fluoranthene		2.1E+00	
Benzo(k)fluoranthene	3.3E-07	5.1E-12	3.8E-01	1.9E-12	Benzo(k)fluoranthene		8.8E-01	
bis(2-Ethylhexyl)phthalate	3.5E-05	5.3E-10	1.4E-02	7.4E-12	bis(2-Ethylhexyl)phthalate	1.3E-08	1.6E-02	2.1E-10
Carbazole	2.7E-05	4.1E-10	2.0E-02	8.2E-12	Carbazole		2.0E-02	
Chrysene	4.7E-06	7.2E-11	3.2E-02	2.3E-12	Chrysene		3.6E-02	
Dibenzo(a,h)anthracene	6.4E-07	9.8E-12	8.1E+00	7.9E-11	Dibenzo(a,h)anthracene		1.9E+01	
Indeno(1,2,3-cd)pyrene	4.1E-08	6.3E-13	2.0E+00	1.3E-12	Indeno(1,2,3-cd)pyrene			
Aroclor 1254	2.6E-08	4.0E-13	7.7E+00	3.1E-12	Aroclor 1254	2.2E-10	1.0E+01	2.3E-09
Aroclor 1260	1.3E-08	1.9E-13	7.7E+00	1.5E-12	Aroclor 1260	1.1E-10	1.0E+01	1.1E-09
Dieldrin	9.8E-07	1.5E-11	1.6E+01	2.4E-10	Dieldrin	1.6E-10	1.8E+01	2.8E-09
			Total Pathway:	9.1E-10			Total Pathway:	1.4E-08

TABLE B.3.2-28(a) (continued)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOUTH FIELD: SURFACE WATER

Carcinogenic Risk

Radiation Risk							Total
Ingestion of Fish							
Compound	nc'n in H	BCF	onc'n in Fish (pCi/k	Intake	SF(o)	Risk	
CS-137	2.1E-09				2.8E-11		1.6E-18
NP-237	3.2E-04				2.2E-10		1.9E-12
PU-238	7.0E-09				2.2E-10		4.2E-17
PU-239/240	8.2E-07				2.3E-10		5.1E-15
RA-226	3.1E-05	5.0E+01	1.6E-03	2.4E-01	1.2E-10	2.9E-11	2.9E-11
RA-228	1.4E-08	5.0E+01	7.2E-07	1.1E-04	1.0E-10	1.1E-14	1.1E-14
SR-90	2.2E-04	3.0E+01	6.6E-03	1.0E+00	3.6E-11	3.7E-11	3.7E-11
TC-99	5.1E-01	1.5E+01	7.6E+00	1.2E+03	1.3E-12	1.5E-09	1.5E-09
TH-228	7.9E-07	3.0E+01	2.4E-05	3.6E-03	5.5E-11	2.0E-13	2.0E-13
TH-230	2.5E-06	3.0E+01	7.4E-05	1.1E-02	1.3E-11	1.5E-13	1.5E-13
TH-232	7.1E-07	3.0E+01	2.1E-05	3.3E-03	1.2E-11	3.9E-14	4.0E-14
U-234	3.2E-03	2.0E+00	6.3E-03	9.7E-01	1.6E-11	1.5E-11	1.7E-11
U-235/236	1.5E-04	2.0E+00	3.1E-04	4.7E-02	1.6E-11	7.5E-13	8.2E-13
U-238	3.4E-03	2.0E+00	6.8E-03	1.0E+00	2.8E-11	2.9E-11	3.2E-11
					Total Pathway:	1.6E-09	

Chemical Risk							Total
Ingestion of Fish							
Compound	n in H2O(	BCF	onc'n in Fish (mg/k	Intake	SF(o)	Risk	
Arsenic	2.1E-08	4.4E+01	9.2E-07	7.9E-11	1.8E+00	1.4E-10	1.4E-10
Beryllium	2.2E-06	1.9E+01	4.1E-05	3.5E-09	4.3E+00	1.5E-08	2.3E-08
Chromium	1.1E-04	1.6E+01	1.8E-03	1.6E-07			
Lead	3.7E-04	4.9E+01	1.8E-02	1.6E-06	0.0E+00		0.0E+00
U-TOTAL	1.1E-02	2.0E+00	2.2E-02	1.9E-06			
Acenaphthyl	5.3E-06	7.3E+02	3.8E-03	3.3E-07			
Benzo(a)ant	4.3E-06	1.1E+04	4.7E-02	4.0E-06	1.1E+00	4.4E-06	4.4E-06
Benzo(a)pyr	3.1E-06	2.1E+04	6.4E-02	5.5E-06	7.3E+00	4.0E-05	4.0E-05
Benzo(b)flu	5.2E-07	5.8E+04	3.0E-02	2.6E-06	9.0E-01	2.4E-06	2.4E-06
Benzo(k)flu	3.3E-07				3.8E-01	0.0E+00	1.9E-12
bis(2-Ethylh	3.5E-05	6.3E+03	2.2E-01	1.9E-05	1.4E-02	2.6E-07	2.6E-07
Carbazole	2.7E-05				2.0E-02		8.2E-12
Chrysene	4.7E-06	1.1E+04	5.1E-02	4.4E-06	3.2E-02	1.4E-07	1.4E-07
Dibenzo(a,h	6.4E-07	2.0E+04	1.3E-02	1.1E-06	8.1E+00	9.0E-06	9.0E-06
Indeno(1,2,	4.1E-08	3.9E+05	1.6E-02	1.4E-06	2.0E+00	2.8E-06	2.8E-06
Aroclor 125	2.6E-08	1.0E+05	2.6E-03	2.2E-07	7.7E+00	1.7E-06	1.7E-06
Aroclor 126	1.3E-08	1.9E+05	2.5E-03	2.1E-07	7.7E+00	1.6E-06	1.6E-06
Dieldrin	9.8E-07	4.8E+03	4.7E-03	4.0E-07	1.6E+01	6.4E-06	6.4E-06
					Total Pathway:	6.9E-05	
					Total Rad + Chem:		6.9E-05

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TABLE B.3.2-28(a) (continued)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOUTH FIELD: SURFACE WATER

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
CS-137	5.7E-08		
NP-237	8.7E-03		
PU-238	1.9E-07		
PU-239/240	2.2E-05		
RA-226	8.5E-04		
RA-228	3.9E-07		
SR-90	6.0E-03		
TC-99	1.4E+01		
TH-228	2.2E-05		
TH-230	6.7E-05		
TH-232	1.9E-05		
U-234	8.6E-02		
U-235/236	4.2E-03		
U-238	9.3E-02		
	Total Pathway:	0.0E+00	

Dermal Contact/Sediment
Not Applicable
Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
Arsenic	7.4E-13	3.0E-04	2.5E-09
Beryllium	7.7E-11	5.0E-03	1.5E-08
Chromium	4.0E-09	5.0E-03	
Lead	1.3E-08		
U-TOTAL	3.8E-07	3.0E-03	1.3E-04
Acenaphthylene	1.9E-10		
Benzo(a)anthracene	1.5E-10		
Benzo(a)pyrene	1.1E-10		
Benzo(b)fluoranthene	1.9E-11		
Benzo(k)fluoranthene	1.2E-11		
bis(2-Ethylhexyl)phthalate	1.2E-09	2.0E-02	6.1E-08
Carbazole	9.5E-10		
Chrysene	1.7E-10		
Dibenzo(a,h)anthracene	2.3E-11		
Indeno(1,2,3-cd)pyrene	1.5E-12		
Aroclor 1254	9.3E-13		
Aroclor 1260	4.5E-13		
Dieldrin	3.5E-11	5.0E-05	7.0E-07
	Total Pathway:		1.3E-04

Dermal Contact/Surface Water			
Compound	Intake	RfD(derm)	Hazard
Arsenic	4.1E-13	2.9E-04	1.4E-09
Beryllium	4.3E-11	5.0E-05	8.5E-07
Chromium	4.5E-09	2.3E-03	2.0E-06
Lead	2.9E-11		
U-TOTAL	0.0E+00	1.5E-04	0.0E+00
Acenaphthylene	1.8E-08		
Benzo(a)anthracene	0.0E+00		
Benzo(a)pyrene	0.0E+00		
Benzo(b)fluoranthene	0.0E+00		
Benzo(k)fluoranthene	0.0E+00		
bis(2-Ethylhexyl)phthalate	3.1E-08	1.8E-02	1.7E-06
Carbazole	0.0E+00		
Chrysene	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00		
Aroclor 1254	5.2E-10		
Aroclor 1260	2.5E-10		
Dieldrin	3.7E-10	4.5E-05	8.2E-06
Total Pathway:			1.3E-05

TABLE B.3.2-28(a) (continued)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOUTH FIELD: SURFACE WATER

NONCARCINOGENIC HAZARD

Radiation Hazard				Total
Ingestion of Fish				
Compound	Intake	RfD(o)	Hazard	
CS-137				
NP-237				
PU-238				
PU-239/240				
RA-226				
RA-228				
SR-90				
TC-99				
TH-228				
TH-230				
TH-232				
U-234				
U-235/236				
U-238				
		Total Pathway:	0.0E+00	

Chemical Hazard				Total
Ingestion of Fish				
Compound	Intake	RfD(o)	Risk	
Arsenic	1.8E-10	3.0E-04	6.1E-07	6.2E-07
Beryllium	8.2E-09	5.0E-03	1.6E-06	2.5E-06
Chromium	3.6E-07	5.0E-03	7.3E-05	7.4E-05
Lead	3.6E-06			
U-TOTAL	4.3E-06	3.0E-03	1.4E-03	1.6E-03
Acenaphthylene	7.7E-07			
Benzo(a)anthracene	9.4E-06			
Benzo(a)pyrene	1.3E-05			
Benzo(b)fluoranthene	6.1E-06			
Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl)phthalate	4.3E-05	2.0E-02	2.2E-03	2.2E-03
Carbazole	0.0E+00			
Chrysene	1.0E-05			
Dibenzo(a,h)anthracene	2.6E-06			
Indeno(1,2,3-cd)pyrene	3.2E-06			
Aroclor 1254	5.2E-07			
Aroclor 1260	4.9E-07			
Dieldrin	9.3E-07	5.0E-05	1.9E-02	1.9E-02
		Total Pathway:	2.2E-02	2.3E-02
		Total Rad + Chem:		2.3E-02

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TABLE B.3.2-28(b)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOUTH FIELD: SURFACE WATER

Carcinogenic Risk

Radiation Risk

Ingestion of SurfaceWater				
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	2.1E-09	2.3E-08	2.8E-11	6.4E-19
NP-237	3.2E-04	3.5E-03	2.2E-10	7.6E-13
PU-238	7.0E-09	7.7E-08	2.2E-10	1.7E-17
PU-239/240	8.2E-07	9.0E-06	2.3E-10	2.1E-15
RA-226	3.1E-05	3.4E-04	1.2E-10	4.1E-14
RA-228	1.4E-08	1.6E-07	1.0E-10	1.6E-17
SR-90	2.2E-04	2.4E-03	3.6E-11	8.7E-14
TC-99	5.1E-01	5.5E+00	1.3E-12	7.2E-12
TH-228	7.9E-07	8.6E-06	5.5E-11	4.7E-16
TH-230	2.5E-06	2.7E-05	1.3E-11	3.5E-16
TH-232	7.1E-07	7.8E-06	1.2E-11	9.3E-17
U-234	3.2E-03	3.4E-02	1.6E-11	5.5E-13
U-235/236	1.5E-04	1.7E-03	1.6E-11	2.7E-14
U-238	3.4E-03	3.7E-02	2.8E-11	1.0E-12
			Total Pathway:	9.7E-12

Dermal Contact/Surface Water
Not Applicable
Total Pathway: 0.0E+00

Chemical Risk

Ingestion of Surface Water				
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	2.1E-08	2.1E-13	1.8E+00	3.6E-13
Beryllium	2.2E-06	2.1E-11	4.3E+00	9.2E-11
Chromium	1.1E-04	1.1E-09		
Lead	3.7E-04	3.7E-09		
U-TOTAL	1.1E-02	1.1E-07		
Acenaphthylene	5.3E-06	5.2E-11		
Benzo(a)anthracene	4.3E-06	4.3E-11	1.1E+00	4.7E-11
Benzo(a)pyrene	3.1E-06	3.1E-11	7.3E+00	2.2E-10
Benzo(b)fluoranthene	5.2E-07	5.2E-12	9.0E-01	4.7E-12
Benzo(k)fluoranthene	3.3E-07	3.3E-12	3.8E-01	1.3E-12
bis(2-Ethylhexyl)phthalate	3.5E-05	3.4E-10	1.4E-02	4.8E-12
Carbazole	2.7E-05	2.7E-10	2.0E-02	5.3E-12
Chrysene	4.7E-06	4.7E-11	3.2E-02	1.5E-12
Dibenzo(a,h)anthracene	6.4E-07	6.4E-12	8.1E+00	5.1E-11
Indeno(1,2,3-cd)pyrene	4.1E-08	4.1E-13	2.0E+00	8.2E-13
Aroclor 1254	2.6E-08	2.6E-13	7.7E+00	2.0E-12
Aroclor 1260	1.3E-08	1.3E-13	7.7E+00	9.7E-13
Dieldrin	9.8E-07	9.7E-12	1.6E+01	1.6E-10
			Total Pathway:	5.9E-10
			Total Rad + Chem:	6.0E-10

Dermal Contact/Surface Water			
Compound	Intake	SF(derm)	Risk
Arsenic	8.3E-14	1.8E+00	1.5E-13
Beryllium	8.6E-12	4.3E+02	3.7E-09
Chromium	9.0E-10		
Lead	5.9E-12		
U-TOTAL			
Acenaphthylene	3.7E-09		
Benzo(a)anthracene		2.6E+00	
Benzo(a)pyrene		1.7E+01	
Benzo(b)fluoranthene		2.1E+00	
Benzo(k)fluoranthene		8.8E-01	
bis(2-Ethylhexyl)phthalate	6.3E-09	1.6E-02	9.8E-11
Carbazole		2.0E-02	
Chrysene		7.4E-02	
Dibenzo(a,h)anthracene		1.9E+01	
Indeno(1,2,3-cd)pyrene			
Aroclor 1254	1.0E-10	1.0E+01	1.1E-09
Aroclor 1260	5.1E-11	1.0E+01	5.2E-10
Dieldrin	7.4E-11	1.8E+01	1.3E-09
		Total Pathway:	6.7E-09
		Total Rad + Chem:	6.7E-09

TABLE B.3.2-28(b) (continued)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOUTH FIELD: SURFACE WATER

Carcinogenic Risk

Radiation Risk				Total
Ingestion of Fish				
Compound	Intake	SF(o)	Risk	
CS-137		2.8E-11		6.4E-19
NP-237		2.2E-10		7.6E-13
PU-238		2.2E-10		1.7E-17
PU-239/240		2.3E-10		2.1E-15
RA-226	9.6E-02	1.2E-10	1.1E-11	1.2E-11
RA-228	4.4E-05	1.0E-10	4.4E-15	4.4E-15
SR-90	4.1E-01	3.6E-11	1.5E-11	1.5E-11
TC-99	4.7E+02	1.3E-12	6.1E-10	6.1E-10
TH-228	1.5E-03	5.5E-11	8.0E-14	8.0E-14
TH-230	4.6E-03	1.3E-11	5.9E-14	6.0E-14
TH-232	1.3E-03	1.2E-11	1.6E-14	1.6E-14
U-234	3.9E-01	1.6E-11	6.2E-12	6.7E-12
U-235/236	1.9E-02	1.6E-11	3.0E-13	3.3E-13
U-238	4.2E-01	2.8E-11	1.2E-11	1.3E-11
		Total Pathway:	6.5E-10	

Chemical Risk				Total
Ingestion of Fish				
Compound	Intake	SF(o)	Risk	
Arsenic	5.1E-11	1.8E+00	9.0E-11	9.0E-11
Beryllium	2.3E-09	4.3E+00	9.8E-09	1.4E-08
Chromium	1.0E-07			
Lead	1.0E-06			
U-TOTAL	1.2E-06			
Acenaphthylene	2.2E-07			
Benzo(a)anthracene	2.6E-06	1.1E+00	2.9E-06	2.9E-06
Benzo(a)pyrene	3.6E-06	7.3E+00	2.6E-05	2.6E-05
Benzo(b)fluoranthene	1.7E-06	9.0E-01	1.5E-06	1.5E-06
Benzo(k)fluoranthene	0.0E+00	3.8E-01	0.0E+00	1.3E-12
bis(2-Ethylhexyl)phthalate	1.2E-05	1.4E-02	1.7E-07	1.7E-07
Carbazole	0.0E+00	2.0E-02		5.3E-12
Chrysene	2.8E-06	3.2E-02	9.1E-08	9.1E-08
Dibenzo(a,h)anthracene	7.3E-07	8.1E+00	5.9E-06	5.9E-06
Indeno(1,2,3-cd)pyrene	9.0E-07	2.0E+00	1.8E-06	1.8E-06
Aroclor 1254	1.5E-07	7.7E+00	1.1E-06	1.1E-06
Aroclor 1260	1.4E-07	7.7E+00	1.1E-06	1.1E-06
Dieldrin	2.6E-07	1.6E+01	4.2E-06	4.2E-06
		Total Pathway	4.5E-05	
		Total Rad + Chem:	4.5E-05	4.5E-05

TABLE B.3.2-28(b) (continued)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOUTH FIELD: SURFACE WATER

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
CS-137	2.3E-08		
NP-237	3.5E-03		
PU-238	7.7E-08		
PU-239/240	9.0E-06		
RA-226	3.4E-04		
RA-228	1.6E-07		
SR-90	2.4E-03		
TC-99	5.5E+00		
TH-228	8.6E-06		
TH-230	2.7E-05		
TH-232	7.8E-06		
U-234	3.4E-02		
U-235/236	1.7E-03		
U-238	3.7E-02		
	Total Path		0.0E+00

Dermal Contact/Sediment
Not Applicable
Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
Arsenic	1.2E-12	3.0E-04	4.0E-09
Beryllium	1.2E-10	5.0E-03	2.5E-08
Chromium	6.6E-09	5.0E-03	
Lead	2.1E-08		
U-TOTAL	6.3E-07	3.0E-03	2.1E-04
Acenaphthylene	3.1E-10		
Benzo(a)anthracene	2.5E-10		
Benzo(a)pyrene	1.8E-10		
Benzo(b)fluoranthene	3.0E-11		
Benzo(k)fluoranthene	1.9E-11		
bis(2-Ethylhexyl)phthalate	2.0E-09	2.0E-02	1.0E-07
Carbazole	1.5E-09		
Chrysene	2.7E-10		
Dibenzo(a,h)anthracene	3.7E-11		
Indeno(1,2,3-cd)pyrene	2.4E-12		
Aroclor 1254	1.5E-12		
Aroclor 1260	7.4E-13		
Dieldrin	5.7E-11	5.0E-05	1.1E-06
		Total Pathway:	2.1E-04
		Total Rad + Chem:	2.1E-04

Dermal Contact/Surface Water			
Compound	Intake	RfD(derm)	Hazard
Arsenic	4.8E-13	2.9E-04	1.7E-09
Beryllium	5.0E-11	5.0E-05	1.0E-06
Chromium	5.3E-09	2.3E-03	2.3E-06
Lead	3.4E-11		
U-TOTAL		1.5E-04	0.0E+00
Acenaphthylene	2.1E-08		
Benzo(a)anthracene			
Benzo(a)pyrene			
Benzo(b)fluoranthene			
Benzo(k)fluoranthene			
bis(2-Ethylhexyl)phthalate	3.7E-08	1.8E-02	2.0E-06
Carbazole			
Chrysene			
Dibenzo(a,h)anthracene			
Indeno(1,2,3-cd)pyrene			
Aroclor 1254	6.1E-10		
Aroclor 1260	3.0E-10		
Dieldrin	4.3E-10	4.5E-05	9.6E-06
		Total Pathway:	1.5E-05
		Total Rad + Chem:	1.5E-05

TABLE B.3.2-28(b) (continued)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOUTH FIELD: SURFACE WATER

NONCARCINOGENIC HAZARD

Radiation Hazard					Total
Ingestion of Fish					
Compound	Conc'n in Fish (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137					
NP-237					
PU-238					
PU-239/240					
RA-226	1.6E-03				
RA-228	7.2E-07				
SR-90	6.6E-03				
TC-99	7.6E+00				
TH-228	2.4E-05				
TH-230	7.4E-05				
TH-232	2.1E-05				
U-234	6.3E-03				
U-235/236	3.1E-04				
U-238	6.8E-03				
			Total Pathway:	0.0E+00	

Chemical Hazard					Total
Ingestion of Fish					
Compound	Conc'n in Fish (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	9.2E-07	3.0E-10	3.0E-04	1.0E-06	1.0E-06
Beryllium	4.1E-05	1.3E-08	5.0E-03	2.7E-06	3.7E-06
Chromium	1.8E-03	5.9E-07	5.0E-03	1.2E-04	1.2E-04
Lead	1.8E-02	5.9E-06			
U-TOTAL	2.2E-02	7.1E-06	3.0E-03	2.4E-03	2.6E-03
Acenaphthylene	3.8E-03	1.3E-06			
Benzo(a)anthracene	4.7E-02	1.5E-05			
Benzo(a)pyrene	6.4E-02	2.1E-05			
Benzo(b)fluoranthene	3.0E-02	9.9E-06			
Benzo(k)fluoranthene	0.0E+00	0.0E+00			
bis(2-Ethylhexyl)phthalate	2.2E-01	7.1E-05	2.0E-02	3.5E-03	3.5E-03
Carbazole					
Chrysene	5.1E-02	1.7E-05			
Dibenzo(a,h)anthracene	1.3E-02	4.2E-06			
Indeno(1,2,3-cd)pyrene	1.6E-02	5.2E-06			
Aroclor 1254	2.6E-03	8.5E-07			
Aroclor 1260	2.5E-03	8.0E-07			
Dieldrin	4.7E-03	1.5E-06	5.0E-05	3.0E-02	3.0E-02
			Total Pathway:	3.6E-02	
			Total Rad + Chem:	3.6E-02	3.7E-02

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TABLE B.3.2-29(a)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOUTH FIELD: SEDIMENT

Carcinogenic Risk

Radiation Risk

Ingestion of Sediment					Dermal Contact/Sediment
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk	
CS-137	5.0E-01	1.5E+01	2.8E-11	4.2E-10	
NP-237	2.2E-01	6.7E+00	2.2E-10	1.5E-09	
PU-238	1.2E-01	3.6E+00	2.2E-10	7.9E-10	
PU-239/240	5.1E-02	1.5E+00	2.3E-10	3.5E-10	
RA-226	3.1E+01	9.2E+02	1.2E-10	1.1E-07	
RA-228	3.9E+00	1.2E+02	1.0E-10	1.2E-08	Not Applicable
SR-90	9.7E-01	2.9E+01	3.6E-11	1.0E-09	
TC-99	6.2E+01	1.9E+03	1.3E-12	2.4E-09	
TH-228	4.4E+00	1.3E+02	5.5E-11	7.3E-09	
TH-230	1.4E+01	4.1E+02	1.3E-11	5.4E-09	
TH-232	4.0E+00	1.2E+02	1.2E-11	1.4E-09	
U-234	2.3E-06	6.8E-05	1.6E-11	1.1E-15	
U-235/236	4.0E-01	1.2E+01	1.6E-11	1.9E-10	
U-238	8.8E+00	2.6E+02	2.8E-11	7.4E-09	
			Total Pathway:	1.5E-07	Total Pathway: 0.0E+00

CARCINOGENIC RISK

Chemical Risk

Ingestion of Sediment					Dermal Contact/Sediment			
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk
Arsenic	7.3E+00	1.2E-07	1.8E+00	2.1E-07	Arsenic	2.8E-08	1.8E+00	5.2E-08
Beryllium	9.4E-01	1.6E-08	4.3E+00	6.8E-08	Beryllium	3.6E-08	4.3E+02	1.6E-05
Chromium	1.4E+01	2.3E-07			Chromium	5.4E-07		
Lead	2.5E+01	4.1E-07			Lead	9.5E-07		
U-TOTAL	2.8E+01	4.7E-07			U-TOTAL	1.1E-06		
Acenaphthylene	1.4E-01	2.3E-09			Acenaphthylene	1.6E-07		
Benzo(a)anthracene	5.5E+00	9.2E-08	1.1E+00	1.0E-07	Benzo(a)anthracene		2.6E+00	
Benzo(a)pyrene	9.4E+00	1.6E-07	7.3E+00	1.2E-06	Benzo(a)pyrene		1.7E+01	
Benzo(b)fluoranthene	6.2E+00	1.0E-07	9.0E-01	9.4E-08	Benzo(b)fluoranthene		2.1E+00	
Benzo(k)fluoranthene	7.3E+00	1.2E-07	3.8E-01	4.7E-08	Benzo(k)fluoranthene		8.8E-01	
bis(2-Ethylhexyl)phthalate	1.1E-01	1.8E-09	1.4E-02	2.5E-11	bis(2-Ethylhexyl)phthalate	1.6E-09	1.6E-02	2.5E-11
Carbazole	1.7E-01	2.8E-09	2.0E-02	5.6E-11	Carbazole		2.0E-02	
Chrysene	6.0E+00	1.0E-07	3.2E-02	3.2E-09	Chrysene		7.4E-02	
Dibenzo(a,h)anthracene	1.9E+00	3.2E-08	8.1E+00	2.6E-07	Dibenzo(a,h)anthracene		1.9E+01	
Indeno(1,2,3-cd)pyrene	6.0E+00	1.0E-07	2.0E+00	2.0E-07	Indeno(1,2,3-cd)pyrene			
Aroclor 1254	8.9E-02	1.5E-09	7.7E+00	1.1E-08	Aroclor 1254	1.0E-07	1.0E+01	1.1E-06
Aroclor 1260	5.2E-02	8.7E-10	7.7E+00	6.7E-09	Aroclor 1260	6.0E-08	1.0E+01	6.2E-07
Dieldrin	9.9E-03	1.7E-10	1.6E+01	2.6E-09	Dieldrin	1.1E-08	1.8E+01	2.0E-07
			Total Pathway:	2.2E-06			Total Pathway:	1.8E-05

TABLE B.3.2-29(a) (continued)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOUTH FIELD: SEDIMENT

CARCINOGENIC RISK

Radiation Risk				Total
External Radiation/Sediment				
Compound	Intake	SF(e)	Risk	
CS-137	2.6E-01	2.0E-06	5.3E-07	5.3E-07
NP-237	1.2E-01	4.3E-07	5.1E-08	5.2E-08
PU-238	6.3E-02	2.8E-11	1.8E-12	7.9E-10
PU-239/24	2.7E-02	2.7E-11	7.3E-13	3.5E-10
RA-226	1.6E+01	1.2E-08	1.9E-07	3.1E-07
RA-228	2.1E+00	2.9E-06	6.0E-06	6.0E-06
SR-90	5.1E-01	0.0E+00	0.0E+00	1.0E-09
TC-99	3.3E+01	6.0E-13	2.0E-11	2.4E-09
TH-228	2.3E+00	5.6E-06	1.3E-05	1.3E-05
TH-230	7.3E+00	5.4E-11	3.9E-10	5.8E-09
TH-232	2.1E+00	2.6E-11	5.5E-11	1.5E-09
U-234	1.2E-06	3.0E-11	3.6E-17	1.1E-15
U-235/236	2.1E-01	2.4E-07	5.0E-08	5.0E-08
U-238	4.6E+00	3.6E-08	1.7E-07	1.7E-07
		Total Pathway;	2.0E-05	

CARCINOGENIC RISK

Chemical Risk			Total
External Radiation			
			2.7E-07
			1.6E-05
			1.0E-07
Not Applicable			1.2E-06
			9.4E-08
			4.7E-08
			5.0E-11
			5.6E-11
			3.2E-09
			2.6E-07
			2.0E-07
			1.1E-06
			6.2E-07
			2.1E-07
	Total Pathway	0.0E+00	2.0E-05
	Total Rad + Chem		4.0E-05

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FEMP-OU02-4 DRAFT
February 18, 199

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FEMP-OU02-4 DRAFT
February 18, 1994

TABLE B.3.2-29(a) (continued)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOUTH FIELD: SEDIMENT

NONCARCINOGENIC HAZARD

Radiation Hazard					Total
Ingestion/Sediment				Dermal Contact/Sediment	
Compound	Intake	RfD(o)	Hazard		
CS-137	2.0E-08				
NP-237	8.7E-09				
PU-238	4.7E-09				
PU-239/240	2.0E-09				
RA-226	1.2E-06				
RA-228	1.5E-07				
SR-90	3.8E-08			Not Applicable	
TC-99	2.4E-06				
TH-228	1.7E-07				
TH-230	5.4E-07				
TH-232	1.6E-07				
U-234	8.9E-14				
U-235/236	1.5E-08				
U-238	3.4E-07				
		Total Pathway:	0.0E+00	Total Pathway:	0.0E+00

SOUTH FIELD: SEDIMENT

NONCARCINOGENIC HAZARD

Chemical Hazard								Total
Ingestion/Sediment				Dermal Contact/Sediment				
Compound	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	2.8E-07	3.0E-04	9.5E-04	Arsenic	6.5E-08	2.9E-04	2.3E-04	1.2E-03
Beryllium	3.7E-08	5.0E-03	7.4E-06	Beryllium	8.5E-08	5.0E-05	1.7E-03	1.7E-03
Chromium	5.4E-07	5.0E-03	1.1E-04	Chromium	1.3E-06	2.3E-03	5.6E-04	6.6E-04
Lead	9.6E-07			Lead	2.2E-06			
U-TOTAL	1.1E-06	3.0E-03	3.6E-04	U-TOTAL	2.5E-06	1.5E-04	1.7E-02	1.7E-02
Acenaphthylene	5.4E-09			Acenaphthylene	3.8E-07			
Benzo(a)anthracene	2.2E-07			Benzo(a)anthracene				
Benzo(a)pyrene	3.7E-07			Benzo(a)pyrene				
Benzo(b)fluoranthene	2.4E-07			Benzo(b)fluoranthene				
Benzo(k)fluoranthene	2.9E-07			Benzo(k)fluoranthene				
bis(2-Ethylhexyl)phthalate	4.1E-09	2.0E-02	2.1E-07	bis(2-Ethylhexyl)phthalate	3.8E-09	1.8E-02	2.1E-07	4.2E-07
Carbazole	6.5E-09			Carbazole				
Chrysene	2.3E-07			Chrysene				
Dibenzo(a,h)anthracene	7.4E-08			Dibenzo(a,h)anthracene				
Indeno(1,2,3-cd)pyrene	2.3E-07			Indeno(1,2,3-cd)pyrene				
Aroclor 1254	3.5E-09			Aroclor 1254	2.4E-07			
Aroclor 1260	2.0E-09			Aroclor 1260	1.4E-07			
Dieldrin	3.9E-10	5.0E-05	7.7E-06	Dieldrin	2.7E-08	4.5E-05	5.9E-04	6.0E-04
		Total Pathway:	1.4E-03			Total Pathway:	2.0E-02	
								2.1E-02

TABLE B.3.2-29(b)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOUTH FIELD: SEDIMENT

Carcinogenic Risk

Radiation Risk

Ingestion of Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	5.0E-01	6.0E+00	2.8E-11	1.7E-10
NP-237	2.2E-01	2.7E+00	2.2E-10	5.9E-10
PU-238	1.2E-01	1.4E+00	2.2E-10	3.2E-10
PU-239/240	5.1E-02	6.1E-01	2.3E-10	1.4E-10
RA-226	3.1E+01	3.7E+02	1.2E-10	4.4E-08
RA-228	3.9E+00	4.7E+01	1.0E-10	4.7E-09
SR-90	9.7E-01	1.2E+01	3.6E-11	4.2E-10
TC-99	6.2E+01	7.4E+02	1.3E-12	9.7E-10
TH-228	4.4E+00	5.3E+01	5.5E-11	2.9E-09
TH-230	1.4E+01	1.7E+02	1.3E-11	2.2E-09
TH-232	4.0E+00	4.8E+01	1.2E-11	5.7E-10
U-234	2.3E-06	2.7E-05	1.6E-11	4.4E-16
U-235/236	4.0E-01	4.7E+00	1.6E-11	7.6E-11
U-238	8.8E+00	1.1E+02	2.8E-11	2.9E-09
			Total Pathway:	6.0E-08

Dermal Contact/Sediment

Not Applicable

Total Path 0.0E+00

CARCINOGENIC RISK

Chemical Risk

Ingestion of Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.3E+00	7.9E-08	1.8E+00	1.4E-07
Beryllium	9.4E-01	1.0E-08	4.3E+00	4.4E-08
Chromium	1.4E+01	1.5E-07		
Lead	2.5E+01	2.7E-07		
U-TOTAL	2.8E+01	3.0E-07		
Acenaphthylene	1.4E-01	1.5E-09		
Benzo(a)anthracene	5.5E+00	6.0E-08	1.1E+00	6.6E-08
Benzo(a)pyrene	9.4E+00	1.0E-07	7.3E+00	7.5E-07
Benzo(b)fluoranthene	6.2E+00	6.8E-08	9.0E-01	6.1E-08
Benzo(k)fluoranthene	7.3E+00	8.0E-08	3.8E-01	3.0E-08
bis(2-Ethylhexyl)phthalate	1.1E-01	1.1E-09	1.4E-02	1.6E-11
Carbazole	1.7E-01	1.8E-09	2.0E-02	3.6E-11
Chrysene	6.0E+00	6.6E-08	3.2E-02	2.1E-09
Dibenzo(a,h)anthracene	1.9E+00	2.1E-08	8.1E+00	1.7E-07
Indeno(1,2,3-cd)pyrene	6.0E+00	6.6E-08	2.0E+00	1.3E-07
Aroclor 1254	8.9E-02	9.7E-10	7.7E+00	7.5E-09
Aroclor 1260	5.2E-02	5.7E-10	7.7E+00	4.4E-09
Dieldrin	9.9E-03	1.1E-10	1.6E+01	1.7E-09
			Total Pathway:	1.4E-06

Dermal Contact/Sediment

Compound	ABS	Intake	SF(derm)	Risk
Arsenic	1.0E-03	1.3E-08	1.8E+00	2.5E-08
Beryllium	1.0E-02	1.7E-08	4.3E+02	7.4E-06
Chromium	1.0E-02	2.6E-07		
Lead	1.0E-02	4.5E-07		
U-TOTAL	1.0E-02	5.1E-07		
Acenaphthylene	3.0E-01	7.7E-08		
Benzo(a)anthracene			2.6E+00	
Benzo(a)pyrene			1.7E+01	
Benzo(b)fluoranthene			2.1E+00	
Benzo(k)fluoranthene			8.8E-01	
bis(2-Ethylhexyl)phthalate	4.0E-03	7.7E-10	1.6E-02	1.2E-11
Carbazole			2.0E-02	
Chrysene			7.4E-02	
Dibenzo(a,h)anthracene			1.9E+01	
Indeno(1,2,3-cd)pyrene				
Aroclor 1254	3.0E-01	4.9E-08	1.0E+01	5.0E-07
Aroclor 1260	3.0E-01	2.9E-08	1.0E+01	2.9E-07
Dieldrin	3.0E-01	5.4E-09	1.8E+01	9.6E-08
			Total Path	8.4E-06

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TABLE B.3.2-29(b) (continued)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOUTH FIELD: SEDIMENT

CARCINOGENIC RISK

Radiation Risk				Total
External Radiation/Sediment				
Compound	Intake	SF(e)	Risk	
CS-137	1.1E-01	2.0E-06	2.1E-07	2.1E-07
NP-237	4.7E-02	4.3E-07	2.0E-08	2.1E-08
PU-238	2.5E-02	2.8E-11	7.1E-13	3.2E-10
PU-239/24	1.1E-02	2.7E-11	2.9E-13	1.4E-10
RA-226	6.5E+00	1.2E-08	7.8E-08	1.2E-07
RA-228	8.2E-01	2.9E-06	2.4E-06	2.4E-06
SR-90	2.0E-01	0.0E+00	0.0E+00	4.2E-10
TC-99	1.3E+01	6.0E-13	7.8E-12	9.7E-10
TH-228	9.3E-01	5.6E-06	5.2E-06	5.2E-06
TH-230	2.9E+00	5.4E-11	1.6E-10	2.3E-09
TH-232	8.4E-01	2.6E-11	2.2E-11	6.0E-10
U-234	4.8E-07	3.0E-11	1.4E-17	4.5E-16
U-235/236	8.3E-02	2.4E-07	2.0E-08	2.0E-08
U-238	1.9E+00	3.6E-08	6.7E-08	7.0E-08
		Total Pathway;	8.0E-06	

CARCINOGENIC RISK

Chemical Risk		Total
External Radiation		
		1.6E-07
		7.5E-06
		6.6E-08
Not Applicable		7.5E-07
		6.1E-08
		3.0E-08
		2.8E-11
		3.6E-11
		2.1E-09
		1.7E-07
		1.3E-07
		5.1E-07
		3.0E-07
		9.8E-08
Total Pathway	0.0E+00	9.8E-06
Total Rad + Chem		1.8E-05

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TABLE B.3.2-29(b) (continued)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOUTH FIELD: SEDIMENT

NONCARCINOGENIC HAZARD

Radiation Hazard						Total
Ingestion/Sediment				Dermal Contact/Sediment		
Compound	Intake	RfD(o)	Hazard			
CS-137	6.0E+00			Not Applicable		
NP-237	2.7E+00					
PU-238	1.4E+00					
PU-239/240	6.1E-01					
RA-226	3.7E+02					
RA-228	4.7E+01					
SR-90	1.2E+01					
TC-99	7.4E+02					
TH-228	5.3E+01					
TH-230	1.7E+02					
TH-232	4.8E+01					
U-234	2.7E-05					
U-235/236	4.7E+00					
U-238	1.1E+02					
	Total Pathway:		0.0E+00		Total Pathway:	0.0E+00

NONCARCINOGENIC HAZARD

Chemical Hazard								Total
Ingestion/Sediment				Dermal Contact/Sediment				
Compound	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	4.6E-07	3.0E-04	1.5E-03	Arsenic	7.8E-08	2.9E-04	2.7E-04	1.8E-03
Beryllium	6.0E-08	5.0E-03	1.2E-05	Beryllium	1.0E-07	5.0E-05	2.0E-03	2.0E-03
Chromium	8.9E-07	5.0E-03	1.8E-04	Chromium	1.5E-06	2.3E-03	6.5E-04	8.2E-04
Lead	1.6E-06			Lead	2.6E-06			
U-TOTAL	1.8E-06	3.0E-03	5.9E-04	U-TOTAL	3.0E-06	1.5E-04	2.0E-02	2.1E-02
Acenaphthylene	8.9E-09			Acenaphthylene	4.5E-07			
Benzo(a)anthracene	3.5E-07			Benzo(a)anthracene				
Benzo(a)pyrene	6.0E-07			Benzo(a)pyrene				
Benzo(b)fluoranthene	4.0E-07			Benzo(b)fluoranthene				
Benzo(k)fluoranthene	4.7E-07			Benzo(k)fluoranthene				
bis(2-Ethylhexyl)phthalate	6.7E-09	2.0E-02	3.3E-07	bis(2-Ethylhexyl)phthalate	4.5E-09	1.8E-02	2.5E-07	5.8E-07
Carbazole	1.1E-08			Carbazole				
Chrysene	3.8E-07			Chrysene				
Dibenzo(a,h)anthracene	1.2E-07			Dibenzo(a,h)anthracene				
Indeno(1,2,3-cd)pyrene	3.8E-07			Indeno(1,2,3-cd)pyrene				
Aroclor 1254	5.7E-09			Aroclor 1254	2.9E-07			
Aroclor 1260	3.3E-09			Aroclor 1260	1.7E-07			
Dieldrin	6.3E-10	5.0E-05	1.3E-05	Dieldrin	3.2E-08	4.5E-05	7.0E-04	7.2E-04
	Total Pathway:		2.3E-03		Total Pathway:		2.4E-02	
								2.6E-02

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Table B.3.3-2(a)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE - SURFACE SOIL

PARAMETER	UNITS	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	N	7	7	1430	10100			6780	9033	-	-	--	N	a,b	9033	--
Arsenic	mg/kg	U	7	7	1.9	33.2			8.729	-	-	-	0.06	Y		33.20	0.005
Barium	mg/kg	N	7	7	7.3	105			62.56	85.67	-	-	550	N	b	85.67	260
Beryllium	mg/kg	L	7	6	0.61	2.1	0.33	0.33	-	-	0.8985	2.273	0.03	Y		2.273	0.002
Cadmium	mg/kg	U	7	1	3.1	3.1	0.83	1.7	0.9664	-	-	-	3.9	Y		3.100	1.8
Calcium	mg/kg	N	7	7	2730	142000			81290	111853	-	-	--	N	a	111853	--
Chromium	mg/kg	N	7	7	2.5	12.9			8.857	11.360	-	-	39	Y		11.36	18
Cobalt	mg/kg	N	7	7	2.9	10.2			5.886	7.889	-	-	--	N	b	7.889	c
Copper	mg/kg	L	7	7	4.8	41.1			-	-	16.02	33.95	290	N	h	33.95	140
Cyanide	mg/kg	U	7	3	0.14	0.7	0.11	0.13	0.1800	-	-	-	39	N	b	0.7000	73
Iron	mg/kg	N	7	7	2770	17000			11017	15061	-	-	--	N	a,b	15061	--
Lead	mg/kg	N	7	7	3.2	31.3			17.43	23.93	-	-	--	Y		23.93	d; 1.5
Magnesium	mg/kg	N	7	7	741	55000			24677	37530	-	-	--	N	a	37530	--
Manganese	mg/kg	N	7	7	38	1020			440.1	656.0	-	-	39	N	b	656.0	18
Molybdenum	mg/kg	U	7	3	4.8	7.2	3.3	5	3.714	-	-	-	39	N	h	7.200	18
Nickel	mg/kg	N	7	7	5.8	19.7			13.56	17.33	-	-	160	N	b	17.33	73
Potassium	mg/kg	N	7	7	221	2030			1296	1723	-	-	--	N	a	1723	--
Selenium	mg/kg	U	7	1	8.2	8.2	0.36	0.7	1.381	-	-	-	39	N	b	8.200	18
Silicon	mg/kg	L	7	7	219	1220			-	-	679.3	1265	--	N	b	1265	c
Silver	mg/kg	N	7	5	2.8	5	1.7	3.3	3.229	4.386	-	-	39	N	h	4.386	18
Sodium	mg/kg	N	7	7	74.5	223			126.5	165.0	-	-	--	N	a	165.0	--
Vanadium	mg/kg	N	7	7	4.9	32.3			19.24	25.57	-	-	55	N	b	25.57	20
Zinc	mg/kg	N	7	7	12.6	55.1			36.97	47.82	-	-	2300	N	b	47.82	1100
TH-TOTAL	mg/kg	U	2	2	7.74	21.4			14.570	-	-	-	--	Y		21.40	c
U-TOTAL	mg/kg	N	7	7	0.824	32.1			17.348	26.204	-	-	23	Y*		26.20	10
CS-137	pci/g	N	7	5	0.0871	0.641	0.0623	0.101	0.284	0.462	-	-		Y		0.462	0.17
GROSS ALPHA	pci/g	N	7	6	20.1	60.2	9.42	9.42	30.873	43.629	-	-	--	N*	c,e	43.63	--
GROSS BETA	pci/g	N	7	7	11.9	43.9			30.529	38.309	-	-	--	N*	c,e	38.31	--
NP-237	pci/g	L	4	4	0.0298	0.137			-	-	0.063	0.797	0.031	Y*		0.797	0.022
PU-238	pci/g	U	6	3	0.0441	0.081	0.0132	0.0554	0.040	-	-	-	0.36	Y*		0.081	0.022
PU-239/240	pci/g	U	6	1	0.0205	0.0205	0.0239	0.0673	0.020	-	-	-	0.34	Y*		0.021	0.021

Table B.3.2-2(a) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE - SURFACE SOIL

PARAMETER	UNITS	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
U-238	pci/g	N	7	7	0.422	11.2			5.732	8.867	-	-	0.36	Y		8.867	0.17
RA-226	pci/g	L	7	7	0.523	2.7			-	-	1.217	1.975	0.002	Y		1.975	0.04
RA-228	pci/g	L	7	7	0.415	2.62			-	-	1.208	2.242	0.005	Y		2.242	0.048
SR-90	pci/g	N	7	5	0.525	1.14	0.345	0.5	0.620	0.870	-	-	2.2	Y		0.870	0.13
TH-228	pci/g	U	2	2	0.79	2.71			1.750	-	-	-	0.003	Y		2.710	0.087
TH-230	pci/g	U	2	2	2.2	2.77			2.485	-	-	-	5.96	Y		2.770	0.37
TH-232	pci/g	U	2	2	0.841	2.33			1.586	-	-	-	6.3	Y		2.330	0.4
U-234	pci/g	N	7	7	0.433	10.6			5.633	8.649	-	-	4.9	Y		8.649	0.3
U-235/236	pci/g	N	7	7	0.038	0.602			0.268	0.420	-	-	0.06	Y		0.420	0.3

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration
* = no background concentration available
** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.
*** = shading indicates groundwater modeling will be performed
a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991
b = statistically comparable to background concentrations
c = quantitative risk assessment not possible
d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)
e = qualitative use only
f = detected only once; not detected in other subunit media
g = for use in describing general aqueous chemistry; not quantitated in risk assessment
h = below soil screening level
i = low toxicity by expected exposure route

Table B.3.3-2(a) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE - SURFACE SOIL

PARAMETER	UNITS	Distr.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
2-Methylnaphthalene	mg/kg	U	7	1	0.16	0.16	0.36	0.56	0.208	-	-	-	--	Y		0.160	c
Acenaphthene	mg/kg	U	7	1	0.46	0.46	0.36	0.56	0.251	-	-	-	470	N	h	0.460	220
Acenaphthylene	mg/kg	U	7	1	1.8	1.8	0.36	0.56	0.442	-	-	-	--	Y		1.800	c
Anthracene	mg/kg	U	7	1	1.7	1.7	0.36	0.56	0.428	-	-	-	2300	N	h	1.700	1100
Carbazole	mg/kg	U	7	1	0.51	0.51	0.36	0.56	0.258	-	-	-	6	Y		0.510	0.4
Dibenzo(a,h)anthracene	mg/kg	U	7	1	2.2	2.2	0.36	0.56	0.499	-	-	-	0.016	Y		2.200	0.0011
Dibenzofuran	mg/kg	U	7	1	0.25	0.25	0.36	0.56	0.221	-	-	-	--	Y		0.250	c
Fluorene	mg/kg	U	7	1	0.51	0.51	0.36	0.56	0.258	-	-	-	310	N	h	0.510	150
Naphthalene	mg/kg	U	7	1	0.1	0.1	0.36	0.56	0.199	-	-	-	310	N	h	0.100	150
2-Butanone	mg/kg	U	7	1	0.003	0.003	0.011	0.017	0.006	-	-	-	4700	N	h	0.003	2200
Acetone	mg/kg	U	7	3	0.002	0.012	0.011	0.017	0.007	-	-	-	780	N	h	0.012	370
Toluene	mg/kg	U	7	3	0.003	0.055	0.012	0.013	0.013	-	-	-	1600	N	h	0.055	75

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

* = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

Table 3.3-2(b)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

PARAMETER	Units	Dist.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est. Mean	UCL(L)	NPar.95	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	N	93	93	2130	22800			9360	10072	-	-		--	N	a,b	10072	
Antimony	mg/kg	U	69	17	1.2	29.7	0.24	13.8	3.74	-	-	-	18.7	3.1	N	b	18.70	
Arsenic	mg/kg	L	93	93	1.5	81.8			-	-	10.22	12.06		0.06	Y		12.06	0.005
Barium	mg/kg	L	93	93	8	1080			-	-	146.9	181.3		550	N	h	181.3	260
Beryllium	mg/kg	L	93	76	0.31	8.7	0.39	1.7	-	-	1.212	1.438		0.03	Y		1.438	0.002
Boron	mg/kg	N	7	5	17.1	38	22.7	23.1	23.36	30.75	-	-			N	i	30.75	
Cadmium	mg/kg	L	93	33	0.47	4.9	0.41	4.4	-	-	1.034	1.216		3.9	Y		1.216	1.8
Calcium	mg/kg	L	93	93	1620	252000			-	-	83986	124191		--	N	a,b	124191	
Chromium	mg/kg	L	93	91	3.6	36.2	5	7.7	-	-	15.06	16.77		39	Y		16.77	
Cobalt	mg/kg	N	93	88	3	23.2	5	9.5	8.71	9.37	-	-		--	N	b	9.369	c
Copper	mg/kg	L	93	91	7	436	7.7	9.3	-	-	25.90	29.81		290	N	h	29.81	140
Cyanide	mg/kg	U	90	29	0.12	2.6	0.1	0.3	0.210	-	-	-	0.78	39	N	h	0.780	73
Iron	mg/kg	N	93	93	3430	44100			17834	19229	-	-		--	N	a,b	19229	
Lead	mg/kg	L	93	93	3.3	1140			-	-	22.44	28.08		--	Y		28.08	d; 1.5
Magnesium	mg/kg	N	93	93	377	55900			16545	18890	-	-		--	N	a,b	18890	
Manganese	mg/kg	N	93	93	22.7	1200			479.6	525.3	-	-		39	N	b	525.3	
Mercury	mg/kg	U	90	16	0.12	1.3	0.09	0.19	0.111	-	-	-	0.44	2.3	N	h	0.440	1.1
Molybdenum	mg/kg	N	93	67	0.72	17.5	1.1	17.5	5.98	6.69	-	-		39	N	h	6.694	18
Nickel	mg/kg	L	93	89	8.1	82.3	10.1	17.5	-	-	21.30	23.45		160	N	b	23.45	73
Potassium	mg/kg	L	93	93	456	2900			-	-	1163	1260		--	N	a,b	1260	
Selenium	mg/kg	U	87	18	0.73	11.1	0.2	0.53	0.804	-	-	-	4.1	39	N	b	4.100	18
Silicon	mg/kg	L	72	72	5.5	3370			-	-	846.7	992.1		--	N	b	992.1	c
Silver	mg/kg	N	93	64	0.49	16.2	0.41	8.7	4.80	5.24	-	-			N	h	5.244	
Sodium	mg/kg	L	93	89	37.5	663	71.9	237	-	-	171.0	191.7			N	a	191.7	
Thallium	mg/kg	U	93	14	0.19	3.6	0.16	0.59	0.318	-	-	-	0.88	0.6	N	b	0.880	0.26
Vanadium	mg/kg	N	93	93	9.8	53.2			26.16	27.68	-	-		55	N	h	27.68	26
Zinc	mg/kg	L	93	91	9.4	508	11.9	12.9	-	-	56.96	66.44		2300	N	b	66.44	1100.0
TH-TOTAL	mg/kg	L	108	108	2.41	158			-	-	12.27	13.65		--	N	b	13.65	c
U-TOTAL	mg/kg	L	118	118	1.05	3580	2.77	4.5	-	-	69.11	103.84		23	Y		103.84	10
CS-137	pci/g	U	116	15	0.07	0.55	0.07	0.95	0.1031	-	-	-			Y		0.240	
GROSS ALPHA	pci/g	L	67	65	7.81	2030	8.94	10.9	-	-	66.28	95.24		--	N	c,e	95.24	
GROSS BETA	pci/g	L	67	67	12.41	1810			-	-	67.00	87.98		--	N	c,e	87.98	
NP-237	pci/g	L	105	53	0.0321	37.3	0.03	0.6	-	-	0.3839	0.4893		0.031	Y		0.489	0.022
PB-210	pci/g	L	10	10	0.71	16.8			-	-	2.398	6.014		0.12	Y		6.014	0.0073

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Table 3.3-2(b) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

PARAMETER	Units	Dist.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est. Mean	UCL(L)	NPar.95	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
PU-238	pci/g	U	121	46	0.016	1.85	0.0179	1	0.2002	-	-	-		0.38	Y*		0.270	0.022
PU-239/240	pci/g	U	118	32	0.0147	1.77	0.01	1	0.1801	-	-	-		0.34	Y*		0.130	0.021
RA-224	pci/g	N	10	10	1.02	3.49			2.684	3.133	-	-		0.49	Y		3.133	0.13
RA-226	pci/g	L	116	112	0.492	42.3	0.3	1.02	-	-	2.430	2.919		0.002	Y		2.919	0.04
RA-228	pci/g	L	115	111	0.34	19	0.442	0.54	-	-	1.485	1.656		0.005	Y		1.656	0.048
RU-106	pci/g	U	116	11	1	1.8	0.104	8.95	0.5812	-	-	-		8.35	Y		1.300	0.5
SR-90	pci/g	L	113	43	0.26	2.39	0.15	0.603	-	-	0.4841	0.5602		2.2	Y		0.560	0.13
TC-99	pci/g	U	90	4	0.9	1.1	0.207	0.9	0.2785	-	-	-		60.8	Y		0.900	0.27
TH-228	pci/g	L	111	108	0.308	20.3	0.5	0.6	-	-	1.479	1.661		0.003	Y		1.661	0.087
TH-230	pci/g	L	111	111	0.8	121			-	-	3.562	4.263		5.98	Y		4.263	0.37
TH-232	pci/g	L	111	106	0.264	17.5	0.6	0.6	-	-	1.333	1.495		6.3	Y		1.495	0.4
U-234	pci/g	L	121	119	0.49	1380	0.6	0.6	-	-	18.38	28.72		4.9	Y		28.72	0.3
U-235	pci/g	L	10	6	0.57	12.7	0.4	3.3	-	-	2.887	17.063		0.08	Y		12.70	0.3
U-235/236	pci/g	L	121	66	0.0198	66.6	0.6	0.6	-	-	1.300	2.017		0.08	Y		2.017	0.3
U-238 (ALPHA)	pci/g	L	120	118	0.385	1570	0.6	0.6	-	-	19.45	30.42		0.36	Y		30.42	0.17
U-238 (GAMMA)	pci/g	L	9	9	1.47	180			-	-	24.80	240.34		0.36	Y		180.00	0.17
2-Methylnaphthalene	mg/kg	U	101	7	0.05	0.091	0.34	0.93	0.203	-	-	-	0.058	--	Y		0.058	c
4-Methylphenol	mg/kg	U	100	2	0.01	0.054	0.34	0.93	0.209	-	-	-	0.01	39	N	h	0.010	18
Acenaphthylene	mg/kg	U	100	1	0.41	0.41	0.34	0.93	0.215	-	-	-	0.41	--	Y		0.410	c
Anthracene	mg/kg	U	100	6	0.003	0.25	0.34	0.93	0.205	-	-	-	0.049	2300	N	h	0.049	1100
Benzo(a)anthracene	mg/kg	U	100	15	0.008	1.1	0.34	0.93	0.208	-	-	-	0.13	0.16	Y		0.130	0.011
Benzo(a)pyrene	mg/kg	U	99	13	0.003	1.8	0.34	0.93	0.212	-	-	-	0.11	0.016	Y		0.110	0.0011
Benzo(b)fluoranthene	mg/kg	U	99	13	0.005	1.6	0.34	0.93	0.219	-	-	-	0.14	0.011	Y		0.140	0.011
Benzo(g,h,i)perylene	mg/kg	U	99	9	0.004	1.2	0.34	0.93	0.211	-	-	-	0.059	--	Y		0.059	
Benzo(k)fluoranthene	mg/kg	U	99	10	0.006	1.6	0.34	0.93	0.215	-	-	-	0.084	1.6	Y		0.084	0.11
Benzoic acid	mg/kg	U	82	11	0.044	0.15	1.7	4.2	0.807	-	-	-	0.057	31000	N	h	0.057	15000
Carbazole	mg/kg	U	73	2	0.001	0.051	0.34	0.57	0.189	-	-	-	0.001	6	Y		0.001	0.4
Chrysene	mg/kg	U	100	15	0.008	1.4	0.34	0.93	0.210	-	-	-	0.15	1600	Y		0.150	110
Di-n-butyl phthalate	mg/kg	U	100	6	0.043	0.11	0.051	0.93	0.202	-	-	-	0.046	780	N	h	0.046	370
Di-n-octyl phthalate	mg/kg	U	100	1	0.21	0.21	0.34	0.93	0.213	-	-	-	0.21	160	Y		0.210	73
Dibenzo(a,h)anthracene	mg/kg	U	99	2	0.002	0.44	0.34	0.93	0.213	-	-	-	0.002	0.016	Y		0.002	0.0011
Diethyl phthalate	mg/kg	U	101	3	0.052	0.18	0.34	0.93	0.210	-	-	-	0.052	6300	Y		0.052	2800
Fluoranthene	mg/kg	U	101	19	0.016	1.8	0.34	0.93	0.222	-	-	-	0.26	310	N	h	0.260	150
Indeno(1,2,3-cd)pyrene	mg/kg	U	99	7	0.004	0.21	0.34	0.93	0.203	-	-	-	0.048	0.16	Y		0.046	0.011

Table 3.3-2(b) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

PARAMETER	Units	Dist.	Samples	Hits	Min Hit	Max Hit	Min SQL	Max SQL	Mean	UCL(N)	Est. Mean	UCL(L)	NPar.95	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc. Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Isophorone	mg/kg	U	100	1	0.004	0.004	0.34	0.93	0.211	-	-	-	0.004	130	N	h	0.004	8.4
Naphthalene	mg/kg	U	100	4	0.053	0.081	0.34	0.93	0.207	-	-	-	0.053	310	N	h	0.053	150
Phenanthrene	mg/kg	U	100	18	0.01	0.37	0.34	0.93	0.200	-	-	-	0.21	--			0.210	c
Phenol	mg/kg	U	100	1	0.002	0.002	0.34	0.93	0.211	-	-	-	0.002	4700	N	h	0.002	2200
Pyrene	mg/kg	U	103	22	0.014	1.4	0.34	0.93	0.211	-	-	-	0.22	230	N	h	0.220	110
Tributyl phosphate	mg/kg	U	17	3	0.002	0.2	0.35	0.44	0.190	-	-	-	0.2	--	Y		0.200	
bis(2-Ethylhexyl) phthalate	mg/kg	U	99	39	0.002	2.8	0.34	0.93	0.269	-	-	-	0.86	8.5	Y		0.860	0.57
1,1,1-Trichloroethane	mg/kg	U	102	19	0.001	0.92	0.005	1.6	0.029	-	-	-	0.05	700	N	h	0.050	130
2-Butanone	mg/kg	U	99	6	0.001	0.042	0.006	1.6	0.018	-	-	-	0.002	4700	N	h	0.002	2200
2-Hexanone	mg/kg	U	91	1	0.003	0.003	0.006	1.6	0.018	-	-	-	0.003	--	Y		0.003	c
4-Methyl-2-pentanone	mg/kg	U	92	6	0.001	0.008	0.007	1.6	0.018	-	-	-	0.001	390	N	h	0.001	180
Acetone	mg/kg	U	100	34	0.003	0.19	0.01	1.6	0.021	-	-	-	0.056	780	N	h	0.056	370
Carbon disulfide	mg/kg	U	101	3	0.002	0.02	0.005	1.6	0.014	-	-	-	0.002	780	N	h	0.002	2.1
Chlorobenzene	mg/kg	U	90	1	0.014	0.014	0.005	1.6	0.015	-	-	-	0.014	160	N	h	0.014	3.9
Chloroform	mg/kg	U	100	2	0.003	0.007	0.005	1.6	0.014	-	-	-	0.003	20	Y		0.003	0.02
Chloromethane	mg/kg	U	100	1	0.052	0.052	0.01	1.6	0.018	-	-	-	0.052	9.2	N	h	0.052	0.18
Methylene chloride	mg/kg	U	101	9	0.002	0.18	0.005	0.089	0.013	-	-	-	0.054	160	Y		0.054	0.51
Styrene	mg/kg	U	91	1	0.002	0.002	0.005	1.6	0.015	-	-	-	0.002	1600	N	h	0.002	160
Tetrachloroethene	mg/kg	U	91	1	0.001	0.001	0.005	1.6	0.015	-	-	-	0.001	2.3	Y		0.001	0.13
Toluene	mg/kg	U	97	43	0.001	1.8	0.005	0.37	0.045	-	-	-	0.11	1600	N	h	0.110	75
Trichloroethene	mg/kg	U	95	1	0.002	0.002	0.005	1.6	0.015	-	-	-	0.002	11	Y		0.002	0.19
Vinyl Acetate	mg/kg	U	87	1	0.002	0.002	0.01	0.083	0.008	-	-	-	0.002	7800	N	h	0.002	3700
Xylenes, Total	mg/kg	U	90	2	0.001	0.002	0.005	1.6	0.015	-	-	-	0.001	16000	N	h	0.001	1200
Total Organic Carbon	mg/kg	N	6	6	7840	192011			104696	177750	-	-		--	N	c,e	177750	
Octachlorodibenzo-p-dioxin	mg/kg	L	10	10	0.00012	0.0038			-	-	0.001	0.004		--	Y		0.004	
Tetrachlorodibenzofuran	mg/kg	U	10	1	0.000018	0.000018	0.000023	0.00017	2.4E-05	-	-	-	0.000018	--	Y		1.8E-05	
Aroclor-1254	mg/kg	U	101	23	0.032	1.1	0.034	0.37	0.091	-	-	-	0.43	0.013	Y		0.43	0.001
Aroclor-1260	mg/kg	U	101	2	0.089	0.39	0.034	1.8	0.065	-	-	-	0.089	0.013	Y		0.089	0.001
Dieldrin	mg/kg	U	100	1	0.016	0.016	0.0034	0.18	0.006	-	-	-	0.016	0.0075	Y		0.016	0.0005
Endrin ketone	mg/kg	U	100	1	0.0053	0.0053	0.0034	0.18	0.006	-	-	-	0.0053	--	Y		0.005	c
alpha-Chlordane	mg/kg	U	100	2	0.0033	0.008	0.0018	0.92	0.025	-	-	-	0.0033	0.092	Y		0.003	0.0081
gamma-Chlordane	mg/kg	U	100	1	0.0072	0.0072	0.0018	0.92	0.025	-	-	-	0.0072	0.092	Y		0.007	0.0081

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Table 3.3-2(b) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE/SOUTH FIELD: SUBSURFACE SOIL

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, August 6, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

TABLE B.3.3-2(c)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE -- SURFACE WATER

Parameter	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	AVG	CPC	Reason for Elimination
Alkalinity	mg/l	2	2	208	395			301.5	N	g
Ammonia	mg/l	3	2	0.13	0.1626	0.1	0.1	0.114	N	g
Chloride	mg/l	3	3	2.33	4.63			3.49	N	g
Fluoride	mg/l	3	3	0.23	0.39			0.307	N	g
Nitrate	mg/l	2	2	0.14	0.14			0.140	N	g
Phosphorus	mg/l	1	1	0.842	0.842			0.842	N	g
Sulfate	mg/l	3	3	67	171			124.0	N	g
Total Kjeldahl Nitrogen	mg/l	3	3	0.18	1.09			0.723	N	g
Total Organic Carbon	mg/l	2	2	2.14	5.77			3.96	N	g
Total Organic Halides	mg/l	3	2	0.0159	10.6	10	10	5.21	N	g
Total Organic Nitrogen	mg/l	3	3	0.18	0.927			0.626	N	g
Total Phosphorous	mg/l	2	2	0.18	0.19			0.185	N	g
Aluminum	ug/l	2	2	82.8	131			106.9	N	a
Arsenic	ug/l	3	1	1.4	1.4	2	2	1.13	Y	
Barium	ug/l	3	3	26.7	66.1			44.6	N	j
Cadmium	ug/l	3	1	1.6	1.6	2	5	1.70	Y	
Calcium	ug/l	3	3	38300	132000			84300	N	a
Iron	ug/l	3	2	72.9	284	4.1	4.1	119.7	N	a
Lead	ug/l	3	1	8.3	8.3	1	2	3.27	Y	
Magnesium	ug/l	3	3	10100	45700			26867	N	a
Manganese	ug/l	3	3	12.8	46.2			27.2	N	j
Mercury	ug/l	3	1	0.8	0.8	0.2	0.2	0.333	N	j
Nickel	ug/l	3	1	8	8	3	20	6.50	N	j
Potassium	ug/l	3	3	1740	2330			1967	N	a
Selenium	ug/l	3	1	4	4	2	2	2.00	N	j
Silicon	ug/l	2	2	5760	7040			6400	N	j
Sodium	ug/l	3	3	1990	6010			3573	N	a
U-TOTAL	ug/l	3	3	40	820			341.7	Y	
GROSS ALPHA	pci/l	2	2	72.9	426			249.450	N	c,e
GROSS BETA	pci/l	2	2	51.3	172			111.650	N	c,e
NP-237	pci/l	1	1	0.79	0.79			0.790	Y	
PU-238	pci/l	2	1	2.91	2.91	0.19	0.19	1.503	Y	
PU-239/240	pci/l	2	1	0.2	0.2	0.052	0.052	0.113	Y	
RA-226	pci/l	3	1	0.148	0.148	0.15	1	0.241	Y	
TH-230	pci/l	2	2	0.34	0.653			0.497	Y	

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TABLE B.3.3-2(c) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE – SURFACE WATER

Parameter	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	AVG	N	h h
U-234	pci/l	2	2	61	265			163.000	Y	
U-235/236	pci/l	2	2	2.9	14			8.450	Y	
U-238	pci/l	2	2	59.7	257.0			158.4	Y	
bis(2-Ethylhexyl) phthalate	ug/l	2	1	1	1	10	10	3.00	Y	
Toluene	ug/l	2	1	2	2	10	10	3.50	Y	

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

j = below EPA Region III tap water screening level and not a CPC in IFP soil

TABLE B.3.3-2(d)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE -- SEDIMENT

Parameter	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	AVG	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Groundweater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	2	2	3130	4020			3575	--	N	a	--
Arsenic	mg/kg	2	2	1.7	5.4			3.55	0.06	Y		0.005
Barium	mg/kg	2	2	16.5	27.3			21.9	550	N	h	260
Cadmium	mg/kg	2	1	0.67	0.67	1.2	1.2	0.635	3.9	N	h	1.8
Calcium	mg/kg	2	2	105000	111000			108000	--	N	a	--
Chromium	mg/kg	2	2	4.9	6.5			5.70	39	Y	h	18
Cobalt	mg/kg	2	2	3.1	4.8			3.95	--	Y		c
Copper	mg/kg	2	2	9.3	9.5			9.40	290	N	h	140
Cyanide	mg/kg	2	1	0.16	0.16	0.12	0.12	0.110	39	N	h	73
Iron	mg/kg	2	2	8110	10300			9205	--	N	a	--
Lead	mg/kg	2	2	4.1	6.7			5.40	--	Y		d; 1.5
Magnesium	mg/kg	2	2	22500	29600			26050	--	N	a	--
Manganese	mg/kg	2	2	327	386			356.5	39	Y		18
Nickel	mg/kg	2	2	6.6	11.7			9.15	160	N	h	73
Potassium	mg/kg	2	2	650	812			731.0	--	N	a	--
Silicon	mg/kg	2	2	767	805			786.0	--	N	i	c
Sodium	mg/kg	2	2	150	175			162.5	--	N	a	0
Thallium	mg/kg	2	1	0.52	0.52	0.23	0.23	0.318	0.6	Y		0.26
Vanadium	mg/kg	2	2	12.5	13.2			12.9	55	N	h	20
Zinc	mg/kg	2	2	29	41.7			35.4	2300	N	h	1100
TH-TOTAL	mg/kg	2	2	3.57	5.04			4.31	--	Y		c
U-TOTAL	mg/kg	4	4	5.38	13.9			10.9	23.0	Y		10
GROSS ALPHA	pci/g	2	2	15.2	15.6			15.400	--	N	c,e	--
GROSS BETA	pci/g	2	2	16.3	17.6			16.950	--	N	c,e	--
NP-237	pci/g	2	1	0.019	0.019	0.05	0.05	0.022	0.031	Y		0.022
PU-238	pci/g	2	1	0.019	0.019	0.13	0.13	0.042	0.36	Y		0.022
PU-239/240	pci/g	2	1	0.03	0.03	0.027	0.027	0.022	0.34	Y		0.021
RA-226	pci/g	4	4	0.65	0.885			0.743	0.002	Y		0.04
RA-228	pci/g	4	4	0.51	0.901			0.693	0.005	Y		0.048
SR-90	pci/g	2	1	0.48	0.48	0.43	0.43	0.348	2.2	Y		0.13
TH-228	pci/g	2	2	0.42	0.49			0.455	0.003	Y		0.087
TH-230	pci/g	2	2	0.75	1.28			1.015	5.96	Y		0.37

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TABLE B.3.3-2(d) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
INACTIVE FLYASH PILE -- SEDIMENT (continued)

Parameter	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	AVG	Region III** Residential Soil (mg/kg; pCi/g)	CPC	Reason for Elimination	Groundweater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
TH-232	pci/g	2	2	0.39	0.55			0.470	6.3	Y		0.4
U-234	pci/g	2	2	0.77	1.5			1.135	4.9	Y		0.3
U-235/236	pci/g	2	2	0.054	0.12			0.087	0.06	Y		0.3
U-238	pci/g	2	2	0.72	1.68			1.200	0.36	Y		0.17
Benzo(a)pyrene	mg/kg	2	1	0.009	0.009	0.4	0.4	0.105	0.016	Y		0.0011
Carbazole	mg/kg	2	1	0.007	0.007	0.4	0.4	0.104	6	Y		0.4
Di-n-octyl phthalate	mg/kg	2	1	0.002	0.002	0.4	0.4	0.101	160	N	h	73
Phenol	mg/kg	2	1	0.024	0.024	0.4	0.4	0.112	4700	N	h	2200
bis(2-Ethylhexyl)phthalate	mg/kg	2	2	0.059	1.2			0.630	8.5	Y		0.57

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

• = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

TABLE B.3.3-4
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SURFACE SOIL

Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	3.23E-06	6.7E-03	1.9E-11	1.3E-13
NP-237	5.58E-06	1.2E-02	2.9E-08	3.4E-10
PU-238	5.67E-07	1.2E-03	3.9E-08	4.6E-11
PU-239/240	1.47E-07	3.0E-04	3.8E-08	1.2E-11
RA-226	1.38E-05	2.9E-02	3.0E-09	8.6E-11
RA-228	1.57E-05	3.3E-02	6.9E-10	2.2E-11
SR-90	6.09E-06	1.3E-02	6.2E-11	7.8E-13
TH-228	1.90E-05	3.9E-02	7.8E-08	3.1E-09
TH-230	1.94E-05	4.0E-02	2.9E-08	1.2E-09
TH-232	1.63E-05	3.4E-02	2.8E-08	9.5E-10
U-234	6.05E-05	1.3E-01	2.6E-08	3.3E-09
U-235/236	2.94E-06	6.1E-03	2.5E-08	1.5E-10
U-238	6.21E-05	1.3E-01	5.2E-08	6.7E-09
			Total Pathway:	1.6E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.46	7.2E+00	2.8E-11	2.0E-10
NP-237	0.80	1.2E+01	2.2E-10	2.7E-09
PU-238	0.08	1.3E+00	2.2E-10	2.8E-10
PU-239/240	0.02	3.2E-01	2.3E-10	7.4E-11
RA-226	1.98	3.1E+01	1.2E-10	3.7E-09
RA-228	2.24	3.5E+01	1.0E-10	3.5E-09
SR-90	0.87	1.4E+01	3.6E-11	4.9E-10
TH-228	2.7	4.2E+01	5.5E-11	2.3E-09
TH-230	2.77	4.3E+01	1.3E-11	5.6E-10
TH-232	2.33	3.6E+01	1.2E-11	4.4E-10
U-234	8.65	1.3E+02	1.6E-11	2.2E-09
U-235/236	0.42	6.6E+00	1.6E-11	1.0E-10
U-238	8.87	1.4E+02	2.8E-11	3.9E-09
			Total Pathway:	2.0E-08

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk
Arsenic	2.32E-07	4.4E-10	1.5E+01	6.6E-09
Beryllium	1.59E-08	3.0E-11	8.4E+00	2.5E-10
Cadmium	2.17E-08	4.1E-11	6.1E+00	2.5E-10
Chromium	7.95E-08	1.5E-10	41	6.1E-09
Lead	1.68E-07	3.2E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	3.5E-10		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	6.7E-12		
Dibenzo(a,h)anthracene	1.54E-08	2.9E-11	6.8E+00	2.0E-10
Dibenzofuran	0.00E+00	0.0E+00		
			Total Pathway:	1.3E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	33.20	4.7E-07	1.8E+00	8.2E-07
Beryllium	2.27	3.2E-08	4.3E+00	1.4E-07
Cadmium	3.10	4.4E-08		
Chromium	11.36	1.6E-07		
Lead	23.93	3.4E-07		
TH-TOTAL	21.40	3.0E-07		
U-TOTAL	26.20	3.7E-07		
2-Methylnaphthalene	0.16	2.3E-09		
Acenaphthylene	1.80	2.6E-08		
Carbazole	0.51	7.2E-09	2.0E-02	1.4E-10
Dibenzo(a,h)anthracene	2.20	3.1E-08	8.1E+00	2.5E-07
Dibenzofuran	0.25	3.5E-09		
			Total Pathway:	1.2E-06

Total Rad + Chem 2.9E-08

Total Rad + Chem 1.2E-06

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TABLE B.3.3-4 (continued)
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SURFACE SOIL

Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.3E-01	2.0E-06	2.6E-07	2.6E-07
	NP-237	2.3E-01	4.3E-07	9.8E-08	1.0E-07
	PU-238	2.3E-02	2.8E-11	6.5E-13	3.2E-10
	PU-239/24	5.8E-03	2.7E-11	1.6E-13	8.5E-11
	RA-226	5.6E-01	1.2E-08	6.8E-09	1.1E-08
	RA-228	6.4E-01	2.9E-06	1.9E-06	1.9E-06
	SR-90	2.5E-01	0.0E+00	0.0E+00	4.9E-10
	TH-228	7.7E-01	5.6E-06	4.3E-06	4.3E-06
	TH-230	7.9E-01	5.4E-11	4.3E-11	1.8E-09
	TH-232	6.6E-01	2.6E-11	1.7E-11	1.4E-09
	U-234	2.5E+00	3.0E-11	7.4E-11	5.5E-09
	U-235/236	1.2E-01	2.4E-07	2.9E-08	2.9E-08
	U-238	2.5E+00	3.6E-08	9.1E-08	1.0E-07
Total Pathway: 0.0E+00	Total Pathway: 6.7E-06				

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	7.9E-08	1.8E+00	1.5E-07					9.8E-07
Beryllium	5.4E-08	4.3E+02	2.3E-05					2.3E-05
Cadmium	7.4E-08							2.5E-10
Chromium	2.7E-07							6.1E-09
Lead	5.7E-07							
TH-TOTAL	0.0E+00			Not applicable				
U-TOTAL	6.3E-07							
2-Methylnaphthalene	1.1E-07							
Acenaphthylene	1.3E-06							
Carbazole	0.0E+00	2.0E-02	0.0E+00					1.4E-10
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					2.5E-07
Dibenzofuran	1.8E-08							
Total Pathway: 2.3E-05				Total Pathway: 0.0E+00				

Total Rad + Chem 2.3E-05 | 6.7E-06 | *Total:* 3.1E-05

TABLE B.3.3-4 (continued)
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SURFACE SOIL

Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3	Intake	RfD(i)	Hazard
CS-137	3.23E-06	6.7E-03		
NP-237	5.58E-06	1.2E-02		
PU-238	5.67E-07	1.2E-03		
PU-239/240	1.47E-07	3.0E-04		
RA-226	1.38E-05	2.9E-02		
RA-228	1.57E-05	3.3E-02		
SR-90	6.09E-06	1.3E-02		
TH-228	1.90E-05	3.9E-02		
TH-230	1.94E-05	4.0E-02		
TH-232	1.63E-05	3.4E-02		
U-234	6.05E-05	1.3E-01		
U-235/236	2.94E-06	6.1E-03		
U-238	6.21E-05	1.3E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.46	7.2E+00		
NP-237	0.80	1.2E+01		
PU-238	0.08	1.3E+00		
PU-239/240	0.02	3.2E-01		
RA-226	1.98	3.1E+01		
RA-228	2.24	3.5E+01		
SR-90	0.87	1.4E+01		
TH-228	2.71	4.2E+01		
TH-230	2.77	4.3E+01		
TH-232	2.33	3.6E+01		
U-234	8.65	1.3E+02		
U-235/236	0.42	6.6E+00		
U-238	8.87	1.4E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	2.32E-07	2.6E-09		
Beryllium	1.59E-08	1.7E-10		
Cadmium	2.17E-08	2.4E-10		
Chromium	7.95E-08	8.7E-10	5.5E-07	1.6E-03
Lead	1.68E-07	1.8E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	2.0E-09		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	3.9E-11		
Dibenzo(a,h)anthracene	1.54E-08	1.7E-10		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 1.6E-03

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	33.20	2.7E-06	3.0E-04	9.2E-03
Beryllium	2.27	1.9E-07	5.0E-03	3.8E-05
Cadmium	3.10	2.6E-07	1.0E-03	2.6E-04
Chromium	11.36	9.4E-07	5.0E-03	1.9E-04
Lead	23.93	2.0E-06		
TH-TOTAL	21.40	1.8E-06		
U-TOTAL	26.20	2.2E-06	3.0E-03	7.2E-04
2-Methylnaphthalene	0.16	1.3E-08		
Acenaphthylene	1.80	1.5E-07		
Carbazole	0.51	4.2E-08		
Dibenzo(a,h)anthracene	2.20	1.8E-07		
Dibenzofuran	0.25	2.1E-08	4.0E-03	5.2E-06

Total Pathway: 1.0E-02

Total Rad + Chem 1.6E-03

Total Rad + Chem 1.0E-02

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TABLE B.3.3-4 (continued)
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SURFACE SOIL

Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	Hazard	
Not applicable	CS-137	1.3E-01			
	NP-237	2.3E-01			
	PU-238	2.3E-02			
	PU-239/240	5.8E-03			
	RA-226	5.6E-01			
	RA-228	6.4E-01			
	SR-90	2.5E-01			
	TH-228	7.7E-01			
	TH-230	7.9E-01			
	TH-232	6.6E-01			
	U-234	2.5E+00			
	U-235/236	1.2E-01			
	U-238	2.5E+00			
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00				

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	4.6E-07	2.9E-04	1.6E-03					1.1E-02
Beryllium	3.2E-07	5.0E-05	6.3E-03					6.4E-03
Cadmium	4.3E-07	5.0E-05	8.6E-03					8.9E-03
Chromium	1.6E-06	2.3E-03	7.0E-04					2.5E-03
Lead	3.3E-06							
TH-TOTAL	0.0E+00			Not applicable				
U-TOTAL	3.6E-06	1.5E-04	2.4E-02					2.5E-02
2-Methylnaphthalene	0.0E+00							
Acenaphthylene	7.5E-06							
Carbazole	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	1.0E-07	4.0E-03	2.6E-05					3.1E-05
Total Pathway: 4.2E-02				Total Pathway: 0.0E+00				

			5.4E-02
Total Rad + Chem	4.2E-02	0.0E+00	*otal:* 5.4E-02

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TABLE B.3.3-5 (a)
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SEDIMENT
Carcinogenic Risk

Radiation Risk

Ingestion/Sediment					Dermal Contact/Sediment	External Radiation/Sediment			Total
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk		Compound	Intake	SF(o)	Risk	
NP-237	0.019	3.0E-01	2.2E-10	6.5E-11	Not applicable (1)	NP-237	5.4E-03	4.3E-07	2.3E-09	2.4E-09
PU-238	0.019	3.0E-01	2.2E-10	6.5E-11		PU-238	5.4E-03	2.8E-11	1.5E-13	6.5E-11
PU-239/240	0.030	4.7E-01	2.3E-10	1.1E-10		PU-239/24	8.5E-03	2.7E-11	2.3E-13	1.1E-10
RA-226	0.885	1.4E+01	1.2E-10	1.7E-09		RA-226	2.5E-01	1.2E-08	3.0E-09	4.7E-09
RA-228	0.901	1.4E+01	1.0E-10	1.4E-09		RA-228	2.6E-01	2.9E-06	7.4E-07	7.5E-07
SR-90	0.480	7.5E+00	3.6E-11	2.7E-10		SR-90	1.4E-01	0.0E+00	0.0E+00	2.7E-10
TH-228	0.490	7.6E+00	5.5E-11	4.2E-10		TH-228	1.4E-01	5.6E-06	7.8E-07	7.8E-07
TH-230	1.280	2.0E+01	1.3E-11	2.6E-10		TH-230	3.6E-01	5.4E-11	2.0E-11	2.8E-10
TH-232	0.550	8.6E+00	1.2E-11	1.0E-10		TH-232	1.6E-01	2.6E-11	4.1E-12	1.1E-10
U-234	1.500	2.3E+01	1.6E-11	3.7E-10		U-234	4.3E-01	3.0E-11	1.3E-11	3.9E-10
U-235/236	0.120	1.9E+00	1.6E-11	3.0E-11		U-235/236	3.4E-02	2.4E-07	8.2E-09	8.2E-09
U-238	1.680	2.6E+01	2.8E-11	7.3E-10		U-238	4.8E-01	3.6E-08	1.7E-08	1.8E-08
		Total Pathway:		5.5E-09	Total Pathway: 0.0E+00			Total Pathway:		1.6E-06

Chemical Risk

Ingestion/Sediment					Dermal Contact/Sediment				External Radiation/Sediment				
Compound	Conc'n (mg/kg	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	5.40	7.7E-08	1.8E+00	1.3E-07	Arsenic	1.3E-08	1.8E+00	2.3E-08					1.6E-07
Chromium	6.50	9.2E-08			Chromium	1.5E-07							
Cobalt	4.80	6.8E-08			Cobalt	1.1E-07			Not applicable				
Lead	6.70	9.5E-08			Lead	1.6E-07							
Manganese	386.00	5.5E-06			Manganese	9.1E-06							
TH-TOTAL	5.04	7.2E-08			TH-TOTAL	1.2E-07							
Thallium	0.52	7.4E-09			Thallium	1.2E-08							
U-TOTAL	13.90	2.0E-07			U-TOTAL	3.3E-07							
Benzo(a)pyrene	0.01	1.3E-10	7.3E+00	9.3E-10	Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					9.3E-10
bis(2-Ethylhexyl)phthalate	1.20	1.7E-08	1.4E-02	2.4E-10	bis(2-Ethylhexyl)phthalat	1.1E-08	1.6E-02	1.8E-10					4.1E-10
Carbazole	0.01	9.9E-11	2.0E-02	2.0E-12	Carbazole	0.0E+00	2.0E-02	0.0E+00					2.0E-12
		Total Pathway:		1.4E-07		Total Pathway:		2.4E-08		Total Pathway:		0.0E+00	
		Total Rad + Chem		1.4E-07		Total Rad + Chem		2.4E-08		Total Rad + Chem		1.6E-06	*Total:* 1.7E-06

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TABLE B.3.3-5 (a)(continued)
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SEDIMENT
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Sediment					Dermal Contact/Sediment	Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard		
NP-237	0.02	3.0E-01			Not applicable	
PU-238	0.02	3.0E-01				
PU-239/240	0.03	4.7E-01				
RA-226	0.89	1.4E+01				
RA-228	0.90	1.4E+01				
SR-90	0.48	7.5E+00				
TH-228	0.49	7.6E+00				
TH-230	1.28	2.0E+01				
TH-232	0.55	8.6E+00				
U-234	1.50	2.3E+01				
U-235/236	0.12	1.9E+00				
U-238	1.68	2.6E+01				
			Total Pathway:	0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Sediment					Dermal Contact/Sediment				
Compound	Conc'n (mg/kg	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	5.40	4.5E-07	3.0E-04	1.5E-03	Arsenic	7.4E-08	2.9E-04	2.6E-04	1.8E-03
Chromium	6.50	5.4E-07	5.0E-03	1.1E-04	Chromium	8.9E-07	2.3E-03	4.0E-04	5.0E-04
Cobalt	4.80	4.0E-07	5.0E-03	8.0E-05	Cobalt	6.6E-07	2.3E-03	2.9E-04	3.7E-04
Lead	6.70	5.5E-07			Lead	9.2E-07			
Manganese	386.00	3.2E-05	1.4E-01	2.3E-04	Manganese	5.3E-05	4.2E-03	1.3E-02	1.3E-02
TH-TOTAL	5.04	4.2E-07			TH-TOTAL	6.9E-07			
Thallium	0.52	4.3E-08	7.0E-05	6.2E-04	Thallium	7.1E-08	7.0E-05	1.0E-03	1.6E-03
U-TOTAL	13.90	1.2E-06	3.0E-03	3.8E-04	U-TOTAL	1.9E-06	1.5E-04	1.3E-02	1.3E-02
Benzo(a)pyrene	0.01	7.5E-10			Benzo(a)pyrene	0.0E+00			
bis(2-Ethylhexyl)phthalate	1.20	9.9E-08	2.0E-02	5.0E-06	bis(2-Ethylhexyl)phthalate	6.6E-08	1.8E-02	3.7E-06	8.6E-06
Carbazole	0.01	5.8E-10			Carbazole	0.0E+00			
			Total Pathway:	2.9E-03			Total Pathway:	2.7E-02	
			Total Rad + Chem	2.9E-03			Total Rad + Chem	2.7E-02	*Total:* 3.0E-02

TABLE B.3.3-5(b)
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SURFACE WATER
Carcinogenic Risk

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
NP-237	0.790	2.3E+00	2.2E-10	5.1E-10		5.1E-10
PU-238	2.910	8.6E+00	2.2E-10	1.9E-09	Not applicable (1)	1.9E-09
PU-239/240	0.2	5.9E-01	2.3E-10	1.4E-10		1.4E-10
RA-226	0.148	4.4E-01	1.2E-10	5.2E-11		5.2E-11
TH-230	0.653	1.9E+00	1.3E-11	2.5E-11		2.5E-11
U-234	265	7.8E+02	1.6E-11	1.2E-08		1.2E-08
U-235/236	14	4.1E+01	1.6E-11	6.6E-10		6.6E-10
U-238	257.0	7.6E+02	2.8E-11	2.1E-08		2.1E-08
			Total Pathway:	3.7E-08	Total Pathway: 0.0E+00	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water				
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	
Arsenic	1.4E-03	3.7E-09	1.8E+00	6.6E-09	Arsenic	1.6E-09	1.8E+00	2.9E-09	9.4E-09
Cadmium	1.6E-03	4.3E-09			Cadmium	1.8E-09			
Lead	8.3E-03	2.2E-08			Lead	3.7E-11			
U-TOTAL	8.2E-01	2.2E-06			U-TOTAL	9.2E-07			
bis(2-Ethylhexyl) phthalate	1.0E-03	2.7E-09	1.4E-02	3.7E-11	bis(2-Ethylhexyl) phthalate	4.5E-09	1.6E-02	7.0E-11	1.1E-10
Toluene	2.0E-03	5.4E-09			Toluene	6.7E-08			
			Total Pathway:	6.6E-09		Total Pathway:		3.0E-09	
			Total Rad + Chem	4.3E-08		Total Rad + Chem		3.0E-09	*Total:* 4.6E-08

TABLE B.3.3-5 (b) (continued)
CURRENT, TRESPASSING YOUTH
INACTIVE FLYASH PILE: SURFACE WATER
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard		
NP-237	0.79	2.3E+00			Not applicable	
PU-238	2.91	8.6E+00				
PU-239/240	0.2	5.9E-01				
RA-226	0.148	4.4E-01				
TH-230	0.653	1.9E+00				
U-234	265	7.8E+02				
U-235/236	14	4.1E+01				
U-238	257	7.6E+02				
		Total Pathway:		0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	1.4E-03	2.2E-08	3.0E-04	7.3E-05	Arsenic	9.2E-09	2.9E-04	3.2E-05	1.0E-04
Cadmium	1.6E-03	2.5E-08	1.0E-03	2.5E-05	Cadmium	1.0E-08	5.0E-05	2.1E-04	2.3E-04
Lead	8.3E-03	1.3E-07			Lead	2.2E-10			
U-TOTAL	8.2E-01	1.3E-05	3.0E-03	4.3E-03	U-TOTAL	5.4E-06	1.5E-04	3.6E-02	4.0E-02
bis(2-Ethylhexyl) phthalate	1.0E-03	1.6E-08	2.0E-02	7.8E-07	bis(2-Ethylhexyl) phthalate	2.6E-08	1.8E-02	1.5E-06	2.2E-06
Toluene	2.0E-03	3.1E-08	2.0E-01	1.6E-07	Toluene	3.9E-07	2.0E-01	2.0E-06	2.1E-06
		Total Pathway:		4.4E-03	Total Pathway:			3.6E-02	
		Total Rad + Chem		4.4E-03	Total Rad + Chem			3.6E-02	*Total:* 4.0E-02

TABLE B.3.3-6 (a)

INACTIVE FLYASH PILE: SURFACE SOIL

CURRENT OFF-PROPERTY FARMER

Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.66E-07	1.9E-02	1.9E-11	3.7E-13	3.7E-13
NP-237	2.87E-07	3.3E-02	2.9E-08	9.6E-10	9.6E-10
PU-238	2.92E-08	3.4E-03	3.9E-08	1.3E-10	1.3E-10
PU-239/240	7.56E-09	8.8E-04	3.8E-08	3.3E-11	3.3E-11
RA-226	7.11E-07	8.2E-02	3.0E-09	2.5E-10	2.5E-10
RA-228	8.07E-07	9.4E-02	6.9E-10	6.5E-11	6.5E-11
SR-90	3.18E-07	3.7E-02	6.2E-11	2.3E-12	2.3E-12
TH-228	9.76E-07	1.1E-01	7.8E-08	8.8E-09	8.8E-09
TH-230	9.97E-07	1.2E-01	2.9E-08	3.4E-09	3.4E-09
TH-232	8.39E-07	9.7E-02	2.8E-08	2.7E-09	2.7E-09
U-234	3.11E-06	3.6E-01	2.6E-08	9.4E-09	9.4E-09
U-235/236	1.51E-07	1.8E-02	2.5E-08	4.4E-10	4.4E-10
U-238	3.19E-06	3.7E-01	5.2E-08	1.9E-08	1.9E-08
			Total Pathway:	4.5E-08	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.20E-08	7.8E-10	1.5E+01	1.2E-08	1.2E-08
Beryllium	8.18E-10	5.3E-11	8.4E+00	4.5E-10	4.5E-10
Cadmium	1.12E-09	7.3E-11	6.1E+00	4.4E-10	4.4E-10
Chromium	4.09E-09	2.7E-10	4.1E+01	1.1E-08	1.1E-08
Lead	8.61E-09	5.6E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	9.43E-09	6.1E-10			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	1.84E-10	1.2E-11			
Dibenzo(a,h)anthracene	7.92E-10	5.1E-11	6.8E+00	3.5E-10	3.5E-10
Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	2.4E-08	

Total Rad + Chem	6.9E-08	*Total:*	6.9E-08

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TABLE B.3.3-6 (a) (continued)
INACTIVE FLYASH PILE: SURFACE SOIL
CURRENT OFF-PROPERTY FARMER

Non-carcinogenic Hazard

Radiation Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.66E-07			
NP-237	2.87E-07			
PU-238	2.92E-08			
PU-239/240	7.56E-09			
RA-226	7.11E-07			
RA-228	8.07E-07			
SR-90	3.18E-07			
TH-228	9.76E-07			
TH-230	9.97E-07			
TH-232	8.39E-07			
U-234	3.11E-06			
U-235/236	1.51E-07			
U-238	3.19E-06			
			Total Pathway:	0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.20E-08	7.8E-10		
Beryllium	8.18E-10	5.3E-11		
Cadmium	1.12E-09	7.3E-11		
Chromium	4.09E-09	2.7E-10		
Lead	8.61E-09	5.6E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	9.43E-09	6.1E-10		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	1.84E-10	1.2E-11		
Dibenzo(a,h)anthracene	7.92E-10	5.1E-11		
Dibenzofuran	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00

Total

0.0E+00

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

TABLE B.3.3-6 (b)

CURRENT OFF-PROPERTY RESIDENT CHILD

INACTIVE FLYASH PILE: SURFACE SOIL

Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.66E-07	3.5E-04	1.9E-11	6.6E-15	6.6E-15
NP-237	2.87E-07	6.0E-04	2.9E-08	1.7E-11	1.7E-11
PU-238	2.92E-08	6.1E-05	3.9E-08	2.4E-12	2.4E-12
PU-239/240	7.56E-09	1.6E-05	3.8E-08	6.0E-13	6.0E-13
RA-226	7.11E-07	1.5E-03	3.0E-09	4.5E-12	4.5E-12
RA-228	8.07E-07	1.7E-03	6.9E-10	1.2E-12	1.2E-12
SR-90	3.18E-07	6.7E-04	6.2E-11	4.1E-14	4.1E-14
TH-228	9.76E-07	2.0E-03	7.8E-08	1.6E-10	1.6E-10
TH-230	9.97E-07	2.1E-03	2.9E-08	6.1E-11	6.1E-11
TH-232	8.39E-07	1.8E-03	2.8E-08	4.9E-11	4.9E-11
U-234	3.11E-06	6.5E-03	2.6E-08	1.7E-10	1.7E-10
U-235/236	1.51E-07	3.2E-04	2.5E-08	7.9E-12	7.9E-12
U-238	3.19E-06	6.7E-03	5.2E-08	3.5E-10	3.5E-10
			Total Pathway:	8.2E-10	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.20E-08	6.6E-11	1.5E+01	9.9E-10	9.9E-10
Beryllium	8.18E-10	4.5E-12	8.4E+00	3.8E-11	3.8E-11
Cadmium	1.12E-09	6.1E-12	6.1E+00	3.7E-11	3.7E-11
Chromium	4.09E-09	2.2E-11	4.1E+01	9.2E-10	9.2E-10
Lead	8.61E-09	4.7E-11			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	9.43E-09	5.2E-11			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	1.84E-10	1.0E-12			
Dibenzo(a,h)anthracene	7.92E-10	4.3E-12	6.8E+00	3.0E-11	3.0E-11
Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	2.0E-09	

Total Rad + Chem 2.8E-09 | *Total:* 2.8E-09

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TABLE B.3.3-6 (b)(continued)
CURRENT OFF-PROPERTY RESIDENT CHILD
INACTIVE FLYASH PILE: SURFACE SOIL

Non-carcinogenic Hazard

Radiation Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.66E-07			
NP-237	2.87E-07			
PU-238	2.92E-08			
PU-239/240	7.56E-09			
RA-226	7.11E-07			
RA-228	8.07E-07			
SR-90	3.18E-07			
TH-228	9.76E-07			
TH-230	9.97E-07			
TH-232	8.39E-07			
U-234	3.11E-06			
U-235/236	1.51E-07			
U-238	3.19E-06			

Total Pathway: 0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.20E-08	7.7E-10		
Beryllium	8.18E-10	5.2E-11		
Cadmium	1.12E-09	7.2E-11		
Chromium	4.09E-09	2.6E-10		
Lead	8.61E-09	5.5E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	9.43E-09	6.0E-10		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	1.84E-10	1.2E-11		
Dibenzo(a,h)anthracene	7.92E-10	5.1E-11		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Total

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

TABLE B.3.3-7(a)

CURRENT OFF-PROPERTY FARMER

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.48E-04	2.7E-01	2.8E-11	7.6E-12	CS-137	5.20E-05	3.8E-01	2.8E-11	1.1E-11	1.8E-11
NP-237	7.01E-07	1.3E-03	2.2E-10	2.8E-13	NP-237	6.37E-08	4.7E-04	2.2E-10	1.0E-13	3.9E-13
PU-238	6.43E-10	1.2E-06	2.2E-10	2.6E-16	PU-238	1.29E-10	9.5E-07	2.2E-10	2.1E-16	4.7E-16
PU-239/240	1.67E-10	3.1E-07	2.3E-10	7.1E-17	PU-239/240	3.34E-11	2.5E-07	2.3E-10	5.6E-17	1.3E-16
RA-226	7.87E-06	1.4E-02	1.2E-10	1.7E-12	RA-226	1.42E-05	1.0E-01	1.2E-10	1.2E-11	1.4E-11
RA-228	8.64E-06	1.6E-02	1.0E-10	1.6E-12	RA-228	1.55E-05	1.1E-01	1.0E-10	1.1E-11	1.3E-11
SR-90	4.33E-06	8.0E-03	3.6E-11	2.9E-13	SR-90	2.16E-05	1.6E-01	3.6E-11	5.7E-12	6.0E-12
TH-228	2.35E-07	4.3E-04	5.5E-11	2.4E-14	TH-228	1.96E-07	1.4E-03	5.5E-11	7.9E-14	1.0E-13
TH-230	2.65E-07	4.9E-04	1.3E-11	6.3E-15	TH-230	2.21E-07	1.6E-03	1.3E-11	2.1E-14	2.7E-14
TH-232	2.23E-07	4.1E-04	1.2E-11	4.9E-15	TH-232	1.86E-07	1.4E-03	1.2E-11	1.6E-14	2.1E-14
U-234	2.76E-05	5.1E-02	1.6E-11	8.1E-13	U-234	8.29E-05	6.1E-01	1.6E-11	9.8E-12	1.1E-11
U-235/236	1.34E-06	2.5E-03	1.6E-11	3.9E-14	U-235/236	4.01E-06	2.9E-02	1.6E-11	4.7E-13	5.1E-13
U-238	2.83E-05	5.2E-02	2.8E-11	1.5E-12	U-238	8.50E-05	6.2E-01	2.8E-11	1.7E-11	1.9E-11
			Total Pathway:	1.2E-11				Total Pathway:	6.8E-11	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.06E-06	1.1E-09	1.8E+00	1.9E-09	Arsenic	3.18E-08	1.3E-10	1.8E+00	2.3E-10	2.1E-09
Beryllium	3.63E-08	3.7E-11	4.3E+00	1.6E-10	Beryllium	3.26E-11	1.3E-13	4.3E+00	5.8E-13	1.6E-10
Cadmium	2.96E-07	3.0E-10			Cadmium	5.37E-08	2.2E-10			
Chromium	9.99E-07	1.0E-09			Chromium	2.72E-07	1.1E-09			
Lead	1.15E-07	1.2E-10			Lead	9.58E-08	3.9E-10			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	8.36E-08	8.6E-11			U-TOTAL	2.51E-07	1.0E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthrace	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	2.1E-09				Total Pathway:	2.3E-10	

Total Rad + Chem 2.1E-09

Total Rad + Chem 3.0E-10 *Total:* 2.4E-09

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	1.5E-04			
NP-237	7.0E-07			
PU-238	6.4E-10			
PU-239/240	1.7E-10			
RA-226	7.9E-06			
RA-228	8.6E-06			
SR-90	4.3E-06			
TH-228	2.3E-07			
TH-230	2.6E-07			
TH-232	2.2E-07			
U-234	2.8E-05			
U-235/236	1.3E-06			
U-238	2.8E-05			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	5.20E-05			
NP-237	6.37E-08			
PU-238	1.29E-10			
PU-239/240	3.34E-11			
RA-226	1.42E-05			
RA-228	1.55E-05			
SR-90	2.16E-05			
TH-228	1.96E-07			
TH-230	2.21E-07			
TH-232	1.86E-07			
U-234	8.29E-05			
U-235/236	4.01E-06			
U-238	8.50E-05			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.1E-06	1.1E-09	3.0E-04	3.6E-06
Beryllium	3.6E-08	3.7E-11	5.0E-03	7.4E-09
Cadmium	3.0E-07	3.0E-10	1.0E-03	3.0E-07
Chromium	1.0E-06	1.0E-09	5.0E-03	2.1E-07
Lead	1.1E-07	1.2E-10		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	8.4E-08	8.6E-11	3.0E-03	2.9E-08
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00

Total Pathway: 4.2E-06

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	3.18E-08	1.3E-10	3.0E-04	4.4E-07
Beryllium	3.26E-11	1.3E-13	5.0E-03	2.7E-11
Cadmium	5.37E-08	2.2E-10	1.0E-03	2.2E-07
Chromium	2.72E-07	1.1E-09	5.0E-03	2.2E-07
Lead	9.58E-08	3.9E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.51E-07	1.0E-09	3.0E-03	3.4E-07
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00

Total Pathway: 1.2E-06

Total

	4.1E-06
	7.5E-09
	5.2E-07
	4.3E-07
	3.7E-07
	0.0E+00

Total Rad + Chem 4.2E-06

Total Rad + Chem 1.2E-06 *Total:* 5.4E-06

TABLE B.3.3-7(b)

CURRENT OFF-PROPERTY CHILD

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.48E-04	9.0E-03	2.8E-11	2.5E-13	CS-137	5.20E-05	7.4E-02	2.8E-11	2.1E-12	2.3E-12
NP-237	7.01E-07	4.3E-05	2.2E-10	9.4E-15	NP-237	6.37E-08	9.1E-05	2.2E-10	2.0E-14	2.9E-14
PU-238	6.43E-10	3.9E-08	2.2E-10	8.6E-18	PU-238	1.29E-10	1.8E-07	2.2E-10	4.0E-17	4.9E-17
PU-239/240	1.67E-10	1.0E-08	2.3E-10	2.3E-18	PU-239/240	3.34E-11	4.8E-08	2.3E-10	1.1E-17	1.3E-17
RA-226	7.87E-06	4.8E-04	1.2E-10	5.8E-14	RA-226	1.42E-05	2.0E-02	1.2E-10	2.4E-12	2.5E-12
RA-228	8.64E-06	5.3E-04	1.0E-10	5.3E-14	RA-228	1.55E-05	2.2E-02	1.0E-10	2.2E-12	2.3E-12
SR-90	4.33E-06	2.6E-04	3.6E-11	9.5E-15	SR-90	2.16E-05	3.1E-02	3.6E-11	1.1E-12	1.1E-12
TH-228	2.35E-07	1.4E-05	5.5E-11	7.9E-16	TH-228	1.96E-07	2.8E-04	5.5E-11	1.5E-14	1.6E-14
TH-230	2.65E-07	1.6E-05	1.3E-11	2.1E-16	TH-230	2.21E-07	3.2E-04	1.3E-11	4.1E-15	4.3E-15
TH-232	2.23E-07	1.4E-05	1.2E-11	1.6E-16	TH-232	1.86E-07	2.7E-04	1.2E-11	3.2E-15	3.3E-15
U-234	2.76E-05	1.7E-03	1.6E-11	2.7E-14	U-234	8.29E-05	1.2E-01	1.6E-11	1.9E-12	1.9E-12
U-235/236	1.34E-06	8.1E-05	1.6E-11	1.3E-15	U-235/236	4.01E-06	5.7E-03	1.6E-11	9.2E-14	9.3E-14
U-238	2.83E-05	1.7E-03	2.8E-11	4.8E-14	U-238	8.50E-05	1.2E-01	2.8E-11	3.4E-12	3.4E-12
			Total Pathway:	4.6E-13				Total Pathway:	1.3E-11	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.06E-06	1.7E-10	1.8E+00	3.0E-10	Arsenic	3.18E-08	1.2E-10	1.8E+00	2.1E-10	5.0E-10
Beryllium	3.63E-08	5.8E-12	4.3E+00	2.5E-11	Beryllium	3.26E-11	1.2E-13	4.3E+00	5.2E-13	2.5E-11
Cadmium	2.96E-07	4.7E-11			Cadmium	5.37E-08	2.0E-10			
Chromium	9.99E-07	1.6E-10			Chromium	2.72E-07	1.0E-09			
Lead	1.15E-07	1.8E-11			Lead	9.58E-08	3.6E-10			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	8.36E-08	1.3E-11			U-TOTAL	2.51E-07	9.3E-10			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	3.2E-10				Total Pathway:	2.1E-10	
			Total Rad + Chem	3.2E-10				Total Rad + Chem	2.2E-10	*Total:* 5.4E-10

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TABLE B.3.3-7(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	1.5E-04				CS-137	5.20E-05				
NP-237	7.0E-07				NP-237	6.37E-08				
PU-238	6.4E-10				PU-238	1.29E-10				
PU-239/240	1.7E-10				PU-239/240	3.34E-11				
RA-226	7.9E-06				RA-226	1.42E-05				
RA-228	8.6E-06				RA-228	1.55E-05				
SR-90	4.3E-06				SR-90	2.16E-05				
TH-228	2.3E-07				TH-228	1.96E-07				
TH-230	2.6E-07				TH-230	2.21E-07				
TH-232	2.2E-07				TH-232	1.86E-07				
U-234	2.8E-05				U-234	8.29E-05				
U-235/236	1.3E-06				U-235/236	4.01E-06				
U-238	2.8E-05				U-238	8.50E-05				
	Total Pathway:	0.0E+00				Total Pathway:	0.0E+00			

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	1.1E-06	2.0E-09	3.0E-04	6.6E-06	Arsenic	3.18E-08	1.4E-09	3.0E-04	4.6E-06	1.1E-05
Beryllium	3.6E-08	6.7E-11	5.0E-03	1.3E-08	Beryllium	3.26E-11	1.4E-12	5.0E-03	2.8E-10	1.4E-08
Cadmium	3.0E-07	5.5E-10	1.0E-03	5.5E-07	Cadmium	5.37E-08	2.3E-09	1.0E-03	2.3E-06	2.9E-06
Chromium	1.0E-06	1.9E-09	5.0E-03	3.7E-07	Chromium	2.72E-07	1.2E-08	5.0E-03	2.4E-06	2.7E-06
Lead	1.1E-07	2.1E-10			Lead	9.58E-08	4.2E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			0.0E+00
U-TOTAL	8.4E-08	1.6E-10	3.0E-03	5.2E-08	U-TOTAL	2.51E-07	1.1E-08	3.0E-03	3.6E-06	3.7E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			Carbazole	0.00E+00	0.0E+00			0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			0.0E+00
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
	Total Pathway:	7.5E-06				Total Pathway:	1.3E-05			

Total Rad + Chem 7.5E-06 | Total Rad + Chem 1.3E-05 | *Total:* 2.0E-05

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TABLE B.3.3-8(a)

CURRENT OFF-PROPERTY FARMER

INACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTD)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.16E-04	1.7E-01	2.8E-11	4.8E-12	4.8E-12
NP-237	2.01E-04	3.0E-01	2.2E-10	6.6E-11	6.6E-11
PU-238	1.98E-05	3.0E-02	2.2E-10	6.5E-12	6.5E-12
PU-239/240	5.14E-06	7.7E-03	2.3E-10	1.8E-12	1.8E-12
RA-226	4.86E-04	7.3E-01	1.2E-10	8.7E-11	8.7E-11
RA-228	5.51E-04	8.2E-01	1.0E-10	8.2E-11	8.2E-11
SR-90	2.75E-04	4.1E-01	3.6E-11	1.5E-11	1.5E-11
TH-228	6.63E-04	9.9E-01	5.5E-11	5.5E-11	5.5E-11
TH-230	6.79E-04	1.0E+00	1.3E-11	1.3E-11	1.3E-11
TH-232	5.71E-04	8.5E-01	1.2E-11	1.0E-11	1.0E-11
U-234	2.13E-03	3.2E+00	1.6E-11	5.1E-11	5.1E-11
U-235/236	1.03E-04	1.5E-01	1.6E-11	2.5E-12	2.5E-12
U-238	2.18E-03	3.3E+00	2.8E-11	9.1E-11	9.1E-11
			Total Pathway:	4.9E-10	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	8.24E-06	6.9E-09	1.8E+00	1.2E-08	1.2E-08
Beryllium	5.59E-07	4.7E-10	4.3E+00	2.0E-09	2.0E-09
Cadmium	8.97E-07	7.5E-10			
Chromium	2.79E-06	2.3E-09			
Lead	5.95E-06	5.0E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	6.43E-06	5.4E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	1.4E-08	

Total Rad + Chem 1.5E-08 *Total:* 1.5E-08

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	1.2E-04				
NP-237	2.0E-04				
PU-238	2.0E-05				
PU-239/240	5.1E-06				
RA-226	4.9E-04				
RA-228	5.5E-04				
SR-90	2.8E-04				
TH-228	6.6E-04				
TH-230	6.8E-04				
TH-232	5.7E-04				
U-234	2.1E-03				
U-235/236	1.0E-04				
U-238	2.2E-03				
			Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	8.2E-06	6.9E-09	3.0E-04	2.3E-05	2.3E-05
Beryllium	5.6E-07	4.7E-10	5.0E-03	9.3E-08	9.3E-08
Cadmium	9.0E-07	7.5E-10	1.0E-03	7.5E-07	7.5E-07
Chromium	2.8E-06	2.3E-09	5.0E-03	4.7E-07	4.7E-07
Lead	5.9E-06	5.0E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	6.4E-06	5.4E-09	3.0E-03	1.8E-06	1.8E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
			Total Pathway:	2.6E-05	

Total Rad + Chem 2.6E-05 | *Total:* 2.6E-05

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TABLE B.3-8(b)

CURRENT OFF-PROPERTY CHILD

INACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.16E-04	1.3E-02	2.8E-11	3.6E-13	3.6E-13
NP-237	2.01E-04	2.2E-02	2.2E-10	4.9E-12	4.9E-12
PU-238	1.98E-05	2.2E-03	2.2E-10	4.9E-13	4.9E-13
PU-239/240	5.14E-06	5.7E-04	2.3E-10	1.3E-13	1.3E-13
RA-226	4.86E-04	5.4E-02	1.2E-10	6.5E-12	6.5E-12
RA-228	5.51E-04	6.1E-02	1.0E-10	6.1E-12	6.1E-12
SR-90	2.75E-04	3.1E-02	3.6E-11	1.1E-12	1.1E-12
TH-228	6.63E-04	7.4E-02	5.5E-11	4.1E-12	4.1E-12
TH-230	6.79E-04	7.6E-02	1.3E-11	9.8E-13	9.8E-13
TH-232	5.71E-04	6.4E-02	1.2E-11	7.6E-13	7.6E-13
U-234	2.13E-03	2.4E-01	1.6E-11	3.8E-12	3.8E-12
U-235/236	1.03E-04	1.1E-02	1.6E-11	1.8E-13	1.8E-13
U-238	2.18E-03	2.4E-01	2.8E-11	6.8E-12	6.8E-12
			Total Pathway:	3.6E-11	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	8.24E-06	2.4E-09	1.8E+00	4.2E-09	4.2E-09
Beryllium	5.59E-07	1.6E-10	4.3E+00	7.0E-10	7.0E-10
Cadmium	8.97E-07	2.6E-10			
Chromium	2.79E-06	8.1E-10			
Lead	5.95E-06	1.7E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	6.43E-06	1.9E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	4.9E-09	

Total Rad + Chem	4.9E-09	*Total:*	4.9E-09

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	1.2E-04				
NP-237	2.0E-04				
PU-238	2.0E-05				
PU-239/240	5.1E-06				
RA-226	4.9E-04				
RA-228	5.5E-04				
SR-90	2.8E-04				
TH-228	6.6E-04				
TH-230	6.8E-04				
TH-232	5.7E-04				
U-234	2.1E-03				
U-235/236	1.0E-04				
U-238	2.2E-03				
			Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	8.2E-06	2.8E-08	3.0E-04	9.3E-05	9.3E-05
Beryllium	5.6E-07	1.9E-09	5.0E-03	3.8E-07	3.8E-07
Cadmium	9.0E-07	3.0E-09	1.0E-03	3.0E-06	3.0E-06
Chromium	2.8E-06	9.5E-09	5.0E-03	1.9E-06	1.9E-06
Lead	5.9E-06	2.0E-08			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	6.4E-06	2.2E-08	3.0E-03	7.3E-06	7.3E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
			Total Pathway:	1.1E-04	

Total Rad + Chem 1.1E-04 *Total:* 1.1E-04

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TABLE B.3.3-9

CURRENT USER OF MILK AND MEAT

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.96E-03	3.6E+00	2.8E-11	1.0E-10	CS-137	6.86E-04	5.0E+00	2.8E-11	1.4E-10	2.4E-10
NP-237	9.27E-06	1.7E-02	2.2E-10	3.7E-12	NP-237	8.43E-07	6.2E-03	2.2E-10	1.4E-12	5.1E-12
PU-238	8.50E-09	1.6E-05	2.2E-10	3.4E-15	PU-238	1.70E-09	1.2E-05	2.2E-10	2.7E-15	6.2E-15
PU-239/240	2.21E-09	4.1E-06	2.3E-10	9.3E-16	PU-239/240	4.42E-10	3.3E-06	2.3E-10	7.5E-16	1.7E-15
RA-226	1.04E-04	1.9E-01	1.2E-10	2.3E-11	RA-226	1.87E-04	1.4E+00	1.2E-10	1.7E-10	1.9E-10
RA-228	1.14E-04	2.1E-01	1.0E-10	2.1E-11	RA-228	2.05E-04	1.5E+00	1.0E-10	1.5E-10	1.7E-10
SR-90	5.73E-05	1.1E-01	3.6E-11	3.8E-12	SR-90	2.86E-04	2.1E+00	3.6E-11	7.6E-11	8.0E-11
TH-228	3.11E-06	5.7E-03	5.5E-11	3.1E-13	TH-228	2.59E-06	1.9E-02	5.5E-11	1.0E-12	1.4E-12
TH-230	3.50E-06	6.4E-03	1.3E-11	8.4E-14	TH-230	2.92E-06	2.1E-02	1.3E-11	2.8E-13	3.6E-13
TH-232	2.94E-06	5.4E-03	1.2E-11	6.5E-14	TH-232	2.45E-06	1.8E-02	1.2E-11	2.2E-13	2.8E-13
U-234	3.65E-04	6.7E-01	1.6E-11	1.1E-11	U-234	1.10E-03	8.1E+00	1.6E-11	1.3E-10	1.4E-10
U-235/236	1.78E-05	3.3E-02	1.6E-11	5.2E-13	U-235/236	5.33E-05	3.9E-01	1.6E-11	6.3E-12	6.8E-12
U-238	3.74E-04	6.9E-01	2.8E-11	1.9E-11	U-238	1.12E-03	8.3E+00	2.8E-11	2.3E-10	2.5E-10
			Total Pathway:	1.8E-10				Total Pathway:	9.0E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.41E-05	1.4E-08	1.8E+00	2.5E-08	Arsenic	4.22E-07	1.7E-09	1.8E+00	3.0E-09	2.8E-08
Beryllium	4.79E-07	4.9E-10	4.3E+00	2.1E-09	Beryllium	4.31E-10	1.8E-12	4.3E+00	7.6E-12	2.1E-09
Cadmium	3.90E-06	4.0E-09			Cadmium	7.08E-07	2.9E-09			
Chromium	1.32E-05	1.4E-08			Chromium	3.60E-06	1.5E-08			
Lead	1.52E-06	1.6E-09			Lead	1.27E-06	5.2E-09			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.11E-06	1.1E-09			U-TOTAL	3.32E-06	1.4E-08			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	2.7E-08				Total Pathway:	3.0E-09	

Total Rad + Chem 2.8E-08

Total Rad + Chem 3.9E-09 *Total:* 3.2E-08

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TABLE B.3.3-9 (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	2.0E-03				CS-137	6.86E-04				
NP-237	9.3E-06				NP-237	8.43E-07				
PU-238	8.5E-09				PU-238	1.70E-09				
PU-239/240	2.2E-09				PU-239/240	4.42E-10				
RA-226	1.0E-04				RA-226	1.87E-04				
RA-228	1.1E-04				RA-228	2.05E-04				
SR-90	5.7E-05				SR-90	2.86E-04				
TH-228	3.1E-06				TH-228	2.59E-06				
TH-230	3.5E-06				TH-230	2.92E-06				
TH-232	2.9E-06				TH-232	2.45E-06				
U-234	3.7E-04				U-234	1.10E-03				
U-235/236	1.8E-05				U-235/236	5.33E-05				
U-238	3.7E-04				U-238	1.12E-03				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	1.4E-05	1.4E-08	3.0E-04	4.8E-05	Arsenic	4.22E-07	1.7E-09	3.0E-04	5.8E-06	5.4E-05
Beryllium	4.8E-07	4.9E-10	5.0E-03	9.8E-08	Beryllium	4.31E-10	1.8E-12	5.0E-03	3.5E-10	9.9E-08
Cadmium	3.9E-06	4.0E-09	1.0E-03	4.0E-06	Cadmium	7.08E-07	2.9E-09	1.0E-03	2.9E-06	6.9E-06
Chromium	1.3E-05	1.4E-08	5.0E-03	2.7E-06	Chromium	3.60E-06	1.5E-08	5.0E-03	3.0E-06	5.7E-06
Lead	1.5E-06	1.6E-09			Lead	1.27E-06	5.2E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.1E-06	1.1E-09	3.0E-03	3.8E-07	U-TOTAL	3.32E-06	1.4E-08	3.0E-03	4.5E-06	4.9E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			Carbazole	0.00E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
			Total Pathway:	5.5E-05				Total Pathway:	1.6E-05	

Total Rad + Chem 5.5E-05 | Total Rad + Chem 1.6E-05 | *Total:* 7.2E-05

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TABLE B.3.3-10
CURRENT, GROUNDSKEEPER
INACTIVE FLYASH PILE: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	3.23E-06	5.7E-02	1.90E-11	1.1E-12
NP-237	5.58E-06	9.8E-02	2.9E-08	2.8E-09
PU-238	5.67E-07	9.9E-03	3.9E-08	3.9E-10
PU-239/240	1.47E-07	2.6E-03	3.8E-08	9.8E-11
RA-226	1.38E-05	2.4E-01	3.0E-09	7.2E-10
RA-228	1.57E-05	2.7E-01	6.9E-10	1.9E-10
SR-90	6.09E-06	1.1E-01	6.2E-11	6.6E-12
TH-228	1.90E-05	3.3E-01	7.8E-08	2.6E-08
TH-230	1.94E-05	3.4E-01	2.9E-08	9.8E-09
TH-232	1.63E-05	2.9E-01	2.8E-08	8.0E-09
U-234	6.05E-05	1.1E+00	2.6E-08	2.8E-08
U-235/236	2.94E-06	5.1E-02	2.5E-08	1.3E-09
U-238	6.21E-05	1.1E+00	5.2E-08	5.7E-08
			Total Pathway	1.3E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.46	4.0E+01	2.80E-11	1.1E-09
NP-237	0.80	7.0E+01	2.2E-10	1.5E-08
PU-238	0.08	7.1E+00	2.2E-10	1.6E-09
PU-239/240	0.02	1.8E+00	2.3E-10	4.1E-10
RA-226	1.98	1.7E+02	1.2E-10	2.1E-08
RA-228	2.24	2.0E+02	1.0E-10	2.0E-08
SR-90	0.87	7.6E+01	3.6E-11	2.7E-09
TH-228	2.7	2.4E+02	5.5E-11	1.3E-08
TH-230	2.77	2.4E+02	1.3E-11	3.2E-09
TH-232	2.33	2.0E+02	1.2E-11	2.4E-09
U-234	8.65	7.6E+02	1.6E-11	1.2E-08
U-235/236	0.42	3.7E+01	1.6E-11	5.7E-10
U-238	8.87	7.8E+02	2.8E-11	2.2E-08
			Total Pathway	1.1E-07

Chemical Risk

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.32E-07	2.3E-09	1.5E+01	3.4E-08
Beryllium	1.59E-08	1.6E-10	8.4E+00	1.3E-09
Cadmium	2.17E-08	2.1E-10	6.1E+00	1.3E-09
Chromium	7.95E-08	7.8E-10	4.1E+01	3.2E-08
Lead	1.68E-07	1.6E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	1.8E-09		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	3.5E-11		
Dibenzo(a,h)anthrace	1.54E-08	1.5E-10	6.8E+00	1.0E-09
Dibenzofuran	0.00E+00	0.0E+00		
			Total Pathway:	7.0E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	33.20	1.6E-06	1.8E+00	2.8E-06
Beryllium	2.27	1.1E-07	4.3E+00	4.8E-07
Cadmium	3.10	1.5E-07		
Chromium	11.36	5.6E-07		
Lead	23.93	1.2E-06		
TH-TOTAL	21.40	1.0E-06		
U-TOTAL	26.20	1.3E-06		
2-Methylnaphthalene	0.16	7.8E-09		
Acenaphthylene	1.80	8.8E-08		
Carbazole	0.51	2.5E-08	2.0E-02	5.0E-10
Dibenzo(a,h)anthrace	2.20	1.1E-07	8.1E+00	8.7E-07
Dibenzofuran	0.25	1.2E-08		
			Total Pathway:	4.2E-06

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CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	SF(e)	Risk	
Not applicable				CS-137	3.6E-01	2.00E-06	7.1E-07	7.1E-07
				NP-237	6.1E-01	4.3E-07	2.6E-07	2.8E-07
				PU-238	6.2E-02	2.8E-11	1.7E-12	1.9E-09
				PU-239/240	1.6E-02	2.7E-11	4.3E-13	5.1E-10
				RA-226	1.5E+00	1.2E-08	1.8E-08	4.0E-08
				RA-228	1.7E+00	2.9E-06	5.0E-06	5.0E-06
				SR-90	6.7E-01	0.0E+00	0.0E+00	2.7E-09
				TH-228	2.1E+00	5.6E-06	1.2E-05	1.2E-05
				TH-230	2.1E+00	5.4E-11	1.2E-10	1.3E-08
				TH-232	1.8E+00	2.6E-11	4.7E-11	1.0E-08
				U-234	6.7E+00	3.0E-11	2.0E-10	4.0E-08
				U-235/236	3.2E-01	2.4E-07	7.8E-08	7.9E-08
				U-238	6.8E+00	3.6E-08	2.5E-07	3.2E-07
Total Pathway:		0.0E+00		Total Pathway			1.7E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	9.3E-08	1.8E+00	1.7E-07					3.0E-06
Beryllium	6.4E-08	4.3E+02	2.7E-05					2.8E-05
Cadmium	8.7E-08							1.3E-09
Chromium	3.2E-07							3.2E-08
Lead	6.7E-07			Not applicable				
TH-TOTAL	0.0E+00							
U-TOTAL	7.4E-07							
2-Methylnaphthalene	1.4E-07							
Acenaphthylene	1.5E-06							
Carbazole	0.0E+00	2.0E-02	0.0E+00					5.0E-10
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					8.7E-07
Dibenzofuran	2.1E-08							
Total Pathway			2.8E-05	Total Pathway:			0.0E+00	
				Total Rad + Chem:				5.0E-05

TABLE B.3.3-10 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
CS-137	5.7E-02		
NP-237	9.9E-01		
PU-238	1.3E-01		
PU-239/240	5.4E-02		
RA-226	8.3E-01		
RA-228	5.8E-01		
SR-90	8.1E-01		
TH-228	6.8E-01		
TH-230	6.7E-01		
TH-232	4.9E-01		
U-234	6.5E-01		
U-235/236	3.6E-02		
U-238	6.5E-01		
		Total Pathway	0.0E+00

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
CS-137	4.0E+01		
NP-237	4.8E+02		
PU-238	6.3E+01		
PU-239/240	2.9E+01		
RA-226	4.0E+02		
RA-228	2.8E+02		
SR-90	3.9E+02		
TH-228	3.3E+02		
TH-230	3.2E+02		
TH-232	2.3E+02		
U-234	3.1E+02		
U-235/236	1.4E+01		
U-238	3.2E+02		
		Total Pathway	0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
Arsenic	6.4E-09		
Beryllium	4.4E-10		
Cadmium	5.9E-10		
Chromium	2.2E-09	5.5E-07	4.0E-03
Lead	4.6E-09		
TH-TOTAL	0.0E+00		
U-TOTAL	5.0E-09		
2-Methylnaphthalene	0.0E+00		
Acenaphthylene	0.0E+00		
Carbazole	9.8E-11		
Dibenzo(a,h)anthrace	4.2E-10		
Dibenzofuran	0.0E+00		
		Total Pathway	4.0E-03

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
Arsenic	4.5E-06	3.0E-04	1.5E-02
Beryllium	3.1E-07	5.0E-03	6.2E-05
Cadmium	4.2E-07	1.0E-03	4.2E-04
Chromium	1.6E-06	5.0E-03	3.1E-04
Lead	3.3E-06		
TH-TOTAL	2.9E-06		
U-TOTAL	3.6E-06	3.0E-03	1.2E-03
2-Methylnaphthalene	2.2E-08		
Acenaphthylene	2.5E-07		
Carbazole	7.0E-08		
Dibenzo(a,h)anthrace	3.0E-07		
Dibenzofuran	3.4E-08	4.0E-03	8.6E-06
		Total Pathway	1.7E-02

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TABLE B.3.3-10 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	HQ
Not Applicable	CS-137	3.6E-01		
	NP-237	4.2E+00		
	PU-238	5.6E-01		
	PU-239/240	2.5E-01		
	RA-226	3.5E+00		
	RA-228	2.4E+00		
	SR-90	3.4E+00		
	TH-228	2.9E+00		
	TH-230	2.8E+00		
	TH-232	2.0E+00		
	U-234	2.8E+00		
	U-235/236	1.2E-01		
	U-238	2.8E+00		
Total Pathway 0.0E+00	Total Pathway 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil	
Compound	Intake	RfD(derm)	HQ		
Arsenic	2.6E-07	2.9E-04	9.2E-04		1.6E-02
Beryllium	1.8E-07	5.0E-05	3.6E-03		3.6E-03
Cadmium	2.4E-07	5.0E-05	4.9E-03		5.3E-03
Chromium	8.9E-07	2.3E-03	4.0E-04		4.7E-03
Lead	1.9E-06			Not Applicable	
TH-TOTAL	0.0E+00				
U-TOTAL	2.1E-06	1.5E-04	1.4E-02		1.5E-02
2-Methylnaphthalene	3.8E-07				
Acenaphthylene	4.3E-06				
Carbazole	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00				
Dibenzofuran	5.9E-08	4.0E-03	1.5E-05		2.3E-05
		Total Pathway	2.4E-02	Total Pathway 0.0E+00	
				Total Rad + Chem:	4.5E-02

TABLE B.3.3-11 (a)

INACTIVE FLYASH PILE: SURFACE SOIL

FUTURE OFF-PROPERTY FARMER

Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.66E-07	1.9E-02	1.9E-11	3.7E-13	3.7E-13
NP-237	2.87E-07	3.3E-02	2.9E-08	9.6E-10	9.6E-10
PU-238	2.92E-08	3.4E-03	3.9E-08	1.3E-10	1.3E-10
PU-239/240	7.56E-09	8.8E-04	3.8E-08	3.3E-11	3.3E-11
RA-226	7.11E-07	8.2E-02	3.0E-09	2.5E-10	2.5E-10
RA-228	8.07E-07	9.4E-02	6.9E-10	6.5E-11	6.5E-11
SR-90	3.13E-07	3.6E-02	6.2E-11	2.2E-12	2.2E-12
TH-228	9.76E-07	1.1E-01	7.8E-08	8.8E-09	8.8E-09
TH-230	9.97E-07	1.2E-01	2.9E-08	3.4E-09	3.4E-09
TH-232	8.39E-07	9.7E-02	2.8E-08	2.7E-09	2.7E-09
U-234	3.11E-06	3.6E-01	2.6E-08	9.4E-09	9.4E-09
U-235/236	1.51E-07	1.8E-02	2.5E-08	4.4E-10	4.4E-10
U-238	3.19E-06	3.7E-01	5.2E-08	1.9E-08	1.9E-08
			Total Pathway:	4.5E-08	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.20E-08	7.8E-10	1.5E+01	1.2E-08	1.2E-08
Beryllium	8.18E-10	5.3E-11	8.4E+00	4.5E-10	4.5E-10
Cadmium	1.12E-09	7.3E-11	6.1E+00	4.4E-10	4.4E-10
Chromium	4.09E-09	2.7E-10	4.1E+01	1.1E-08	1.1E-08
Lead	8.61E-09	5.6E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	9.43E-09	6.1E-10			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	1.84E-10	1.2E-11			
Dibenzo(a,h)anthracene	7.92E-10	5.1E-11	6.8E+00	3.5E-10	3.5E-10
Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	2.4E-08	

Total Rad + Chem 6.9E-08 *Total:* 6.9E-08

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TABLE B.3.3-11 (a) (continued)

INACTIVE FLYASH PILE: SURFACE SOIL

FUTURE OFF-PROPERTY FARMER

Non-carcinogenic Hazard

Radiation Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.66E-07			
NP-237	2.87E-07			
PU-238	2.92E-08			
PU-239/240	7.56E-09			
RA-226	7.11E-07			
RA-228	8.07E-07			
SR-90	3.13E-07			
TH-228	9.76E-07			
TH-230	9.97E-07			
TH-232	8.39E-07			
U-234	3.11E-06			
U-235/236	1.51E-07			
U-238	3.19E-06			
			Total Pathway:	0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.20E-08	7.8E-10		
Beryllium	8.18E-10	5.3E-11		
Cadmium	1.12E-09	7.3E-11		
Chromium	4.09E-09	2.7E-10		
Lead	8.61E-09	5.6E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	9.43E-09	6.1E-10		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	1.84E-10	1.2E-11		
Dibenzo(a,h)anthracene	7.92E-10	5.1E-11		
Dibenzofuran	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00

Total

0.0E+00

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

TABLE B.3.3-11 (b)

FUTURE OFF-PROPERTY RESIDENT CHILD

INACTIVE FLYASH PILE: SURFACE SOIL

Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.66E-07	3.5E-04	1.9E-11	6.6E-15	6.6E-15
NP-237	2.87E-07	6.0E-04	2.9E-08	1.7E-11	1.7E-11
PU-238	2.92E-08	6.1E-05	3.9E-08	2.4E-12	2.4E-12
PU-239/240	7.56E-09	1.6E-05	3.8E-08	6.0E-13	6.0E-13
RA-226	7.11E-07	1.5E-03	3.0E-09	4.5E-12	4.5E-12
RA-228	8.07E-07	1.7E-03	6.9E-10	1.2E-12	1.2E-12
SR-90	3.13E-07	6.6E-04	6.2E-11	4.1E-14	4.1E-14
TH-228	9.76E-07	2.0E-03	7.8E-08	1.6E-10	1.6E-10
TH-230	9.97E-07	2.1E-03	2.9E-08	6.1E-11	6.1E-11
TH-232	8.39E-07	1.8E-03	2.8E-08	4.9E-11	4.9E-11
U-234	3.11E-06	6.5E-03	2.6E-08	1.7E-10	1.7E-10
U-235/236	1.51E-07	3.2E-04	2.5E-08	7.9E-12	7.9E-12
U-238	3.19E-06	6.7E-03	5.2E-08	3.5E-10	3.5E-10
			Total Pathway:	8.2E-10	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.20E-08	6.6E-11	1.5E+01	9.9E-10	9.9E-10
Beryllium	8.18E-10	4.5E-12	8.4E+00	3.8E-11	3.8E-11
Cadmium	1.12E-09	6.1E-12	6.1E+00	3.7E-11	3.7E-11
Chromium	4.09E-09	2.2E-11	4.1E+01	9.2E-10	9.2E-10
Lead	8.61E-09	4.7E-11			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	9.43E-09	5.2E-11			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	1.84E-10	1.0E-12			
Dibenzo(a,h)anthracene	7.92E-10	4.3E-12	6.8E+00	3.0E-11	3.0E-11
Dibenzofuran	0.00E+00	0.0E+00			
			Total Pathway:	2.0E-09	

Total Rad + Chem 2.8E-09 *Total:* 2.8E-09

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TABLE B.3.3-11(b) (continued)
FUTURE OFF-PROPERTY RESIDENT CHILD
INACTIVE FLYASH PILE: SURFACE SOIL

Non-carcinogenic Hazard

Radiation Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.66E-07			
NP-237	2.87E-07			
PU-238	2.92E-08			
PU-239/240	7.56E-09			
RA-226	7.11E-07			
RA-228	8.07E-07			
SR-90	3.13E-07			
TH-228	9.76E-07			
TH-230	9.97E-07			
TH-232	8.39E-07			
U-234	3.11E-06			
U-235/236	1.51E-07			
U-238	3.19E-06			

Total Pathway: 0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.20E-08	7.7E-10		
Beryllium	8.18E-10	5.2E-11		
Cadmium	1.12E-09	7.2E-11		
Chromium	4.09E-09	2.6E-10		
Lead	8.61E-09	5.5E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	9.43E-09	6.0E-10		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	1.84E-10	1.2E-11		
Dibenzo(a,h)anthracene	7.92E-10	5.1E-11		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00 | *Total:* 0.0E+00

Total

TABLE B.3.3-12(a)

FUTURE OFF-PROPERTY FARMER

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.48E-04	2.7E-01	2.8E-11	7.6E-12	CS-137	5.20E-05	3.8E-01	2.8E-11	1.1E-11	1.8E-11
NP-237	7.01E-07	1.3E-03	2.2E-10	2.8E-13	NP-237	6.37E-08	4.7E-04	2.2E-10	1.0E-13	3.9E-13
PU-238	6.43E-10	1.2E-06	2.2E-10	2.6E-16	PU-238	1.29E-10	9.5E-07	2.2E-10	2.1E-16	4.7E-16
PU-239/240	1.67E-10	3.1E-07	2.3E-10	7.1E-17	PU-239/240	3.34E-11	2.5E-07	2.3E-10	5.6E-17	1.3E-16
RA-226	7.87E-06	1.4E-02	1.2E-10	1.7E-12	RA-226	1.42E-05	1.0E-01	1.2E-10	1.2E-11	1.4E-11
RA-228	8.64E-06	1.6E-02	1.0E-10	1.6E-12	RA-228	1.55E-05	1.1E-01	1.0E-10	1.1E-11	1.3E-11
SR-90	4.33E-06	8.0E-03	3.6E-11	2.9E-13	SR-90	2.16E-05	1.6E-01	3.6E-11	5.7E-12	6.0E-12
TH-228	2.35E-07	4.3E-04	5.5E-11	2.4E-14	TH-228	1.96E-07	1.4E-03	5.5E-11	7.9E-14	1.0E-13
TH-230	2.65E-07	4.9E-04	1.3E-11	6.3E-15	TH-230	2.21E-07	1.6E-03	1.3E-11	2.1E-14	2.7E-14
TH-232	2.23E-07	4.1E-04	1.2E-11	4.9E-15	TH-232	1.86E-07	1.4E-03	1.2E-11	1.6E-14	2.1E-14
U-234	2.76E-05	5.1E-02	1.6E-11	8.1E-13	U-234	8.29E-05	6.1E-01	1.6E-11	9.8E-12	1.1E-11
U-235/236	1.34E-06	2.5E-03	1.6E-11	3.9E-14	U-235/236	4.01E-06	2.9E-02	1.6E-11	4.7E-13	5.1E-13
U-238	2.83E-05	5.2E-02	2.8E-11	1.5E-12	U-238	8.50E-05	6.2E-01	2.8E-11	1.7E-11	1.9E-11
			Total Pathway:	1.4E-11				Total Pathway:	6.8E-11	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.06E-06	1.1E-09	1.8E+00	1.9E-09	Arsenic	3.18E-08	1.3E-10	1.8E+00	2.3E-10	2.1E-09
Beryllium	3.63E-08	3.7E-11	4.3E+00	1.6E-10	Beryllium	3.26E-11	1.3E-13	4.3E+00	5.8E-13	1.6E-10
Cadmium	2.96E-07	3.0E-10			Cadmium	5.37E-08	2.2E-10			
Chromium	9.99E-07	1.0E-09			Chromium	2.72E-07	1.1E-09			
Lead	1.15E-07	1.2E-10			Lead	9.58E-08	3.9E-10			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	8.36E-08	8.6E-11			U-TOTAL	2.51E-07	1.0E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofura	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	2.1E-09				Total Pathway:	2.3E-10	

Total Rad + Chem 2.1E-09 | Total Rad + Chem 3.0E-10 | *Total:* 2.4E-09

TABLE B.3.3-12(a) (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	1.5E-04	2.7E-01		
NP-237	7.0E-07	1.3E-03		
PU-238	6.4E-10	1.2E-06		
PU-239/240	1.7E-10	3.1E-07		
RA-226	7.9E-06	1.4E-02		
RA-228	8.6E-06	1.6E-02		
SR-90	4.3E-06	8.0E-03		
TH-228	2.3E-07	4.3E-04		
TH-230	2.6E-07	4.9E-04		
TH-232	2.2E-07	4.1E-04		
U-234	2.8E-05	5.1E-02		
U-235/236	1.3E-06	2.5E-03		
U-238	2.8E-05	5.2E-02		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	5.20E-05	3.8E-01		
NP-237	6.37E-08	4.7E-04		
PU-238	1.29E-10	9.5E-07		
PU-239/240	3.34E-11	2.5E-07		
RA-226	1.42E-05	1.0E-01		
RA-228	1.55E-05	1.1E-01		
SR-90	2.16E-05	1.6E-01		
TH-228	1.96E-07	1.4E-03		
TH-230	2.21E-07	1.6E-03		
TH-232	1.86E-07	1.4E-03		
U-234	8.29E-05	6.1E-01		
U-235/236	4.01E-06	2.9E-02		
U-238	8.50E-05	6.2E-01		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.1E-06	1.1E-09	3.0E-04	3.6E-06
Beryllium	3.6E-08	3.7E-11	5.0E-03	7.4E-09
Cadmium	3.0E-07	3.0E-10	1.0E-03	3.0E-07
Chromium	1.0E-06	1.0E-09	5.0E-03	2.1E-07
Lead	1.1E-07	1.2E-10		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	8.4E-08	8.6E-11	3.0E-03	2.9E-08
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00		

Total Pathway: 4.2E-06

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	3.18E-08	1.3E-10	3.0E-04	4.4E-07
Beryllium	3.26E-11	1.3E-13	5.0E-03	2.7E-11
Cadmium	5.37E-08	2.2E-10	1.0E-03	2.2E-07
Chromium	2.72E-07	1.1E-09	5.0E-03	2.2E-07
Lead	9.58E-08	3.9E-10		
Molybdenum	0.00E+00	0.00E+00	5.0E-03	0.0E+00
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.51E-07	1.0E-09	3.0E-03	3.4E-07
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.00E+00	0.0E+00		

Total Pathway: 1.2E-06

Total
4.1E-06
7.5E-09
5.2E-07
4.3E-07
0.0E+00
3.7E-07
0.0E+00

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Total Rad + Chem 4.2E-06

Total Rad + Chem 1.2E-06 *Total:* 5.4E-06

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TABLE B.3.3-12(b)

FUTURE OFF-PROPERTY CHILD

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.48E-04	9.0E-03	2.8E-11	2.5E-13	CS-137	5.20E-05	7.4E-02	2.8E-11	2.1E-12	2.3E-12
NP-237	7.01E-07	4.3E-05	2.2E-10	9.4E-15	NP-237	6.37E-08	9.1E-05	2.2E-10	2.0E-14	2.9E-14
PU-238	6.43E-10	3.9E-08	2.2E-10	8.6E-18	PU-238	1.29E-10	1.8E-07	2.2E-10	4.0E-17	4.9E-17
PU-239/240	1.67E-10	1.0E-08	2.3E-10	2.3E-18	PU-239/240	3.34E-11	4.8E-08	2.3E-10	1.1E-17	1.3E-17
RA-226	7.87E-06	4.8E-04	1.2E-10	5.8E-14	RA-226	1.42E-05	2.0E-02	1.2E-10	2.4E-12	2.5E-12
RA-228	8.64E-06	5.3E-04	1.0E-10	5.3E-14	RA-228	1.55E-05	2.2E-02	1.0E-10	2.2E-12	2.3E-12
SR-90	4.33E-06	2.6E-04	3.6E-11	9.5E-15	SR-90	2.16E-05	3.1E-02	3.6E-11	1.1E-12	1.1E-12
TH-228	2.35E-07	1.4E-05	5.5E-11	7.9E-16	TH-228	1.96E-07	2.8E-04	5.5E-11	1.5E-14	1.6E-14
TH-230	2.65E-07	1.6E-05	1.3E-11	2.1E-16	TH-230	2.21E-07	3.2E-04	1.3E-11	4.1E-15	4.3E-15
TH-232	2.23E-07	1.4E-05	1.2E-11	1.6E-16	TH-232	1.86E-07	2.7E-04	1.2E-11	3.2E-15	3.3E-15
U-234	2.76E-05	1.7E-03	1.6E-11	2.7E-14	U-234	8.29E-05	1.2E-01	1.6E-11	1.9E-12	1.9E-12
U-235/236	1.34E-06	8.1E-05	1.6E-11	1.3E-15	U-235/236	4.01E-06	5.7E-03	1.6E-11	9.2E-14	9.3E-14
U-238	2.83E-05	1.7E-03	2.8E-11	4.8E-14	U-238	8.50E-05	1.2E-01	2.8E-11	3.4E-12	3.4E-12
			Total Pathway:	4.6E-13				Total Pathway:	1.3E-11	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.06E-06	1.7E-10	1.8E+00	3.0E-10	Arsenic	3.18E-08	1.2E-10	1.8E+00	2.1E-10	5.0E-10
Beryllium	3.63E-08	5.8E-12	4.3E+00	2.5E-11	Beryllium	3.26E-11	1.2E-13	4.3E+00	5.2E-13	2.5E-11
Cadmium	2.96E-07	4.7E-11			Cadmium	5.37E-08	2.0E-10			
Chromium	9.99E-07	1.6E-10			Chromium	2.72E-07	1.0E-09			
Lead	1.15E-07	1.8E-11			Lead	9.58E-08	3.6E-10			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	8.36E-08	1.3E-11			U-TOTAL	2.51E-07	9.3E-10			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	3.2E-10				Total Pathway:	2.1E-10	

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Total Rad + Chem 3.2E-10

Total Rad + Chem 2.2E-10 *Total:* 5.4E-10

TABLE B.3.3-12(b) (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	1.5E-04			
NP-237	7.0E-07			
PU-238	6.4E-10			
PU-239/240	1.7E-10			
RA-226	7.9E-06			
RA-228	8.6E-06			
SR-90	4.3E-06			
TH-228	2.3E-07			
TH-230	2.6E-07			
TH-232	2.2E-07			
U-234	2.8E-05			
U-235/236	1.3E-06			
U-238	2.8E-05			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	5.20E-05			
NP-237	6.37E-08			
PU-238	1.29E-10			
PU-239/240	3.34E-11			
RA-226	1.42E-05			
RA-228	1.55E-05			
SR-90	2.16E-05			
TH-228	1.96E-07			
TH-230	2.21E-07			
TH-232	1.86E-07			
U-234	8.29E-05			
U-235/236	4.01E-06			
U-238	8.50E-05			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.1E-06	2.0E-09	3.0E-04	6.6E-06
Beryllium	3.6E-08	6.7E-11	5.0E-03	1.3E-08
Cadmium	3.0E-07	5.5E-10	1.0E-03	5.5E-07
Chromium	1.0E-06	1.9E-09	5.0E-03	3.7E-07
Lead	1.1E-07	2.1E-10		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	8.4E-08	1.6E-10	3.0E-03	5.2E-08
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		

Total Pathway: 7.5E-06

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	3.18E-08	1.4E-09	3.0E-04	4.6E-06
Beryllium	3.26E-11	1.4E-12	5.0E-03	2.8E-10
Cadmium	5.37E-08	2.3E-09	1.0E-03	2.3E-06
Chromium	2.72E-07	1.2E-08	5.0E-03	2.4E-06
Lead	9.58E-08	4.2E-09		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.51E-07	1.1E-08	3.0E-03	3.6E-06
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.00E+00	0.0E+00		

Total Pathway: 1.3E-05

Total
1.1E-05
1.4E-08
2.9E-06
2.7E-06
0.0E+00
3.7E-06
0.0E+00

FER\CRU2RI\ABQ\IBFOFCFD.XLS\1/27/94; 1:39 PM

Total Rad + Chem 7.5E-06

Total Rad + Chem 1.3E-05

Total: 2.0E-05

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TABLE B.3.3-13(a)

FUTURE OFF-PROPERTY FARMER

INACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.16E-04	1.7E-01	2.8E-11	4.8E-12	4.8E-12
NP-237	2.01E-04	3.0E-01	2.2E-10	6.6E-11	6.6E-11
PU-238	1.98E-05	3.0E-02	2.2E-10	6.5E-12	6.5E-12
PU-239/240	5.14E-06	7.7E-03	2.3E-10	1.8E-12	1.8E-12
RA-226	4.86E-04	7.3E-01	1.2E-10	8.7E-11	8.7E-11
RA-228	5.51E-04	8.2E-01	1.0E-10	8.2E-11	8.2E-11
SR-90	2.75E-04	4.1E-01	3.6E-11	1.5E-11	1.5E-11
TH-228	6.63E-04	9.9E-01	5.5E-11	5.5E-11	5.5E-11
TH-230	6.79E-04	1.0E+00	1.3E-11	1.3E-11	1.3E-11
TH-232	5.71E-04	8.5E-01	1.2E-11	1.0E-11	1.0E-11
U-234	2.13E-03	3.2E+00	1.6E-11	5.1E-11	5.1E-11
U-235/236	1.03E-04	1.5E-01	1.6E-11	2.5E-12	2.5E-12
U-238	2.18E-03	3.3E+00	2.8E-11	9.1E-11	9.1E-11
			Total Pathway:	4.9E-10	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	8.24E-06	6.9E-09	1.8E+00	1.2E-08	1.2E-08
Beryllium	5.59E-07	4.7E-10	4.3E+00	2.0E-09	2.0E-09
Cadmium	8.97E-07	7.5E-10			
Chromium	2.79E-06	2.3E-09			
Lead	5.95E-06	5.0E-09			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	6.43E-06	5.4E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	1.4E-08	

Total Rad + Chem	1.5E-08	*Total:*	1.5E-08

TABLE B.3.3-13(a) (continued)

INACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	4.8E-12
NP-237	2.33E-03	3.5E+00	2.2E-10	7.7E-10	7.7E-10	8.3E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	6.5E-12
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.8E-12
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	8.7E-11
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	8.2E-11
SR-90	6.21E-03	9.3E+00	3.6E-11	3.3E-10	3.3E-10	3.5E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	5.5E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.3E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.0E-11
U-234	1.18E+02	1.8E+05	1.6E-11	2.8E-06	2.8E-06	2.8E-06
U-235/236	6.28E+00	9.4E+03	1.6E-11	1.5E-07	1.5E-07	1.5E-07
U-238	1.30E+02	1.9E+05	2.8E-11	5.4E-06	5.4E-06	5.4E-06
			Total Pathway:	8.4E-06		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.2E-08
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.0E-09
Cadmium	1.65E-09	1.4E-12				
Chromium	0.00E+00	0.0E+00				
Lead	1.02E-16	8.5E-20				
Molybdenum	5.61E-01	4.7E-04				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	4.64E-01	3.9E-04				
2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00				
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+04	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00		

FER\CRU2RI\ABQ\IVGOFFFW.XLS\1/28/94; 8:32 AM	Total Rad + Chem	8.4E-06	*Total:*	8.4E-06	8.4E-06

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TABLE B.3.3-13(a) (continued)

INACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	1.2E-04				
NP-237	2.0E-04				
PU-238	2.0E-05				
PU-239/240	5.1E-06				
RA-226	4.9E-04				
RA-228	5.5E-04				
SR-90	2.8E-04				
TH-228	6.6E-04				
TH-230	6.8E-04				
TH-232	5.7E-04				
U-234	2.1E-03				
U-235/236	1.0E-04				
U-238	2.2E-03				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	8.2E-06	6.9E-09	3.0E-04	2.3E-05	2.3E-05
Beryllium	5.6E-07	4.7E-10	5.0E-03	9.3E-08	9.3E-08
Cadmium	9.0E-07	7.5E-10	1.0E-03	7.5E-07	7.5E-07
Chromium	2.8E-06	2.3E-09	5.0E-03	4.7E-07	4.7E-07
Lead	5.9E-06	5.0E-09			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	6.4E-06	5.4E-09	3.0E-03	1.8E-06	1.8E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			
			Total Pathway:	2.6E-05	

Total Rad + Chem 2.6E-05 | *Total:* 2.6E-05

TABLE B.3.3-13(a) (continued)

INACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00					
NP-237	2.3E-03					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	6.2E-03					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	1.2E+02					
U-235/236	6.3E+00					
U-238	1.3E+02					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.3E-05
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	9.3E-08
Cadmium	1.6E-09	1.4E-12	1.0E-03	1.4E-09	1.4E-09	7.5E-07
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	4.7E-07
Lead	1.0E-16	8.5E-20				
Molybdenum	5.6E-01	4.7E-04	5.0E-03	9.4E-02	9.4E-02	9.4E-02
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	4.6E-01	3.9E-04	3.0E-03	1.3E-01	1.3E-01	1.3E-01
2-Methylnaphthalene	0.0E+00	0.0E+00				
Acenaphthylene	0.0E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00				
			Total Pathway:	2.2E-01		

Total Rad + Chem	2.2E-01	*Total:*	2.2E-01	2.2E-01

TABLE B.3.3-13(b)

FUTURE OFF-PROPERTY CHILD

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.16E-04	1.3E-02	2.8E-11	3.6E-13	3.6E-13
NP-237	2.01E-04	2.2E-02	2.2E-10	4.9E-12	4.9E-12
PU-238	1.98E-05	2.2E-03	2.2E-10	4.9E-13	4.9E-13
PU-239/240	5.14E-06	5.7E-04	2.3E-10	1.3E-13	1.3E-13
RA-226	4.86E-04	5.4E-02	1.2E-10	6.5E-12	6.5E-12
RA-228	5.51E-04	6.1E-02	1.0E-10	6.1E-12	6.1E-12
SR-90	2.75E-04	3.1E-02	3.6E-11	1.1E-12	1.1E-12
TH-228	6.63E-04	7.4E-02	5.5E-11	4.1E-12	4.1E-12
TH-230	6.79E-04	7.6E-02	1.3E-11	9.8E-13	9.8E-13
TH-232	5.71E-04	6.4E-02	1.2E-11	7.6E-13	7.6E-13
U-234	2.13E-03	2.4E-01	1.6E-11	3.8E-12	3.8E-12
U-235/236	1.03E-04	1.1E-02	1.6E-11	1.8E-13	1.8E-13
U-238	2.18E-03	2.4E-01	2.8E-11	6.8E-12	6.8E-12
			Total Pathway:	3.6E-11	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	8.24E-06	2.4E-09	1.8E+00	4.2E-09	4.2E-09
Beryllium	5.59E-07	1.6E-10	4.3E+00	7.0E-10	7.0E-10
Cadmium	8.97E-07	2.6E-10			
Chromium	2.79E-06	8.1E-10			
Lead	5.95E-06	1.7E-09			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	6.43E-06	1.9E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzufuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	4.9E-09	

Total Rad + Chem	4.9E-09	*Total:*	4.9E-09

TABLE B.3.3-13(b) (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk						Total Dust & Groundwater
Ingestion/Homegrown Produce					Total	Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	3.6E-13
NP-237	2.33E-03	2.6E-01	2.2E-10	5.7E-11	5.7E-11	6.2E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	4.9E-13
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.3E-13
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	6.5E-12
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	6.1E-12
SR-90	6.21E-03	6.9E-01	3.6E-11	2.5E-11	2.5E-11	2.6E-11
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	4.1E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	9.8E-13
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	7.6E-13
U-234	1.18E+02	1.3E+04	1.6E-11	2.1E-07	2.1E-07	2.1E-07
U-235/236	6.28E+00	7.0E+02	1.6E-11	1.1E-08	1.1E-08	1.1E-08
U-238	1.30E+02	1.4E+04	2.8E-11	4.1E-07	4.1E-07	4.1E-07
			Total Pathway:	6.3E-07		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	4.2E-09
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	7.0E-10
Cadmium	1.65E-09	4.8E-13				
Chromium	0.00E+00	0.0E+00				
Lead	1.02E-16	3.0E-20				
Molybdenum	5.61E-01	1.6E-04				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	4.64E-01	1.3E-04				
2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00				
Tetrachlorodibenzufuran	0.00E+00	0.0E+00	1.5E+04	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00		

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TABLE B.3.3-13(b) (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	1.3E-02				
NP-237	2.3E-03	6.8E+02				
PU-238	0.0E+00	2.2E-03				
PU-239/240	0.0E+00	5.7E-04				
RA-226	0.0E+00	5.4E-01				
RA-228	0.0E+00	6.2E-02				
SR-90	6.2E-03	6.9E-02				
TH-228	0.0E+00	7.4E-02				
TH-230	0.0E+00	7.6E-02				
TH-232	0.0E+00	6.4E-02				
U-234	1.2E+02	3.4E+05				
U-235/236	6.3E+00	1.8E+04				
U-238	1.3E+02	3.8E+05				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	9.3E-05
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.8E-07
Cadmium	1.6E-09	5.6E-12	1.0E-03	5.6E-09	5.6E-09	3.0E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.9E-06
Lead	1.0E-16	3.5E-19				
Molybdenum	5.6E-01	1.9E-03	5.0E-03	3.8E-01	3.8E-01	3.8E-01
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	4.6E-01	1.6E-03	3.0E-03	5.2E-01	5.2E-01	5.2E-01
2-Methylnaphthalene	0.0E+00	0.0E+00				
Acenaphthylene	0.0E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Tetrachlorodibenzufuran	0.0E+00	0.0E+00				
			Total Pathway:	9.0E-01		

Total Rad + Chem	9.0E-01	*Total:*	9.0E-01	9.0E-01

TABLE B.3.3-13(b) (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	1.2E-04	1.3E-02			
NP-237	2.0E-04	6.8E+02			
PU-238	2.0E-05	2.2E-03			
PU-239/240	5.1E-06	5.7E-04			
RA-226	4.9E-04	5.4E-01			
RA-228	5.5E-04	6.2E-02			
SR-90	2.8E-04	6.9E-02			
TH-228	6.6E-04	7.4E-02			
TH-230	6.8E-04	7.6E-02			
TH-232	5.7E-04	6.4E-02			
U-234	2.1E-03	3.4E+05			
U-235/236	1.0E-04	1.8E+04			
U-238	2.2E-03	3.8E+05			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	8.2E-06	2.8E-08	3.0E-04	9.3E-05	9.3E-05
Beryllium	5.6E-07	1.9E-09	5.0E-03	3.8E-07	3.8E-07
Cadmium	9.0E-07	3.0E-09	1.0E-03	3.0E-06	3.0E-06
Chromium	2.8E-06	9.5E-09	5.0E-03	1.9E-06	1.9E-06
Lead	5.9E-06	2.0E-08			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	6.4E-06	2.2E-08	3.0E-03	7.3E-06	7.3E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Tetrachlorodibenzufuran	0.0E+00	0.0E+00			
			Total Pathway:	1.1E-04	

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Total Rad + Chem 1.1E-04 *Total:* 1.1E-04

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TABLE B.3.3-14(a)
FUTURE, OFF-PROPERTY FARMER
INACTIVE FLYASH PILE: GROUNDWATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	4.6E-04	2.2E+01	2.2E-10	4.9E-09	Not applicable
RA-226	0	0.0E+00	1.2E-10	0.0E+00	
RA-228	0	0.0E+00	1.0E-10	0.0E+00	
SR-90	9.3E-04	4.6E+01	3.6E-11	1.6E-09	
TC-99	9.8E-01	4.8E+04	1.3E-12	6.2E-08	
U234	24	1.2E+06	1.6E-11	1.9E-05	
U235/236	1.3	6.3E+04	1.6E-11	1.0E-06	
U238	26.5	1.3E+06	2.8E-11	3.6E-05	
		Total Pathway:		5.6E-05	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	2.7E-10	7.5E-12			Cadmium	2.8E-11		
Lead	2.05E-17	5.6E-19			Lead	2.1E-18		
Mercury	0	0.0E+00			Mercury	0.0E+00		
Molybdenum	1.04E-07	2.8E-09			Molybdenum	1.1E-08		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	9.5E-02	2.6E-03			U-Total	9.7E-03		
		Total Pathway:		0.0E+00		Total Pathway:		0.0E+00
		Total Rad + Chem		5.6E-05		Total Rad + Chem		0.0E+00

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TABLE B.3.3-14(a) (continued)

CARCINOGENIC RISK

Radiation Risk	
Dermal Contact/Groundwater	
Not applicable	
Total Pathway:	0.0E+00

Total
4.9E-09
0.0E+00
0.0E+00
1.6E-09
6.2E-08
1.9E-05
1.0E-06
3.6E-05

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	5.5E-14			
Lead	1.6E-23			
Mercury	0.0E+00			
Molybdenum	2.1E-11			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	1.9E-05			
Total Pathway:			0.0E+00	

Total Rad + Chem	0.0E+00	*Total:*	5.6E-05

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	4.6E-04	2.2E+01		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
RA-229	9.3E-04	4.6E+01		
TC-99	9.8E-01	4.8E+04		
U234	2.4E+01	1.2E+06		
U235/236	1.3E+00	6.3E+04		
U238	2.7E+01	1.3E+06		
		Total Pathway:		0.0E+00

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	2.7E-10	7.5E-12	5.0E-04	1.5E-08
Lead	2.1E-17	5.6E-19		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Molybdenum	1.0E-07	2.8E-09	5.0E-03	5.7E-07
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		
U-Total	9.5E-02	2.6E-03	3.0E-03	8.6E-01
		Total Pathway:		8.6E-01
		Total Rad + Chem		8.6E-01

Inhalation/Groundwater

Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	2.8E-11		
Lead	2.1E-18		
Mercury	0.0E+00		
Molybdenum	1.1E-08		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	9.7E-03		
	Total Pathway:		0.0E+00
	Total Rad + Chem		0.0E+00

TABLE B.3.3-14(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard	
Dermal Contact/Groundwater	Total
Not applicable	
Total Pathway:	0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	5.5E-14	2.5E-05	2.2E-09	1.7E-08
Lead	1.6E-23			
Mercury	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	2.1E-11	1.9E-03	1.1E-08	5.8E-07
Tetrachlorodibenzofuran	0.0E+00			
U-Total	1.9E-05	1.5E-04	1.3E-01	9.9E-01
Total Pathway:			1.3E-01	

Total Rad + Chem	1.3E-01	*Total:*	9.9E-01

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TABLE B.3.3-14(b)

FUTURE, OFF-PROPERTY CHILD

INACTIVE FLYASH PILE: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	4.6E-04	9.6E-01	2.2E-10	2.1E-10	Not applicable
RA-226	0	0.0E+00	1.2E-10	0.0E+00	
RA-228	0	0.0E+00	1.0E-10	0.0E+00	
SR-90	9.3E-04	2.0E+00	3.6E-11	7.0E-11	
TC-99	0.98	2.1E+03	1.3E-12	2.7E-09	
U234	24	5.0E+04	1.6E-11	8.1E-07	
U235/236	1.28	2.7E+03	1.6E-11	4.3E-08	
U238	26.5	5.6E+04	2.8E-11	1.6E-06	
			Total Pathway:	2.4E-06	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	2.7E-10	1.5E-12			Cadmium	1.1E-11		
Lead	2.05E-17	1.1E-19			Lead	8.4E-19		
Mercury	0	0.0E+00			Mercury	0.0E+00		
Molybdenum	1.04E-07	5.7E-10			Molybdenum	4.3E-09		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	9.5E-02	5.2E-04			U-Total	3.9E-03		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	2.4E-06			Total Rad + Chem	0.0E+00

TABLE B.3.3-14 (b) (continued)

CARCINOGENIC RISK

Radiation Risk				
Dermal Contact/Groundwater				**Total**
Not applicable				2.1E-10
				0.0E+00
				0.0E+00
				7.0E-11
				2.7E-09
				8.1E-07
				4.3E-08
				1.6E-06
Total Pathway:			0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	7.6E-15			
Lead	2.3E-24			0.0E+00
Mercury	0.0E+00			0.0E+00
Molybdenum	2.9E-12			0.0E+00
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	2.6E-06			
Total Pathway:			0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 2.4E-06

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	4.6E-04	9.6E-01		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
SR-90	9.3E-04	2.0E+00		
TC-99	9.8E-01	2.1E+03		
U234	2.4E+01	5.0E+04		
U235/236	1.3E+00	2.7E+03		
U238	2.7E+01	5.6E+04		

Total Pathway: 0.0E+00

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	2.7E-10	1.8E-11	5.0E-04	3.5E-08
Lead	2.1E-17	1.3E-18		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Molybdenum	1.0E-07	6.6E-09	5.0E-03	1.3E-06
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		
U-Total	9.5E-02	6.0E-03	3.0E-03	2.0E+00

Total Pathway: 2.0E+00

Inhalation/Groundwater

Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	1.3E-10		
Lead	9.8E-18		
Mercury	0.0E+00		
Molybdenum	5.0E-08		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	4.5E-02		

Total Pathway: 0.0E+00

Total Rad + Chem 2.0E+00

Total Rad + Chem 0.0E+00

TABLE B.3.3-14 (b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard		Total
Dermal Contact/Groundwater		
Not applicable		
Total Pathway:	0.0E+00	

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	8.9E-14	2.5E-05	3.5E-09	3.9E-08
Lead	2.7E-23			
Mercury	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	3.4E-11	1.9E-03	1.8E-08	1.3E-06
Tetrachlorodibenzofuran	0.0E+00			
U-Total	3.1E-05	1.5E-04	4.6E-09	2.0E+00
Total Pathway:			2.6E-08	

Total Rad + Chem	2.6E-08	*Total:*	2.0E+00

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TABLE B.3.3-15
FUTURE, EXPANDED TRESPASSER
INACTIVE FLYASH PILE: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	3.23E-06	1.2E-02	1.9E-11	2.2E-13
NP-237	5.58E-06	2.0E-02	2.9E-08	5.8E-10
PU-238	5.67E-07	2.0E-03	3.9E-08	7.9E-11
PU-239/240	1.47E-07	5.3E-04	3.8E-08	2.0E-11
RA-226	1.38E-05	4.9E-02	3.0E-09	1.5E-10
RA-228	1.57E-05	5.6E-02	6.9E-10	3.9E-11
SR-90	6.09E-06	2.2E-02	6.2E-11	1.3E-12
TH-228	1.90E-05	6.8E-02	7.8E-08	5.3E-09
TH-230	1.94E-05	6.9E-02	2.9E-08	2.0E-09
TH-232	1.63E-05	5.8E-02	2.8E-08	1.6E-09
U-234	6.05E-05	2.2E-01	2.6E-08	5.6E-09
U-235/236	2.94E-06	1.1E-02	2.5E-08	2.6E-10
U-238	6.21E-05	2.2E-01	5.2E-08	1.2E-08
			Total Pathway:	2.7E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.46	1.7E-02	2.8E-11	4.8E-13
NP-237	0.80	3.0E-02	2.2E-10	6.5E-12
PU-238	0.08	3.0E-03	2.2E-10	6.6E-13
PU-239/240	0.02	7.6E-04	2.3E-10	1.8E-13
RA-226	1.98	7.4E-02	1.2E-10	8.8E-12
RA-228	2.24	8.4E-02	1.0E-10	8.4E-12
SR-90	0.87	3.2E-02	3.6E-11	1.2E-12
TH-228	2.7	1.0E-01	5.5E-11	5.6E-12
TH-230	2.77	1.0E-01	1.3E-11	1.3E-12
TH-232	2.33	8.7E-02	1.2E-11	1.0E-12
U-234	8.65	3.2E-01	1.6E-11	5.2E-12
U-235/236	0.42	1.6E-02	1.6E-11	2.5E-13
U-238	8.87	3.3E-01	2.8E-11	9.3E-12
			Total Pathway:	4.9E-11

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk
Arsenic	2.32E-07	6.4E-10	1.5E+01	9.7E-09
Beryllium	1.59E-08	4.4E-11	8.4E+00	3.7E-10
Cadmium	2.17E-08	6.0E-11	6.1E+00	3.7E-10
Chromium	7.95E-08	2.2E-10	4.1E+01	9.0E-09
Lead	1.68E-07	4.6E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	5.1E-10		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	9.9E-12		
Dibenzo(a,h)anthracene	1.54E-08	4.3E-11	6.8E+00	2.9E-10
Dibenzofuran	0.00E+00	0.0E+00		
			Total Pathway:	2.0E-08
			Total Rad + Chem	4.7E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	33.20	8.8E-07	1.8E+00	1.5E-06
Beryllium	2.27	6.1E-08	4.3E+00	2.6E-07
Cadmium	3.10	8.3E-08		
Chromium	11.36	3.0E-07		
Lead	23.93	6.4E-07		
TH-TOTAL	21.40	5.7E-07		
U-TOTAL	26.20	7.0E-07		
2-Methylnaphthalene	0.16	4.3E-09		
Acenaphthylene	1.80	4.8E-08		
Carbazole	0.51	1.4E-08	2.0E-02	2.7E-10
Dibenzo(a,h)anthracene	2.20	5.9E-08	8.1E+00	4.7E-07
Dibenzofuran	0.25	6.7E-09		
			Total Pathway:	2.3E-06
			Total Rad + Chem	2.3E-06

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.8E-01	2.0E-06	3.6E-07	3.6E-07
	NP-237	3.1E-01	4.3E-07	1.3E-07	1.4E-07
	PU-238	3.2E-02	2.8E-11	8.9E-13	8.1E-11
	PU-239/24	8.1E-03	2.7E-11	2.2E-13	2.0E-11
	RA-226	7.8E-01	1.2E-08	9.3E-09	9.5E-09
	RA-228	8.8E-01	2.9E-06	2.6E-06	2.6E-06
	SR-90	3.4E-01	0.0E+00	0.0E+00	2.5E-12
	TH-228	1.1E+00	5.6E-06	6.0E-06	6.0E-06
	TH-230	1.1E+00	5.4E-11	5.9E-11	2.1E-09
	TH-232	9.1E-01	2.6E-11	2.4E-11	1.7E-09
	U-234	3.4E+00	3.0E-11	1.0E-10	5.7E-09
	U-235/236	1.6E-01	2.4E-07	4.0E-08	4.0E-08
	U-238	3.5E+00	3.6E-08	1.3E-07	1.4E-07
Total Pathway: 0.0E+00	Total Pathway: 9.2E-06				

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	3.5E-07	1.8E+00	6.4E-07					2.2E-06
Beryllium	2.4E-07	4.3E+02	1.0E-04					1.0E-04
Cadmium	3.2E-07							3.7E-10
Chromium	1.2E-06							9.0E-09
Lead	2.5E-06							
TH-TOTAL	0.0E+00			Not applicable				
U-TOTAL	2.7E-06							
2-Methylnaphthalene	5.0E-07							
Acenaphthylene	5.6E-06							
Carbazole	0.0E+00	2.0E-02	0.0E+00					2.7E-10
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					4.8E-07
Dibenzofuran	7.8E-08							
Total Pathway: 1.0E-04				Total Pathway: 0.0E+00				

Total Rad + Chem 1.0E-04 | 9.2E-06 | *Total:* 1.1E-04

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3	Intake	RfD(i)	Hazard
CS-137	3.23E-06	1.2E-02		
NP-237	5.58E-06	2.0E-02		
PU-238	5.67E-07	2.0E-03		
PU-239/240	1.47E-07	5.3E-04		
RA-226	1.38E-05	4.9E-02		
RA-228	1.57E-05	5.6E-02		
SR-90	6.09E-06	2.2E-02		
TH-228	1.90E-05	6.8E-02		
TH-230	1.94E-05	6.9E-02		
TH-232	1.63E-05	5.8E-02		
U-234	6.05E-05	2.2E-01		
U-235/236	2.94E-06	1.1E-02		
U-238	6.21E-05	2.2E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.46	1.7E-02		
NP-237	0.80	3.0E-02		
PU-238	0.08	3.0E-03		
PU-239/240	0.02	7.6E-04		
RA-226	1.98	7.4E-02		
RA-228	2.24	8.4E-02		
SR-90	0.87	3.2E-02		
TH-228	2.71	1.0E-01		
TH-230	2.77	1.0E-01		
TH-232	2.33	8.7E-02		
U-234	8.65	3.2E-01		
U-235/236	0.42	1.6E-02		
U-238	8.87	3.3E-01		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	2.32E-07	3.1E-09		
Beryllium	1.59E-08	2.1E-10		
Cadmium	2.17E-08	2.9E-10		
Chromium	7.95E-08	1.1E-09	5.5E-07	1.9E-03
Lead	1.68E-07	2.2E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	2.4E-09		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	4.8E-11		
Dibenzo(a,h)anthracene	1.54E-08	2.1E-10		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 1.9E-03

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	33.20	3.8E-06	3.0E-04	1.3E-02
Beryllium	2.27	2.6E-07	5.0E-03	5.1E-05
Cadmium	3.10	3.5E-07	1.0E-03	3.5E-04
Chromium	11.36	1.3E-06	5.0E-03	2.6E-04
Lead	23.93	2.7E-06		
TH-TOTAL	21.40	2.4E-06		
U-TOTAL	26.20	3.0E-06	3.0E-03	9.9E-04
2-Methylnaphthalene	0.16	1.8E-08		
Acenaphthylene	1.80	2.0E-07		
Carbazole	0.51	5.8E-08		
Dibenzo(a,h)anthracene	2.20	2.5E-07		
Dibenzofuran	0.25	2.8E-08	4.0E-03	7.1E-06

Total Pathway: 1.4E-02

Total Rad + Chem 1.9E-03

Total Rad + Chem 1.4E-02

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NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	Hazard
Not applicable	CS-137	1.8E-01		
	NP-237	3.1E-01		
	PU-238	3.2E-02		
	PU-239/240	8.1E-03		
	RA-226	7.8E-01		
	RA-228	8.8E-01		
	SR-90	3.4E-01		
	TH-228	1.1E+00		
	TH-230	1.1E+00		
	TH-232	9.1E-01		
	U-234	3.4E+00		
	U-235/236	1.6E-01		
	U-238	3.5E+00		
Total Pathway: 0.0E+00			Total Pathway:	0.0E+00

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	1.4E-06	2.9E-04	4.8E-03					1.7E-02
Beryllium	9.4E-07	5.0E-05	1.9E-02					1.9E-02
Cadmium	1.3E-06	5.0E-05	2.6E-02					2.6E-02
Chromium	4.7E-06	2.3E-03	2.1E-03					4.3E-03
Lead	9.8E-06							
TH-TOTAL	0.0E+00				Not applicable			
U-TOTAL	1.1E-05	1.5E-04	7.2E-02					7.3E-02
2-Methylnaphthalene	0.0E+00							
Acenaphthylene	2.2E-05							
Carbazole	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	3.1E-07	4.0E-03	7.7E-05					8.4E-05
	Total Pathway:		1.2E-01		Total Pathway:		0.0E+00	
								1.4E-01
	Total Rad + Chem		1.2E-01				0.0E+00	*otal:* 1.4E-01

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TABLE B.3.3-16
FUTURE, EXPANDED TRESPASSER
INACTIVE FLYASH PILE: SURFACE WATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
NP-237	0.790	5.9E+01	2.2E-10	1.3E-08		1.3E-08
PU-238	2.910	2.2E+02	2.2E-10	4.8E-08	Not applicable (1)	4.8E-08
PU-239/240	0.2	1.5E+01	2.3E-10	3.5E-09		3.5E-09
RA-226	0.148	1.1E+01	1.2E-10	1.3E-09		1.3E-09
TH-230	0.653	4.9E+01	1.3E-11	6.4E-10		6.4E-10
U-234	265	2.0E+04	1.6E-11	3.2E-07		3.2E-07
U-235/236	14	1.1E+03	1.6E-11	1.7E-08		1.7E-08
U-238	257.0	1.9E+04	2.8E-11	5.4E-07		5.4E-07
			Total Pathway:	9.4E-07	Total Pathway: 0.0E+00	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water					
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Conc'n (mg/L	Intake	SF(derm)	Risk	
Arsenic	1.4E-03	6.7E-08	1.8E+00	1.2E-07	Arsenic	1.4E-03	1.3E-08	1.8E+00	2.5E-08	1.4E-07
Cadmium	1.6E-03	7.7E-08			Cadmium	1.6E-03	1.5E-08			
Lead	8.3E-03	4.0E-07			Lead	8.3E-03	3.2E-10			
U-TOTAL	8.2E-01	3.9E-05			U-TOTAL	8.2E-01	7.9E-06			
bis(2-Ethylhexyl) phthalate	1.0E-03	4.8E-08	1.4E-02	6.7E-10	bis(2-Ethylhexyl) phthalate	1.0E-03	3.8E-08	1.6E-02	6.0E-10	1.3E-09
Toluene	2.0E-03	9.6E-08			Toluene	2.0E-03	5.8E-07			
			Total Pathway:	1.2E-07				Total Pathway:	2.5E-08	
			Total Rad + Chem	1.1E-06				Total Rad + Chem	2.5E-08	*Total:* 1.1E-06

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	onc'n (pCi/L	Intake	RfD(o)	Hazard		
NP-237	0.79	5.9E+01			Not applicable	
PU-238	2.91	2.2E+02				
PU-239/240	0.2	1.5E+01				
RA-226	0.148	1.1E+01				
TH-230	0.653	4.9E+01				
U-234	265	2.0E+04				
U-235/236	14	1.1E+03				
U-238	257	1.9E+04				
			Total Pathway:	0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water				
Compound	Conc'n (mg/L	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	1.4E-03	2.2E-07	3.0E-04	7.5E-04	Arsenic	4.4E-08	2.9E-04	1.5E-04	9.0E-04
Cadmium	1.6E-03	2.6E-07	1.0E-03	2.6E-04	Cadmium	5.0E-08	5.0E-05	1.0E-03	1.3E-03
Lead	8.3E-03	1.3E-06			Lead	1.0E-09			
U-TOTAL	8.2E-01	1.3E-04	3.0E-03	4.4E-02	U-TOTAL	2.6E-05	1.5E-04	1.7E-01	2.2E-01
bis(2-Ethylhexyl) phthalate	1.0E-03	1.6E-07	2.0E-02	8.0E-06	bis(2-Ethylhexyl) phthalate	1.3E-07	1.8E-02	7.0E-06	1.5E-05
Toluene	2.0E-03	3.2E-07	2.0E-01	1.6E-06	Toluene	1.9E-06	2.0E-01	9.4E-06	1.1E-05
			Total Pathway:	4.5E-02			Total Pathway:	1.7E-01	
			Total Rad + Chem	4.5E-02			Total Rad + Chem	1.7E-01	*Total:* 2.2E-01

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TABLE B.3.3-17
FUTURE, EXPANDED TRESPASSER
INACTIVE FLYASH PILE: SEDIMENT
CARCINOGENIC RISK

Radiation Risk

Ingestion/Sediment					Dermal Contact/Sediment	External Radiation/Sediment			Total
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk		Compound	Intake	SF(e)	Risk	
NP-237	0.019	5.1E-01	2.2E-10	1.1E-10		NP-237	3.8E-03	4.3E-07	1.6E-09	1.8E-09
PU-238	0.019	5.1E-01	2.2E-10	1.1E-10		PU-238	3.8E-03	2.8E-11	1.1E-13	1.1E-10
PU-239/240	0.030	8.0E-01	2.3E-10	1.8E-10		PU-239/24	6.0E-03	2.7E-11	1.6E-13	1.9E-10
RA-226	0.885	2.4E+01	1.2E-10	2.8E-09		RA-226	1.8E-01	1.2E-08	2.1E-09	5.0E-09
RA-228	0.901	2.4E+01	1.0E-10	2.4E-09		RA-228	1.8E-01	2.9E-06	5.2E-07	5.3E-07
SR-90	0.480	1.3E+01	3.6E-11	4.6E-10		SR-90	9.6E-02	0.0E+00	0.0E+00	4.6E-10
TH-228	0.490	1.3E+01	5.5E-11	7.2E-10		TH-228	9.8E-02	5.6E-06	5.5E-07	5.5E-07
TH-230	1.280	3.4E+01	1.3E-11	4.5E-10		TH-230	2.6E-01	5.4E-11	1.4E-11	4.6E-10
TH-232	0.550	1.5E+01	1.2E-11	1.8E-10		TH-232	1.1E-01	2.6E-11	2.9E-12	1.8E-10
U-234	1.500	4.0E+01	1.6E-11	6.4E-10		U-234	3.0E-01	3.0E-11	9.0E-12	6.5E-10
U-235/236	0.120	3.2E+00	1.6E-11	5.1E-11		U-235/236	2.4E-02	2.4E-07	5.8E-09	5.8E-09
U-238	1.680	4.5E+01	2.8E-11	1.3E-09		U-238	3.4E-01	3.6E-08	1.2E-08	1.3E-08
		Total Pathway:		9.4E-09	Not applicable		Total Pathway:		1.1E-06	
					Total Pathway: 0.0E+00					

Chemical Risk

Ingestion/Sediment					Dermal Contact/Sediment				External Radiation/Sediment				
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(e)	Risk	
Arsenic	5.40	9.2E-08	1.8E+00	1.6E-07	Arsenic	3.9E-08	1.8E+00	7.1E-08					2.3E-07
Chromium	6.50	1.1E-07			Chromium	4.7E-07							
Cobalt	4.80	8.2E-08			Cobalt	3.4E-07			Not applicable				
Lead	6.70	1.1E-07			Lead	4.8E-07							
Manganese	386.00	6.6E-06			Manganese	2.8E-05							
TH-TOTAL	5.04	8.6E-08			TH-TOTAL	3.6E-07							
Thallium	0.52	8.9E-09			Thallium	3.7E-08							
U-TOTAL	13.90	2.4E-07			U-TOTAL	1.0E-06							
Benzo(a)pyrene	0.01	1.5E-10	7.3E+00	1.1E-09	Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					1.1E-09
bis(2-Ethylhexyl)phthalate	1.20	2.1E-08	1.4E-02	2.9E-10	bis(2-Ethylhexyl)phthalate	3.4E-08	1.6E-02	5.4E-10					8.2E-10
Carbazole	0.01	1.2E-10	2.0E-02	2.4E-12	Carbazole	0.0E+00	2.0E-02	0.0E+00					2.4E-12
		Total Pathway:		1.6E-07		Total Pathway:		7.2E-08		Total Pathway:		0.0E+00	
		Total Rad + Chem		1.7E-07		Total Rad + Chem		7.2E-08		Total Rad + Chem		1.1E-06	*Total:* 1.3E-06

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Sediment					Dermal Contact/Sediment	Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard		
NP-237	0.02	5.1E-01			Not applicable	
PU-238	0.02	5.1E-01				
PU-239/240	0.03	8.0E-01				
RA-226	0.89	2.4E+01				
RA-228	0.90	2.4E+01				
SR-90	0.48	1.3E+01				
TH-228	0.49	1.3E+01				
TH-230	1.28	3.4E+01				
TH-232	0.55	1.5E+01				
U-234	1.50	4.0E+01				
U-235/236	0.12	3.2E+00				
U-238	1.68	4.5E+01				
			Total Pathway:	0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Sediment					Dermal Contact/Sediment				
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	5.40	3.1E-07	3.0E-04	1.0E-03	Arsenic	1.2E-07	2.9E-04	4.2E-04	1.5E-03
Chromium	6.50	3.7E-07	5.0E-03	7.4E-05	Chromium	1.5E-06	2.3E-03	6.5E-04	7.2E-04
Cobalt	4.80	2.8E-07	5.0E-03	5.5E-05	Cobalt	1.1E-06	2.3E-03	4.8E-04	5.3E-04
Lead	6.70	3.8E-07			Lead	1.5E-06			
Manganese	386.00	2.2E-05	1.4E-01	1.6E-04	Manganese	8.6E-05	4.2E-03	2.1E-02	2.1E-02
TH-TOTAL	5.04	2.9E-07			TH-TOTAL	1.1E-06			
Thallium	0.52	3.0E-08	7.0E-05	4.3E-04	Thallium	1.2E-07	7.0E-05	1.7E-03	2.1E-03
U-TOTAL	13.90	8.0E-07	3.0E-03	2.7E-04	U-TOTAL	3.1E-06	1.5E-04	2.1E-02	2.1E-02
Benzo(a)pyrene	0.01	5.2E-10			Benzo(a)pyrene	0.0E+00			
bis(2-Ethylhexyl)phthalate	1.20	6.9E-08	2.0E-02	3.4E-06	bis(2-Ethylhexyl)phthalate	1.1E-07	1.8E-02	6.0E-06	9.4E-06
Carbazole	0.01	4.0E-10			Carbazole	0.0E+00			
			Total Pathway:	2.0E-03			Total Pathway:	4.5E-02	
			Total Rad + Chem	2.0E-03			Total Rad + Chem	4.5E-02	*Total:* 4.7E-02

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TABLE B.3.3-18(a)
FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT FARMER (RME VALUES)
INACTIVE FLYASH PILE: SURFACE SOIL

CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	3.2E-06	3.7E-01	1.9E-11	7.1E-12
NP-237	5.6E-06	6.5E-01	2.9E-08	1.9E-08
PU-238	5.7E-07	6.6E-02	3.9E-08	2.6E-09
PU-239/240	1.5E-07	1.7E-02	3.8E-08	6.5E-10
RA-226	1.4E-05	1.6E+00	3.0E-09	4.8E-09
RA-228	1.6E-05	1.8E+00	6.6E-10	1.2E-09
SR-90	6.1E-06	7.1E-01	6.2E-11	4.4E-11
TH-228	1.9E-05	2.2E+00	7.8E-08	1.7E-07
TH-230	1.9E-05	2.2E+00	2.9E-08	6.5E-08
TH-232	1.6E-05	1.9E+00	2.8E-08	5.3E-08
U-234	6.1E-05	7.0E+00	2.6E-08	1.8E-07
U-235/236	2.9E-06	3.4E-01	2.5E-08	8.5E-09
U-238	6.2E-05	7.2E+00	5.2E-08	3.7E-07
			Total Pathway:	8.8E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.46	2.0E+03	2.8E-11	5.7E-08
NP-237	0.80	3.5E+03	2.2E-10	7.7E-07
PU-238	0.08	3.6E+02	2.2E-10	7.9E-08
PU-239/240	0.02	9.0E+01	2.3E-10	2.1E-08
RA-226	1.98	8.7E+03	1.2E-10	1.0E-06
RA-228	2.24	9.9E+03	1.0E-10	9.9E-07
SR-90	0.87	3.8E+03	3.6E-11	1.4E-07
TH-228	2.7	1.2E+04	5.5E-11	6.6E-07
TH-230	2.77	1.2E+04	1.3E-11	1.6E-07
TH-232	2.33	1.0E+04	1.2E-11	1.2E-07
U-234	8.65	3.8E+04	1.6E-11	6.1E-07
U-235/236	0.42	1.9E+03	1.6E-11	3.0E-08
U-238	8.87	3.9E+04	2.8E-11	1.1E-06
			Total Pathway:	5.8E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk
Arsenic	2.3E-07	1.5E-08	1.5E+01	2.3E-07
Beryllium	1.6E-08	1.0E-09	8.4E+00	8.7E-09
Cadmium	2.2E-08	1.4E-09	6.1E+00	8.6E-09
Chromium	8.0E-08	5.2E-09	4.1E+01	2.1E-07
Lead	1.7E-07	1.1E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.8E-07	1.2E-08		
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	3.6E-09	2.3E-10		
Dibenzo(a,h)anthracene	1.5E-08	1.0E-09	6.8E+00	6.8E-09
Dibenzofuran	0.0E+00	0.0E+00		
			Total Pathway:	4.6E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	33.20	8.2E-05	1.8E+00	1.4E-04
Beryllium	2.27	5.6E-06	4.3E+00	2.4E-05
Cadmium	3.10	7.6E-06		
Chromium	11.36	2.8E-05		
Lead	23.93	5.9E-05		
TH-TOTAL	21.40	5.3E-05		
U-TOTAL	26.20	6.5E-05		
2-Methylnaphthalene	0.16	3.9E-07		
Acenaphthylene	1.80	4.4E-06		
Carbazole	0.51	1.3E-06	2.0E-02	2.5E-08
Dibenzo(a,h)anthracene	2.20	5.4E-06	8.1E+00	4.4E-05
Dibenzofuran	0.25	6.2E-07		
			Total Pathway:	2.1E-04

Total Rad + Chem 1.3E-06

Total Rad + Chem 2.2E-04

TABLE B.3.3-18(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil					External Radiation/Soil					Total
					Compound	Conc'n (pCi/g)	Intake	SF(e)	Risk	
Not applicable					CS-137	0.46	1.9E+01	2.0E-06	3.8E-05	3.8E-05
					NP-237	0.80	3.3E+01	4.3E-07	1.4E-05	1.5E-05
					PU-238	0.08	3.4E+00	2.8E-11	9.4E-11	8.1E-08
					PU-239/240	0.02	8.5E-01	2.7E-11	2.3E-11	2.1E-08
					RA-226	1.98	8.2E+01	1.2E-08	9.8E-07	2.0E-06
					RA-228	2.24	9.3E+01	2.9E-06	2.7E-04	2.7E-04
					SR-90	0.87	3.6E+01	0.0E+00	0.0E+00	1.4E-07
					TH-228	2.71	1.1E+02	5.6E-06	6.3E-04	6.3E-04
					TH-230	2.77	1.2E+02	5.4E-11	6.2E-09	2.3E-07
					TH-232	2.33	9.7E+01	2.6E-11	2.5E-09	1.8E-07
					U-234	8.65	3.6E+02	3.0E-11	1.1E-08	8.0E-07
					U-235/236	0.42	1.7E+01	2.4E-07	4.2E-06	4.2E-06
					U-238	8.87	3.7E+02	3.6E-08	1.3E-05	1.5E-05
Total Pathway:			0.0E+00		Total Pathway:				9.7E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil					
Compound	Intake	SF(derm)	Risk	Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	2.6E-06	1.8E+00	4.8E-06						1.5E-04
Beryllium	1.8E-06	4.3E+02	7.7E-04						7.9E-04
Cadmium	2.4E-06								8.6E-09
Chromium	8.9E-06								2.1E-07
Lead	1.9E-05								
TH-TOTAL	0.0E+00								
U-TOTAL	2.1E-05								
2-Methylnaphthalene	3.8E-06								
Acenaphthylene	4.3E-05								
Carbazole	0.0E+00	2.0E-02	0.0E+00						2.5E-08
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00						4.4E-05
Dibenzofuran	5.9E-07								
Total Pathway:			7.7E-04	Total Pathway:				0.0E+00	

Not applicable

Total Rad + Chem	7.7E-04	9.7E-04	*Total:*	2.0E-03

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TABLE B.3.3-18(a) (continued)
FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT FARMER (RME VALUES)
INACTIVE FLYASH PILE: SURFACE SOIL

Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	3.2E-06	3.7E-01		
NP-237	5.6E-06	6.5E-01		
PU-238	5.7E-07	6.6E-02		
PU-239/240	1.5E-07	1.7E-02		
RA-226	1.4E-05	1.6E+00		
RA-228	1.6E-05	1.8E+00		
SR-90	6.1E-06	7.1E-01		
TH-228	1.9E-05	2.2E+00		
TH-230	1.9E-05	2.2E+00		
TH-232	1.6E-05	1.9E+00		
U-234	6.1E-05	7.0E+00		
U-235/236	2.9E-06	3.4E-01		
U-238	6.2E-05	7.2E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.46	2.0E+03		
NP-237	0.80	3.5E+03		
PU-238	0.08	3.6E+02		
PU-239/240	0.02	9.0E+01		
RA-226	1.98	8.7E+03		
RA-228	2.24	9.9E+03		
SR-90	0.87	3.8E+03		
TH-228	2.7	1.2E+04		
TH-230	2.77	1.2E+04		
TH-232	2.33	1.0E+04		
U-234	8.65	3.8E+04		
U-235/236	0.42	1.9E+03		
U-238	8.87	3.9E+04		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	2.32E-07	1.5E-08		
Beryllium	1.59E-08	1.0E-09		
Cadmium	2.17E-08	1.4E-09		
Chromium	7.95E-08	5.2E-09		
Lead	1.68E-07	1.1E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	1.2E-08		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	2.3E-10		
Dibenzo(a,h)anthracene	1.54E-08	1.0E-09		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	33.20	8.2E-05	3.0E-04	2.7E-01
Beryllium	2.27	5.6E-06	5.0E-03	1.1E-03
Cadmium	3.10	7.6E-06	1.0E-03	7.6E-03
Chromium	11.36	2.8E-05	5.0E-03	5.6E-03
Lead	23.93	5.9E-05		
TH-TOTAL	21.40	5.3E-05		
U-TOTAL	26.20	6.5E-05	3.0E-03	2.2E-02
2-Methylnaphthalene	0.16	3.9E-07		
Acenaphthylene	1.80	4.4E-06		
Carbazole	0.51	1.3E-06		
Dibenzo(a,h)anthracene	2.20	5.4E-06		
Dibenzofuran	0.25	6.2E-07	4.0E-03	1.5E-04

Total Pathway: 3.1E-01

Total Rad + Chem 0.0E+00

Total Rad + Chem 3.1E-01

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CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(e)	Hazard
CS-137	0.46	1.9E+01		
NP-237	0.80	3.3E+01		
PU-238	0.08	3.4E+00		
PU-239/24	0.02	8.5E-01		
RA-226	1.98	8.2E+01		
RA-228	2.24	9.3E+01		
SR-90	0.87	3.6E+01		
TH-228	2.71	1.1E+02		
TH-230	2.77	1.2E+02		
TH-232	2.33	9.7E+01		
U-234	8.65	3.6E+02		
U-235/236	0.42	1.7E+01		
U-238	8.87	3.7E+02		

Total Pathway: 0.0E+00

Total

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm)	Hazard	Total
Arsenic	2.6E-06	2.9E-04	9.2E-03	2.8E-01
Beryllium	1.8E-06	5.0E-05	3.6E-02	3.7E-02
Cadmium	2.4E-06	5.0E-05	4.9E-02	5.6E-02
Chromium	8.9E-06	2.3E-03	4.0E-03	9.6E-03
Lead	1.9E-05			
TH-TOTAL	0.0E+00			
U-TOTAL	2.1E-05	1.5E-04	1.4E-01	1.6E-01
2-Methylnaphthalene	3.8E-06			
Acenaphthylene	4.3E-05			
Carbazole	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00			
Dibenzofuran	5.9E-07	4.0E-03	1.5E-04	3.0E-04

Total Pathway: 2.4E-01

External Radiation/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 2.4E-01 | 0.0E+00 | *Total:* 5.4E-01

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TABLE B.3.3-18(b)
FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT CHILD
INACTIVE FLYASH PILE: SURFACE SOIL

CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	3.2E-06	6.8E-03	1.9E-11	1.3E-13
NP-237	5.6E-06	1.2E-02	2.9E-08	3.4E-10
PU-238	5.7E-07	1.2E-03	3.9E-08	4.6E-11
PU-239/240	1.5E-07	3.1E-04	3.8E-08	1.2E-11
RA-226	1.4E-05	2.9E-02	3.0E-09	8.7E-11
RA-228	1.6E-05	3.3E-02	6.6E-10	2.2E-11
SR-90	6.1E-06	1.3E-02	6.2E-11	7.9E-13
TH-228	1.9E-05	4.0E-02	7.8E-08	3.1E-09
TH-230	1.9E-05	4.1E-02	2.9E-08	1.2E-09
TH-232	1.6E-05	3.4E-02	2.8E-08	9.6E-10
U-234	6.1E-05	1.3E-01	2.6E-08	3.3E-09
U-235/236	2.9E-06	6.2E-03	2.5E-08	1.5E-10
U-238	6.2E-05	1.3E-01	5.2E-08	6.8E-09
			Total Pathway:	1.6E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.46	1.9E+02	2.8E-11	5.4E-09
NP-237	0.80	3.3E+02	2.2E-10	7.4E-08
PU-238	0.08	3.4E+01	2.2E-10	7.5E-09
PU-239/240	0.02	8.6E+00	2.3E-10	2.0E-09
RA-226	1.98	8.3E+02	1.2E-10	1.0E-07
RA-228	2.24	9.4E+02	1.0E-10	9.4E-08
SR-90	0.87	3.7E+02	3.6E-11	1.3E-08
TH-228	2.7	1.1E+03	5.5E-11	6.3E-08
TH-230	2.77	1.2E+03	1.3E-11	1.5E-08
TH-232	2.33	9.8E+02	1.2E-11	1.2E-08
U-234	8.65	3.6E+03	1.6E-11	5.8E-08
U-235/236	0.42	1.8E+02	1.6E-11	2.8E-09
U-238	8.87	3.7E+03	2.8E-11	1.0E-07
			Total Pathway:	5.5E-07

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk
Arsenic	2.3E-07	1.3E-09	1.5E+01	1.9E-08
Beryllium	1.6E-08	8.7E-11	8.4E+00	7.3E-10
Cadmium	2.2E-08	1.2E-10	6.1E+00	7.3E-10
Chromium	8.0E-08	4.4E-10	4.1E+01	1.8E-08
Lead	1.7E-07	9.2E-10		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.8E-07	1.0E-09		
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	3.6E-09	2.0E-11		
Dibenzo(a,h)anthracene	1.5E-08	8.4E-11	6.8E+00	5.7E-10
Dibenzofuran	0.0E+00	0.0E+00		
			Total Pathway:	3.9E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	33.20	3.6E-05	1.8E+00	6.4E-05
Beryllium	2.27	2.5E-06	4.3E+00	1.1E-05
Cadmium	3.10	3.4E-06		
Chromium	11.36	1.2E-05		
Lead	23.93	2.6E-05		
TH-TOTAL	21.40	2.3E-05		
U-TOTAL	26.20	2.9E-05		
2-Methylnaphthalene	0.16	1.8E-07		
Acenaphthylene	1.80	2.0E-06		
Carbazole	0.51	5.6E-07	2.0E-02	1.1E-08
Dibenzo(a,h)anthracene	2.20	2.4E-06	8.1E+00	2.0E-05
Dibenzofuran	0.25	2.7E-07		
			Total Pathway:	9.4E-05

Total Rad + Chem 5.5E-08

Total Rad + Chem 9.4E-05

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Conc'n (pCi/g)	Intake	SF(e)	Risk	Total
CS-137	0.46	1.4E+00	2.0E-06	2.9E-06	2.9E-06
NP-237	0.80	2.5E+00	4.3E-07	1.1E-06	1.1E-06
PU-238	0.08	2.5E-01	2.8E-11	7.1E-12	7.5E-09
PU-239/240	0.02	6.4E-02	2.7E-11	1.7E-12	2.0E-09
RA-226	1.98	6.2E+00	1.2E-08	7.4E-08	1.7E-07
RA-228	2.24	7.0E+00	2.9E-06	2.0E-05	2.0E-05
SR-90	0.87	2.7E+00	0.0E+00	0.0E+00	1.3E-08
TH-228	2.71	8.4E+00	5.6E-06	4.7E-05	4.7E-05
TH-230	2.77	8.6E+00	5.4E-11	4.7E-10	1.7E-08
TH-232	2.33	7.3E+00	2.6E-11	1.9E-10	1.3E-08
U-234	8.65	2.7E+01	3.0E-11	8.1E-10	6.2E-08
U-235/236	0.42	1.3E+00	2.4E-07	3.1E-07	3.2E-07
U-238	8.87	2.8E+01	3.6E-08	9.9E-07	1.1E-06

Total Pathway: 7.3E-05

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	Total
Arsenic	3.3E-07	1.8E+00	6.0E-07	6.4E-05
Beryllium	2.2E-07	4.3E+02	9.6E-05	1.1E-04
Cadmium	3.1E-07			7.3E-10
Chromium	1.1E-06			1.8E-08
Lead	2.4E-06			
TH-TOTAL	0.0E+00			
U-TOTAL	2.6E-06			
2-Methylnaphthalene	4.7E-07			
Acenaphthylene	5.3E-06			
Carbazole	0.0E+00	2.0E-02	0.0E+00	1.1E-08
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00	2.0E-05
Dibenzofuran	7.4E-08			

Total Pathway: 9.7E-05

External Radiation/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 9.7E-05 7.3E-05 *Total:* 2.6E-04

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TABLE B.3.3-18(b) (continued)
FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT CHILD
INACTIVE FLYASH PILE: SURFACE SOIL

Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	3.2E-06	6.8E-03		
NP-237	5.6E-06	1.2E-02		
PU-238	5.7E-07	1.2E-03		
PU-239/240	1.5E-07	3.1E-04		
RA-226	1.4E-05	2.9E-02		
RA-228	1.6E-05	3.3E-02		
SR-90	6.1E-06	1.3E-02		
TH-228	1.9E-05	4.0E-02		
TH-230	1.9E-05	4.1E-02		
TH-232	1.6E-05	3.4E-02		
U-234	6.1E-05	1.3E-01		
U-235/236	2.9E-06	6.2E-03		
U-238	6.2E-05	1.3E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.46	1.9E+02		
NP-237	0.80	3.3E+02		
PU-238	0.08	3.4E+01		
PU-239/240	0.02	8.6E+00		
RA-226	1.98	8.3E+02		
RA-228	2.24	9.4E+02		
SR-90	0.87	3.7E+02		
TH-228	2.71	1.1E+03		
TH-230	2.77	1.2E+03		
TH-232	2.33	9.8E+02		
U-234	8.65	3.6E+03		
U-235/236	0.42	1.8E+02		
U-238	8.87	3.7E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	2.32E-07	1.5E-08		
Beryllium	1.59E-08	1.0E-09		
Cadmium	2.17E-08	1.4E-09		
Chromium	7.95E-08	5.1E-09		
Lead	1.68E-07	1.1E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	1.2E-08		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	2.3E-10		
Dibenzo(a,h)anthracene	1.54E-08	9.8E-10		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	33.20	4.2E-04	3.0E-04	1.4E+00
Beryllium	2.27	2.9E-05	5.0E-03	5.8E-03
Cadmium	3.10	4.0E-05	1.0E-03	4.0E-02
Chromium	11.36	1.5E-04	5.0E-03	2.9E-02
Lead	23.93	3.1E-04		
TH-TOTAL	21.40	2.7E-04		
U-TOTAL	26.20	3.4E-04	3.0E-03	1.1E-01
2-Methylnaphthalene	0.16	2.0E-06		
Acenaphthylene	1.80	2.3E-05		
Carbazole	0.51	6.5E-06		
Dibenzo(a,h)anthracene	2.20	2.8E-05		
Dibenzofuran	0.25	3.2E-06	4.0E-03	8.0E-04

Total Pathway: 1.6E+00

Total Rad + Chem 0.0E+00

Total Rad + Chem 1.6E+00

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CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	
Not applicable	
Total Pathway:	0.0E+00

External Radiation/Soil				
Compound	Conc'n (pCi/g)	Intake	RfD(e)	Hazard
CS-137	0.46	1.4E+00		
NP-237	0.80	2.5E+00		
PU-238	0.08	2.5E-01		
PU-239/24	0.02	6.4E-02		
RA-226	1.98	6.2E+00		
RA-228	2.24	7.0E+00		
SR-90	0.87	2.7E+00		
TH-228	2.71	8.4E+00		
TH-230	2.77	8.6E+00		
TH-232	2.33	7.3E+00		
U-234	8.65	2.7E+01		
U-235/236	0.42	1.3E+00		
U-238	8.87	2.8E+01		
Total Pathway:		0.0E+00		

Chemical Hazard

Dermal Contact/Soil			
Compound	Intake	RfD(derm)	Hazard
Arsenic	3.3E-07	2.9E-04	1.1E-03
Beryllium	2.2E-07	5.0E-05	4.5E-03
Cadmium	3.1E-07	5.0E-05	6.1E-03
Chromium	1.1E-06	2.3E-03	5.0E-04
Lead	2.4E-06		
TH-TOTAL	0.0E+00		
U-TOTAL	2.6E-06	1.5E-04	1.7E-02
2-Methylnaphthalene	4.7E-07		
Acenaphthylene	5.3E-06		
Carbazole	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00		
Dibenzofuran	7.4E-08	4.0E-03	1.8E-05
Total Pathway:			2.9E-02

External Radiation/Soil				
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Not applicable				
Total Pathway:				0.0E+00

Total
1.4E+00
1.0E-02
4.6E-02
3.0E-02
1.3E-01
8.2E-04

Total Rad + Chem 2.9E-02 0.0E+00 *Total:* 1.6E+00

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TABLE B.3.3-19(a)
FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER
INACTIVE FLYASH PILE: GROUNDWATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.031	1.5E+03	2.2E-10	3.3E-07	Not applicable
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	1.1E-02	5.5E+02	3.60E-11	2.0E-08	
TC-99	1.8E+00	8.9E+04	1.3E-12	1.2E-07	
U234	469	2.3E+07	1.6E-11	3.7E-04	
U235/236	25	1.2E+06	1.6E-11	2.0E-05	
U238	517	2.5E+07	2.8E-11	7.1E-04	
			Total Pathway:	1.1E-03	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	1.6E-05			Cadmium	5.9E-05		
Lead	1.4E-03	3.9E-05			Lead	1.5E-04		
Mercury	0.0E+00	0.0E+00			Mercury	0.0E+00		
Molybdenum	5.6E-03	1.5E-04			Molybdenum	5.7E-04		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.84	5.0E-02			U-Total	1.9E-01		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	1.1E-03			Total Rad + Chem	0.0E+00

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CARCINOGENIC RISK

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		3.3E-07
		0.0E+00
		0.0E+00
		2.0E-08
		1.2E-07
		3.7E-04
		2.0E-05
		7.1E-04
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	1.1E-07			
Lead	1.1E-09			
Mercury	0.0E+00			
Molybdenum	1.1E-06			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	3.7E-04			
		Total Pathway:	0.0E+00	

Total Rad + Chem	0.0E+00	*Total:*	1.1E-03

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater				
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	0.0	1.5E+03		
RA-226	0.0	0.0E+00		
RA-228	0.0	0.0E+00		
SR-90	0.0	5.5E+02		
TC-99	1.8	8.9E+04		
U234	469.0	2.3E+07		
U235/236	25.0	1.2E+06		
U238	517.0	2.5E+07		
			Total Pathway:	0.0E+00

Inhalation/Groundwater
Not applicable
Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	5.7E-04	1.6E-05	5.0E-04	3.1E-02
Lead	1.4E-03	3.9E-05		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Molybdenum	5.6E-03	1.5E-04	5.0E-03	3.1E-02
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		
U-Total	1.8E+00	5.0E-02	3.00E-03	1.7E+01
			Total Pathway:	1.7E+01

Inhalation/Groundwater			
Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	5.9E-05		
Lead	1.5E-04		
Mercury	0.0E+00		
Molybdenum	5.7E-04		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.9E-01		
Total Pathway: 0.0E+00			

Total Rad + Chem 1.7E+01

Total Rad + Chem 0.0E+00

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TABLE B.3.3-19(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	1.1E-07	2.5E-05	4.6E-03	3.6E-02
Lead	4.00E-06	1.1E-09			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	1.1E-06	1.9E-03	5.9E-04	3.1E-02
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	3.7E-04	1.5E-04	2.4E+00	19.3
			Total Pathway:	2.5E+00	

Total Rad + Chem 2.5E+00 *Total:* 19.3

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TABLE B.3.3-19(b)

FUTURE, ON-PROPERTY (SOUTH FIELD) CHILD

INACTIVE FLYASH PILE: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.031	6.5E+01	2.2E-10	1.4E-08	Not applicable
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	1.1E-02	2.4E+01	3.60E-11	8.5E-10	
TC-99	1.8E+00	3.8E+03	1.3E-12	5.0E-09	
U234	469	9.8E+05	1.6E-11	1.6E-05	
U235/236	25	5.3E+04	1.6E-11	8.4E-07	
U238	517	1.1E+06	2.8E-11	3.0E-05	
			Total Pathway:	4.7E-05	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	3.1E-06			Cadmium	2.4E-05		
Lead	1.4E-03	7.8E-06			Lead	5.9E-05		
Mercury	0.0E+00	0.0E+00			Mercury	0.0E+00		
Molybdenum	5.6E-03	3.1E-05			Molybdenum	2.3E-04		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.84	1.0E-02			U-Total	7.6E-02		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	4.7E-05			Total Rad + Chem	0.0E+00

TABLE B.3.3-19(b) (continued)

CARCINOGENIC RISK

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		1.4E-08
		0.0E+00
		0.0E+00
		8.5E-10
		5.0E-09
		1.6E-05
		8.4E-07
		3.0E-05
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	1.6E-08			
Lead	1.6E-10			
Mercury	0.0E+00			
Molybdenum	1.6E-07			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	5.1E-05			
		Total Pathway:	0.0E+00	

Total Rad + Chem	0.0E+00	*Total:*	4.7E-05

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NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	3.1E-02	6.5E+01			Not applicable
RA-226	0.0	0.0E+00			
RA-228	0.0	0.0E+00			
SR-90	1.1E-02	2.4E+01			
TC-99	1.8	3.8E+03			
U234	469.0	9.8E+05			
U235/236	25.0	5.3E+04			
U238	517.0	1.1E+06			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Cadmium	5.7E-04	3.7E-05	5.0E-04	7.3E-02	Cadmium	2.7E-04		
Lead	1.4E-03	9.1E-05			Lead	6.9E-04		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Mercury	0.0E+00		
Molybdenum	5.6E-03	3.6E-04	5.0E-03	7.1E-02	Molybdenum	2.7E-03		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.8E+00	1.2E-01	3.00E-03	3.9E+01	U-Total	8.8E-01		
			Total Pathway:	3.9E+01			Total Pathway:	0.0E+00
			Total Rad + Chem	3.9E+01			Total Rad + Chem	0.0E+00

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TABLE B.3.3-19(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	1.9E-07	2.5E-05	7.4E-03	8.1E-02
Lead	4.00E-06	1.9E-09			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	1.8E-06	1.9E-03	9.5E-04	7.2E-02
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	6.0E-04	1.5E-04	4.0E+00	43.2
			Total Pathway:	4.0E+00	

Total Rad + Chem 4.0E+00 *Total:* 43.3

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TABLE B.3.3-20(a)

FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.53E-03	2.3E+00	2.8E-11	6.4E-11	6.4E-11
NP-237	2.66E-03	4.0E+00	2.2E-10	8.8E-10	8.8E-10
PU-238	2.62E-04	3.9E-01	2.2E-10	8.6E-11	8.6E-11
PU-239/240	6.80E-05	1.0E-01	2.3E-10	2.3E-11	2.3E-11
RA-226	6.43E-03	9.6E+00	1.2E-10	1.2E-09	1.2E-09
RA-228	7.29E-03	1.1E+01	1.0E-10	1.1E-09	1.1E-09
SR-90	3.64E-03	5.4E+00	3.6E-11	2.0E-10	2.0E-10
TH-228	8.79E-03	1.3E+01	5.5E-11	7.2E-10	7.2E-10
TH-230	8.97E-03	1.3E+01	1.3E-11	1.7E-10	1.7E-10
TH-232	7.54E-03	1.1E+01	1.2E-11	1.4E-10	1.4E-10
U-234	2.81E-02	4.2E+01	1.6E-11	6.7E-10	6.7E-10
U-235/236	1.37E-03	2.0E+00	1.6E-11	3.3E-11	3.3E-11
U-238	2.88E-02	4.3E+01	2.8E-11	1.2E-09	1.2E-09
			Total Pathway:	6.4E-09	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	1.09E-04	9.1E-08	1.8E+00	1.6E-07	1.6E-07
Beryllium	7.39E-06	6.2E-09	4.3E+00	2.7E-08	2.7E-08
Cadmium	1.18E-05	9.9E-09			
Chromium	3.69E-05	3.1E-08			
Lead	7.86E-05	6.6E-08			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	8.51E-05	7.1E-08			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	1.9E-07	

Total Rad + Chem	1.9E-07	*Total:*	1.9E-07

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INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	1.5E-03				
NP-237	2.7E-03				
PU-238	2.6E-04				
PU-239/240	6.8E-05				
RA-226	6.4E-03				
RA-228	7.3E-03				
SR-90	3.6E-03				
TH-228	8.8E-03				
TH-230	9.0E-03				
TH-232	7.5E-03				
U-234	2.8E-02				
U-235/236	1.4E-03				
U-238	2.9E-02				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	1.1E-04	9.1E-08	3.0E-04	3.0E-04	3.0E-04
Beryllium	7.4E-06	6.2E-09	5.0E-03	1.2E-06	1.2E-06
Cadmium	1.2E-05	9.9E-09	1.0E-03	9.9E-06	9.9E-06
Chromium	3.7E-05	3.1E-08	5.0E-03	6.2E-06	6.2E-06
Lead	7.9E-05	6.6E-08			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	8.5E-05	7.1E-08	3.0E-03	2.4E-05	2.4E-05
2-Methylnaphthalene	0.0E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			
			Total Pathway:	3.5E-04	

Total Rad + Chem 3.5E-04 *Total:* 3.5E-04

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	6.4E-11
NP-237	1.58E-01	2.4E+02	2.2E-10	5.2E-08	5.2E-08	5.3E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	8.6E-11
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	2.3E-11
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.2E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.1E-09
SR-90	7.49E-02	1.1E+02	3.6E-11	4.0E-09	4.0E-09	4.2E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	7.2E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.7E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.4E-10
U-234	2.30E+03	3.4E+06	1.6E-11	5.5E-05	5.5E-05	5.5E-05
U-235/236	1.23E+02	1.8E+05	1.6E-11	2.9E-06	2.9E-06	2.9E-06
U-238	2.54E+03	3.8E+06	2.8E-11	1.1E-04	1.1E-04	1.1E-04
			Total Pathway:	1.6E-04		

Chemical Risk

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.6E-07
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.7E-08
Cadmium	3.44E-03	2.9E-06				
Chromium	0.00E+00	0.0E+00				
Lead	7.13E-03	6.0E-06				
Molybdenum	3.02E-02	2.5E-05				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	9.03E+00	7.5E-03				
2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00				
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00		

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TABLE B.3.3-20(a) (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00					
NP-237	1.6E-01					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	7.5E-02					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	2.3E+03					
U-235/236	1.2E+02					
U-238	2.5E+03					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	3.0E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.2E-06
Cadmium	3.4E-03	2.9E-06	1.0E-03	2.9E-03	2.9E-03	2.9E-03
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	6.2E-06
Lead	7.1E-03	6.0E-06				
Molybdenum	3.0E-02	2.5E-05	5.0E-03	5.0E-03	5.0E-03	5.0E-03
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	9.0E+00	7.5E-03	3.0E-03	2.5E+00	2.5E+00	2.5E+00
2-Methylnaphthalene	0.0E+00	0.0E+00				
Acenaphthylene	0.0E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00				
			Total Pathway:	2.5E+00		

Total Rad + Chem	2.5E+00	*Total:* 2.5E+00	2.5E+00

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TABLE B.3.1-21(a)

FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.79E-03	3.3E+00	2.8E-11	9.2E-11	CS-137	6.27E-04	4.6E+00	2.8E-11	1.3E-10	2.2E-10
NP-237	8.44E-06	1.6E-02	2.2E-10	3.4E-12	NP-237	7.67E-07	5.6E-03	2.2E-10	1.2E-12	4.7E-12
PU-238	7.75E-09	1.4E-05	2.2E-10	3.1E-15	PU-238	1.55E-09	1.1E-05	2.2E-10	2.5E-15	5.6E-15
PU-239/240	2.01E-09	3.7E-06	2.3E-10	8.5E-16	PU-239/240	4.03E-10	3.0E-06	2.3E-10	6.8E-16	1.5E-15
RA-226	9.47E-05	1.7E-01	1.2E-10	2.1E-11	RA-226	1.70E-04	1.3E+00	1.2E-10	1.5E-10	1.7E-10
RA-228	1.04E-04	1.9E-01	1.0E-10	1.9E-11	RA-228	1.87E-04	1.4E+00	1.0E-10	1.4E-10	1.6E-10
SR-90	5.20E-05	9.6E-02	3.6E-11	3.4E-12	SR-90	2.60E-04	1.9E+00	3.6E-11	6.9E-11	7.2E-11
TH-228	2.83E-06	5.2E-03	5.5E-11	2.9E-13	TH-228	2.35E-06	1.7E-02	5.5E-11	9.5E-13	1.2E-12
TH-230	3.19E-06	5.9E-03	1.3E-11	7.6E-14	TH-230	2.65E-06	2.0E-02	1.3E-11	2.5E-13	3.3E-13
TH-232	2.68E-06	4.9E-03	1.2E-11	5.9E-14	TH-232	2.23E-06	1.6E-02	1.2E-11	2.0E-13	2.6E-13
U-234	3.33E-04	6.1E-01	1.6E-11	9.8E-12	U-234	9.98E-04	7.3E+00	1.6E-11	1.2E-10	1.3E-10
U-235/236	1.62E-05	3.0E-02	1.6E-11	4.8E-13	U-235/236	4.86E-05	3.6E-01	1.6E-11	5.7E-12	6.2E-12
U-238	3.41E-04	6.3E-01	2.8E-11	1.8E-11	U-238	1.02E-03	7.5E+00	2.8E-11	2.1E-10	2.3E-10
			Total Pathway:	1.7E-10				Total Pathway:	8.2E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.27E-05	1.3E-08	1.8E+00	2.3E-08	Arsenic	3.81E-07	1.6E-09	1.8E+00	2.7E-09	2.6E-08
Beryllium	4.36E-07	4.5E-10	4.3E+00	1.9E-09	Beryllium	3.92E-10	1.6E-12	4.3E+00	6.9E-12	1.9E-09
Cadmium	3.56E-06	3.7E-09			Cadmium	6.47E-07	2.7E-09			
Chromium	1.20E-05	1.2E-08			Chromium	3.27E-06	1.3E-08			
Lead	1.38E-06	1.4E-09			Lead	1.15E-06	4.7E-09			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.01E-06	1.0E-09			U-TOTAL	3.02E-06	1.2E-08			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	2.5E-08				Total Pathway:	2.8E-09	

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Total Rad + Chem 2.5E-08

Total Rad + Chem 3.6E-09 *Total:* 2.9E-08

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TABLE B.3.1-21(a) (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	1.8E-03			
NP-237	8.4E-06			
PU-238	7.7E-09			
PU-239/240	2.0E-09			
RA-226	9.5E-05			
RA-228	1.0E-04			
SR-90	5.2E-05			
TH-228	2.8E-06			
TH-230	3.2E-06			
TH-232	2.7E-06			
U-234	3.3E-04			
U-235/236	1.6E-05			
U-238	3.4E-04			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	6.27E-04			
NP-237	7.67E-07			
PU-238	1.55E-09			
PU-239/240	4.03E-10			
RA-226	1.70E-04			
RA-228	1.87E-04			
SR-90	2.60E-04			
TH-228	2.35E-06			
TH-230	2.65E-06			
TH-232	2.23E-06			
U-234	9.98E-04			
U-235/236	4.86E-05			
U-238	1.02E-03			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.3E-05	1.3E-08	3.0E-04	4.4E-05
Beryllium	4.4E-07	4.5E-10	5.0E-03	9.0E-08
Cadmium	3.6E-06	3.7E-09	1.0E-03	3.7E-06
Chromium	1.2E-05	1.2E-08	5.0E-03	2.5E-06
Lead	1.4E-06	1.4E-09		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.0E-06	1.0E-09	3.0E-03	3.4E-07
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00		

Total Pathway: 5.0E-05

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	3.81E-07	1.6E-09	3.0E-04	5.2E-06
Beryllium	3.92E-10	1.6E-12	5.0E-03	3.2E-10
Cadmium	6.47E-07	2.7E-09	1.0E-03	2.7E-06
Chromium	3.27E-06	1.3E-08	5.0E-03	2.7E-06
Lead	1.15E-06	4.7E-09		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.02E-06	1.2E-08	3.0E-03	4.1E-06
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00

Total Pathway: 1.5E-05

Total
4.9E-05
9.0E-08
6.3E-06
5.2E-06
0.0E+00
4.5E-06
0.0E+00

Total Rad + Chem 5.0E-05

Total Rad + Chem 1.5E-05 *Total:* 6.5E-05

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TABLE B.3.3-21(b)

FUTURE ON-PROPERTY (SOUTH FIELD) CHILD

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.79E-03	1.1E-01	2.8E-11	3.1E-12	CS-137	6.27E-04	9.0E-01	2.8E-11	2.5E-11	2.8E-11
NP-237	8.44E-06	5.1E-04	2.2E-10	1.1E-13	NP-237	7.67E-07	1.1E-03	2.2E-10	2.4E-13	3.5E-13
PU-238	7.75E-09	4.7E-07	2.2E-10	1.0E-16	PU-238	1.55E-09	2.2E-06	2.2E-10	4.9E-16	5.9E-16
PU-239/240	2.01E-09	1.2E-07	2.3E-10	2.8E-17	PU-239/240	4.03E-10	5.7E-07	2.3E-10	1.3E-16	1.6E-16
RA-226	9.47E-05	5.8E-03	1.2E-10	6.9E-13	RA-226	1.70E-04	2.4E-01	1.2E-10	2.9E-11	3.0E-11
RA-228	1.04E-04	6.3E-03	1.0E-10	6.3E-13	RA-228	1.87E-04	2.7E-01	1.0E-10	2.7E-11	2.7E-11
SR-90	5.20E-05	3.2E-03	3.6E-11	1.1E-13	SR-90	2.60E-04	3.7E-01	3.6E-11	1.3E-11	1.3E-11
TH-228	2.83E-06	1.7E-04	5.5E-11	9.5E-15	TH-228	2.35E-06	3.4E-03	5.5E-11	1.8E-13	1.9E-13
TH-230	3.19E-06	1.9E-04	1.3E-11	2.5E-15	TH-230	2.65E-06	3.8E-03	1.3E-11	4.9E-14	5.2E-14
TH-232	2.68E-06	1.6E-04	1.2E-11	2.0E-15	TH-232	2.23E-06	3.2E-03	1.2E-11	3.8E-14	4.0E-14
U-234	3.33E-04	2.0E-02	1.6E-11	3.2E-13	U-234	9.98E-04	1.4E+00	1.6E-11	2.3E-11	2.3E-11
U-235/236	1.62E-05	9.9E-04	1.6E-11	1.6E-14	U-235/236	4.86E-05	6.9E-02	1.6E-11	1.1E-12	1.1E-12
U-238	3.41E-04	2.1E-02	2.8E-11	5.8E-13	U-238	1.02E-03	1.5E+00	2.8E-11	4.1E-11	4.1E-11
			Total Pathway:	5.5E-12				Total Pathway:	1.6E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.27E-05	2.0E-09	1.8E+00	3.5E-09	Arsenic	3.81E-07	1.4E-09	1.8E+00	2.5E-09	6.0E-09
Beryllium	4.36E-07	6.9E-11	4.3E+00	3.0E-10	Beryllium	3.92E-10	1.5E-12	4.3E+00	6.3E-12	3.0E-10
Cadmium	3.56E-06	5.7E-10			Cadmium	6.47E-07	2.4E-09			
Chromium	1.20E-05	1.9E-09			Chromium	3.27E-06	1.2E-08			
Lead	1.38E-06	2.2E-10			Lead	1.15E-06	4.3E-09			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.01E-06	1.6E-10			U-TOTAL	3.02E-06	1.1E-08			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracen	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofura	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	3.8E-09				Total Pathway:	2.5E-09	

Total Rad + Chem 3.8E-09 | Total Rad + Chem 2.7E-09 | *Total:* 6.5E-09

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TABLE B.3.3-21(b) (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	1.50E-02	9.1E-01	2.2E-10	2.0E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	3.97E-04	2.4E-02	1.2E-10	2.9E-12
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	4.78E-03	2.9E-01	3.6E-11	1.0E-11
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	1.68E+01	1.0E+03	1.6E-11	1.6E-08
U-235/236	8.95E-01	5.4E+01	1.6E-11	8.7E-10
U-238	1.85E+01	1.1E+03	2.8E-11	3.2E-08

Total Pathway: 4.9E-08

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	1.37E-03	1.9E+00	2.2E-10	4.3E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	7.15E-04	1.0E+00	1.2E-10	1.2E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	2.39E-02	3.4E+01	3.6E-11	1.2E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	5.03E+01	7.2E+04	1.6E-11	1.2E-06
U-235/236	2.68E+00	3.8E+03	1.6E-11	6.1E-08
U-238	5.55E+01	7.9E+04	2.8E-11	2.2E-06

Total Pathway: 3.4E-06

Total	Total Dust & Groundwater Affected
0.0E+00	2.8E-11
6.3E-10	6.3E-10
0.0E+00	5.9E-16
0.0E+00	1.6E-16
1.3E-10	1.6E-10
0.0E+00	2.7E-11
1.2E-09	1.3E-09
0.0E+00	1.9E-13
0.0E+00	5.2E-14
0.0E+00	4.0E-14
1.2E-06	1.2E-06
6.2E-08	6.2E-08
2.3E-06	2.3E-06

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	8.10E-04	1.3E-07		
Chromium	0.00E+00	0.0E+00		
Lead	2.62E-04	4.2E-08		
Molybdenum	6.22E-03	9.9E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	6.58E-02	1.0E-05		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Tetrachlorodibenzofura	0.00E+00	0.0E+00	1.5E+04	0.0E+00

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	1.47E-04	5.5E-07		
Chromium	0.00E+00	0.0E+00		
Lead	2.18E-04	8.1E-07		
Molybdenum	1.56E-03	5.8E-06		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.98E-01	7.4E-04		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+04	0.0E+00

Total Pathway: 0.0E+00

Total	Total Dust & Groundwater Affected
0.0E+00	6.0E-09
0.0E+00	3.0E-10
0.0E+00	0.0E+00
0.0E+00	0.0E+00
0.0E+00	0.0E+00

Total Rad + Chem 4.9E-08

Total Rad + Chem 3.4E-06

Total:	3.5E-06	3.5E-06

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TABLE B.3.3-21(b) (continued)

FUTURE ON-PROPERTY (SOUTH FIELD) CHILD

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	1.8E-03	1.1E-01		
NP-237	8.4E-06	5.1E-04		
PU-238	7.7E-09	4.7E-07		
PU-239/240	2.0E-09	1.2E-07		
RA-226	9.5E-05	5.8E-03		
RA-228	1.0E-04	6.3E-03		
SR-90	5.2E-05	3.2E-03		
TH-228	2.8E-06	1.7E-04		
TH-230	3.2E-06	1.9E-04		
TH-232	2.7E-06	1.6E-04		
U-234	3.3E-04	2.0E-02		
U-235/236	1.6E-05	9.9E-04		
U-238	3.4E-04	2.1E-02		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard
CS-137	6.27E-04	9.0E-01		
NP-237	7.67E-07	1.1E-03		
PU-238	1.55E-09	2.2E-06		
PU-239/240	4.03E-10	5.7E-07		
RA-226	1.70E-04	2.4E-01		
RA-228	1.87E-04	2.7E-01		
SR-90	2.60E-04	3.7E-01		
TH-228	2.35E-06	3.4E-03		
TH-230	2.65E-06	3.8E-03		
TH-232	2.23E-06	3.2E-03		
U-234	9.98E-04	1.4E+00		
U-235/236	4.86E-05	6.9E-02		
U-238	1.02E-03	1.5E+00		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.3E-05	2.4E-08	3.0E-04	7.9E-05
Beryllium	4.4E-07	8.1E-10	5.0E-03	1.6E-07
Cadmium	3.6E-06	6.6E-09	1.0E-03	6.6E-06
Chromium	1.2E-05	2.2E-08	5.0E-03	4.4E-06
Lead	1.4E-06	2.6E-09		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.0E-06	1.9E-09	3.0E-03	6.2E-07
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00		

Total Pathway: 9.0E-05

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard
Arsenic	3.81E-07	1.7E-08	3.0E-04	5.5E-05
Beryllium	3.92E-10	1.7E-11	5.0E-03	3.4E-09
Cadmium	6.47E-07	2.8E-08	1.0E-03	2.8E-05
Chromium	3.27E-06	1.4E-07	5.0E-03	2.8E-05
Lead	1.15E-06	5.0E-08		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.02E-06	1.3E-07	3.0E-03	4.4E-05
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.00E+00	0.0E+00		

Total Pathway: 1.6E-04

Total
1.3E-04
1.7E-07
3.5E-05
3.3E-05
0.0E+00
4.4E-05
0.0E+00

Total Rad + Chem 9.0E-05

Total Rad + Chem 1.6E-04 *Total:* 2.5E-04

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TABLE B.3.3-21(b) (continued)

FUTURE ON-PROPERTY (SOUTH FIELD) CHILD

INACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk				
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Hazard
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00	0.0E+00		
NP-237	1.5E-02	9.1E-01			NP-237	1.37E-03	1.9E+00		
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00		
PU-239/240	0.0E+00	0.0E+00			PU-239/240	0.00E+00	0.0E+00		
RA-226	4.0E-04	2.4E-02			RA-226	7.15E-04	1.0E+00		
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00	0.0E+00		
SR-90	4.8E-03	2.9E-01			SR-90	2.39E-02	3.4E+01		
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00	0.0E+00		
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00	0.0E+00		
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00	0.0E+00		
U-234	1.7E+01	1.0E+03			U-234	5.03E+01	7.2E+04		
U-235/236	8.9E-01	5.4E+01			U-235/236	2.68E+00	3.8E+03		
U-238	1.9E+01	1.1E+03			U-238	5.55E+01	7.9E+04		
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00

Chemical Hazard

Ingestion/Beef					Ingestion/Milk						Total Dust & Groundwater
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard	Total	Affected
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.3E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.7E-07
Cadmium	8.1E-04	1.5E-06	1.0E-03	1.5E-03	Cadmium	1.47E-04	6.4E-06	1.0E-03	6.4E-03	7.9E-03	7.9E-03
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.3E-05
Lead	2.6E-04	4.9E-07			Lead	2.18E-04	9.5E-06				
Molybdenum	6.2E-03	1.2E-05	5.0E-03	2.3E-03	Molybdenum	1.56E-03	6.8E-05	5.0E-03	1.4E-02	1.6E-02	1.6E-02
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	6.6E-02	1.2E-04	3.0E-03	4.1E-02	U-TOTAL	1.98E-01	8.6E-03	3.0E-03	2.9E+00	2.9E+00	2.9E+00
2-Methylnaphthalene	0.0E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00			Carbazole	0.00E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.00E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00			Tetrachlorodibenzofura	0.00E+00	0.0E+00				
		Total Pathway:		4.4E-02			Total Pathway:		2.9E+00		
		Total Rad + Chem		4.4E-02			Total Rad + Chem		2.9E+00	*Total:* 2.9E+00	2.9E+00

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TABLE B.3.3-22
FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT FARMER (CT VALUES)
INACTIVE FLYASH PILE: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	3.2E-06	2.8E-02	1.9E-11	5.3E-13
NP-237	5.6E-06	4.8E-02	2.9E-08	1.4E-09
PU-238	5.7E-07	4.9E-03	3.9E-08	1.9E-10
PU-239/240	1.5E-07	1.3E-03	3.8E-08	4.8E-11
RA-226	1.4E-05	1.2E-01	3.0E-09	3.6E-10
RA-228	1.6E-05	1.4E-01	6.6E-10	8.9E-11
SR-90	6.1E-06	5.3E-02	6.2E-11	3.3E-12
TH-228	1.9E-05	1.6E-01	7.8E-08	1.3E-08
TH-230	1.9E-05	1.7E-01	2.9E-08	4.9E-09
TH-232	1.6E-05	1.4E-01	2.8E-08	3.9E-09
U-234	6.1E-05	5.2E-01	2.6E-08	1.4E-08
U-235/236	2.9E-06	2.5E-02	2.5E-08	6.3E-10
U-238	6.2E-05	5.4E-01	5.2E-08	2.8E-08

Total Pathway: 6.6E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.46	1.4E+02	2.8E-11	3.9E-09
NP-237	0.80	2.4E+02	2.2E-10	5.3E-08
PU-238	0.08	2.4E+01	2.2E-10	5.4E-09
PU-239/240	0.02	6.2E+00	2.3E-10	1.4E-09
RA-226	1.98	6.0E+02	1.2E-10	7.2E-08
RA-228	2.24	6.8E+02	1.0E-10	6.8E-08
SR-90	0.87	2.6E+02	3.6E-11	9.5E-09
TH-228	2.7	8.2E+02	5.5E-11	4.5E-08
TH-230	2.77	8.4E+02	1.3E-11	1.1E-08
TH-232	2.33	7.0E+02	1.2E-11	8.4E-09
U-234	8.65	2.6E+03	1.6E-11	4.2E-08
U-235/236	0.42	1.3E+02	1.6E-11	2.0E-09
U-238	8.87	2.7E+03	2.8E-11	7.5E-08

Total Pathway: 4.0E-07

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk
Arsenic	2.3E-07	1.1E-09	1.5E+01	1.7E-08
Beryllium	1.6E-08	7.7E-11	8.4E+00	6.4E-10
Cadmium	2.2E-08	1.0E-10	6.1E+00	6.4E-10
Chromium	8.0E-08	3.8E-10	4.1E+01	1.6E-08
Lead	1.7E-07	8.1E-10		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	1.8E-07	8.8E-10		
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	3.6E-09	1.7E-11		
Dibenzo(a,h)anthracene	1.5E-08	7.4E-11	6.8E+00	5.1E-10
Dibenzofuran	0.0E+00	0.0E+00		

Total Pathway: 3.4E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	33.20	5.6E-06	1.8E+00	9.8E-06
Beryllium	2.27	3.8E-07	4.3E+00	1.7E-06
Cadmium	3.10	5.2E-07		
Chromium	11.36	1.9E-06		
Lead	23.93	4.0E-06		
TH-TOTAL	21.40	3.6E-06		
U-TOTAL	26.20	4.4E-06		
2-Methylnaphthalene	0.16	2.7E-08		
Acenaphthylene	1.80	3.0E-07		
Carbazole	0.51	8.6E-08	2.0E-02	1.7E-09
Dibenzo(a,h)anthracene	2.20	3.7E-07	8.1E+00	3.0E-06
Dibenzofuran	0.25	4.2E-08		

Total Pathway: 1.4E-05

Total Rad + Chem 1.0E-07

Total Rad + Chem 1.5E-05

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TABLE B.3.3-22 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Conc'n (pCi/g)	Intake	SF(e)	Risk	Total
CS-137	0.46	1.8E+00	2.0E-06	3.7E-06	3.7E-06
NP-237	0.80	3.2E+00	4.3E-07	1.4E-06	1.4E-06
PU-238	0.08	3.2E-01	2.8E-11	9.0E-12	5.6E-09
PU-239/240	0.02	8.2E-02	2.7E-11	2.2E-12	1.5E-09
RA-226	1.98	7.9E+00	1.2E-08	9.4E-08	1.7E-07
RA-228	2.24	8.9E+00	2.9E-06	2.6E-05	2.6E-05
SR-90	0.87	3.5E+00	0.0E+00	0.0E+00	9.5E-09
TH-228	2.71	1.1E+01	5.6E-06	6.0E-05	6.1E-05
TH-230	2.77	1.1E+01	5.4E-11	6.0E-10	1.6E-08
TH-232	2.33	9.3E+00	2.6E-11	2.4E-10	1.3E-08
U-234	8.65	3.4E+01	3.0E-11	1.0E-09	5.6E-08
U-235/236	0.42	1.7E+00	2.4E-07	4.0E-07	4.0E-07
U-238	8.87	3.5E+01	3.6E-08	1.3E-06	1.4E-06

Total Pathway: 9.3E-05

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	Total
Arsenic	2.3E-07	1.8E+00	4.2E-07	1.0E-05
Beryllium	1.6E-07	4.3E+02	6.8E-05	6.9E-05
Cadmium	2.1E-07			6.4E-10
Chromium	7.9E-07			1.6E-08
Lead	1.7E-06			
TH-TOTAL	0.0E+00			
U-TOTAL	1.8E-06			
2-Methylnaphthalene	3.3E-07			
Acenaphthylene	3.7E-06			
Carbazole	0.0E+00	2.0E-02	0.0E+00	1.7E-09
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00	3.0E-06
Dibenzofuran	5.2E-08			

Total Pathway: 6.8E-05

External Radiation/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 6.8E-05

9.3E-05 *Total:* 1.8E-04

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TABLE B.3.3-22 (continued)

Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	3.2E-06	2.8E-02		
NP-237	5.6E-06	4.8E-02		
PU-238	5.7E-07	4.9E-03		
PU-239/240	1.5E-07	1.3E-03		
RA-226	1.4E-05	1.2E-01		
RA-228	1.6E-05	1.4E-01		
SR-90	6.1E-06	5.3E-02		
TH-228	1.9E-05	1.6E-01		
TH-230	1.9E-05	1.7E-01		
TH-232	1.6E-05	1.4E-01		
U-234	6.1E-05	5.2E-01		
U-235/236	2.9E-06	2.5E-02		
U-238	6.2E-05	5.4E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.46	1.4E+02		
NP-237	0.80	2.4E+02		
PU-238	0.08	2.4E+01		
PU-239/240	0.02	6.2E+00		
RA-226	1.98	6.0E+02		
RA-228	2.24	6.8E+02		
SR-90	0.87	2.6E+02		
TH-228	2.71	8.2E+02		
TH-230	2.77	8.4E+02		
TH-232	2.33	7.0E+02		
U-234	8.65	2.6E+03		
U-235/236	0.42	1.3E+02		
U-238	8.87	2.7E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	2.32E-07	8.7E-09		
Beryllium	1.59E-08	6.0E-10		
Cadmium	2.17E-08	8.1E-10		
Chromium	7.95E-08	3.0E-09		
Lead	1.68E-07	6.3E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.83E-07	6.9E-09		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	3.57E-09	1.3E-10		
Dibenzo(a,h)anthracene	1.54E-08	5.8E-10		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	33.20	4.4E-05	3.0E-04	1.5E-01
Beryllium	2.27	3.0E-06	5.0E-03	6.0E-04
Cadmium	3.10	4.1E-06	1.0E-03	4.1E-03
Chromium	11.36	1.5E-05	5.0E-03	3.0E-03
Lead	23.93	3.1E-05		
TH-TOTAL	21.40	2.8E-05		
U-TOTAL	26.20	3.4E-05	3.0E-03	1.1E-02
2-Methylnaphthalene	0.16	2.1E-07		
Acenaphthylene	1.80	2.4E-06		
Carbazole	0.51	6.7E-07		
Dibenzo(a,h)anthracene	2.20	2.9E-06		
Dibenzofuran	0.25	3.3E-07	4.0E-03	8.2E-05

Total Pathway: 1.6E-01

Total Rad + Chem 0.0E+00

Total Rad + Chem 1.6E-01

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CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(e)	Hazard
CS-137	0.46	1.8E+00		
NP-237	0.80	3.2E+00		
PU-238	0.08	3.2E-01		
PU-239/24	0.02	8.2E-02		
RA-226	1.98	7.9E+00		
RA-228	2.24	8.9E+00		
SR-90	0.87	3.5E+00		
TH-228	2.71	1.1E+01		
TH-230	2.77	1.1E+01		
TH-232	2.33	9.3E+00		
U-234	8.65	3.4E+01		
U-235/236	0.42	1.7E+00		
U-238	8.87	3.5E+01		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm)	Hazard
Arsenic	2.3E-07	2.9E-04	8.1E-04
Beryllium	1.6E-07	5.0E-05	3.1E-03
Cadmium	2.1E-07	5.0E-05	4.3E-03
Chromium	7.9E-07	2.3E-03	3.5E-04
Lead	1.7E-06		
TH-TOTAL	0.0E+00		
U-TOTAL	1.8E-06	1.5E-04	1.2E-02
2-Methylnaphthalene	3.3E-07		
Acenaphthylene	3.7E-06		
Carbazole	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00		
Dibenzofuran	5.2E-08	4.0E-03	1.3E-05

Total Pathway: 2.1E-02

External Radiation/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard

Not applicable

Total Pathway: 0.0E+00

Total
1.5E-01
3.7E-03
8.4E-03
3.3E-03
2.4E-02
9.5E-05
0.0E+00

Total Rad + Chem 2.1E-02

Total: 1.9E-01

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TABLE B.3.3-23

FUTURE, ON-PROPERTY FARMER

INACTIVE FLYASH PILE: GROUNDWATER (CT VALUES)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk
NP-237	0.031	1.1E+02	2.2E-10	2.4E-08
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	1.1E-02	3.9E+01	3.60E-11	1.4E-09
TC-99	1.8E+00	6.3E+03	1.3E-12	8.2E-09
U234	469	1.6E+06	1.6E-11	2.6E-05
U235/236	25	8.7E+04	1.6E-11	1.4E-06
U238	517	1.8E+06	2.8E-11	5.0E-05

Total Pathway: 7.8E-05

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	5.7E-04	1.1E-06		
Lead	1.4E-03	2.8E-06		
Mercury	0.0E+00	0.0E+00		
Molybdenum	5.6E-03	1.1E-05		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00
U-Total	1.84	3.6E-03		

Total Pathway: 0.0E+00

Inhalation/Groundwater

Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	5.9E-06		
Lead	1.5E-05		
Mercury	0.0E+00		
Molybdenum	5.8E-05		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.9E-02		

Total Pathway: 0.0E+00

Total Rad + Chem 7.8E-05

Total Rad + Chem 0.0E+00

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CARCINOGENIC RISK

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		2.4E-08
		0.0E+00
		0.0E+00
		1.4E-09
		8.2E-09
		2.6E-05
		1.4E-06
		5.0E-05
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	1.0E-08			
Lead	1.0E-10			
Mercury	0.0E+00			
Molybdenum	9.8E-08			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	3.2E-05			
		Total Pathway:	0.0E+00	

Total Rad + Chem	0.0E+00	*Total:*	7.8E-05

TABLE B.3.2-23 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater				
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	3.1E-02	1.1E+02		
RA-226	0.0	0.0E+00		
RA-228	0.0	0.0E+00		
SR-90	1.1E-02	3.9E+01		
TC-99	1.8	6.3E+03		
U234	469.0	1.6E+06		
U235/236	25.0	8.7E+04		
U238	517.0	1.8E+06		
			Total Pathway:	0.0E+00

Inhalation/Groundwater
Not applicable
Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	5.7E-04	8.6E-06	5.0E-04	1.7E-02
Lead	1.4E-03	2.2E-05		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Molybdenum	5.6E-03	8.4E-05	5.0E-03	1.7E-02
Tetrachlorodibenzofuran	0.0E+00	0.0E+00		
U-Total	1.8E+00	2.8E-02	3.00E-03	9.2E+00
			Total Pathway:	9.3E+00

Inhalation/Groundwater			
Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00		
Beryllium	0.0E+00		
Cadmium	4.6E-05		
Lead	1.2E-04		
Mercury	0.0E+00		
Molybdenum	4.5E-04		
Tetrachlorodibenzofuran	0.0E+00		
U-Total	1.5E-01		
		Total Pathway:	0.0E+00

Total Rad + Chem 9.3E+00

Total Rad + Chem 0.0E+00

NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	7.8E-08	2.5E-05	3.1E-03	2.0E-02
Lead	4.00E-06	7.8E-10			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	7.6E-07	1.9E-03	4.0E-04	1.7E-02
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	2.5E-04	1.5E-04	1.7E+00	10.9
			Total Pathway:	1.7E+00	

Total Rad + Chem 1.7E+00 *Total:* 11.0

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TABLE B.3.3-24

FUTURE ON-PROPERTY FARMER (CT VALUES)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.53E-03	1.5E-01	2.8E-11	4.1E-12	4.1E-12
NP-237	2.66E-03	2.6E-01	2.2E-10	5.7E-11	5.7E-11
PU-238	2.62E-04	2.5E-02	2.2E-10	5.6E-12	5.6E-12
PU-239/240	6.80E-05	6.6E-03	2.3E-10	1.5E-12	1.5E-12
RA-226	6.43E-03	6.2E-01	1.2E-10	7.4E-11	7.4E-11
RA-228	7.29E-03	7.0E-01	1.0E-10	7.0E-11	7.0E-11
SR-90	3.64E-03	3.5E-01	3.6E-11	1.3E-11	1.3E-11
TH-228	8.79E-03	8.5E-01	5.5E-11	4.7E-11	4.7E-11
TH-230	8.97E-03	8.7E-01	1.3E-11	1.1E-11	1.1E-11
TH-232	7.54E-03	7.3E-01	1.2E-11	8.7E-12	8.7E-12
U-234	2.81E-02	2.7E+00	1.6E-11	4.3E-11	4.3E-11
U-235/236	1.37E-03	1.3E-01	1.6E-11	2.1E-12	2.1E-12
U-238	2.88E-02	2.8E+00	2.8E-11	7.8E-11	7.8E-11
			Total Pathway:	4.2E-10	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	1.09E-04	5.9E-09	1.8E+00	1.0E-08	1.0E-08
Beryllium	7.39E-06	4.0E-10	4.3E+00	1.7E-09	1.7E-09
Cadmium	1.18E-05	6.4E-10			
Chromium	3.69E-05	2.0E-09			
Lead	7.86E-05	4.2E-09			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	8.51E-05	4.6E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	1.2E-08	

Total Rad + Chem	1.2E-08	*Total:*	1.2E-08

TABLE B.3.3-24 (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk — Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	4.1E-12
NP-237	7.74E+00	7.5E+02	2.2E-10	1.6E-07	1.6E-07	1.6E-07
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	5.6E-12
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.5E-12
RA-226	4.38E-02	4.2E+00	1.2E-10	5.1E-10	5.1E-10	5.8E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	7.0E-11
SR-90	5.71E-01	5.5E+01	3.6E-11	2.0E-09	2.0E-09	2.0E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	4.7E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.1E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	8.7E-12
U-234	2.30E+03	2.2E+05	1.6E-11	3.6E-06	3.6E-06	3.6E-06
U-235/236	1.23E+02	1.2E+04	1.6E-11	1.9E-07	1.9E-07	1.9E-07
U-238	2.54E+03	2.5E+05	2.8E-11	6.9E-06	6.9E-06	6.9E-06
			Total Pathway:	1.1E-05		

Chemical Risk — Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.0E-08
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.7E-09
Cadmium	4.51E-03	2.4E-07				
Chromium	0.00E+00	0.0E+00				
Lead	2.42E-02	1.3E-06				
Molybdenum	3.02E-02	1.6E-06				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	9.03E+00	4.9E-04				
2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00				
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+04	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00		

Total Rad + Chem	1.1E-05	*Total:*	1.1E-05	1.1E-05

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INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	1.5E-03				
NP-237	2.7E-03				
PU-238	2.6E-04				
PU-239/240	6.8E-05				
RA-226	6.4E-03				
RA-228	7.3E-03				
SR-90	3.6E-03				
TH-228	8.8E-03				
TH-230	9.0E-03				
TH-232	7.5E-03				
U-234	2.8E-02				
U-235/236	1.4E-03				
U-238	2.9E-02				

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	1.1E-04	4.6E-08	3.0E-04	1.5E-04	1.5E-04
Beryllium	7.4E-06	3.1E-09	5.0E-03	6.2E-07	6.2E-07
Cadmium	1.2E-05	5.0E-09	1.0E-03	5.0E-06	5.0E-06
Chromium	3.7E-05	1.5E-08	5.0E-03	3.1E-06	3.1E-06
Lead	7.9E-05	3.3E-08			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	8.5E-05	3.6E-08	3.0E-03	1.2E-05	1.2E-05
2-Methylnaphthalene	0.0E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			

Total Pathway: 1.7E-04

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Total Rad + Chem 0.0 *Total:* 1.7E-04

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TABLE B.3.3-24 (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00					
NP-237	7.7E+00					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	4.4E-02					
RA-228	0.0E+00					
SR-90	5.7E-01					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	2.3E+03					
U-235/236	1.2E+02					
U-238	2.5E+03					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.5E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	6.2E-07
Cadmium	4.5E-03	1.9E-06	1.0E-03	1.9E-03	1.9E-03	1.9E-03
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.1E-06
Lead	2.4E-02	1.0E-05				
Molybdenum	3.0E-02	1.3E-05	5.0E-03	2.5E-03	2.5E-03	2.5E-03
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	9.0E+00	3.8E-03	3.0E-03	1.3E+00	1.3	1.3
2-Methylnaphthalene	0.0E+00	0.0E+00				
Acenaphthylene	0.0E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00				
			Total Pathway:	1.3E+00		

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TABLE B.3.3-25

FUTURE ON-PROPERTY FARMER (CT VALUES)

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.79E-03	2.2E-01	2.8E-11	6.2E-12	CS-137	6.27E-04	2.5E-01	2.8E-11	7.0E-12	1.3E-11
NP-237	8.44E-06	1.0E-03	2.2E-10	2.3E-13	NP-237	7.67E-07	3.0E-04	2.2E-10	6.7E-14	3.0E-13
PU-238	7.75E-09	9.6E-07	2.2E-10	2.1E-16	PU-238	1.55E-09	6.1E-07	2.2E-10	1.3E-16	3.5E-16
PU-239/240	2.01E-09	2.5E-07	2.3E-10	5.7E-17	PU-239/240	4.03E-10	1.6E-07	2.3E-10	3.7E-17	9.4E-17
RA-226	9.47E-05	1.2E-02	1.2E-10	1.4E-12	RA-226	1.70E-04	6.7E-02	1.2E-10	8.1E-12	9.5E-12
RA-228	1.04E-04	1.3E-02	1.0E-10	1.3E-12	RA-228	1.87E-04	7.4E-02	1.0E-10	7.4E-12	8.7E-12
SR-90	5.20E-05	6.4E-03	3.6E-11	2.3E-13	SR-90	2.60E-04	1.0E-01	3.6E-11	3.7E-12	3.9E-12
TH-228	2.83E-06	3.5E-04	5.5E-11	1.9E-14	TH-228	2.35E-06	9.3E-04	5.5E-11	5.1E-14	7.1E-14
TH-230	3.19E-06	3.9E-04	1.3E-11	5.1E-15	TH-230	2.65E-06	1.1E-03	1.3E-11	1.4E-14	1.9E-14
TH-232	2.68E-06	3.3E-04	1.2E-11	4.0E-15	TH-232	2.23E-06	8.8E-04	1.2E-11	1.1E-14	1.5E-14
U-234	3.33E-04	4.1E-02	1.6E-11	6.6E-13	U-234	9.98E-04	4.0E-01	1.6E-11	6.3E-12	7.0E-12
U-235/236	1.62E-05	2.0E-03	1.6E-11	3.2E-14	U-235/236	4.86E-05	1.9E-02	1.6E-11	3.1E-13	3.4E-13
U-238	3.41E-04	4.2E-02	2.8E-11	1.2E-12	U-238	1.02E-03	4.0E-01	2.8E-11	1.1E-11	1.3E-11
			Total Pathway:	1.1E-11				Total Pathway:	4.4E-11	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.27E-05	8.8E-10	1.8E+00	1.5E-09	Arsenic	3.81E-07	8.4E-11	1.8E+00	1.5E-10	1.7E-09
Beryllium	4.36E-07	3.0E-11	4.3E+00	1.3E-10	Beryllium	3.92E-10	8.7E-14	4.3E+00	3.7E-13	1.3E-10
Cadmium	3.56E-06	2.5E-10			Cadmium	6.47E-07	1.4E-10			
Chromium	1.20E-05	8.3E-10			Chromium	3.27E-06	7.2E-10			
Lead	1.38E-06	9.6E-11			Lead	1.15E-06	2.6E-10			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.01E-06	7.0E-11			U-TOTAL	3.02E-06	6.7E-10			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	1.7E-09				Total Pathway:	1.5E-10	

Total Rad + Chem 1.7E-09 | Total Rad + Chem 1.9E-10 | *Total:* 1.9E-09

TABLE B.3.3-25 (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	1.50E-02	1.9E+00	2.2E-10	4.1E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	3.97E-04	4.9E-02	1.2E-10	5.9E-12
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	4.78E-03	5.9E-01	3.6E-11	2.1E-11
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	1.68E+01	2.1E+03	1.6E-11	3.3E-08
U-235/236	8.95E-01	1.1E+02	1.6E-11	1.8E-09
U-238	1.85E+01	2.3E+03	2.8E-11	6.4E-08

Total Pathway: 1.0E-07

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	1.37E-03	5.4E-01	2.2E-10	1.2E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	7.15E-04	2.8E-01	1.2E-10	3.4E-11
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	2.39E-02	9.5E+00	3.6E-11	3.4E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	5.03E+01	2.0E+04	1.6E-11	3.2E-07
U-235/236	2.68E+00	1.1E+03	1.6E-11	1.7E-08
U-238	5.55E+01	2.2E+04	2.8E-11	6.2E-07

Total Pathway: 9.5E-07

Compound	Total	Total Dust & Groundwater Affected
CS-137	0.0E+00	1.3E-11
NP-237	5.3E-10	5.3E-10
PU-238	0.0E+00	3.5E-16
PU-239/240	0.0E+00	9.4E-17
RA-226	4.0E-11	4.9E-11
RA-228	0.0E+00	8.7E-12
SR-90	3.6E-10	3.7E-10
TH-228	0.0E+00	7.1E-14
TH-230	0.0E+00	1.9E-14
TH-232	0.0E+00	1.5E-14
U-234	3.5E-07	3.5E-07
U-235/236	1.9E-08	1.9E-08
U-238	6.8E-07	6.8E-07

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	8.10E-04	5.6E-08		
Chromium	0.00E+00	0.0E+00		
Lead	2.62E-04	1.8E-08		
Molybdenum	6.22E-03	4.3E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	6.58E-02	4.6E-06		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	1.47E-04	3.3E-08		
Chromium	0.00E+00	0.0E+00		
Lead	2.18E-04	4.8E-08		
Molybdenum	1.56E-03	3.4E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.98E-01	4.4E-05		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00

Total Pathway: 0.0E+00

Compound	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	1.7E-09
Beryllium	0.0E+00	1.3E-10
Carbazole	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00

Total Rad + Chem 1.0E-07

Total Rad + Chem 9.5E-07

Total: 1.1E-06 1.1E-06

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TABLE B.3.3-25 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	1.8E-03				CS-137	6.27E-04				
NP-237	8.4E-06				NP-237	7.67E-07				
PU-238	7.7E-09				PU-238	1.55E-09				
PU-239/240	2.0E-09				PU-239/240	4.03E-10				
RA-226	9.5E-05				RA-226	1.70E-04				
RA-228	1.0E-04				RA-228	1.87E-04				
SR-90	5.2E-05				SR-90	2.60E-04				
TH-228	2.8E-06				TH-228	2.35E-06				
TH-230	3.2E-06				TH-230	2.65E-06				
TH-232	2.7E-06				TH-232	2.23E-06				
U-234	3.3E-04				U-234	9.98E-04				
U-235/236	1.6E-05				U-235/236	4.86E-05				
U-238	3.4E-04				U-238	1.02E-03				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	1.3E-05	6.8E-09	3.0E-04	0.0	Arsenic	3.81E-07	6.6E-10	3.0E-04	2.2E-06	2.5E-05
Beryllium	4.4E-07	2.3E-10	5.0E-03	4.7E-08	Beryllium	3.92E-10	6.8E-13	5.0E-03	1.4E-10	4.7E-08
Cadmium	3.6E-06	1.9E-09	1.0E-03	1.9E-06	Cadmium	6.47E-07	1.1E-09	1.0E-03	1.1E-06	3.0E-06
Chromium	1.2E-05	6.5E-09	5.0E-03	1.3E-06	Chromium	3.27E-06	5.6E-09	5.0E-03	1.1E-06	2.4E-06
Lead	1.4E-06	7.4E-10			Lead	1.15E-06	2.0E-09			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.0E-06	5.4E-10	3.0E-03	1.8E-07	U-TOTAL	3.02E-06	5.2E-09	3.0E-03	1.7E-06	1.9E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			Carbazole	0.00E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00			Tetrachlorodibenzofura	0.00E+00	0.0E+00			
		Total Pathway:		0.0			Total Pathway:		6.2E-06	

Total Rad + Chem 0.0 | Total Rad + Chem 6.2E-06 | *Total:* 3.2E-05

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TABLE B.3.3-25 (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	0.0E+00			
NP-237	1.5E-02			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	4.0E-04			
RA-228	0.0E+00			
SR-90	4.8E-03			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	1.7E+01			
U-235/236	8.9E-01			
U-238	1.9E+01			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	0.00E+00			
NP-237	1.37E-03			
PU-238	0.00E+00			
PU-239/240	0.00E+00			
RA-226	7.15E-04			
RA-228	0.00E+00			
SR-90	2.39E-02			
TH-228	0.00E+00			
TH-230	0.00E+00			
TH-232	0.00E+00			
U-234	5.03E+01			
U-235/236	2.68E+00			
U-238	5.55E+01			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	8.1E-04	4.4E-07	1.0E-03	4.4E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Lead	2.6E-04	1.4E-07		
Molybdenum	6.2E-03	3.3E-06	5.0E-03	6.7E-04
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	6.6E-02	3.5E-05	3.0E-03	1.2E-02
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00		

Total Pathway: 0.0

Total Rad + Chem 0.0

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	1.47E-04	2.5E-07	1.0E-03	2.5E-04
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Lead	2.18E-04	3.8E-07		
Molybdenum	1.56E-03	2.7E-06	5.0E-03	5.4E-04
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.98E-01	3.4E-04	3.0E-03	1.1E-01
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.00E+00	0.0E+00		

Total Pathway: 1.1E-01

Total Rad + Chem 1.1E-01

	Total	Total Dust & Groundwater Affected
	0.0E+00	2.5E-05
	0.0E+00	4.7E-08
	6.9E-04	6.9E-04
	0.0E+00	2.4E-06
	1.2E-03	1.2E-03
	1.3E-01	1.3E-01
	0.0E+00	0.0E+00
Total:	1.3E-01	1.3E-01

TABLE B.3.3-26(a)

FUTURE, GREAT MIAMI RIVER USER, ADULT

INACTIVE FLYASH PILE: SURFACE WATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water				Ingestion of Fish					Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk					Compound	Conc'n in Fish (pCi/kg)	Intake	SF(o)	Risk	
CS-137	2.8E-08	7.8E-07	2.8E-11	2.2E-17					CS-137			2.8E-11		2.2E-17
NP-237	1.3E-05	3.5E-04	2.2E-10	7.8E-14					NP-237			2.2E-10		7.8E-14
PU-238	2.5E-10	6.7E-09	2.2E-10	1.5E-18					PU-238			2.2E-10		1.5E-18
PU-239/240	1.8E-08	4.8E-07	2.3E-10	1.1E-16					PU-239/240			2.3E-10		1.1E-16
RA-226	1.6E-06	4.3E-05	1.2E-10	5.1E-15					RA-226	7.9E-05	1.2E-02	1.2E-10	1.4E-12	1.5E-12
RA-228	1.8E-06	4.9E-05	1.0E-10	4.9E-15					RA-228	8.9E-05	1.4E-02	1.0E-10	1.4E-12	1.4E-12
SR-90	3.9E-07	1.1E-05	3.6E-11	3.8E-16					SR-90	1.2E-05	1.8E-03	3.6E-11	6.5E-14	6.5E-14
TH-228	7.1E-05	1.9E-03	5.5E-11	1.1E-13	Not Applicable				TH-228	2.1E-03	3.3E-01	5.5E-11	1.8E-11	1.8E-11
TH-230	7.3E-08	2.0E-06	1.3E-11	2.6E-17					TH-230	2.2E-06	3.4E-04	1.3E-11	4.4E-15	4.4E-15
TH-232	6.1E-08	1.7E-06	1.2E-11	2.0E-17					TH-232	1.8E-06	2.8E-04	1.2E-11	3.4E-15	3.4E-15
U-234	4.4E-04	1.2E-02	1.6E-11	1.9E-13					U-234	8.8E-04	1.4E-01	1.6E-11	2.2E-12	2.4E-12
U-235/236	2.1E-05	5.8E-04	1.6E-11	9.3E-15					U-235/236	4.3E-05	6.5E-03	1.6E-11	1.0E-13	1.1E-13
U-238	4.5E-04	1.2E-02	2.8E-11	3.4E-13					U-238	9.0E-04	1.4E-01	2.8E-11	3.9E-12	4.2E-12
		Total Pathway:		7.4E-13		Total Pathway:		0.0E+00			Total Pathway:		2.7E-11	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water				Ingestion of Fish					
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	Compound	Conc'n in Fish (mg/kg)	Intake	SF(o)	Risk	
Arsenic	1.4E-05	2.1E-10	1.8E+00	3.7E-10	Arsenic	9.9E-08	1.8E+00	1.8E-07	Arsenic	6.2E-04	5.3E-08	1.8E+00	9.3E-08	2.7E-07
Cadmium	2.1E-05	3.3E-10			Cadmium	1.8E-10			Cadmium	1.7E-03	1.5E-07			
Lead	5.3E-05	8.0E-10			Lead	1.5E-09			Lead	0.0E+00	0.0E+00			
Toluene	4.3E-06	6.6E-11			Toluene	0.0E+00			Toluene	1.7E-06	1.4E-10			
U-TOTAL	1.4E-04	2.1E-09			U-TOTAL	0.0E+00			U-TOTAL	2.8E-04	2.4E-08			
		Total Pathway:		3.7E-10		Total Pathway:		1.8E-07			Total Pathway:		9.3E-08	
													TOTAL	2.7E-07

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TABLE B.3.3-26(a)
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water				Dermal Contact/Surface Water				Ingestion of Fish				Total
Compound	Intake	RfD(o)	Hazard					Compound	Intake	RfD(o)	Hazard	
CS-137	7.8E-07							CS-137				
NP-237	3.5E-04							NP-237				
PU-238	6.7E-09							PU-238				
PU-239/240	4.8E-07							PU-239/240				
RA-226	4.3E-05							RA-226	1.0E+01			
RA-228	4.9E-05							RA-228	1.1E+01			
SR-90	1.1E-05							SR-90	2.6E+00			
TH-228	1.9E-03							TH-228	2.7E-01			
TH-230	2.0E-06			Not Applicable				TH-230	2.8E-01			
TH-232	1.7E-06							TH-232	2.3E-01			
U-234	1.2E-02							U-234	3.8E+04			
U-235/236	5.8E-04							U-235/236	1.8E+02			
U-238	1.2E-02							U-238	1.1E+02			
		Total Pathwa	0.0E+00			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Surface Water				Dermal Contact/Surface Water				Ingestion of Fish				
Compound	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	5.0E-10	3.0E-04	1.7E-06	Arsenic	2.8E-10	2.9E-04	9.8E-07	Arsenic	1.0E-04	3.0E-04	3.4E-01	3.4E-01
Cadmium	7.6E-10	5.0E-04	1.5E-06	Cadmium	4.3E-10	5.0E-04	8.5E-07	Cadmium	3.5E-07	5.0E-04	7.0E-04	7.0E-04
Lead	1.9E-09			Lead	1.0E-09			Lead	0.0E+00			
Toluene	1.5E-10	2.00E-01	7.7E-10	Toluene	1.2E-10	2.0E-01	6.0E-10	Toluene	7.4E-07	2.0E-01	3.7E-06	3.7E-06
U-TOTAL	5.0E-09	3.00E-03	1.7E-06	U-TOTAL	2.8E-09	1.5E-04	1.9E-05	U-TOTAL	4.8E-05	3.0E-03	1.6E-02	1.6E-02
		Total Pathwa	4.8E-06			Total Pathway:	2.0E-05			Total Pathway:	3.6E-01	
											TOTAL	3.6E-01

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TABLE B.3.3-26(b)

FUTURE, GREAT MIAMI RIVER USER, YOUTH

INACTIVE FLYASH PILE: SURFACE WATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water				Ingestion of Fish					Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk					Compound	Conc'n in Fish (pCi/kg)	Intake	SF(o)	Risk	
CS-137	2.8E-08	3.1E-07	2.8E-11	8.7E-18					CS-137			2.8E-11		8.7E-18
NP-237	1.3E-05	1.4E-04	2.2E-10	3.1E-14					NP-237			2.2E-10		3.1E-14
PU-238	2.5E-10	2.7E-09	2.2E-10	5.9E-19					PU-238			2.2E-10		5.9E-19
PU-239/240	1.8E-08	1.9E-07	2.3E-10	4.4E-17					PU-239/240			2.3E-10		4.4E-17
RA-226	1.6E-06	1.7E-05	1.2E-10	2.1E-15					RA-226	7.9E-05	4.8E-03	1.2E-10	5.8E-13	5.8E-13
RA-228	1.8E-06	1.9E-05	1.0E-10	1.9E-15					RA-228	8.9E-05	5.5E-03	1.0E-10	5.5E-13	5.5E-13
SR-90	3.9E-07	4.3E-06	3.6E-11	1.5E-16					SR-90	1.2E-05	7.2E-04	3.6E-11	2.6E-14	2.6E-14
TH-228	7.1E-05	7.8E-04	5.5E-11	4.3E-14	Not Applicable				TH-228	2.1E-03	1.3E-01	5.5E-11	7.2E-12	7.3E-12
TH-230	7.3E-08	7.9E-07	1.3E-11	1.0E-17					TH-230	2.2E-06	1.3E-04	1.3E-11	1.7E-15	1.8E-15
TH-232	6.1E-08	6.7E-07	1.2E-11	8.0E-18					TH-232	1.8E-06	1.1E-04	1.2E-11	1.4E-15	1.4E-15
U-234	4.4E-04	4.8E-03	1.6E-11	7.7E-14					U-234	8.8E-04	5.4E-02	1.6E-11	8.7E-13	9.4E-13
U-235/236	2.1E-05	2.3E-04	1.6E-11	3.7E-15					U-235/236	4.3E-05	2.6E-03	1.6E-11	4.2E-14	4.6E-14
U-238	4.5E-04	4.9E-03	2.8E-11	1.4E-13					U-238	9.0E-04	5.5E-02	2.8E-11	1.5E-12	1.7E-12
		Total Pathway:		3.0E-13		Total Pathway:		0.0E+00			Total Pathway:		1.1E-11	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water				Ingestion of Fish					
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	Compound	Conc'n in Fish (mg/kg)	Intake	SF(o)	Risk	
Arsenic	1.4E-05	1.4E-10	1.8E+00	2.4E-10	Arsenic	5.6E-11	1.8E+00	1.0E-10	Arsenic	6.2E-04	3.4E-08	1.8E+00	6.0E-08	6.1E-08
Cadmium	2.1E-05	2.1E-10			Cadmium	8.5E-11			Cadmium	1.7E-03	9.7E-08			
Lead	5.3E-05	5.2E-10			Lead	8.4E-13			Lead	2.6E-03	1.4E-07			
Toluene	4.3E-06	4.3E-11			Toluene	7.8E-10			Toluene	4.6E-05	2.6E-09			
U-TOTAL	1.4E-04	1.4E-09			U-TOTAL	5.6E-10			U-TOTAL	2.8E-04	1.6E-08			
		Total Pathway:		2.4E-10		Total Pathway:		1.0E-10			Total Pathway:		6.0E-08	
											Total Rad +Chem:			6.1E-08

TABLE B.3.3-26(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
CS-137	3.1E-07		
NP-237	1.4E-04		
PU-238	2.7E-09		
PU-239/240	1.9E-07		
RA-226	1.7E-05		
RA-228	1.9E-05		
SR-90	4.3E-06		
TH-228	7.8E-04		
TH-230	7.9E-07		
TH-232	6.7E-07		
U-234	4.8E-03		
U-235/236	2.3E-04		
U-238	4.9E-03		
Total Pathway:			0.0E+00

Dermal Contact/Surface Water
Not Applicable
Total Pathway: 0.0E+00

Ingestion of Fish			
Compound	Intake	RfD(o)	Hazard
CS-137			
NP-237			
PU-238			
PU-239/240			
RA-226	4.8E-03		
RA-228	5.5E-03		
SR-90	7.2E-04		
TH-228	1.3E-01		
TH-230	1.3E-04		
TH-232	1.1E-04		
U-234	5.4E-02		
U-235/236	2.6E-03		
U-238	5.5E-02		
Total Pathway:			0.0E+00

Chemical Hazard

Ingestion/Surface Water				Dermal Contact/Surface Water				Ingestion of Fish				Total
Compound	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	8.1E-10	3.0E-04	2.7E-06	Arsenic	3.3E-10	2.9E-04	1.1E-06	Arsenic	2.0E-07	3.0E-04	6.7E-04	6.7E-04
Cadmium	1.2E-09	1.0E-03	1.2E-06	Cadmium	5.0E-10	1.0E-03	5.0E-07	Cadmium	5.7E-07	1.0E-03	5.7E-04	5.7E-04
Lead	3.1E-09			Lead	4.9E-12			Lead	8.4E-07			
Toluene	2.5E-10	2.0E-01	1.3E-09	Toluene	4.5E-09	2.0E-01	2.3E-08	Toluene	1.5E-08	2.0E-01	7.6E-08	1.0E-07
U-TOTAL	8.1E-09	3.0E-03	2.7E-06	U-TOTAL	3.3E-09	1.5E-04	2.2E-05	U-TOTAL	9.1E-08	3.0E-03	3.0E-05	5.5E-05
Total Pathway:			6.7E-06	Total Pathway:			2.3E-05	Total Pathway:			1.3E-03	
								Total Rad +Chem:				1.3E-03

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TABLE B.3.3-27(a)
FUTURE, GREAT MIAMI RIVER USER, ADULT
INACTIVE FLYASH PILE: SEDIMENT

Carcinogenic Risk

Radiation Risk

Ingestion of Sediment					Dermal Contact/Sediment
Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk	
CS-137	4.6E-01	1.4E+01	2.8E-11	3.9E-10	
NP-237	7.7E-01	2.3E+01	2.2E-10	5.1E-09	
PU-238	8.1E-02	2.4E+00	2.2E-10	5.3E-10	
PU-239/240	2.1E-02	6.3E-01	2.3E-10	1.4E-10	
RA-226	2.0E+00	5.9E+01	1.2E-10	7.1E-09	
RA-228	2.2E+00	6.7E+01	1.0E-10	6.7E-09	Not Applicable
SR-90	8.7E-01	2.6E+01	3.6E-11	9.4E-10	
TH-228	2.7E+00	8.1E+01	5.5E-11	4.5E-09	
TH-230	2.8E+00	8.3E+01	1.3E-11	1.1E-09	
TH-232	2.3E+00	7.0E+01	1.2E-11	8.4E-10	
U-234	2.2E-06	6.5E-05	1.6E-11	1.0E-15	
U-235/236	5.1E+01	1.5E+03	1.6E-11	2.4E-08	
U-238	7.9E+00	2.4E+02	2.8E-11	6.6E-09	
			Total Pathway	5.8E-08	Total Pathw 0.0E+00

Chemical Risk

Ingestion of Sediment					Dermal Contact/Sediment			
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk
Arsenic	7.3E+00	1.2E-07	1.8E+00	2.1E-07	Arsenic	2.8E-08	1.8E+00	5.2E-08
Chromium	9.4E-01	1.6E-08			Chromium	3.6E-08		
Cobalt	1.4E+01	2.3E-07			Cobalt	5.4E-07		
Lead	2.5E+01	4.1E-07			Lead	9.5E-07		
Manganese	2.8E+01	4.7E-07			Manganese	1.1E-06		
TH-TOTAL	1.4E-01	2.3E-09			TH-TOTAL	5.4E-09		
Thallium	5.5E+00	9.2E-08			Thallium	2.1E-07		
U-TOTAL	9.4E+00	1.6E-07			U-TOTAL	3.6E-07		
Benzo(a)pyrene	6.2E+00	1.0E-07	7.3E+00	7.6E-07	Benzo(a)pyrene	0.0E+00	1.7E+01	
bis(2-Ethylhexyl)phthalate	7.3E+00	1.2E-07	1.4E-02	1.7E-09	bis(2-Ethylhexyl)phthalate	1.1E-07	1.6E-02	1.8E-09
Carbazole	1.1E-01	1.8E-09	2.0E-02	3.5E-11	Carbazole	0.0E+00	2.0E-02	
			Total Pathway	9.7E-07			Total Pathw	5.3E-08

TABLE B.3.3-27(a) (continued)

Carcinogenic Risk

Radiation Risk				Total
External Radiation/Sediment				
Compound	Intake	SF(e)	Risk	
CS-137	2.4E-01	2.0E-06	4.9E-07	4.9E-07
NP-237	4.1E-01	4.3E-07	1.7E-07	1.8E-07
PU-238	4.3E-02	2.8E-11	1.2E-12	5.4E-10
PU-239/240	1.1E-02	2.7E-11	3.0E-13	1.4E-10
RA-226	1.0E+00	1.2E-08	1.3E-08	2.0E-08
RA-228	1.2E+00	2.9E-06	3.4E-06	3.4E-06
SR-90	4.6E-01	0.0E+00	0.0E+00	9.4E-10
TH-228	1.4E+00	5.6E-06	8.0E-06	8.0E-06
TH-230	1.5E+00	5.4E-11	7.9E-11	1.2E-09
TH-232	1.2E+00	2.6E-11	3.2E-11	8.7E-10
U-234	1.1E-06	3.0E-11	3.4E-17	1.1E-15
U-235/236	2.7E+01	2.4E-07	6.5E-06	6.5E-06
U-238	4.2E+00	3.6E-08	1.5E-07	1.6E-07
		Total Pathway:	1.9E-05	

Chemical Risk	Total
External Radiation	
	2.7E-07
Not Applicable	7.6E-07
	3.5E-09
	3.5E-11
Total Pathway: 0.0E+00	
Total Rad + Chem	2.0E-05

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TABLE B.3.3-27(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Sediment				Dermal Contact/Sediment				Total
Compound	Intake	RfD(o)	Hazard					
CS-137	1.8E-08							
NP-237	3.0E-08							
PU-238	3.2E-09							
PU-239/240	8.2E-10							
RA-226	7.7E-08							
RA-228	8.8E-08							
SR-90	3.4E-08			Not Applicable				
TH-228	1.1E-07							
TH-230	1.1E-07							
TH-232	9.1E-08							
U-234	8.4E-14							
U-235/236	2.0E-06							
U-238	3.1E-07							
	Total Pathway:		0.0E+00		Total Pathwa		0.0E+00	

Chemical Hazard

Ingestion/Sediment				Dermal Contact/Sediment				Total
Compound	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	2.8E-07	3.0E-04	9.5E-04	Arsenic	6.5E-08	2.9E-04	2.3E-04	1.2E-03
Chromium	3.7E-08	5.0E-03	7.4E-06	Chromium	8.5E-08	2.3E-03	3.8E-05	4.5E-05
Cobalt	5.4E-07	6.0E-02	9.1E-06	Cobalt	1.3E-06	2.7E-02	4.6E-05	5.5E-05
Lead	9.6E-07			Lead	2.2E-06			
Manganese	1.1E-06	1.4E-01	7.8E-06	Manganese	2.5E-06	4.2E-03	6.0E-04	6.1E-04
TH-TOTAL	5.4E-09			TH-TOTAL	1.3E-08			
Thallium	2.2E-07	7.0E-05	3.1E-03	Thallium	5.0E-07	7.0E-05	7.1E-03	1.0E-02
U-TOTAL	3.7E-07	3.0E-03	1.2E-04	U-TOTAL	8.5E-07	1.5E-04	5.6E-03	5.8E-03
Benzo(a)pyrene	2.4E-07			Benzo(a)pyrene	0.0E+00			
bis(2-Ethylhexyl)phthalate	2.9E-07	2.0E-02	1.4E-05	bis(2-Ethylhexyl)phthalate	2.6E-07	1.8E-02	1.5E-05	2.9E-05
Carbazole	4.1E-09			Carbazole	0.0E+00			
	Total Pathway:		4.2E-03		Total Pathwa		1.4E-02	
								1.8E-02

TABLE B.3.3-27(b)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
INACTIVE FLYASH PILE: SEDIMENT
CARCINOGENIC RISK

Radiation Risk

Ingestion of Sediment				
Compound	Conc'n (pCi/g	Intake	SF(o)	Risk
CS-137	4.6E-01	5.5E+00	2.8E-11	1.6E-10
NP-237	7.7E-01	9.2E+00	2.2E-10	2.0E-09
PU-238	8.1E-02	9.7E-01	2.2E-10	2.1E-10
PU-239/240	2.1E-02	2.5E-01	2.3E-10	5.8E-11
RA-226	2.0E+00	2.4E+01	1.2E-10	2.8E-09
RA-228	2.2E+00	2.7E+01	1.0E-10	2.7E-09
SR-90	8.7E-01	1.0E+01	3.6E-11	3.8E-10
TH-228	2.7E+00	3.2E+01	5.5E-11	1.8E-09
TH-230	2.8E+00	3.3E+01	1.3E-11	4.3E-10
TH-232	2.3E+00	2.8E+01	1.2E-11	3.4E-10
U-234	2.2E-06	2.6E-05	1.6E-11	4.1E-16
U-235/236	5.1E+01	6.1E+02	1.6E-11	9.8E-09
U-238	7.9E+00	9.4E+01	2.8E-11	2.6E-09
			Total Pathway	2.3E-08

Dermal Contact/Sediment
Not Applicable
Total Pathway 0.0E+00

Chemical Risk

Ingestion of Sediment				
Compound	onc'n (mg/kg	Intake	SF(o)	Risk
Arsenic	7.3E+00	7.9E-08	1.8E+00	1.4E-07
Chromium	9.4E-01	1.0E-08		0.0E+00
Cobalt	1.4E+01	1.5E-07		0.0E+00
Lead	2.5E+01	2.7E-07		0.0E+00
Manganese	2.8E+01	3.0E-07		0.0E+00
TH-TOTAL	1.4E-01	1.5E-09		0.0E+00
Thallium	5.5E+00	6.0E-08		0.0E+00
U-TOTAL	9.4E+00	1.0E-07		0.0E+00
Benzo(a)pyrene	6.2E+00	6.8E-08	7.3E+00	4.9E-07
bis(2-Ethylhexyl)phthalate	7.3E+00	8.0E-08	1.4E-02	1.1E-09
Carbazole	1.1E-01	1.1E-09	2.0E-02	2.3E-11
			Total Pathway	6.3E-07

Dermal Contact/Sediment			
Compound	Intake	SF(derm)	Risk
Arsenic	1.3E-08	1.8E+00	2.5E-08
Chromium	1.7E-08		0.0E+00
Cobalt	2.6E-07		0.0E+00
Lead	4.5E-07		0.0E+00
Manganese	5.1E-07		0.0E+00
TH-TOTAL	2.6E-09		0.0E+00
Thallium	1.0E-07		0.0E+00
U-TOTAL	1.7E-07		0.0E+00
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00
bis(2-Ethylhexyl)phthalate	5.4E-08	1.6E-02	8.3E-10
Carbazole	0.0E+00	2.0E-02	0.0E+00
		Total Pathway	2.5E-08

CARCINOGENIC RISK

Radiation Risk				Total
External Radiation/Sediment				
Compound	Intake	SF(e)	Risk	
CS-137	9.8E-02	2.0E-06	2.0E-07	2.0E-07
NP-237	1.6E-01	4.3E-07	7.0E-08	7.2E-08
PU-238	1.7E-02	2.8E-11	4.8E-13	2.1E-10
PU-239/24	4.4E-03	2.7E-11	1.2E-13	5.8E-11
RA-226	4.2E-01	1.2E-08	5.0E-09	7.9E-09
RA-228	4.7E-01	2.9E-06	1.4E-06	1.4E-06
SR-90	1.8E-01	0.0E+00	0.0E+00	3.8E-10
TH-228	5.7E-01	5.6E-06	3.2E-06	3.2E-06
TH-230	5.8E-01	5.4E-11	3.1E-11	4.6E-10
TH-232	4.9E-01	2.6E-11	1.3E-11	3.5E-10
U-234	4.6E-07	3.0E-11	1.4E-17	4.3E-16
U-235/236	1.1E+01	2.4E-07	2.6E-06	2.6E-06
U-238	1.7E+00	3.6E-08	6.0E-08	6.2E-08
		Total Pathway	7.5E-06	7.5E-06

Chemical Risk			
External Radiation/Sediment			
			1.6E-07
Not Applicable			
			4.9E-07
			1.9E-09
			2.3E-11
		Total Pathway 0.0E+00	6.6E-07
		Total Rad + Chem:	8.2E-06

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TABLE B.3.3-27(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Sediment				Dermal Contact/Sediment				Total
Compound	Intake	RfD(o)	Hazard					
CS-137	5.5E+00							
NP-237	9.2E+00							
PU-238	9.7E-01							
PU-239/240	2.5E-01							
RA-226	2.4E+01							
RA-228	2.7E+01							
SR-90	1.0E+01							
TH-228	3.2E+01							
TH-230	3.3E+01							
TH-232	2.8E+01							
U-234	2.6E-05							
U-235/236	6.1E+02							
U-238	9.4E+01							
		Total Pathway	0.0E+00			Total Pathway	0.0E+00	

Chemical Hazard

Ingestion/Sediment				Dermal Contact/Sediment				
Compound	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	4.6E-07	3.0E-04	1.5E-03	Arsenic	7.8E-08	2.9E-04	2.7E-04	1.8E-03
Chromium	6.0E-08	5.0E-03	1.2E-05	Chromium	1.0E-07	2.3E-03	4.5E-05	5.7E-05
Cobalt	8.9E-07	6.0E-02	1.5E-05	Cobalt	1.5E-06	2.7E-02	5.5E-05	7.0E-05
Lead	1.6E-06			Lead	2.6E-06			
Manganese	1.8E-06	1.4E-01	1.3E-05	Manganese	3.0E-06	4.2E-03	7.1E-04	7.2E-04
TH-TOTAL	8.9E-09			TH-TOTAL	1.5E-08			
Thallium	3.5E-07	7.0E-05	5.0E-03	Thallium	5.9E-07	7.0E-05	8.4E-03	1.3E-02
U-TOTAL	6.0E-07	3.0E-03	2.0E-04	U-TOTAL	1.0E-06	1.5E-04	6.7E-03	6.9E-03
Benzo(a)pyrene	4.0E-07			Benzo(a)pyrene	0.0E+00			
bis(2-Ethylhexyl)phthalat	4.7E-07	2.0E-02	2.3E-05	bis(2-Ethylhexyl)phthalate	3.1E-07	1.8E-02	1.7E-05	4.1E-05
Carbazole	6.7E-09			Carbazole	0.0E+00			
		Total Pathway	6.8E-03			Total Pathway	1.6E-02	2.3E-02

Table B.3.4-2(a)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOLID WASTE LANDFILL - SURFACE SOIL

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	L	12	12	6610	18400			-	-	10898	12931	--	N	a	12931	--
Arsenic	mg/kg	N	12	12	4.4	8.3			6.142	6.668	-	-	0.06	Y		6.668	0.005
Barium	mg/kg	L	12	12	44.6	101			-	-	79.10	91.28	550	N	h	91.28	260
Beryllium	mg/kg	L	12	12	0.46	0.97			-	-	0.610	0.698	0.03	Y		0.698	0.002
Cadmium	mg/kg	U	12	1	0.85	0.85	0.84	1.2	0.543	-	-	-	3.9	Y		0.850	1.8
Calcium	mg/kg	N	12	12	6970	112000			59348	75098	-	-	--	N	a	75098	--
Chromium	mg/kg	L	12	12	8.2	19.9			-	-	13.32	15.46	39	Y		15.46	18
Cobalt	mg/kg	N	12	12	2.8	10.2			6.542	7.714	-	-	--	N	b	7.714	c
Copper	mg/kg	L	12	12	8.6	57.6			-	-	21.66	29.75	290	N	b	29.75	140
Iron	mg/kg	L	12	12	10600	24000			-	-	17808	20334	--	N	a	20334	--
Lead	mg/kg	L	12	12	3.2	33.3			-	-	11.45	19.01	--	Y		19.01	d; 1.5
Magnesium	mg/kg	N	12	12	4330	37900			19266	24774	-	-	--	N	a	24774	--
Manganese	mg/kg	L	12	12	349	826			-	-	541.9	623.4	39	N	b	623.4	18
Molybdenum	mg/kg	N	12	10	4.4	7.3	4.6	4.9	5.038	5.818	-	-	39	N	h	5.818	18
Nickel	mg/kg	L	12	12	7.7	23.1			-	-	14.97	17.62	160	N	h	17.62	73
Potassium	mg/kg	L	12	12	924	1800			-	-	1329	1547	--	N	a	1547	--
Selenium	mg/kg	U	12	1	0.42	0.42	0.34	0.53	0.235	-	-	-	39	N	b	0.420	18
Silicon	mg/kg	L	12	12	453	996			-	-	709.2	820.8	--	N	b	820.8	c
Silver	mg/kg	L	12	12	3.1	7.4			-	-	5.172	5.993	39	N	i	5.993	18
Sodium	mg/kg	N	12	12	65.6	206			119.0	139.3	-	-	--	N	a	139.3	
Vanadium	mg/kg	L	12	12	17.7	46			-	-	28.46	33.60	55	N	h	33.60	20
Zinc	mg/kg	L	12	12	28.8	83.4			-	-	50.92	61.34	2300	N	h	61.34	1100
TH-TOTAL	mg/kg	L	9	9	5.48	22.8			-	-	10.13	13.78	--	Y		13.78	c
U-TOTAL	mg/kg	L	12	12	6.86	194			-	-	73.36	225.2	23	Y		225.2	10
CS-137	pci/g	U	12	5	0.0718	0.257	0.0742	0.121	0.088	-	-	-	0.007	Y		0.257	0.17
GROSS ALPHA	pci/g	L	12	12	17.4	95			-	-	48.19	70.21	--	N*	c,e	70.21	--
GROSS BETA	pci/g	L	12	12	22.1	112			-	-	50.54	72.81	--	N*	c,e	72.81	--
NP-237	pci/g	N	8	8	0.0457	3.11			0.475	1.189	-	-	0.031	Y*		1.189	0.022
PU-238	pci/g	L	12	10	0.0191	0.9024	0.0153	0.0264	-	-	0.168	0.772	0.36	Y*		0.772	0.022
PU-239/240	pci/g	L	12	7	0.0191	0.126	0.0206	0.0592	-	-	0.043	0.082	0.34	Y*		0.082	0.021
RA-226	pci/g	L	12	12	0.915	2.26			-	-	1.207	1.397	0.002	Y		1.397	0.04
RA-228	pci/g	L	12	12	0.721	2.99			-	-	1.314	1.681	0.005	Y		1.681	0.048
SR-90	pci/g	N	12	8	0.527	1.44	0.422	0.525	0.725	0.955	-	-	2.2	Y		0.955	0.13
TH-228	pci/g	L	9	9	0.482	2.33			-	-	1.160	1.626	0.003	Y		1.626	0.087
TH-230	pci/g	L	9	9	0.939	9.61			-	-	3.413	6.476	5.96	Y		6.476	0.37
TH-232	pci/g	L	9	9	0.601	2.5			-	-	1.111	1.511	6.3	Y		1.511	0.4

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Table B.3.4-2(a)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOLID WASTE LANDFILL - SURFACE SOIL

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
U-234	pci/g	L	12	12	1.43	48.9			-	-	14.40	42.12	4.9	Y		42.12	0.3
U-235/236	pci/g	L	12	12	0.0764	3.33			-	-	0.922	2.838	0.06	Y		2.838	0.3
U-238	pci/g	L	12	12	2.34	63.8			-	-	23.66	77.15	0.36	Y		77.15	0.17
4,4'-DDE	mg/kg	U	12	1	0.012	0.012	0.0038	0.0047	0.003	-	-	-	0.35	Y		0.012	0.023
Acenaphthene	mg/kg	U	12	2	0.049	0.12	0.39	0.46	0.2	-	-	-	470	N	h	0.120	220
Anthracene	mg/kg	U	12	2	0.12	0.23	0.39	0.46	0.2	-	-	-	2300	N	h	0.230	1100
Benzo(a)anthracene	mg/kg	L	12	6	0.055	0.88	0.39	0.46	-	-	0.2	0.4	0.16	Y		0.366	0.011
Benzo(a)pyrene	mg/kg	L	12	6	0.059	0.76	0.39	0.46	-	-	0.2	0.3	0.016	Y		0.340	0.0011
Benzo(b)fluoranthene	mg/kg	U	12	5	0.064	0.71	0.39	0.46	0.2	-	-	-	0.011	Y		0.710	0.011
Benzo(g,h,i)perylene	mg/kg	U	12	4	0.082	0.5	0.39	0.46	0.2	-	-	-	--	Y		0.500	c
Benzo(k)fluoranthene	mg/kg	L	12	7	0.042	0.88	0.4	0.46	-	-	0.2	0.4	1.6	Y		0.385	0.11
bis(2-Ethylhexyl) phthalate	mg/kg	U	12	4	0.04	0.048	0.39	0.46	0.2	-	-	-	8.5	Y		0.048	0.57
Carbazole	mg/kg	U	12	1	0.077	0.077	0.39	0.46	0.2	-	-	-	6	Y		0.077	0.4
Chrysene	mg/kg	L	12	8	0.045	1.1	0.4	0.46	-	-	0.2	0.5	1600	Y		0.453	110
Di-n-butyl phthalate	mg/kg	U	12	1	0.055	0.055	0.39	0.46	0.2	-	-	-	780	N	h	0.055	370
Dibenzo(a,h)anthracene	mg/kg	U	12	2	0.056	0.2	0.39	0.46	0.2	-	-	-	0.016	Y		0.200	0.0011
Dibenzofuran	mg/kg	U	12	1	0.056	0.056	0.39	0.46	0.2	-	-	-	--	Y		0.056	c
Fluoranthene	mg/kg	L	12	8	0.057	1.9	0.4	0.46	-	-	0.3	0.7	310	N	h	0.691	150
Fluorene	mg/kg	U	12	2	0.056	0.1	0.39	0.46	0.2	-	-	-	310	N	h	0.100	220
Indeno(1,2,3-cd)pyrene	mg/kg	U	12	5	0.046	0.48	0.39	0.46	0.2	-	-	-	0.16	Y		0.480	0.011
Phenanthrene	mg/kg	L	12	7	0.059	1.5	0.4	0.46	-	-	0.3	0.5	--	Y		0.531	c
Pyrene	mg/kg	L	12	9	0.049	2.1	0.4	0.42	-	-	0.3	0.9	230	N	h	0.852	110
2-Butanone	mg/kg	U	12	1	0.001	0.001	0.011	0.014	0.006	-	-	-	4700	N	h	0.001	2200
Acetone	mg/kg	U	12	4	0.001	0.005	0.011	0.014	0.005	-	-	-	780	N	h	0.005	370
Bromomethane	mg/kg	U	12	1	0.002	0.002	0.011	0.014	0.006	-	-	-	11	N	h	0.002	0.87
Chloromethane	mg/kg	U	12	1	0.002	0.002	0.011	0.014	0.006	-	-	-	9.2	N	h	0.002	0.18

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

* = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

: low toxicity by expected exposure route

Table B.3.4-2(b)

CONSTITUENTS OF POTENTIAL CONCERN (CPC)

Solid Waste Landfill: Subsurface Soil

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	N	53	52	748	25200	5800	5800	10172.03774	11238			--	Y		11238	--
Antimony	mg/kg	U	48	11	3.8	27.3	0.11	3.85	4.1				3.1	N	h	22	15
Arsenic	mg/kg	U	53	53	2.2	15.4			6.8				0.06	Y		13.8	0.005
Barium	mg/kg	L	53	53	16.7	251					93.76	107.91	550	N	h	107.91	260
Beryllium	mg/kg	L	53	48	0.19	1.8	0.175	0.23			0.89	1.07	0.03	Y		1.075	0.002
Boron	mg/kg	L	11	8	7.2	32.8	11.05	12.8			20.42	31.13	700	N	b	31.133	330
Cadmium	mg/kg	L	53	35	0.48	6.5	0.22	0.6			1.33	1.69	3.9	Y		1.691	1.8
Calcium	mg/kg	N	53	53	4500	151000			75471	83862			--	N	a	83862	--
Chromium	mg/kg	L	53	53	4	51.8					17.63	20.14	39	Y		20.14	18
Cobalt	mg/kg	L	53	52	2.4	28	1.05	1.05			10.13	11.80	--	N	b	11.80	c
Copper	mg/kg	U	53	53	4.2	41.5			19.170				290	N	h	29	140
Cyanide	mg/kg	U	47	5	0.14	1	0.055	0.108	0.110				73	N	h	0.5	160
Iron	mg/kg	U	53	53	3350	42600			18981				--	N	a,b	36400	--
Lead	mg/kg	U	53	53	3.1	147			15				--	Y		28.3	d; 1.5
Magnesium	mg/kg	N	53	53	3320	63400			22605	25125			--	N	a,b	25125	--
Manganese	mg/kg	U	53	53	115	1690			544				39	N	b	1130	18
Mercury	mg/kg	U	53	1	0.24	0.24	0.045	0.065	0.059				2.3	N	f	0.24	1.1
Molybdenum	mg/kg	L	53	43	0.86	29.3	0.65	1.4			7.0	10.1	39	N	h	10.08	18
Nickel	mg/kg	U	53	52	4.4	47.1	2.05	2.05	21.07				160	N	b	41	73
Potassium	mg/kg	L	53	53	550	2480					1433	1553	--	N	a	1553	--
Selenium	mg/kg	U	53	2	0.48	0.54	0.11	0.385	0.197				39	N	h	0.48	18
Silicon	mg/kg	L	51	51	132	2620					813	922	--	N	b	921.7	c
Silver	mg/kg	U	53	29	0.43	19.7	0.215	1.3	4.55				39	N	b	15.5	18
Sodium	mg/kg	U	53	53	30	342			167.02				--	N	a	309	
TH-TOTAL	mg/kg	U	45	45	2.65	75.8			11.59				--	Y		75.6	c
Thallium	mg/kg	U	53	12	0.23	12.5	0.11	1.1	0.48				0.8	Y		0.6	0.28
U-TOTAL	mg/kg	U	53	53	2.49	1770			102.84				23	Y		1770	10
Vanadium	mg/kg	L	53	52	6.7	68.8	16.05	16.05			26.77	29.66	55	N	h	29.66	26
Zinc	mg/kg	N	53	53	10.3	108			51.15	54.93			2300	N	b	54.93	1100
1,1-Dichloroethane	mg/kg	U	53	4	0.001	0.13	2.50E-03	7.00E-03	8.46E-03				780	N	h	0.016	81
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	mg/kg	U	19	1	3.80E-04	3.80E-04	6.50E-06	8.00E-05	4.72E-05				8.6E-06	Y		0.38	5.3E-06
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	U	19	1	7.30E-05	7.30E-05	6.00E-06	8.50E-05	2.48E-05				8.6E-06	Y		0.073	5.3E-06
1,2-Dichloroethane	mg/kg	U	53	1	6.00E-03	6.00E-03	2.50E-03	7.00E-03	5.02E-03				1.3	N	f	0.006	0.015
1,2-Dichloroethene	mg/kg	U	52	4	2.00E-03	1.20E-02	2.50E-03	6.50E-03	0.005				70	N	h	0.002	5.5
1,4-Dioxane	mg/kg	U	2	2	0.066	12.9	0	0	6.483				11	Y		12.9	0.73
2-Butanone	mg/kg	U	47	3	0.003	0.11	0.001	0.0085	0.008				4700	N	h	0.003	2200
2-Chlorophenol	mg/kg	U	51	1	0.049	0.049	0.165	9.5	0.417				39	N	f	0.049	18
2-Hexanone	mg/kg	U	52	3	1.00E-03	2.00E-03	5.50E-03	7.00E-03	5.60E-03				--	Y		0.001	c
2-Methylnaphthalene	mg/kg	U	50	5	0.093	48	0.18	1.95	1.148				--	Y		0.1	c
4,4'-DDD	mg/kg	U	52	3	4.30E-03	0.005	0.0018	0.155	1.04E-02				0.5	Y		0.004	0.033
4-Chloro-3-methylphenol	mg/kg	U	51	1	0.055	0.055	0.18	9.5	0.417				--	N	f	0.055	c
4-Methyl-2-pentanone	mg/kg	U	52	4	0.001	0.02	0.006	0.007	0.005855769				390	N	h	0.001	180
4-Methylphenol	mg/kg	U	50	1	0.14	0.14	0.18	9.5	0.4235				39	N	f	0.14	18

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Table B.3.4-2(b) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
Solid Waste Landfill: Subsurface Soil

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Acenaphthene	mg/kg	U	52	15	0.047	140	0.125	0.42	3.002	-	-	-	470	N	h	0.84	220
Acenaphthylene	mg/kg	U	50	1	2.5	2.5	0.18	1.95	0.285	-	-	-	-	N	f	2.5	c
Acetone	mg/kg	U	44	9	0.006	0.088	0.005	0.028	0.011	-	-	-	780	N	h	0.039	370
Anthracene	mg/kg	U	51	18	0.07	250	0.18	0.22	5.305	-	-	-	2800	N	h	1	1100
Aroclor-1254	mg/kg	U	53	2	0.048	0.15	0.018	1.55	0.102	-	-	-	0.013	Y		0.05	0.001
Aroclor-1260	mg/kg	U	53	5	0.026	0.61	0.018	1.55	0.116	-	-	-	0.013	Y		0.08	0.001
Benzene	mg/kg	U	53	2	3.00E-03	4.00E-03	2.50E-03	6.50E-03	4.88E-03	-	-	-	4.1	Y		0.003	0.035
Benzo(a)anthracene	mg/kg	U	52	25	0.043	310	0.18	0.22	6.722	-	-	-	0.16	Y		7.5	0.011
Benzo(a)pyrene	mg/kg	U	52	22	0.047	260	0.18	0.22	5.661	-	-	-	0.016	Y		8.2	0.0011
Benzo(b)fluoranthene	mg/kg	U	52	24	0.049	220	0.18	1.95	4.866	-	-	-	0.011	Y		1.5	0.011
Benzo(g,h,i)perylene	mg/kg	U	51	18	0.084	150	0.18	0.22	3.261	-	-	-	-	Y		0.49	c
Benzo(k)fluoranthene	mg/kg	U	51	16	0.056	140	0.18	0.38	3.467	-	-	-	1.6	Y		0.74	0.11
bis(2-Ethylhexyl) phthalate	mg/kg	U	50	25	0.04	3.2	0.18	9.5	0.737	-	-	-	8.5	Y		1.7	0.57
Carbazole	mg/kg	U	37	11	0.058	89	0.18	0.38	2.692	-	-	-	6	Y		4.2	0.4
Carbon disulfide	mg/kg	U	53	1	2.00E-03	2.00E-03	2.50E-03	7.00E-03	4.90E-03	-	-	-	780	N	f	0.002	2.1
Chlorobenzene	mg/kg	U	53	2	2.00E-03	6.00E-03	2.50E-03	7.00E-03	5.00E-03	-	-	-	160	N	h	0.002	3.9
Chloromethane	mg/kg	U	53	1	6.00E-03	6.00E-03	5.50E-03	7.00E-03	5.88E-03	-	-	-	9.2	N	h	0.006	0.18
Chrysene	mg/kg	U	52	25	0.047	310	0.18	0.22	6.7	-	-	-	1600	Y		5.6	110
Di-n-butyl phthalate	mg/kg	U	50	3	0.071	0.17	0.18	9.5	0.418	-	-	-	780	N	h	0.071	370
Di-n-octyl phthalate	mg/kg	U	50	1	0.055	0.055	0.18	9.5	0.422	-	-	-	160	N	f	0.055	73
Dibenzo(a,h)anthracene	mg/kg	U	51	15	0.04	79	0.18	0.38	1.780	-	-	-	0.016	Y		0.25	0.0011
Dibenzofuran	mg/kg	U	50	11	0.038	120	0.18	0.42	2.652	-	-	-	-	Y		0.34	c
Dichlorodifluoromethane	mg/kg	U	1	1	0.576	0.576	0	0	0.576	-	-	-	-	Y		0.576	c
Dieldrin	mg/kg	U	52	1	0.013	0.013	1.80E-03	0.155	0.010	-	-	-	0.0075	N	f	0.013	0.0005
Diethyl phthalate	mg/kg	U	52	3	0.045	0.75	0.18	9.5	0.433	-	-	-	6300	N	h	0.045	2800
Endosulfan II	mg/kg	U	53	1	6.20E-03	6.20E-03	1.80E-03	0.155	0.010	-	-	-		N	f	0.006	
Endosulfan sulfate	mg/kg	U	53	3	6.20E-03	0.01	1.80E-03	0.155	0.010	-	-	-		Y		0.008	c
Endrin aldehyde	mg/kg	U	37	1	0.18	0.18	1.80E-03	0.0022	0.007	-	-	-		N	f	0.18	
Endrin ketone	mg/kg	U	53	2	5.70E-03	0.0071	1.80E-03	0.155	0.010	-	-	-	-	Y		0.006	c
Ethylbenzene	mg/kg	U	53	5	0.002	0.076	0.0025	0.0065	0.007	-	-	-	730	N	h	0.015	130
Fluoranthene	mg/kg	U	52	27	0.046	790	0.18	0.22	16.844	-	-	-	310	N	h	12	150
Fluorene	mg/kg	U	51	13	0.046	180	0.18	0.42	3.853	-	-	-	310	N	h	0.64	220
Heptachlorodibenzo-p-dioxin	mg/kg	U	19	2	6.50E-04	9.00E-04	6.50E-06	6.50E-05	1.05E-04	-	-	-	8.6E-06	Y		0.9	5.3E-06
Heptachlorodibenzofuran	mg/kg	U	19	1	2.50E-04	2.50E-04	6.50E-06	3.00E-04	4.76E-05	-	-	-	8.6E-06	Y		0.25	5.3E-06
Indeno(1,2,3-cd)pyrene	mg/kg	U	51	20	0.045	150	0.18	0.22	3.386	-	-	-	0.16	Y		5.5	0.011
Methylene chloride	mg/kg	U	53	5	0.006	0.013	0.0025	0.013	0.007	-	-	-	16	Y		0.006	0.51
Naphthalene	mg/kg	U	50	9	0.041	98	0.18	0.42	2.143	-	-	-	310	N	h	0.32	150
Octachlorodibenzo-p-dioxin	mg/kg	L	19	18	5.00E-05	1.37E-02	8.00E-05	8.00E-05	-	-	3.74E-03	2.63E-02	8.6E-05	Y		13.7	5.3E-05
Phenanthrene	mg/kg	U	52	26	0.053	900	0.18	0.22	18.8	-	-	-	-	Y		4.8	c
Phenol	mg/kg	U	51	1	0.061	0.061	0.18	9.5	0.418	-	-	-	4700	N	f	0.061	2200
Pyrene	mg/kg	U	52	28	0.044	610	0.18	0.22	13.1	-	-	-	230	N	h	12	110
Pyridine	mg/kg	U	3	1	0.003	0.003	0.0129	0.205	0.074	-	-	-	7.8	N	h	0.003	3.7
Styrene	mg/kg	U	53	1	0.002	0.002	0.0025	0.007	0.005	-	-	-	1600	N	f	0.002	160

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Table B.3.4-2(b) (continued)

CONSTITUENTS OF POTENTIAL CONCERN (CPC)

Solid Waste Landfill: Subsurface Soil

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	'Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Sulfide	mg/kg	N	6	6	7.27	12.7			10.5	12.11	-	-	-	N	g	12.11	-
Tetrachloroethene	mg/kg	U	53	3	0.001	0.03	2.50E-03	0.007	0.005	-	-	-	2.3	Y		0.001	0.13
Toluene	mg/kg	U	53	19	0.001	0.054	0.001	6.50E-03	0.005	-	-	-	1600	N	h	0.008	75
Total Organic Carbon	mg/kg	L	6	6	6020	27071			-	-	14107	30088	-	N	c,e	27071	-
Trichlorofluoromethane	mg/kg	U	5	1	0.84	0.84	0.003	0.00605	0.172	-	-	-	11	N	h	0.84	0.19
Vinyl chloride	mg/kg	U	53	1	0.002	0.002	5.50E-03	7.00E-03	0.008	-	-	-	0.08	N	f	0.002	0.002
Xylenes, Total	mg/kg	U	53	5	0.001	0.28	2.50E-03	6.50E-03	0.013	-	-	-	16000	N	h	0.054	1200
CS-137	pci/g	U	57	6	0.091	0.522	0.0317	0.1	0.088	-	-	-	0.007	Y		0.25	0.17
GROSS ALPHA	pci/g	U	35	34	7.63	2532	4.805	4.805	104.50	-	-	-	-	N	c,e	178	-
GROSS BETA	pci/g	U	35	35	16.1	1220			77.95	-	-	-	-	N	c,e	225	-
NP-237	pci/g	U	48	25	0.047	1.87	0.3	0.5	0.27	-	-	-	0.031	Y		0.351	0.022
PB-210	pci/g	U	4	3	0.68	1.03	0.2	0.2	0.68	-	-	-	0.12	Y		1.03	0.0073
PU-238	pci/g	U	57	28	1.48E-02	0.433	0.005	0.5	0.169189288	-	-	-	0.36	Y		0.328	0.022
PU-239/240	pci/g	U	57	23	1.48E-02	1.87	0.005	0.5	0.210578947	-	-	-	0.34	Y		0.68	0.021
RA-224	pci/g	U	4	4	1.11	2.14			1.495	-	-	-	0.49	Y		2.14	0.13
RA-226	pci/g	U	57	55	0.380	113	0.15	0.15	2.976	-	-	-	0.002	Y		1.55	0.04
RA-228	pci/g	U	57	54	0.600	6.65	0.25	0.3	1.174	-	-	-	0.005	Y		2.56	0.048
SR-90	pci/g	U	53	15	0.195	3.09	0.0715	0.45	0.443	-	-	-	2.2	Y		1.58	0.13
TC-99	pci/g	U	52	3	0.754	5.13	0.142	0.45	0.406	-	-	-	60.8	Y		0.454	0.27
TH-228	pci/g	U	52	51	0.584	9.36	0.3	0.3	1.423	-	-	-	0.003	Y		3.39	0.087
TH-230	pci/g	U	52	50	0.680	720	0.3	0.3	16.2	-	-	-	5.96	Y		12.3	0.37
TH-232	pci/g	U	49	43	0.489	8.22	0.3	0.5	1.19	-	-	-	6.3	Y		3.59	0.4
U-234	pci/g	U	58	55	0.651	553	0.3	0.3	23.45	-	-	-	4.9	Y		97	0.3
U-235	pci/g	U	4	2	0.270	1.89	0.15	0.2	0.63	-	-	-	0.08	Y		1.89	0.3
U-235/236	pci/g	U	58	43	0.015	28.9	0.015	0.3	1.59	-	-	-	0.08	Y		8.04	0.3
U-238 (ALPHA)	pci/g	U	58	58	0.731	577			33.37	-	-	-	0.38	Y		170	0.17
U-238 (GAMMA)	pci/g	U	4	4	1.890	37.2			11.84	-	-	-	0.38	Y		37.2	0.17

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L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

* = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Au

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

Table B.3.4-2(c)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOLID WASTE LANDFILL: SURFACE WATER

PARAMETER	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	*** CPC	Reason for Elimination	Average
Alkalinity	mg/l	2	2	276	276.5			N	g	276.3
Chloride	mg/l	3	3	12	24.6			N	g	17.90
Fluoride	mg/l	3	3	0.14	0.22			N	g	0.183
Nitrate	mg/l	3	2	1.8	2.34	21.8	21.8	N	g	5.013
Phosphorus	mg/l	1	1	0.27	0.27			N	g	0.270
Sulfate	mg/l	3	2	36.8	61.01	2	2	N	g	32.94
Sulfide	mg/l	2	1	1.01	1.01	0.5	0.5	N	g	0.630
Total Kjeldahl Nitrogen	mg/l	3	3	0.2	1.0283			N	g	0.486
Total Organic Carbon	mg/l	2	2	2.7	2.8			N	g	2.750
Total Organic Halides	mg/l	3	1	0.0189	0.0189	10	10	N	g	3.340
Total Organic Nitrogen	mg/l	3	3	0.2	1.03			N	g	0.487
Total Phosphorous	mg/l	2	2	0.03	0.04			N	g	0.035
Aluminum	ug/l	1	1	140	140			N	a	140.0
Barium	ug/l	1	1	38.5	38.5			N	j	38.50
Calcium	ug/l	1	1	92500	92500			N	a	92500
Cyanide	ug/l	2	2	2.4	2.4			N	j	2.400
Magnesium	ug/l	1	1	23500	23500			N	a	23500
Manganese	ug/l	1	1	177	177			Y		177.0
Potassium	ug/l	1	1	865	865			N	a	865.0
Silicon	ug/l	1	1	1910	1910			N	i	1910
Sodium	ug/l	1	1	11300	11300			N	a	11300
U-TOTAL	ug/l	3	3	26	59.3			Y		43.80
GROSS ALPHA	pci/l	2	2	24.7	32.9			N	c,e	28.80
GROSS BETA	pci/l	2	2	11.5	11.8			N	c,e	11.65
PU-238	pci/l	3	2	0.035	0.196	1	1	Y		0.244
U-234	pci/l	3	3	6.1	17.2			Y		13.47
U-235/236	pci/l	3	2	0.846	1.3	1	1	Y		0.882
U-238	pci/l	3	3	9.7	20.2			Y		16.20
Di-n-butyl phthalate	ug/l	3	1	3	3	10	10	N	j	4.333
Diethyl phthalate	ug/l	3	1	3	3	10	10	N	j	4.333
bis(2-Ethylhexyl) phthalate	ug/l	3	2	1	4	10	10	Y		3.333

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

* = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 haza

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

Table B.3.4-2(c)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOLID WASTE LANDFILL: SURFACE WATER

e = qualitative use only
f = detected only once; not detected in other subunit media
g = for use in describing general aqueous chemistry; not quantitated in risk assessment
h = below soil screening level
i = low toxicity by expected exposure route
j = below EPA Region III tap water screening level and not a CPC in SWL soil

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Table B.3.4-2(d)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOLID WASTE LANDFILL: SEDIMENT

PARAMETER	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Average	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	2	2	7010	8380			--	N	a	7695	--
Arsenic	mg/kg	2	2	4.5	5.3			0.06	Y		4.900	0.005
Barium	mg/kg	2	2	55.9	62.5			550	N	h	59.20	260
Calcium	mg/kg	2	2	105000	161000			--	N	a	133000	--
Chromium	mg/kg	2	1	11.5	11.5	11.3	11.3	39	Y		8.575	18
Cobalt	mg/kg	2	1	6.4	6.4	11.3	11.3	--	Y		6.025	c
Copper	mg/kg	2	2	11.9	15.3			290	N	h	13.60	140
Iron	mg/kg	2	2	13400	15400			--	N	a	14400	--
Lead	mg/kg	2	2	11.4	14.1			--	Y		12.75	d; 1.5
Magnesium	mg/kg	2	2	22500	26000			--	N	a	24250	--
Manganese	mg/kg	2	2	424	1640			39	Y		1032	18
Nickel	mg/kg	2	1	16.4	16.4	22.6	22.6	160	N	h	13.85	73
Potassium	mg/kg	2	2	1030	1100			--	N	a	1065	--
Silicon	mg/kg	2	2	1280	1330			--	Y		1305	c
Silver	mg/kg	2	1	4.2	4.2	11.3	11.3	39	N	h	4.925	18
Sodium	mg/kg	2	2	158	346			--	N	a	252.0	
Thallium	mg/kg	2	1	0.76	0.76	0.59	0.59	0.6	Y		0.528	0.26
Vanadium	mg/kg	2	2	19	23.8			55	N	h	21.40	20
Zinc	mg/kg	2	2	45.7	72.6			2300	N	h	59.15	1100
TH-TOTAL	mg/kg	1	1	5.2	5.2			--	Y		5.200	c
U-TOTAL	mg/kg	3	3	14.7	24			23	Y		20.43	10
GROSS ALPHA	pci/g	2	2	15.3	27.7			--	N	c,e	21.50	--
GROSS BETA	pci/g	2	2	16.3	26.9			--	N	c,e	21.60	--
NP-237	pci/g	2	1	0.62	0.62	0.04	0.04	0.031	Y		0.320	0.022
PU-238	pci/g	2	1	0.036	0.036	0.05	0.05	0.36	Y		0.031	0.022
PU-239/240	pci/g	2	1	0.039	0.039	0.04	0.04	0.34	Y		0.030	0.021
RA-226	pci/g	3	3	0.8	0.97			0.002	Y		0.890	0.04
RA-228	pci/g	3	3	0.75	1.07			0.005	Y		0.940	0.048
SR-90	pci/g	2	2	0.59	0.99			2.2	Y		0.790	0.13
TH-228	pci/g	1	1	0.73	0.73			0.003	Y		0.730	0.087
TH-230	pci/g	1	1	1.05	1.05			5.96	Y		1.050	0.37
TH-232	pci/g	1	1	0.57	0.57			6.3	Y		0.570	0.4
U-234	pci/g	2	2	3.66	4.18			4.9	Y		3.920	0.3
U-235/236	pci/g	2	1	0.25	0.25	0.03	0.03	0.06	Y		0.133	0.3
U-238	pci/g	2	2	4.56	6.8			0.36	Y		5.680	0.17

Table B.3.4-2(d) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SOLID WASTE LANDFILL: SEDIMENT

PARAMETER	Units	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Average	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Acenaphthene	mg/kg	2	1	0.098	0.098	0.45	0.45	470	N	h	0.1615	220
Anthracene	mg/kg	2	1	0.24	0.24	0.45	0.45	2300	N	h	0.2325	1100
Benzo(a)anthracene	mg/kg	2	1	0.5	0.5	0.45	0.45	0.16	Y		0.3625	0.011
Benzo(a)pyrene	mg/kg	2	1	0.55	0.55	0.45	0.45	0.016	Y		0.3875	0.0011
Benzo(b)fluoranthene	mg/kg	2	1	0.73	0.73	0.45	0.45	0.011	Y		0.4775	0.011
Benzo(g,h,i)perylene	mg/kg	2	1	0.24	0.24	0.45	0.45	--	Y		0.2325	c
Benzo(k)fluoranthene	mg/kg	2	1	0.27	0.27	0.45	0.45	1.6	Y		0.2475	0.11
Carbazole	mg/kg	2	1	0.12	0.12	0.45	0.45	6	Y		0.1725	0.4
Chrysene	mg/kg	2	1	0.51	0.51	0.45	0.45	1600	Y		0.3675	110
Fluoranthene	mg/kg	2	1	1.4	1.4	0.45	0.45	310	Y		0.8125	150
Indeno(1,2,3-cd)pyrene	mg/kg	2	1	0.31	0.31	0.45	0.45	0.16	Y		0.2675	0.011
Phenanthrene	mg/kg	2	1	1	1	0.45	0.45	--	Y		0.6125	c
Pyrene	mg/kg	2	2	0.058	0.99			230	Y		0.5240	110
bis(2-Ethylhexyl) phthalate	mg/kg	2	1	0.053	0.053	0.45	0.45	8.5	Y		0.1390	0.57
Acetone	mg/kg	2	1	0.002	0.002	0.013	0.013	780	N	h	0.0043	370

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

• = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

Table B.3.4-2(e)
CONTAMINANTS OF POTENTIAL CONCERN (CPC)
SWL: Groundwater - 1000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
Ammonia	ug/l	U	13	7	110	300	50	50	130.00	-	-	-	N	g	300.0
Chloride	ug/l	N	14	13	2000	27000	1000	1000	11392	15291	-	-	N	g	15291
Fluoride	ug/l	L	14	14	190	1250	0	0	-	-	577.3	735.1	N	g	735.1
Nitrate	ug/l	L	9	7	100	930	50	50	-	-	411.1	1675.0	N	g	930.0
Phenols	ug/l	U	12	3	20	20	5	5	8.75	-	-	-	N	g	20.0
Phosphorus	ug/l	U	10	9	22	4900	25	25	1318	-	-	-	N	g	4900
Sulfate	ug/l	N	14	14	50300	296200	0	0	137907	170682	-	-	N	g	170682
Sulfide	ug/l	U	5	1	7870	7870	250	250	1774	-	-	-	N	g	7870
Aluminum	ug/l	U	6	5	216	53200	15.1	15.1	9707	-	-	-	N	a	53200
Arsenic	ug/l	L	6	4	1.1	4.4	0.5	1	-	-	1.885	5.815	Y		4.4
Barium	ug/l	L	6	6	42.5	466	0	0	-	-	144.2	591.4	N	k	466
Beryllium	ug/l	U	6	1	2.2	2.2	0.43	1	0.84	-	-	-	Y		2.2
Cadmium	ug/l	U	6	2	3.2	3.3	1	2.5	2.25	-	-	-	N	k	3.3
Calcium	ug/l	L	6	6	91600	398000	0	0	-	-	178125	353083	N	a	353083
Chromium	ug/l	U	6	1	58.3	58.3	2	5	11.98	-	-	-	Y		58.3
Cobalt	ug/l	U	6	2	8.5	25.6	1.5	5	7.37	-	-	-	Y		25.6
Copper	ug/l	U	6	1	70.5	70.5	1.1	6.45	14.75	-	-	-	N	k	70.5
Iron	ug/l	U	6	4	524	75000	10	52	14271	-	-	-	N	a	75000
Lead	ug/l	U	6	2	1	31.4	0.5	2.1	6.08	-	-	-	Y		31.4
Magnesium	ug/l	N	6	6	33600	130000	0	0	76433	103089	-	-	N	a	103089
Manganese	ug/l	U	6	6	44.8	1900	0	0	517.80	-	-	-	Y		1900
Molybdenum	ug/l	U	6	3	14.1	26	2.65	5	11.83	-	-	-	Y		26
Nickel	ug/l	U	6	3	4.4	118	1.5	10.45	34.93	-	-	-	Y		118
Potassium	ug/l	L	6	6	1330	15400	0	0	-	-	4663	22449	N	a	15400
Silicon	ug/l	L	6	6	6360	72100	0	0	-	-	18991	95165	N	i	72100
Silver	ug/l	U	6	1	20.1	20.1	1	5	5.10	-	-	-	N	k	20.1
Sodium	ug/l	N	6	6	8420	17300	0	0	13203	15833	-	-	N	a	15833
TH-TOTAL	ug/l	U	12	2	5.96	104	0.4325	2.5	10.34	-	-	-	N	b	104
U-TOTAL	ug/l	L	13	13	2	55.8			-	-	8.369	17.23	Y		17.2
Vanadium	ug/l	U	6	1	118	118	1.2	5	22.94	-	-	-	N	k	118
Zinc	ug/l	U	6	3	19.4	212	1.75	2.75	44.90	-	-	-	N	k	212
1,2-Dichloroethene	ug/l	U	5	1	16	16	2.5	5	6.70	-	-	-	N	k	16.0
GROSS ALPHA	pci/l	U	6	1	25.6	25.6	3.585	46.05	18.87	-	-	-	N	c,e	25.6
GROSS BETA	pci/l	U	6	3	13.3	178	2.475	3.77	44.11	-	-	-	N	c,e	178
NP-237	pci/l	U	11	2	0.3	1.94	0.1	0.5	0.54	-	-	-	Y		1.94
PU-238	pci/l	U	13	3	0.144	0.67	0.0345	0.5	0.32	-	-	-	Y		0.67
RA-226	pci/l	U	13	3	0.193	5.11	0.08	0.5	0.73	-	-	-	Y		5.11
RA-228	pci/l	U	13	1	3.72	3.72	0.67	1.5	1.37	-	-	-	Y		3.72
SR-90	pci/l	U	12	2	0.9	1.35	0.372	2.5	1.41	-	-	-	Y		1.35
TH-228	pci/l	U	13	2	0.566	14	0.1	0.5	1.41	-	-	-	Y		14.0
TH-230	pci/l	U	13	4	0.26	13.8	0.1	0.5	1.45	-	-	-	Y		13.8
TH-232	pci/l	U	13	2	0.654	11.5	0.047	0.5	1.21	-	-	-	Y		11.5

Table B.3.4-2(e) (continued)
CONTAMINANTS OF POTENTIAL CONCERN (CPC)
SWL: Groundwater - 1000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
U-234	pci/l	L	13	11	1.1	12	0.5	0.5	-	-	3.027	6.11	Y		6.11
U-235/236	pci/l	U	13	3	0.208	0.432	0.03	0.5	0.34	-	-	-	Y		0.43
U-238	pci/l	U	13	12	0.67	15.2	0.5	0.5	3.08	-	-	-	Y		15.2

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

j = below EPA Region III tap water screening level and not a CPC in SWL soil

k = below EPA Region III tap water screening level of 10E-6 carciongenic risk or 1.0 hazard

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Table B.3.4-2(f)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SWL: Groundwater - 2000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
Hexachlorodibenzofuran	ug/l	U	3	1	3.80E-04	3.80E-04	2.40E-04	4.95E-04	3.72E-04	-	-	-	Y		3.80E-04
Pentachlorodibenzofuran	ug/l	U	3	1	3.10E-04	3.10E-04	2.10E-04	3.00E-04	2.73E-04	-	-	-	Y		3.10E-04
Tetrachlorodibenzofuran	ug/l	U	3	1	2.20E-04	2.20E-04	2.40E-04	3.60E-04	2.73E-04	-	-	-	Y		2.20E-04
Ammonia	ug/l	L	17	13	100	680	50	205	-	-	288	479	N	g	478.5
Chloride	ug/l	L	21	20	12000	140000	12000	12000	-	-	52927	76606	N	g	76606
Fluoride	ug/l	L	21	21	120	1800	0	0	-	-	307	400	N	g	400.2
Nitrate	ug/l	U	9	2	110	2330	10	1250	438.9	-	-	-	N	g	2330
Phenols	ug/l	U	18	4	12	170	5	25	18.1	-	-	-	N	g	170
Phosphate	ug/l	U	1	1	1000	1000	0	0	1000	-	-	-	N	g	1000
Phosphorus	ug/l	U	13	10	20	26400	5	10	2690	-	-	-	N	g	26400
Sulfate	ug/l	L	18	18	109500	726000	0	0	-	-	259460	349436	N	g	349436
Sulfide	ug/l	U	9	1	5660	5660	250	250	851.1	-	-	-	N	g	5660
Aluminum	ug/l	U	7	4	68.8	1230	137.5	163.5	359.8	-	-	-	N	a	1230
Antimony	ug/l	U	7	1	0.8	0.8	0.8	2.5	2.014	-	-	-	N	k	0.8
Arsenic	ug/l	U	7	2	2.5	2.5	0.5	1	1.357	-	-	-	Y		2.5
Barium	ug/l	L	7	7	89.7	139	0	0	-	-	103.8	118.3	N	k	118.3
Calcium	ug/l	L	7	7	109000	163000	0	0	-	-	140004	159369	N	a	159369
Chromium	ug/l	U	7	1	19.8	19.8	2	10	7.4	-	-	-	Y		19.8
Iron	ug/l	L	7	7	3010	7230	0	0	-	-	4861	6525	N	a	6525
Lead	ug/l	U	7	3	2.8	4.5	0.5	1	2.029	-	-	-	Y		4.5
Magnesium	ug/l	N	7	7	24300	31900	0	0	28771	30926	-	-	N	a	30926
Manganese	ug/l	N	7	7	202	370	0	0	286	329	-	-	Y		328.6
Potassium	ug/l	N	7	7	1030	3260	0	0	2426	3033	-	-	N	a	3033
Silicon	ug/l	U	6	6	6190	8100	0	0	6672	-	-	-	N	i	8100
Sodium	ug/l	L	7	7	11500	17500	0	0	-	-	13973	15511	N	a	15511
TH-TOTAL	ug/l	U	17	1	11	11	0.23	3.5	1.810	-	-	-	Y		11
U-TOTAL	ug/l	L	19	13	0.378	9.15	0.5	3	-	-	3.137	6.400	Y		6.400
Vanadium	ug/l	U	7	1	15	15	4	5	6.286	-	-	-	N	k	15
Zinc	ug/l	N	7	4	11.7	58.4	2.25	2.5	17.2	32.2	-	-	N	k	32.17
GROSS BETA	pci/l	U	8	1	12.6	12.6	2.365	3.79	4.249	-	-	-	N	c,e	12.6
NP-237	pci/l	U	16	1	0.318	0.318	0.024	0.5	0.410	-	-	-	Y		0.318
PU-238	pci/l	U	19	3	0.052	0.278	0.024	0.5	0.331	-	-	-	Y		0.278
RA-226	pci/l	U	17	10	0.222	1.6	0.5	0.5	0.666	-	-	-	Y		1.6
RA-228	pci/l	U	17	1	4.31	4.31	0.675	1.5	1.429	-	-	-	Y		4.31
SR-90	pci/l	U	19	6	0.754	2.38	0.4755	2.5	2.005	-	-	-	Y		2.38
TH-228	pci/l	U	19	1	0.025	0.025	0.076	0.5	0.341	-	-	-	Y		0.025
TH-230	pci/l	U	19	3	0.313	0.712	0.135	0.86	0.442	-	-	-	Y		0.712
U-234	pci/l	U	18	11	0.17	4.74	0.43	0.5	1.233	-	-	-	Y		4.74
U-235/236	pci/l	U	19	3	0.05	0.277	0.023	0.5	0.336	-	-	-	Y		0.277
U-238	pci/l	U	18	11	0.16	3.69	0.5	0.52	1.123	-	-	-	Y		3.69
Butyl benzyl phthalate	ug/l	U	11	2	1	1	5	5	4.273	-	-	-	N	k	1
N-Nitrosodiphenylamine	ug/l	U	11	1	3	3	1	25	6.273	-	-	-	N	f	3

Table B.3.4-2(f) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
SWL: Groundwater - 2000 Series Wells

PARAMETER	UNITS	Dist.	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	CPC	Reason for Elimination	Conc Term
bis(2-Chloroisopropyl) ether	ug/l	U	11	1	10	10	5	5	5.455	-	-	-	N	f	10
bis(2-Ethylhexyl) phthalate	ug/l	U	11	2	3	7	2	5	4.727	-	-	-	Y		7
Acetone	ug/l	U	15	2	2	4	3.5	5	4.633	-	-	-	N	k	4
Carbon disulfide	ug/l	U	12	2	10	11	2.5	5	5.292	-	-	-	N	k	11

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

j = below EPA Region III tap water screening level and not a CPC in SWL soil

k = below EPA Region III tap water screening level of 10E-6 carciongenic risk or 1.0 hazard

TABLE B.3.4-4
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3	Intake	SF(i)	Risk
CS-137	8.01E-07	1.7E-03	1.9E-11	3.2E-14
NP-237	3.57E-06	7.4E-03	2.9E-08	2.1E-10
PU-238	2.32E-06	4.8E-03	3.9E-08	1.9E-10
PU-239/240	2.46E-07	5.1E-04	3.8E-08	1.9E-11
RA-226	5.69E-06	1.2E-02	3.0E-09	3.5E-11
RA-228	5.04E-06	1.0E-02	6.9E-10	7.2E-12
SR-90	2.87E-06	5.9E-03	6.2E-11	3.7E-13
TH-228	4.88E-06	1.0E-02	7.8E-08	7.9E-10
TH-230	1.94E-05	4.0E-02	2.9E-08	1.2E-09
TH-232	4.53E-06	9.4E-03	2.8E-08	2.6E-10
U-234	1.26E-04	2.6E-01	2.6E-08	6.8E-09
U-235/236	8.51E-05	1.8E-01	2.5E-08	4.4E-09
U-238	0.00	4.8E-01	5.2E-08	2.5E-08
			Total Pathway:	3.9E-08

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.26	4.0E+00	2.8E-11	1.1E-10
NP-237	1.19	1.9E+01	2.2E-10	4.1E-09
PU-238	0.77	1.2E+01	2.2E-10	2.6E-09
PU-239/240	0.08	1.3E+00	2.3E-10	2.9E-10
RA-226	1.40	2.2E+01	1.2E-10	2.6E-09
RA-228	1.68	2.6E+01	1.0E-10	2.6E-09
SR-90	0.96	1.5E+01	3.6E-11	5.4E-10
TH-228	1.63	2.5E+01	5.5E-11	1.4E-09
TH-230	6.48	1.0E+02	1.3E-11	1.3E-09
TH-232	1.51	2.4E+01	1.2E-11	2.8E-10
U-234	42.12	6.6E+02	1.6E-11	1.1E-08
U-235/236	2.84	4.4E+01	1.6E-11	6.9E-10
U-238	77.15	1.2E+03	2.8E-11	3.4E-08
			Total Pathway:	6.1E-08

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.80E-08	5.3E-11	1.5E+01	8.0E-10
Beryllium	2.09E-09	3.9E-12	8.4E+00	3.3E-11
Cadmium	2.55E-09	4.8E-12		
Chromium	4.64E-06	8.7E-09		
Lead	5.70E-08	1.1E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	6.76E-07	1.3E-09		
4,4'-DDE	3.60E-11	6.8E-14		
Benzo(a)anthracene	1.16E-09	2.2E-12	8.9E-01	1.9E-12
Benzo(a)pyrene	1.02E-09	1.9E-12	6.1E+00	1.2E-11
Benzo(b)fluoranthene	2.13E-09	4.0E-12	7.5E-01	3.0E-12
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	2.66E-09	5.0E-12	3.2E-01	1.6E-12
bis(2-Ethylhexyl) phthalate	1.44E-10	2.7E-13		
Carbazole	2.31E-10	4.4E-13		
Chrysene	1.36E-09	2.6E-12	2.7E-02	6.9E-14
Dibenzo(a,h)anthracene	8.00E-10	1.5E-12	6.8E+00	1.0E-11
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.44E-09	2.7E-12	1.7E+00	4.6E-12
Phenanthrene	0.00E+00	0.0E+00		
			Total Pathway:	8.6E-10
			Total Rad + Chem	4.0E-08

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.67	9.5E-08	1.8E+00	1.7E-07
Beryllium	0.70	9.9E-09	4.3E+00	4.3E-08
Cadmium	0.85	1.2E-08		
Chromium	15.46	2.2E-07		
Lead	19.01	2.7E-07		
TH-TOTAL	13.78	2.0E-07		
U-TOTAL	225.22	3.2E-06		
4,4'-DDE	0.01	1.7E-10	3.4E-01	5.8E-11
Benzo(a)anthracene	0.37	5.2E-09	1.1E+00	5.7E-09
Benzo(a)pyrene	0.34	4.8E-09	7.3E+00	3.5E-08
Benzo(b)fluoranthene	0.71	1.0E-08	9.0E-01	9.1E-09
Benzo(g,h,i)perylene	0.50	7.1E-09		
Benzo(k)fluoranthene	0.39	5.5E-09	3.8E-01	2.1E-09
bis(2-Ethylhexyl) phthalate	0.05	6.8E-10	1.4E-02	9.5E-12
Carbazole	0.08	1.1E-09	2.0E-02	2.2E-11
Chrysene	0.45	6.4E-09	3.2E-02	2.1E-10
Dibenzo(a,h)anthracene	0.20	2.8E-09	8.1E+00	2.3E-08
Dibenzofuran	0.06	8.0E-10		
Indeno(1,2,3-cd)pyrene	0.48	6.8E-09	2.0E+00	1.4E-08
Phenanthrene	0.53	7.5E-09		
			Total Pathway:	3.0E-07
			Total Rad + Chem	3.6E-07

TABLE B.3.4-4 (continued)
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	7.3E-02	2.00E-06	1.5E-07	1.5E-07
	NP-237	3.4E-01	4.30E-07	1.5E-07	1.5E-07
	PU-238	2.2E-01	2.80E-11	6.2E-12	2.8E-09
	PU-239/240	2.3E-02	2.70E-11	6.3E-13	3.1E-10
	RA-226	4.0E-01	1.20E-08	4.8E-09	7.4E-09
	RA-228	4.8E-01	2.90E-06	1.4E-06	1.4E-06
	SR-90	2.7E-01	0.00E+00	0.0E+00	5.4E-10
	TH-228	4.6E-01	5.60E-06	2.6E-06	2.6E-06
	TH-230	1.8E+00	5.40E-11	1.0E-10	2.6E-09
	TH-232	4.3E-01	2.60E-11	1.1E-11	5.6E-10
	U-234	1.2E+01	3.00E-11	3.6E-10	1.8E-08
	U-235/236	8.1E-01	2.40E-07	1.9E-07	2.0E-07
	U-238	2.2E+01	3.60E-08	7.9E-07	8.5E-07
Total Pathway: 0.0E+00			Total Pathway:	5.3E-06	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	1.6E-08	1.8E+00	2.9E-08					2.0E-07
Beryllium	1.7E-08	4.3E+02	7.2E-06					7.2E-06
Cadmium	2.0E-08							
Chromium	3.7E-07							
Lead	4.5E-07							
TH-TOTAL	0.0E+00							
U-TOTAL	5.4E-06							
4,4'-DDE	8.6E-09	3.8E-01	3.2E-09					3.3E-09
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					5.7E-09
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					3.5E-08
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					9.1E-09
Benzo(g,h,i)perylene	3.6E-07							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					2.1E-09
bis(2-Ethylhexyl) phthalate	4.6E-10	1.6E-02	7.1E-12					1.7E-11
Carbazole	0.0E+00							2.2E-11
Chrysene	0.0E+00	7.4E-02	0.0E+00					2.1E-10
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					2.3E-08
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					1.4E-08
Phenanthrene	3.8E-07							
		Total Pathway:	7.2E-06			Total Pathway:	0.0E+00	
		Total Rad + Chem	7.2E-06				5.3E-06	*Total:* 1.3E-05

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TABLE B.3.4-4 (continued)
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	8.01E-07	1.7E-03		
NP-237	3.57E-06	7.4E-03		
PU-238	2.32E-06	4.8E-03		
PU-239/240	2.46E-07	5.1E-04		
RA-226	5.69E-06	1.2E-02		
RA-228	5.04E-06	1.0E-02		
SR-90	2.87E-06	5.9E-03		
TH-228	4.88E-06	1.0E-02		
TH-230	1.94E-05	4.0E-02		
TH-232	4.53E-06	9.4E-03		
U-234	1.26E-04	2.6E-01		
U-235/236	8.51E-05	1.8E-01		
U-238	2.31E-04	4.8E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.26	4.0E+00		
NP-237	1.19	1.9E+01		
PU-238	0.77	1.2E+01		
PU-239/240	0.08	1.3E+00		
RA-226	1.40	2.2E+01		
RA-228	1.68	2.6E+01		
SR-90	0.96	1.5E+01		
TH-228	1.63	2.5E+01		
TH-230	6.48	1.0E+02		
TH-232	1.51	2.4E+01		
U-234	42.12	6.6E+02		
U-235/236	2.84	4.4E+01		
U-238	77.15	1.2E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.80E-08	3.1E-10		
Beryllium	2.09E-09	2.3E-11		
Cadmium	2.55E-09	2.8E-11		
Chromium	4.64E-06	5.1E-08	5.5E-07	9.3E-02
Lead	5.70E-08	6.3E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	6.76E-07	7.4E-09		
4,4'-DDE	3.60E-11	4.0E-13		
Benzo(a)anthracene	1.16E-09	1.3E-11		
Benzo(a)pyrene	1.02E-09	1.1E-11		
Benzo(b)fluoranthene	2.13E-09	2.3E-11		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	2.66E-09	2.9E-11		
bis(2-Ethylhexyl) phthalate	1.44E-10	1.6E-12		
Carbazole	2.31E-10	2.5E-12		
Chrysene	1.36E-09	1.5E-11		
Dibenzo(a,h)anthracene	8.00E-10	8.8E-12		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.44E-09	1.6E-11		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 9.3E-02

Total Rad + Chem 9.3E-02

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	6.67	5.5E-07	3.0E-04	1.8E-03
Beryllium	0.70	5.8E-08	5.0E-03	1.2E-05
Cadmium	0.85	7.0E-08	1.0E-03	7.0E-05
Chromium	15.46	1.3E-06	5.0E-03	2.6E-04
Lead	19.01	1.6E-06		
TH-TOTAL	13.78	1.1E-06		
U-TOTAL	225.22	1.9E-05	3.0E-03	6.2E-03
4,4'-DDE	0.01	9.9E-10		
Benzo(a)anthracene	0.37	3.0E-08		
Benzo(a)pyrene	0.34	2.8E-08		
Benzo(b)fluoranthene	0.71	5.9E-08		
Benzo(g,h,i)perylene	0.50	4.1E-08		
Benzo(k)fluoranthene	0.39	3.2E-08		
bis(2-Ethylhexyl) phthalate	0.05	4.0E-09		
Carbazole	0.08	6.4E-09		
Chrysene	0.45	3.8E-08		
Dibenzo(a,h)anthracene	0.20	1.7E-08		
Dibenzofuran	0.06	4.6E-09		
Indeno(1,2,3-cd)pyrene	0.48	4.0E-08		
Phenanthrene	0.53	4.4E-08		

Total Pathway: 8.4E-03

Total Rad + Chem 8.4E-03

TABLE B.3.4-4 (continued)
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	RfD(e)	Hazard	
Not applicable	CS-137	7.3E-02			
	NP-237	3.4E-01			
	PU-238	2.2E-01			
	PU-239/240	2.3E-02			
	RA-226	4.0E-01			
	RA-228	4.8E-01			
	SR-90	2.7E-01			
	TH-228	4.6E-01			
	TH-230	1.8E+00			
	TH-232	4.3E-01			
	U-234	1.2E+01			
	U-235/236	8.1E-01			
	U-238	2.2E+01			
Total Pathway: 0.0E+00			Total Pathway:	0.0E+00	

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	9.3E-08	2.9E-04	3.3E-04					2.2E-03
Beryllium	9.7E-08	5.0E-05	1.9E-03					2.0E-03
Cadmium	1.2E-07	5.0E-05	2.4E-03					2.4E-03
Chromium	2.2E-06	2.3E-03	9.6E-04					9.4E-02
Lead	2.6E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	3.1E-05	1.5E-04	2.1E-01					2.2E-01
4,4'-DDE	5.0E-08							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00			Not applicable				
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	2.1E-06							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	2.7E-09							
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	2.2E-06							
Total Pathway:			2.1E-01	Total Pathway:			0.0E+00	0.3
Total Rad + Chem			2.1E-01				0.0E+00	*otal:* 3.2E-01

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TABLE B.3.4-5
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SURFACE WATER
Carcinogenic Risk

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
PU-238	2.0E-01	5.8E-01	2.2E-10	1.3E-10		1.3E-10
U-234	17.20	5.1E+01	1.6E-11	8.1E-10	Not applicable	8.1E-10
U-235/236	1.3E+00	3.8E+00	1.6E-11	6.1E-11		6.1E-11
U-238	20.20	5.9E+01	2.8E-11	1.7E-09		1.7E-09
			Total Pathway:	2.7E-09	Total Pathway: 0.0E+00	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water					Total
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	PC	Intake	SF(derm)	Risk	
bis(2-Ethylhexyl) phthalate	4.00E-03	1.1E-08	1.4E-02	1.5E-10	bis(2-Ethylhexyl) phthalate	4.6E-02	6.0E-08	1.6E-02	9.4E-10	1.1E-09
Manganese	1.77E-01	4.7E-07			Manganese	1.0E-03	5.8E-08			
U-TOTAL	5.93E-02	1.6E-07			U-TOTAL	1.0E-03	1.9E-08			
			Total Pathway:	1.5E-10				Total Pathway:	9.4E-10	
										3.8E-09
			Total Rad + Chem	2.8E-09				Total Rad + Chem	9.4E-10	*Total:* 3.8E-09

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TABLE B.3.4-5 (continued)
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SURFACE WATER
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard		
PU-238	1.96E-01	5.8E-01			Not applicable	
U-234	1.72E+01	5.1E+01				
U-235/236	1.30E+00	3.8E+00				
U-238	2.02E+01	5.9E+01				
		Total Pathway:		0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water				Total
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
bis(2-Ethylhexyl) phthalate	4.00E-03	6.2E-08	2.0E-02	3.1E-06	bis(2-Ethylhexyl) phthalate	3.5E-07	1.8E-02	2.0E-05	2.3E-05
Manganese	1.77E-01	2.8E-06	1.4E-01	2.0E-05	Manganese	3.4E-07	4.2E-03	8.1E-05	1.0E-04
U-TOTAL	5.93E-02	9.3E-07	3.0E-03	3.1E-04	U-TOTAL	1.1E-07	1.5E-04	7.6E-04	1.1E-03
		Total Pathway:		3.3E-04	Total Pathway:			8.6E-04	
		Total Rad + Chem		3.3E-04	Total Rad + Chem			8.6E-04	*Total:* 1.2E-03

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TABLE B.3.4-6
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SEDIMENT
Carcinogenic Risk

Radiation Risk

Ingestion/Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	6.2E-01	9.672	2.20E-10	2.1E-09
PU-238	3.6E-02	0.5616	2.20E-10	1.2E-10
PU-239/240	3.9E-02	0.6084	2.30E-10	1.4E-10
RA-226	9.7E-01	15.132	1.20E-10	1.8E-09
RA-228	1.07	16.692	1.00E-10	1.7E-09
SR-90	9.9E-01	15.444	3.60E-11	5.6E-10
TH-228	7.3E-01	11.388	5.50E-11	6.3E-10
TH-230	1.05	16.38	1.30E-11	2.1E-10
TH-232	5.7E-01	8.892	1.20E-11	1.1E-10
U-234	4.18	65.208	1.60E-11	1.0E-09
U-235/236	2.5E-01	3.9	1.60E-11	6.2E-11
U-238	6.8	106.08	2.80E-11	3.0E-09
			Total Pathway	1.1E-08

Dermal Contact/Sediment

Not applicable

Total Pathway: 0.0E+00

External Radiation/Sediment

Compoun	Intake	SF(e)	Risk	
NP-237	0.176658	4.3E-07	7.6E-08	7.8E-08
PU-238	0.010258	2.8E-11	2.9E-13	1.2E-10
PU-239/2	0.011112	2.7E-11	3.0E-13	1.4E-10
RA-226	0.276384	1.2E-08	3.3E-09	5.1E-09
RA-228	0.304877	2.9E-06	8.8E-07	8.9E-07
SR-90	0.282082	0	0.0E+00	5.6E-10
TH-228	0.208	5.6E-06	1.2E-06	1.2E-06
TH-230	0.299178	5.4E-11	1.6E-11	2.3E-10
TH-232	0.162411	2.6E-11	4.2E-12	1.1E-10
U-234	1.191014	3E-11	3.6E-11	1.1E-09
U-235/23	0.071233	2.4E-07	1.7E-08	1.7E-08
U-238	1.937534	3.6E-08	7.0E-08	7.3E-08
		Total Pathway:	2.2E-06	

Chemical Risk

Ingestion/Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Benzo(a)anthracene	0.500	7.1E-09	1.1E+00	7.8E-09
Benzo(a)pyrene	0.550	7.8E-09	7.3E+00	5.7E-08
Benzo(b)fluoranthene	0.730	1.0E-08	9.0E-01	9.3E-09
Benzo(g,h,i)perylene	0.240	3.4E-09		
Benzo(k)fluoranthene	0.270	3.8E-09	3.8E-01	1.5E-09
bis(2-Ethylhexyl) phthalate	0.053	7.5E-10	1.4E-02	1.1E-11
Carbazole	0.120	1.7E-09		
Chrysene	0.510	7.2E-09	3.2E-02	2.3E-10
Fluoranthene	1.400	2.0E-08		
Indeno(1,2,3-cd)pyrene	0.310	4.4E-09	2.0E+00	8.8E-09
Phenanthrene	1.000	1.4E-08		
Pyrene	0.990	1.4E-08		
Arsenic	5.30	7.5E-08	1.75	1.3E-07
Chromium	11.50	1.6E-07		
Cobalt	6.40	9.1E-08		
Lead	14.1	2.0E-07		
Manganese	1640	2.3E-05		
Silicon	1330	1.9E-05		
TH-TOTAL	5.20	7.4E-08		
Thallium	0.760	1.1E-08		
U-TOTAL	24.00	3.4E-07		
			Total Pathway:	2.2E-07
			Total Rad + Chem	2.3E-07

Dermal Contact/Sediment

Compound	Intake	SF(derm)	Risk
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00
Benzo(g,h,i)perylene	1.55E-07		
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	4.58E-10	1.6E-02	7.1E-12
Carbazole	0.0E+00		
Chrysene	0.0E+00		
Fluoranthene	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00
Phenanthrene	6.47E-07		
Pyrene	6.41E-07		
Arsenic	1.14E-08	1.8E+00	2.1E-08
Chromium	2.48E-07		
Cobalt	1.38E-07		
Lead	3.04E-07		
Manganese	3.54E-05		
Silicon	0.0E+00		
TH-TOTAL	0.0E+00		
Thallium	1.64E-08		
U-TOTAL	5.18E-07		
		Total Pathway:	2.1E-08
		Total Rad + Chem	2.1E-08

External Radiation/Sediment

Compoun	Intake	SF(e)	Risk	
				7.8E-09
				5.7E-08
				9.3E-09
	Not applicable			
				1.5E-09
				1.8E-11
				2.3E-10
				8.8E-09
				1.5E-07
		Total Pathway:	0.0E+00	
		Total Rad + Chem	2.2E-06	Total: 2.5E-06

TABLE B.3.4-6 (continued)
CURRENT, TRESPASSING YOUTH
SOLID WASTE LANDFILL: SEDIMENT
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Sediment

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
NP-237	0.62	9.672		
PU-238	0.036	0.5616		
PU-239/240	0.039	0.6084		
RA-226	0.97	15.132		
RA-228	1.07	16.692		
SR-90	0.99	15.444		
TH-228	0.73	11.388		
TH-230	1.05	16.38		
TH-232	0.57	8.892		
U-234	4.18	65.208		
U-235/236	0.25	3.9		
U-238	6.8	106.08		
		Total Pa	0.0E+00	

Dermal Contact/Sediment

Not applicable

Total Path 0.0E+00

Chemical Hazard

Ingestion/Sediment

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Benzo(a)anthracene	0.500	4.14E-08		
Benzo(a)pyrene	0.550	4.56E-08		
Benzo(b)fluoranthene	0.730	6.05E-08		
Benzo(g,h,i)perylene	0.240	1.99E-08		
Benzo(k)fluoranthene	0.270	2.24E-08		
bis(2-Ethylhexyl) phthalate	0.053	4.39E-09	2.0E-02	2.2E-07
Carbazole	0.120	9.94E-09		
Chrysene	0.510	4.22E-08		
Fluoranthene	1.400	1.16E-07	4.0E-02	2.9E-06
Indeno(1,2,3-cd)pyrene	0.310	2.57E-08		
Phenanthrene	1.000	8.28E-08		
Pyrene	0.990	8.2E-08	3.0E-02	2.7E-06
Arsenic	5.300	4.39E-07	3.0E-04	1.5E-03
Chromium	11.500	9.53E-07	5.0E-03	1.9E-04
Cobalt	6.400	5.3E-07		
Lead	14.100	1.17E-06		
Manganese	1640	0.000136	1.4E-01	9.7E-04
Silicon	1330	0.00011		
TH-TOTAL	5.200	4.31E-07		
Thallium	0.760	6.29E-08	7.0E-05	9.0E-04
U-TOTAL	24.000	1.99E-06	3.0E-03	6.6E-04
		Total Pathway:		4.2E-03
		Total Rad + Chem		4.2E-03

Dermal Contact/Sediment

Compound	Conc'n (mg/kg)	ABS	Intake	RfD(derm)	Hazard	
Benzo(a)anthracene	0.500		0.0E+00			
Benzo(a)pyrene	0.550		0.0E+00			
Benzo(b)fluoranthene	0.730		0.0E+00			
Benzo(g,h,i)perylene	0.240	3.00E-01 b	9.06E-07			
Benzo(k)fluoranthene	0.270		0.0E+00			
bis(2-Ethylhexyl) phthalate	0.053	4.00E-03 b	2.67E-09	0.018	1.48E-07	3.7E-07
Carbazole	0.120		0.0E+00			
Chrysene	0.510		0.0E+00			
Fluoranthene	1.400	3.00E-01	5.3E-06	0.0172	3.1E-04	3.1E-04
Indeno(1,2,3-cd)pyrene	0.310		0.0E+00			
Phenanthrene	1.000	3.00E-01 b	3.78E-06			
Pyrene	0.99	3.00E-01 b	3.74E-06	1.3E-02	2.9E-04	2.9E-04
Arsenic	5.3	1.00E-03 b	6.67E-08	2.9E-04	2.3E-04	1.7E-03
Chromium	11.5	1.00E-02 b	1.45E-06	2.3E-03	6.4E-04	8.3E-04
Cobalt	6.4	1.00E-02 b	8.06E-07			
Lead	14.1	1.00E-02 b	1.78E-06			
Manganese	1640	1.00E-02 b	0.000206	4.2E-03	4.9E-02	5.0E-02
Silicon	1330		0.0E+00			
TH-TOTAL	5.2		0.0E+00			
Thallium	0.76	1.00E-02 b	9.57E-08	7.0E-05	1.4E-03	2.3E-03
U-TOTAL	24.00	1.00E-02 b	3.02E-06	1.5E-04	2.0E-02	2.1E-02
			Total Pathway:		7.2E-02	
			Total Rad + Chem		7.2E-02	Total: 7.6E-02

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TABLE B.3.4-7(a)
CURRENT, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.32E-08	1.5E-03	1.9E-11	2.9E-14	2.9E-14
NP-237	5.67E-08	6.6E-03	2.9E-08	1.9E-10	1.9E-10
PU-238	3.81E-08	4.4E-03	3.9E-08	1.7E-10	1.7E-10
PU-239/240	4.06E-09	4.7E-04	3.8E-08	1.8E-11	1.8E-11
RA-226	9.37E-08	1.1E-02	3.0E-09	3.3E-11	3.3E-11
RA-228	8.30E-08	9.6E-03	6.9E-10	6.6E-12	6.6E-12
SR-90	4.72E-08	5.5E-03	6.2E-11	3.4E-13	3.4E-13
TH-228	8.08E-08	9.4E-03	7.8E-08	7.3E-10	7.3E-10
TH-230	3.20E-07	3.7E-02	2.9E-08	1.1E-09	1.1E-09
TH-232	7.46E-08	8.6E-03	2.8E-08	2.4E-10	2.4E-10
U-234	2.08E-06	2.4E-01	2.6E-08	6.3E-09	6.3E-09
U-235/236	1.40E-07	1.6E-02	2.5E-08	4.1E-10	4.1E-10
U-238	3.81E-06	4.4E-01	5.2E-08	2.3E-08	2.3E-08
			Total Pathway:	3.2E-08	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	3.29E-10	2.1E-11	1.5E+01	3.2E-10	3.2E-10
Beryllium	3.45E-11	2.2E-12	8.4E+00	1.9E-11	1.9E-11
Cadmium	4.20E-11	2.7E-12			
Chromium	7.64E-10	5.0E-11	4.1E+01	2.0E-09	2.0E-09
Lead	9.39E-10	6.1E-11			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.11E-08	7.2E-10			
4,4'-DDE	5.93E-13	3.8E-14			
Benzo(a)anthracene	1.91E-11	1.2E-12	8.9E-01	1.1E-12	1.1E-12
Benzo(a)pyrene	1.68E-11	1.1E-12	6.1E+00	6.6E-12	6.6E-12
Benzo(b)fluoranthene	3.51E-11	2.3E-12	7.5E-01	1.7E-12	1.7E-12
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.37E-11	2.8E-12	3.2E-01	9.1E-13	9.1E-13
bis(2-Ethylhexyl) phthalate	2.37E-12	1.5E-13			
Carbazole	3.80E-12	2.5E-13			
Chrysene	2.24E-11	1.5E-12	2.7E-02	3.9E-14	3.9E-14
Dibenzo(a,h)anthracene	9.88E-12	6.4E-13	6.8E+00	4.4E-12	4.4E-12
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.37E-10	1.5E-11	1.7E+00	2.6E-11	2.6E-11
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	2.4E-09	

Total Rad + Chem 3.5E-08 *Total:* 3.5E-08

TABLE B.3.4-7(a) (continued)
CURRENT, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.32E-08	1.5E-03		
NP-237	5.67E-08	6.6E-03		
PU-238	3.81E-08	4.4E-03		
PU-239/240	4.06E-09	4.7E-04		
RA-226	9.37E-08	1.1E-02		
RA-228	8.30E-08	9.6E-03		
SR-90	4.72E-08	5.5E-03		
TH-228	8.08E-08	9.4E-03		
TH-230	3.20E-07	3.7E-02		
TH-232	7.46E-08	8.6E-03		
U-234	2.08E-06	2.4E-01		
U-235/236	1.40E-07	1.6E-02		
U-238	3.81E-06	4.4E-01		
			Total Pathway:	0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	3.29E-10	2.1E-11		
Beryllium	3.45E-11	2.2E-12		
Cadmium	4.20E-11	2.7E-12		
Chromium	7.64E-10	5.0E-11		
Lead	9.39E-10	6.1E-11		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.11E-08	7.2E-10		
4,4'-DDE	5.93E-13	3.8E-14		
Benzo(a)anthracene	1.91E-11	1.2E-12		
Benzo(a)pyrene	1.68E-11	1.1E-12		
Benzo(b)fluoranthene	3.51E-11	2.3E-12		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	4.37E-11	2.8E-12		
bis(2-Ethylhexyl) phthalat	2.37E-12	1.5E-13		
Carbazole	3.80E-12	2.5E-13		
Chrysene	2.24E-11	1.5E-12		
Dibenzo(a,h)anthracene	9.88E-12	6.4E-13		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.37E-10	1.5E-11		
Phenanthrene	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00

	Total
	0.0E+00
Total Rad + Chem	0.0E+00
Total:	0.0E+00

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TABLE B.3.4-7(b)
CURRENT, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk					Total
Inhalation of Particulates/Soil					
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.32E-08	2.8E-05	1.9E-11	5.3E-16	5.3E-16
NP-237	5.67E-08	1.2E-04	2.9E-08	3.5E-12	3.5E-12
PU-238	3.81E-08	8.0E-05	3.9E-08	3.1E-12	3.1E-12
PU-239/240	4.06E-09	8.5E-06	3.8E-08	3.2E-13	3.2E-13
RA-226	9.37E-08	2.0E-04	3.0E-09	5.9E-13	5.9E-13
RA-228	8.30E-08	1.7E-04	6.9E-10	1.2E-13	1.2E-13
SR-90	4.72E-08	9.9E-05	6.2E-11	6.1E-15	6.1E-15
TH-228	8.08E-08	1.7E-04	7.8E-08	1.3E-11	1.3E-11
TH-230	3.20E-07	6.7E-04	2.9E-08	1.9E-11	1.9E-11
TH-232	7.46E-08	1.6E-04	2.8E-08	4.4E-12	4.4E-12
U-234	2.08E-06	4.4E-03	2.6E-08	1.1E-10	1.1E-10
U-235/236	1.40E-07	2.9E-04	2.5E-08	7.4E-12	7.4E-12
U-238	3.81E-06	8.0E-03	5.2E-08	4.2E-10	4.2E-10
			Total Pathway:	5.8E-10	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk	
Arsenic	3.29E-10	1.8E-12	1.5E+01	2.7E-11	2.7E-11
Beryllium	3.45E-11	1.9E-13	8.4E+00	1.6E-12	1.6E-12
Cadmium	4.20E-11	2.3E-13			
Chromium	7.64E-10	4.2E-12	4.1E+01	1.7E-10	1.7E-10
Lead	9.39E-10	5.1E-12			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.11E-08	6.1E-11			
4,4'-DDE	5.93E-13	3.2E-15			
Benzo(a)anthracene	1.91E-11	1.0E-13	8.9E-01	9.3E-14	9.3E-14
Benzo(a)pyrene	1.68E-11	9.2E-14	6.1E+00	5.6E-13	5.6E-13
Benzo(b)fluoranthene	3.51E-11	1.9E-13	7.5E-01	1.4E-13	1.4E-13
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.37E-11	2.4E-13	3.2E-01	7.7E-14	7.7E-14
bis(2-Ethylhexyl) phthalate	2.37E-12	1.3E-14			
Carbazole	3.80E-12	2.1E-14			
Chrysene	2.24E-11	1.2E-13	2.7E-02	3.3E-15	3.3E-15
Dibenzo(a,h)anthracene	9.88E-12	5.4E-14	6.8E+00	3.7E-13	3.7E-13
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.37E-10	1.3E-12	1.7E+00	2.2E-12	2.2E-12
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	2.0E-10	
			Total Rad + Chem	7.9E-10	*Total:* 7.9E-10

TABLE B.3.4-7(b)(continued)
CURRENT, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard					Total
Inhalation of Particulates/Soil					
Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	1.32E-08	2.8E-05			
NP-237	5.67E-08	1.2E-04			
PU-238	3.81E-08	8.0E-05			
PU-239/240	4.06E-09	8.5E-06			
RA-226	9.37E-08	2.0E-04			
RA-228	8.30E-08	1.7E-04			
SR-90	4.72E-08	9.9E-05			
TH-228	8.08E-08	1.7E-04			
TH-230	3.20E-07	6.7E-04			
TH-232	7.46E-08	1.6E-04			
U-234	2.08E-06	4.4E-03			
U-235/236	1.40E-07	2.9E-04			
U-238	3.81E-06	8.0E-03			

Total Pathway: 0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	3.29E-10	2.1E-11		
Beryllium	3.45E-11	2.2E-12		
Cadmium	4.20E-11	2.7E-12		
Chromium	7.64E-10	4.9E-11		
Lead	9.39E-10	6.0E-11		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.11E-08	7.1E-10		
4,4'-DDE	5.93E-13	3.8E-14		
Benzo(a)anthracene	1.91E-11	1.2E-12		
Benzo(a)pyrene	1.68E-11	1.1E-12		
Benzo(b)fluoranthene	3.51E-11	2.2E-12		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	4.37E-11	2.8E-12		
bis(2-Ethylhexyl) phthalat	2.37E-12	1.5E-13		
Carbazole	3.80E-12	2.4E-13		
Chrysene	2.24E-11	1.4E-12		
Dibenzo(a,h)anthracene	9.88E-12	6.3E-13		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	2.37E-10	1.5E-11		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00 | *Total:* 0.0E+00

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TABLE B.3.4-8(a)
CURRENT, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.85E-05	3.4E-02	2.8E-11	9.5E-13	CS-137	6.5E-06	4.8E-02	2.8E-11	1.3E-12	2.3E-12
NP-237	2.25E-07	4.1E-04	2.2E-10	9.1E-14	NP-237	2.0E-08	1.5E-04	2.2E-10	3.3E-14	1.2E-13
PU-238	1.32E-09	2.4E-06	2.2E-10	5.3E-16	PU-238	2.6E-10	1.9E-06	2.2E-10	4.3E-16	9.6E-16
PU-239/240	1.40E-10	2.6E-07	2.3E-10	5.9E-17	PU-239/240	2.8E-11	2.1E-07	2.3E-10	4.7E-17	1.1E-16
RA-226	1.63E-06	3.0E-03	1.2E-10	3.6E-13	RA-226	2.9E-06	2.2E-02	1.2E-10	2.6E-12	2.9E-12
RA-228	1.40E-06	2.6E-03	1.0E-10	2.6E-13	RA-228	2.5E-06	1.8E-02	1.0E-10	1.8E-12	2.1E-12
SR-90	1.00E-06	1.8E-03	3.6E-11	6.6E-14	SR-90	5.0E-06	3.7E-02	3.6E-11	1.3E-12	1.4E-12
TH-228	3.03E-08	5.6E-05	5.5E-11	3.1E-15	TH-228	2.5E-08	1.9E-04	5.5E-11	1.0E-14	1.3E-14
TH-230	1.33E-07	2.4E-04	1.3E-11	3.2E-15	TH-230	1.1E-07	8.1E-04	1.3E-11	1.1E-14	1.4E-14
TH-232	3.10E-08	5.7E-05	1.2E-11	6.8E-16	TH-232	2.6E-08	1.9E-04	1.2E-11	2.3E-15	3.0E-15
U-234	2.89E-05	5.3E-02	1.6E-11	8.5E-13	U-234	8.7E-05	6.4E-01	1.6E-11	1.0E-11	1.1E-11
U-235/236	1.94E-06	3.6E-03	1.6E-11	5.7E-14	U-235/236	5.8E-06	4.3E-02	1.6E-11	6.9E-13	7.4E-13
U-238	5.29E-05	9.7E-02	2.8E-11	2.7E-12	U-238	1.6E-04	1.2E+00	2.8E-11	3.3E-11	3.5E-11
			Total Pathway:	5.4E-12				Total Pathway:	5.1E-11	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	4.58E-08	4.7E-11	1.8E+00	8.2E-11	Arsenic	1.4E-09	5.6E-12	1.8E+00	9.9E-12	9.2E-11
Beryllium	2.39E-09	2.5E-12	4.3E+00	1.1E-11	Beryllium	2.2E-12	8.8E-15	4.3E+00	3.8E-14	1.1E-11
Cadmium	1.74E-08	1.8E-11			Cadmium	3.2E-09	1.3E-11	0.0E+00	0.0E+00	
Chromium	2.92E-07	3.0E-10			Chromium	8.0E-08	3.3E-10	0.0E+00	0.0E+00	
Lead	1.96E-08	2.0E-11			Lead	1.6E-08	6.7E-11	0.0E+00	0.0E+00	
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
U-TOTAL	1.5E-07	1.6E-10			U-TOTAL	4.6E-07	1.9E-09	0.0E+00	0.0E+00	
4,4'-DDE	1.6E-10	1.6E-13	3.4E-01	5.6E-14	4,4'-DDE	5.1E-10	2.1E-12	3.4E-01	7.1E-13	7.6E-13
Benzo(a)anthracene	7.8E-09	8.1E-12	1.1E+00	8.9E-12	Benzo(a)anthracene	2.5E-09	1.0E-11	1.1E+00	1.1E-11	2.0E-11
Benzo(a)pyrene	1.6E-08	1.7E-11	7.3E+00	1.2E-10	Benzo(a)pyrene	5.2E-09	2.1E-11	7.3E+00	1.6E-10	2.8E-10
Benzo(b)fluoranthene	1.3E-07	1.4E-10	9.0E-01	1.2E-10	Benzo(b)fluoranthene	4.2E-08	1.7E-10	9.0E-01	1.6E-10	2.8E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Benzo(k)fluoranthene	3.4E-07	3.5E-10	3.8E-01	1.3E-10	Benzo(k)fluoranthene	1.1E-07	4.4E-10	3.8E-01	1.7E-10	3.0E-10
bis(2-Ethylhexyl) phthalate	4.4E-11	4.5E-14	1.4E-02	6.3E-16	bis(2-Ethylhexyl) phthalate	1.4E-11	5.7E-14	1.4E-02	8.0E-16	1.4E-15
Carbazole	2.7E-09	2.8E-12	2.0E-02	5.6E-14	Carbazole	8.6E-10	3.5E-12	2.0E-02	7.1E-14	1.3E-13
Chrysene	9.3E-09	9.5E-12	3.2E-02	3.1E-13	Chrysene	2.9E-09	1.2E-11	3.2E-02	3.9E-13	6.9E-13
Dibenzo(a,h)anthracene	9.5E-09	9.8E-12	8.1E+00	7.9E-11	Dibenzo(a,h)anthracene	3.0E-09	1.2E-11	8.1E+00	1.0E-10	1.8E-10
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Indeno(1,2,3-cd)pyrene	1.1E-06	1.1E-09	2.0E+00	2.3E-09	Indeno(1,2,3-cd)pyrene	3.5E-07	1.5E-09	2.0E+00	2.9E-09	5.2E-09
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
			Total Pathway:	2.9E-09				Total Pathway:	3.5E-09	6.4E-09
			Total Rad + Chem	2.9E-09				Total Rad + Chem	3.6E-09	*Total:* 6.[illegible]E-09

TABLE B.3.4-8(a) (continued)
CURRENT, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	1.85E-05	3.4E-02			CS-137	6.5E-06	4.8E-02			
NP-237	2.25E-07	4.1E-04			NP-237	2.0E-08	1.5E-04			
PU-238	1.32E-09	2.4E-06			PU-238	2.6E-10	1.9E-06			
PU-239/240	1.40E-10	2.6E-07			PU-239/240	2.8E-11	2.1E-07			
RA-226	1.63E-06	3.0E-03			RA-226	2.9E-06	2.2E-02			
RA-228	1.40E-06	2.6E-03			RA-228	2.5E-06	1.8E-02			
SR-90	1.00E-06	1.8E-03			SR-90	5.0E-06	3.7E-02			
TH-228	3.03E-08	5.6E-05			TH-228	2.5E-08	1.9E-04			
TH-230	1.33E-07	2.4E-04			TH-230	1.1E-07	8.1E-04			
TH-232	3.10E-08	5.7E-05			TH-232	2.6E-08	1.9E-04			
U-234	2.89E-05	5.3E-02			U-234	8.7E-05	6.4E-01			
U-235/236	1.94E-06	3.6E-03			U-235/236	5.8E-06	4.3E-02			
U-238	5.29E-05	9.7E-02			U-238	1.6E-04	1.2E+00			
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	4.58E-08	4.7E-11	3.0E-04	1.6E-07	Arsenic	1.4E-09	5.6E-12	3.0E-04	1.9E-08	1.8E-07
Beryllium	2.39E-09	2.5E-12	5.0E-03	4.9E-10	Beryllium	2.2E-12	8.8E-15	5.0E-03	1.8E-12	4.9E-10
Cadmium	1.74E-08	1.8E-11	1.0E-03	1.8E-08	Cadmium	3.2E-09	1.3E-11	1.0E-03	1.3E-08	3.1E-08
Chromium	2.92E-07	3.0E-10	5.0E-03	6.0E-08	Chromium	8.0E-08	3.3E-10	5.0E-03	6.5E-08	1.3E-07
Lead	1.96E-08	2.0E-11			Lead	1.6E-08	6.7E-11			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	1.5E-07	1.6E-10	3.0E-03	5.3E-08	U-TOTAL	4.6E-07	1.9E-09	3.0E-03	6.3E-07	6.8E-07
4,4'-DDE	1.6E-10	1.6E-13			4,4'-DDE	5.1E-10	2.1E-12			
Benzo(a)anthracene	7.8E-09	8.1E-12			Benzo(a)anthracene	2.5E-09	1.0E-11			
Benzo(a)pyrene	1.6E-08	1.7E-11			Benzo(a)pyrene	5.2E-09	2.1E-11			
Benzo(b)fluoranthene	1.3E-07	1.4E-10			Benzo(b)fluoranthene	4.2E-08	1.7E-10			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	3.4E-07	3.5E-10			Benzo(k)fluoranthene	1.1E-07	4.4E-10			
bis(2-Ethylhexyl) phthalate	4.4E-11	4.5E-14	2.0E-02	2.2E-12	bis(2-Ethylhexyl) phthalate	1.4E-11	5.7E-14	2.0E-02	2.8E-12	5.1E-12
Carbazole	2.7E-09	2.8E-12			Carbazole	8.6E-10	3.5E-12			
Chrysene	9.3E-09	9.5E-12			Chrysene	2.9E-09	1.2E-11			
Dibenzo(a,h)anthracene	9.5E-09	9.8E-12			Dibenzo(a,h)anthracene	3.0E-09	1.2E-11			
Dibenzofuran	0.0E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	1.1E-06	1.1E-09			Indeno(1,2,3-cd)pyrene	3.5E-07	1.5E-09			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.9E-07				Total Pathway:	7.3E-07	

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Total Rad + Chem 2.9E-07

Total Rad + Chem 7.3E-07 *Total:* 1.0E-06

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TABLE B.3.4-8(b)
CURRENT, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.85E-05	1.1E-03	2.8E-11	3.2E-14	CS-137	6.5E-06	9.2E-03	2.8E-11	2.6E-13	2.9E-13
NP-237	2.25E-07	1.4E-05	2.2E-10	3.0E-15	NP-237	2.0E-08	2.9E-05	2.2E-10	6.4E-15	9.4E-15
PU-238	1.32E-09	8.0E-08	2.2E-10	1.8E-17	PU-238	2.6E-10	3.8E-07	2.2E-10	8.3E-17	1.0E-16
PU-239/240	1.40E-10	8.5E-09	2.3E-10	2.0E-18	PU-239/240	2.8E-11	4.0E-08	2.3E-10	9.2E-18	1.1E-17
RA-226	1.63E-06	9.9E-05	1.2E-10	1.2E-14	RA-226	2.9E-06	4.2E-03	1.2E-10	5.0E-13	5.1E-13
RA-228	1.40E-06	8.5E-05	1.0E-10	8.5E-15	RA-228	2.5E-06	3.6E-03	1.0E-10	3.6E-13	3.7E-13
SR-90	1.00E-06	6.1E-05	3.6E-11	2.2E-15	SR-90	5.0E-06	7.2E-03	3.6E-11	2.6E-13	2.6E-13
TH-228	3.03E-08	1.8E-06	5.5E-11	1.0E-16	TH-228	2.5E-08	3.6E-05	5.5E-11	2.0E-15	2.1E-15
TH-230	1.33E-07	8.1E-06	1.3E-11	1.1E-16	TH-230	1.1E-07	1.6E-04	1.3E-11	2.1E-15	2.2E-15
TH-232	3.10E-08	1.9E-06	1.2E-11	2.3E-17	TH-232	2.6E-08	3.7E-05	1.2E-11	4.4E-16	4.7E-16
U-234	2.89E-05	1.8E-03	1.6E-11	2.8E-14	U-234	8.7E-05	1.2E-01	1.6E-11	2.0E-12	2.0E-12
U-235/236	1.94E-06	1.2E-04	1.6E-11	1.9E-15	U-235/236	5.8E-06	8.3E-03	1.6E-11	1.3E-13	1.4E-13
U-238	5.29E-05	3.2E-03	2.8E-11	9.0E-14	U-238	1.6E-04	2.3E-01	2.8E-11	6.3E-12	6.4E-12
		Total Pathway:		1.8E-13			Total Pathway:		9.9E-12	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	4.58E-08	7.3E-12	1.8E+00	1.3E-11	Arsenic	1.4E-09	5.1E-12	1.8E+00	9.0E-12	2.2E-11
Beryllium	2.39E-09	3.8E-13	4.3E+00	1.6E-12	Beryllium	2.2E-12	8.0E-15	4.3E+00	3.4E-14	1.7E-12
Cadmium	1.74E-08	2.8E-12			Cadmium	3.2E-09	1.2E-11			
Chromium	2.92E-07	4.6E-11			Chromium	8.0E-08	3.0E-10			
Lead	1.96E-08	3.1E-12			Lead	1.6E-08	6.1E-11			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	1.5E-07	2.4E-11			U-TOTAL	4.6E-07	1.7E-09			
4,4'-DDE	1.6E-10	2.5E-14	3.4E-01	8.6E-15	4,4'-DDE	5.1E-10	1.9E-12	3.4E-01	6.4E-13	6.5E-13
Benzo(a)anthracene	7.8E-09	1.2E-12	1.1E+00	1.4E-12	Benzo(a)anthracene	2.5E-09	9.2E-12	1.1E+00	1.0E-11	1.2E-11
Benzo(a)pyrene	1.6E-08	2.6E-12	7.3E+00	1.9E-11	Benzo(a)pyrene	5.2E-09	1.9E-11	7.3E+00	1.4E-10	1.6E-10
Benzo(b)fluoranthene	1.3E-07	2.1E-11	9.0E-01	1.9E-11	Benzo(b)fluoranthene	4.2E-08	1.6E-10	9.0E-01	1.4E-10	1.6E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	3.4E-07	5.4E-11	3.8E-01	2.1E-11	Benzo(k)fluoranthene	1.1E-07	4.0E-10	3.8E-01	1.5E-10	1.7E-10
bis(2-Ethylhexyl) phthalate	4.4E-11	6.9E-15	1.4E-02	9.7E-17	bis(2-Ethylhexyl) phthalate	1.4E-11	5.2E-14	1.4E-02	7.2E-16	8.2E-16
Carbazole	2.7E-09	4.3E-13	2.0E-02	8.6E-15	Carbazole	8.6E-10	3.2E-12	2.0E-02	6.4E-14	7.3E-14
Chrysene	9.3E-09	1.5E-12	3.2E-02	4.7E-14	Chrysene	2.9E-09	1.1E-11	3.2E-02	3.5E-13	4.0E-13
Dibenzo(a,h)anthracene	9.5E-09	1.5E-12	8.1E+00	1.2E-11	Dibenzo(a,h)anthracene	3.0E-09	1.1E-11	8.1E+00	9.1E-11	1.0E-10
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.1E-06	1.8E-10	2.0E+00	3.5E-10	Indeno(1,2,3-cd)pyrene	3.5E-07	1.3E-09	2.0E+00	2.6E-09	3.0E-09
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:		4.4E-10			Total Pathway:		3.2E-09	3.6E-09
		Total Rad + Chem		4.4E-10			Total Rad + Chem		3.2E-09	*Total:* 3.[illegible]E-09

TABLE B.3.4-8(b) (continued)
CURRENT, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	1.85E-05	1.1E-03			CS-137	6.5E-06	9.2E-03			
NP-237	2.25E-07	1.4E-05			NP-237	2.0E-08	2.9E-05			
PU-238	1.32E-09	8.0E-08			PU-238	2.6E-10	3.8E-07			
PU-239/240	1.40E-10	8.5E-09			PU-239/240	2.8E-11	4.0E-08			
RA-226	1.63E-06	9.9E-05			RA-226	2.9E-06	4.2E-03			
RA-228	1.40E-06	8.5E-05			RA-228	2.5E-06	3.6E-03			
SR-90	1.00E-06	6.1E-05			SR-90	5.0E-06	7.2E-03			
TH-228	3.03E-08	1.8E-06			TH-228	2.5E-08	3.6E-05			
TH-230	1.33E-07	8.1E-06			TH-230	1.1E-07	1.6E-04			
TH-232	3.10E-08	1.9E-06			TH-232	2.6E-08	3.7E-05			
U-234	2.89E-05	1.8E-03			U-234	8.7E-05	1.2E-01			
U-235/236	1.94E-06	1.2E-04			U-235/236	5.8E-06	8.3E-03			
U-238	5.29E-05	3.2E-03			U-238	1.6E-04	2.3E-01			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	4.58E-08	8.5E-11	3.0E-04	2.8E-07	Arsenic	1.4E-09	6.0E-11	3.0E-04	2.0E-07	4.8E-07
Beryllium	2.39E-09	4.4E-12	5.0E-03	8.9E-10	Beryllium	2.2E-12	9.4E-14	5.0E-03	1.9E-11	9.1E-10
Cadmium	1.74E-08	3.2E-11	1.0E-03	3.2E-08	Cadmium	3.2E-09	1.4E-10	1.0E-03	1.4E-07	1.7E-07
Chromium	2.92E-07	5.4E-10	5.0E-03	1.1E-07	Chromium	8.0E-08	3.5E-09	5.0E-03	6.9E-07	8.0E-07
Lead	1.96E-08	3.6E-11			Lead	1.6E-08	7.1E-10			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	1.5E-07	2.8E-10	3.0E-03	9.5E-08	U-TOTAL	4.6E-07	2.0E-08	3.0E-03	6.7E-06	6.8E-06
4,4'-DDE	1.6E-10	3.0E-13			4,4'-DDE	5.1E-10	2.2E-11			
Benzo(a)anthracene	7.8E-09	1.5E-11			Benzo(a)anthracene	2.5E-09	1.1E-10			
Benzo(a)pyrene	1.6E-08	3.1E-11			Benzo(a)pyrene	5.2E-09	2.3E-10			
Benzo(b)fluoranthene	1.3E-07	2.5E-10			Benzo(b)fluoranthene	4.2E-08	1.8E-09			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	3.4E-07	6.3E-10			Benzo(k)fluoranthene	1.1E-07	4.7E-09			
bis(2-Ethylhexyl) phthalate	4.4E-11	8.1E-14	2.0E-02	4.1E-12	bis(2-Ethylhexyl) phthalate	1.4E-11	6.0E-13	2.0E-02	3.0E-11	3.4E-11
Carbazole	2.7E-09	5.0E-12			Carbazole	8.6E-10	3.7E-11			
Chrysene	9.3E-09	1.7E-11			Chrysene	2.9E-09	1.3E-10			
Dibenzo(a,h)anthracene	9.5E-09	1.8E-11			Dibenzo(a,h)anthracene	3.0E-09	1.3E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	1.1E-06	2.1E-09			Indeno(1,2,3-cd)pyrene	3.5E-07	1.5E-08			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:		5.2E-07			Total Pathway:		7.7E-06	
		Total Rad + Chem		5.2E-07			Total Rad + Chem		7.7E-06	*Total:* 8.2E-06

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TABLE B.3.4-9(a)
CURRENT, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.44E-05	2.2E-02	2.8E-11	6.0E-13	6.0E-13
NP-237	6.45E-05	9.6E-02	2.2E-10	2.1E-11	2.1E-11
PU-238	4.06E-05	6.1E-02	2.2E-10	1.3E-11	1.3E-11
PU-239/240	4.31E-06	6.4E-03	2.3E-10	1.5E-12	1.5E-12
RA-226	1.00E-04	1.5E-01	1.2E-10	1.8E-11	1.8E-11
RA-228	8.92E-05	1.3E-01	1.0E-10	1.3E-11	1.3E-11
SR-90	5.95E-05	8.9E-02	3.6E-11	3.2E-12	3.2E-12
TH-228	8.54E-05	1.3E-01	5.5E-11	7.0E-12	7.0E-12
TH-230	3.41E-04	5.1E-01	1.3E-11	6.6E-12	6.6E-12
TH-232	7.95E-05	1.2E-01	1.2E-11	1.4E-12	1.4E-12
U-234	2.22E-03	3.3E+00	1.6E-11	5.3E-11	5.3E-11
U-235/236	1.50E-04	2.2E-01	1.6E-11	3.5E-12	3.5E-12
U-238	4.07E-03	6.1E+00	2.8E-11	1.7E-10	1.7E-10
			Total Pathway:	3.1E-10	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	3.55E-07	3.0E-10	1.5E+01	4.5E-09	4.5E-09
Beryllium	3.68E-08	3.1E-11	8.4E+00	2.6E-10	2.6E-10
Cadmium	5.29E-08	4.4E-11			
Chromium	8.15E-07	6.8E-10			
Lead	1.01E-06	8.5E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.18E-05	9.9E-09			
4,4'-DDE	6.32E-10	5.3E-13			
Benzo(a)anthracene	1.98E-08	1.7E-11	8.9E-01	1.5E-11	1.5E-11
Benzo(a)pyrene	1.73E-08	1.4E-11	6.1E+00	8.8E-11	8.8E-11
Benzo(b)fluoranthene	3.63E-08	3.0E-11	7.5E-01	2.3E-11	2.3E-11
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.62E-08	3.9E-11	3.2E-01	1.2E-11	1.2E-11
bis(2-Ethylhexyl) phthalate	2.69E-09	2.2E-12			
Carbazole	4.12E-09	3.4E-12			
Chrysene	2.34E-08	2.0E-11	2.7E-02	5.3E-13	5.3E-13
Dibenzo(a,h)anthracene	1.03E-08	8.6E-12	6.8E+00	5.9E-11	5.9E-11
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.47E-08	2.1E-11	1.7E+00	3.5E-11	3.5E-11
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	5.0E-09	

Total Rad + Chem 5.3E-09 *Total:* 5.3E-09

TABLE B.3.4-9(a) (continued)
CURRENT, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	1.4E-05	2.2E-02			
NP-237	6.5E-05	9.6E-02			
PU-238	4.1E-05	6.1E-02			
PU-239/240	4.3E-06	6.4E-03			
RA-226	1.0E-04	1.5E-01			
RA-228	8.9E-05	1.3E-01			
SR-90	6.0E-05	8.9E-02			
TH-228	8.5E-05	1.3E-01			
TH-230	3.4E-04	5.1E-01			
TH-232	7.9E-05	1.2E-01			
U-234	2.2E-03	3.3E+00			
U-235/236	1.5E-04	2.2E-01			
U-238	4.1E-03	6.1E+00			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	3.55E-07	3.0E-10	3.0E-04	9.9E-07	9.9E-07
Beryllium	3.68E-08	3.1E-11	5.0E-03	6.2E-09	6.2E-09
Cadmium	5.29E-08	4.4E-11	1.0E-03	4.4E-08	4.4E-08
Chromium	8.15E-07	6.8E-10	5.0E-03	1.4E-07	1.4E-07
Lead	1.01E-06	8.5E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.18E-05	9.9E-09	3.0E-03	3.3E-06	3.3E-06
4,4'-DDE	6.32E-10	5.3E-13			
Benzo(a)anthracene	1.98E-08	1.7E-11			
Benzo(a)pyrene	1.73E-08	1.4E-11			
Benzo(b)fluoranthene	3.63E-08	3.0E-11			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.62E-08	3.9E-11			
bis(2-Ethylhexyl) phthalate	2.69E-09	2.2E-12			
Carbazole	4.12E-09	3.4E-12			
Chrysene	2.34E-08	2.0E-11			
Dibenzo(a,h)anthracene	1.03E-08	8.6E-12			
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.47E-08	2.1E-11			
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	4.5E-06	

Total Rad + Chem 4.5E-06 | *Total:* 4.5E-06

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TABLE B.3.4-9(b)
CURRENT, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.44E-05	1.6E-03	2.8E-11	4.5E-14	4.5E-14
NP-237	6.45E-05	7.2E-03	2.2E-10	1.6E-12	1.6E-12
PU-238	4.06E-05	4.5E-03	2.2E-10	9.9E-13	9.9E-13
PU-239/240	4.31E-06	4.8E-04	2.3E-10	1.1E-13	1.1E-13
RA-226	1.00E-04	1.1E-02	1.2E-10	1.3E-12	1.3E-12
RA-228	8.92E-05	9.9E-03	1.0E-10	9.9E-13	9.9E-13
SR-90	5.95E-05	6.6E-03	3.6E-11	2.4E-13	2.4E-13
TH-228	8.54E-05	9.5E-03	5.5E-11	5.2E-13	5.2E-13
TH-230	3.41E-04	3.8E-02	1.3E-11	4.9E-13	4.9E-13
TH-232	7.95E-05	8.8E-03	1.2E-11	1.1E-13	1.1E-13
U-234	2.22E-03	2.5E-01	1.6E-11	4.0E-12	4.0E-12
U-235/236	1.50E-04	1.7E-02	1.6E-11	2.6E-13	2.6E-13
U-238	4.07E-03	4.5E-01	2.8E-11	1.3E-11	1.3E-11
			Total Pathway:	2.3E-11	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	3.55E-07	1.0E-10	1.5E+01	1.6E-09	1.6E-09
Beryllium	3.68E-08	1.1E-11	8.4E+00	9.0E-11	9.0E-11
Cadmium	5.29E-08	1.5E-11			
Chromium	8.15E-07	2.4E-10			
Lead	1.01E-06	2.9E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.18E-05	3.4E-09			
4,4'-DDE	6.32E-10	1.8E-13			
Benzo(a)anthracene	1.98E-08	5.7E-12	8.9E-01	5.1E-12	5.1E-12
Benzo(a)pyrene	1.73E-08	5.0E-12	6.1E+00	3.1E-11	3.1E-11
Benzo(b)fluoranthene	3.63E-08	1.1E-11	7.5E-01	7.9E-12	7.9E-12
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.62E-08	1.3E-11	3.2E-01	4.3E-12	4.3E-12
bis(2-Ethylhexyl) phthalate	2.69E-09	7.8E-13			
Carbazole	4.12E-09	1.2E-12			
Chrysene	2.34E-08	6.8E-12	2.7E-02	1.8E-13	1.8E-13
Dibenzo(a,h)anthracene	1.03E-08	3.0E-12	6.8E+00	2.0E-11	2.0E-11
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.47E-08	7.2E-12	1.7E+00	1.2E-11	1.2E-11
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	1.7E-09	

Total Rad + Chem 1.8E-09 *Total:* 1.8E-09

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TABLE B.3.4-9(b) (continued)
CURRENT, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	1.4E-05	1.6E-03			
NP-237	6.5E-05	7.2E-03			
PU-238	4.1E-05	4.5E-03			
PU-239/240	4.3E-06	4.8E-04			
RA-226	1.0E-04	1.1E-02			
RA-228	8.9E-05	9.9E-03			
SR-90	6.0E-05	6.6E-03			
TH-228	8.5E-05	9.5E-03			
TH-230	3.4E-04	3.8E-02			
TH-232	7.9E-05	8.8E-03			
U-234	2.2E-03	2.5E-01			
U-235/236	1.5E-04	1.7E-02			
U-238	4.1E-03	4.5E-01			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	3.55E-07	1.2E-09	3.0E-04	4.0E-06	4.0E-06
Beryllium	3.68E-08	1.2E-10	5.0E-03	2.5E-08	2.5E-08
Cadmium	5.29E-08	1.8E-10	1.0E-03	1.8E-07	1.8E-07
Chromium	8.15E-07	2.8E-09	5.0E-03	5.5E-07	5.5E-07
Lead	1.01E-06	3.4E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.18E-05	4.0E-08	3.0E-03	1.3E-05	1.3E-05
4,4'-DDE	6.32E-10	2.1E-12			
Benzo(a)anthracene	1.98E-08	6.7E-11			
Benzo(a)pyrene	1.73E-08	5.9E-11			
Benzo(b)fluoranthene	3.63E-08	1.2E-10			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.62E-08	1.6E-10			
bis(2-Ethylhexyl) phthalate	2.69E-09	9.1E-12			
Carbazole	4.12E-09	1.4E-11			
Chrysene	2.34E-08	7.9E-11			
Dibenzo(a,h)anthracene	1.03E-08	3.5E-11			
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	
Indeno(1,2,3-cd)pyrene	2.47E-08	8.4E-11			
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	1.8E-05	

Total Rad + Chem 1.8E-05 | *Total:* 1.8E-05

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TABLE B.3.4-10
CURRENT, MILK AND MEAT USER
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.11E-03	2.0E+00	2.8E-11	5.7E-11	CS-137	3.9E-04	2.9E+00	2.8E-11	8.0E-11	1.4E-10
NP-237	1.36E-05	2.5E-02	2.2E-10	5.5E-12	NP-237	1.2E-06	9.1E-03	2.2E-10	2.0E-12	7.5E-12
PU-238	7.94E-08	1.5E-04	2.2E-10	3.2E-14	PU-238	1.6E-08	1.2E-04	2.2E-10	2.6E-14	5.8E-14
PU-239/240	8.47E-09	1.6E-05	2.3E-10	3.6E-15	PU-239/240	1.7E-09	1.2E-05	2.3E-10	2.9E-15	6.4E-15
RA-226	9.79E-05	1.8E-01	1.2E-10	2.2E-11	RA-226	1.8E-04	1.3E+00	1.2E-10	1.6E-10	1.8E-10
RA-228	8.38E-05	1.5E-01	1.0E-10	1.5E-11	RA-228	1.5E-04	1.1E+00	1.0E-10	1.1E-10	1.3E-10
SR-90	6.03E-05	1.1E-01	3.6E-11	4.0E-12	SR-90	3.0E-04	2.2E+00	3.6E-11	8.0E-11	8.4E-11
TH-228	1.82E-06	3.4E-03	5.5E-11	1.8E-13	TH-228	1.5E-06	1.1E-02	5.5E-11	6.1E-13	8.0E-13
TH-230	8.01E-06	1.5E-02	1.3E-11	1.9E-13	TH-230	6.7E-06	4.9E-02	1.3E-11	6.4E-13	8.3E-13
TH-232	1.87E-06	3.4E-03	1.2E-11	4.1E-14	TH-232	1.6E-06	1.1E-02	1.2E-11	1.4E-13	1.8E-13
U-234	1.74E-03	3.2E+00	1.6E-11	5.1E-11	U-234	5.2E-03	3.8E+01	1.6E-11	6.1E-10	6.7E-10
U-235/236	1.17E-04	2.1E-01	1.6E-11	3.4E-12	U-235/236	3.5E-04	2.6E+00	1.6E-11	4.1E-11	4.5E-11
U-238	3.19E-03	5.9E+00	2.8E-11	1.6E-10	U-238	9.6E-03	7.0E+01	2.8E-11	2.0E-09	2.1E-09
			Total Pathway:	3.2E-10				Total Pathway:	3.1E-09	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	2.76E-06	2.8E-09	1.8E+00	5.0E-09	Arsenic	8.3E-08	3.4E-10	1.8E+00	5.9E-10	5.6E-09
Beryllium	1.44E-07	1.5E-10	4.3E+00	6.4E-10	Beryllium	1.3E-10	5.3E-13	4.3E+00	2.3E-12	6.4E-10
Cadmium	1.05E-06	1.1E-09			Cadmium	1.9E-07	7.9E-10	0.0E+00	0.0E+00	
Chromium	1.76E-05	1.8E-08			Chromium	4.8E-06	2.0E-08	0.0E+00	0.0E+00	
Lead	1.18E-06	1.2E-09			Lead	9.9E-07	4.0E-09	0.0E+00	0.0E+00	
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
U-TOTAL	9.3E-06	9.5E-09			U-TOTAL	2.8E-05	1.1E-07	0.0E+00	0.0E+00	
4,4'-DDE	9.6E-09	9.9E-12	3.4E-01	3.4E-12	4,4'-DDE	3.0E-08	1.3E-10	3.4E-01	4.3E-11	4.6E-11
Benzo(a)anthracene	4.7E-07	4.9E-10	1.1E+00	5.4E-10	Benzo(a)anthracene	1.5E-07	6.2E-10	1.1E+00	6.8E-10	1.2E-09
Benzo(a)pyrene	9.9E-07	1.0E-09	7.3E+00	7.5E-09	Benzo(a)pyrene	3.1E-07	1.3E-09	7.3E+00	9.4E-09	1.7E-08
Benzo(b)fluoranthene	8.1E-06	8.3E-09	9.0E-01	7.5E-09	Benzo(b)fluoranthene	2.6E-06	1.1E-08	9.0E-01	9.5E-09	1.7E-08
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Benzo(k)fluoranthene	2.1E-05	2.1E-08	3.8E-01	8.0E-09	Benzo(k)fluoranthene	6.5E-06	2.7E-08	3.8E-01	1.0E-08	1.8E-08
bis(2-Ethylhexyl) phthalate	2.6E-09	2.7E-12	1.4E-02	3.8E-14	bis(2-Ethylhexyl) phthalate	8.4E-10	3.4E-12	1.4E-02	4.8E-14	8.6E-14
Carbazole	1.6E-07	1.7E-10	2.0E-02	3.3E-12	Carbazole	5.2E-08	2.1E-10	2.0E-02	4.3E-12	7.6E-12
Chrysene	5.6E-07	5.8E-10	3.2E-02	1.8E-11	Chrysene	1.8E-07	7.3E-10	3.2E-02	2.3E-11	4.2E-11
Dibenzo(a,h)anthracene	5.8E-07	5.9E-10	8.1E+00	4.8E-09	Dibenzo(a,h)anthracene	1.8E-07	7.5E-10	8.1E+00	6.1E-09	1.1E-08
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Indeno(1,2,3-cd)pyrene	6.7E-05	6.9E-08	2.0E+00	1.4E-07	Indeno(1,2,3-cd)pyrene	2.1E-05	8.8E-08	2.0E+00	1.8E-07	3.1E-07
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
			Total Pathway:	1.7E-07				Total Pathway:	2.1E-07	3.9E-07
			Total Rad + Chem	1.7E-07				Total Rad + Chem	2.1E-07	*Total:* [illegible]E-07

TABLE B.3.4-10 (continued)
CURRENT, MILK AND MEAT USER
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	1.11E-03	2.0E+00			CS-137	3.9E-04	2.9E+00			
NP-237	1.36E-05	2.5E-02			NP-237	1.2E-06	9.1E-03			
PU-238	7.94E-08	1.5E-04			PU-238	1.6E-08	1.2E-04			
PU-239/240	8.47E-09	1.6E-05			PU-239/240	1.7E-09	1.2E-05			
RA-226	9.79E-05	1.8E-01			RA-226	1.8E-04	1.3E+00			
RA-228	8.38E-05	1.5E-01			RA-228	1.5E-04	1.1E+00			
SR-90	6.03E-05	1.1E-01			SR-90	3.0E-04	2.2E+00			
TH-228	1.82E-06	3.4E-03			TH-228	1.5E-06	1.1E-02			
TH-230	8.01E-06	1.5E-02			TH-230	6.7E-06	4.9E-02			
TH-232	1.87E-06	3.4E-03			TH-232	1.6E-06	1.1E-02			
U-234	1.74E-03	3.2E+00			U-234	5.2E-03	3.8E+01			
U-235/236	1.17E-04	2.1E-01			U-235/236	3.5E-04	2.6E+00			
U-238	3.19E-03	5.9E+00			U-238	9.6E-03	7.0E+01			
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	2.76E-06	2.8E-09	3.0E-04	9.4E-06	Arsenic	8.3E-08	3.4E-10	3.0E-04	1.1E-06	1.1E-05
Beryllium	1.44E-07	1.5E-10	5.0E-03	3.0E-08	Beryllium	1.3E-10	5.3E-13	5.0E-03	1.1E-10	3.0E-08
Cadmium	1.05E-06	1.1E-09	1.0E-03	1.1E-06	Cadmium	1.9E-07	7.9E-10	1.0E-03	7.9E-07	1.9E-06
Chromium	1.76E-05	1.8E-08	5.0E-03	3.6E-06	Chromium	4.8E-06	2.0E-08	5.0E-03	3.9E-06	7.6E-06
Lead	1.18E-06	1.2E-09			Lead	9.9E-07	4.0E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	9.3E-06	9.5E-09	3.0E-03	3.2E-06	U-TOTAL	2.8E-05	1.1E-07	3.0E-03	3.8E-05	4.1E-05
4,4'-DDE	9.6E-09	9.9E-12			4,4'-DDE	3.0E-08	1.3E-10			
Benzo(a)anthracene	4.7E-07	4.9E-10			Benzo(a)anthracene	1.5E-07	6.2E-10			
Benzo(a)pyrene	9.9E-07	1.0E-09			Benzo(a)pyrene	3.1E-07	1.3E-09			
Benzo(b)fluoranthene	8.1E-06	8.3E-09			Benzo(b)fluoranthene	2.6E-06	1.1E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	2.1E-05	2.1E-08			Benzo(k)fluoranthene	6.5E-06	2.7E-08			
bis(2-Ethylhexyl) phthalate	2.6E-09	2.7E-12	2.0E-02	1.4E-10	bis(2-Ethylhexyl) phthalate	8.4E-10	3.4E-12	2.0E-02	1.7E-10	3.1E-10
Carbazole	1.6E-07	1.7E-10			Carbazole	5.2E-08	2.1E-10			
Chrysene	5.6E-07	5.8E-10			Chrysene	1.8E-07	7.3E-10			
Dibenzo(a,h)anthracene	5.8E-07	5.9E-10			Dibenzo(a,h)anthracene	1.8E-07	7.5E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	6.7E-05	6.9E-08			Indeno(1,2,3-cd)pyrene	2.1E-05	8.8E-08			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.7E-05				Total Pathway:	4.4E-05	

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Total Rad + Chem 1.7E-05

Total Rad + Chem 4.4E-05 *Total:* 6.1E-05

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TABLE B.3.4-11
CURRENT, GROUNDSKEEPER
SOLID WASTE LANDFILL: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	8.0E-07	1.4E-02	1.9E-11	2.7E-13
NP-237	3.6E-06	6.2E-02	2.9E-08	1.8E-09
PU-238	2.3E-06	4.1E-02	3.9E-08	1.6E-09
PU-239/240	2.5E-07	4.3E-03	3.8E-08	1.6E-10
RA-226	5.7E-06	1.0E-01	3.0E-09	3.0E-10
RA-228	5.0E-06	8.8E-02	6.9E-10	6.1E-11
SR-90	2.9E-06	5.0E-02	6.2E-11	3.1E-12
TH-228	4.9E-06	8.5E-02	7.8E-08	6.7E-09
TH-230	1.9E-05	3.4E-01	2.9E-08	9.8E-09
TH-232	4.5E-06	7.9E-02	2.8E-08	2.2E-09
U-234	1.3E-04	2.2E+00	2.6E-08	5.7E-08
U-235/236	8.5E-05	1.5E+00	2.5E-08	3.7E-08
U-238	2.3E-04	4.0E+00	5.2E-08	2.1E-07
			Total Pathway:	3.3E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	2.6E-01	2.2E+01	2.8E-11	6.3E-10
NP-237	1.2E+00	1.0E+02	2.2E-10	2.3E-08
PU-238	7.7E-01	6.8E+01	2.2E-10	1.5E-08
PU-239/240	8.2E-02	7.2E+00	2.3E-10	1.7E-09
RA-226	1.4E+00	1.2E+02	1.2E-10	1.5E-08
RA-228	1.7E+00	1.5E+02	1.0E-10	1.5E-08
SR-90	9.6E-01	8.4E+01	3.6E-11	3.0E-09
TH-228	1.6E+00	1.4E+02	5.5E-11	7.8E-09
TH-230	6.5E+00	5.7E+02	1.3E-11	7.4E-09
TH-232	1.5E+00	1.3E+02	1.2E-11	1.6E-09
U-234	4.2E+01	3.7E+03	1.6E-11	5.9E-08
U-235/236	2.8E+00	2.5E+02	1.6E-11	3.8E-09
U-238	7.7E+01	6.8E+03	2.8E-11	1.9E-07
			Total Pathway:	3.4E-07

Chemical Risk

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.8E-08	2.7E-10	1.5E+01	4.1E-09
Beryllium	2.1E-09	2.0E-11	8.4E+00	1.7E-10
Cadmium	2.6E-09	2.5E-11		
Chromium	4.6E-06	4.5E-08		
Lead	5.7E-08	5.6E-10		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	6.8E-07	6.6E-09		
4,4'-DDE	3.6E-11	3.5E-13		
Benzo(a)anthracene	1.2E-09	1.1E-11	8.9E-01	1.0E-11
Benzo(a)pyrene	1.0E-09	1.0E-11	6.1E+00	6.1E-11
Benzo(b)fluoranthene	2.1E-09	2.1E-11	7.5E-01	1.6E-11
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	2.7E-09	2.6E-11	3.2E-01	8.3E-12
bis(2-Ethylhexyl) phthalate	1.4E-10	1.4E-12		
Carbazole	2.3E-10	2.3E-12		
Chrysene	1.4E-09	1.3E-11	2.7E-02	3.6E-13
Dibenzo(a,h)anthracene	8.0E-10	7.8E-12	6.8E+00	5.3E-11
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.4E-09	1.4E-11	1.7E+00	2.4E-11
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway:	4.5E-09

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.7E+00	9.3E-09	1.8E+00	1.6E-08
Beryllium	7.0E-01	9.8E-10	4.3E+00	4.2E-09
Cadmium	8.5E-01	1.2E-09		
Chromium	1.5E+01	2.2E-08	4.1E+01	8.9E-07
Lead	1.9E+01	2.7E-08		
TH-TOTAL	1.4E+01	1.9E-08		
U-TOTAL	2.3E+02	3.1E-07		
4,4'-DDE	1.2E-02	1.7E-11	3.4E-01	5.7E-12
Benzo(a)anthracene	3.7E-01	5.1E-10	1.1E+00	5.6E-10
Benzo(a)pyrene	3.4E-01	4.8E-10	7.3E+00	3.5E-09
Benzo(b)fluoranthene	7.1E-01	9.9E-10	9.0E-01	8.9E-10
Benzo(g,h,i)perylene	5.0E-01	7.0E-10		
Benzo(k)fluoranthene	3.9E-01	5.4E-10	3.8E-01	2.0E-10
bis(2-Ethylhexyl) phthalate	4.8E-02	6.7E-11	1.4E-02	9.4E-13
Carbazole	7.7E-02	1.1E-10	2.0E-02	2.2E-12
Chrysene	4.5E-01	6.3E-10	3.2E-02	2.0E-11
Dibenzo(a,h)anthracene	2.0E-01	2.8E-10	8.1E+00	2.3E-09
Dibenzofuran	5.6E-02	7.8E-11		
Indeno(1,2,3-cd)pyrene	4.8E-01	6.7E-10	2.0E+00	1.3E-09
Phenanthrene	5.3E-01	7.4E-10		
			Total Pathway:	9.2E-07

TABLE B.3.4-11(continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	SF(e)	Risk	
Not applicable				CS-137	2.0E-01	2.0E-06	4.0E-07	4.0E-07
				NP-237	9.2E-01	4.3E-07	3.9E-07	4.2E-07
				PU-238	5.9E-01	2.8E-11	1.7E-11	1.6E-08
				PU-239/240	6.3E-02	2.7E-11	1.7E-12	1.8E-09
				RA-226	1.1E+00	1.2E-08	1.3E-08	2.8E-08
				RA-228	1.3E+00	2.9E-06	3.8E-06	3.8E-06
				SR-90	7.4E-01	0.0E+00	0.0E+00	3.0E-09
				TH-228	1.3E+00	5.6E-06	7.0E-06	7.0E-06
				TH-230	5.0E+00	5.4E-11	2.7E-10	1.7E-08
				TH-232	1.2E+00	2.6E-11	3.0E-11	3.8E-09
				U-234	3.2E+01	3.0E-11	9.7E-10	1.2E-07
				U-235/236	2.2E+00	2.4E-07	5.2E-07	5.7E-07
				U-238	5.9E+01	3.6E-08	2.1E-06	2.5E-06
Total Pathway:		0.0E+00		Total Pathw			1.4E-05	1.5E-05

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	1.9E-08	1.8E+00	3.5E-08					5.5E-08
Beryllium	2.0E-08	4.3E+02	8.4E-06					8.4E-06
Cadmium	2.4E-08		0.0E+00					
Chromium	4.3E-07		0.0E+00					8.9E-07
Lead	5.3E-07		0.0E+00					
TH-TOTAL	0.0E+00		0.0E+00					
U-TOTAL	6.3E-06		0.0E+00					
4,4'-DDE	1.0E-08	3.8E-01	3.8E-09					3.8E-09
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00	Not applicable				5.7E-10
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					3.5E-09
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					9.1E-10
Benzo(g,h,i)perylene	4.2E-07		0.0E+00					
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					2.1E-10
bis(2-Ethylhexyl) phthalate	5.4E-10	1.6E-02	8.4E-12					9.3E-12
Carbazole	0.0E+00		0.0E+00					2.2E-12
Chrysene	0.0E+00	7.4E-02	0.0E+00					2.1E-11
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					2.3E-09
Dibenzofuran	0.0E+00		0.0E+00					0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					1.4E-09
Phenanthrene	4.5E-07		0.0E+00					0.0E+00
		Total Pathwa	8.5E-06			Total Pathway:	0.0E+00	
							Total	2.4E-05

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TABLE B.3.4-11(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
CS-137	1.4E-02		
NP-237	6.2E-02		
PU-238	4.1E-02		
PU-239/240	4.3E-03		
RA-226	1.0E-01		
RA-228	8.8E-02		
SR-90	5.0E-02		
TH-228	8.5E-02		
TH-230	3.4E-01		
TH-232	7.9E-02		
U-234	2.2E+00		
U-235/236	1.5E+00		
U-238	4.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
CS-137	7.0E-05		
NP-237	3.1E-04		
PU-238	2.0E-04		
PU-239/240	2.2E-05		
RA-226	5.0E-04		
RA-228	4.4E-04		
SR-90	2.5E-04		
TH-228	4.3E-04		
TH-230	1.7E-03		
TH-232	4.0E-04		
U-234	1.1E-02		
U-235/236	7.4E-03		
U-238	2.0E-02		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
Arsenic	7.7E-10		
Beryllium	5.7E-11		
Cadmium	7.0E-11		
Chromium	1.3E-07		
Lead	1.6E-09		
TH-TOTAL	0.0E+00		
U-TOTAL	1.9E-08		
4,4'-DDE	9.9E-13		
Benzo(a)anthracene	3.2E-11		
Benzo(a)pyrene	2.8E-11		
Benzo(b)fluoranthene	5.8E-11		
Benzo(g,h,i)perylene	0.0E+00		
Benzo(k)fluoranthene	7.3E-11		
bis(2-Ethylhexyl) phthalate	3.9E-12		
Carbazole	6.3E-12		
Chrysene	3.7E-11		
Dibenzo(a,h)anthracene	2.2E-11		
Dibenzofuran	0.0E+00		
Indeno(1,2,3-cd)pyrene	3.9E-11		
Phenanthrene	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
Arsenic	9.1E-07	3.0E-04	3.0E-03
Beryllium	9.6E-08	5.0E-03	1.9E-05
Cadmium	1.2E-07	1.0E-03	1.2E-04
Chromium	2.1E-06	5.0E-03	4.2E-04
Lead	2.6E-06		
TH-TOTAL	1.9E-06		
U-TOTAL	3.1E-05	3.0E-03	1.0E-02
4,4'-DDE	1.6E-09		
Benzo(a)anthracene	5.0E-08		
Benzo(a)pyrene	4.7E-08		
Benzo(b)fluoranthene	9.7E-08		
Benzo(g,h,i)perylene	6.8E-08		
Benzo(k)fluoranthene	5.3E-08		
bis(2-Ethylhexyl) phthalate	6.6E-09	2.0E-02	3.3E-07
Carbazole	1.1E-08		
Chrysene	6.2E-08		
Dibenzo(a,h)anthracene	2.7E-08		
Dibenzofuran	7.7E-09		
Indeno(1,2,3-cd)pyrene	6.6E-08		
Phenanthrene	7.3E-08		

Total Pathway: 1.4E-02

TABLE B.3.4-11(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	HQ
Not Applicable	CS-137	6.2E-07		
	NP-237	2.7E-06		
	PU-238	1.8E-06		
	PU-239/240	1.9E-07		
	RA-226	4.4E-06		
	RA-228	3.9E-06		
	SR-90	2.2E-06		
	TH-228	3.8E-06		
	TH-230	1.5E-05		
	TH-232	3.5E-06		
	U-234	9.7E-05		
	U-235/236	6.6E-05		
	U-238	1.8E-04		
			Total Pathway:	0.0E+00

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil	
Compound	Intake	RfD(derm)	HQ		
Arsenic	5.3E-08	2.9E-04	1.8E-04		3.2E-03
Beryllium	5.5E-08	5.0E-05	1.1E-03		1.1E-03
Cadmium	6.7E-08	5.0E-05	1.3E-03		1.5E-03
Chromium	1.2E-06	2.3E-03	5.4E-04		9.6E-04
Lead	1.5E-06				
TH-TOTAL	0.0E+00				
U-TOTAL	1.8E-05	1.5E-04	1.2E-01		1.3E-01
4,4'-DDE	2.8E-08				
Benzo(a)anthracene	0.0E+00			Not Applicable	
Benzo(a)pyrene	0.0E+00				
Benzo(b)fluoranthene	0.0E+00				
Benzo(g,h,i)perylene	1.2E-06				
Benzo(k)fluoranthene	0.0E+00				
bis(2-Ethylhexyl) phthalate	1.5E-09	1.8E-02	8.4E-08		4.1E-07
Carbazole	0.0E+00				
Chrysene	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00				
Dibenzofuran	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00				
Phenanthrene	1.3E-06				
		Total Pathway:	1.2E-01	Total Pathway: 0.0E+00	
				Total	1.4E-01

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TABLE B.3.4-12(a)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	4.01E-07	4.6E-02	1.9E-11	8.8E-13	8.8E-13
NP-237	1.78E-06	2.1E-01	2.9E-08	6.0E-09	6.0E-09
PU-238	1.16E-06	1.3E-01	3.9E-08	5.2E-09	5.2E-09
PU-239/240	1.23E-07	1.4E-02	3.8E-08	5.4E-10	5.4E-10
RA-226	2.85E-06	3.3E-01	3.0E-09	9.9E-10	9.9E-10
RA-228	2.52E-05	2.9E+00	6.9E-10	2.0E-09	2.0E-09
SR-90	1.43E-06	1.7E-01	6.2E-11	1.0E-11	1.0E-11
TH-228	2.44E-06	2.8E-01	7.8E-08	2.2E-08	2.2E-08
TH-230	9.71E-06	1.1E+00	2.9E-08	3.3E-08	3.3E-08
TH-232	2.27E-06	2.6E-01	2.8E-08	7.4E-09	7.4E-09
U-234	6.32E-05	7.3E+00	2.6E-08	1.9E-07	1.9E-07
U-235/236	4.26E-06	4.9E-01	2.5E-08	1.2E-08	1.2E-08
U-238	1.16E-04	1.3E+01	5.2E-08	7.0E-07	7.0E-07
			Total Pathway:	9.8E-07	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.00E-08	6.5E-10	1.5E+01	9.8E-09	9.8E-09
Beryllium	1.06E-09	6.9E-11	8.4E+00	5.8E-10	5.8E-10
Cadmium	1.26E-09	8.2E-11			
Chromium	2.32E-08	1.5E-09	4.1E+01	6.2E-08	6.2E-08
Lead	2.85E-08	1.8E-09			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.31E-07	2.1E-08			
4,4'-DDE	1.80E-11	1.2E-12			
Benzo(a)anthracene	5.79E-10	3.8E-11	8.9E-01	3.3E-11	3.3E-11
Benzo(a)pyrene	5.10E-10	3.3E-11	6.1E+00	2.0E-10	2.0E-10
Benzo(b)fluoranthene	1.07E-09	6.9E-11	7.5E-01	5.2E-11	5.2E-11
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.33E-09	8.6E-11	3.2E-01	2.8E-11	2.8E-11
bis(2-Ethylhexyl) phthalate	7.20E-11	4.7E-12			
Carbazole	1.16E-10	7.5E-12			
Chrysene	6.80E-10	4.4E-11	2.7E-02	1.2E-12	1.2E-12
Dibenzo(a,h)anthracene	3.00E-10	1.9E-11	6.8E+00	1.3E-10	1.3E-10
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	7.20E-10	4.7E-11	1.7E+00	7.9E-11	7.9E-11
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	7.3E-08	1.1E-06
			Total Rad + Chem	1.1E-06	*Total:* 1.1E-06

TABLE B.3.4-12(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	4.01E-07	4.6E-02		
NP-237	1.78E-06	2.1E-01		
PU-238	1.16E-06	1.3E-01		
PU-239/240	1.23E-07	1.4E-02		
RA-226	2.85E-06	3.3E-01		
RA-228	2.52E-05	2.9E+00		
SR-90	1.43E-06	1.7E-01		
TH-228	2.44E-06	2.8E-01		
TH-230	9.71E-06	1.1E+00		
TH-232	2.27E-06	2.6E-01		
U-234	6.32E-05	7.3E+00		
U-235/236	4.26E-06	4.9E-01		
U-238	1.16E-04	1.3E+01		

Total Pathway: 0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.00E-08	6.5E-10		
Beryllium	1.06E-09	6.9E-11		
Cadmium	1.26E-09	8.2E-11		
Chromium	2.32E-08	1.5E-09		
Lead	2.85E-08	1.8E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.31E-07	2.1E-08		
4,4'-DDE	1.80E-11	1.2E-12		
Benzo(a)anthracene	5.79E-10	3.8E-11		
Benzo(a)pyrene	5.10E-10	3.3E-11		
Benzo(b)fluoranthene	1.07E-09	6.9E-11		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	1.33E-09	8.6E-11		
bis(2-Ethylhexyl) phthalate	7.20E-11	4.7E-12		
Carbazole	1.16E-10	7.5E-12		
Chrysene	6.80E-10	4.4E-11		
Dibenzo(a,h)anthracene	3.00E-10	1.9E-11		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	7.20E-10	4.7E-11		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

	Total
	0.0E+00
Total Rad + Chem 0.0E+00	*Total:* 0.0E+00

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TABLE B.3.4-12(b)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	4.01E-07	8.4E-04	1.9E-11	1.6E-14	1.6E-14
NP-237	1.78E-06	3.7E-03	2.9E-08	1.1E-10	1.1E-10
PU-238	1.16E-06	2.4E-03	3.9E-08	9.5E-11	9.5E-11
PU-239/240	1.23E-07	2.6E-04	3.8E-08	9.8E-12	9.8E-12
RA-226	2.85E-06	6.0E-03	3.0E-09	1.8E-11	1.8E-11
RA-228	2.52E-05	5.3E-02	6.9E-10	3.7E-11	3.7E-11
SR-90	1.43E-06	3.0E-03	6.2E-11	1.9E-13	1.9E-13
TH-228	2.44E-06	5.1E-03	7.8E-08	4.0E-10	4.0E-10
TH-230	9.71E-06	2.0E-02	2.9E-08	5.9E-10	5.9E-10
TH-232	2.27E-06	4.8E-03	2.8E-08	1.3E-10	1.3E-10
U-234	6.32E-05	1.3E-01	2.6E-08	3.5E-09	3.5E-09
U-235/236	4.26E-06	8.9E-03	2.5E-08	2.2E-10	2.2E-10
U-238	1.16E-04	2.4E-01	5.2E-08	1.3E-08	1.3E-08
			Total Pathway:	1.8E-08	

Chemical Risk

Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.00E-08	5.5E-11	1.5E+01	8.3E-10	8.3E-10
Beryllium	1.06E-09	5.8E-12	8.4E+00	4.9E-11	4.9E-11
Cadmium	1.26E-09	6.9E-12			
Chromium	2.32E-08	1.3E-10	4.1E+01	5.2E-09	5.2E-09
Lead	2.85E-08	1.6E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.31E-07	1.8E-09			
4,4'-DDE	1.80E-11	9.9E-14			
Benzo(a)anthracene	5.79E-10	3.2E-12	8.9E-01	2.8E-12	2.8E-12
Benzo(a)pyrene	5.10E-10	2.8E-12	6.1E+00	1.7E-11	1.7E-11
Benzo(b)fluoranthene	1.07E-09	5.9E-12	7.5E-01	4.4E-12	4.4E-12
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.33E-09	7.3E-12	3.2E-01	2.3E-12	2.3E-12
bis(2-Ethylhexyl) phthalate	7.20E-11	3.9E-13			
Carbazole	1.16E-10	6.4E-13			
Chrysene	6.80E-10	3.7E-12	2.7E-02	1.0E-13	1.0E-13
Dibenzo(a,h)anthracene	3.00E-10	1.6E-12	6.8E+00	1.1E-11	1.1E-11
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	7.20E-10	3.9E-12	1.7E+00	6.7E-12	6.7E-12
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	6.1E-09	2.4E-08
			Total Rad + Chem	2.4E-08	*Total:* 2.4E-08

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TABLE B.3.4-12(b) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	4.01E-07	8.4E-04		
NP-237	1.78E-06	3.7E-03		
PU-238	1.16E-06	2.4E-03		
PU-239/240	1.23E-07	2.6E-04		
RA-226	2.85E-06	6.0E-03		
RA-228	2.52E-05	5.3E-02		
SR-90	1.43E-06	3.0E-03		
TH-228	2.44E-06	5.1E-03		
TH-230	9.71E-06	2.0E-02		
TH-232	2.27E-06	4.8E-03		
U-234	6.32E-05	1.3E-01		
U-235/236	4.26E-06	8.9E-03		
U-238	1.16E-04	2.4E-01		
			Total Pathway:	0.0E+00

Chemical Hazard				
Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.00E-08	6.4E-10		
Beryllium	1.06E-09	6.8E-11		
Cadmium	1.26E-09	8.1E-11		
Chromium	2.32E-08	1.5E-09		
Lead	2.85E-08	1.8E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.31E-07	2.1E-08		
4,4'-DDE	1.80E-11	1.2E-12		
Benzo(a)anthracene	5.79E-10	3.7E-11		
Benzo(a)pyrene	5.10E-10	3.3E-11		
Benzo(b)fluoranthene	1.07E-09	6.8E-11		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	1.33E-09	8.5E-11		
bis(2-Ethylhexyl) phthalate	7.20E-11	4.6E-12		
Carbazole	1.16E-10	7.4E-12		
Chrysene	6.80E-10	4.3E-11		
Dibenzo(a,h)anthracene	3.00E-10	1.9E-11		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	7.20E-10	4.6E-11		
Phenanthrene	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00

Total

0.0E+00

Total Rad + Chem 0.0E+00 | *Total:* 0.0E+00

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TABLE B.3.4-13(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	9.1E-02	1.7E+02	1.30E-12	2.2E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00
			Total Pathway:	2.2E-10

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk
CS-137	0.0E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	1.1E-01	7.9E+02	1.3E-12	1.0E-09
TH-228	0.0E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.0E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.0E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.0E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.0E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.0E+00	0.0E+00	2.8E-11	0.0E+00
			Total Pathway:	1.0E-09

Total	Total Dust & Groundwater Affected
0.0E+00	5.3E-11
0.0E+00	2.9E-12
0.0E+00	2.2E-14
0.0E+00	2.5E-15
0.0E+00	6.8E-11
0.0E+00	4.9E-11
0.0E+00	3.2E-11
1.2E-09	1.2E-09
0.0E+00	3.1E-13
0.0E+00	3.2E-13
0.0E+00	6.9E-14
0.0E+00	2.6E-10
0.0E+00	1.7E-11
0.0E+00	8.2E-10

Chemical Risk

Ingestion of Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.00E+00	0.0E+00		
Chromium	0.00E+00	0.0E+00		
Lead	0.00E+00	0.0E+00		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	0.00E+00	0.0E+00		
4,4'-DDE	0.00E+00	0.0E+00	3.4E-01	0.0E+00
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00
			Total Pathway:	0.0E+00
			Total Rad + Chem	2.2E-10

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.0E+00	0.0E+00		
Chromium	0.0E+00	0.0E+00		
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00		
4,4'-DDE	0.0E+00	0.0E+00	3.4E-01	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		
Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00
			Total Pathway:	0.0E+00
			Total Rad + Chem	1.0E-09

Total	Total Dust & Groundwater Affected
0.0E+00	2.1E-09
0.0E+00	2.5E-10
0.0E+00	1.6E-11
0.0E+00	4.7E-10
0.0E+00	6.5E-09
0.0E+00	6.5E-09
0.0E+00	7.0E-09
0.0E+00	3.3E-14
0.0E+00	2.9E-12
0.0E+00	1.6E-11
0.0E+00	4.2E-09
0.0E+00	1.2E-07
0.0E+00	0.0E+00
1.2E-09	
Total: 1.2E-09	1.5E-07

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TABLE B.3.4-13(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	0.00E+00	0.0E+00		
NP-237	0.00E+00	0.0E+00		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	0.00E+00	0.0E+00		
RA-228	0.00E+00	0.0E+00		
SR-90	0.00E+00	0.0E+00		
TC-99	9.10E-02	1.7E+02		
TH-228	0.00E+00	0.0E+00		
TH-230	0.00E+00	0.0E+00		
TH-232	0.00E+00	0.0E+00		
U-234	0.00E+00	0.0E+00		
U-235/236	0.00E+00	0.0E+00		
U-238	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	0.0E+00	0.0E+00		
NP-237	0.0E+00	0.0E+00		
PU-238	0.0E+00	0.0E+00		
PU-239/240	0.0E+00	0.0E+00		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
SR-90	0.0E+00	0.0E+00		
TC-99	1.1E-01	7.9E+02		
TH-228	0.0E+00	0.0E+00		
TH-230	0.0E+00	0.0E+00		
TH-232	0.0E+00	0.0E+00		
U-234	0.0E+00	0.0E+00		
U-235/236	0.0E+00	0.0E+00		
U-238	0.0E+00	0.0E+00		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Lead	0.00E+00	0.0E+00		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00
4,4'-DDE	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00		
Benzo(a)pyrene	0.00E+00	0.0E+00		
Benzo(b)fluoranthene	0.00E+00	0.0E+00		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00		
Chrysene	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00		
Phenanthrene	0.00E+00	0.0E+00		
Heptachloro-p-dioxin	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00
4,4'-DDE	0.0E+00	0.0E+00		
Benzo(a)anthracene	0.0E+00	0.0E+00		
Benzo(a)pyrene	0.0E+00	0.0E+00		
Benzo(b)fluoranthene	0.0E+00	0.0E+00		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00		
Chrysene	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00		
Phenanthrene	0.0E+00	0.0E+00		
Heptachloro-p-dioxin	0.0E+00	0.0E+00		

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00 | Total Rad + Chem 0.0E+00

	Total	Total Dust & Groundwater Affected
	0.0E+00	4.1E-06
	0.0E+00	1.1E-08
	0.0E+00	7.2E-07
	0.0E+00	2.9E-06
	0.0E+00	1.6E-05
	0.0E+00	1.2E-10
	0.0E+00	0.0E+00
Total:	0.0E+00	2.4E-05

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TABLE B.3.4-13(a)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	4.28E-04	7.9E-01	2.8E-11	2.2E-11	CS-137	1.5E-04	1.1E+00	2.8E-11	3.1E-11	5.3E-11
NP-237	5.21E-06	9.6E-03	2.2E-10	2.1E-12	NP-237	4.7E-07	3.5E-03	2.2E-10	7.7E-13	2.9E-12
PU-238	3.05E-08	5.6E-05	2.2E-10	1.2E-14	PU-238	6.1E-09	4.5E-05	2.2E-10	9.9E-15	2.2E-14
PU-239/240	3.25E-09	6.0E-06	2.3E-10	1.4E-15	PU-239/240	6.5E-10	4.8E-06	2.3E-10	1.1E-15	2.5E-15
RA-226	3.77E-05	6.9E-02	1.2E-10	8.3E-12	RA-226	6.8E-05	5.0E-01	1.2E-10	6.0E-11	6.8E-11
RA-228	3.23E-05	5.9E-02	1.0E-10	5.9E-12	RA-228	5.8E-05	4.3E-01	1.0E-10	4.3E-11	4.9E-11
SR-90	2.32E-05	4.3E-02	3.6E-11	1.5E-12	SR-90	1.2E-04	8.5E-01	3.6E-11	3.1E-11	3.2E-11
TC-99	0.0E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	7.02E-07	1.3E-03	5.5E-11	7.1E-14	TH-228	5.8E-07	4.3E-03	5.5E-11	2.4E-13	3.1E-13
TH-230	3.09E-06	5.7E-03	1.3E-11	7.4E-14	TH-230	2.6E-06	1.9E-02	1.3E-11	2.5E-13	3.2E-13
TH-232	7.20E-07	1.3E-03	1.2E-11	1.6E-14	TH-232	6.0E-07	4.4E-03	1.2E-11	5.3E-14	6.9E-14
U-234	6.71E-04	1.2E+00	1.6E-11	2.0E-11	U-234	2.0E-03	1.5E+01	1.6E-11	2.4E-10	2.6E-10
U-235/236	4.52E-05	8.3E-02	1.6E-11	1.3E-12	U-235/236	1.4E-04	1.0E+00	1.6E-11	1.6E-11	1.7E-11
U-238	1.23E-03	2.3E+00	2.8E-11	6.3E-11	U-238	3.7E-03	2.7E+01	2.8E-11	7.6E-10	8.2E-10
			Total Pathway:	1.2E-10				Total Pathway:	1.2E-09	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.06E-06	1.1E-09	1.8E+00	1.9E-09	Arsenic	3.2E-08	1.3E-10	1.8E+00	2.3E-10	2.1E-09
Beryllium	5.55E-08	5.7E-11	4.3E+00	2.5E-10	Beryllium	5.0E-11	2.1E-13	4.3E+00	8.8E-13	2.5E-10
Cadmium	4.03E-07	4.1E-10			Cadmium	7.3E-08	3.0E-10			
Chromium	6.77E-06	7.0E-09			Chromium	1.8E-06	7.6E-09			
Lead	4.55E-07	4.7E-10			Lead	3.8E-07	1.6E-09			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.59E-06	3.7E-09			U-TOTAL	1.1E-05	4.4E-08			
4,4'-DDE	3.72E-14	3.8E-17	3.4E-01	1.3E-17	4,4'-DDE	1.2E-08	4.8E-11	3.4E-01	1.6E-11	1.6E-11
Benzo(a)anthracene	1.82E-07	1.9E-10	1.1E+00	2.1E-10	Benzo(a)anthracene	5.8E-08	2.4E-10	1.1E+00	2.6E-10	4.7E-10
Benzo(a)pyrene	3.83E-07	3.9E-10	7.3E+00	2.9E-09	Benzo(a)pyrene	1.2E-07	5.0E-10	7.3E+00	3.6E-09	6.5E-09
Benzo(b)fluoranthene	3.13E-06	3.2E-09	9.0E-01	2.9E-09	Benzo(b)fluoranthene	9.9E-07	4.1E-09	9.0E-01	3.7E-09	6.5E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.87E-06	8.1E-09	3.8E-01	3.1E-09	Benzo(k)fluoranthene	2.5E-06	1.0E-08	3.8E-01	3.9E-09	7.0E-09
bis(2-Ethylhexyl) phthalate	1.01E-09	1.0E-12	1.4E-02	1.5E-14	*bis*(2-Ethylhexyl) phthalate	3.2E-10	1.3E-12	1.4E-02	1.8E-14	3.3E-14
Carbazole	6.28E-08	6.4E-11	2.0E-02	1.3E-12	Carbazole	2.0E-08	8.2E-11	2.0E-02	1.6E-12	2.9E-12
Chrysene	2.16E-07	2.2E-10	3.2E-02	7.1E-12	Chrysene	6.8E-08	2.8E-10	3.2E-02	9.0E-12	1.6E-11
Dibenzo(a,h)anthracene	2.21E-07	2.3E-10	8.1E+00	1.8E-09	Dibenzo(a,h)anthracene	7.0E-08	2.9E-10	8.1E+00	2.3E-09	4.2E-09
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.59E-05	2.7E-08	2.0E+00	5.3E-08	Indeno(1,2,3-cd)pyrene	8.2E-06	3.4E-08	2.0E+00	6.7E-08	1.2E-07
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	6.6E-08				Total Pathway:	8.1E-08	1.5E-07
			Total Rad + Chem	6.6E-08				Total Rad + Chem	8.3E-08	*Total:* [illegible]-07

TABLE B.3.4-13(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	4.28E-04	7.9E-01			CS-137	1.5E-04	1.1E+00			
NP-237	5.21E-06	9.6E-03			NP-237	4.7E-07	3.5E-03			
PU-238	3.05E-08	5.6E-05			PU-238	6.1E-09	4.5E-05			
PU-239/240	3.25E-09	6.0E-06			PU-239/240	6.5E-10	4.8E-06			
RA-226	3.77E-05	6.9E-02			RA-226	6.8E-05	5.0E-01			
RA-228	3.23E-05	5.9E-02			RA-228	5.8E-05	4.3E-01			
SR-90	2.32E-05	4.3E-02			SR-90	1.2E-04	8.5E-01			
TC-99	0.00E+00	0.0E+00			TC-99	0.0E+00	0.0E+00			
TH-228	7.02E-07	1.3E-03			TH-228	5.8E-07	4.3E-03			
TH-230	3.09E-06	5.7E-03			TH-230	2.6E-06	1.9E-02			
TH-232	7.20E-07	1.3E-03			TH-232	6.0E-07	4.4E-03			
U-234	6.71E-04	1.2E+00			U-234	2.0E-03	1.5E+01			
U-235/236	4.52E-05	8.3E-02			U-235/236	1.4E-04	1.0E+00			
U-238	1.23E-03	2.3E+00			U-238	3.7E-03	2.7E+01			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	1.06E-06	1.1E-09	3.0E-04	3.6E-06	Arsenic	3.2E-08	1.3E-10	3.0E-04	4.4E-07	4.1E-06
Beryllium	5.55E-08	5.7E-11	5.0E-03	1.1E-08	Beryllium	5.0E-11	2.1E-13	5.0E-03	4.1E-11	1.1E-08
Cadmium	4.03E-07	4.1E-10	1.0E-03	4.1E-07	Cadmium	7.3E-08	3.0E-10	1.0E-03	3.0E-07	7.2E-07
Chromium	6.77E-06	7.0E-09	5.0E-03	1.4E-06	Chromium	1.8E-06	7.6E-09	5.0E-03	1.5E-06	2.9E-06
Lead	4.55E-07	4.7E-10			Lead	3.8E-07	1.6E-09			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.59E-06	3.7E-09	3.0E-03	1.2E-06	U-TOTAL	1.1E-05	4.4E-08	3.0E-03	1.5E-05	1.6E-05
4,4'-DDE	3.72E-14	3.8E-17			4,4'-DDE	1.2E-08	4.8E-11			
Benzo(a)anthracene	1.82E-07	1.9E-10			Benzo(a)anthracene	5.8E-08	2.4E-10			
Benzo(a)pyrene	3.83E-07	3.9E-10			Benzo(a)pyrene	1.2E-07	5.0E-10			
Benzo(b)fluoranthene	3.13E-06	3.2E-09			Benzo(b)fluoranthene	9.9E-07	4.1E-09			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.87E-06	8.1E-09			Benzo(k)fluoranthene	2.5E-06	1.0E-08			
bis(2-Ethylhexyl) phthalate	1.01E-09	1.0E-12	2.0E-02	5.2E-11	bis(2-Ethylhexyl) phthalate	3.2E-10	1.3E-12	2.0E-02	6.6E-11	1.2E-10
Carbazole	6.28E-08	6.4E-11			Carbazole	2.0E-08	8.2E-11			
Chrysene	2.16E-07	2.2E-10			Chrysene	6.8E-08	2.8E-10			
Dibenzo(a,h)anthracene	2.21E-07	2.3E-10			Dibenzo(a,h)anthracene	7.0E-08	2.9E-10			
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.59E-05	2.7E-08			Indeno(1,2,3-cd)pyrene	8.2E-06	3.4E-08			
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			Heptachloro-p-dioxin	0.0E+00	0.0E+00			
		Total Pathway:		6.7E-06			Total Pathway:		1.7E-05	
		Total Rad + Chem		6.7E-06			Total Rad + Chem		1.7E-05	*Total:* 2.4E-05

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TABLE B.3.4-13(b) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.0E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	6.7E-12
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.2E-13
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.3E-15
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	2.6E-16
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.2E-11
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	8.5E-12
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	6.0E-12
TC-99	9.1E-02	5.5E+00	1.30E-12	7.2E-12	TC-99	1.1E-01	1.5E+02	1.3E-12	2.0E-10	2.1E-10	2.1E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.0E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	4.8E-14
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.0E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	5.0E-14
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.0E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.1E-14
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-234	0.0E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.7E-11
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-235/236	0.0E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	3.1E-12
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	U-238	0.0E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.5E-10
			Total Pathway:	7.2E-12				Total Pathway:	2.0E-10		

Chemical Risk

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	5.0E-10
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	3.9E-11
Cadmium	0.00E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00				
Chromium	0.00E+00	0.0E+00			Chromium	0.0E+00	0.0E+00				
Lead	0.00E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00			U-TOTAL	0.0E+00	0.0E+00				
4,4'-DDE	0.00E+00	0.0E+00	3.4E-01	0.0E+00	4,4'-DDE	0.0E+00	0.0E+00	3.4E-01	0.0E+00	0.0E+00	1.5E-11
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	2.7E-10
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	3.7E-09
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	3.8E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	4.0E-09
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.9E-14
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.7E-12
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	9.2E-12
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	2.4E-09
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	6.9E-08
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	7.2E-12				Total Rad + Chem	2.0E-10	*Total:* 2.1E-10	8.4E-08

TABLE B.3.4-13(b) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	0.00E+00	0.0E+00		
NP-237	0.00E+00	0.0E+00		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	0.00E+00	0.0E+00		
RA-228	0.00E+00	0.0E+00		
SR-90	0.00E+00	0.0E+00		
TC-99	9.10E-02	5.5E+00		
TH-228	0.00E+00	0.0E+00		
TH-230	0.00E+00	0.0E+00		
TH-232	0.00E+00	0.0E+00		
U-234	0.00E+00	0.0E+00		
U-235/236	0.00E+00	0.0E+00		
U-238	0.00E+00	0.0E+00		
		Total Pathway:		0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	0.0E+00	0.0E+00		
NP-237	0.0E+00	0.0E+00		
PU-238	0.0E+00	0.0E+00		
PU-239/240	0.0E+00	0.0E+00		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
SR-90	0.0E+00	0.0E+00		
TC-99	1.1E-01	1.5E+02		
TH-228	0.0E+00	0.0E+00		
TH-230	0.0E+00	0.0E+00		
TH-232	0.0E+00	0.0E+00		
U-234	0.0E+00	0.0E+00		
U-235/236	0.0E+00	0.0E+00		
U-238	0.0E+00	0.0E+00		
	Total Pathway:			0.0E+00

Chemical Hazard

Ingestion of Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Lead	0.00E+00	0.0E+00		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00
4,4'-DDE	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00		
Benzo(a)pyrene	0.00E+00	0.0E+00		
Benzo(b)fluoranthene	0.00E+00	0.0E+00		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00		
Chrysene	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00		
Phenanthrene	0.00E+00	0.0E+00		
Heptachloro-p-dioxin	0.00E+00	0.0E+00		
		Total Pathway:		0.0E+00
		Total Rad + Chem		0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00
4,4'-DDE	0.0E+00	0.0E+00		
Benzo(a)anthracene	0.0E+00	0.0E+00		
Benzo(a)pyrene	0.0E+00	0.0E+00		
Benzo(b)fluoranthene	0.0E+00	0.0E+00		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00		
Chrysene	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00		
Phenanthrene	0.0E+00	0.0E+00		
Heptachloro-p-dioxin	0.0E+00	0.0E+00		
	Total Pathway:			0.0E+00
	Total Rad + Chem			0.0E+00

	Total	Total Dust & Groundwater Affected
	0.0E+00	1.1E-05
	0.0E+00	2.1E-08
	0.0E+00	3.9E-06
	0.0E+00	1.9E-05
	0.0E+00	1.6E-04
	0.0E+00	7.9E-10
	0.0E+00	0.0E+00
Total:	0.0E+00	1.9E-04

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TABLE B.3.4-13(b)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	4.28E-04	2.6E-02	2.8E-11	7.3E-13	CS-137	1.5E-04	2.1E-01	2.8E-11	6.0E-12	6.7E-12
NP-237	5.21E-06	3.2E-04	2.2E-10	7.0E-14	NP-237	4.7E-07	6.8E-04	2.2E-10	1.5E-13	2.2E-13
PU-238	3.05E-08	1.9E-06	2.2E-10	4.1E-16	PU-238	6.1E-09	8.7E-06	2.2E-10	1.9E-15	2.3E-15
PU-239/240	3.25E-09	2.0E-07	2.3E-10	4.6E-17	PU-239/240	6.5E-10	9.3E-07	2.3E-10	2.1E-16	2.6E-16
RA-226	3.77E-05	2.3E-03	1.2E-10	2.8E-13	RA-226	6.8E-05	9.7E-02	1.2E-10	1.2E-11	1.2E-11
RA-228	3.23E-05	2.0E-03	1.0E-10	2.0E-13	RA-228	5.8E-05	8.3E-02	1.0E-10	8.3E-12	8.5E-12
SR-90	2.32E-05	1.4E-03	3.6E-11	5.1E-14	SR-90	1.2E-04	1.7E-01	3.6E-11	6.0E-12	6.0E-12
TC-99	0.0E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	7.02E-07	4.3E-05	5.5E-11	2.4E-15	TH-228	5.8E-07	8.4E-04	5.5E-11	4.6E-14	4.8E-14
TH-230	3.09E-06	1.9E-04	1.3E-11	2.4E-15	TH-230	2.6E-06	3.7E-03	1.3E-11	4.8E-14	5.0E-14
TH-232	7.20E-07	4.4E-05	1.2E-11	5.3E-16	TH-232	6.0E-07	8.6E-04	1.2E-11	1.0E-14	1.1E-14
U-234	6.71E-04	4.1E-02	1.6E-11	6.5E-13	U-234	2.0E-03	2.9E+00	1.6E-11	4.6E-11	4.7E-11
U-235/236	4.52E-05	2.8E-03	1.6E-11	4.4E-14	U-235/236	1.4E-04	1.9E-01	1.6E-11	3.1E-12	3.1E-12
U-238	1.23E-03	7.5E-02	2.8E-11	2.1E-12	U-238	3.7E-03	5.2E+00	2.8E-11	1.5E-10	1.5E-10
			Total Pathway:	4.1E-12				Total Pathway:	2.3E-10	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.06E-06	1.7E-10	1.8E+00	3.0E-10	Arsenic	3.2E-08	1.2E-10	1.8E+00	2.1E-10	5.0E-10
Beryllium	5.55E-08	8.8E-12	4.3E+00	3.8E-11	Beryllium	5.0E-11	1.9E-13	4.3E+00	8.0E-13	3.9E-11
Cadmium	4.03E-07	6.4E-11			Cadmium	7.3E-08	2.7E-10			
Chromium	6.77E-06	1.1E-09			Chromium	1.8E-06	6.9E-09			
Lead	4.55E-07	7.2E-11			Lead	3.8E-07	1.4E-09			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.59E-06	5.7E-10			U-TOTAL	1.1E-05	4.0E-08			
4,4'-DDE	3.72E-14	5.9E-18	3.4E-01	2.0E-18	4,4'-DDE	1.2E-08	4.4E-11	3.4E-01	1.5E-11	1.5E-11
Benzo(a)anthracene	1.82E-07	2.9E-11	1.1E+00	3.2E-11	Benzo(a)anthracene	5.8E-08	2.1E-10	1.1E+00	2.4E-10	2.7E-10
Benzo(a)pyrene	3.83E-07	6.1E-11	7.3E+00	4.4E-10	Benzo(a)pyrene	1.2E-07	4.5E-10	7.3E+00	3.3E-09	3.7E-09
Benzo(b)fluoranthene	3.13E-06	5.0E-10	9.0E-01	4.5E-10	Benzo(b)fluoranthene	9.9E-07	3.7E-09	9.0E-01	3.3E-09	3.8E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.87E-06	1.3E-09	3.8E-01	4.8E-10	Benzo(k)fluoranthene	2.5E-06	9.3E-09	3.8E-01	3.5E-09	4.0E-09
bis(2-Ethylhexyl) phthalate	1.01E-09	1.6E-13	1.4E-02	2.3E-15	bis(2-Ethylhexyl) phthalate	3.2E-10	1.2E-12	1.4E-02	1.7E-14	1.9E-14
Carbazole	6.28E-08	1.0E-11	2.0E-02	2.0E-13	Carbazole	2.0E-08	7.4E-11	2.0E-02	1.5E-12	1.7E-12
Chrysene	2.16E-07	3.4E-11	3.2E-02	1.1E-12	Chrysene	6.8E-08	2.5E-10	3.2E-02	8.1E-12	9.2E-12
Dibenzo(a,h)anthracene	2.21E-07	3.5E-11	8.1E+00	2.8E-10	Dibenzo(a,h)anthracene	7.0E-08	2.6E-10	8.1E+00	2.1E-09	2.4E-09
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.59E-05	4.1E-09	2.0E+00	8.2E-09	Indeno(1,2,3-cd)pyrene	8.2E-06	3.1E-08	2.0E+00	6.1E-08	6.9E-08
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	1.0E-08				Total Pathway:	7.4E-08	8.4E-08
			Total Rad + Chem	1.0E-08				Total Rad + Chem	7.4E-08	*Total:* 8.4E-08

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TABLE B.3.4-13(b) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	4.28E-04	2.6E-02			CS-137	1.5E-04	2.1E-01			
NP-237	5.21E-06	3.2E-04			NP-237	4.7E-07	6.8E-04			
PU-238	3.05E-08	1.9E-06			PU-238	6.1E-09	8.7E-06			
PU-239/240	3.25E-09	2.0E-07			PU-239/240	6.5E-10	9.3E-07			
RA-226	3.77E-05	2.3E-03			RA-226	6.8E-05	9.7E-02			
RA-228	3.23E-05	2.0E-03			RA-228	5.8E-05	8.3E-02			
SR-90	2.32E-05	1.4E-03			SR-90	1.2E-04	1.7E-01			
TC-99	0.00E+00	0.0E+00			TC-99	0.0E+00	0.0E+00			
TH-228	7.02E-07	4.3E-05			TH-228	5.8E-07	8.4E-04			
TH-230	3.09E-06	1.9E-04			TH-230	2.6E-06	3.7E-03			
TH-232	7.20E-07	4.4E-05			TH-232	6.0E-07	8.6E-04			
U-234	6.71E-04	4.1E-02			U-234	2.0E-03	2.9E+00			
U-235/236	4.52E-05	2.8E-03			U-235/236	1.4E-04	1.9E-01			
U-238	1.23E-03	7.5E-02			U-238	3.7E-03	5.2E+00			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	1.06E-06	2.0E-09	3.0E-04	6.6E-06	Arsenic	3.2E-08	1.4E-09	3.0E-04	4.6E-06	1.1E-05
Beryllium	5.55E-08	1.0E-10	5.0E-03	2.1E-08	Beryllium	5.0E-11	2.2E-12	5.0E-03	4.3E-10	2.1E-08
Cadmium	4.03E-07	7.5E-10	1.0E-03	7.5E-07	Cadmium	7.3E-08	3.2E-09	1.0E-03	3.2E-06	3.9E-06
Chromium	6.77E-06	1.3E-08	5.0E-03	2.5E-06	Chromium	1.8E-06	8.0E-08	5.0E-03	1.6E-05	1.9E-05
Lead	4.55E-07	8.4E-10			Lead	3.8E-07	1.6E-08			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.59E-06	6.6E-09	3.0E-03	2.2E-06	U-TOTAL	1.1E-05	4.7E-07	3.0E-03	1.6E-04	1.6E-04
4,4'-DDE	3.72E-14	6.9E-17			4,4'-DDE	1.2E-08	5.1E-10			
Benzo(a)anthracene	1.82E-07	3.4E-10			Benzo(a)anthracene	5.8E-08	2.5E-09			
Benzo(a)pyrene	3.83E-07	7.1E-10			Benzo(a)pyrene	1.2E-07	5.3E-09			
Benzo(b)fluoranthene	3.13E-06	5.8E-09			Benzo(b)fluoranthene	9.9E-07	4.3E-08			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.87E-06	1.5E-08			Benzo(k)fluoranthene	2.5E-06	1.1E-07			
bis(2-Ethylhexyl) phthalate	1.01E-09	1.9E-12	2.0E-02	9.4E-11	bis(2-Ethylhexyl) phthalate	3.2E-10	1.4E-11	2.0E-02	7.0E-10	7.9E-10
Carbazole	6.28E-08	1.2E-10			Carbazole	2.0E-08	8.7E-10			
Chrysene	2.16E-07	4.0E-10			Chrysene	6.8E-08	3.0E-09			
Dibenzo(a,h)anthracene	2.21E-07	4.1E-10			Dibenzo(a,h)anthracene	7.0E-08	3.0E-09			
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.59E-05	4.8E-08			Indeno(1,2,3-cd)pyrene	8.2E-06	3.6E-07			
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			Heptachloro-p-dioxin	0.0E+00	0.0E+00			
		Total Pathway:		1.2E-05			Total Pathway:		1.8E-04	
		Total Rad + Chem		1.2E-05			Total Rad + Chem		1.8E-04	*Total:* 1.9E-04

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TABLE B.3.4-14(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.4E-11
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	4.9E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.1E-10
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	3.4E-11
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	4.2E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	3.1E-10
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	7.4E-11
TC-99	3.80E-01	5.7E+02	1.30E-12	7.4E-10	7.4E-10	7.4E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.6E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.5E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	3.3E-11
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	1.2E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	8.0E-11
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	3.9E-09
				Total Pathway:	7.4E-10	

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	0.0E+00	1.5E+01	0.0E+00	0.0E+00	1.0E-07
Beryllium	0.0E+00	0.0E+00	8.4E+00	0.0E+00	0.0E+00	6.0E-09
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
4,4'-DDE	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00	8.9E-01	0.0E+00	0.0E+00	3.4E-10
Benzo(a)pyrene	0.0E+00	0.0E+00	6.1E+00	0.0E+00	0.0E+00	2.1E-09
Benzo(b)fluoranthene	0.0E+00	0.0E+00	7.5E-01	0.0E+00	0.0E+00	5.3E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.2E-01	0.0E+00	0.0E+00	2.9E-10
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00	2.7E-02	0.0E+00	0.0E+00	1.2E-11
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	6.8E+00	0.0E+00	0.0E+00	1.4E-09
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	1.7E+00	0.0E+00	0.0E+00	8.1E-10
Phenanthrene	0.0E+00	0.0E+00				
Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
				Total Pathway:	0.0E+00	

Total Rad + Ch[illegible].4E-10 | *Total:* 7.4E-10 | 1.2E-07

TABLE B.3.4-14(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	3.8E-01	5.7E+02				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Inhalation of Particulates/Soil						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.3E-05
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.4E-07
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	1.0E-06
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.2E-06
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	7.7E-05
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00				
Benzo(a)pyrene	0.00E+00	0.0E+00				
Benzo(b)fluoranthene	0.00E+00	0.0E+00				
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00				
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	1.0E-04

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TABLE B.3.4-14(a)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.34E-04	5.0E-01	2.8E-11	1.4E-11	1.4E-11
NP-237	1.50E-03	2.2E+00	2.2E-10	4.9E-10	4.9E-10
PU-238	9.40E-04	1.4E+00	2.2E-10	3.1E-10	3.1E-10
PU-239/240	1.00E-04	1.5E-01	2.3E-10	3.4E-11	3.4E-11
RA-226	2.33E-03	3.5E+00	1.2E-10	4.2E-10	4.2E-10
RA-228	2.06E-03	3.1E+00	1.0E-10	3.1E-10	3.1E-10
SR-90	1.38E-03	2.1E+00	3.6E-11	7.4E-11	7.4E-11
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	1.98E-03	3.0E+00	5.5E-11	1.6E-10	1.6E-10
TH-230	7.91E-03	1.2E+01	1.3E-11	1.5E-10	1.5E-10
TH-232	1.85E-03	2.8E+00	1.2E-11	3.3E-11	3.3E-11
U-234	5.16E-02	7.7E+01	1.6E-11	1.2E-09	1.2E-09
U-235/236	3.47E-03	5.2E+00	1.6E-11	8.0E-11	8.0E-11
U-238	9.42E-02	1.4E+02	2.8E-11	3.9E-09	3.9E-09
			Total Pathway:	7.3E-09	

Chemical Risk

Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	8.3E-06	6.9E-09	1.5E+01	1.0E-07	1.0E-07
Beryllium	8.6E-07	7.1E-10	8.4E+00	6.0E-09	6.0E-09
Cadmium	1.2E-06	1.0E-09			
Chromium	1.9E-05	1.6E-08			
Lead	2.4E-05	2.0E-08			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.8E-04	2.3E-07			
4,4'-DDE	1.5E-08	1.2E-11			
Benzo(a)anthracene	4.6E-07	3.8E-10	8.9E-01	3.4E-10	3.4E-10
Benzo(a)pyrene	4.0E-07	3.4E-10	6.1E+00	2.1E-09	2.1E-09
Benzo(b)fluoranthene	8.5E-07	7.1E-10	7.5E-01	5.3E-10	5.3E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.1E-06	8.9E-10	3.2E-01	2.9E-10	2.9E-10
bis(2-Ethylhexyl) phthalate	6.2E-08	5.2E-11			
Carbazole	9.6E-08	8.0E-11			
Chrysene	5.4E-07	4.6E-10	2.7E-02	1.2E-11	1.2E-11
Dibenzo(a,h)anthracene	2.4E-07	2.0E-10	6.8E+00	1.4E-09	1.4E-09
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	5.7E-07	4.8E-10	1.7E+00	8.1E-10	8.1E-10
Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	1.2E-07	

Total Rad + Chem 1.2E-07 *Total:* 1.2E-07

TABLE B.3.4-14(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	3.3E-04	5.0E-01			
NP-237	1.5E-03	2.2E+00			
PU-238	9.4E-04	1.4E+00			
PU-239/240	1.0E-04	1.5E-01			
RA-226	2.3E-03	3.5E+00			
RA-228	2.1E-03	3.1E+00			
SR-90	1.4E-03	2.1E+00			
TC-99	0.0E+00	0.0E+00			
TH-228	2.0E-03	3.0E+00			
TH-230	7.9E-03	1.2E+01			
TH-232	1.8E-03	2.8E+00			
U-234	5.2E-02	7.7E+01			
U-235/236	3.5E-03	5.2E+00			
U-238	9.4E-02	1.4E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	8.25E-06	6.9E-09	3.0E-04	2.3E-05	2.3E-05
Beryllium	8.55E-07	7.1E-10	5.0E-03	1.4E-07	1.4E-07
Cadmium	1.22E-06	1.0E-09	1.0E-03	1.0E-06	1.0E-06
Chromium	1.89E-05	1.6E-08	5.0E-03	3.2E-06	3.2E-06
Lead	2.35E-05	2.0E-08			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.76E-04	2.3E-07	3.0E-03	7.7E-05	7.7E-05
4,4'-DDE	1.47E-08	1.2E-11			
Benzo(a)anthracene	4.60E-07	3.8E-10			
Benzo(a)pyrene	4.03E-07	3.4E-10			
Benzo(b)fluoranthene	8.47E-07	7.1E-10			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.07E-06	8.9E-10			
bis(2-Ethylhexyl) phthalate	6.24E-08	5.2E-11			
Carbazole	9.56E-08	8.0E-11			
Chrysene	5.45E-07	4.6E-10			
Dibenzo(a,h)anthracene	2.40E-07	2.0E-10			
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	5.73E-07	4.8E-10			
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			
			Total Pathway:	1.0E-04	

Total Rad + Chem	1.0E-04	*Total:*	1.0E-04

TABLE B.3.4-14(b) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.0E-12
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.7E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.3E-11
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	2.6E-12
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.1E-11
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.3E-11
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	5.5E-12
TC-99	3.80E-01	4.2E+01	1.30E-12	5.5E-11	5.5E-11	5.5E-11
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.2E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.1E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	2.5E-12
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	9.2E-11
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	6.0E-12
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.9E-10
				Total Pathway:	5.5E-11	

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.5E+01	0.0E+00	0.0E+00	3.6E-08
Beryllium	0.0E+00	0.0E+00	8.4E+00	0.0E+00	0.0E+00	2.1E-09
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
4,4'-DDE	0.0E+00	0.0E+00				
Benzo(b)anthracene	0.0E+00	0.0E+00	8.9E-01	0.0E+00	0.0E+00	1.2E-10
Benzo(b)pyrene	0.0E+00	0.0E+00	6.1E+00	0.0E+00	0.0E+00	7.1E-10
Benzo(b)fluoranthene	0.0E+00	0.0E+00	7.5E-01	0.0E+00	0.0E+00	1.8E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.2E-01	0.0E+00	0.0E+00	9.9E-11
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00	2.7E-02	0.0E+00	0.0E+00	4.3E-12
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	6.8E+00	0.0E+00	0.0E+00	4.7E-10
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	1.7E+00	0.0E+00	0.0E+00	2.8E-10
Phenanthrene	0.0E+00	0.0E+00				
Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
				Total Pathway:	0.0E+00	

Tot[illegible] + Chem	5.5E-11	*Total:*	5.5E-11	4.1E-08

TABLE B.3.4-14(b) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	3.8E-01	4.2E+01				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Chemical Hazard						
Inhalation of Particulates/Soil						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	9.3E-05
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.8E-07
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	4.1E-06
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.3E-05
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	3.1E-04
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(b)anthracene	0.00E+00	0.0E+00				
Benzo(b)pyrene	0.00E+00	0.0E+00				
Benzo(b)fluoranthene	0.00E+00	0.0E+00				
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00				
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Total Rad + Chem 0.0E+00 | *Total:* 0.0E+00 | 4.2E-04

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TABLE B.3.4-14(b)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.34E-04	3.7E-02	2.8E-11	1.0E-12	1.0E-12
NP-237	1.50E-03	1.7E-01	2.2E-10	3.7E-11	3.7E-11
PU-238	9.40E-04	1.0E-01	2.2E-10	2.3E-11	2.3E-11
PU-239/240	1.00E-04	1.1E-02	2.3E-10	2.6E-12	2.6E-12
RA-226	2.33E-03	2.6E-01	1.2E-10	3.1E-11	3.1E-11
RA-228	2.06E-03	2.3E-01	1.0E-10	2.3E-11	2.3E-11
SR-90	1.38E-03	1.5E-01	3.6E-11	5.5E-12	5.5E-12
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	1.98E-03	2.2E-01	5.5E-11	1.2E-11	1.2E-11
TH-230	7.91E-03	8.8E-01	1.3E-11	1.1E-11	1.1E-11
TH-232	1.85E-03	2.1E-01	1.2E-11	2.5E-12	2.5E-12
U-234	5.16E-02	5.7E+00	1.6E-11	9.2E-11	9.2E-11
U-235/236	3.47E-03	3.9E-01	1.6E-11	6.0E-12	6.0E-12
U-238	9.42E-02	1.0E+01	2.8E-11	2.9E-10	2.9E-10
			Total Pathway:	5.4E-10	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	8.3E-06	2.4E-09	1.5E+01	3.6E-08	3.6E-08
Beryllium	8.6E-07	2.5E-10	8.4E+00	2.1E-09	2.1E-09
Cadmium	1.2E-06	3.6E-10			
Chromium	1.9E-05	5.5E-09			
Lead	2.4E-05	6.8E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.8E-04	8.0E-08			
4,4'-DDE	1.5E-08	4.3E-12			
Benzo(b)anthracene	4.6E-07	1.3E-10	8.9E-01	1.2E-10	1.2E-10
Benzo(b)pyrene	4.0E-07	1.2E-10	6.1E+00	7.1E-10	7.1E-10
Benzo(b)fluoranthene	8.5E-07	2.5E-10	7.5E-01	1.8E-10	1.8E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.1E-06	3.1E-10	3.2E-01	9.9E-11	9.9E-11
bis(2-Ethylhexyl) phthalate	6.2E-08	1.8E-11			
Carbazole	9.6E-08	2.8E-11			
Chrysene	5.4E-07	1.6E-10	2.7E-02	4.3E-12	4.3E-12
Dibenzo(a,h)anthracene	2.4E-07	7.0E-11	6.8E+00	4.7E-10	4.7E-10
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	5.7E-07	1.7E-10	1.7E+00	2.8E-10	2.8E-10
Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	4.0E-08	

Total Rad + Chem 4.1E-08 *Total:* 4.1E-08

TABLE B.3.4-14(b) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	3.3E-04	3.7E-02			
NP-237	1.5E-03	1.7E-01			
PU-238	9.4E-04	1.0E-01			
PU-239/240	1.0E-04	1.1E-02			
RA-226	2.3E-03	2.6E-01			
RA-228	2.1E-03	2.3E-01			
SR-90	1.4E-03	1.5E-01			
TC-99	0.0E+00	0.0E+00			
TH-228	2.0E-03	2.2E-01			
TH-230	7.9E-03	8.8E-01			
TH-232	1.8E-03	2.1E-01			
U-234	5.2E-02	5.7E+00			
U-235/236	3.5E-03	3.9E-01			
U-238	9.4E-02	1.0E+01			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	8.25E-06	2.8E-08	3.0E-04	9.3E-05	9.3E-05
Beryllium	8.55E-07	2.9E-09	5.0E-03	5.8E-07	5.8E-07
Cadmium	1.22E-06	4.1E-09	1.0E-03	4.1E-06	4.1E-06
Chromium	1.89E-05	6.4E-08	5.0E-03	1.3E-05	1.3E-05
Lead	2.35E-05	8.0E-08			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.76E-04	9.3E-07	3.0E-03	3.1E-04	3.1E-04
4,4'-DDE	1.47E-08	5.0E-11			
Benzo(b)anthracene	4.60E-07	1.6E-09			
Benzo(b)pyrene	4.03E-07	1.4E-09			
Benzo(b)fluoranthene	8.47E-07	2.9E-09			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.07E-06	3.6E-09			
bis(2-Ethylhexyl) phthalate	6.24E-08	2.1E-10			
Carbazole	9.56E-08	3.2E-10			
Chrysene	5.45E-07	1.8E-09			
Dibenzo(a,h)anthracene	2.40E-07	8.1E-10			
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	5.73E-07	1.9E-09			
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			
			Total Pathway:	4.2E-04	

Total Rad + Chem 4.2E-04 | *Total:* 4.2E-04

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TABLE B.3.4-15(a)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: GROUNDWATER

Carcinogenic Risk

Radiation Risk					
Ingestion/Groundwater					Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0	0.0E+00	2.2E-10	0.0E+00	0.0E+00
RA-226	0	0.0E+00	1.2E-10	0.0E+00	0.0E+00
RA-228	0	0.0E+00	1.0E-10	0.0E+00	0.0E+00
TC-99	0	0.0E+00	1.3E-12	0.0E+00	0.0E+00
U234	0.054	2.6E+03	1.60E-11	4.2E-08	4.2E-08
U235/236	0	0.0E+00	1.60E-11	0.0E+00	0.0E+00
U238	0	0.0E+00	2.8E-11	0.0E+00	0.0E+00

Total Pathway: 4.2E-08

Chemical Risk				
Ingestion/Groundwater				
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk
None identified				

Total Pathway: 0.0E+00

Total Rad + Chem 4.2E-08 | *Total:* 4.2E-08

TABLE B.3.4-15(a) (continued)
FUTURE, OFF-PROPERTY FARMER
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.63	3.1E+04			Not applicable
RA-226	4.69E-04	2.3E+01			
RA-228		0.0E+00			
TC-99	1.1	5.4E+04			
U234	331	1.6E+07			
U235/236	18	8.8E+05			
U238	366	1.8E+07			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
		Total Pathway:		0.0E+00		Total Pathway:		0.0E+00
		Total Rad + Chem		0.0E+00		Total Rad + Chem		0.0E+00

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TABLE B.3.4-15(a) (continued)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	0.63	1.3E+03		
RA-226	4.69E-04	9.8E-01		
RA-228		0.0E+00		
TC-99	1.1	2.3E+03		
U234	331	7.0E+05		
U235/236	18	3.8E+04		
U238	366	7.7E+05		

Total Pathway: 0.0E+00

Inhalation/Groundwater

Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard

Total Pathway: 0.0E+00

Inhalation/Groundwater

Compound	Intake	RfD(i)	Hazard

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00

Total Rad + Chem 0.0E+00

TABLE B.3.4-15(b)
FUTURE, OFF-PROPERTY CHILD
SOLID WASTE LANDFILL: GROUNDWATER

Carcinogenic Risk

Radiation Risk					
Ingestion/Groundwater					Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0	0.0E+00	2.2E-10	0.0E+00	0.0E+00
RA-226	0	0.0E+00	1.2E-10	0.0E+00	0.0E+00
RA-228	0	0.0E+00	1.0E-10	0.0E+00	0.0E+00
TC-99	0	0.0E+00	1.3E-12	0.0E+00	0.0E+00
U234	0.054	1.1E+02	1.60E-11	1.8E-09	1.8E-09
U235/236	0	0.0E+00	1.60E-11	0.0E+00	0.0E+00
U238	0	0.0E+00	2.8E-11	0.0E+00	0.0E+00
			Total Pathway:	1.8E-09	

Chemical Risk				
Ingestion/Groundwater				
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk
None identified				
			Total Pathway:	0.0E+00

Total Rad + Chem 1.8E-09 *Total:* 1.8E-09

TABLE B.3.4-17
FUTURE, EXPANDED TRESPASSER
SOLID WASTE LANDFILL: SURFACE WATER
Carcinogenic Risk

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
PU-237	0.20	1.5E+01	2.2E-10	3.2E-09		3.2E-09
U-233	17.20	1.3E+03	1.6E-11	2.1E-08	Not applicable	2.1E-08
U-235/235	1.30	9.8E+01	1.6E-11	1.5E-09		1.5E-09
U-237	20.20	1.5E+03	2.8E-11	4.2E-08		4.2E-08
			Total Pathway:	6.8E-08	Total Pathway: 0.0E+00	

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water				
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	
bis(2-Ethylhexyl) phthalate	4.0E-03	1.9E-07	1.4E-02	2.7E-09	bis(2-Ethylhexyl) phthalate	1.8E-06	1.3E-02	2.2E-08	2.5E-08
Manganese	0.18	8.5E-06			Manganese	1.7E-06			
U-TOTAL	0.06	2.8E-06			U-TOTAL	5.7E-07			
			Total Pathway:	2.7E-09		Total Pathway:		2.2E-08	
									9.3E-08
		Total Rad + Chem		7.1E-08		Total Rad + Chem		2.2E-08	*Total:* 9.3E-08

TABLE B.3.4-17 (continued)
FUTURE, EXPANDED TRESPASSER
SOLID WASTE LANDFILL: SURFACE WATER
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard		
PU-237	2.0E-01	1.5E+01			Not applicable	
U-233	1.7E+01	1.3E+03				
U-235/235	1.3E+00	9.8E+01				
U-237	2.0E+01	1.5E+03				
Total Pathway:				0.0E+00	Total Pathway: 0.0E+00	

Chemical Hazard

Ingestion/Surface Water					Dermal Contact/Surface Water				Total
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm	Hazard	
bis(2-Ethylhexyl) phthalate	4.0E-03	6.4E-07	3.0E-04	2.1E-03	bis(2-Ethylhexyl) phthalate	5.7E-06	2.7E-04	2.1E-02	2.3E-02
Manganese	1.8E-01	2.8E-05	1.4E-01	2.0E-04	Manganese	5.6E-06	4.2E-03	1.3E-03	1.5E-03 •
U-TOTAL	5.9E-02	9.5E-06	3.0E-03	3.2E-03	U-TOTAL	1.9E-06	1.5E-04	1.2E-02	1.6E-02
Total Pathway:				5.5E-03	Total Pathway:			3.5E-02	
Total Rad + Chem				5.5E-03	Total Rad + Chem			3.5E-02	*Total:* 4.1E-02

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TABLE B.3.4-18
FUTURE, EXPANDED TRESPASSER
SOLID WASTE LANDFILL: SEDIMENT
Carcinogenic Risk

Radiation Risk

Ingestion/Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	0.62	1.7E+01	2.2E-10	3.7E-09
PU-238	0.036	9.6E-01	2.2E-10	2.1E-10
PU-239/240	0.039	1.0E+00	2.3E-10	2.4E-10
RA-226	0.97	2.6E+01	1.2E-10	3.1E-09
RA-228	1.07	2.9E+01	1.0E-10	2.9E-09
SR-90	0.99	2.7E+01	3.6E-11	9.6E-10
TH-228	0.73	2.0E+01	5.5E-11	1.1E-09
TH-230	1.05	2.8E+01	1.3E-11	3.7E-10
TH-232	0.57	1.5E+01	1.2E-11	1.8E-10
U-234	4.18	1.1E+02	1.6E-11	1.8E-09
U-235/236	0.250	6.7E+00	1.6E-11	1.0E-10
U-238	6.8	1.8E+02	2.8E-11	5.1E-09
		Total Pathway:		2.0E-08

Dermal Contact/Sediment

Not applicable

Total Pathway: 0.0E+00

External Radiation/Sediment

Compound	Intake	SF(e)	Risk
NP-237	1.2E-01	4.3E-07	5.4E-08
PU-238	7.2E-03	2.8E-11	2.0E-13
PU-239/24	7.8E-03	2.7E-11	2.1E-13
RA-226	1.9E-01	1.2E-08	2.3E-09
RA-228	2.1E-01	2.9E-06	6.2E-07
SR-90	2.0E-01	0.0E+00	0.0E+00
TH-228	1.5E-01	5.6E-06	8.2E-07
TH-230	2.1E-01	5.4E-11	1.1E-11
TH-232	1.1E-01	2.6E-11	3.0E-12
U-234	8.4E-01	3.0E-11	2.5E-11
U-235/236	5.0E-02	2.4E-07	1.2E-08
U-238	1.4E+00	3.6E-08	4.9E-08
		Total Pathway:	1.6E-06

Total

5.7E-08
2.1E-10
2.4E-10
5.5E-09
6.3E-07
9.6E-10
8.2E-07
3.8E-10
1.9E-10
1.8E-09
1.2E-08
5.4E-08

Chemical Risk

Ingestion/Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Benzo(a)anthracene	5.0E-01	8.5E-09	1.1E+00	9.4E-09
Benzo(a)pyrene	5.5E-01	9.4E-09	7.3E+00	6.9E-08
Benzo(b)fluoranthene	7.3E-01	1.2E-08	9.0E-01	1.1E-08
Benzo(g,h,i)perylene	2.4E-01	4.1E-09		
Benzo(k)fluoranthene	2.7E-01	4.6E-09	3.8E-01	1.8E-09
bis(2-Ethylhexyl) phthalate	5.3E-02	9.1E-10	1.4E-02	1.3E-11
Carbazole	1.2E-01	2.1E-09		
Chrysene	5.1E-01	8.7E-09	3.2E-02	2.8E-10
Fluoranthene	1.4	2.4E-08		
Indeno(1,2,3-cd)pyrene	3.1E-01	5.3E-09	2.0E+00	1.1E-08
Phenanthrene	1.0	1.7E-08		
Pyrene	9.9E-01	1.7E-08		
Arsenic	5.3	9.1E-08	1.8E+00	1.6E-07
Chromium	11.5	2.0E-07		
Cobalt	6.4	1.1E-07		
Lead	14.1	2.4E-07		
Manganese	1640	2.8E-05		
Silicon	1330	2.3E-05		
TH-TOTAL	5.2	8.9E-08		
Thallium	7.6E-01	1.3E-08		
U-TOTAL	24	4.1E-07		
		Total Pathway:		2.6E-07
		Total Rad + Chem		2.8E-07

Dermal Contact/Sediment

Compound	Intake	SF(derm)	Risk
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00
Benzo(g,h,i)perylene	5.2E-07		
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	1.5E-09	1.6E-02	2.4E-11
Carbazole	0.0E+00		
Chrysene	0.0E+00	7.4E-02	0.0E+00
Fluoranthene	3.0E-06		
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00
Phenanthrene	2.2E-06		
Pyrene	2.1E-06		
Arsenic	3.8E-07	1.8E+00	7.0E-07
Chromium	8.3E-07		
Cobalt	4.6E-07		
Lead	1.0E-06		
Manganese	1.2E-05		
Silicon	0.0E+00		
TH-TOTAL	0.0E+00		
Thallium	5.5E-08		
U-TOTAL	1.7E-06		
		Total Pathway:	7.0E-07
		Total Rad + Chem	7.0E-07

External Radiation/Sediment

Compound	Intake	SF(e)	Risk

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 1.6E-06

Total

9.4E-09
6.9E-08
1.1E-08
1.8E-09
3.6E-11
2.8E-10
1.1E-08
8.6E-07

Total: 2.5E-06

TABLE B.3.4-18 (continued)
FUTURE, EXPANDED TRESPASSER
SOLID WASTE LANDFILL: SEDIMENT
Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Sediment					Dermal Contact/Sediment	Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard		
NP-237	0.62	1.7E+01			Not applicable	
PU-238	0.04	9.6E-01				
PU-239/240	0.04	1.0E+00				
RA-226	0.97	2.6E+01				
RA-228	1.07	2.9E+01				
SR-90	0.99	2.7E+01				
TH-228	0.73	2.0E+01				
TH-230	1.05	2.8E+01				
TH-232	0.57	1.5E+01				
U-234	4.18	1.1E+02				
U-235/236	0.25	6.7E+00				
U-238	6.80	1.8E+02				
		Total Pathway:		0.0E+00	Total Pathway:	0.0E+00

Chemical Hazard

Ingestion/Sediment					Dermal Contact/Sediment				Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Benzo(a)anthracene	5.0E-01	2.9E-08			Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	5.5E-01	3.2E-08			Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	7.3E-01	4.2E-08			Benzo(b)fluoranthene	0.0E+00			
Benzo(g,h,i)perylene	2.4E-01	1.4E-08			Benzo(g,h,i)perylene	1.6E-06			
Benzo(k)fluoranthene	2.7E-01	1.5E-08			Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl) phthalate	5.3E-02	3.0E-09	2.0E-02	1.5E-07	bis(2-Ethylhexyl) phthalate	4.8E-09	1.8E-02	2.6E-07	4.2E-07
Carbazole	1.2E-01	6.9E-09			Carbazole	0.0E+00			
Chrysene	5.1E-01	2.9E-08			Chrysene	0.0E+00			
Fluoranthene	1.4	8.0E-08	4.0E-02	2.0E-06	Fluoranthene	9.4E-06	1.7E-02	5.5E-04	5.5E-04
Indeno(1,2,3-cd)pyrene	3.1E-01	1.8E-08			Indeno(1,2,3-cd)pyrene	0.0E+00			
Phenanthrene	1.0	5.7E-08			Phenanthrene	6.7E-06			
Pyrene	9.9E-01	5.7E-08	3.0E-02	1.9E-06	Pyrene	6.7E-06	1.3E-02	5.2E-04	5.2E-04
Arsenic	5.3	3.0E-07	3.0E-04	1.0E-03	Arsenic	1.2E-06	2.9E-04	4.2E-03	5.2E-03
Chromium	11.5	6.6E-07	5.0E-03	1.3E-04	Chromium	2.6E-06	2.3E-03	1.1E-03	1.3E-03
Cobalt	6.4	3.7E-07			Cobalt	1.4E-06			
Lead	14.1	8.1E-07			Lead	3.2E-06			
Manganese	1640	9.4E-05	1.4E-01	6.7E-04	Manganese	3.7E-05	4.2E-03	8.7E-03	9.4E-03
Silicon	1330	7.6E-05			Silicon	0.0E+00			
TH-TOTAL	5.20	3.0E-07			TH-TOTAL	0.0E+00			
Thallium	7.6E-01	4.4E-08	7.0E-05	6.2E-04	Thallium	1.7E-07	7.0E-05	2.4E-03	3.1E-03
U-TOTAL	24	1.4E-06	3.0E-03	4.6E-04	U-TOTAL	5.4E-06	1.5E-04	3.6E-02	3.6E-02
		Total Pathway:		2.9E-03		Total Pathway:		5.3E-02	5.6E-02
		Total Rad + Chem		2.9E-03		Total Rad + Chem		5.3E-02	*Total:* 5.6E-02

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TABLE B.3.4-19(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	2.43E-05	2.8E+00	1.9E-11	5.4E-11
NP-237	1.08E-04	1.3E+01	2.9E-08	3.6E-07
PU-238	7.03E-05	8.1E+00	3.9E-08	3.2E-07
PU-239/240	7.46E-06	8.6E-01	3.8E-08	3.3E-08
RA-226	1.73E-04	2.0E+01	3.0E-09	6.0E-08
RA-228	1.53E-04	1.8E+01	6.9E-10	1.2E-08
SR-90	8.69E-05	1.0E+01	6.2E-11	6.2E-10
TH-228	1.48E-04	1.7E+01	7.8E-08	1.3E-06
TH-230	5.89E-04	6.8E+01	2.9E-08	2.0E-06
TH-232	1.38E-04	1.6E+01	2.8E-08	4.5E-07
U-234	3.83E-03	4.4E+02	2.6E-08	1.2E-05
U-235/236	2.58E-04	3.0E+01	2.5E-08	7.5E-07
U-238	7.02E-03	8.1E+02	5.2E-08	4.2E-05
			Total Pathway:	5.9E-05

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.257	1.1E+03	2.8E-11	3.2E-08
NP-237	1.189	5.2E+03	2.2E-10	1.2E-06
PU-238	0.772	3.4E+03	2.2E-10	7.5E-07
PU-239/240	0.082	3.6E+02	2.3E-10	8.3E-08
RA-226	1.397	6.2E+03	1.2E-10	7.4E-07
RA-228	1.681	7.4E+03	1.0E-10	7.4E-07
SR-90	0.955	4.2E+03	3.6E-11	1.5E-07
TH-228	1.626	7.2E+03	5.5E-11	3.9E-07
TH-230	6.476	2.9E+04	1.3E-11	3.7E-07
TH-232	1.511	6.7E+03	1.2E-11	8.0E-08
U-234	42.1	1.9E+05	1.6E-11	3.0E-06
U-235/236	2.838	1.3E+04	1.6E-11	2.0E-07
U-238	77.1	3.4E+05	2.8E-11	9.5E-06
			Total Pathway:	1.7E-05

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.07E-07	3.9E-08	1.5E+01	5.9E-07
Beryllium	6.35E-08	4.1E-09	8.4E+00	3.5E-08
Cadmium	7.74E-08	5.0E-09		
Chromium	1.41E-06	9.1E-08	4.1E+01	3.7E-06
Lead	1.73E-06	1.1E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.05E-05	1.3E-06		
4,4'-DDE	1.09E-09	7.1E-11		
Benzo(a)anthracene	3.51E-08	2.3E-09	8.9E-01	2.0E-09
Benzo(a)pyrene	3.09E-08	2.0E-09	6.1E+00	1.2E-08
Benzo(b)fluoranthene	6.46E-08	4.2E-09	7.5E-01	3.1E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	8.05E-08	5.2E-09	3.2E-01	1.7E-09
bis(2-Ethylhexyl) phthalate	4.37E-09	2.8E-10		
Carbazole	7.01E-09	4.5E-10		
Chrysene	4.12E-08	2.7E-09	2.7E-02	7.2E-11
Dibenzo(a,h)anthracene	1.82E-08	1.2E-09	6.8E+00	8.0E-09
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	4.37E-08	2.8E-09	1.7E+00	4.8E-09
Phenanthrene	0.00E+00	0.0E+00		
			Total Pathway:	4.4E-06
			Total Rad + Chem	6.4E-05

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.67	1.6E-05	1.8E+00	2.9E-05
Beryllium	0.70	1.7E-06	4.3E+00	7.4E-06
Cadmium	0.85	2.1E-06		
Chromium	15.46	3.8E-05		
Lead	19.01	4.7E-05		
TH-TOTAL	13.78	3.4E-05		
U-TOTAL	225.22	5.6E-04		
4,4'-DDE	0.01	3.0E-08	3.4E-01	1.0E-08
Benzo(a)anthracene	0.37	9.0E-07	1.1E+00	9.9E-07
Benzo(a)pyrene	0.34	8.4E-07	7.3E+00	6.1E-06
Benzo(b)fluoranthene	0.71	1.8E-06	9.0E-01	1.6E-06
Benzo(g,h,i)perylene	0.50	1.2E-06		
Benzo(k)fluoranthene	0.39	9.5E-07	3.8E-01	3.6E-07
bis(2-Ethylhexyl) phthalate	0.05	1.2E-07	1.4E-02	1.7E-09
Carbazole	0.08	1.9E-07	2.0E-02	3.8E-09
Chrysene	0.45	1.1E-06	3.2E-02	3.6E-08
Dibenzo(a,h)anthracene	0.20	4.9E-07	8.1E+00	4.0E-06
Dibenzofuran	0.06	1.4E-07		
Indeno(1,2,3-cd)pyrene	0.48	1.2E-06	2.0E+00	2.4E-06
Phenanthrene	0.53	1.3E-06		
			Total Pathway:	5.2E-05
			Total Rad + Chem	6.9E-05

TABLE B.3.4-19(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.1E+01	2.0E-06	2.1E-05	2.1E-05
	NP-237	4.9E+01	4.3E-07	2.1E-05	2.3E-05
	PU-238	3.2E+01	2.8E-11	9.0E-10	1.1E-06
	PU-239/240	3.4E+00	2.7E-11	9.2E-11	1.2E-07
	RA-226	5.8E+01	1.2E-08	7.0E-07	1.5E-06
	RA-228	7.0E+01	2.9E-06	2.0E-04	2.0E-04
	SR-90	4.0E+01	0.0E+00	0.0E+00	1.5E-07
	TH-228	6.8E+01	5.6E-06	3.8E-04	3.8E-04
	TH-230	2.7E+02	5.4E-11	1.5E-08	2.4E-06
	TH-232	6.3E+01	2.6E-11	1.6E-09	5.3E-07
	U-234	1.7E+03	3.0E-11	5.2E-08	1.5E-05
	U-235/236	1.2E+02	2.4E-07	2.8E-05	2.9E-05
	U-238	3.2E+03	3.6E-08	1.2E-04	1.7E-04
Total Pathway: 0.0E+00			Total Pathway:	7.7E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	5.3E-07	1.8E+00	9.7E-07					3.0E-05
Beryllium	5.5E-07	4.3E+02	2.4E-04					2.4E-04
Cadmium	6.7E-07			Not applicable				
Chromium	1.2E-05							3.7E-06
Lead	1.5E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	1.8E-04							
4,4'-DDE	2.8E-07	3.8E-01	1.1E-07					1.2E-07
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					9.9E-07
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					6.1E-06
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					1.6E-06
Benzo(g,h,i)perylene	1.2E-05							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					3.6E-07
bis(2-Ethylhexyl) phthalate	1.5E-08	1.6E-02	2.4E-10					1.9E-09
Carbazole	0.0E+00	2.0E-02	0.0E+00					3.8E-09
Chrysene	0.0E+00	7.4E-02	0.0E+00					3.6E-08
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					4.0E-06
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					2.4E-06
Phenanthrene	1.3E-05							
	Total Pathway:		2.4E-04		Total Pathway:		0.0E+00	
FER\CRU2RI\ABQ\SWSLONRF.XLS\1/26/94; 4:08 PM	Total Rad + Chem		2.4E-04				7.7E-04	*Total:* 1.1E-03

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TABLE B.3.4-19(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
NP-237	2.43E-05	2.8E+00		
PU-238	1.08E-04	1.3E+01		
PU-239/240	7.03E-05	8.1E+00		
RA-226	7.46E-06	8.6E-01		
RA-228	1.73E-04	2.0E+01		
SR-90	1.53E-04	1.8E+01		
TH-228	8.69E-05	1.0E+01		
TH-230	1.48E-04	1.7E+01		
TH-232	5.89E-04	6.8E+01		
U-234	1.38E-04	1.6E+01		
U-235/236	3.83E-03	4.4E+02		
U-238	2.58E-04	3.0E+01		
U-239	7.02E-03	8.1E+02		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
NP-237	0.26	1.1E+03		
PU-238	1.19	5.2E+03		
PU-239/240	0.77	3.4E+03		
RA-226	0.08	3.6E+02		
RA-228	1.40	6.2E+03		
SR-90	1.68	7.4E+03		
TH-228	0.96	4.2E+03		
TH-230	1.63	7.2E+03		
TH-232	6.48	2.9E+04		
U-234	1.51	6.7E+03		
U-235/236	42.12	1.9E+05		
U-238	2.84	1.3E+04		
U-239	77.15	3.4E+05		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	6.07E-07	3.9E-08		
Beryllium	6.35E-08	4.1E-09		
Cadmium	7.74E-08	5.0E-09		
Chromium	1.41E-06	9.1E-08		
Lead	1.73E-06	1.1E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.05E-05	1.3E-06		
4,4'-DDE	1.09E-09	7.1E-11		
Benzo(a)anthracene	3.51E-08	2.3E-09		
Benzo(a)pyrene	3.09E-08	2.0E-09		
Benzo(b)fluoranthene	6.46E-08	4.2E-09		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	8.05E-08	5.2E-09		
bis(2-Ethylhexyl) phthalate	4.37E-09	2.8E-10		
Carbazole	7.01E-09	4.5E-10		
Chrysene	4.12E-08	2.7E-09		
Dibenzo(a,h)anthracene	1.82E-08	1.2E-09		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	4.37E-08	2.8E-09		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	6.67	1.6E-05	3.0E-04	0.1
Beryllium	0.70	1.7E-06	5.0E-03	3.4E-04
Cadmium	0.85	2.1E-06	1.0E-03	2.1E-03
Chromium	15.46	3.8E-05	5.0E-03	7.6E-03
Lead	19.01	4.7E-05		
TH-TOTAL	13.78	3.4E-05		
U-TOTAL	225.22	5.6E-04	3.0E-03	0.2
4,4'-DDE	0.01	3.0E-08		
Benzo(a)anthracene	0.37	9.0E-07		
Benzo(a)pyrene	0.34	8.4E-07		
Benzo(b)fluoranthene	0.71	1.8E-06		
Benzo(g,h,i)perylene	0.50	1.2E-06		
Benzo(k)fluoranthene	0.39	9.5E-07		
bis(2-Ethylhexyl) phthalate	0.05	1.2E-07	2.0E-02	5.9E-06
Carbazole	0.08	1.9E-07		
Chrysene	0.45	1.1E-06		
Dibenzo(a,h)anthracene	0.20	4.9E-07		
Dibenzofuran	0.06	1.4E-07	4.00E-03	3.5E-05
Indeno(1,2,3-cd)pyrene	0.48	1.2E-06		
Phenanthrene	0.53	1.3E-06		

Total Pathway: 0.3

Total Rad + Chem 0.0E

Total Rad + Chem 0.3

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	Hazard
Not applicable	NP-237	1.1E+01		
	PU-238	4.9E+01		
	PU-239/24	3.2E+01		
	RA-226	3.4E+00		
	RA-228	5.8E+01		
	SR-90	7.0E+01		
	TH-228	4.0E+01		
	TH-230	6.8E+01		
	TH-232	2.7E+02		
	U-234	6.3E+01		
	U-235/236	1.7E+03		
	U-238	1.2E+02		
	U-239	3.2E+03		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	5.3E-07	2.9E-04	1.8E-03					5.7E-02
Beryllium	5.5E-07	5.0E-05	1.1E-02					1.1E-02
Cadmium	6.7E-07	5.0E-05	1.3E-02	Not applicable				1.5E-02
Chromium	1.2E-05	2.3E-03	5.4E-03					1.3E-02
Lead	1.5E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	1.8E-04	1.5E-04	1.2					1.4
4,4'-DDE	2.8E-07							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	1.2E-05							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	1.5E-08	1.8E-02	8.4E-07					6.8E-06
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00							3.5E-05
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	1.3E-05							
	Total Pathway:		1.2		Total Pathway:		0.0E+00	
	Total Rad + Chem		1.2				0.0E+00	*Total:* 1.5

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TABLE B.3.4-19(b)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	2.43E-05	5.1E-02	1.9E-11	9.7E-13
NP-237	1.08E-04	2.3E-01	2.9E-08	6.6E-09
PU-238	7.03E-05	1.5E-01	3.9E-08	5.8E-09
PU-239/240	7.46E-06	1.6E-02	3.8E-08	6.0E-10
RA-226	1.73E-04	3.6E-01	3.0E-09	1.1E-09
RA-228	1.53E-04	3.2E-01	6.9E-10	2.2E-10
SR-90	8.69E-05	1.8E-01	6.2E-11	1.1E-11
TH-228	1.48E-04	3.1E-01	7.8E-08	2.4E-08
TH-230	5.89E-04	1.2E+00	2.9E-08	3.6E-08
TH-232	1.38E-04	2.9E-01	2.8E-08	8.1E-09
U-234	3.83E-03	8.0E+00	2.6E-08	2.1E-07
U-235/236	2.58E-04	5.4E-01	2.5E-08	1.4E-08
U-238	0.00702	1.5E+01	5.2E-08	7.7E-07

Total Pathway: 1.1E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.257	1.1E+02	2.8E-11	3.0E-09
NP-237	1.189	5.0E+02	2.2E-10	1.1E-07
PU-238	0.772	3.2E+02	2.2E-10	7.1E-08
PU-239/240	0.082	3.4E+01	2.3E-10	7.9E-09
RA-226	1.397	5.9E+02	1.2E-10	7.0E-08
RA-228	1.681	7.1E+02	1.0E-10	7.1E-08
SR-90	0.955	4.0E+02	3.6E-11	1.4E-08
TH-228	1.626	6.8E+02	5.5E-11	3.8E-08
TH-230	6.476	2.7E+03	1.3E-11	3.5E-08
TH-232	1.511	6.3E+02	1.2E-11	7.6E-09
U-234	42.1	1.8E+04	1.6E-11	2.8E-07
U-235/236	2.838	1.2E+03	1.6E-11	1.9E-08
U-238	77.1	3.2E+04	2.8E-11	9.1E-07

Total Pathway: 1.6E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.07E-07	3.3E-09	1.5E+01	5.0E-08
Beryllium	6.35E-08	3.5E-10	8.4E+00	2.9E-09
Cadmium	7.74E-08	4.2E-10		
Chromium	1.41E-06	7.7E-09	4.1E+01	3.2E-07
Lead	1.73E-06	9.5E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.05E-05	1.1E-07		
4,4'-DDE	1.09E-09	6.0E-12		
Benzo(a)anthracene	3.51E-08	1.9E-10	8.9E-01	1.7E-10
Benzo(a)pyrene	3.09E-08	1.7E-10	6.1E+00	1.0E-09
Benzo(b)fluoranthene	6.46E-08	3.5E-10	7.5E-01	2.7E-10
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	8.05E-08	4.4E-10	3.2E-01	1.4E-10
bis(2-Ethylhexyl) phthalate	4.37E-09	2.4E-11		
Carbazole	7.01E-09	3.8E-11		
Chrysene	4.12E-08	2.3E-10	2.7E-02	6.1E-12
Dibenzo(a,h)anthracene	1.82E-08	1.0E-10	6.8E+00	6.8E-10
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	4.37E-08	2.4E-10	1.7E+00	4.1E-10
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 3.7E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.67	7.3E-06	1.8E+00	1.3E-05
Beryllium	0.70	7.6E-07	4.3E+00	3.3E-06
Cadmium	0.85	9.3E-07		
Chromium	15.46	1.7E-05		
Lead	19.01	2.1E-05		
TH-TOTAL	13.78	1.5E-05		
U-TOTAL	225.22	2.5E-04		
4,4'-DDE	0.01	1.3E-08	3.4E-01	4.5E-09
Benzo(a)anthracene	0.37	4.0E-07	1.1E+00	4.4E-07
Benzo(a)pyrene	0.34	3.7E-07	7.3E+00	2.7E-06
Benzo(b)fluoranthene	0.71	7.8E-07	9.0E-01	7.0E-07
Benzo(g,h,i)perylene	0.50	5.5E-07		
Benzo(k)fluoranthene	0.39	4.2E-07	3.8E-01	1.6E-07
bis(2-Ethylhexyl) phthalate	0.05	5.3E-08	1.4E-02	7.4E-10
Carbazole	0.08	8.4E-08	2.0E-02	1.7E-09
Chrysene	0.45	5.0E-07	3.2E-02	1.6E-08
Dibenzo(a,h)anthracene	0.20	2.2E-07	8.1E+00	1.8E-06
Dibenzofuran	0.06	6.1E-08		
Indeno(1,2,3-cd)pyrene	0.48	5.3E-07	2.0E+00	1.1E-06
Phenanthrene	0.53	5.8E-07		

Total Pathway: 2.3E-05

Total Rad + Chem 1.4E-06

Total Rad + Chem 2.5E-05

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TABLE B.3.4-19(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	8.0E-01	2.0E-06	1.6E-06	1.6E-06
	NP-237	3.7E+00	4.3E-07	1.6E-06	1.7E-06
	PU-238	2.4E+00	2.8E-11	6.7E-11	7.7E-08
	PU-239/240	2.6E-01	2.7E-11	6.9E-12	8.5E-09
	RA-226	4.4E+00	1.2E-08	5.2E-08	1.2E-07
	RA-228	5.2E+00	2.9E-06	1.5E-05	1.5E-05
	SR-90	3.0E+00	0.0E+00	0.0E+00	1.4E-08
	TH-228	5.1E+00	5.6E-06	2.8E-05	2.8E-05
	TH-230	2.0E+01	5.4E-11	1.1E-09	7.2E-08
	TH-232	4.7E+00	2.6E-11	1.2E-10	1.6E-08
	U-234	1.3E+02	3.0E-11	3.9E-09	5.0E-07
	U-235/236	8.8E+00	2.4E-07	2.1E-06	2.2E-06
	U-238	2.4E+02	3.6E-08	8.7E-06	1.0E-05
Total Pathway: 0.0E+00				Total Pathway: 5.8E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	7.3E-08	1.8E+00	1.3E-07					1.3E-05
Beryllium	7.6E-08	4.3E+02	3.3E-05					3.6E-05
Cadmium	9.3E-08			Not applicable				
Chromium	1.7E-06							3.2E-07
Lead	2.1E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	2.5E-05							
4,4'-DDE	3.9E-08	3.8E-01	1.5E-08					1.9E-08
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					4.4E-07
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					2.7E-06
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					7.0E-07
Benzo(g,h,i)perylene	1.6E-06							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					1.6E-07
bis(2-Ethylhexyl) phthalate	2.1E-09	1.6E-02	3.3E-11					7.7E-10
Carbazole	0.0E+00							
Chrysene	0.0E+00	7.4E-02	0.0E+00					1.6E-08
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					1.8E-06
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					1.1E-06
Phenanthrene	1.7E-06							
	Total Pathway:		3.3E-05		Total Pathway:		0.0E+00	1.2E-04
	Total Rad + Chem		3.3E-05				5.8E-05	*Total:* 1.2E-04

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TABLE B.3.4-19(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	2.43E-05	5.1E-02		
NP-237	1.08E-04	2.3E-01		
PU-238	7.03E-05	1.5E-01		
PU-239/240	7.46E-06	1.6E-02		
RA-226	1.73E-04	3.6E-01		
RA-228	1.53E-04	3.2E-01		
SR-90	8.69E-05	1.8E-01		
TH-228	1.48E-04	3.1E-01		
TH-230	5.89E-04	1.2E+00		
TH-232	1.38E-04	2.9E-01		
U-234	3.83E-03	8.0E+00		
U-235/236	2.58E-04	5.4E-01		
U-238	7.02E-03	1.5E+01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.26	1.1E+02		
NP-237	1.19	5.0E+02		
PU-238	0.77	3.2E+02		
PU-239/240	0.08	3.4E+01		
RA-226	1.40	5.9E+02		
RA-228	1.68	7.1E+02		
SR-90	0.96	4.0E+02		
TH-228	1.63	6.8E+02		
TH-230	6.48	2.7E+03		
TH-232	1.51	6.3E+02		
U-234	42.12	1.8E+04		
U-235/236	2.84	1.2E+03		
U-238	77.15	3.2E+04		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	6.07E-07	3.9E-08		
Beryllium	6.35E-08	4.1E-09		
Cadmium	7.74E-08	4.9E-09		
Chromium	1.41E-06	9.0E-08		
Lead	1.73E-06	1.1E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.05E-05	1.3E-06		
4,4'-DDE	1.09E-09	7.0E-11		
Benzo(a)anthracene	3.51E-08	2.2E-09		
Benzo(a)pyrene	3.09E-08	2.0E-09		
Benzo(b)fluoranthene	6.46E-08	4.1E-09		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	8.05E-08	5.1E-09		
bis(2-Ethylhexyl) phthalate	4.37E-09	2.8E-10		
Carbazole	7.01E-09	4.5E-10		
Chrysene	4.12E-08	2.6E-09		
Dibenzo(a,h)anthracene	1.82E-08	1.2E-09		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	4.37E-08	2.8E-09		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg	Intake	RfD(o)	Hazard
Arsenic	6.67	8.5E-05	3.0E-04	0.3
Beryllium	0.70	8.9E-06	5.0E-03	1.8E-03
Cadmium	0.85	1.1E-05	1.0E-03	1.1E-02
Chromium	15.46	2.0E-04	5.0E-03	4.0E-02
Lead	19.01	2.4E-04		
TH-TOTAL	13.78	1.8E-04		
U-TOTAL	225.22	2.9E-03	3.0E-03	1.0
4,4'-DDE	0.01	1.5E-07		
Benzo(a)anthracene	0.37	4.7E-06		
Benzo(a)pyrene	0.34	4.3E-06		
Benzo(b)fluoranthene	0.71	9.1E-06		
Benzo(g,h,i)perylene	0.50	6.4E-06		
Benzo(k)fluoranthene	0.39	4.9E-06		
bis(2-Ethylhexyl) phthalate	0.05	6.1E-07	2.0E-02	3.1E-05
Carbazole	0.08	9.8E-07		
Chrysene	0.45	5.8E-06		
Dibenzo(a,h)anthracene	0.20	2.6E-06		
Dibenzofuran	0.06	7.2E-07	4.00E-03	1.8E-04
Indeno(1,2,3-cd)pyrene	0.48	6.1E-06		
Phenanthrene	0.53	6.8E-06		

Total Pathway: 1.3

Total Rad + Chem 0.0E+00

Total Rad + Chem 1.3

TABLE B.3.4-19(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	RfD(e)	Hazard	
Not applicable	CS-137	8.0E-01			
	NP-237	3.7E+00			
	PU-238	2.4E+00			
	PU-239/240	2.6E-01			
	RA-226	4.4E+00			
	RA-228	5.2E+00			
	SR-90	3.0E+00			
	TH-228	5.1E+00			
	TH-230	2.0E+01			
	TH-232	4.7E+00			
	U-234	1.3E+02			
	U-235/236	8.8E+00			
	U-238	2.4E+02			
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00				

Chemical Hazard

Dermal Contact/Soil					External Radiation/Soil				
Compound	ABS	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	1.0E-03	8.5E-07	2.9E-04	3.0E-03					0.3
Beryllium	1.0E-02	8.9E-07	5.0E-05	1.8E-02					2.0E-02
Cadmium	1.0E-02	1.1E-06	5.0E-05	2.2E-02	Not applicable				3.3E-02
Chromium	1.0E-02	2.0E-05	2.3E-03	8.8E-03					4.8E-02
Lead	1.0E-02	2.4E-05							
TH-TOTAL		0.0E+00							
U-TOTAL	1.0E-02	2.9E-04	1.5E-04	1.9					2.9
4,4'-DDE	3.0E-01	4.6E-07							
Benzo(a)anthracene		0.0E+00							
Benzo(a)pyrene		0.0E+00							
Benzo(b)fluoranthene		0.0E+00							
Benzo(g,h,i)perylene	3.0E-01	1.9E-05							
Benzo(k)fluoranthene		0.0E+00							
bis(2-Ethylhexyl) phthalate	4.0E-03	2.5E-08	1.8E-02	1.4E-06					3.2E-05
Carbazole		0.0E+00							
Chrysene		0.0E+00							
Dibenzo(a,h)anthracene		0.0E+00							
Dibenzofuran		0.0E+00							1.8E-04
Indeno(1,2,3-cd)pyrene		0.0E+00							
Phenanthrene	3.0E-01	2.0E-05							
		Total Pathway:		2.0		Total Pathway:		0.0E+00	
		Total Rad + Chem		2.0				0.0E+00	*Total:* 3.3

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TABLE B.3.4-20(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.63	3.1E+04			Not applicable
RA-226	4.69E-04	2.3E+01			
RA-228		0.0E+00			
TC-99	1.1	5.4E+04			
U234	331	1.6E+07			
U235/236	18	8.8E+05			
U238	366	1.8E+07			
Total Pathway:		0.0E+00			Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Total Pathway:		0.0E+00			Total Pathway:			0.0E+00
Total Rad + Chem		0.0E+00			Total Rad + Chem			0.0E+00

TABLE B.3.4-20(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total

Total Pathway: 0.0E+00

Chemical Hazard			
Dermal Contact/Groundwater			
Compound	Intake	RfD(derm)	Hazard

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

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TABLE B.3.4-20(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Groundwater				
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard
NP-237	0.63	1.3E+03		
RA-226	4.69E-04	9.8E-01		
RA-228		0.0E+00		
TC-99	1.1	2.3E+03		
U234	331	7.0E+05		
U235/236	18	3.8E+04		
U238	366	7.7E+05		

Total Pathway: 0.0E+00

Inhalation/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard

Total Pathway: 0.0E+00

Inhalation/Groundwater			
Compound	Intake	RfD(i)	Hazard

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00

Total Rad + Chem 0.0E+00

TABLE B.3.4-20(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total

Total Pathway: 0.0E+00

Chemical Hazard			
Dermal Contact/Groundwater			
Compound	Intake	RfD(derm)	Hazard

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

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TABLE B.3.4-21(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	9.7E-10
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.4E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.1E-08
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	2.4E-09
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.9E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.1E-08
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	5.1E-09
TC-99	4.27E+00	6.4E+03	1.30E-12	8.3E-09	8.3E-09	8.3E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.1E-08
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.1E-08
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	2.3E-09
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	8.5E-08
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	5.6E-09
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.7E-07
				Total Pathway:	8.3E-09	

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
Arsenic	0.00E+00	0.0E+00	1.5E+01	0.0E+00	0.0E+00	7.2E-06
Beryllium	0.00E+00	0.0E+00	8.4E+00	0.0E+00	0.0E+00	4.2E-07
Cadmium	0.00E+00	0.0E+00				
Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00				
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	8.9E-01	0.0E+00	0.0E+00	2.4E-08
Benzo(a)pyrene	0.00E+00	0.0E+00	6.1E+00	0.0E+00	0.0E+00	1.4E-07
Benzo(b)fluoranthene	0.00E+00	0.0E+00	7.5E-01	0.0E+00	0.0E+00	3.7E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.2E-01	0.0E+00	0.0E+00	2.0E-08
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00	2.7E-02	0.0E+00	0.0E+00	8.5E-10
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	6.8E+00	0.0E+00	0.0E+00	9.4E-08
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	1.7E+00	0.0E+00	0.0E+00	5.6E-08
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
				Total Pathway:	0.0E+00	

Tot[illegible] + Chem	8.3E-09	*Total:*	8.3E-09	8.5E-06

TABLE B.3.4-21(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	4.3E+00	6.4E+03				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Chemical Hazard						
Inhalation of Particulates/Soil						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.6E-03
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	9.9E-06
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	7.1E-05
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.2E-04
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	5.3E-03
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00				
Benzo(a)pyrene	0.00E+00	0.0E+00				
Benzo(b)fluoranthene	0.00E+00	0.0E+00				
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00				
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	7.2E-03

TABLE B.3.4-21(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	2.32E-02	3.5E+01	2.8E-11	9.7E-10	9.7E-10
NP-237	1.04E-01	1.6E+02	2.2E-10	3.4E-08	3.4E-08
PU-238	6.53E-02	9.8E+01	2.2E-10	2.1E-08	2.1E-08
PU-239/240	6.93E-03	1.0E+01	2.3E-10	2.4E-09	2.4E-09
RA-226	1.61E-01	2.4E+02	1.2E-10	2.9E-08	2.9E-08
RA-228	1.43E-01	2.1E+02	1.0E-10	2.1E-08	2.1E-08
SR-90	9.56E-02	1.4E+02	3.6E-11	5.1E-09	5.1E-09
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	1.37E-01	2.0E+02	5.5E-11	1.1E-08	1.1E-08
TH-230	5.47E-01	8.2E+02	1.3E-11	1.1E-08	1.1E-08
TH-232	1.28E-01	1.9E+02	1.2E-11	2.3E-09	2.3E-09
U-234	3.57E+00	5.3E+03	1.6E-11	8.5E-08	8.5E-08
U-235/236	2.40E-01	3.6E+02	1.6E-11	5.6E-09	5.6E-09
U-238	6.53E+00	9.8E+03	2.8E-11	2.7E-07	2.7E-07
			Total Pathway:	5.0E-07	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.70E-04	4.8E-07	1.5E+01	7.2E-06	7.2E-06
Beryllium	5.92E-05	4.9E-08	8.4E+00	4.2E-07	4.2E-07
Cadmium	8.49E-05	7.1E-08			
Chromium	1.31E-03	1.1E-06			
Lead	1.63E-03	1.4E-06			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.91E-02	1.6E-05			
4,4'-DDE	1.02E-06	8.5E-10			
Benzo(a)anthracene	3.18E-05	2.7E-08	8.9E-01	2.4E-08	2.4E-08
Benzo(a)pyrene	2.78E-05	2.3E-08	6.1E+00	1.4E-07	1.4E-07
Benzo(b)fluoranthene	5.84E-05	4.9E-08	7.5E-01	3.7E-08	3.7E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	7.42E-05	6.2E-08	3.2E-01	2.0E-08	2.0E-08
bis(2-Ethylhexyl) phthalate	4.31E-06	3.6E-09			
Carbazole	6.62E-06	5.5E-09			
Chrysene	3.77E-05	3.1E-08	2.7E-02	8.5E-10	8.5E-10
Dibenzo(a,h)anthracene	1.66E-05	1.4E-08	6.8E+00	9.4E-08	9.4E-08
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	3.96E-05	3.3E-08	1.7E+00	5.6E-08	5.6E-08
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	8.0E-06	

Total Rad + Chem 8.5E-06 *Total:* 8.5E-06

TABLE B.3.4-21(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	2.3E-02	3.5E+01			
NP-237	1.0E-01	1.6E+02			
PU-238	6.5E-02	9.8E+01			
PU-239/240	6.9E-03	1.0E+01			
RA-226	1.6E-01	2.4E+02			
RA-228	1.4E-01	2.1E+02			
SR-90	9.6E-02	1.4E+02			
TC-99	0.0E+00	0.0E+00			
TH-228	1.4E-01	2.0E+02			
TH-230	5.5E-01	8.2E+02			
TH-232	1.3E-01	1.9E+02			
U-234	3.6E+00	5.3E+03			
U-235/236	2.4E-01	3.6E+02			
U-238	6.5E+00	9.8E+03			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	5.70E-04	4.8E-07	3.0E-04	1.6E-03	1.6E-03
Beryllium	5.92E-05	4.9E-08	5.0E-03	9.9E-06	9.9E-06
Cadmium	8.49E-05	7.1E-08	1.0E-03	7.1E-05	7.1E-05
Chromium	1.31E-03	1.1E-06	5.0E-03	2.2E-04	2.2E-04
Lead	1.63E-03	1.4E-06			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.91E-02	1.6E-05	3.0E-03	5.3E-03	5.3E-03
4,4'-DDE	1.02E-06	8.5E-10			
Benzo(a)anthracene	3.18E-05	2.7E-08			
Benzo(a)pyrene	2.78E-05	2.3E-08			
Benzo(b)fluoranthene	5.84E-05	4.9E-08			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	7.42E-05	6.2E-08			
bis(2-Ethylhexyl) phthalate	4.31E-06	3.6E-09			
Carbazole	6.62E-06	5.5E-09			
Chrysene	3.77E-05	3.1E-08			
Dibenzo(a,h)anthracene	1.66E-05	1.4E-08			
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	3.96E-05	3.3E-08			
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			
			Total Pathway:	7.2E-03	

Total Rad + Chem	7.2E-03	*Total:*	7.2E-03

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TABLE B.3.4-21(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	7.2E-11
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.6E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.6E-09
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.8E-10
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.2E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.6E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	3.8E-10
TC-99	4.27E+00	4.7E+02	1.30E-12	6.2E-10	6.2E-10	6.2E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	8.4E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	7.9E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.7E-10
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	6.4E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.1E-10
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.0E-08
				Total Pathway:	6.2E-10	

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.5E+01	0.0E+00	0.0E+00	2.5E-06
Beryllium	0.00E+00	0.0E+00	8.4E+00	0.0E+00	0.0E+00	1.4E-07
Cadmium	0.00E+00	0.0E+00				
Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00				
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	8.9E-01	0.0E+00	0.0E+00	8.2E-09
Benzo(a)pyrene	0.00E+00	0.0E+00	6.1E+00	0.0E+00	0.0E+00	4.9E-08
Benzo(b)fluoranthene	0.00E+00	0.0E+00	7.5E-01	0.0E+00	0.0E+00	1.3E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.2E-01	0.0E+00	0.0E+00	6.9E-09
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00	2.7E-02	0.0E+00	0.0E+00	3.0E-10
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	6.8E+00	0.0E+00	0.0E+00	3.3E-08
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	1.7E+00	0.0E+00	0.0E+00	2.0E-08
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
				Total Pathway:	0.0E+00	

Total + Chem 6.2E-10 *Total:* 6.2E-10 2.8E-06

TABLE B.3.4-21(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	4.3E+00	4.7E+02				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Chemical Hazard						
Inhalation of Particulates/Soil						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	6.4E-03
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	4.0E-05
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	2.9E-04
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	8.9E-04
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	2.2E-02
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00				
Benzo(a)pyrene	0.00E+00	0.0E+00				
Benzo(b)fluoranthene	0.00E+00	0.0E+00				
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00				
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	2.9E-02

TABLE B.3.4-21(b)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	2.32E-02	2.6E+00	2.8E-11	7.2E-11	7.2E-11
NP-237	1.04E-01	1.2E+01	2.2E-10	2.6E-09	2.6E-09
PU-238	6.53E-02	7.3E+00	2.2E-10	1.6E-09	1.6E-09
PU-239/240	6.93E-03	7.7E-01	2.3E-10	1.8E-10	1.8E-10
RA-226	1.61E-01	1.8E+01	1.2E-10	2.2E-09	2.2E-09
RA-228	1.43E-01	1.6E+01	1.0E-10	1.6E-09	1.6E-09
SR-90	9.56E-02	1.1E+01	3.6E-11	3.8E-10	3.8E-10
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	1.37E-01	1.5E+01	5.5E-11	8.4E-10	8.4E-10
TH-230	5.47E-01	6.1E+01	1.3E-11	7.9E-10	7.9E-10
TH-232	1.28E-01	1.4E+01	1.2E-11	1.7E-10	1.7E-10
U-234	3.57E+00	4.0E+02	1.6E-11	6.4E-09	6.4E-09
U-235/236	2.40E-01	2.7E+01	1.6E-11	4.1E-10	4.1E-10
U-238	6.53E+00	7.3E+02	2.8E-11	2.0E-08	2.0E-08
			Total Pathway:	3.7E-08	

Chemical Risk

Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.70E-04	1.7E-07	1.5E+01	2.5E-06	2.5E-06
Beryllium	5.92E-05	1.7E-08	8.4E+00	1.4E-07	1.4E-07
Cadmium	8.49E-05	2.5E-08			
Chromium	1.31E-03	3.8E-07			
Lead	1.63E-03	4.7E-07			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.91E-02	5.5E-06			
4,4'-DDE	1.02E-06	3.0E-10			
Benzo(a)anthracene	3.18E-05	9.2E-09	8.9E-01	8.2E-09	8.2E-09
Benzo(a)pyrene	2.78E-05	8.1E-09	6.1E+00	4.9E-08	4.9E-08
Benzo(b)fluoranthene	5.84E-05	1.7E-08	7.5E-01	1.3E-08	1.3E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	7.42E-05	2.2E-08	3.2E-01	6.9E-09	6.9E-09
bis(2-Ethylhexyl) phthalate	4.31E-06	1.3E-09			
Carbazole	6.62E-06	1.9E-09			
Chrysene	3.77E-05	1.1E-08	2.7E-02	3.0E-10	3.0E-10
Dibenzo(a,h)anthracene	1.66E-05	4.8E-09	6.8E+00	3.3E-08	3.3E-08
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	3.96E-05	1.2E-08	1.7E+00	2.0E-08	2.0E-08
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	2.8E-06	

Total Rad + Chem 2.8E-06 *Total:* 2.8E-06

TABLE B.3.4-21(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	2.3E-02	2.6E+00			
NP-237	1.0E-01	1.2E+01			
PU-238	6.5E-02	7.3E+00			
PU-239/240	6.9E-03	7.7E-01			
RA-226	1.6E-01	1.8E+01			
RA-228	1.4E-01	1.6E+01			
SR-90	9.6E-02	1.1E+01			
TC-99	0.0E+00	0.0E+00			
TH-228	1.4E-01	1.5E+01			
TH-230	5.5E-01	6.1E+01			
TH-232	1.3E-01	1.4E+01			
U-234	3.6E+00	4.0E+02			
U-235/236	2.4E-01	2.7E+01			
U-238	6.5E+00	7.3E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	5.70E-04	1.9E-06	3.0E-04	6.4E-03	6.4E-03
Beryllium	5.92E-05	2.0E-07	5.0E-03	4.0E-05	4.0E-05
Cadmium	8.49E-05	2.9E-07	1.0E-03	2.9E-04	2.9E-04
Chromium	1.31E-03	4.5E-06	5.0E-03	8.9E-04	8.9E-04
Lead	1.63E-03	5.5E-06			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.91E-02	6.5E-05	3.0E-03	2.2E-02	2.2E-02
4,4'-DDE	1.02E-06	3.5E-09			
Benzo(a)anthracene	3.18E-05	1.1E-07			
Benzo(a)pyrene	2.78E-05	9.4E-08			
Benzo(b)fluoranthene	5.84E-05	2.0E-07			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	7.42E-05	2.5E-07			
bis(2-Ethylhexyl) phthalate	4.31E-06	1.5E-08			
Carbazole	6.62E-06	2.2E-08			
Chrysene	3.77E-05	1.3E-07			
Dibenzo(a,h)anthracene	1.66E-05	5.6E-08			
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	3.96E-05	1.3E-07			
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			
			Total Pathway:	2.9E-02	

Total Rad + Chem	2.9E-02	*Total:*	2.9E-02

TABLE B.3.4-22(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef

Compound	Conc'n-Beef (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	1.0E+00	1.9E+03	1.30E-12	2.4E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00
			Total Pathway:	2.4E-09

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk
CS-137	0.0E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	1.2E+00	8.8E+03	1.3E-12	1.1E-08
TH-228	0.0E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.0E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.0E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.0E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.0E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.0E+00	0.0E+00	2.8E-11	0.0E+00
			Total Pathway:	1.1E-08

Chemical Risk

Ingestion of Beef

Compound	Conc'n-Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.00E+00	0.0E+00		
Chromium	0.00E+00	0.0E+00		
Lead	0.00E+00	0.0E+00		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	0.00E+00	0.0E+00		
4,4'-DDE	0.00E+00	0.0E+00	3.4E-01	0.0E+00
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00
			Total Pathway:	0.0E+00
			Total Rad + Chem	2.4E-09

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.0E+00	0.0E+00		
Chromium	0.0E+00	0.0E+00		
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00		
4,4'-DDE	0.0E+00	0.0E+00	3.4E-01	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		
Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00
			Total Pathway:	0.0E+00
			Total Rad + Chem	1.1E-08

	Total	Total Dust & Groundwater Affected
	0.0E+00	3.2E-09
	0.0E+00	1.7E-10
	0.0E+00	1.4E-12
	0.0E+00	1.5E-13
	0.0E+00	4.1E-09
	0.0E+00	3.0E-09
	0.0E+00	2.0E-09
	1.4E-08	1.4E-08
	0.0E+00	1.9E-11
	0.0E+00	1.9E-11
	0.0E+00	4.2E-12
	0.0E+00	1.6E-08
	0.0E+00	1.0E-09
	0.0E+00	5.0E-08
	0.0E+00	1.3E-07
	0.0E+00	1.5E-08
	0.0E+00	9.9E-10
	0.0E+00	2.8E-08
	0.0E+00	3.9E-07
	0.0E+00	4.0E-07
	0.0E+00	4.2E-07
	0.0E+00	2.0E-12
	0.0E+00	1.8E-10
	0.0E+00	9.8E-10
	0.0E+00	2.5E-07
	0.0E+00	7.3E-06
	0.0E+00	0.0E+00
	1.4E-08	
Total:	1.4E-08	9.1E-06

TABLE B.3.4-22(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk				
Compound	Conc'n-Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	0.00E+00	0.0E+00			CS-137	0.0E+00	0.0E+00		
NP-237	0.00E+00	0.0E+00			NP-237	0.0E+00	0.0E+00		
PU-238	0.00E+00	0.0E+00			PU-238	0.0E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00			PU-239/240	0.0E+00	0.0E+00		
RA-226	0.00E+00	0.0E+00			RA-226	0.0E+00	0.0E+00		
RA-228	0.00E+00	0.0E+00			RA-228	0.0E+00	0.0E+00		
SR-90	0.00E+00	0.0E+00			SR-90	0.0E+00	0.0E+00		
TC-99	1.02E+00	1.9E+03			TC-99	1.2E+00	8.8E+03		
TH-228	0.00E+00	0.0E+00			TH-228	0.0E+00	0.0E+00		
TH-230	0.00E+00	0.0E+00			TH-230	0.0E+00	0.0E+00		
TH-232	0.00E+00	0.0E+00			TH-232	0.0E+00	0.0E+00		
U-234	0.00E+00	0.0E+00			U-234	0.0E+00	0.0E+00		
U-235/236	0.00E+00	0.0E+00			U-235/236	0.0E+00	0.0E+00		
U-238	0.00E+00	0.0E+00			U-238	0.0E+00	0.0E+00		
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00

Chemical Hazard

Ingestion of Beef					Ingestion/Milk						Total Dust & Groundwater
Compound	Conc'n-Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	Total	Affected
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.5E-04
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	6.9E-07
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00	Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	4.4E-05
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.8E-04
Lead	0.00E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	9.7E-04
4,4'-DDE	0.00E+00	0.0E+00			4,4'-DDE	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.00E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.00E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	7.2E-09
Carbazole	0.00E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00			Heptachloro-p-dioxin	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	0.0E+00				Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	1.4E-03

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TABLE B.3.4-22(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	2.61E-02	4.8E+01	2.8E-11	1.3E-09	CS-137	9.1E-03	6.7E+01	2.8E-11	1.9E-09	3.2E-09
NP-237	3.16E-04	5.8E-01	2.2E-10	1.3E-10	NP-237	2.9E-05	2.1E-01	2.2E-10	4.7E-11	1.7E-10
PU-238	1.86E-06	3.4E-03	2.2E-10	7.5E-13	PU-238	3.7E-07	2.7E-03	2.2E-10	6.0E-13	1.4E-12
PU-239/240	1.98E-07	3.6E-04	2.3E-10	8.4E-14	PU-239/240	4.0E-08	2.9E-04	2.3E-10	6.7E-14	1.5E-13
RA-226	2.29E-03	4.2E+00	1.2E-10	5.0E-10	RA-226	4.1E-03	3.0E+01	1.2E-10	3.6E-09	4.1E-09
RA-228	1.97E-03	3.6E+00	1.0E-10	3.6E-10	RA-228	3.5E-03	2.6E+01	1.0E-10	2.6E-09	3.0E-09
SR-90	1.41E-03	2.6E+00	3.6E-11	9.3E-11	SR-90	7.1E-03	5.2E+01	3.6E-11	1.9E-09	2.0E-09
TC-99	0.0E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	4.27E-05	7.9E-02	5.5E-11	4.3E-12	TH-228	3.6E-05	2.6E-01	5.5E-11	1.4E-11	1.9E-11
TH-230	1.87E-04	3.4E-01	1.3E-11	4.5E-12	TH-230	1.6E-04	1.1E+00	1.3E-11	1.5E-11	1.9E-11
TH-232	4.37E-05	8.0E-02	1.2E-11	9.6E-13	TH-232	3.6E-05	2.7E-01	1.2E-11	3.2E-12	4.2E-12
U-234	4.07E-02	7.5E+01	1.6E-11	1.2E-09	U-234	1.2E-01	9.0E+02	1.6E-11	1.4E-08	1.6E-08
U-235/236	2.74E-03	5.0E+00	1.6E-11	8.1E-11	U-235/236	8.2E-03	6.0E+01	1.6E-11	9.7E-10	1.0E-09
U-238	7.45E-02	1.4E+02	2.8E-11	3.8E-09	U-238	2.2E-01	1.6E+03	2.8E-11	4.6E-08	5.0E-08
		Total Pathway:		7.5E-09			Total Pathway:		7.1E-08	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n-Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	6.45E-05	6.6E-08	1.8E+00	1.2E-07	Arsenic	1.9E-06	7.9E-09	1.8E+00	1.4E-08	1.3E-07
Beryllium	3.37E-06	3.5E-09	4.3E+00	1.5E-08	Beryllium	3.0E-09	1.2E-11	4.3E+00	5.4E-11	1.5E-08
Cadmium	2.45E-05	2.5E-08			Cadmium	4.5E-06	1.8E-08			
Chromium	4.11E-04	4.2E-07			Chromium	1.1E-04	4.6E-07			
Lead	2.76E-05	2.8E-08			Lead	2.3E-05	9.4E-08			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.18E-04	2.2E-07			U-TOTAL	6.5E-04	2.7E-06			
4,4'-DDE	2.25E-12	2.3E-15	3.4E-01	7.9E-16	4,4'-DDE	7.1E-07	2.9E-09	3.4E-01	9.9E-10	9.9E-10
Benzo(a)anthracene	1.11E-05	1.1E-08	1.1E+00	1.3E-08	Benzo(a)anthracene	3.5E-06	1.4E-08	1.1E+00	1.6E-08	2.8E-08
Benzo(a)pyrene	2.32E-05	2.4E-08	7.3E+00	1.7E-07	Benzo(a)pyrene	7.3E-06	3.0E-08	7.3E+00	2.2E-07	3.9E-07
Benzo(b)fluoranthene	1.89E-04	1.9E-07	9.0E-01	1.7E-07	Benzo(b)fluoranthene	6.0E-05	2.5E-07	9.0E-01	2.2E-07	4.0E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.79E-04	4.9E-07	3.8E-01	1.9E-07	Benzo(k)fluoranthene	1.5E-04	6.2E-07	3.8E-01	2.4E-07	4.2E-07
bis(2-Ethylhexyl) phthalate	6.16E-08	6.3E-11	1.4E-02	8.9E-13	bis(2-Ethylhexyl) phthalate	1.9E-08	8.0E-11	1.4E-02	1.1E-12	2.0E-12
Carbazole	3.81E-06	3.9E-09	2.0E-02	7.8E-11	Carbazole	1.2E-06	5.0E-09	2.0E-02	1.0E-10	1.8E-10
Chrysene	1.31E-05	1.3E-08	3.2E-02	4.3E-10	Chrysene	4.1E-06	1.7E-08	3.2E-02	5.5E-10	9.8E-10
Dibenzo(a,h)anthracene	1.35E-05	1.4E-08	8.1E+00	1.1E-07	Dibenzo(a,h)anthracene	4.3E-06	1.7E-08	8.1E+00	1.4E-07	2.5E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.57E-03	1.6E-06	2.0E+00	3.2E-06	Indeno(1,2,3-cd)pyrene	5.0E-04	2.0E-06	2.0E+00	4.1E-06	7.3E-06
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
		Total Pathway:		4.0E-06			Total Pathway:		4.9E-06	9.0E-06
		Total Rad + Chem		4.0E-06			Total Rad + Chem		5.0E-06	*Total:* [illegible]

TABLE B.3.4-22(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	2.61E-02	4.8E+01			CS-137	9.1E-03	6.7E+01			
NP-237	3.16E-04	5.8E-01			NP-237	2.9E-05	2.1E-01			
PU-238	1.86E-06	3.4E-03			PU-238	3.7E-07	2.7E-03			
PU-239/240	1.98E-07	3.6E-04			PU-239/240	4.0E-08	2.9E-04			
RA-226	2.29E-03	4.2E+00			RA-226	4.1E-03	3.0E+01			
RA-228	1.97E-03	3.6E+00			RA-228	3.5E-03	2.6E+01			
SR-90	1.41E-03	2.6E+00			SR-90	7.1E-03	5.2E+01			
TC-99	0.00E+00	0.0E+00			TC-99	0.0E+00	0.0E+00			
TH-228	4.27E-05	7.9E-02			TH-228	3.6E-05	2.6E-01			
TH-230	1.87E-04	3.4E-01			TH-230	1.6E-04	1.1E+00			
TH-232	4.37E-05	8.0E-02			TH-232	3.6E-05	2.7E-01			
U-234	4.07E-02	7.5E+01			U-234	1.2E-01	9.0E+02			
U-235/236	2.74E-03	5.0E+00			U-235/236	8.2E-03	6.0E+01			
U-238	7.45E-02	1.4E+02			U-238	2.2E-01	1.6E+03			
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	6.45E-05	6.6E-08	3.0E-04	2.2E-04	Arsenic	1.9E-06	7.9E-09	3.0E-04	2.6E-05	2.5E-04
Beryllium	3.37E-06	3.5E-09	5.0E-03	6.9E-07	Beryllium	3.0E-09	1.2E-11	5.0E-03	2.5E-09	6.9E-07
Cadmium	2.45E-05	2.5E-08	1.0E-03	2.5E-05	Cadmium	4.5E-06	1.8E-08	1.0E-03	1.8E-05	4.4E-05
Chromium	4.11E-04	4.2E-07	5.0E-03	8.4E-05	Chromium	1.1E-04	4.6E-07	5.0E-03	9.2E-05	1.8E-04
Lead	2.76E-05	2.8E-08			Lead	2.3E-05	9.4E-08			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.18E-04	2.2E-07	3.0E-03	7.5E-05	U-TOTAL	6.5E-04	2.7E-06	3.0E-03	9.0E-04	9.7E-04
4,4'-DDE	2.25E-12	2.3E-15			4,4'-DDE	7.1E-07	2.9E-09			
Benzo(a)anthracene	1.11E-05	1.1E-08			Benzo(a)anthracene	3.5E-06	1.4E-08			
Benzo(a)pyrene	2.32E-05	2.4E-08			Benzo(a)pyrene	7.3E-06	3.0E-08			
Benzo(b)fluoranthene	1.89E-04	1.9E-07			Benzo(b)fluoranthene	6.0E-05	2.5E-07			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.79E-04	4.9E-07			Benzo(k)fluoranthene	1.5E-04	6.2E-07			
bis(2-Ethylhexyl) phthalate	6.16E-08	6.3E-11	2.0E-02	3.2E-09	bis(2-Ethylhexyl) phthalate	1.9E-08	8.0E-11	2.0E-02	4.0E-09	7.2E-09
Carbazole	3.81E-06	3.9E-09			Carbazole	1.2E-06	5.0E-09			
Chrysene	1.31E-05	1.3E-08			Chrysene	4.1E-06	1.7E-08			
Dibenzo(a,h)anthracene	1.35E-05	1.4E-08			Dibenzo(a,h)anthracene	4.3E-06	1.7E-08			
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	1.57E-03	1.6E-06			Indeno(1,2,3-cd)pyrene	5.0E-04	2.0E-06			
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			Heptachloro-p-dioxin	0.0E+00	0.0E+00			
			Total Pathway:	4.1E-04				Total Pathway:	1.0E-03	
			Total Rad + Chem	4.1E-04				Total Rad + Chem	1.0E-03	*Total:* 1.4E-03

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February 18, 1994

TABLE B.3.4-22(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef

Compound	Conc'n-Beef (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	1.0E+00	6.2E+01	1.30E-12	8.1E-11
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00

Total Pathway: 8.1E-11

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk
CS-137	0.0E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	1.2E+00	1.7E+03	1.3E-12	2.2E-09
TH-228	0.0E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.0E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.0E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.0E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.0E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.0E+00	0.0E+00	2.8E-11	0.0E+00

Total Pathway: 2.2E-09

Total	Total Dust & Groundwater Affected
0.0E+00	4.1E-10
0.0E+00	1.3E-11
0.0E+00	1.4E-13
0.0E+00	1.6E-14
0.0E+00	7.2E-10
0.0E+00	5.2E-10
0.0E+00	3.7E-10
2.3E-09	2.3E-09
0.0E+00	2.9E-12
0.0E+00	3.0E-12
0.0E+00	6.6E-13
0.0E+00	2.8E-09
0.0E+00	1.9E-10
0.0E+00	9.1E-09

Chemical Risk

Ingestion of Beef

Compound	Conc'n-Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.00E+00	0.0E+00		
Chromium	0.00E+00	0.0E+00		
Lead	0.00E+00	0.0E+00		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	0.00E+00	0.0E+00		
4,4'-DDE	0.00E+00	0.0E+00	3.4E-01	0.0E+00
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalat	0.00E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00

Total Pathway: 0.0E+00

Total Rad + Chem 8.1E-11

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.0E+00	0.0E+00		
Chromium	0.0E+00	0.0E+00		
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00		
4,4'-DDE	0.0E+00	0.0E+00	3.4E-01	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		
Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00

Total Pathway: 0.0E+00

Total Rad + Chem 2.2E-09

Total	Total Dust & Groundwater Affected
0.0E+00	3.1E-08
0.0E+00	2.3E-09
0.0E+00	9.0E-10
0.0E+00	1.6E-08
0.0E+00	2.3E-07
0.0E+00	2.3E-07
0.0E+00	2.4E-07
0.0E+00	1.2E-12
0.0E+00	1.0E-10
0.0E+00	5.6E-10
0.0E+00	1.5E-07
0.0E+00	4.2E-06
0.0E+00	0.0E+00
2.3E-09	
otal: 2.3E-09	5.1E-06

TABLE B.3.4-22(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef

Compound	Conc'n-Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	0.00E+00	0.0E+00		
NP-237	0.00E+00	0.0E+00		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	0.00E+00	0.0E+00		
RA-228	0.00E+00	0.0E+00		
SR-90	0.00E+00	0.0E+00		
TC-99	1.02E+00	6.2E+01		
TH-228	0.00E+00	0.0E+00		
TH-230	0.00E+00	0.0E+00		
TH-232	0.00E+00	0.0E+00		
U-234	0.00E+00	0.0E+00		
U-235/236	0.00E+00	0.0E+00		
U-238	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	0.0E+00	0.0E+00		
NP-237	0.0E+00	0.0E+00		
PU-238	0.0E+00	0.0E+00		
PU-239/240	0.0E+00	0.0E+00		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
SR-90	0.0E+00	0.0E+00		
TC-99	1.2E+00	1.7E+03		
TH-228	0.0E+00	0.0E+00		
TH-230	0.0E+00	0.0E+00		
TH-232	0.0E+00	0.0E+00		
U-234	0.0E+00	0.0E+00		
U-235/236	0.0E+00	0.0E+00		
U-238	0.0E+00	0.0E+00		
			Total Pathway:	0.0E+00

Chemical Hazard

Ingestion of Beef

Compound	Conc'n-Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Lead	0.00E+00	0.0E+00		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00
4,4'-DDE	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00		
Benzo(a)pyrene	0.00E+00	0.0E+00		
Benzo(b)fluoranthene	0.00E+00	0.0E+00		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00		
bis(2-Ethylhexyl) phthala	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.00E+00	0.0E+00		
Chrysene	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00		
Phenanthrene	0.00E+00	0.0E+00		
Heptachloro-p-dioxin	0.00E+00	0.0E+00		
			Total Pathway:	0.0E+00
			Total Rad + Chem	0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	6.8E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.3E-06
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	2.4E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.1E-03
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	9.6E-03
4,4'-DDE	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	4.8E-08
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Heptachloro-p-dioxin	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	1.2E-02

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TABLE B.3.4-22(b)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	2.61E-02	1.6E+00	2.8E-11	4.4E-11	CS-137	9.1E-03	1.3E+01	2.8E-11	3.6E-10	4.1E-10
NP-237	3.16E-04	1.9E-02	2.2E-10	4.2E-12	NP-237	2.9E-05	4.1E-02	2.2E-10	9.0E-12	1.3E-11
PU-238	1.86E-06	1.1E-04	2.2E-10	2.5E-14	PU-238	3.7E-07	5.3E-04	2.2E-10	1.2E-13	1.4E-13
PU-239/240	1.98E-07	1.2E-05	2.3E-10	2.8E-15	PU-239/240	4.0E-08	5.6E-05	2.3E-10	1.3E-14	1.6E-14
RA-226	2.29E-03	1.4E-01	1.2E-10	1.7E-11	RA-226	4.1E-03	5.9E+00	1.2E-10	7.1E-10	7.2E-10
RA-228	1.97E-03	1.2E-01	1.0E-10	1.2E-11	RA-228	3.5E-03	5.1E+00	1.0E-10	5.1E-10	5.2E-10
SR-90	1.41E-03	8.6E-02	3.6E-11	3.1E-12	SR-90	7.1E-03	1.0E+01	3.6E-11	3.6E-10	3.7E-10
TC-99	0.0E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	4.27E-05	2.6E-03	5.5E-11	1.4E-13	TH-228	3.6E-05	5.1E-02	5.5E-11	2.8E-12	2.9E-12
TH-230	1.87E-04	1.1E-02	1.3E-11	1.5E-13	TH-230	1.6E-04	2.2E-01	1.3E-11	2.9E-12	3.0E-12
TH-232	4.37E-05	2.7E-03	1.2E-11	3.2E-14	TH-232	3.6E-05	5.2E-02	1.2E-11	6.2E-13	6.6E-13
U-234	4.07E-02	2.5E+00	1.6E-11	4.0E-11	U-234	1.2E-01	1.7E+02	1.6E-11	2.8E-09	2.8E-09
U-235/236	2.74E-03	1.7E-01	1.6E-11	2.7E-12	U-235/236	8.2E-03	1.2E+01	1.6E-11	1.9E-10	1.9E-10
U-238	7.45E-02	4.5E+00	2.8E-11	1.3E-10	U-238	2.2E-01	3.2E+02	2.8E-11	8.9E-09	9.1E-09
			Total Pathway:	2.5E-10				Total Pathway:	1.4E-08	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n-Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	6.45E-05	1.0E-08	1.8E+00	1.8E-08	Arsenic	1.9E-06	7.2E-09	1.8E+00	1.3E-08	3.1E-08
Beryllium	3.37E-06	5.4E-10	4.3E+00	2.3E-09	Beryllium	3.0E-09	1.1E-11	4.3E+00	4.9E-11	2.3E-09
Cadmium	2.45E-05	3.9E-09			Cadmium	4.5E-06	1.7E-08			
Chromium	4.11E-04	6.5E-08			Chromium	1.1E-04	4.2E-07			
Lead	2.76E-05	4.4E-09			Lead	2.3E-05	8.6E-08			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.18E-04	3.5E-08			U-TOTAL	6.5E-04	2.4E-06			
4,4'-DDE	2.25E-12	3.6E-16	3.4E-01	1.2E-16	4,4'-DDE	7.1E-07	2.7E-09	3.4E-01	9.0E-10	9.0E-10
Benzo(a)anthracene	1.11E-05	1.8E-09	1.1E+00	1.9E-09	Benzo(a)anthracene	3.5E-06	1.3E-08	1.1E+00	1.4E-08	1.6E-08
Benzo(a)pyrene	2.32E-05	3.7E-09	7.3E+00	2.7E-08	Benzo(a)pyrene	7.3E-06	2.7E-08	7.3E+00	2.0E-07	2.3E-07
Benzo(b)fluoranthene	1.89E-04	3.0E-08	9.0E-01	2.7E-08	Benzo(b)fluoranthene	6.0E-05	2.2E-07	9.0E-01	2.0E-07	2.3E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.79E-04	7.6E-08	3.8E-01	2.9E-08	Benzo(k)fluoranthene	1.5E-04	5.6E-07	3.8E-01	2.1E-07	2.4E-07
bis(2-Ethylhexyl) phthalate	6.16E-08	9.8E-12	1.4E-02	1.4E-13	bis(2-Ethylhexyl) phthalate	1.9E-08	7.3E-11	1.4E-02	1.0E-12	1.2E-12
Carbazole	3.81E-06	6.1E-10	2.0E-02	1.2E-11	Carbazole	1.2E-06	4.5E-09	2.0E-02	9.0E-11	1.0E-10
Chrysene	1.31E-05	2.1E-09	3.2E-02	6.7E-11	Chrysene	4.1E-06	1.5E-08	3.2E-02	4.9E-10	5.6E-10
Dibenzo(a,h)anthracene	1.35E-05	2.1E-09	8.1E+00	1.7E-08	Dibenzo(a,h)anthracene	4.3E-06	1.6E-08	8.1E+00	1.3E-07	1.5E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.57E-03	2.5E-07	2.0E+00	5.0E-07	Indeno(1,2,3-cd)pyrene	5.0E-04	1.9E-06	2.0E+00	3.7E-06	4.2E-06
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	6.2E-07				Total Pathway:	4.5E-06	5.1E-06
			Total Rad + Chem	6.2E-07				Total Rad + Chem	4.5E-06	######

TABLE B.3.4-22(b) (continued)
FUTURE, ON-PROPERTY CHILD
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef

Compound	Conc'n-Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	2.61E-02	1.6E+00		
NP-237	3.16E-04	1.9E-02		
PU-238	1.86E-06	1.1E-04		
PU-239/240	1.98E-07	1.2E-05		
RA-226	2.29E-03	1.4E-01		
RA-228	1.97E-03	1.2E-01		
SR-90	1.41E-03	8.6E-02		
TC-99	0.00E+00	0.0E+00		
TH-228	4.27E-05	2.6E-03		
TH-230	1.87E-04	1.1E-02		
TH-232	4.37E-05	2.7E-03		
U-234	4.07E-02	2.5E+00		
U-235/236	2.74E-03	1.7E-01		
U-238	7.45E-02	4.5E+00		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	9.1E-03	1.3E+01		
NP-237	2.9E-05	4.1E-02		
PU-238	3.7E-07	5.3E-04		
PU-239/240	4.0E-08	5.6E-05		
RA-226	4.1E-03	5.9E+00		
RA-228	3.5E-03	5.1E+00		
SR-90	7.1E-03	1.0E+01		
TC-99	0.0E+00	0.0E+00		
TH-228	3.6E-05	5.1E-02		
TH-230	1.6E-04	2.2E-01		
TH-232	3.6E-05	5.2E-02		
U-234	1.2E-01	1.7E+02		
U-235/236	8.2E-03	1.2E+01		
U-238	2.2E-01	3.2E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Beef

Compound	Conc'n-Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	6.45E-05	1.2E-07	3.0E-04	4.0E-04
Beryllium	3.37E-06	6.2E-09	5.0E-03	1.2E-06
Cadmium	2.45E-05	4.6E-08	1.0E-03	4.6E-05
Chromium	4.11E-04	7.6E-07	5.0E-03	1.5E-04
Lead	2.76E-05	5.1E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.18E-04	4.0E-07	3.0E-03	1.3E-04
4,4'-DDE	2.25E-12	4.2E-15		
Benzo(a)anthracene	1.11E-05	2.1E-08		
Benzo(a)pyrene	2.32E-05	4.3E-08		
Benzo(b)fluoranthene	1.89E-04	3.5E-07		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	4.79E-04	8.9E-07		
bis(2-Ethylhexyl) phthalate	6.16E-08	1.1E-10	2.0E-02	5.7E-09
Carbazole	3.81E-06	7.1E-09		
Chrysene	1.31E-05	2.4E-08		
Dibenzo(a,h)anthracene	1.35E-05	2.5E-08		
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	1.57E-03	2.9E-06		
Phenanthrene	0.00E+00	0.0E+00		
Heptachloro-p-dioxin	0.00E+00	0.0E+00		

Total Pathway: 7.3E-04

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard
Arsenic	1.9E-06	8.4E-08	3.0E-04	2.8E-04
Beryllium	3.0E-09	1.3E-10	5.0E-03	2.6E-08
Cadmium	4.5E-06	1.9E-07	1.0E-03	1.9E-04
Chromium	1.1E-04	4.9E-06	5.0E-03	9.8E-04
Lead	2.3E-05	1.0E-06		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	6.5E-04	2.8E-05	3.0E-03	9.5E-03
4,4'-DDE	7.1E-07	3.1E-08		
Benzo(a)anthracene	3.5E-06	1.5E-07		
Benzo(a)pyrene	7.3E-06	3.2E-07		
Benzo(b)fluoranthene	6.0E-05	2.6E-06		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.5E-04	6.6E-06		
bis(2-Ethylhexyl) phthalate	1.9E-08	8.5E-10	2.0E-02	4.2E-08
Carbazole	1.2E-06	5.3E-08		
Chrysene	4.1E-06	1.8E-07		
Dibenzo(a,h)anthracene	4.3E-06	1.8E-07		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	5.0E-04	2.2E-05		
Phenanthrene	0.0E+00	0.0E+00		
Heptachloro-p-dioxin	0.0E+00	0.0E+00		

Total Pathway: 1.1E-02

			Total
		Total Rad + Chem	7.3E-04
		Total Rad + Chem	1.1E-02
		Total:	1.2E-02

Total

	6.8E-04
	1.3E-06
	2.4E-04
	1.1E-03
	9.6E-03
	4.8E-08
	0.0E+00

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TABLE B.3.4-23
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	2.43E-05	2.1E-01	1.9E-11	4.0E-12
NP-237	1.08E-04	9.3E-01	2.9E-08	2.7E-08
PU-238	7.03E-05	6.1E-01	3.9E-08	2.4E-08
PU-239/240	7.46E-06	6.4E-02	3.8E-08	2.4E-09
RA-226	1.73E-04	1.5E+00	3.0E-09	4.5E-09
RA-228	1.53E-04	1.3E+00	6.9E-10	9.1E-10
SR-90	8.69E-05	7.5E-01	6.2E-11	4.6E-11
TH-228	1.48E-04	1.3E+00	7.8E-08	1.0E-07
TH-230	5.89E-04	5.1E+00	2.9E-08	1.5E-07
TH-232	1.38E-04	1.2E+00	2.8E-08	3.3E-08
U-234	3.83E-03	3.3E+01	2.6E-08	8.6E-07
U-235/236	2.58E-04	2.2E+00	2.5E-08	5.6E-08
U-238	7.02E-03	6.1E+01	5.2E-08	3.1E-06
			Total Pathway:	4.4E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.257	7.8E+01	2.8E-11	2.2E-09
NP-237	1.189	3.6E+02	2.2E-10	7.9E-08
PU-238	0.772	2.3E+02	2.2E-10	5.1E-08
PU-239/240	0.082	2.5E+01	2.3E-10	5.7E-09
RA-226	1.397	4.2E+02	1.2E-10	5.1E-08
RA-228	1.681	5.1E+02	1.0E-10	5.1E-08
SR-90	0.955	2.9E+02	3.6E-11	1.0E-08
TH-228	1.626	4.9E+02	5.5E-11	2.7E-08
TH-230	6.476	2.0E+03	1.3E-11	2.5E-08
TH-232	1.511	4.6E+02	1.2E-11	5.5E-09
U-234	42.1	1.3E+04	1.6E-11	2.0E-07
U-235/236	2.838	8.6E+02	1.6E-11	1.4E-08
U-238	77.1	2.3E+04	2.8E-11	6.5E-07
			Total Pathway:	1.2E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	6.07E-07	2.9E-09	1.5E+01	4.4E-08
Beryllium	6.35E-08	3.1E-10	8.4E+00	2.6E-09
Cadmium	7.74E-08	3.7E-10		
Chromium	1.41E-06	6.8E-09	4.1E+01	2.8E-07
Lead	1.73E-06	8.3E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.05E-05	9.9E-08		
4,4'-DDE	1.09E-09	5.3E-12		
Benzo(a)anthracene	3.51E-08	1.7E-10	8.9E-01	1.5E-10
Benzo(a)pyrene	3.09E-08	1.5E-10	6.1E+00	9.1E-10
Benzo(b)fluoranthene	6.46E-08	3.1E-10	7.5E-01	2.3E-10
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	8.05E-08	3.9E-10	3.2E-01	1.2E-10
bis(2-Ethylhexyl) phthalate	4.37E-09	2.1E-11		
Carbazole	7.01E-09	3.4E-11		
Chrysene	4.12E-08	2.0E-10	2.7E-02	5.4E-12
Dibenzo(a,h)anthracene	1.82E-08	8.8E-11	6.8E+00	6.0E-10
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	4.37E-08	2.1E-10	1.7E+00	3.6E-10
Phenanthrene	0.00E+00	0.0E+00		
			Total Pathway:	3.3E-07
			Total Rad + Chem	4.[illegible]

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.67	1.1E-06	1.8E+00	2.0E-06
Beryllium	0.70	1.2E-07	4.3E+00	5.1E-07
Cadmium	0.85	1.4E-07		
Chromium	15.46	2.6E-06		
Lead	19.01	3.2E-06		
TH-TOTAL	13.78	2.3E-06		
U-TOTAL	225.22	3.8E-05		
4,4'-DDE	0.01	2.0E-09	3.4E-01	6.9E-10
Benzo(a)anthracene	0.37	6.2E-08	1.1E+00	6.8E-08
Benzo(a)pyrene	0.34	5.7E-08	7.3E+00	4.2E-07
Benzo(b)fluoranthene	0.71	1.2E-07	9.0E-01	1.1E-07
Benzo(g,h,i)perylene	0.50	8.4E-08		
Benzo(k)fluoranthene	0.39	6.5E-08	3.8E-01	2.5E-08
bis(2-Ethylhexyl) phthalate	0.05	8.1E-09	1.4E-02	1.1E-10
Carbazole	0.08	1.3E-08	2.0E-02	2.6E-10
Chrysene	0.45	7.6E-08	3.2E-02	2.4E-09
Dibenzo(a,h)anthracene	0.20	3.4E-08	8.1E+00	2.7E-07
Dibenzofuran	0.06	9.5E-09		
Indeno(1,2,3-cd)pyrene	0.48	8.1E-08	2.0E+00	1.6E-07
Phenanthrene	0.53	9.0E-08		
			Total Pathway:	3.5E-06
			Total Rad + Chem	4.7E-06

TABLE B.3.4-23 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.0E+00	2.0E-06	2.0E-06	2.0E-06
	NP-237	4.7E+00	4.3E-07	2.0E-06	2.1E-06
	PU-238	3.1E+00	2.8E-11	8.6E-11	7.5E-08
	PU-239/240	3.3E-01	2.7E-11	8.8E-12	8.2E-09
	RA-226	5.6E+00	1.2E-08	6.7E-08	1.2E-07
	RA-228	6.7E+00	2.9E-06	1.9E-05	1.9E-05
	SR-90	3.8E+00	0.0E+00	0.0E+00	1.0E-08
	TH-228	6.5E+00	5.6E-06	3.6E-05	3.6E-05
	TH-230	2.6E+01	5.4E-11	1.4E-09	1.7E-07
	TH-232	6.0E+00	2.6E-11	1.6E-10	3.9E-08
	U-234	1.7E+02	3.0E-11	5.0E-09	1.1E-06
	U-235/236	1.1E+01	2.4E-07	2.7E-06	2.8E-06
	U-238	3.1E+02	3.6E-08	1.1E-05	1.5E-05
Total Pathway: 0.0E+00				Total Pathway: 7.4E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	9.2E-09	1.8E+00	1.7E-08					2.0E-06
Beryllium	9.7E-09	4.3E+02	4.2E-06					4.7E-06
Cadmium	1.2E-08			Not applicable				
Chromium	2.1E-07							2.8E-07
Lead	2.6E-07							
TH-TOTAL	0.0E+00							
U-TOTAL	3.1E-06							
4,4'-DDE	5.0E-09	3.8E-01	1.9E-09					2.6E-09
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					6.8E-08
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					4.2E-07
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					1.1E-07
Benzo(g,h,i)perylene	2.1E-07							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					2.5E-08
bis(2-Ethylhexyl) phthalate	2.7E-10	1.6E-02	4.1E-12					1.2E-10
Carbazole	0.0E+00	2.0E-02	0.0E+00					2.6E-10
Chrysene	0.0E+00	7.4E-02	0.0E+00					2.5E-09
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					2.7E-07
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					1.6E-07
Phenanthrene	2.2E-07							
		Total Pathway:	4.2E-06			Total Pathway:	0.0E+00	

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Total Rad + Chem 4.2E-06 | 7.4E-05 | *Total:* 8.7E-05

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TABLE B.3.4-23 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	2.43E-05	2.1E-01		
NP-237	1.08E-04	9.3E-01		
PU-238	7.03E-05	6.1E-01		
PU-239/240	7.46E-06	6.4E-02		
RA-226	1.73E-04	1.5E+00		
RA-228	1.53E-04	1.3E+00		
SR-90	8.69E-05	7.5E-01		
TH-228	1.48E-04	1.3E+00		
TH-230	5.89E-04	5.1E+00		
TH-232	1.38E-04	1.2E+00		
U-234	3.83E-03	3.3E+01		
U-235/236	2.58E-04	2.2E+00		
U-238	7.02E-03	6.1E+01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.26	7.8E+01		
NP-237	1.19	3.6E+02		
PU-238	0.77	2.3E+02		
PU-239/240	0.08	2.5E+01		
RA-226	1.40	4.2E+02		
RA-228	1.68	5.1E+02		
SR-90	0.96	2.9E+02		
TH-228	1.63	4.9E+02		
TH-230	6.48	2.0E+03		
TH-232	1.51	4.6E+02		
U-234	42.12	1.3E+04		
U-235/236	2.84	8.6E+02		
U-238	77.15	2.3E+04		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	6.07E-07	2.3E-08		
Beryllium	6.35E-08	2.4E-09		
Cadmium	7.74E-08	2.9E-09		
Chromium	1.41E-06	5.3E-08		
Lead	1.73E-06	6.5E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.05E-05	7.7E-07		
4,4'-DDE	1.09E-09	4.1E-11		
Benzo(a)anthracene	3.51E-08	1.3E-09		
Benzo(a)pyrene	3.09E-08	1.2E-09		
Benzo(b)fluoranthene	6.46E-08	2.4E-09		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	8.05E-08	3.0E-09		
bis(2-Ethylhexyl) phthalate	4.37E-09	1.6E-10		
Carbazole	7.01E-09	2.6E-10		
Chrysene	4.12E-08	1.5E-09		
Dibenzo(a,h)anthracene	1.82E-08	6.8E-10		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	4.37E-08	1.6E-09		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	6.67	8.8E-06	3.0E-04	0.0
Beryllium	0.70	9.2E-07	5.0E-03	1.8E-04
Cadmium	0.85	1.1E-06	1.0E-03	1.1E-03
Chromium	15.46	2.0E-05	5.0E-03	4.1E-03
Lead	19.01	2.5E-05		
TH-TOTAL	13.78	1.8E-05		
U-TOTAL	225.22	3.0E-04	3.0E-03	0.1
4,4'-DDE	0.01	1.6E-08		
Benzo(a)anthracene	0.37	4.8E-07		
Benzo(a)pyrene	0.34	4.5E-07		
Benzo(b)fluoranthene	0.71	9.3E-07		
Benzo(g,h,i)perylene	0.50	6.6E-07		
Benzo(k)fluoranthene	0.39	5.1E-07		
bis(2-Ethylhexyl) phthalate	0.05	6.3E-08	2.0E-02	3.2E-06
Carbazole	0.08	1.0E-07		
Chrysene	0.45	5.9E-07		
Dibenzo(a,h)anthracene	0.20	2.6E-07		
Dibenzofuran	0.06	7.4E-08	4.00E-03	1.8E-05
Indeno(1,2,3-cd)pyrene	0.48	6.3E-07		
Phenanthrene	0.53	7.0E-07		

Total Pathway: 0.1

Total Rad + Chem 0.0E

Total Rad + Chem 0.1

TABLE B.3.4-23 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			
	Compound	Intake	RfD(e)	Hazard
Not applicable	CS-137	1.0E+00		
	NP-237	4.7E+00		
	PU-238	3.1E+00		
	PU-239/24	3.3E-01		
	RA-226	5.6E+00		
	RA-228	6.7E+00		
	SR-90	3.8E+00		
	TH-228	6.5E+00		
	TH-230	2.6E+01		
	TH-232	6.0E+00		
	U-234	1.7E+02		
	U-235/236	1.1E+01		
	U-238	3.1E+02		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	7.2E-08	2.9E-04	2.5E-04					2.9E-02
Beryllium	7.5E-08	5.0E-05	1.5E-03					1.7E-03
Cadmium	9.1E-08	5.0E-05	1.8E-03	Not applicable				2.9E-03
Chromium	1.7E-06	2.3E-03	7.4E-04					4.8E-03
Lead	2.0E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	2.4E-05	1.5E-04	0.2					0.3
4,4'-DDE	3.9E-08							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	1.6E-06							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	2.1E-09	1.8E-02	1.1E-07					3.3E-06
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00							1.8E-05
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	1.7E-06							
	Total Pathway:		0.2		Total Pathway:		0.0E+00	
	Total Rad + Chem		0.2				0.0E+00	*Total:* 0.3

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TABLE B.3.4-24 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.63	2.2E+03			Not applicable
RA-226	4.69E-04	1.6E+00			
RA-228		0.0E+00			
TC-99	1.1	3.8E+03			
U234	331	1.1E+06			
U235/236	18	6.2E+04			
U238	366	1.3E+06			
Total Pathway:		0.0E+00			Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Total Pathway:		0.0E+00			Total Pathway:			0.0E+00
Total Rad + Chem		0.0E+00			Total Rad + Chem			0.0E+00

TABLE B.3.4-24 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard	
Dermal Contact/Groundwater	**Total**
Not applicable	

Total Pathway: 0.0E+00

Chemical Hazard			
Dermal Contact/Groundwater			
Compound	Intake	RfD(derm)	Hazard

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

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TABLE B.3.4-25
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	2.32E-02	2.2E+00	2.8E-11	6.3E-11	6.3E-11
NP-237	1.04E-01	1.0E+01	2.2E-10	2.2E-09	2.2E-09
PU-238	6.53E-02	6.3E+00	2.2E-10	1.4E-09	1.4E-09
PU-239/240	6.93E-03	6.7E-01	2.3E-10	1.5E-10	1.5E-10
RA-226	1.61E-01	1.6E+01	1.2E-10	1.9E-09	1.9E-09
RA-228	1.43E-01	1.4E+01	1.0E-10	1.4E-09	1.4E-09
SR-90	9.56E-02	9.2E+00	3.6E-11	3.3E-10	3.3E-10
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	1.37E-01	1.3E+01	5.5E-11	7.3E-10	7.3E-10
TH-230	5.47E-01	5.3E+01	1.3E-11	6.9E-10	6.9E-10
TH-232	1.28E-01	1.2E+01	1.2E-11	1.5E-10	1.5E-10
U-234	3.57E+00	3.4E+02	1.6E-11	5.5E-09	5.5E-09
U-235/236	2.40E-01	2.3E+01	1.6E-11	3.6E-10	3.6E-10
U-238	6.53E+00	6.3E+02	2.8E-11	1.8E-08	1.8E-08
			Total Pathway:	3.2E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.70E-04	3.1E-08	1.5E+01	4.6E-07	4.6E-07
Beryllium	5.92E-05	3.2E-09	8.4E+00	2.7E-08	2.7E-08
Cadmium	8.49E-05	4.6E-09			
Chromium	1.31E-03	7.1E-08			
Lead	1.63E-03	8.8E-08			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.91E-02	1.0E-06			
4,4'-DDE	1.02E-06	5.5E-11			
Benzo(a)anthracene	3.18E-05	1.7E-09	8.9E-01	1.5E-09	1.5E-09
Benzo(a)pyrene	2.78E-05	1.5E-09	6.1E+00	9.2E-09	9.2E-09
Benzo(b)fluoranthene	5.84E-05	3.2E-09	7.5E-01	2.4E-09	2.4E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	7.42E-05	4.0E-09	3.2E-01	1.3E-09	1.3E-09
bis(2-Ethylhexyl) phthalate	4.31E-06	2.3E-10			
Carbazole	6.62E-06	3.6E-10			
Chrysene	3.77E-05	2.0E-09	2.7E-02	5.5E-11	5.5E-11
Dibenzo(a,h)anthracene	1.66E-05	9.0E-10	6.8E+00	6.1E-09	6.1E-09
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	3.96E-05	2.1E-09	1.7E+00	3.6E-09	3.6E-09
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	5.2E-07	

Total Rad + Chem 5.5E-07 *Total:* 5.5E-07

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TABLE B.3.4-25 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	6.3E-11
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.2E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.4E-09
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.5E-10
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.9E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.4E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	3.3E-10
TC-99	4.27E+00	4.1E+02	1.30E-12	5.4E-10	5.4E-10	5.4E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	7.3E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	6.9E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.5E-10
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	5.5E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	3.6E-10
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.8E-08
				Total Pathway:	5.4E-10	

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.5E+01	0.0E+00	0.0E+00	4.6E-07
Beryllium	0.00E+00	0.0E+00	8.4E+00	0.0E+00	0.0E+00	2.7E-08
Cadmium	0.00E+00	0.0E+00				
Chromium	0.00E+00	0.0E+00				
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00				
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	8.9E-01	0.0E+00	0.0E+00	1.5E-09
Benzo(a)pyrene	0.00E+00	0.0E+00	6.1E+00	0.0E+00	0.0E+00	9.2E-09
Benzo(b)fluoranthene	0.00E+00	0.0E+00	7.5E-01	0.0E+00	0.0E+00	2.4E-09
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.2E-01	0.0E+00	0.0E+00	1.3E-09
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00	2.7E-02	0.0E+00	0.0E+00	5.5E-11
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	6.8E+00	0.0E+00	0.0E+00	6.1E-09
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	1.7E+00	0.0E+00	0.0E+00	3.6E-09
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
				Total Pathway:	0.0E+00	

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TABLE B.3.4-25(continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	4.3E+00	4.1E+02				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Inhalation of Particulates/Soil						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	8.0E-04
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.0E-06
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	3.6E-05
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.1E-04
Lead	0.00E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	2.7E-03
4,4'-DDE	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00				
Benzo(a)pyrene	0.00E+00	0.0E+00				
Benzo(b)fluoranthene	0.00E+00	0.0E+00				
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00				
Phenanthrene	0.00E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	3.6E-03

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TABLE B.3.4-25 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	2.3E-02	2.2E+00			
NP-237	1.0E-01	1.0E+01			
PU-238	6.5E-02	6.3E+00			
PU-239/240	6.9E-03	6.7E-01			
RA-226	1.6E-01	1.6E+01			
RA-228	1.4E-01	1.4E+01			
SR-90	9.6E-02	9.2E+00			
TC-99	0.0E+00	0.0E+00			
TH-228	1.4E-01	1.3E+01			
TH-230	5.5E-01	5.3E+01			
TH-232	1.3E-01	1.2E+01			
U-234	3.6E+00	3.4E+02			
U-235/236	2.4E-01	2.3E+01			
U-238	6.5E+00	6.3E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	5.70E-04	2.4E-07	3.0E-04	8.0E-04	8.0E-04
Beryllium	5.92E-05	2.5E-08	5.0E-03	5.0E-06	5.0E-06
Cadmium	8.49E-05	3.6E-08	1.0E-03	3.6E-05	3.6E-05
Chromium	1.31E-03	5.5E-07	5.0E-03	1.1E-04	1.1E-04
Lead	1.63E-03	6.8E-07			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.91E-02	8.0E-06	3.0E-03	2.7E-03	2.7E-03
4,4'-DDE	1.02E-06	4.3E-10			
Benzo(a)anthracene	3.18E-05	1.3E-08			
Benzo(a)pyrene	2.78E-05	1.2E-08			
Benzo(b)fluoranthene	5.84E-05	2.5E-08			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	7.42E-05	3.1E-08			
bis(2-Ethylhexyl) phthalate	4.31E-06	1.8E-09			
Carbazole	6.62E-06	2.8E-09			
Chrysene	3.77E-05	1.6E-08			
Dibenzo(a,h)anthracene	1.66E-05	7.0E-09			
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	3.96E-05	1.7E-08			
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			
			Total Pathway:	3.6E-03	

Total Rad + Chem 3.6E-03 | *Total:* 3.6E-03

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TABLE B.3.4-26
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	2.61E-02	3.2E+00	2.8E-11	9.0E-11	CS-137	9.1E-03	3.6E+00	2.8E-11	1.0E-10	1.9E-10
NP-237	3.16E-04	3.9E-02	2.2E-10	8.6E-12	NP-237	2.9E-05	1.1E-02	2.2E-10	2.5E-12	1.1E-11
PU-238	1.86E-06	2.3E-04	2.2E-10	5.1E-14	PU-238	3.7E-07	1.5E-04	2.2E-10	3.2E-14	8.3E-14
PU-239/240	1.98E-07	2.4E-05	2.3E-10	5.6E-15	PU-239/240	4.0E-08	1.6E-05	2.3E-10	3.6E-15	9.2E-15
RA-226	2.29E-03	2.8E-01	1.2E-10	3.4E-11	RA-226	4.1E-03	1.6E+00	1.2E-10	2.0E-10	2.3E-10
RA-228	1.97E-03	2.4E-01	1.0E-10	2.4E-11	RA-228	3.5E-03	1.4E+00	1.0E-10	1.4E-10	1.6E-10
SR-90	1.41E-03	1.7E-01	3.6E-11	6.3E-12	SR-90	7.1E-03	2.8E+00	3.6E-11	1.0E-10	1.1E-10
TC-99	0.0E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	4.27E-05	5.3E-03	5.5E-11	2.9E-13	TH-228	3.6E-05	1.4E-02	5.5E-11	7.8E-13	1.1E-12
TH-230	1.87E-04	2.3E-02	1.3E-11	3.0E-13	TH-230	1.6E-04	6.2E-02	1.3E-11	8.0E-13	1.1E-12
TH-232	4.37E-05	5.4E-03	1.2E-11	6.5E-14	TH-232	3.6E-05	1.4E-02	1.2E-11	1.7E-13	2.4E-13
U-234	4.07E-02	5.0E+00	1.6E-11	8.1E-11	U-234	1.2E-01	4.8E+01	1.6E-11	7.7E-10	8.5E-10
U-235/236	2.74E-03	3.4E-01	1.6E-11	5.4E-12	U-235/236	8.2E-03	3.3E+00	1.6E-11	5.2E-11	5.8E-11
U-238	7.45E-02	9.2E+00	2.8E-11	2.6E-10	U-238	2.2E-01	8.9E+01	2.8E-11	2.5E-09	2.7E-09
			Total Pathway:	5.1E-10				Total Pathway:	3.8E-09	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n-Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	6.45E-05	4.5E-09	1.8E+00	7.8E-09	Arsenic	1.9E-06	4.3E-10	1.8E+00	7.5E-10	8.6E-09
Beryllium	3.37E-06	2.3E-10	4.3E+00	1.0E-09	Beryllium	3.0E-09	6.7E-13	4.3E+00	2.9E-12	1.0E-09
Cadmium	2.45E-05	1.7E-09			Cadmium	4.5E-06	9.9E-10			
Chromium	4.11E-04	2.8E-08			Chromium	1.1E-04	2.5E-08			
Lead	2.76E-05	1.9E-09			Lead	2.3E-05	5.1E-09			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.18E-04	1.5E-08			U-TOTAL	6.5E-04	1.4E-07			
4,4'-DDE	2.25E-12	1.6E-16	3.4E-01	5.3E-17	4,4'-DDE	7.1E-07	1.6E-10	3.4E-01	5.4E-11	5.4E-11
Benzo(a)anthracene	1.11E-05	7.7E-10	1.1E+00	8.4E-10	Benzo(a)anthracene	3.5E-06	7.8E-10	1.1E+00	8.5E-10	1.7E-09
Benzo(a)pyrene	2.32E-05	1.6E-09	7.3E+00	1.2E-08	Benzo(a)pyrene	7.3E-06	1.6E-09	7.3E+00	1.2E-08	2.4E-08
Benzo(b)fluoranthene	1.89E-04	1.3E-08	9.0E-01	1.2E-08	Benzo(b)fluoranthene	6.0E-05	1.3E-08	9.0E-01	1.2E-08	2.4E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.79E-04	3.3E-08	3.8E-01	1.3E-08	Benzo(k)fluoranthene	1.5E-04	3.4E-08	3.8E-01	1.3E-08	2.5E-08
bis(2-Ethylhexyl) phthalate	6.16E-08	4.3E-12	1.4E-02	6.0E-14	bis(2-Ethylhexyl) phthalate	1.9E-08	4.3E-12	1.4E-02	6.0E-14	1.2E-13
Carbazole	3.81E-06	2.6E-10	2.0E-02	5.3E-12	Carbazole	1.2E-06	2.7E-10	2.0E-02	5.4E-12	1.1E-11
Chrysene	1.31E-05	9.1E-10	3.2E-02	2.9E-11	Chrysene	4.1E-06	9.2E-10	3.2E-02	2.9E-11	5.8E-11
Dibenzo(a,h)anthracene	1.35E-05	9.3E-10	8.1E+00	7.5E-09	Dibenzo(a,h)anthracene	4.3E-06	9.4E-10	8.1E+00	7.6E-09	1.5E-08
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.57E-03	1.1E-07	2.0E+00	2.2E-07	Indeno(1,2,3-cd)pyrene	5.0E-04	1.1E-07	2.0E+00	2.2E-07	4.4E-07
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	2.7E-07				Total Pathway:	2.7E-07	5.4E-07
			Total Rad + Chem	2.7E-07				Total Rad + Chem	2.7E-07	*Total:* 5.4E-07

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TABLE B.3.4-26 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n-Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.0E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.9E-10
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.1E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	8.3E-14
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	9.2E-15
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.3E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.6E-10
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	1.1E-10
TC-99	1.0E+00	1.3E+02	1.30E-12	1.6E-10	TC-99	1.2E+00	4.8E+02	1.3E-12	6.2E-10	7.8E-10	7.8E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.0E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.1E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.0E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.1E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.0E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	2.4E-13
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-234	0.0E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	8.5E-10
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-235/236	0.0E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	5.8E-11
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	U-238	0.0E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.7E-09
			Total Pathway:	1.6E-10				Total Pathway:	6.2E-10		

Chemical Risk

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n-Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	8.6E-09
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.0E-09
Cadmium	0.00E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00				
Chromium	0.00E+00	0.0E+00			Chromium	0.0E+00	0.0E+00				
Lead	0.00E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00			U-TOTAL	0.0E+00	0.0E+00				
4,4'-DDE	0.00E+00	0.0E+00	3.4E-01	0.0E+00	4,4'-DDE	0.0E+00	0.0E+00	3.4E-01	0.0E+00	0.0E+00	5.4E-11
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	1.7E-09
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	2.4E-08
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	2.4E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.5E-08
bis(2-Ethylhexyl) phthalat	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.2E-13
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.1E-11
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	5.8E-11
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	1.5E-08
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	4.4E-07
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	7.8E-10	
			Total Rad + Chem	1.6E-10				Total Rad + Chem	6.2E-10	*al:* 7.8E-10	5.4E-07

TABLE B.3.4-26 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n-Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk		
CS-137	0.00E+00	0.0E+00			CS-137	0.0E+00	0.0E+00				
NP-237	0.00E+00	0.0E+00			NP-237	0.0E+00	0.0E+00				
PU-238	0.00E+00	0.0E+00			PU-238	0.0E+00	0.0E+00				
PU-239/240	0.00E+00	0.0E+00			PU-239/240	0.0E+00	0.0E+00				
RA-226	0.00E+00	0.0E+00			RA-226	0.0E+00	0.0E+00				
RA-228	0.00E+00	0.0E+00			RA-228	0.0E+00	0.0E+00				
SR-90	0.00E+00	0.0E+00			SR-90	0.0E+00	0.0E+00				
TC-99	1.02E+00	1.3E+02			TC-99	1.2E+00	4.8E+02				
TH-228	0.00E+00	0.0E+00			TH-228	0.0E+00	0.0E+00				
TH-230	0.00E+00	0.0E+00			TH-230	0.0E+00	0.0E+00				
TH-232	0.00E+00	0.0E+00			TH-232	0.0E+00	0.0E+00				
U-234	0.00E+00	0.0E+00			U-234	0.0E+00	0.0E+00				
U-235/236	0.00E+00	0.0E+00			U-235/236	0.0E+00	0.0E+00				
U-238	0.00E+00	0.0E+00			U-238	0.0E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		

Chemical Hazard

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n-Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.3E-04
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.6E-07
Cadmium	0.00E+00	0.0E+00	1.0E-03	0.0E+00	Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	2.1E-05
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	8.3E-05
Lead	0.00E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	4.1E-04
4,4'-DDE	0.00E+00	0.0E+00			4,4'-DDE	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.00E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.00E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthala	0.00E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	3.3E-09
Carbazole	0.00E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.00E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Heptachloro-p-dioxin	0.00E+00	0.0E+00			Heptachloro-p-dioxin	0.0E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		
		Total Rad + Chem		0.0E+00			Total Rad + Chem		0.0E+00	*Total:* 0.0E+00	6.5E-04

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TABLE B.3.4-26 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	2.61E-02	3.2E+00			CS-137	9.1E-03	3.6E+00			
NP-237	3.16E-04	3.9E-02			NP-237	2.9E-05	1.1E-02			
PU-238	1.86E-06	2.3E-04			PU-238	3.7E-07	1.5E-04			
PU-239/240	1.98E-07	2.4E-05			PU-239/240	4.0E-08	1.6E-05			
RA-226	2.29E-03	2.8E-01			RA-226	4.1E-03	1.6E+00			
RA-228	1.97E-03	2.4E-01			RA-228	3.5E-03	1.4E+00			
SR-90	1.41E-03	1.7E-01			SR-90	7.1E-03	2.8E+00			
TC-99	0.00E+00	0.0E+00			TC-99	0.0E+00	0.0E+00			
TH-228	4.27E-05	5.3E-03			TH-228	3.6E-05	1.4E-02			
TH-230	1.87E-04	2.3E-02			TH-230	1.6E-04	6.2E-02			
TH-232	4.37E-05	5.4E-03			TH-232	3.6E-05	1.4E-02			
U-234	4.07E-02	5.0E+00			U-234	1.2E-01	4.8E+01			
U-235/236	2.74E-03	3.4E-01			U-235/236	8.2E-03	3.3E+00			
U-238	7.45E-02	9.2E+00			U-238	2.2E-01	8.9E+01			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	6.45E-05	3.5E-08	3.0E-04	1.2E-04	Arsenic	1.9E-06	3.3E-09	3.0E-04	1.1E-05	1.3E-04
Beryllium	3.37E-06	1.8E-09	5.0E-03	3.6E-07	Beryllium	3.0E-09	5.2E-12	5.0E-03	1.0E-09	3.6E-07
Cadmium	2.45E-05	1.3E-08	1.0E-03	1.3E-05	Cadmium	4.5E-06	7.7E-09	1.0E-03	7.7E-06	2.1E-05
Chromium	4.11E-04	2.2E-07	5.0E-03	4.4E-05	Chromium	1.1E-04	1.9E-07	5.0E-03	3.9E-05	8.3E-05
Lead	2.76E-05	1.5E-08			Lead	2.3E-05	4.0E-08			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.18E-04	1.2E-07	3.0E-03	3.9E-05	U-TOTAL	6.5E-04	1.1E-06	3.0E-03	3.8E-04	4.1E-04
4,4'-DDE	2.25E-12	1.2E-15			4,4'-DDE	7.1E-07	1.2E-09			
Benzo(a)anthracene	1.11E-05	6.0E-09			Benzo(a)anthracene	3.5E-06	6.0E-09			
Benzo(a)pyrene	2.32E-05	1.2E-08			Benzo(a)pyrene	7.3E-06	1.3E-08			
Benzo(b)fluoranthene	1.89E-04	1.0E-07			Benzo(b)fluoranthene	6.0E-05	1.0E-07			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.79E-04	2.6E-07			Benzo(k)fluoranthene	1.5E-04	2.6E-07			
bis(2-Ethylhexyl) phthalate	6.16E-08	3.3E-11	2.0E-02	1.7E-09	bis(2-Ethylhexyl) phthalate	1.9E-08	3.4E-11	2.0E-02	1.7E-09	3.3E-09
Carbazole	3.81E-06	2.1E-09			Carbazole	1.2E-06	2.1E-09			
Chrysene	1.31E-05	7.1E-09			Chrysene	4.1E-06	7.1E-09			
Dibenzo(a,h)anthracene	1.35E-05	7.2E-09			Dibenzo(a,h)anthracene	4.3E-06	7.3E-09			
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	1.57E-03	8.5E-07			Indeno(1,2,3-cd)pyrene	5.0E-04	8.6E-07			
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			Heptachloro-p-dioxin	0.0E+00	0.0E+00			
		Total Pathway:		2.1E-04			Total Pathway:		4.3E-04	
		Total Rad + Chem		2.1E-04			Total Rad + Chem		4.3E-04	Total: [illegible]-04

TABLE B.3.4-27

FUTURE, ON-SUBUNIT HOMEBUILDER

SOLID WASTE LANDFILL: SUBSURFACE SOIL

Carcinogenic Risk

Radiation Risk

Inhalation/Subsurface Soil

Compound	Conc'n (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.63E-05	2.03E-02	1.9E-11	3.9E-13
NP-237	2.28E-05	2.85E-02	2.9E-08	8.3E-10
PB-210	6.70E-05	8.37E-02	4.0E-09	3.3E-10
PU-238	2.13E-05	2.67E-02	3.9E-08	1.0E-09
PU-239/240	4.42E-05	5.53E-02	3.8E-08	2.1E-09
RA-224	1.39E-04	1.74E-01	1.2E-09	2.1E-10
RA-226	1.01E-04	1.26E-01	3.0E-09	3.8E-10
RA-228	1.66E-04	2.08E-01	6.6E-10	1.4E-10
SR-90	1.03E-04	1.28E-01	6.2E-11	8.0E-12
TC-99	2.95E-05	3.69E-02	8.3E-12	3.1E-13
TH-228	2.20E-04	2.75E-01	7.8E-08	2.1E-08
TH-230	8.00E-04	9.99E-01	2.9E-08	2.9E-08
TH-232	2.33E-04	2.92E-01	2.8E-08	8.2E-09
U-234	6.31E-03	7.88E+00	2.6E-08	2.0E-07
U-235	1.23E-04	1.54E-01	2.5E-08	3.8E-09
U-235/236	5.23E-04	6.53E-01	2.5E-08	1.6E-08
U-238	1.11E-02	1.38E+01	5.2E-08	7.2E-07
			Total Pathway:	1.0E-06

Ingestion/Subsurface Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.250	6.0E+00	2.8E-11	1.7E-10
NP-237	0.351	8.4E+00	2.2E-10	1.9E-09
PB-210	1.030	2.5E+01	6.6E-10	1.6E-08
PU-238	0.328	7.9E+00	2.2E-10	1.7E-09
PU-239/240	0.680	1.6E+01	2.3E-10	3.8E-09
RA-224	2.140	5.1E+01	3.8E-11	2.0E-09
RA-226	1.550	3.7E+01	1.2E-10	4.5E-09
RA-228	2.560	6.1E+01	1.0E-10	6.1E-09
SR-90	1.580	3.8E+01	3.6E-11	1.4E-09
TC-99	0.454	1.1E+01	1.3E-12	1.4E-11
TH-228	3.4	8.1E+01	5.5E-11	4.5E-09
TH-230	12.3	3.0E+02	1.3E-11	3.8E-09
TH-232	3.6	8.6E+01	1.2E-11	1.0E-09
U-234	97.0	2.3E+03	1.6E-11	3.7E-08
U-235	1.9	4.5E+01	1.6E-11	7.3E-10
U-235/236	8.0	1.9E+02	1.6E-11	3.1E-09
U-238	170.0	4.1E+03	2.8E-11	1.1E-07
			Total Pathway:	2.0E-07

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TABLE B.3.4-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOLID WASTE LANDFILL: SUBSURFACE SOIL
Carcinogenic Risk

Chemical Risk

Inhalation/Subsurface Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	2.47E-11	1.73E-14		
1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.75E-12	3.32E-15		
Heptachlorodibenzo-p-dioxin	5.85E-11	4.09E-14		
Heptachlorodibenzofuran	1.63E-11	1.14E-14		
Octachlorodibenzo-p-dioxin	8.91E-07	6.22E-10		
Arsenic	8.97E-07	6.27E-10	1.5E+01	9.5E-09
Beryllium	6.98E-08	4.88E-11	8.4E+00	4.1E-10
Cadmium	1.10E-07	7.68E-11		
Chromium	1.31E-06	9.15E-10	4.1E+01	3.8E-08
Lead	1.84E-06	1.29E-09		
TH-TOTAL	4.91E-06	3.43E-09		
Thallium	3.90E-08	2.73E-11		
U-TOTAL	1.15E-04	8.04E-08		
4,4'-DDD	2.60E-10	1.82E-13		
Aroclor-1254	3.25E-09	2.27E-12		
Aroclor-1260	5.20E-09	3.63E-12		
Endosulfan sulfate	3.90E-10	2.73E-13		
Endrin ketone	3.90E-10	2.73E-13		
2-Methylnaphthalene	6.50E-09	4.54E-12		
Benzo(a)anthracene	4.88E-07	3.41E-10	8.9E-01	3.0E-10
Benzo(a)pyrene	5.33E-07	3.73E-10	6.1E+00	2.3E-09
Benzo(b)fluoranthene	9.75E-08	6.81E-11	7.5E-01	5.1E-11
Benzo(g,h,i)perylene	3.19E-08	2.23E-11		
Benzo(k)fluoranthene	4.81E-08	3.36E-11	3.2E-01	1.1E-11
bis(2-Ethylhexyl) phthalate	1.11E-07	7.72E-11		
Carbazole	2.73E-07	1.91E-10		
Chrysene	3.64E-07	2.54E-10	2.7E-02	6.8E-12
Dibenzo(a,h)anthracene	1.63E-08	1.14E-11	6.8E+00	7.7E-11
Dibenzofuran	2.21E-08	1.54E-11		
Indeno(1,2,3-cd)pyrene	3.58E-07	2.50E-10	1.7E+00	4.2E-10
Phenanthrene	3.12E-07	2.18E-10		
1,4-Dioxane	8.39E-07	5.86E-10		
2-Hexanone	6.50E-11	4.54E-14		
Benzene	1.95E-10	1.36E-13	2.9E-02	4.0E-15
Dichlorodifluoromethane	3.74E-08	2.62E-11		
Methylene chloride	3.90E-10	2.73E-13	2.0E-03	5.5E-16
Tetrachloroethene	6.50E-11	4.54E-14	2.0E-03	9.1E-17
			Total Pathway:	5.1E-08
			Total Rad + Chem	1.1E-06

Ingestion/Subsurface Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	3.8E-04	5.1E-12		
1,2,3,4,6,7,8-Heptachlorodibenzofuran	7.3E-05	9.8E-13		
Heptachlorodibenzo-p-dioxin	9.0E-04	1.2E-11		
Heptachlorodibenzofuran	2.5E-04	3.4E-12		
Octachlorodibenzo-p-dioxin	13.70	1.8E-07		
Arsenic	13.80	1.9E-07	1.8E+00	3.2E-07
Beryllium	1.07	1.4E-08	4.3E+00	6.2E-08
Cadmium	1.69	2.3E-08		
Chromium	20.14	2.7E-07		
Lead	28.30	3.8E-07		
TH-TOTAL	75.60	1.0E-06		
Thallium	0.60	8.1E-09		
U-TOTAL	1770	2.4E-05		
4,4'-DDD	4.0E-03	5.4E-11	2.4E-01	1.3E-11
Aroclor-1254	0.05	6.7E-10	7.7E+00	5.2E-09
Aroclor-1260	0.08	1.1E-09	7.7E+00	8.3E-09
Endosulfan sulfate	6.0E-03	8.1E-11		
Endrin ketone	6.0E-03	8.1E-11		
2-Methylnaphthalene	0.10	1.3E-09		
Benzo(a)anthracene	7.50	1.0E-07	1.1E+00	1.1E-07
Benzo(a)pyrene	8.20	1.1E-07	7.3E+00	8.0E-07
Benzo(b)fluoranthene	1.50	2.0E-08	9.0E-01	1.8E-08
Benzo(g,h,i)perylene	0.49	6.6E-09		
Benzo(k)fluoranthene	0.74	9.9E-09	3.8E-01	3.8E-09
bis(2-Ethylhexyl) phthalate	1.70	2.3E-08	1.4E-02	3.2E-10
Carbazole	4.20	5.6E-08	2.0E-02	1.1E-09
Chrysene	5.60	7.5E-08	3.2E-02	2.4E-09
Dibenzo(a,h)anthracene	0.25	3.4E-09	8.1E+00	2.7E-08
Dibenzofuran	0.34	4.6E-09		
Indeno(1,2,3-cd)pyrene	5.50	7.4E-08	2.0E+00	1.5E-07
Phenanthrene	4.80	6.4E-08		
1,4-Dioxane	12.90	1.7E-07	1.1E-02	1.9E-09
2-Hexanone	1.0E-03	1.3E-11		
Benzene	3.0E-03	4.0E-11	2.9E-02	1.2E-12
Dichlorodifluoromethane	0.58	7.7E-09		
Methylene chloride	6.0E-03	8.1E-11	7.5E-03	6.0E-13
Tetrachloroethene	1.0E-03	1.3E-11	5.2E-02	7.0E-13
			Total Pathway:	1.5E-06
			Total Rad + Chem	1.7E-06

TABLE B.3.4-27 (continued)

FUTURE, ON-SUBUNIT HOMEBUILDER

SOLID WASTE LANDFILL: SUBSURFACE SOIL

Carcinogenic Risk

Radiation Risk					
Dermal Contact/Subsurface Soil					Total
Not applicable	External Radiation/Subsurface Soil				
	Compound	Intake	SF(e)	Risk	
	CS-137	1.1E-02	2.0E-06	2.1E-08	2.2E-08
	NP-237	1.5E-02	4.3E-07	6.5E-09	9.1E-09
	PB-210	4.4E-02	1.6E-10	7.1E-12	1.7E-08
	PU-238	1.4E-02	2.8E-11	3.9E-13	2.8E-09
	PU-239/240	2.9E-02	2.7E-11	7.9E-13	5.9E-09
	RA-224	9.2E-02	2.3E-08	2.1E-09	4.3E-09
	RA-226	6.6E-02	1.2E-08	8.0E-10	5.6E-09
	RA-228	1.1E-01	2.9E-06	3.2E-07	3.2E-07
	SR-90	6.8E-02	0.0E+00	0.0E+00	1.4E-09
	TC-99	1.9E-02	6.0E-13	1.2E-14	1.4E-11
	TH-228	1.5E-01	5.6E-06	8.1E-07	8.4E-07
	TH-230	5.3E-01	5.4E-11	2.8E-11	3.3E-08
	TH-232	1.5E-01	2.6E-11	4.0E-12	9.2E-09
	U-234	4.2E+00	3.0E-11	1.2E-10	2.4E-07
	U-235	8.1E-02	2.4E-07	1.9E-08	2.4E-08
	U-235/236	3.4E-01	2.4E-07	8.3E-08	1.0E-07
	U-238	7.3E+00	3.6E-08	2.6E-07	1.1E-06
Total Pathway: 0.0E+00			Total Pathway:	1.5E-06	

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TABLE B.3.4-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOLID WASTE LANDFILL: SUBSURFACE SOIL
Carcinogenic Risk

Chemical Risk								Total
Dermal Contact/Subsurface Soil				External Radiation/Subsurface Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.0E+00							
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.0E+00							
Heptachlorodibenzo-p-dioxin	0.0E+00			Not applicable				
Heptachlorodibenzofuran	0.0E+00							
Octachlorodibenzo-p-dioxin	0.0E+00							
Arsenic	2.2E-09	1.8E+00	4.1E-09					3.4E-07
Beryllium	1.7E-09	4.3E+02	7.4E-07					8.1E-07
Cadmium	0.0E+00							
Chromium	0.0E+00							3.8E-08
Lead	0.0E+00							
TH-TOTAL	0.0E+00							
Thallium	0.0E+00							
U-TOTAL	0.0E+00							
4,4'-DDD	0.0E+00							1.3E-11
Aroclor-1254	2.4E-09	1.0E+01	2.5E-08					3.0E-08
Aroclor-1260	3.9E-09	1.0E+01	4.0E-08					4.8E-08
Endosulfan sulfate	0.0E+00							
Endrin ketone	0.0E+00							
2-Methylnaphthalene	0.0E+00							
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					1.1E-07
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00					8.1E-07
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					1.8E-08
Benzo(g,h,i)perylene	0.0E+00							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					3.8E-09
bis(2-Ethylhexyl) phthalate	1.1E-09	1.6E-02	1.7E-11					3.4E-10
Carbazole	0.0E+00							1.1E-09
Chrysene	0.0E+00	7.4E-02	0.0E+00					2.4E-09
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					2.7E-08
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					1.5E-07
Phenanthrene	0.0E+00							
1,4-Dioxane	0.0E+00							1.9E-09
2-Hexanone	0.0E+00							
Benzene	0.0E+00	2.9E-02	0.0E+00					1.2E-12
Dichlorodifluoromethane	0.0E+00							
Methylene chloride	3.9E-10	7.5E-03	2.9E-12					3.5E-12
Tetrachloroethene	6.4E-11	5.8E-02	3.7E-12					4.4E-12
		Total Pathway:	8.1E-07			Total Pathway:	0.0E+00	
		Total Rad + Chem	8.1E-07				1.5E-06	*Total:* 5.1E-06

TABLE B.3.4-27 (continued)

FUTURE, ON-SUBUNIT HOMEBUILDER

SOLID WASTE LANDFILL: SUBSURFACE SOIL

Non-carcinogenic Hazard

Radiation Risk

Inhalation of Particulates/Soil				
Compound	Conc'n (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.63E-05	2.03E-02		
NP-237	2.28E-05	2.85E-02		
PB-210	6.70E-05	8.37E-02		
PU-238	2.13E-05	2.67E-02		
PU-239/240	4.42E-05	5.53E-02		
RA-224	1.39E-04	1.74E-01		
RA-226	1.01E-04	1.26E-01		
RA-228	1.66E-04	2.08E-01		
SR-90	1.03E-04	1.28E-01		
TC-99	2.95E-05	3.69E-02		
TH-228	2.20E-04	2.75E-01		
TH-230	8.00E-04	9.99E-01		
TH-232	2.33E-04	2.92E-01		
U-234	6.31E-03	7.88E+00		
U-235	1.23E-04	1.54E-01		
U-235/236	5.23E-04	6.53E-01		
U-238	1.11E-02	1.38E+01		

Total Pathway: 0.0E+00

Ingestion/Subsurface Soil				
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.25	6.0E+00		
NP-237	0.35	8.4E+00		
PB-210	1.03	2.5E+01		
PU-238	0.33	7.9E+00		
PU-239/240	0.68	1.6E+01		
RA-224	2.14	5.1E+01		
RA-226	1.55	3.7E+01		
RA-228	2.56	6.1E+01		
SR-90	1.58	3.8E+01		
TC-99	0.45	1.1E+01		
TH-228	3.39	8.1E+01		
TH-230	12.30	3.0E+02		
TH-232	3.59	8.6E+01		
U-234	97.00	2.3E+03		
U-235	1.89	4.5E+01		
U-235/236	8.04	1.9E+02		
U-238	170.00	4.1E+03		

Total Pathway: 0.0E+00

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TABLE B.3.4-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOLID WASTE LANDFILL: SUBSURFACE SOIL
Non-carcinogenic Hazard

Chemical Risk

Inhalation of Particulates/Soil				
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	2.47E-11	1.21E-12		
1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.75E-12	2.32E-13		
Heptachlorodibenzo-p-dioxin	5.85E-11	2.86E-12		
Heptachlorodibenzofuran	1.63E-11	7.95E-13		
Octachlorodibenzo-p-dioxin	8.91E-07	4.36E-08	1.50E+02	6.5E-06
Arsenic	8.97E-07	4.39E-08		
Beryllium	6.98E-08	3.42E-09		
Cadmium	1.10E-07	5.38E-09		
Chromium	1.31E-06	6.40E-08		
Lead	1.84E-06	9.00E-08		
TH-TOTAL	4.91E-06	2.40E-07		
Thallium	3.90E-08	1.91E-09		
U-TOTAL	1.15E-04	5.63E-06		
4,4'-DDD	2.60E-10	1.27E-11		
Aroclor-1254	3.25E-09	1.59E-10		
Aroclor-1260	5.20E-09	2.54E-10		
Endosulfan sulfate	3.90E-10	1.91E-11		
Endrin ketone	3.90E-10	1.91E-11		
2-Methylnaphthalene	6.50E-09	3.18E-10		
Benzo(a)anthracene	4.88E-07	2.39E-08		
Benzo(a)pyrene	5.33E-07	2.61E-08		
Benzo(b)fluoranthene	9.75E-08	4.77E-09		
Benzo(g,h,i)perylene	3.19E-08	1.56E-09		
Benzo(k)fluoranthene	4.81E-08	2.35E-09		
bis(2-Ethylhexyl) phthalate	1.11E-07	5.41E-09		
Carbazole	2.73E-07	1.34E-08		
Chrysene	3.64E-07	1.78E-08		
Dibenzo(a,h)anthracene	1.63E-08	7.95E-10		
Dibenzofuran	2.21E-08	1.08E-09		
Indeno(1,2,3-cd)pyrene	3.58E-07	1.75E-08		
Phenanthrene	3.12E-07	1.53E-08		
1,4-Dioxane	8.39E-07	4.10E-08		
2-Hexanone	6.50E-11	3.18E-12		
Benzene	1.95E-10	9.54E-12	5.7E-05	5.4E-16
Dichlorodifluoromethane	3.74E-08	1.83E-09	5.7E-02	1.0E-10
Methylene chloride	3.90E-10	1.91E-11	8.2E-01	1.6E-11
Tetrachloroethene	6.50E-11	3.18E-12		
			Total Pathway:	6.5E-06
			Total Rad + Chem	6.5E-06

Ingestion/Subsurface Soil				
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	3.8E-04	3.6E-10	1.5E+03	2.4E-13
1,2,3,4,6,7,8-Heptachlorodibenzofuran	7.3E-05	6.9E-11		
Heptachlorodibenzo-p-dioxin	9.0E-04	8.5E-10	1.5E+03	5.6E-13
Heptachlorodibenzofuran	2.5E-04	2.3E-10	4.0E-03	5.9E-08
Octachlorodibenzo-p-dioxin	13.70	1.3E-05	1.5E+02	8.6E-08
Arsenic	13.80	1.3E-05	3.0E-04	4.3E-02
Beryllium	1.07	1.0E-06	5.0E-03	2.0E-04
Cadmium	1.69	1.6E-06	1.0E-03	1.6E-03
Chromium	20.14	1.9E-05	5.0E-03	3.8E-03
Lead	28.30	2.7E-05		
TH-TOTAL	75.60	7.1E-05		
Thallium	0.60	5.6E-07	7.0E-05	8.1E-03
U-TOTAL	1770	1.7E-03	3.0E-03	5.5E-01
4,4'-DDD	4.0E-03	3.8E-09		
Aroclor-1254	0.05	4.7E-08		
Aroclor-1260	0.08	7.5E-08		
Endosulfan sulfate	6.0E-03	5.6E-09	5.0E-05	1.1E-04
Endrin ketone	6.0E-03	5.6E-09		
2-Methylnaphthalene	0.10	9.4E-08		
Benzo(a)anthracene	7.50	7.0E-06		
Benzo(a)pyrene	8.20	7.7E-06		
Benzo(b)fluoranthene	1.50	1.4E-06		
Benzo(g,h,i)perylene	0.49	4.6E-07		
Benzo(k)fluoranthene	0.74	7.0E-07		
bis(2-Ethylhexyl) phthalate	1.70	1.6E-06	2.0E-02	8.0E-05
Carbazole	4.20	3.9E-06		
Chrysene	5.60	5.3E-06		
Dibenzo(a,h)anthracene	0.25	2.3E-07		
Dibenzofuran	0.34	3.2E-07	4.0E-03	8.0E-05
Indeno(1,2,3-cd)pyrene	5.50	5.2E-06		
Phenanthrene	4.80	4.5E-06		
1,4-Dioxane	12.90	1.2E-05		
2-Hexanone	1.0E-03	9.4E-10		
Benzene	3.0E-03	2.8E-09		
Dichlorodifluoromethane	0.58	5.4E-07	2.0E-01	2.7E-06
Methylene chloride	6.0E-03	5.6E-09	6.1E-02	9.2E-08
Tetrachloroethene	1.0E-03	9.4E-10	1.0E-02	9.4E-08
			Total Pathway:	0.6
			Total Rad + Chem	0.6

TABLE B.3.4-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOLID WASTE LANDFILL: SUBSURFACE SOIL
Non-carcinogenic Hazard

Radiation Risk				
Dermal Contact/Subsurface Soil	External Radiation/Subsurface Soil			Total
	Compound	Intake	RfD(e)	Hazard
Not applicable	CS-137	1.1E-02		
	NP-237	1.5E-02		
	PB-210	4.4E-02		
	PU-238	1.4E-02		
	PU-239/240	2.9E-02		
	RA-224	9.2E-02		
	RA-226	6.6E-02		
	RA-228	1.1E-01		
	SR-90	6.8E-02		
	TC-99	1.9E-02		
	TH-228	1.5E-01		
	TH-230	5.3E-01		
	TH-232	1.5E-01		
	U-234	4.2E+00		
	U-235	8.1E-02		
	U-235/236	3.4E-01		
	U-238	7.3E+00		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

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TABLE B.3.4-27 (continued)
FUTURE, ON-SUBUNIT HOMEBUILDER
SOLID WASTE LANDFILL: SUBSURFACE SOIL
Non-carcinogenic Hazard

Chemical Risk								Total
Dermal Contact/Subsurface Soil				External Radiation/Subsurface Soil				
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1.3E-10	7.5E+02	1.7E-13					4.1E-13
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.0E+00							
Heptachlorodibenzo-p-dioxin	3.0E-10	7.5E+02	4.1E-13		Not applicable			9.7E-13
Heptachlorodibenzofuran	0.0E+00							5.9E-08
Octachlorodibenzo-p-dioxin	4.6E-06	7.5E+01	6.2E-08					6.7E-06
Arsenic	1.6E-07	2.9E-04	5.4E-04					4.4E-02
Beryllium	1.2E-07	5.0E-05	2.4E-03					2.6E-03
Cadmium	1.9E-07	5.0E-05	3.8E-03					5.4E-03
Chromium	2.3E-06	2.3E-03	1.0E-03					4.8E-03
Lead	3.2E-06							
TH-TOTAL	0.0E+00							
Thallium	6.8E-08	7.0E-05	9.6E-04					9.0E-03
U-TOTAL	2.0E-04	1.5E-04	1.3E+00					1.9E+00
4,4'-DDD	1.4E-08							
Aroclor-1254	1.7E-07							
Aroclor-1260	2.7E-07							
Endosulfan sulfate	0.0E+00							1.1E-04
Endrin ketone	0.0E+00							
2-Methylnaphthalene	0.0E+00							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	1.7E-06							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	7.7E-08	1.8E-02	4.3E-06					8.4E-05
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					8.0E-05
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	1.6E-05							
1,4-Dioxane	0.0E+00							
2-Hexanone	3.4E-09							
Benzene	0.0E+00							5.4E-16
Dichlorodifluoromethane	0.0E+00	2.0E-01	0.0E+00					2.7E-06
Methylene chloride	2.7E-08	6.1E-02	4.4E-07					5.4E-07
Tetrachloroethene	4.5E-09	9.0E-03	5.0E-07					5.9E-07
		Total Pathway:	1.3			Total Pathway:	0.0E+00	
		Total Rad + Chem	1.3				0.0E+00	*Total:* 1.9

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TABLE B.3.4-28(a)
FUTURE, PERCHED GROUNDWATER USER (ADULT)
SOLID WASTE LANDFILL: PERCHED GROUNDWATER

Carcinogenic Risk

Radiation Risk					
Ingestion/Groundwater					Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	1.1E-05	5.4E-01	2.2E-10	1.2E-10	1.2E-10
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00
SR-90	1.4E-03	7.0E+01	3.60E-11	2.5E-09	2.5E-09
TC-99	2.9E+01	1.4E+06	1.3E-12	1.8E-06	1.8E-06
U234	0.0E+00	0.0E+00	1.60E-11	0.0E+00	0.0E+00
U235/236	0.0E+00	0.0E+00	1.60E-11	0.0E+00	0.0E+00
U238	0.0E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00
			Total Pathway:	1.8E-06	

Chemical Risk					
Ingestion/Groundwater					
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	
Carbazole	9.61E+00	2.6E-01	2.0E-02	5.3E-03	5.3E-03
			Total Pathway:	5.3E-03	

Total Rad + Chem	5.3E-03	*Total:*	5.3E-03

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TABLE B.3.4-28(b)
FUTURE, PERCHED GROUNDWATER USER (CHILD)
SOLID WASTE LANDFILL: PERCHED GROUNDWATER

Carcinogenic Risk

Radiation Risk					
Ingestion/Groundwater					Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.0000111	2.3E-02	2.2E-10	5.1E-12	5.1E-12
RA-226	0	0.0E+00	1.2E-10	0.0E+00	0.0E+00
RA-228	0	0.0E+00	1.0E-10	0.0E+00	0.0E+00
TC-99	0.00143	3.0E+00	1.3E-12	3.9E-12	3.9E-12
U234	28.9	6.1E+04	1.60E-11	9.7E-07	9.7E-07
U235/236	0	0.0E+00	1.60E-11	0.0E+00	0.0E+00
U238	0	0.0E+00	2.8E-11	0.0E+00	0.0E+00
			Total Pathway:	9.7E-07	

Chemical Risk					
Ingestion/Groundwater					
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	
Carbazole	9.61E+00	5.3E-02	2.0E-02	1.1E-03	1.1E-03
			Total Pathway:	1.1E-03	

Total Rad + Chem 1.1E-03 | *Total:* 1.1E-03

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TABLE B.3.4-29(a)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOLID WASTE LANDFILL: SURFACE WATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
CS-137	9.9E-09	2.7E-07	2.8E-11	7.5E-18	
NP-237	1.5E-06	4.1E-05	2.2E-10	8.9E-15	
PU-238	3.2E-08	8.6E-07	2.2E-10	1.9E-16	
PU-239/240	3.3E-09	9.1E-08	2.3E-10	2.1E-17	
RA-226	1.4E-07	3.8E-06	1.2E-10	4.5E-16	
RA-228	1.7E-07	4.6E-06	1.0E-10	4.6E-16	
SR-90	3.3E-04	8.9E-03	3.6E-11	3.2E-13	
TH-228	1.9E-08	5.3E-07	5.5E-11	2.9E-17	Not Applicable
TH-230	7.7E-08	2.1E-06	1.3E-11	2.7E-17	
TH-232	3.3E-08	8.9E-07	1.2E-11	1.1E-17	
U-234	6.9E-10	1.9E-08	1.6E-11	3.0E-19	
U-235/236	2.6E-06	7.1E-05	1.6E-11	1.1E-15	
U-238	7.1E-05	1.9E-03	2.8E-11	5.4E-14	
			Total Pathway	3.9E-13	Total Pathway 0.0E+00

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk
Manganese		0.0E+00			Manganese			
U-Total	2.1E-04	3.2E-09			U-Total	1.8E-09		
Bis-(2-Ethylhexyl)phthalate	5.3E-09	8.1E-14	1.4E-02	1.1E-15	Bis-(2-Ethylhexyl)phthalate	2.1E-12	1.6E-02	3.2E-14
			Total Pathway	1.1E-15			Total Pathway	3.2E-14

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TABLE B.3.4-29(a)(continued)

Carcinogenic Risk

Radiation Risk					Total
Ingestion of Fish					
Compound	Conc'n in Fish (pCi/kg)	Intake	SF(o)	Risk	
CS-137			2.8E-11		7.5E-18
NP-237			2.2E-10		8.9E-15
PU-238			2.2E-10		1.9E-16
PU-239/240			2.3E-10		2.1E-17
RA-226	6.9E-06	1.1E-03	1.2E-10	1.3E-13	1.3E-13
RA-228	8.4E-06	1.3E-03	1.0E-10	1.3E-13	1.3E-13
SR-90	9.8E-03	1.5E+00	3.6E-11	5.4E-11	5.5E-11
TH-228	5.8E-07	8.9E-05	5.5E-11	4.9E-15	4.9E-15
TH-230	2.3E-06	3.6E-04	1.3E-11	4.6E-15	4.7E-15
TH-232	9.8E-07	1.5E-04	1.2E-11	1.8E-15	1.8E-15
U-234	1.4E-09	2.1E-07	1.6E-11	3.4E-18	3.7E-18
U-235/236	5.2E-06	8.0E-04	1.6E-11	1.3E-14	1.4E-14
U-238	1.4E-04	2.2E-02	2.8E-11	6.1E-13	6.7E-13
			Total Pathway	5.5E-11	

Chemical Risk					
Ingestion of Fish					
Compound	Conc'n in Fish (mg/kg)	Intake	SF(o)	Risk	
Manganese					
U-Total	4.1E-04	3.6E-08			
Bis-(2-Ethylhexyl)phthalate	3.3E-05	2.9E-09	1.4E-02	4.0E-11	4.0E-11
			Total Pathway	4.0E-11	
			Total Rad + Chem:		9.6E-11

TABLE B.3.4-29(a)(continued)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
CS-137	2.7E-07		
NP-237	4.1E-05		
PU-238	8.6E-07		
PU-239/240	9.1E-08		
RA-226	3.8E-06		
RA-228	4.6E-06		
SR-90	8.9E-03		
TH-228	5.3E-07		
TH-230	2.1E-06		
TH-232	8.9E-07		
U-234	1.9E-08		
U-235/236	7.1E-05		
U-238	1.9E-03		
		Total Pathway	0.0E+00

Dermal Contact/Surface Water
Not Applicable
Total Pathway 0.0E+00

Chemical Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
Manganese	0.0E+00	1.4E-01	
U-Total	3.2E-09	3.0E-03	1.1E-06
Bis-(2-Ethylhexyl)phthalate	8.1E-14	2.0E-02	4.1E-12
		Total Pathway	1.1E-06

Dermal Contact/Surface Water			
Compound	Intake	RfD(derm)	Hazard
Manganese			
U-Total	1.8E-09	1.5E-04	1.2E-05
Bis-(2-Ethylhexyl)phthalate	2.1E-12	1.8E-02	1.2E-10
		Total Pathway	1.2E-05

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Noncarcinogenic Hazard

Radiation Hazard					Total
Ingestion of Fish					
Compound	Conc'n in Fish (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137					
NP-237					
PU-238					
PU-239/240					
RA-226	6.9E-06	1.1E-03			
RA-228	8.4E-06	1.3E-03			
SR-90	9.8E-03	1.5E+00			
TH-228	5.8E-07	8.9E-05			
TH-230	2.3E-06	3.6E-04			
TH-232	9.8E-07	1.5E-04			
U-234	1.4E-09	2.1E-07			
U-235/236	5.2E-06	8.0E-04			
U-238	1.4E-04	2.2E-02			
			Total Pathway:		

Chemical Hazard					
Ingestion of Fish					
Compound	Conc'n in Fish (mg/kg)	Intake	RfD(o)	Hazard	
Manganese					
U-Total	4.1E-04	3.6E-08	3.0E-03	1.2E-05	2.5E-05
Bis-(2-Ethylhexyl)phthalate	3.3E-05	2.9E-09	2.0E-02	1.4E-07	1.4E-07
			Total Pathway	1.2E-05	
			Total Rad + Chem:		2.5E-05

TABLE B.3.4-29(b)

FUTURE, GREAT MIAMI RIVER USER, YOUTH

SOLID WASTE LANDFILL: SURFACE WATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Surface Water					Dermal Contact/Surface Water
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
CS-137	9.9E-09	1.1E-07	2.8E-11	3.0E-18	
NP-237	1.5E-06	1.6E-05	2.2E-10	3.6E-15	
PU-238	3.2E-08	3.4E-07	2.2E-10	7.6E-17	
PU-239/240	3.3E-09	3.6E-08	2.3E-10	8.4E-18	
RA-226	1.4E-07	1.5E-06	1.2E-10	1.8E-16	
RA-228	1.7E-07	1.8E-06	1.0E-10	1.8E-16	
SR-90	3.3E-04	3.6E-03	3.6E-11	1.3E-13	
TH-228	1.9E-08	2.1E-07	5.5E-11	1.2E-17	Not Applicable
TH-230	7.7E-08	8.4E-07	1.3E-11	1.1E-17	
TH-232	3.3E-08	3.6E-07	1.2E-11	4.3E-18	
U-234	6.9E-10	7.5E-09	1.6E-11	1.2E-19	
U-235/236	2.6E-06	2.9E-05	1.6E-11	4.6E-16	
U-238	7.1E-05	7.8E-04	2.8E-11	2.2E-14	
			Total Pathway	1.5E-13	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Surface Water					Dermal Contact/Surface Water			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk
Manganese					Manganese			
U-Total	2.1E-04	2.1E-09			U-Total	8.3E-10		
Bis-(2-Ethylhexyl)phthalate	5.3E-09	5.3E-14	1.4E-02	7.4E-16	Bis-(2-Ethylhexyl)phthalate	9.7E-13	1.6E-02	1.5E-14
			Total Pathway	7.4E-16			Total Pathway:	1.5E-14

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TABLE B.3.4-29(b) (continued)

CARCINOGENIC RISK

Radiation Risk					Total
Ingestion of Fish					
Compound	Conc'n in Fish (pCi/kg)	Intake	SF(o)	Risk	
CS-137			2.8E-11		3.0E-18
NP-237			2.2E-10		3.6E-15
PU-238			2.2E-10		7.6E-17
PU-239/240			2.3E-10		8.4E-18
RA-226	6.9E-06	4.2E-04	1.2E-10	5.1E-14	5.1E-14
RA-228	8.4E-06	5.1E-04	1.0E-10	5.1E-14	5.2E-14
SR-90	9.8E-03	6.0E-01	3.6E-11	2.2E-11	2.2E-11
TH-228	5.8E-07	3.6E-05	5.5E-11	2.0E-15	2.0E-15
TH-230	2.3E-06	1.4E-04	1.3E-11	1.9E-15	1.9E-15
TH-232	9.8E-07	6.0E-05	1.2E-11	7.2E-16	7.3E-16
U-234	1.4E-09	8.4E-08	1.6E-11	1.3E-18	1.5E-18
U-235/236	5.2E-06	3.2E-04	1.6E-11	5.1E-15	5.6E-15
U-238	1.4E-04	8.8E-03	2.8E-11	2.5E-13	2.7E-13
			Total Pathway	2.2E-11	

Chemical Risk					
Ingestion of Fish					
Compound	Conc'n in Fish (mg/kg)	Intake	SF(o)	Risk	
Manganese					
U-Total	4.1E-04	2.3E-08			
Bis-(2-Ethylhexyl)phthalate	3.3E-05	1.9E-09	1.4E-02	2.6E-11	2.6E-11
			Total Pathway	2.6E-11	
				Total:	4.8E-11

TABLE B.3.4-29(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
CS-137	1.1E-07		
NP-237	1.6E-05		
PU-238	3.4E-07		
PU-239/240	3.6E-08		
RA-226	1.5E-06		
RA-228	1.8E-06		
SR-90	3.6E-03		
TH-228	2.1E-07		
TH-230	8.4E-07		
TH-232	3.6E-07		
U-234	7.5E-09		
U-235/236	2.9E-05		
U-238	7.8E-04		
		Total Pathway	0.0E+00

Dermal Contact/Surface Water
Not Applicable
Total Pathway 0.0E+00

Chemical Hazard

Ingestion/Surface Water			
Compound	Intake	RfD(o)	Hazard
Manganese			
U-Total	1.2E-08	3.0E-03	4.0E-06
Bis-(2-Ethylhexyl)phthalate	3.1E-13	2.0E-02	1.5E-11
		Total Pathway	4.0E-06

Dermal Contact/Surface Water			
Compound	Intake	RfD(derm)	Hazard
Manganese			
U-Total	4.8E-09	1.5E-04	3.2E-05
Bis-(2-Ethylhexyl)phthalate	5.7E-12	1.8E-02	3.1E-10
Total Pathway			3.2E-05

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TABLE B.3.4-29(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total
Ingestion of Fish					
Compound	Conc'n in Fish (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137					
NP-237					
PU-238					
PU-239/240					
RA-226	6.9E-06	4.2E-04			
RA-228	8.4E-06	5.1E-04			
SR-90	9.8E-03	6.0E-01			
TH-228	5.8E-07	3.6E-05			
TH-230	2.3E-06	1.4E-04			
TH-232	9.8E-07	6.0E-05			
U-234	1.4E-09	8.4E-08			
U-235/236	5.2E-06	3.2E-04			
U-238	1.4E-04	8.8E-03			
			Total Pathway	0.0E+00	

Chemical Hazard					
Ingestion of Fish					
Compound	Conc'n in Fish (pCi/kg)	Intake	RfD(o)	Hazard	
Manganese	0.0E+00				
U-Total	4.1E-04	2.3E-08	3.0E-03	7.7E-06	4.4E-05
Bis-(2-Ethylhexyl)phthalate	3.3E-05	1.9E-09	2.0E-02	9.3E-08	9.4E-08
			Total Pathway	7.8E-06	
				Total:	4.4E-05

TABLE B.3.4-30(a)
FUTURE, GREAT MIAMI RIVER USER, ADULT
SOLID WASTE LANDFILL: SEDIMENT

Carcinogenic Risk

Radiation Risk

Ingestion of Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	2.6E-01	7.7E+00	2.8E-11	2.2E-10
NP-237	1.2E+00	3.6E+01	2.2E-10	7.9E-09
PU-238	7.7E-01	2.3E+01	2.2E-10	5.1E-09
PU-239/240	8.2E-02	2.5E+00	2.3E-10	5.7E-10
RA-226	1.4E+00	4.2E+01	1.2E-10	5.0E-09
RA-228	1.7E+00	5.0E+01	1.0E-10	5.0E-09
SR-90	9.5E-01	2.8E+01	3.6E-11	1.0E-09
TH-228	1.6E+00	4.9E+01	5.5E-11	2.7E-09
TH-230	6.5E+00	1.9E+02	1.3E-11	2.5E-09
TH-232	1.5E+00	4.5E+01	1.2E-11	5.4E-10
U-234	4.2E+01	1.3E+03	1.6E-11	2.0E-08
U-235/236	2.8E+00	8.5E+01	1.6E-11	1.4E-09
U-238	7.7E+01	2.3E+03	2.8E-11	6.5E-08
			Total Pathway:	1.2E-07

Dermal Contact/Sediment

Not Applicable

Total Pathway: 0.0E+00

External Radiation/Sediment

Compound	Intake	SF(e)	Risk
CS-137	1.4E-01	2.0E-06	2.7E-07
NP-237	6.3E-01	4.3E-07	2.7E-07
PU-238	4.1E-01	2.8E-11	1.1E-11
PU-239/240	4.3E-02	2.7E-11	1.2E-12
RA-226	7.4E-01	1.2E-08	8.8E-09
RA-228	8.9E-01	2.9E-06	2.6E-06
SR-90	5.0E-01	0.0E+00	0.0E+00
TH-228	8.6E-01	5.6E-06	4.8E-06
TH-230	3.4E+00	5.4E-11	1.8E-10
TH-232	8.0E-01	2.6E-11	2.1E-11
U-234	2.2E+01	3.0E-11	6.7E-10
U-235/236	1.5E+00	2.4E-07	3.6E-07
U-238	4.1E+01	3.6E-08	1.5E-06
		Total Pathway	9.8E-06

Total

Total
2.7E-07
2.8E-07
5.1E-09
5.7E-10
1.4E-08
2.6E-06
1.0E-09
4.8E-06
2.7E-09
5.6E-10
2.1E-08
3.6E-07
1.5E-06
9.9E-06

Chemical Risk

Ingestion of Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.7E+00	1.1E-07	1.75	2.0E-07
Chromium	1.6E+01	2.6E-07		
Lead	1.9E+01	3.2E-07		
Benzo(a)anthracene	3.7E-01	6.1E-09	1.1E+00	6.8E-09
Benzo(a)pyrene	3.4E-01	5.7E-09	7.3E+00	4.2E-08
Benzo(b)fluoranthene	7.1E-01	1.2E-08	9.0E-01	1.1E-08
Benzo(k)fluoranthene	3.9E-01	6.5E-09	3.8E-01	2.5E-09
Bis-(2-Ethylhexyl)phthalate	4.8E-02	8.1E-10	1.4E-02	1.1E-11
Carbazole	9.2E-08	1.5E-15		
Chrysene	4.5E-01	7.6E-09	3.2E-02	2.4E-10
Fluoranthene	6.9E-01	1.2E-08		
Indeno(1,2,4,cd)pyrene	4.8E-01	8.1E-09	2.0E+00	1.6E-08
Pyrene	8.5E-01	1.4E-08		
U-Total	2.1E-04	3.5E-12		
			Total Pathway	2.7E-07

Dermal Contact/Sediment

Compound	Intake	SF(derm)	Risk
Arsenic	2.6E-08	1.8E+00	4.7E-08
Chromium	6.0E-07		
Lead	7.3E-07		
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00
Bis-(2-Ethylhexyl)phthalate	7.4E-10	3.3E-02	2.4E-11
Carbazole	0.0E+00		
Chrysene	0.0E+00	7.4E-02	0.0E+00
Fluoranthene	0.0E+00		
Indeno(1,2,4,cd)pyrene	0.0E+00	4.7E+00	0.0E+00
Pyrene	9.9E-07		
U-Total			
		Total Pathway	4.7E-08

External Radiation/Sediment

Compound	Intake	SF(e)	Risk

Not Applicable

Total Pathway: 0.0E+00

Total
2.4E-07
6.8E-09
4.2E-08
1.1E-08
2.5E-09
3.5E-11
2.4E-10
1.6E-08
3.2E-07

Total 1.0E-05

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TABLE B.3.4-30(a) (continued)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion of Sediment					Dermal Contact/Sediment	External Radiation/Sediment			Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard		Compoun	Intake	RfD(e)	Hazard	
CS-137	2.6E-01	7.7E+00								
NP-237	1.2E+00	3.6E+01								
PU-238	7.7E-01	2.3E+01								
PU-239/240	8.2E-02	2.5E+00								
RA-226	1.4E+00	4.2E+01								
RA-228	1.7E+00	5.0E+01								
SR-90	9.5E-01	2.8E+01								
TH-228	1.6E+00	4.9E+01			Not Applicable	Not Applicable				
TH-230	6.5E+00	1.9E+02								
TH-232	1.5E+00	4.5E+01								
U-234	4.2E+01	1.3E+03								
U-235/236	2.8E+00	8.5E+01								
U-238	7.7E+01	2.3E+03								
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Risk

Ingestion of Sediment					Dermal Contact/Sediment				External Radiation/Sediment	
Compound	onc'n (mg/kg	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm	Hazard		
Arsenic	6.7E+00	2.6E-07	3.0E-04	8.7E-04	Arsenic	6.0E-08	2.9E-04	2.1E-04		1.1E-03
Chromium	1.6E+01	6.1E-07	5.0E-03	1.2E-04	Chromium	1.4E-06	2.3E-03	6.2E-04		7.4E-04
Lead	1.9E+01	7.4E-07			Lead	1.7E-06				
Benzo(a)anthracene	3.7E-01	1.4E-08			Benzo(a)anthracene					
Benzo(a)pyrene	3.4E-01	1.3E-08			Benzo(a)pyrene					
Benzo(b)fluoranthene	7.1E-01	2.8E-08			Benzo(b)fluoranthene					
Benzo(k)fluoranthene	3.9E-01	1.5E-08			Benzo(k)fluoranthene				Not Applicable	
Bis-(2-Ethylhexyl)phthalat	4.8E-02	1.9E-09	2.0E-02	9.4E-08	Bis-(2-Ethylhexyl)phthalate	1.7E-09	1.8E-02	9.6E-08		1.9E-07
Carbazole	9.2E-08	3.6E-15			Carbazole					
Chrysene	4.5E-01	1.8E-08			Chrysene					
Fluoranthene	6.9E-01	2.7E-08	4.0E-02	6.8E-07	Fluoranthene	1.9E-06	1.7E-02	1.1E-04		1.1E-04
Indeno(1,2,4,cd)pyrene	4.8E-01	1.9E-08			Indeno(1,2,4,cd)pyrene					
Pyrene	8.5E-01	3.3E-08	3.0E-02	1.1E-06	Pyrene	2.3E-06	1.3E-02	1.8E-04		1.8E-04
U-TOTAL	2.3E+02	8.8E-06	3.0E-03	2.9E-03	U-TOTAL	2.0E-05	1.5E-04	1.4E-01		1.4E-01
			Total Pathway:	3.9E-03			Total Pathway:	1.4E-01	Total Pathway: 0.0E+00	
									Total Rad + Chem:	1.4E-01

TABLE B.3.4-30(b)
FUTURE, GREAT MIAMI RIVER USER, YOUTH
SOLID WASTE LANDFILL: SEDIMENT
Carcinogenic Risk

Radiation Risk

Ingestion of Sediment

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	2.6E-01	3.1E+00	2.8E-11	8.6E-11
NP-237	1.2E+00	1.4E+01	2.2E-10	3.1E-09
PU-238	7.7E-01	9.3E+00	2.2E-10	2.0E-09
PU-239/240	8.2E-02	9.8E-01	2.3E-10	2.3E-10
RA-226	1.4E+00	1.7E+01	1.2E-10	2.0E-09
RA-228	1.7E+00	2.0E+01	1.0E-10	2.0E-09
SR-90	9.5E-01	1.1E+01	3.6E-11	4.1E-10
TH-228	1.6E+00	1.9E+01	5.5E-11	1.1E-09
TH-230	6.5E+00	7.8E+01	1.3E-11	1.0E-09
TH-232	1.5E+00	1.8E+01	1.2E-11	2.2E-10
U-234	4.2E+01	5.0E+02	1.6E-11	8.1E-09
U-235/236	2.8E+00	3.4E+01	1.6E-11	5.4E-10
U-238	7.7E+01	9.3E+02	2.8E-11	2.6E-08
			Total Pathway:	4.7E-08

Dermal Contact/Sediment

Not Applicable

Total Pathway: 0.0E+00

External Radiation/Sediment

Compound	Intake	SF(e)	Risk
CS-137	5.4E-02	2.0E-06	1.1E-07
NP-237	2.5E-01	4.3E-07	1.1E-07
PU-238	1.6E-01	2.8E-11	4.6E-12
PU-239/240	1.7E-02	2.7E-11	4.7E-13
RA-226	2.9E-01	1.2E-08	3.5E-09
RA-228	3.6E-01	2.9E-06	1.0E-06
SR-90	2.0E-01	0.0E+00	0.0E+00
TH-228	3.4E-01	5.6E-06	1.9E-06
TH-230	1.4E+00	5.4E-11	7.4E-11
TH-232	3.2E-01	2.6E-11	8.3E-12
U-234	8.9E+00	3.0E-11	2.7E-10
U-235/236	6.0E-01	2.4E-07	1.4E-07
U-238	1.6E+01	3.6E-08	5.9E-07
		Total Pathway:	3.9E-06

Total

Total
1.1E-07
1.1E-07
2.0E-09
2.3E-10
5.5E-09
1.0E-06
4.1E-10
1.9E-06
1.1E-09
2.3E-10
8.3E-09
1.4E-07
6.1E-07
3.9E-06

Chemical Risk

Ingestion of Sediment

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	6.7E+00	7.3E-08	1.8E+00	1.3E-07
Chromium	1.6E+01	1.7E-07		
Lead	1.9E+01	2.1E-07		
Benzo(a)anthracene	3.7E-01	4.0E-09	1.1E+00	4.4E-09
Benzo(a)pyrene	3.4E-01	3.7E-09	7.3E+00	2.7E-08
Benzo(b)fluoranthene	7.1E-01	7.8E-09	9.0E-01	7.0E-09
Benzo(k)fluoranthene	3.9E-01	4.2E-09	3.8E-01	1.6E-09
Bis-(2-Ethylhexyl)phthalat	4.8E-02	5.2E-10	1.4E-02	7.3E-12
Carbazole	9.2E-08	1.0E-15		
Chrysene	4.5E-01	4.9E-09	3.2E-02	1.6E-10
Fluoranthene	6.9E-01	7.5E-09		
Indeno(1,2,4,cd)pyrene	4.8E-01	5.2E-09	2.0E+00	1.0E-08
Pyrene	8.5E-01	9.3E-09		
U-Total	2.3E+02	2.5E-06		
			Total Pathway:	1.8E-07

Dermal Contact/Sediment

Compound	Intake	SF(derm)	Risk
Arsenic	1.2E-08	1.8E+00	2.3E-08
Chromium	2.8E-07		
Lead	3.5E-07		
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00
Bis-(2-Ethylhexyl)phthalate	3.5E-10	3.3E-02	1.1E-11
Carbazole	0.0E+00		
Chrysene	0.0E+00	7.4E-02	0.0E+00
Fluoranthene	0.0E+00		
Indeno(1,2,4,cd)pyrene	0.0E+00	4.7E+00	0.0E+00
Pyrene	4.7E-07		
U-Total	4.1E-06		
		Total Pathway:	2.3E-08

Not Applicable

Total Pathway 0.0E+00 2.0E-07

Total Rad + Chem: 4.1E-06

Total

Total
1.5E-07
4.4E-09
2.7E-08
7.0E-09
1.6E-09
1.9E-11
1.6E-10
1.0E-08

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TABLE B.3.4-30(b) (continued)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Sediment					Dermal Contact/Sediment	External Radiation	Total
Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard			
CS-137	2.6E-01	3.1E+00					
NP-237	1.2E+00	1.4E+01					
PU-238	7.7E-01	9.3E+00					
PU-239/240	8.2E-02	9.8E-01					
RA-226	1.4E+00	1.7E+01					
RA-228	1.7E+00	2.0E+01			Not Applicable	Not Applicable	
SR-90	9.5E-01	1.1E+01					
TH-228	1.6E+00	1.9E+01					
TH-230	6.5E+00	7.8E+01					
TH-232	1.5E+00	1.8E+01					
U-234	4.2E+01	5.0E+02					
U-235/236	2.8E+00	3.4E+01					
U-238	7.7E+01	9.3E+02					
		Total Pathway:		0.0E+00	Total Pathway:	0.0E+00	Total Pathway: 0.0E+00	

Chemical Hazard

Ingestion/Sediment					Dermal Contact/Sediment			External Radiation	
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(derm)	Hazard	
Arsenic	6.7E+00	4.2E-07	3.0E-04	1.4E-03	Arsenic	7.1E-08	2.9E-04	2.5E-04	1.7E-03
Chromium	1.6E+01	9.9E-07	5.0E-03	2.0E-04	Chromium	1.7E-06	2.3E-03	7.4E-04	9.3E-04
Lead	1.9E+01	1.2E-06			Lead	2.0E-06			
Benzo(a)anthracene	3.7E-01	2.3E-08			Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	3.4E-01	2.2E-08			Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	7.1E-01	4.5E-08			Benzo(b)fluoranthene	0.0E+00			
Benzo(k)fluoranthene	3.9E-01	2.5E-08			Benzo(k)fluoranthene	0.0E+00			
Bis-(2-Ethylhexyl)phthalate	4.8E-02	3.1E-09	2.0E-02	1.5E-07	Bis-(2-Ethylhexyl)phthalate	2.1E-09	1.8E-02	1.1E-07	2.7E-07
Carbazole	9.2E-08	5.8E-15			Carbazole	0.0E+00			
Chrysene	4.5E-01	2.9E-08			Chrysene	0.0E+00			
Fluoranthene	6.9E-01	4.4E-08	4.0E-02	1.1E-06	Fluoranthene	2.2E-06	1.7E-02	1.3E-04	1.3E-04
Indeno(1,2,4,cd)pyrene	4.8E-01	3.1E-08			Indeno(1,2,4,cd)pyrene	0.0E+00			
Pyrene	8.5E-01	5.4E-08	3.0E-02	1.8E-06	Pyrene	2.7E-06	1.3E-02	2.1E-04	2.1E-04
U-Total	2.3E+02	1.4E-05	3.0E-03	4.8E-03	U-Total	2.4E-05	1.5E-04	1.6E-01	1.7E-01
		Total Pathway:		6.4E-03		Total Pathway:		1.6E-01	Total Pathway: 0.0E+00 1.7E-01
									Total Rad + Chem: 1.7E-01

TABLE 3.5-2(a)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
LIME SLUDGE PONDS: Surface Soil

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Fit. Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	N	12	12	4070	12800			9111	10962	-	-	--	N	a,b	10962	-
Arsenic	mg/kg	N	12	12	3.5	9.5			6.350	7.190	-	-	0.060	Y		7.190	0.005
Barium	mg/kg	L	12	12	63.3	101			-	-	86.44	93.71	550.0	N	h	93.709	260.000
Beryllium	mg/kg	N	12	10	0.47	2	0.175	0.35	1.206	1.518	-	-	0.030	Y		1.518	0.002
Cadmium	mg/kg	U	12	7	0.96	1.2	0.23	0.95	0.849	-	-	-	3.900	Y		1.200	1.800
Calcium	mg/kg	L	12	12	20100	350000			-	-	155165	415003	--	N	a	350000	--
Chromium	mg/kg	N	12	10	5.1	20.1	1.75	1.9	13.196	16.579	-	-	39.000	Y		16.579	18.000
Cobalt	mg/kg	N	12	10	4.1	13.8	0.55	1.9	7.554	9.707	-	-	--	N	h	9.707	c
Copper	mg/kg	U	12	12	16.5	36			22.942	-	-	-	290.000	N	b	36.000	140.000
Iron	mg/kg	N	12	12	3960	23300			14276	18339	-	-	--	N	a,b	18339	--
Lead	mg/kg	N	12	12	1.5	52.7			19	28	-	-	--	Y		27.563	d; 1.5
Magnesium	mg/kg	N	12	12	8160	27500			16301	19142	-	-	--	N	a	19142	-
Manganese	mg/kg	U	12	12	523	1210			682	-	-	-	39.000	N	h	1210	18.000
Mercury	mg/kg	U	12	1	0.27	0.27	0.055	0.09	0.082	-	-	-	2.300	N	h	0.270	1.100
Molybdenum	mg/kg	U	12	1	1.6	1.6	0.5	1.9	0.971	-	-	-	39.000	N	b	1.600	18.000
Nickel	mg/kg	U	12	10	5.2	22.1	3.5	3.85	14.313	-	-	-	160.000	N	h	22.100	73.000
Potassium	mg/kg	U	12	10	58.7	2080	31.5	81	1012	1414	-	-	--	N	a,b	1414	--
Selenium	mg/kg	N	12	2	0.26	0.37	0.115	0.37	0.200	-	-	-	39.000	N	h	0.370	18.000
Silicon	mg/kg	U	12	12	785	3550			1481.4	-	-	-	--	N	b	3550	c
Sodium	mg/kg	U	12	12	90.1	410			191.0	238.190	-	-	--	N	a	238.19	
TH-TOTAL	mg/kg	N	12	12	0.34	25.1			9.746	-	-	-	--	Y		25.100	e
U-TOTAL	mg/kg	U	11	11	2.45	244			-	-	55.536	214.323	23.000	Y		214.32	10.000
Vanadium	mg/kg	L	12	12	3.6	31	1.9	1.9	21.008	26.250	-	-	55.000	N	b	26.250	26.000
Zinc	mg/kg	N	12	11	33.6	96.6	10.9	10.9	51.267	62.195	-	-	2300	N	h	62.195	1100.000
Acetone	mg/kg	N	12	11	0.002	0.002	0.006	0.047	0.010	-	-	-	780	N	h	0.002	370.000
Anthracene	mg/kg	U	12	1	0.001	0.24	0.2	0.345	0.230	-	-	-	2300	N	b	0.240	1100.000
Aroclor-1254	mg/kg	U	12	3	0.043	0.59	0.02	0.0355	0.080	-	-	-	0.013	Y		0.59	0.001
Benzo(a)anthracene	mg/kg	U	12	3	0.001	0.91	0.2	0.345	0.328	-	-	-	0.160	Y		0.910	0.011
Benzo(a)pyrene	mg/kg	U	12	3	0.001	1.1	0.2	0.345	0.360	-	-	-	0.016	Y		1.100	0.001
Benzo(b)fluoranthene	mg/kg	U	12	3	0.002	1	0.2	0.345	0.340	-	-	-	0.011	Y		1.000	0.011
Benzo(g,h,i)perylene	mg/kg	U	12	1	0.63	0.63	0.195	0.345	0.290	-	-	-	--	Y		0.630	c
Benzo(k)fluoranthene	mg/kg	U	12	3	0.002	0.8	0.2	0.345	0.321	-	-	-	1.600	Y		0.800	0.110
bis(2-Ethylhexyl) phthalate	mg/kg	U	12	8	0.078	10	0.195	0.205	1.156	-	-	-	8.500	Y		10.000	0.570
Carbazole	mg/kg	U	12	2	0.071	0.14	0.195	0.345	0.233	-	-	-	6.000	Y		0.140	0.400
Chrysene	mg/kg	U	12	4	0.002	1.1	0.2	0.345	0.338	-	-	-	1600.000	Y		1.100	110.000
Cyanide	mg/kg	L	10	7	0.15	0.82	0.06	0.095	-	-	0.346	0.896	160 000	N	h	0.820	73.000
Di-n-butyl phthalate	mg/kg	U	12	2	0.042	0.12	0.195	0.345	0.219	-	-	-	780.000	N	h	0.120	370 000
Di-n-octyl phthalate	mg/kg	U	8	1	0.087	0.087	0.2	0.345	0.248	-	-	-	160 000	N	h	0.087	73 000

TABLE 3.5-2(a) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPC)
LIME SLUDGE PONDS: Surface Soil

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Dibenzo(a,h)anthracene	mg/kg	U	12	2	0.24	0.32	0.195	0.345	0.263	-	-	-	0.016	Y		0.320	0.001
Dibenzofuran	mg/kg	U	12	1	0.042	0.042	0.195	0.345	0.236	-	-	-	--	Y		0.042	c
Fluoranthene	mg/kg	U	12	4	0.003	2.1	0.2	0.345	0.472	-	-	-	310.000	N	b	2.100	150.000
Fluorene	mg/kg	U	12	1	0.079	0.079	0.195	0.345	0.239	-	-	-	310.000	N	b	0.079	220.000
Indeno(1,2,3-cd)pyrene	mg/kg	U	12	2	0.58	0.72	0.195	0.345	0.324	-	-	-	0.160	Y		0.720	0.011
Phenanthrene	mg/kg	U	12	3	0.001	1.6	0.2	0.345	0.386	-	-	-	--	Y		1.600	c
Pyrene	mg/kg	U	12	4	0.003	1.9	0.2	0.345	0.438	-	-	-	230.000	N	b	1.900	110.000
Toluene	mg/kg	U	12	3	0.004	0.017	0.006	0.047	0.011	-	-	-	1600.000	N	b	0.017	75.000
CS-137	pci/g	L	12	9	0.064	0.89	0.0355	0.045	-	-	0.273	0.702	0.007	Y		0.702	0.170
GROSS ALPHA	pci/g	L	12	10	12.9	143	4.72	4.75	-	-	51.123	149.584	--	N	c,e	145.00	--
GROSS BETA	pci/g	L	12	12	7.74	408			-	-	43.608	82 903	--	N	c,e	82.903	--
NP-237	pci/g	L	12	12	0.04	0.72			-	-	0.271	0.773	0.031	Y		0.720	0.022
PU-238	pci/g	L	12	10	0.04	0.662	0.009	0.015	-	-	0.161	0.576	0.360	Y		0.576	0.022
PU-239/240	pci/g	L	12	10	0.03	0.2	0.009	0.015	-	-	0.067	0.135	0.340	Y		0.135	0.021
RA-226	pci/g	N	12	10	0.205	3.47	0.1	0.105	1.324	1.919	-	-	0.002	Y		1.919	0.040
RA-228	pci/g	N	12	8	0.709	2.92	0.18	0 23	1.146	1.639	-	-	0.005	Y		1.639	0.048
SR-90	pci/g	U	11	2	0.508	0.785	0.0795	0.3135	0.270	-	-	-	2.200	Y		0.785	0.130
TH-228	pci/g	U	11	10	0.082	2.91	0.155	0.155	1.062	-	-	-	0.003	Y		2.910	0.087
TH-230	pci/g	L	11	11	0.373	44.8			-	-	16.990	151.013	5.960	Y		44.800	0.370
TH-232	pci/g	N	10	9	0.037	2.75	0.112	0.112	0.859	1.306	-	-	6.300	Y		1.306	0.400
U-234	pci/g	L	12	12	1.08	26.5			-	-	8.904	21.003	4.900	Y		21.003	0.300
U-235/236	pci/g	L	12	12	0.025	1.83			-	-	0.557	1.743	0.060	Y		1.743	0.300
U-238	pci/g	L	12	12	0.856	84			-	-	16.855	71.388	0.360	Y		71.388	0.170

L = logoormal N = normal U = undefined, maximum value used as exposure point concentration

* = no background concentration available

** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.

*** = shading indicates groundwater modeling will be performed

a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 1991)

b = statistically comparable to background concentrations

c = quantitative risk assessment not possible

d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)

e = qualitative use only

f = detected only once; not detected in other subunit media

g = for use in describing general aqueous chemistry; not quantitated in risk assessment

h = below soil screening level

i = low toxicity by expected exposure route

Table 3.5-2(b)
CONSITIUENTS OF POTENTIAL CONCERN (CPC)
Lime Sludge Pits: Waste Material

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling / Screen Conc. (pCi/L rad; ug/L non-rad)
Aluminum	mg/kg	N	28	28	2700	19700			9377	11007	-	-	--	N	a,b	11007	--
Antimony	mg/kg	U	27	4	20	29.2	0.115	12.85	4.74	-	-	-	3.1	N	b	23.800 *	1.5
Arsenic	mg/kg	N	28	28	1.7	11.2			6.06	6.81	-	-	0.06	Y		6.814	0.005
Barium	mg/kg	L	28	28	42.4	166			-	-	85.84	96.25	550.0	N	h	96.248	260.0
Beryllium	mg/kg	N	28	20	0.4	1.8	0.06	0.415	0.8445	1.0204	-	-	0.03	Y		1.020	0.002
Boron	mg/kg	U	2	2	28.9	37			32.95	-	-	-	700.0	N	i	37.000	330.0
Cadmium	mg/kg	L	28	15	0.65	4	0.34	1.05	-	-	1.0828	1.3119	3.9	Y		1.312	1.8
Calcium	mg/kg	U	28	28	9780	353000			163053	-	-	-	--	N	a,b	350000 *	--
Chromium	mg/kg	U	28	24	2.2	28.2	1.75	3	13.60	-	-	-	39.0	Y		28.1 *	18.0
Cobalt	mg/kg	N	28	22	3.7	30.2	0.55	2.05	8.32	10.33	-	-	--	N	b	10.333	c
Copper	mg/kg	N	28	23	8.4	44.6	1.05	9.05	21.24	24.95	-	-	290.0	N	h	24.954	140.0
Iron	mg/kg	U	27	27	3240	48100			15996	-	-	-	--	N	a,b	28200 *	--
Lead	mg/kg	U	28	26	0.77	240	0.225	0.405	21.51	-	-	-	--	Y		104 *	d; 1.5
Magnesium	mg/kg	L	28	28	4950	40300			-	-	15251	17784	--	N	a,b	17784	--
Manganese	mg/kg	U	28	28	401	1020			604	-	-	-	39.0	Y		974.000 •	18.0
Mercury	mg/kg	U	28	4	0.21	2.3	0.04	0.11	0.1705	-	-	-	2.3	Y		0.440 *	1.1
Molybdenum	mg/kg	U	28	5	1.6	9.7	0.5	2.55	1.9268	-	-	-	39.0	N	b	8.200 *	18.0
Nickel	mg/kg	N	28	21	5.2	46.7	2.15	4.15	15.7857	19.1498	-	-	160.0	N	b	19.150	73.0
Potassium	mg/kg	U	28	19	58.7	3010	10.75	655	969	-	-	-	--	N	a,b	2320 *	--
Selenium	mg/kg	U	28	2	0.26	0.29	0.11	2	0.3241	-	-	-	39.0	N	b	0.260 *	18.0
Silicon	mg/kg	U	28	28	150	7220			2197	-	-	-	--	N	i	5940 *	c
Silver	mg/kg	U	28	3	7.1	22	0.225	2.05	2.4164	-	-	-	39.0	N	b	21.700 *	18.0
Sodium	mg/kg	L	28	28	70	1620			-	-	261.2	349	--	N	a	349	
TH-TOTAL	mg/kg	U	25	22	0.34	10.3	0.5	1.135	4.97	-	-	-	--	Y		9.840 •	c
Thallium	mg/kg	U	27	4	0.22	0.51	0.115	0.37	0.2130	-	-	-	0.6	N	b	0.330 *	0.26
U-TOTAL	mg/kg	N	28	28	2.08	45			17.14	20.56	-	-	23.0	Y		20.564	10.0
Vanadium	mg/kg	N	28	26	3.4	42.2	1.25	1.9	20.31	24.23	-	-	55.0	N	b	24.234	26.0
Zinc	mg/kg	N	27	26	8.2	122	10.9	10.9	49.28	58.52	-	-	2300.0	N	b	58.521	1100.0
Cyanide	mg/kg	U	22	9	0.11	1.7	0.06	0.12	0.241	-	-	-	160.0	N	h	0.820 *	73.0
Aroclor-1254	mg/kg	U	29	1	0.043	0.043	0.018	0.19	0.037	-	-	-	0.013	Y		0.043	0.001
Anthracene	mg/kg	U	29	3	0.001	0.082	0.18	0.8	0.266	-	-	-	2300.0	N	h	0.056 *	1100.0
Benzo(a)anthracene	mg/kg	U	29	2	0.001	0.61	0.18	0.8	0.296	-	-	-	0.16	Y		0.001 *	0.011
Benzo(a)pyrene	mg/kg	U	29	2	0.001	0.35	0.18	0.8	0.287	-	-	-	0.016	Y		0.001 *	0.0011
Benzo(b)fluoranthene	mg/kg	U	29	2	0.002	0.5	0.18	0.8	0.292	-	-	-	0.011	Y		0.002 *	0.011
Benzo(g,h,i)perylene	mg/kg	U	29	1	0.17	0.17	0.18	0.8	0.287	-	-	-	--	Y		0.170	e
Benzo(k)fluoranthene	mg/kg	U	29	2	0.002	0.45	0.18	0.8	0.290	-	-	-	1.6	Y		0.002 *	0.011
bis(2-Ethylhexyl) phthalate	mg/kg	L	29	16	0.078	10	0.18	0.8	-	-	0.4211	0.6547	8.5	Y		0.655	0.57
Chrysene	mg/kg	U	29	3	0.002	0.66	0.18	0.8	0.292	-	-	-	1600.0	Y		0.043 *	110.0

Table 3.5-2(b) (continued)
CONSITIUENTS OF POTENTIAL CONCERN (CPC)
Lime Sludge Pits: Waste Material

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	Region III** Residential Soil (mg/kg; pCi/g)	*** CPC	Reason for Elimination	Conc Term	Groundwater Modelling Screen Conc. (pCi/L rad; ug/L non-rad)
Di-n-butyl phthalate	mg/kg	U	29	3	0.072	0.14	0.18	0.8	0.266	-	-	-	780.0	N	h	0.120 *	370.0
Di-n-octyl phthalate	mg/kg	U	25	1	0.087	0.087	0.18	0.8	0.295	-	-	-	160.0	N	h	0.087	73.0
Dibenzo(a,h)anthracene	mg/kg	U	29	1	0.11	0.11	0.18	0.8	0.285	-	-	-	0.016	Y		0.110	0.001
Fluoranthene	mg/kg	U	29	4	0.003	1.3	0.18	0.8	0.310	-	-	-	310.0	N	h	0.074 *	150.0
Indeno(1,2,3-cd)pyrene	mg/kg	U	29	1	0.21	0.21	0.18	0.8	0.289	-	-	-	0.16	Y		0.210	0.011
Phenanthrene	mg/kg	U	29	3	0.001	0.25	0.18	0.8	0.273	-	-	-	--	Y		0.082 *	c
Pyrene	mg/kg	U	29	4	0.003	1	0.18	0.8	0.299	-	-	-	230.0	N	h	0.061 *	110.0
1,1,2Trichlorotrifluoroetha	mg/kg	U	1	1	0.02	0.02	0	0	0.020	-	-	-	700.0	N	h	0.020	130.0
1,1-Dichloroethane	mg/kg	U	28	1	0.005	0.005	0.004	0.047	0.009	-	-	-	780.0	N	f,h	0.005	81.0
1,2-diethylbenzene	mg/kg	U	1	1	0.041	0.041	0	0	0.041	-	-	-	--	Y		0.041	c
2-Butanone	mg/kg	U	28	1	0.005	0.005	0.0055	0.047	0.009	-	-	-	4700.0	N	f,h	0.005	2200.0
2-Hexanone	mg/kg	U	28	1	0.002	0.002	0.0055	0.047	0.009	-	-	-	--	N	f,h	0.002	c
Acetone	mg/kg	U	28	4	0.002	0.038	0.0055	0.047	0.011	-	-	-	780.0	N	h	0.034 *	370.0
Acetonitrile	mg/kg	U	3	1	0.2	0.2	0.0165	0.0235	0.080	-	-	-	47.0	Y		0.200	22.0
Acrylonitrile	mg/kg	U	1	1	0.2	0.2	0	0	0.200	-	-	-	0.22	Y		0.200	0.015
Hexane	mg/kg	U	1	1	0.02	0.02	0	0	0.020	-	-	-	470.0	Y		0.020	35.0
Iodomethane	mg/kg	U	3	1	0.02	0.02	0.0085	0.0115	0.013	-	-	-	--	Y		0.020	c
Methylene chloride	mg/kg	U	28	1	0.031	0.031	0.004	0.047	0.010	-	-	-	16.0	N	f,h	0.031	0.51
Toluene	mg/kg	U	28	3	0.002	0.005	0.004	0.047	0.008	-	-	-	1600.0	N	h	0.004 *	75.0
CS-137	pci/g	L	28	14	0.029	0.339	0.0029	0.1	-	-	0.1080	0.1646	0.007	Y		0.165	0.17
GROSS ALPHA	pci/g	L	28	21	5.66	99.65	4.15	4.82	-	-	21.2877	31.8658	--	N	c,e	31.866	--
GROSS BETA	pci/g	U	28	25	5.7	57.1	2.885	3.17	22.01	-	-	-	--	N	c,e	42.740 *	--
NP-237	pci/g	L	20	20	0.04	0.59			-	-	0.2054	0.3383	0.031	Y		0.338	0.022
PU-238	pci/g	L	28	17	0.03	0.662	0.009	0.3	-	-	0.1244	0.2088	0.360	Y		0.209	0.022
PU-239/240	pci/g	L	26	17	0.013	0.2	0.009	0.235	-	-	0.0604	0.0840	0.340	Y		0.084	0.021
RA-226	pci/g	L	28	25	0.205	3.48	0.1	0.15	-	-	0.9646	1.4224	0.002	Y		1.422	0.040
RA-228	pci/g	U	28	16	0.59	1.8	0.18	0.25	0.753	-	-	-	0.005	Y		1.470 *	0.048
SR-90	pci/g	U	27	3	0.508	0.959	0.065	0.314	0.226	-	-	-	2.200	Y		0.841 *	0.130
TC-99	pci/g	U	26	2	0.89	1.79	0.025	0.324	0.285	-	-	-	60.800	Y		0.890 *	0.270
TH-228	pci/g	U	25	21	0.082	1.54	0.0565	0.300	0.682	-	-	-	0.003	Y		1.460 *	0.087
TH-230	pci/g	L	26	24	0.294	44.8	0.3	0.6	-	-	3.99	7.7502	5.960	Y		7.750	0.370
TH-232	pci/g	U	25	21	0.037	1.13	0.112	0.3	0.543	-	-	-	6.300	Y		1.070 *	0.400
U-234	pci/g	L	28	28	0.866	13.4			-	-	3.97	5.3481	4.900	Y		5.348	0.300
U-235/236	pci/g	L	28	26	0.025	0.96	0.3	0.3	-	-	0.2667	0.3756	0.060	Y		0.376	0.300
U-238	pci/g	L	28	28	0.712	14.8			-	-	4.58	6.5347	0.360	Y		6.535	0.170

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Table 3.5-2(b) (continued)
CONSITIUENTS OF POTENTIAL CONCERN (CPC)
Lime Sludge Pits: Waste Material

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration
* = used non-parametric 95th percentile to represent 95% UCL for Undefined Distributions
** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.
*** = shading indicates groundwater modeling will be performed
a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment Guidance for Superfund, Aug. 16, 199
b = statistically comparable to background concentrations
c = quantitative risk assessment not possible
d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)
e = qualitative use only
f = detected only once; not detected in other subunit media
g = for use in describing general aqueous chemistry; not quantitated in risk assessment
h = below soil screening level
i = low toxicity by expected exposure route

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Table 3.5-2(c)
CONSTITUENTS OF POTENTIAL CONCERN (CPCs)
LIME SLUDGE PONDS: Perched Groundwater

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	*** CPC	Reason for Elimination	Conc Term
Aluminum	ug/l	U	7	7	90.40	49800			12553	-	-	-	N	a	49800
Arsenic	ug/l	L	7	5	2.20	14.00	1	1	-	-	5.4	50	Y		14.0
Barium	ug/l	L	7	7	108.00	444.00			-	-	211	322	N	k	321.6
Beryllium	ug/l	U	7	2	1.90	6.80	0.4	2	1.7	-	-	-	Y		6.8
Cadmium	ug/l	U	7	1	6.20	6.20	2	5	2.1	-	-	-	N	k	6.2
Calcium	ug/l	L	7	7	96000	781000			-	-	312770	730443	N	a	730443
Chromium	ug/l	U	7	4	12.00	63.90	4	5	19	-	-	-	Y		63.9
Cobalt	ug/l	U	7	2	9.40	48.10	3	16	11	-	-	-	Y		48.1
Copper	ug/l	U	7	3	9.00	328.00	2	20	67	-	-	-	N	k	328.0
Iron	ug/l	U	7	6	40.20	94800	17	17	23417	-	-	-	N	a	94800
Lead	ug/l	U	7	4	10.50	51.40	1	2.1	14	-	-	-	Y		51
Magnesium	ug/l	L	7	7	56400	325000			-	-	120456	234620	N	a	234620
Manganese	ug/l	L	7	7	99.00	3060			-	-	1272	7946	Y		3060
Molybdenum	ug/l	U	7	4	6.20	14.20	4	10	8	-	-	-	N	k	14.2
Nickel	ug/l	N	7	5	27.50	108.00	3	3	34	60	-	-	N	k	60.5
Potassium	ug/l	L	7	6	837	12000	2980	2980	-	-	4669	17181	N	a	12000
Silicon	ug/l	L	7	7	5950	71300			-	-	25364	99655	N	i	71300
Sodium	ug/l	L	7	7	12300	156000			-	-	76313	408278	N	a	156000
TH-TOTAL	ug/l	U	16	5	6.830	23.900	1.120	12.000	5.476	-	-	-	Y		23.900
U-TOTAL	ug/l	L	22	21	1.000	58.000	2.000	2.000	-	-	12.523	23.526	Y		23.526
Vanadium	ug/l	U	7	4	27.400	125.000	2.100	10.900	32.743	-	-	-	N	k	125.000
Zinc	ug/l	U	7	4	64.200	284.000	2.900	20.300	75.886	-	-	-	N	k	284.000
Alkalinity	ug/l	N	6	6	245000	437900			322983	386075	-	-	N	g	386075
Ammonia	ug/l	U	18	7	120.000	500.000	100.000	300.000	131.111	-	-	-	N	g	500
Chloride	ug/l	L	18	17	44070	1095000	37000	37000	-	-	395029	968649	N	g	968649
Fluoride	ug/l	L	18	18	160	3500			-	-	611	975	N	g	975
Nitrate	ug/l	U	11	4	120	490	100	100	120.909	-	-	-	N	g	490
Phenols	ug/l	U	17	7	11.000	25.000	5.000	50.000	12.441	-	-	-	N	g	25
Phosphorus	ug/l	L	11	9	20.000	872.000	20.000	50.000	-	-	223.531	1361	N	g	872
Sulfate	ug/l	N	16	16	56000	147500	0.000	0.000	104763	118478	-	-	N	g	118478
Sulfide	ug/l	U	6	1	1350	1350	500	500	433	-	-	-	N	g	1350
bis(2-Ethylhexyl) phthalate	ug/l	U	6	2	1.000	2.000	10.000	10.000	3.833	-	-	-	Y		2.000
Phenol	ug/l	U	7	1	0.050	0.050	10.000	10.000	4.293	-	-	-	N	k	0.050
GROSS ALPHA	pci/l	U	8	3	23.800	42.800	10.200	30.300	17.164	-	-	-	N	c,e	42.800
GROSS BETA	pci/l	U	8	3	15.300	31.600	6.000	22.800	12.094	-	-	-	N	c,e	31.600
NP-237	pci/l	U	17	3	0.149	0.839	0.150	1.000	0.401	-	-	-	Y		0.839
RA-226	pci/l	U	19	6	0.210	1.400	0.378	1.000	0.503	-	-	-	Y		1.400
RA-228	pci/l	U	18	2	3.680	3.800	1.290	3.000	1.545	-	-	-	Y		3.800
SR-90	pci/l	U	19	1	3.450	3.450	0.610	5.000	1.675	-	-	-	Y		3.450

Table 3.5-2(c) (continued)
CONSTITUENTS OF POTENTIAL CONCERN (CPCs)
LIME SLUDGE PONDS: Perched Groundwater

PARAMETER	Units	Dist	Samples	Hits	MinHit	MaxHit	MinSQL	MaxSQL	Mean	UCL(N)	Est.Mean	UCL(L)	*** CPC	Reason for Elimination	Conc Term
TH-228	pci/l	U	19	6	0.780	2.870	0.227	1.000	0.767	-	-	-	Y		2.870
TH-230	pci/l	U	19	8	1.290	6.670	0.123	1.000	1.245	-	-	-	Y		6.670
TH-232	pci/l	U	19	4	0.740	2.600	0.122	1.000	0.618	-	-	-	Y		2.600
U-234	pci/l	L	17	14	0.500	11.020	1.000	1.000	-	-	2.872	5.161	Y		5.161
U-235/236	pci/l	U	19	8	0.076	0.700	0.300	1.000	0.368	-	-	-	Y		0.700
U-238	pci/l	L	19	16	0.300	11.810	1.000	1.000	-	-	3.379	6.163	Y		6.163

L = lognormal N = normal U = undefined, maximum value used as exposure point concentration
• = no background concentration available
** = radioactive soil screening level calculated according to RAGS Part B (EPA, 1991). Non radionuclide values taken from EPA Region III (EPA 1993) for 10E-7 risk or 0.1 hazard.
*** = shading indicates groundwater modeling will be performed
a = aluminum, calcium, magnesium, potassium, iron & sodium are not associated with toxicity to humans under normal circumstances (EPA Region 10, Supplemental Risk Assessment G
b = statistically comparable to background concentrations
c = quantitative risk assessment not possible
d = based on lead action level of 15 ug/L (Drinking Water Regulations and Health Advisories; EPA 1993)
e = qualitative use only
f = detected only once; not detected in other subunit media
g = for use in describing general aqueous chemistry; not quantitated in risk assessment
h = below soil screening level
i = low toxicity by expected exposure route

TABLE B.3.5-4
CURRENT, TRESPASSING YOUTH
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.05E-05	2.2E-02	1.9E-11	4.1E-13
NP-237	1.08E-05	2.2E-02	2.9E-08	6.5E-10
PU-238	8.64E-06	1.8E-02	3.9E-08	7.0E-10
PU-239/240	2.03E-06	4.2E-03	3.8E-08	1.6E-10
RA-226	2.88E-05	6.0E-02	3.0E-09	1.8E-10
RA-228	2.46E-05	5.1E-02	6.9E-10	3.5E-11
SR-90	1.18E-05	2.4E-02	6.2E-11	1.5E-12
TH-228	4.37E-05	9.1E-02	7.8E-08	7.1E-09
TH-230	6.72E-04	1.4E+00	2.9E-08	4.0E-08
TH-232	1.96E-05	4.1E-02	2.8E-08	1.1E-09
U-234	3.15E-04	6.5E-01	2.6E-08	1.7E-08
U-235/236	2.61E-05	5.4E-02	2.5E-08	1.4E-09
U-238	1.07E-03	2.2E+00	5.2E-08	1.2E-07
			Total Pathway:	1.8E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.702	1.1E+01	2.8E-11	3.1E-10
NP-237	0.720	1.1E+01	2.2E-10	2.5E-09
PU-238	0.576	9.0E+00	2.2E-10	2.0E-09
PU-239/240	0.13	2.1E+00	2.3E-10	4.8E-10
RA-226	1.9	3.0E+01	1.2E-10	3.6E-09
RA-228	1.639	2.6E+01	1.0E-10	2.6E-09
SR-90	0.8	1.2E+01	3.6E-11	4.4E-10
TH-228	2.910	4.5E+01	5.5E-11	2.5E-09
TH-230	44.800	7.0E+02	1.3E-11	9.1E-09
TH-232	1.3	2.0E+01	1.2E-11	2.4E-10
U-234	21.003	3.3E+02	1.6E-11	5.2E-09
U-235/236	1.7	2.7E+01	1.6E-11	4.4E-10
U-238	71.388	1.1E+03	2.8E-11	3.1E-08
			Total Pathway:	6.1E-08

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk
Arsenic	1.08E-07	2.0E-10	1.5E+01	3.1E-09
Beryllium	2.28E-08	4.3E-11	8.4E+00	3.6E-10
Cadmium	1.80E-08	3.4E-11		
Chromium	2.49E-07	4.7E-10	4.1E+01	1.9E-08
Lead	4.13E-07	7.8E-10		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.21E-06	6.1E-09		
Aroclor-1254	8.85E-09	1.7E-11		
Benzo(a)anthracene	1.37E-08	2.6E-11	8.9E-01	2.3E-11
Benzo(a)pyrene	1.65E-08	3.1E-11	6.1	1.9E-10
Benzo(b)fluoranthene	1.50E-08	2.8E-11	7.5E-01	2.1E-11
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	1.20E-08	2.3E-11	3.2E-01	7.2E-12
bis(2-Ethylhexyl) phthalate	1.50E-07	2.8E-10		
Carbazole	2.10E-09	4.0E-12		
Chrysene	1.65E-08	3.1E-11	2.7E-02	8.4E-13
Dibenzo(a,h)anthracene	4.8E-09	9.1E-12	6.8E+00	6.2E-11
Dibenzofuran	0	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.08E-08	2.0E-11	1.7E+00	3.5E-11
Phenanthrene	0	0.0E+00		
			Total Pathway:	2.3E-08
			Total Rad + Chem	2.1E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.190	1.0E-07	1.8E+00	1.8E-07
Beryllium	1.518	2.2E-08	4.3E+00	9.3E-08
Cadmium	1.200	1.7E-08		
Chromium	16.58	2.4E-07		
Lead	27.6	3.9E-07		
TH-TOTAL	25.100	3.6E-07		
U-TOTAL	214.3	3.0E-06		
Aroclor-1254	0.590	8.4E-09	7.7E+00	6.5E-08
Benzo(a)anthracene	0.910	1.3E-08	1.1E+00	1.4E-08
Benzo(a)pyrene	1.100	1.6E-08	7.3E+00	1.1E-07
Benzo(b)fluoranthene	1.000	1.4E-08	9.0E-01	1.3E-08
Benzo(g,h,i)perylene	0.630	8.9E-09		
Benzo(k)fluoranthene	0.800	1.1E-08	3.8E-01	4.3E-09
bis(2-Ethylhexyl) phthalate	10.000	1.4E-07	1.4E-02	2.0E-09
Carbazole	0.140	2.0E-09	2.0E-02	4.0E-11
Chrysene	1.100	1.6E-08	3.2E-02	5.0E-10
Dibenzo(a,h)anthracene	0.320	4.5E-09	8.1E+00	3.7E-08
Dibenzofuran	0.042	6.0E-10		
Indeno(1,2,3-cd)pyrene	0.720	1.0E-08	2.0E+00	2.0E-08
Phenanthrene	1.600	2.3E-08		
			Total Pathway:	5.4E-07
			Total Rad + Chem	6.0E-07

TABLE B.3.5-4 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	2.0E-01	2.0E-06	4.0E-07	4.0E-07
	NP-237	2.1E-01	4.3E-07	8.8E-08	9.1E-08
	PU-238	1.6E-01	2.8E-11	4.6E-12	2.7E-09
	PU-239/240	3.8E-02	2.7E-11	1.0E-12	6.5E-10
	RA-226	5.5E-01	1.2E-08	6.6E-09	1.0E-08
	RA-228	4.7E-01	2.9E-06	1.4E-06	1.4E-06
	SR-90	2.2E-01	0.0E+00	0.0E+00	4.4E-10
	TH-228	8.3E-01	5.6E-06	4.6E-06	4.7E-06
	TH-230	1.3E+01	5.4E-11	6.9E-10	5.0E-08
	TH-232	3.7E-01	2.6E-11	9.7E-12	1.4E-09
	U-234	6.0E+00	3.0E-11	1.8E-10	2.2E-08
	U-235/236	5.0E-01	2.4E-07	1.2E-07	1.2E-07
	U-238	2.0E+01	3.6E-08	7.3E-07	8.8E-07
Total Pathway: 0.0E+00			Total Pathway:	7.3E-06	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	1.7E-08	1.8E+00	3.2E-08					2.1E-07
Beryllium	3.6E-08	4.3E+02	1.6E-05					1.6E-05
Cadmium	2.9E-08							
Chromium	4.0E-07							1.9E-08
Lead	6.6E-07							
TH-TOTAL	0.0E+00							
U-TOTAL	5.1E-06							
Aroclor-1254	4.2E-07	1.0E+01	4.3E-06					4.4E-06
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					1.4E-08
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	Not applicable				1.1E-07
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					1.3E-08
Benzo(g,h,i)perylene	4.5E-07							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					4.3E-09
bis(2-Ethylhexyl) phthalate	9.5E-08	1.6E-02	1.5E-09					3.5E-09
Carbazole	0.0E+00	2.0E-02	0.0E+00					4.0E-11
Chrysene	0.0E+00	7.4E-02	0.0E+00					5.0E-10
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					3.7E-08
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					2.0E-08
Phenanthrene	1.1E-06							
	Total Pathway:		2.0E-05		Total Pathway:		0.0E+00	
	Total Rad + Chem		2.0E-05				7.3E-06	*Total:* 2.8E-05

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TABLE B.3.5-4 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.05E-05	2.2E-02		
NP-237	1.08E-05	2.2E-02		
PU-238	8.64E-06	1.8E-02		
PU-239/240	2.03E-06	4.2E-03		
RA-226	2.88E-05	6.0E-02		
RA-228	2.46E-05	5.1E-02		
SR-90	1.18E-05	2.4E-02		
TH-228	4.37E-05	9.1E-02		
TH-230	6.72E-04	1.4E+00		
TH-232	1.96E-05	4.1E-02		
U-234	3.15E-04	6.5E-01		
U-235/236	2.61E-05	5.4E-02		
U-238	1.07E-03	2.2E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.70	1.1E+01		
NP-237	0.72	1.1E+01		
PU-238	0.58	9.0E+00		
PU-239/240	0.13	2.1E+00		
RA-226	1.92	3.0E+01		
RA-228	1.64	2.6E+01		
SR-90	0.79	1.2E+01		
TH-228	2.91	4.5E+01		
TH-230	44.80	7.0E+02		
TH-232	1.31	2.0E+01		
U-234	21.00	3.3E+02		
U-235/236	1.74	2.7E+01		
U-238	71.39	1.1E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	1.08E-07	1.2E-09		
Beryllium	2.28E-08	2.5E-10		
Cadmium	1.80E-08	2.0E-10		
Chromium	2.49E-07	2.7E-09		
Lead	4.13E-07	4.5E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.21E-06	3.5E-08		
Aroclor-1254	8.85E-09	9.7E-11		
Benzo(a)anthracene	1.37E-08	1.5E-10		
Benzo(a)pyrene	1.65E-08	1.8E-10		
Benzo(b)fluoranthene	1.50E-08	1.6E-10		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	1.20E-08	1.3E-10		
bis(2-Ethylhexyl) phthalate	1.50E-07	1.6E-09		
Carbazole	2.10E-09	2.3E-11		
Chrysene	1.65E-08	1.8E-10		
Dibenzo(a,h)anthracene	4.80E-09	5.3E-11		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.08E-08	1.2E-10		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.19	6.0E-07	3.0E-04	2.0E-03
Beryllium	1.52	1.3E-07	5.0E-03	2.5E-05
Cadmium	1.20	9.9E-08	1.0E-03	9.9E-05
Chromium	16.58	1.4E-06	5.0E-03	2.7E-04
Lead	27.56	2.3E-06		
TH-TOTAL	25.10	2.1E-06		
U-TOTAL	214.32	1.8E-05	3.0E-03	5.9E-03
Aroclor-1254	0.59	4.9E-08		
Benzo(a)anthracene	0.91	7.5E-08		
Benzo(a)pyrene	1.10	9.1E-08		
Benzo(b)fluoranthene	1.00	8.3E-08		
Benzo(g,h,i)perylene	0.63	5.2E-08		
Benzo(k)fluoranthene	0.80	6.6E-08		
bis(2-Ethylhexyl) phthalate	10.00	8.3E-07	2.0E-02	4.1E-05
Carbazole	0.14	1.2E-08		
Chrysene	1.10	9.1E-08		
Dibenzo(a,h)anthracene	0.32	2.7E-08		
Dibenzofuran	0.04	3.5E-09	4.0E-03	8.7E-07
Indeno(1,2,3-cd)pyrene	0.72	6.0E-08		
Phenanthrene	1.60	1.3E-07		

Total Pathway: 8.3E-03

Total Rad + Chem 0.0E+00

Total Rad + Chem 8.3E-03

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			
	Compound	Intake	RfD(e)	Hazard
Not applicable	CS-137	2.0E-01		
	NP-237	2.1E-01		
	PU-238	1.6E-01		
	PU-239/240	3.8E-02		
	RA-226	5.5E-01		
	RA-228	4.7E-01		
	SR-90	2.2E-01		
	TH-228	8.3E-01		
	TH-230	1.3E+01		
	TH-232	3.7E-01		
	U-234	6.0E+00		
	U-235/236	5.0E-01		
	U-238	2.0E+01		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	1.0E-07	2.9E-04	3.5E-04					2.3E-03
Beryllium	2.1E-07	5.0E-05	4.2E-03					4.2E-03
Cadmium	1.7E-07	5.0E-05	3.3E-03					3.4E-03
Chromium	2.3E-06	2.3E-03	1.0E-03					1.3E-03
Lead	3.8E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	3.0E-05	1.5E-04	0.2					0.2
Aroclor-1254	2.5E-06							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00			Not applicable				
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	2.6E-06							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	5.6E-07	1.8E-02	3.1E-05					7.2E-05
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					8.7E-07
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	6.7E-06							
Total Pathway:			0.2	Total Pathway:			0.0E+00	
Total Rad + Chem			0.2				0.0E+00	*Total:* 0.2

TABLE B.3.5-5(a)
CURRENT, OFF-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.24E-07	1.4E-02	1.9E-11	2.7E-13	2.7E-13
NP-237	1.28E-07	1.5E-02	2.9E-08	4.3E-10	4.3E-10
PU-238	1.02E-07	1.2E-02	3.9E-08	4.6E-10	4.6E-10
PU-239/240	2.39E-08	2.8E-03	3.8E-08	1.1E-10	1.1E-10
RA-226	3.40E-07	3.9E-02	3.0E-09	1.2E-10	1.2E-10
RA-228	2.90E-07	3.4E-02	6.6E-10	2.2E-11	2.2E-11
SR-90	1.39E-07	1.6E-02	6.2E-11	1.0E-12	1.0E-12
TC-99	0.00E+00	0.0E+00	8.3E-12	0.0E+00	0.0E+00
TH-228	5.15E-07	6.0E-02	7.8E-08	4.7E-09	4.7E-09
TH-230	7.93E-06	9.2E-01	2.9E-08	2.7E-08	2.7E-08
TH-232	2.31E-07	2.7E-02	2.8E-08	7.5E-10	7.5E-10
U-234	3.72E-06	4.3E-01	2.6E-08	1.1E-08	1.1E-08
U-235/236	3.1E-07	3.6E-02	2.5E-08	9.0E-10	9.0E-10
U-238	1.3E-05	1.5E+00	5.20E-08	7.6E-08	7.6E-08
			Total Pathway:	1.2E-07	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.3E-09	8.2E-11	1.5E+01	1.2E-09	1.2E-09
Beryllium	2.7E-10	1.7E-11	8.4E+00	1.5E-10	1.5E-10
Cadmium	2.1E-10	1.4E-11			
Chromium	2.9E-09	1.9E-10	4.1E+00	7.8E-10	7.8E-10
Lead	4.9E-09	3.2E-10			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.8E-08	2.5E-09			
Aroclor-1254	1.0E-10	6.7E-12			0.0E+00
Benzo(a)anthracene	1.6E-10	1.0E-11	8.9E-01	9.3E-12	9.3E-12
Benzo(a)pyrene	2.0E-10	1.3E-11	6.1	7.7E-11	7.7E-11
Benzo(b)fluoranthene	1.8E-10	1.1E-11	7.5E-01	8.6E-12	8.6E-12
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.4E-10	9.2E-12	3.2E-01	2.9E-12	2.9E-12
bis(2-Ethylhexyl) phthalate	1.8E-09	1.1E-10			0.0E+00
Carbazole	2.5E-11	1.6E-12			0.0E+00
Chrysene	2.0E-10	1.3E-11	2.7E-02	3.4E-13	3.4E-13
Dibenzo(a,h)anthracene	5.7E-11	3.7E-12	6.8E+00	2.5E-11	2.5E-11
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.3E-10	8.3E-12	1.7E+00	1.4E-11	1.4E-11
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.3E-09	
			Total Rad + Chem	1.2E-07	*Total:* 1.2E-07

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NON-CARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.24E-07	1.4E-02		
NP-237	1.28E-07	1.5E-02		
PU-238	1.02E-07	1.2E-02		
PU-239/240	2.39E-08	2.8E-03		
RA-226	3.40E-07	3.9E-02		
RA-228	2.90E-07	3.4E-02		
SR-90	1.39E-07	1.6E-02		
TC-99	0.00E+00	0.0E+00		
TH-228	5.15E-07	6.0E-02		
TH-230	7.93E-06	9.2E-01		
TH-232	2.31E-07	2.7E-02		
U-234	3.72E-06	4.3E-01		
U-235/236	3.09E-07	3.6E-02		
U-238	1.26E-05	1.5E+00		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	Total
Arsenic	1.27E-09	8.2E-11			0.0E+00
Beryllium	2.69E-10	1.7E-11			0.0E+00
Cadmium	2.13E-10	1.4E-11			0.0E+00
Chromium	2.94E-09	1.9E-10			0.0E+00
Lead	4.88E-09	3.2E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.80E-08	2.5E-09			0.0E+00
Aroclor-1254	1.04E-10	6.7E-12			
Benzo(a)anthracene	1.61E-10	1.0E-11			
Benzo(a)pyrene	1.95E-10	1.3E-11			
Benzo(b)fluoranthene	1.77E-10	1.1E-11			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.42E-10	9.2E-12			
bis(2-Ethylhexyl) phthalate	1.77E-09	1.1E-10			0.0E+00
Carbazole	2.48E-11	1.6E-12			
Chrysene	1.95E-10	1.3E-11			
Dibenzo(a,h)anthracene	5.67E-11	3.7E-12			
Dibenzofuran	0.00E+00	0.0E+00			0.0E+00
Indeno(1,2,3-cd)pyrene	1.28E-10	8.3E-12			0.0E+00
Phenanthrene	0.00E+00	0.0E+00			

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00

Total: 0.0E+00

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TABLE B.3.5-5(b)
CURRENT, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.24E-07	2.6E-04	1.9E-11	4.9E-15	4.9E-15
NP-237	1.28E-07	2.7E-04	2.9E-08	7.8E-12	7.8E-12
PU-238	1.02E-07	2.1E-04	3.9E-08	8.4E-12	8.4E-12
PU-239/240	2.39E-08	5.0E-05	3.8E-08	1.9E-12	1.9E-12
RA-226	3.40E-07	7.1E-04	3.0E-09	2.1E-12	2.1E-12
RA-228	2.90E-07	6.1E-04	6.6E-10	4.0E-13	4.0E-13
SR-90	1.39E-07	2.9E-04	6.2E-11	1.8E-14	1.8E-14
TC-99	0.00E+00	0.0E+00	8.3E-12	0.0E+00	0.0E+00
TH-228	5.15E-07	1.1E-03	7.8E-08	8.4E-11	8.4E-11
TH-230	7.93E-06	1.7E-02	2.9E-08	4.8E-10	4.8E-10
TH-232	2.31E-07	4.9E-04	2.8E-08	1.4E-11	1.4E-11
U-234	3.72E-06	7.8E-03	2.6E-08	2.0E-10	2.0E-10
U-235/236	3.1E-07	6.5E-04	2.5E-08	1.6E-11	1.6E-11
U-238	1.3E-05	2.6E-02	5.20E-08	1.4E-09	1.4E-09
			Total Pathway:	2.2E-09	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.3E-09	7.0E-12	1.5E+01	1.1E-10	1.1E-10
Beryllium	2.7E-10	1.5E-12	8.4E+00	1.2E-11	1.2E-11
Cadmium	2.1E-10	1.2E-12			
Chromium	2.9E-09	1.6E-11	4.1E+00	6.6E-11	6.6E-11
Lead	4.9E-09	2.7E-11			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.8E-08	2.1E-10			
Aroclor-1254	1.0E-10	5.7E-13			0.0E+00
Benzo(b)anthracene	1.6E-10	8.8E-13	8.9E-01	7.9E-13	7.9E-13
Benzo(b)pyrene	2.0E-10	1.1E-12	6.1	6.5E-12	6.5E-12
Benzo(b)fluoranthene	1.8E-10	9.7E-13	7.5E-01	7.3E-13	7.3E-13
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.4E-10	7.8E-13	3.2E-01	2.5E-13	2.5E-13
bis(2-Ethylhexyl) phthalate	1.8E-09	9.7E-12			0.0E+00
Carbazole	2.5E-11	1.4E-13			0.0E+00
Chrysene	2.0E-10	1.1E-12	2.7E-02	2.9E-14	2.9E-14
Dibenzo(a,h)anthracene	5.7E-11	3.1E-13	6.8E+00	2.1E-12	2.1E-12
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.3E-10	7.0E-13	1.7E+00	1.2E-12	1.2E-12
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.0E-10	
			Total Rad + Chem	2.4E-09	*Total:* 2.4E-09

NON-CARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard	Total
CS-137	1.24E-07	2.6E-04			
NP-237	1.28E-07	2.7E-04			
PU-238	1.02E-07	2.1E-04			
PU-239/240	2.39E-08	5.0E-05			
RA-226	3.40E-07	7.1E-04			
RA-228	2.90E-07	6.1E-04			
SR-90	1.39E-07	2.9E-04			
TC-99	0.00E+00	0.0E+00			
TH-228	5.15E-07	1.1E-03			
TH-230	7.93E-06	1.7E-02			
TH-232	2.31E-07	4.9E-04			
U-234	3.72E-06	7.8E-03			
U-235/236	3.09E-07	6.5E-04			
U-238	1.26E-05	2.6E-02			

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	1.27E-09	8.1E-11			0.0E+00
Beryllium	2.69E-10	1.7E-11			0.0E+00
Cadmium	2.13E-10	1.4E-11			0.0E+00
Chromium	2.94E-09	1.9E-10			0.0E+00
Lead	4.88E-09	3.1E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.80E-08	2.4E-09			0.0E+00
Aroclor-1254	1.04E-10	6.6E-12			
Benzo(b)anthracene	1.61E-10	1.0E-11			
Benzo(b)pyrene	1.95E-10	1.2E-11			
Benzo(b)fluoranthene	1.77E-10	1.1E-11			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.42E-10	9.1E-12			
bis(2-Ethylhexyl) phthalate	1.77E-09	1.1E-10			0.0E+00
Carbazole	2.48E-11	1.6E-12			
Chrysene	1.95E-10	1.2E-11			
Dibenzo(a,h)anthracene	5.67E-11	3.6E-12			
Dibenzofuran	0.00E+00	0.0E+00			0.0E+00
Indeno(1,2,3-cd)pyrene	1.28E-10	8.2E-12			0.0E+00
Phenanthrene	0.00E+00	0.0E+00			

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

TABLE B.3.5-6(a)
CURRENT, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	9.94E-04	1.8E+00	2.8E-11	5.1E-11	CS-137	3.48E-04	2.6E+00	2.8E-11	7.2E-11	1.2E-10
NP-237	2.79E-06	5.1E-03	2.2E-10	1.1E-12	NP-237	2.54E-07	1.9E-03	2.2E-10	4.1E-13	1.5E-12
PU-238	2.01E-08	3.7E-05	2.2E-10	8.1E-15	PU-238	4.02E-09	3.0E-05	2.2E-10	6.5E-15	1.5E-14
PU-239/240	4.74E-09	8.7E-06	2.3E-10	2.0E-15	PU-239/240	9.48E-10	7.0E-06	2.3E-10	1.6E-15	3.6E-15
RA-226	3.37E-05	6.2E-02	1.2E-10	7.4E-12	RA-226	6.06E-05	4.5E-01	1.2E-10	5.3E-11	6.1E-11
RA-228	2.78E-05	5.1E-02	1.0E-10	5.1E-12	RA-228	5.00E-05	3.7E-01	1.0E-10	3.7E-11	4.2E-11
SR-90	1.73E-05	3.2E-02	3.6E-11	1.1E-12	SR-90	8.65E-05	6.4E-01	3.6E-11	2.3E-11	2.4E-11
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	1.11E-06	2.0E-03	5.5E-11	1.1E-13	TH-228	9.23E-07	6.8E-03	5.5E-11	3.7E-13	4.9E-13
TH-230	1.88E-05	3.5E-02	1.3E-11	4.5E-13	TH-230	1.57E-05	1.2E-01	1.3E-11	1.5E-12	2.0E-12
TH-232	5.48E-07	1.0E-03	1.2E-11	1.2E-14	TH-232	4.57E-07	3.4E-03	1.2E-11	4.0E-14	5.2E-14
U-234	2.94E-04	5.4E-01	1.6E-11	8.6E-12	U-234	8.81E-04	6.5E+00	1.6E-11	1.0E-10	1.1E-10
U-235/236	2.44E-05	4.5E-02	1.6E-11	7.2E-13	U-235/236	7.33E-05	5.4E-01	1.6E-11	8.6E-12	9.3E-12
U-238	1.00E-03	1.8E+00	2.8E-11	5.1E-11	U-238	3.00E-03	2.2E+01	2.8E-11	6.2E-10	6.7E-10
			Total Pathway:	1.3E-10				Total Pathway:	9.2E-10	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.0E-06	1.0E-09	1.8E+00	1.8E-09	Arsenic	3.0E-08	1.2E-10	1.8E+00	2.2E-10	2.0E-09
Beryllium	1.1E-07	1.1E-10	4.3E+00	4.7E-10	Beryllium	9.6E-11	3.9E-13	4.3E+00	1.7E-12	4.7E-10
Cadmium	5.0E-07	5.2E-10			Cadmium	9.2E-08	3.8E-10			
Chromium	6.4E-06	6.6E-09			Chromium	1.7E-06	7.2E-09			
Lead	5.8E-07	6.0E-10			Lead	4.8E-07	2.0E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	3.1E-09			U-TOTAL	9.0E-06	3.7E-08			
Aroclor-1254	1.1E-06	1.1E-09	7.7E+00	8.9E-09	Aroclor-1254	3.5E-07	1.5E-09	7.7E+00	1.1E-08	2.0E-08
Benzo(a)anthracene	3.8E-07	3.9E-10	1.1E+00	4.3E-10	Benzo(a)anthracene	1.2E-07	4.9E-10	1.1E+00	5.4E-10	9.7E-10
Benzo(a)pyrene	1.1E-06	1.1E-09	7.3E+00	8.2E-09	Benzo(a)pyrene	3.4E-07	1.4E-09	7.3E+00	1.0E-08	1.8E-08
Benzo(b)fluoranthene	3.9E-06	4.0E-09	9.0E-01	3.6E-09	Benzo(b)fluoranthene	1.2E-06	5.0E-09	9.0E-01	4.5E-09	8.1E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	6.5E-09	3.8E-01	2.5E-09	Benzo(k)fluoranthene	2.0E-06	8.2E-09	3.8E-01	3.1E-09	5.6E-09
bis(2-Ethylhexyl) phthalate	8.7E-08	8.9E-11	1.4E-02	1.2E-12	bis(2-Ethylhexyl) phthalate	2.7E-08	1.1E-10	1.4E-02	1.6E-12	2.8E-12
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.6E-07	4.7E-10	3.2E-02	1.5E-11	Chrysene	1.5E-07	6.0E-10	3.2E-02	1.9E-11	3.4E-11
Dibenzo(a,h)anthracene	3.1E-07	3.2E-10	8.1E+00	2.6E-09	Dibenzo(a,h)anthracene	9.9E-08	4.1E-10	8.1E+00	3.3E-09	5.9E-09
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.8E-08				Total Pathway:	3.3E-08	

FER\CRU[illegible]ABQ\LBFOFRF.XLS\1/3/94; 12:53 PM

Total Rad + Chem 2.9E-08

Total Rad + Chem 3.4E-08 *Total:* [illegible]E-08

TABLE B.3.5-6(a) (continued)
CURRENT, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	9.9E-04	1.8E+00			CS-137	3.48E-04	2.6E+00			
NP-237	2.8E-06	5.1E-03			NP-237	2.54E-07	1.9E-03			
PU-238	2.0E-08	3.7E-05			PU-238	4.02E-09	3.0E-05			
PU-239/240	4.7E-09	8.7E-06			PU-239/240	9.48E-10	7.0E-06			
RA-226	3.4E-05	6.2E-02			RA-226	6.06E-05	4.5E-01			
RA-228	2.8E-05	5.1E-02			RA-228	5.00E-05	3.7E-01			
SR-90	1.7E-05	3.2E-02			SR-90	8.65E-05	6.4E-01			
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00			
TH-228	1.1E-06	2.0E-03			TH-228	9.23E-07	6.8E-03			
TH-230	1.9E-05	3.5E-02			TH-230	1.57E-05	1.2E-01			
TH-232	5.5E-07	1.0E-03			TH-232	4.57E-07	3.4E-03			
U-234	2.9E-04	5.4E-01			U-234	8.81E-04	6.5E+00			
U-235/236	2.4E-05	4.5E-02			U-235/236	7.33E-05	5.4E-01			
U-238	1.0E-03	1.8E+00			U-238	3.00E-03	2.2E+01			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	1.0E-06	1.0E-09	3.0E-04	3.5E-06	Arsenic	3.0E-08	1.2E-10	3.0E-04	4.2E-07	3.9E-06
Beryllium	1.1E-07	1.1E-10	5.0E-03	2.2E-08	Beryllium	9.6E-11	3.9E-13	5.0E-03	7.9E-11	2.2E-08
Cadmium	5.0E-07	5.2E-10	1.0E-03	5.2E-07	Cadmium	9.2E-08	3.8E-10	1.0E-03	3.8E-07	8.9E-07
Chromium	6.4E-06	6.6E-09	5.0E-03	1.3E-06	Chromium	1.7E-06	7.2E-09	5.0E-03	1.4E-06	2.7E-06
Lead	5.8E-07	6.0E-10			Lead	4.8E-07	2.0E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	3.1E-09	3.0E-03	1.0E-06	U-TOTAL	9.0E-06	3.7E-08	3.0E-03	1.2E-05	1.3E-05
Aroclor-1254	1.1E-06	1.1E-09			Aroclor-1254	3.5E-07	1.5E-09			
Benzo(a)anthracene	3.8E-07	3.9E-10			Benzo(a)anthracene	1.2E-07	4.9E-10			
Benzo(a)pyrene	1.1E-06	1.1E-09			Benzo(a)pyrene	3.4E-07	1.4E-09			
Benzo(b)fluoranthene	3.9E-06	4.0E-09			Benzo(b)fluoranthene	1.2E-06	5.0E-09			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	6.5E-09			Benzo(k)fluoranthene	2.0E-06	8.2E-09			
bis(2-Ethylhexyl) phthalate	8.7E-08	8.9E-11	2.0E-02	4.4E-09	bis(2-Ethylhexyl) phthalate	2.7E-08	1.1E-10	2.0E-02	5.6E-09	1.0E-08
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	4.6E-07	4.7E-10			Chrysene	1.5E-07	6.0E-10			
Dibenzo(a,h)anthracene	3.1E-07	3.2E-10			Dibenzo(a,h)anthracene	9.9E-08	4.1E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:		6.4E-06			Total Pathway:		1.5E-05	
		Total Rad + Chem		6.4E-06			Total Rad + Chem		1.5E-05	*Total:* 2.1E-05

TABLE B.3.5-6(b)
CURRENT, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	9.94E-04	6.1E-02	2.8E-11	1.7E-12	CS-137	3.48E-04	5.0E-01	2.8E-11	1.4E-11	1.6E-11
NP-237	2.79E-06	1.7E-04	2.2E-10	3.7E-14	NP-237	2.54E-07	3.6E-04	2.2E-10	8.0E-14	1.2E-13
PU-238	2.01E-08	1.2E-06	2.2E-10	2.7E-16	PU-238	4.02E-09	5.7E-06	2.2E-10	1.3E-15	1.5E-15
PU-239/240	4.74E-09	2.9E-07	2.3E-10	6.6E-17	PU-239/240	9.48E-10	1.4E-06	2.3E-10	3.1E-16	3.8E-16
RA-226	3.37E-05	2.1E-03	1.2E-10	2.5E-13	RA-226	6.06E-05	8.7E-02	1.2E-10	1.0E-11	1.1E-11
RA-228	2.78E-05	1.7E-03	1.0E-10	1.7E-13	RA-228	5.00E-05	7.1E-02	1.0E-10	7.1E-12	7.3E-12
SR-90	1.73E-05	1.1E-03	3.6E-11	3.8E-14	SR-90	8.65E-05	1.2E-01	3.6E-11	4.4E-12	4.5E-12
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	1.11E-06	6.7E-05	5.5E-11	3.7E-15	TH-228	9.23E-07	1.3E-03	5.5E-11	7.3E-14	7.6E-14
TH-230	1.88E-05	1.1E-03	1.3E-11	1.5E-14	TH-230	1.57E-05	2.2E-02	1.3E-11	2.9E-13	3.1E-13
TH-232	5.48E-07	3.3E-05	1.2E-11	4.0E-16	TH-232	4.57E-07	6.5E-04	1.2E-11	7.8E-15	8.2E-15
U-234	2.94E-04	1.8E-02	1.6E-11	2.9E-13	U-234	8.81E-04	1.3E+00	1.6E-11	2.0E-11	2.0E-11
U-235/236	2.44E-05	1.5E-03	1.6E-11	2.4E-14	U-235/236	7.33E-05	1.0E-01	1.6E-11	1.7E-12	1.7E-12
U-238	1.00E-03	6.1E-02	2.8E-11	1.7E-12	U-238	3.00E-03	4.3E+00	2.8E-11	1.2E-10	1.2E-10
			Total Pathway:	4.2E-12				Total Pathway:	1.8E-10	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.0E-06	1.6E-10	1.8E+00	2.8E-10	Arsenic	3.0E-08	1.1E-10	1.8E+00	2.0E-10	4.8E-10
Beryllium	1.1E-07	1.7E-11	4.3E+00	7.3E-11	Beryllium	9.6E-11	3.6E-13	4.3E+00	1.5E-12	7.4E-11
Cadmium	5.0E-07	8.0E-11			Cadmium	9.2E-08	3.4E-10			
Chromium	6.4E-06	1.0E-09			Chromium	1.7E-06	6.5E-09			
Lead	5.8E-07	9.2E-11			Lead	4.8E-07	1.8E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	4.8E-10			U-TOTAL	9.0E-06	3.4E-08			
Aroclor-1254	1.1E-06	1.8E-10	7.7E+00	1.4E-09	Aroclor-1254	3.5E-07	1.3E-09	7.7E+00	1.0E-08	1.2E-08
Benzo(a)anthracene	3.8E-07	6.0E-11	1.1E+00	6.6E-11	Benzo(a)anthracene	1.2E-07	4.5E-10	1.1E+00	4.9E-10	5.6E-10
Benzo(a)pyrene	1.1E-06	1.7E-10	7.3E+00	1.3E-09	Benzo(a)pyrene	3.4E-07	1.3E-09	7.3E+00	9.4E-09	1.1E-08
Benzo(b)fluoranthene	3.9E-06	6.2E-10	9.0E-01	5.5E-10	Benzo(b)fluoranthene	1.2E-06	4.6E-09	9.0E-01	4.1E-09	4.7E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	1.0E-09	3.8E-01	3.8E-10	Benzo(k)fluoranthene	2.0E-06	7.4E-09	3.8E-01	2.8E-09	3.2E-09
bis(2-Ethylhexyl) phthalate	8.7E-08	1.4E-11	1.4E-02	1.9E-13	bis(2-Ethylhexyl) phthalate	2.7E-08	1.0E-10	1.4E-02	1.4E-12	1.6E-12
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.6E-07	7.3E-11	3.2E-02	2.3E-12	Chrysene	1.5E-07	5.4E-10	3.2E-02	1.7E-11	2.0E-11
Dibenzo(a,h)anthracene	3.1E-07	5.0E-11	8.1E+00	4.0E-10	Dibenzo(a,h)anthracene	9.9E-08	3.7E-10	8.1E+00	3.0E-09	3.4E-09
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	4.4E-09				Total Pathway:	3.0E-08	

FE[redacted]RI\ABQ\LBFOFRC.XLS\1/3/94; 12:44 PM

Total Rad + Chem 4.4E-09

Total Rad + Chem 3.0E-08 *Total* [redacted]5E-08

TABLE B.3.5-6(b) (continued)
CURRENT, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	9.9E-04	6.1E-02			CS-137	3.48E-04	5.0E-01			
NP-237	2.8E-06	1.7E-04			NP-237	2.54E-07	3.6E-04			
PU-238	2.0E-08	1.2E-06			PU-238	4.02E-09	5.7E-06			
PU-239/240	4.7E-09	2.9E-07			PU-239/240	9.48E-10	1.4E-06			
RA-226	3.4E-05	2.1E-03			RA-226	6.06E-05	8.7E-02			
RA-228	2.8E-05	1.7E-03			RA-228	5.00E-05	7.1E-02			
SR-90	1.7E-05	1.1E-03			SR-90	8.65E-05	1.2E-01			
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00			
TH-228	1.1E-06	6.7E-05			TH-228	9.23E-07	1.3E-03			
TH-230	1.9E-05	1.1E-03			TH-230	1.57E-05	2.2E-02			
TH-232	5.5E-07	3.3E-05			TH-232	4.57E-07	6.5E-04			
U-234	2.9E-04	1.8E-02			U-234	8.81E-04	1.3E+00			
U-235/236	2.4E-05	1.5E-03			U-235/236	7.33E-05	1.0E-01			
U-238	1.0E-03	6.1E-02			U-238	3.00E-03	4.3E+00			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	1.0E-06	1.9E-09	3.0E-04	6.2E-06	Arsenic	3.0E-08	1.3E-09	3.0E-04	4.4E-06	1.1E-05
Beryllium	1.1E-07	2.0E-10	5.0E-03	4.0E-08	Beryllium	9.6E-11	4.2E-12	5.0E-03	8.3E-10	4.0E-08
Cadmium	5.0E-07	9.3E-10	1.0E-03	9.3E-07	Cadmium	9.2E-08	4.0E-09	1.0E-03	4.0E-06	4.9E-06
Chromium	6.4E-06	1.2E-08	5.0E-03	2.4E-06	Chromium	1.7E-06	7.6E-08	5.0E-03	1.5E-05	1.8E-05
Lead	5.8E-07	1.1E-09			Lead	4.8E-07	2.1E-08			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	5.6E-09	3.0E-03	1.9E-06	U-TOTAL	9.0E-06	3.9E-07	3.0E-03	1.3E-04	1.3E-04
Aroclor-1254	1.1E-06	2.1E-09			Aroclor-1254	3.5E-07	1.5E-08			
Benzo(a)anthracene	3.8E-07	7.0E-10			Benzo(a)anthracene	1.2E-07	5.2E-09			
Benzo(a)pyrene	1.1E-06	2.0E-09			Benzo(a)pyrene	3.4E-07	1.5E-08			
Benzo(b)fluoranthene	3.9E-06	7.2E-09			Benzo(b)fluoranthene	1.2E-06	5.3E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	1.2E-08			Benzo(k)fluoranthene	2.0E-06	8.6E-08			
bis(2-Ethylhexyl) phthalate	8.7E-08	1.6E-10	2.0E-02	8.0E-09	bis(2-Ethylhexyl) phthalate	2.7E-08	1.2E-09	2.0E-02	5.9E-08	6.7E-08
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	4.6E-07	8.5E-10			Chrysene	1.5E-07	6.3E-09			
Dibenzo(a,h)anthracene	3.1E-07	5.8E-10			Dibenzo(a,h)anthracene	9.9E-08	4.3E-09			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			

Total Pathway: 1.1E-05 Total Pathway: 1.5E-04

Total Rad + Chem 1.1E 05 Total Rad + Chem 1.5E 04 *Total:* 1.7E 04

TABLE B.3.5-7(a)
CURRENT, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	
CS-137	7.76E-04	1.2E+00	2.8E-11	3.2E-11	3.2E-11
NP-237	8.00E-04	1.2E+00	2.2E-10	2.6E-10	2.6E-10
PU-238	6.20E-04	9.3E-01	2.2E-10	2.0E-10	2.0E-10
PU-239/240	1.46E-04	2.2E-01	2.3E-10	5.0E-11	5.0E-11
RA-226	2.08E-03	3.1E+00	1.2E-10	3.7E-10	3.7E-10
RA-228	1.77E-03	2.7E+00	1.0E-10	2.7E-10	2.7E-10
SR-90	1.13E-03	1.7E+00	3.6E-11	6.1E-11	6.1E-11
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	3.13E-03	4.7E+00	5.5E-11	2.6E-10	2.6E-10
TH-230	4.83E-02	7.2E+01	1.3E-11	9.4E-10	9.4E-10
TH-232	1.41E-03	2.1E+00	1.2E-11	2.5E-11	2.5E-11
U-234	2.26E-02	3.4E+01	1.6E-11	5.4E-10	5.4E-10
U-235/236	1.88E-03	2.8E+00	1.6E-11	4.5E-11	4.5E-11
U-238	7.69E-02	1.1E+02	2.8E-11	3.2E-09	3.2E-09
				Total Pathway:	6.3E-09

Chemical Risk					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.8E-06	6.6E-09	1.8E+00	1.1E-08	1.1E-08
Beryllium	1.6E-06	1.4E-09	4.3E+00	5.9E-09	5.9E-09
Cadmium	1.5E-06	1.3E-09			
Chromium	1.8E-05	1.5E-08			
Lead	3.0E-05	2.5E-08			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	1.9E-07			
Aroclor-1254	6.4E-07	5.3E-10	7.7E+00	4.1E-09	4.1E-09
Benzo(a)anthracene	9.6E-07	8.0E-10	1.1E+00	8.8E-10	8.8E-10
Benzo(a)pyrene	1.1E-06	9.6E-10	7.3E+00	7.0E-09	7.0E-09
Benzo(b)fluoranthene	1.0E-06	8.8E-10	9.0E-01	7.9E-10	7.9E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	7.1E-10	3.8E-01	2.7E-10	2.7E-10
bis(2-Ethylhexyl) phthalate	5.2E-06	4.4E-09	1.4E-02	6.1E-11	6.1E-11
Carbazole	1.6E-07	1.3E-10	2.0E-02	2.6E-12	2.6E-12
Chrysene	1.2E-06	9.7E-10	3.2E-02	3.1E-11	3.1E-11
Dibenzo(a,h)anthracene	3.4E-07	2.8E-10	8.1E+00	2.3E-09	2.3E-09
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
				Total Pathway:	3.3E-08
				Total Rad + Chem	3.9E-08 *Total:* 3.9E-08

TABLE B.3.5-7(a) (continued)
CURRENT, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard	
CS-137	7.8E-04	1.2E+00			
NP-237	8.0E-04	1.2E+00			
PU-238	6.2E-04	9.3E-01			
PU-239/240	1.5E-04	2.2E-01			
RA-226	2.1E-03	3.1E+00			
RA-228	1.8E-03	2.7E+00			
SR-90	1.1E-03	1.7E+00			
TC-99	0.0E+00	0.0E+00			
TH-228	3.1E-03	4.7E+00			
TH-230	4.8E-02	7.2E+01			
TH-232	1.4E-03	2.1E+00			
U-234	2.3E-02	3.4E+01			
U-235/236	1.9E-03	2.8E+00			
U-238	7.7E-02	1.1E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.8E-06	6.6E-09	3.0E-04	2.2E-05	2.2E-05
Beryllium	1.6E-06	1.4E-09	5.0E-03	2.7E-07	2.7E-07
Cadmium	1.5E-06	1.3E-09	1.0E-03	1.3E-06	1.3E-06
Chromium	1.8E-05	1.5E-08	5.0E-03	3.0E-06	3.0E-06
Lead	3.0E-05	2.5E-08			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	1.9E-07	3.0E-03	6.5E-05	6.5E-05
Aroclor-1254	6.4E-07	5.3E-10			
Benzo(a)anthracene	9.6E-07	8.0E-10			
Benzo(a)pyrene	1.1E-06	9.6E-10			
Benzo(b)fluoranthene	1.0E-06	8.8E-10			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	7.1E-10			
bis(2-Ethylhexyl) phthalate	5.2E-06	4.4E-09	2.0E-02	2.2E-07	2.2E-07
Carbazole	1.6E-07	1.3E-10			
Chrysene	1.2E-06	9.7E-10			
Dibenzo(a,h)anthracene	3.4E-07	2.8E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	9.1E-05	
			Total Rad + Chem	9.1E-05	*Total:* 9.1E-05

TABLE B.3.5-7(b)
CURRENT, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	
CS-137	7.76E-04	8.6E-02	2.8E-11	2.4E-12	2.4E-12
NP-237	8.00E-04	8.9E-02	2.2E-10	2.0E-11	2.0E-11
PU-238	6.20E-04	6.9E-02	2.2E-10	1.5E-11	1.5E-11
PU-239/240	1.46E-04	1.6E-02	2.3E-10	3.7E-12	3.7E-12
RA-226	2.08E-03	2.3E-01	1.2E-10	2.8E-11	2.8E-11
RA-228	1.77E-03	2.0E-01	1.0E-10	2.0E-11	2.0E-11
SR-90	1.13E-03	1.3E-01	3.6E-11	4.5E-12	4.5E-12
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	3.13E-03	3.5E-01	5.5E-11	1.9E-11	1.9E-11
TH-230	4.83E-02	5.4E+00	1.3E-11	7.0E-11	7.0E-11
TH-232	1.41E-03	1.6E-01	1.2E-11	1.9E-12	1.9E-12
U-234	2.26E-02	2.5E+00	1.6E-11	4.0E-11	4.0E-11
U-235/236	1.88E-03	2.1E-01	1.6E-11	3.3E-12	3.3E-12
U-238	7.69E-02	8.6E+00	2.8E-11	2.4E-10	2.4E-10
			Total Pathway:	4.7E-10	

Chemical Risk					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.8E-06	2.3E-09	1.8E+00	4.0E-09	4.0E-09
Beryllium	1.6E-06	4.8E-10	4.3E+00	2.1E-09	2.1E-09
Cadmium	1.5E-06	4.4E-10			
Chromium	1.8E-05	5.2E-09			
Lead	3.0E-05	8.7E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	6.7E-08			
Aroclor-1254	6.4E-07	1.9E-10	7.7E+00	1.4E-09	1.4E-09
Benzo(a)anthracene	9.6E-07	2.8E-10	1.1E+00	3.1E-10	3.1E-10
Benzo(a)pyrene	1.1E-06	3.3E-10	7.3E+00	2.4E-09	2.4E-09
Benzo(b)fluoranthene	1.0E-06	3.0E-10	9.0E-01	2.7E-10	2.7E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	2.5E-10	3.8E-01	9.4E-11	9.4E-11
bis(2-Ethylhexyl) phthalate	5.2E-06	1.5E-09	1.4E-02	2.1E-11	2.1E-11
Carbazole	1.6E-07	4.5E-11	2.0E-02	9.1E-13	9.1E-13
Chrysene	1.2E-06	3.4E-10	3.2E-02	1.1E-11	1.1E-11
Dibenzo(a,h)anthracene	3.4E-07	9.8E-11	8.1E+00	8.0E-10	8.0E-10
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.1E-08	

Total Rad + Chem 1.2E-08 *Total:* 1.2E-08

TABLE B.3.5-7(b) (continued)
CURRENT, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard	
CS-137	7.8E-04	8.6E-02			
NP-237	8.0E-04	8.9E-02			
PU-238	6.2E-04	6.9E-02			
PU-239/240	1.5E-04	1.6E-02			
RA-226	2.1E-03	2.3E-01			
RA-228	1.8E-03	2.0E-01			
SR-90	1.1E-03	1.3E-01			
TC-99	0.0E+00	0.0E+00			
TH-228	3.1E-03	3.5E-01			
TH-230	4.8E-02	5.4E+00			
TH-232	1.4E-03	1.6E-01			
U-234	2.3E-02	2.5E+00			
U-235/236	1.9E-03	2.1E-01			
U-238	7.7E-02	8.6E+00			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.8E-06	2.3E-09	3.0E-04	7.6E-06	7.6E-06
Beryllium	1.6E-06	4.8E-10	5.0E-03	9.5E-08	9.5E-08
Cadmium	1.5E-06	4.4E-10	1.0E-03	4.4E-07	4.4E-07
Chromium	1.8E-05	5.2E-09	5.0E-03	1.0E-06	1.0E-06
Lead	3.0E-05	8.7E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	6.7E-08	3.0E-03	2.2E-05	2.2E-05
Aroclor-1254	6.4E-07	1.9E-10			
Benzo(a)anthracene	9.6E-07	2.8E-10			
Benzo(a)pyrene	1.1E-06	3.3E-10			
Benzo(b)fluoranthene	1.0E-06	3.0E-10			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	2.5E-10			
bis(2-Ethylhexyl) phthalate	5.2E-06	1.5E-09	2.0E-02	7.6E-08	7.6E-08
Carbazole	1.6E-07	4.5E-11			
Chrysene	1.2E-06	3.4E-10			
Dibenzo(a,h)anthracene	3.4E-07	9.8E-11			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	3.2E-05	
			Total Rad + Chem	3.2E-05	*Total:* 3.2E-05

TABLE B.3.5-8
CURRENT, USER OF MILK AND MEAT
LIME SLUDGE PONDS: BEEF AND MILK
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk	
CS-137	8.75E-02	1.6E+02	2.8E-11	4.5E-09	CS-137	3.06E-02	2.3E+02	2.8E-11	6.3E-09	1.1E-08
NP-237	2.46E-04	4.5E-01	2.2E-10	9.9E-11	NP-237	2.23E-05	1.6E-01	2.2E-10	3.6E-11	1.4E-10
PU-238	1.77E-06	3.3E-03	2.2E-10	7.2E-13	PU-238	3.55E-07	2.6E-03	2.2E-10	5.7E-13	1.3E-12
PU-239/240	4.18E-07	7.7E-04	2.3E-10	1.8E-13	PU-239/240	8.35E-08	6.1E-04	2.3E-10	1.4E-13	3.2E-13
RA-226	2.96E-03	5.4E+00	1.2E-10	6.5E-10	RA-226	5.33E-03	3.9E+01	1.2E-10	4.7E-09	5.4E-09
RA-228	2.44E-03	4.5E+00	1.0E-10	4.5E-10	RA-228	4.39E-03	3.2E+01	1.0E-10	3.2E-09	3.7E-09
SR-90	1.53E-03	2.8E+00	3.6E-11	1.0E-10	SR-90	7.63E-03	5.6E+01	3.6E-11	2.0E-09	2.1E-09
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	9.77E-05	1.8E-01	5.5E-11	9.9E-12	TH-228	8.14E-05	6.0E-01	5.5E-11	3.3E-11	4.3E-11
TH-230	1.66E-03	3.0E+00	1.3E-11	4.0E-11	TH-230	1.38E-03	1.0E+01	1.3E-11	1.3E-10	1.7E-10
TH-232	4.84E-05	8.9E-02	1.2E-11	1.1E-12	TH-232	4.04E-05	3.0E-01	1.2E-11	3.6E-12	4.6E-12
U-234	2.59E-02	4.8E+01	1.6E-11	7.6E-10	U-234	7.77E-02	5.7E+02	1.6E-11	9.1E-09	9.9E-09
U-235/236	2.15E-03	4.0E+00	1.6E-11	6.3E-11	U-235/236	6.46E-03	4.7E+01	1.6E-11	7.6E-10	8.2E-10
U-238	8.80E-02	1.6E+02	2.8E-11	4.5E-09	U-238	2.64E-01	1.9E+03	2.8E-11	5.4E-08	5.9E-08
			Total Pathway:	1.1E-08				Total Pathway:	8.1E-08	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	8.9E-05	9.1E-08	1.8E+00	1.6E-07	Arsenic	2.7E-06	1.1E-08	1.8E+00	1.9E-08	1.8E-07
Beryllium	9.4E-06	9.6E-09	4.3E+00	4.1E-08	Beryllium	8.4E-09	3.5E-11	4.3E+00	1.5E-10	4.2E-08
Cadmium	4.4E-05	4.6E-08			Cadmium	8.1E-06	3.3E-08			
Chromium	5.6E-04	5.8E-07			Chromium	1.5E-04	6.3E-07			
Lead	5.1E-05	5.3E-08			Lead	4.3E-05	1.8E-07			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	2.7E-07			U-TOTAL	8.0E-04	3.3E-06			
Aroclor-1254	9.9E-05	1.0E-07	7.7E+00	7.8E-07	Aroclor-1254	3.1E-05	1.3E-07	7.7E+00	9.9E-07	1.8E-06
Benzo(a)anthracene	3.3E-05	3.4E-08	1.1E+00	3.8E-08	Benzo(a)anthracene	1.1E-05	4.3E-08	1.1E+00	4.8E-08	8.5E-08
Benzo(a)pyrene	9.6E-05	9.9E-08	7.3E+00	7.2E-07	Benzo(a)pyrene	3.0E-05	1.2E-07	7.3E+00	9.1E-07	1.6E-06
Benzo(b)fluoranthene	3.4E-04	3.5E-07	9.0E-01	3.1E-07	Benzo(b)fluoranthene	1.1E-04	4.4E-07	9.0E-01	4.0E-07	7.1E-07
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	5.7E-07	3.8E-01	2.2E-07	Benzo(k)fluoranthene	1.8E-04	7.2E-07	3.8E-01	2.7E-07	4.9E-07
bis(2-Ethylhexyl) phthalate	7.6E-06	7.8E-09	1.4E-02	1.1E-10	bis(2-Ethylhexyl) phthalat	2.4E-06	9.9E-09	1.4E-02	1.4E-10	2.5E-10
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.1E-05	4.2E-08	3.2E-02	1.3E-09	Chrysene	1.3E-05	5.3E-08	3.2E-02	1.7E-09	3.0E-09
Dibenzo(a,h)anthracene	2.8E-05	2.8E-08	8.1E+00	2.3E-07	Dibenzo(a,h)anthracene	8.7E-06	3.6E-08	8.1E+00	2.9E-07	5.2E-07
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.5E-06				Total Pathway:	2.9E-06	

Total Rad + Chem	2.5E-06	Total Rad + Chem	3.0E-06

Total: 5.5E-06

TABLE B.3.5-8 (continued)
CURRENT, USER OF MILK AND MEAT
LIME SLUDGE PONDS: BEEF AND MILK
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	onc'n in Milk (pCi/L	Intake	RfD(o)	Hazard	
CS-137	8.8E-02	1.6E+02			CS-137	3.06E-02	2.3E+02			
NP-237	2.5E-04	4.5E-01			NP-237	2.23E-05	1.6E-01			
PU-238	1.8E-06	3.3E-03			PU-238	3.55E-07	2.6E-03			
PU-239/240	4.2E-07	7.7E-04			PU-239/240	8.35E-08	6.1E-04			
RA-226	3.0E-03	5.4E+00			RA-226	5.33E-03	3.9E+01			
RA-228	2.4E-03	4.5E+00			RA-228	4.39E-03	3.2E+01			
SR-90	1.5E-03	2.8E+00			SR-90	7.63E-03	5.6E+01			
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00			
TH-228	9.8E-05	1.8E-01			TH-228	8.14E-05	6.0E-01[a]			
TH-230	1.7E-03	3.0E+00			TH-230	1.38E-03	1.0E+01			
TH-232	4.8E-05	8.9E-02			TH-232	4.04E-05	3.0E-01			
U-234	2.6E-02	4.8E+01			U-234	7.77E-02	5.7E+02			
U-235/236	2.2E-03	4.0E+00			U-235/236	6.46E-03	4.7E+01			
U-238	8.8E-02	1.6E+02			U-238	2.64E-01	1.9E+03			
		Total Pathway:		0.0E+00				Total Pathway:		0.0E+00

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L	Intake	RfD(o)	Hazard	
Arsenic	8.9E-05	9.1E-08	3.0E-04	3.0E-04	Arsenic	2.7E-06	1.1E-08	3.0E-04	3.7E-05	3.4E-04
Beryllium	9.4E-06	9.6E-09	5.0E-03	1.9E-06	Beryllium	8.4E-09	3.5E-11	5.0E-03	6.9E-09	1.9E-06
Cadmium	4.4E-05	4.6E-08	1.0E-03	4.6E-05	Cadmium	8.1E-06	3.3E-08	1.0E-03	3.3E-05	7.9E-05
Chromium	5.6E-04	5.8E-07	5.0E-03	1.2E-04	Chromium	1.5E-04	6.3E-07	5.0E-03	1.3E-04	2.4E-04
Lead	5.1E-05	5.3E-08			Lead	4.3E-05	1.8E-07			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	2.7E-07	3.0E-03	9.1E-05	U-TOTAL	8.0E-04	3.3E-06	3.0E-03	1.1E-03	1.2E-03
Aroclor-1254	9.9E-05	1.0E-07			Aroclor-1254	3.1E-05	1.3E-07			
Benzo(a)anthracene	3.3E-05	3.4E-08			Benzo(a)anthracene	1.1E-05	4.3E-08			
Benzo(a)pyrene	9.6E-05	9.9E-08			Benzo(a)pyrene	3.0E-05	1.2E-07			
Benzo(b)fluoranthene	3.4E-04	3.5E-07			Benzo(b)fluoranthene	1.1E-04	4.4E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	5.7E-07			Benzo(k)fluoranthene	1.8E-04	7.2E-07			
bis(2-Ethylhexyl) phthalate	7.6E-06	7.8E-09	2.0E-02	3.9E-07	bis(2-Ethylhexyl) phthalate	2.4E-06	9.9E-09	2.0E-02	4.9E-07	8.9E-07
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	4.1E-05	4.2E-08			Chrysene	1.3E-05	5.3E-08			
Dibenzo(a,h)anthracene	2.8E-05	2.8E-08			Dibenzo(a,h)anthracene	8.7E-06	3.6E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:		5.6E-04				Total Pathway:		1.3E-03

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Total Rad + Chem 5.6E-04

Total Rad + Chem 1.3E-03 | *Total:* 1.8E-03

TABLE B.3.5-9
CURRENT, GROUNDSKEEPER
LIME SLUDGE PONDS: SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.1E-05	1.8E-01	1.90E-11	3.5E-12
NP-237	1.1E-05	1.9E-01	2.9E-08	5.5E-09
PU-238	8.6E-06	1.5E-01	3.9E-08	5.9E-09
PU-239/240	2.0E-06	3.6E-02	3.8E-08	1.3E-09
RA-226	2.9E-05	5.0E-01	3.0E-09	1.5E-09
RA-228	2.5E-05	4.3E-01	6.9E-10	3.0E-10
SR-90	1.2E-05	2.1E-01	6.2E-11	1.3E-11
TH-228	4.4E-05	7.6E-01	7.8E-08	6.0E-08
TH-230	6.7E-04	1.2E+01	2.9E-08	3.4E-07
TH-232	2.0E-05	3.4E-01	2.8E-08	9.6E-09
U-234	3.2E-04	5.5E+00	2.6E-08	1.4E-07
U-235/236	2.6E-05	4.6E-01	2.5E-08	1.1E-08
U-238	1.1E-03	1.9E+01	5.2E-08	9.7E-07
			Total Pathway	1.6E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	7.0E-01	6.1E+01	2.80E-11	1.7E-09
NP-237	7.2E-01	6.3E+01	2.2E-10	1.4E-08
PU-238	5.8E-01	5.0E+01	2.2E-10	1.1E-08
PU-239/240	1.3E-01	1.2E+01	2.3E-10	2.7E-09
RA-226	1.9E+00	1.7E+02	1.2E-10	2.0E-08
RA-228	1.6E+00	1.4E+02	1.0E-10	1.4E-08
SR-90	7.9E-01	6.9E+01	3.6E-11	2.5E-09
TH-228	2.9E+00	2.5E+02	5.5E-11	1.4E-08
TH-230	4.5E+01	3.9E+03	1.3E-11	5.1E-08
TH-232	1.3E+00	1.1E+02	1.2E-11	1.4E-09
U-234	2.1E+01	1.8E+03	1.6E-11	2.9E-08
U-235/236	1.7E+00	1.5E+02	1.6E-11	2.4E-09
U-238	7.1E+01	6.2E+03	2.8E-11	1.7E-07
			Total Pathway	3.4E-07

Chemical Risk

Inhalation/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	1.1E-07	1.1E-09	1.5E+01	1.6E-08
Beryllium	2.3E-08	2.2E-10	8.4E+00	
Cadmium	1.8E-08	1.8E-10		
Chromium	2.5E-07	2.4E-09	4.1E+01	1.0E-07
Lead	4.1E-07	4.0E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.2E-06	3.1E-08		
Aroclor-1254	8.9E-09	8.7E-11		
Benzo(a)anthracene	1.4E-08	1.3E-10	8.9E-01	1.2E-10
Benzo(a)pyrene	1.7E-08	1.6E-10	6.1E+00	9.8E-10
Benzo(b)fluoranthene	1.5E-08	1.5E-10	7.5E-01	1.1E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.2E-08	1.2E-10	3.2E-01	3.8E-11
bis(2-Ethylhexyl) phthalate	1.5E-07	1.5E-09		
Carbazole	2.1E-09	2.1E-11		
Chrysene	1.7E-08	1.6E-10	2.7E-02	4.4E-12
Dibenzo(a,h)anthracene	4.8E-09	4.7E-11	6.8E+00	3.2E-10
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.1E-08	1.1E-10	1.7E+00	1.8E-10
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway	1.2E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.2E+00	3.5E-07	1.8E+00	6.2E-07
Beryllium	1.5E+00	7.4E-08	4.3E+00	3.2E-07
Cadmium	1.2E+00	5.9E-08		
Chromium	1.7E+01	8.1E-07		
Lead	2.8E+01	1.3E-06		
TH-TOTAL	2.5E+01	1.2E-06		
U-TOTAL	2.1E+02	1.0E-05		
Aroclor-1254	5.9E-01	2.9E-08	7.7E+00	2.2E-07
Benzo(a)anthracene	9.1E-01	4.5E-08	1.1E+00	4.9E-08
Benzo(a)pyrene	1.1E+00	5.4E-08	7.3E+00	3.9E-07
Benzo(b)fluoranthene	1.0E+00	4.9E-08	9.0E-01	4.4E-08
Benzo(g,h,i)perylene	6.3E-01	3.1E-08		
Benzo(k)fluoranthene	8.0E-01	3.9E-08	3.8E-01	1.5E-08
bis(2-Ethylhexyl) phthalate	1.0E+01	4.9E-07	1.4E-02	6.8E-09
Carbazole	1.4E-01	6.8E-09	2.0E-02	1.4E-10
Chrysene	1.1E+00	5.4E-08	3.2E-02	1.7E-09
Dibenzo(a,h)anthracene	3.2E-01	1.6E-08	8.1E+00	1.3E-07
Dibenzofuran	4.2E-02	2.1E-09		
Indeno(1,2,3-cd)pyrene	7.2E-01	3.5E-08	2.0E+00	7.0E-08
Phenanthrene	1.6E+00	7.8E-08		
			Total Pathway	1.9E-06

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TABLE B.3.5-9 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	5.4E-01	2.00E-06	1.1E-06	1.1E-06
	NP-237	5.5E-01	4.3E-07	2.4E-07	2.6E-07
	PU-238	4.4E-01	2.8E-11	1.2E-11	1.7E-08
	PU-239/240	1.0E-01	2.7E-11	2.8E-12	4.1E-09
	RA-226	1.5E+00	1.2E-08	1.8E-08	3.9E-08
	RA-228	1.3E+00	2.9E-06	3.7E-06	3.7E-06
	SR-90	6.0E-01	0.0E+00	0.0E+00	2.5E-09
	TH-228	2.2E+00	5.6E-06	1.3E-05	1.3E-05
	TH-230	3.4E+01	5.4E-11	1.9E-09	3.9E-07
	TH-232	1.0E+00	2.6E-11	2.6E-11	1.1E-08
	U-234	1.6E+01	3.0E-11	4.9E-10	1.7E-07
	U-235/236	1.3E+00	2.4E-07	3.2E-07	3.4E-07
	U-238	5.5E+01	3.6E-08	2.0E-06	3.1E-06
Total Pathway: 0.0E+00			Total Pathway	1.9E-05	2.2E-05

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil	
Compound	Intake	SF(derm)	Risk		
Arsenic	2.0E-08	1.8E+00	3.7E-08		6.7E-07
Beryllium	4.3E-08	4.3E+02	1.8E-05		1.9E-05
Cadmium	3.4E-08				
Chromium	4.7E-07				1.0E-07
Lead	7.8E-07				
TH-TOTAL	0.0E+00				
U-TOTAL	6.0E-06				
Aroclor-1254	5.0E-07	1.0E+01	5.1E-06		5.3E-06
Benzo(a)anthracene	0.0E+00	2.6E+00		Not applicable	4.9E-08
Benzo(a)pyrene	0.0E+00	1.7E+01			3.9E-07
Benzo(b)fluoranthene	0.0E+00	2.1E+00			4.4E-08
Benzo(g,h,i)perylene	5.3E-07				
Benzo(k)fluoranthene	0.0E+00	8.8E-01			1.5E-08
bis(2-Ethylhexyl) phthalate	1.1E-07	1.6E-02	1.8E-09		8.6E-09
Carbazole	0.0E+00	2.0E-02			1.4E-10
Chrysene	0.0E+00	7.4E-02			1.7E-09
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01			1.3E-07
Dibenzofuran	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00			7.1E-08
Phenanthrene	1.4E-06				
		Total Pathway	2.4E-05	Total Pathway: 0.0E+00	2.5E-05
				Total Rad + Chem:	4.7E-05

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TABLE B.3.5-9 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
CS-137	1.8E-01		
NP-237	1.9E-01		
PU-238	1.5E-01		
PU-239/240	3.6E-02		
RA-226	5.0E-01		
RA-228	4.3E-01		
SR-90	2.1E-01		
TH-228	7.6E-01		
TH-230	1.2E+01		
TH-232	3.4E-01		
U-234	5.5E+00		
U-235/236	4.6E-01		
U-238	1.9E+01		
	Total Pathway		0.0E+00

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
CS-137	6.1E+01		
NP-237	6.3E+01		
PU-238	5.0E+01		
PU-239/240	1.2E+01		
RA-226	1.7E+02		
RA-228	1.4E+02		
SR-90	6.9E+01		
TH-228	2.5E+02		
TH-230	3.9E+03		
TH-232	1.1E+02		
U-234	1.8E+03		
U-235/236	1.5E+02		
U-238	6.2E+03		
	Total Pathw		0.0E+00

Chemical Hazard

Inhalation/Soil

Compound	Intake	RfD(i)	HQ
Arsenic	3.0E-09		
Beryllium	6.2E-10		
Cadmium	4.9E-10		
Chromium	6.8E-09	5.5E-07	1.2E-02
Lead	1.1E-08		
TH-TOTAL	0.0E+00		
U-TOTAL	8.8E-08		
Aroclor-1254	2.4E-10		
Benzo(a)anthracene	3.8E-10		
Benzo(a)pyrene	4.5E-10		
Benzo(b)fluoranthene	4.1E-10		
Benzo(g,h,i)perylene	0.0E+00		
Benzo(k)fluoranthene	3.3E-10		
bis(2-Ethylhexyl) phthalate	4.1E-09		
Carbazole	5.8E-11		
Chrysene	4.5E-10		
Dibenzo(a,h)anthracene	1.3E-10		
Dibenzofuran	0.0E+00		
Indeno(1,2,3-cd)pyrene	3.0E-10		
Phenanthrene	0.0E+00		
	Total Pathway		1.2E-02

Ingestion/Soil

Compound	Intake	RfD(o)	HQ
Arsenic	9.8E-07	3.0E-04	3.3E-03
Beryllium	2.1E-07	5.0E-03	4.2E-05
Cadmium	1.6E-07	1.0E-03	1.6E-04
Chromium	2.3E-06	5.0E-03	4.5E-04
Lead	3.8E-06		
TH-TOTAL	3.4E-06		
U-TOTAL	2.9E-05	3.0E-03	9.8E-03
Aroclor-1254	8.1E-08		
Benzo(a)anthracene	1.2E-07		
Benzo(a)pyrene	1.5E-07		
Benzo(b)fluoranthene	1.4E-07		
Benzo(g,h,i)perylene	8.6E-08		
Benzo(k)fluoranthene	1.1E-07		
bis(2-Ethylhexyl) phthalate	1.4E-06	2.0E-02	6.849E-05
Carbazole	1.9E-08		
Chrysene	1.5E-07		
Dibenzo(a,h)anthracene	4.4E-08		
Dibenzofuran	5.8E-09	4.0E-03	1.438E-06
Indeno(1,2,3-cd)pyrene	9.9E-08		
Phenanthrene	2.2E-07		
	Total Pathw		1.4E-02

TABLE B.3.5-9 (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e) HQ	
Not Applicable	CS-137	8.1E-06		
	NP-237	8.3E-06		
	PU-238	6.7E-06		
	PU-239/24	1.6E-06		
	RA-226	2.2E-05		
	RA-228	1.9E-05		
	SR-90	9.1E-06		
	TH-228	3.4E-05		
	TH-230	5.2E-04		
	TH-232	1.5E-05		
	U-234	2.4E-04		
	U-235/236	2.0E-05		
	U-238	8.2E-04		
Total Pathway 0.0E+00	Total Pathway 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil	Total
Compound	Intake	RfD(derm)	HQ		
Arsenic	5.7E-08	2.9E-04	2.0E-04		3.5E-03
Beryllium	1.2E-07	5.0E-05	2.4E-03		2.4E-03
Cadmium	9.5E-08	5.0E-05	1.9E-03		2.1E-03
Chromium	1.3E-06	2.3E-03	5.8E-04		1.3E-02
Lead	2.2E-06				
TH-TOTAL					
U-TOTAL	1.7E-05	1.5E-04	1.1E-01		1.2E-01
Aroclor-1254	1.4E-06				
Benzo(a)anthracene				Not Applicable	
Benzo(a)pyrene					
Benzo(b)fluoranthene					
Benzo(g,h,i)perylene	1.5E-06				
Benzo(k)fluoranthene					
bis(2-Ethylhexyl) phthalate	3.2E-07	1.8E-02	1.75E-05		8.6E-05
Carbazole					
Chrysene					
Dibenzo(a,h)anthracene					
Dibenzofuran		4.0E-03	0.0E+00		1.4E-06
Indeno(1,2,3-cd)pyrene					
Phenanthrene	3.8E-06				
	Total Pathway 1.2E-01			Total Pathway 0.0E+00	1.4E-01
				Total Rad + Chem:	1.4E-01

TABLE B.3.5-10(a)
FUTURE, OFF-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.24E-07	1.4E-02	1.9E-11	2.7E-13	2.7E-13
NP-237	1.28E-07	1.5E-02	2.9E-08	4.3E-10	4.3E-10
PU-238	1.02E-07	1.2E-02	3.9E-08	4.6E-10	4.6E-10
PU-239/240	2.39E-08	2.8E-03	3.8E-08	1.1E-10	1.1E-10
RA-226	3.40E-07	3.9E-02	3.0E-09	1.2E-10	1.2E-10
RA-228	2.90E-07	3.4E-02	6.6E-10	2.2E-11	2.2E-11
SR-90	1.39E-07	1.6E-02	6.2E-11	1.0E-12	1.0E-12
TC-99	0.00E+00	0.0E+00	8.3E-12	0.0E+00	0.0E+00
TH-228	5.15E-07	6.0E-02	7.8E-08	4.7E-09	4.7E-09
TH-230	7.93E-06	9.2E-01	2.9E-08	2.7E-08	2.7E-08
TH-232	2.31E-07	2.7E-02	2.8E-08	7.5E-10	7.5E-10
U-234	3.72E-06	4.3E-01	2.6E-08	1.1E-08	1.1E-08
U-235/236	3.1E-07	3.6E-02	2.5E-08	9.0E-10	9.0E-10
U-238	1.3E-05	1.5E+00	5.20E-08	7.6E-08	7.6E-08
			Total Pathway:	1.2E-07	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.3E-09	8.2E-11	1.5E+01	1.2E-09	1.2E-09
Beryllium	2.7E-10	1.7E-11	8.4E+00	1.5E-10	1.5E-10
Cadmium	2.1E-10	1.4E-11			
Chromium	2.9E-09	1.9E-10	4.1E+00	7.8E-10	7.8E-10
Lead	4.9E-09	3.2E-10			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.8E-08	2.5E-09			
Aroclor-1254	1.0E-10	6.7E-12			0.0E+00
Benzo(a)anthracene	1.6E-10	1.0E-11	8.9E-01	9.3E-12	9.3E-12
Benzo(a)pyrene	2.0E-10	1.3E-11	6.1	7.7E-11	7.7E-11
Benzo(b)fluoranthene	1.8E-10	1.1E-11	7.5E-01	8.6E-12	8.6E-12
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.4E-10	9.2E-12	3.2E-01	2.9E-12	2.9E-12
bis(2-Ethylhexyl) phthalate	1.8E-09	1.1E-10			0.0E+00
Carbazole	2.5E-11	1.6E-12			0.0E+00
Chrysene	2.0E-10	1.3E-11	2.7E-02	3.4E-13	3.4E-13
Dibenzo(a,h)anthracene	5.7E-11	3.7E-12	6.8E+00	2.5E-11	2.5E-11
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.3E-10	8.3E-12	1.7E+00	1.4E-11	1.4E-11
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.3E-09	

Total Rad + Chem 1.2E-07 *Total:* 1.2E-07

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TABLE B.3.5-10(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard					Total
Inhalation of Particulates/Soil					
Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	1.24E-07	1.4E-02			
NP-237	1.28E-07	1.5E-02			
PU-238	1.02E-07	1.2E-02			
PU-239/240	2.39E-08	2.8E-03			
RA-226	3.40E-07	3.9E-02			
RA-228	2.90E-07	3.4E-02			
SR-90	1.39E-07	1.6E-02			
TC-99	0.00E+00	0.0E+00			
TH-228	5.15E-07	6.0E-02			
TH-230	7.93E-06	9.2E-01			
TH-232	2.31E-07	2.7E-02			
U-234	3.72E-06	4.3E-01			
U-235/236	3.09E-07	3.6E-02			
U-238	1.26E-05	1.5E+00			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	1.27E-09	8.2E-11			0.0E+00
Beryllium	2.69E-10	1.7E-11			0.0E+00
Cadmium	2.13E-10	1.4E-11			0.0E+00
Chromium	2.94E-09	1.9E-10			0.0E+00
Lead	4.88E-09	3.2E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.80E-08	2.5E-09			0.0
Aroclor-1254	1.04E-10	6.7E-12			
Benzo(a)anthracene	1.61E-10	1.0E-11			
Benzo(a)pyrene	1.95E-10	1.3E-11			
Benzo(b)fluoranthene	1.77E-10	1.1E-11			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.42E-10	9.2E-12			
bis(2-Ethylhexyl) phthalate	1.77E-09	1.1E-10			0.0E+00
Carbazole	2.48E-11	1.6E-12			
Chrysene	1.95E-10	1.3E-11			
Dibenzo(a,h)anthracene	5.67E-11	3.7E-12			
Dibenzofuran	0.00E+00	0.0E+00			0.0E+00
Indeno(1,2,3-cd)pyrene	1.28E-10	8.3E-12			0.0E+00
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

TABLE B.3.5-10(b)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.24E-07	2.6E-04	1.9E-11	4.9E-15	4.9E-15
NP-237	1.28E-07	2.7E-04	2.9E-08	7.8E-12	7.8E-12
PU-238	1.02E-07	2.1E-04	3.9E-08	8.4E-12	8.4E-12
PU-239/240	2.39E-08	5.0E-05	3.8E-08	1.9E-12	1.9E-12
RA-226	3.40E-07	7.1E-04	3.0E-09	2.1E-12	2.1E-12
RA-228	2.90E-07	6.1E-04	6.6E-10	4.0E-13	4.0E-13
SR-90	1.39E-07	2.9E-04	6.2E-11	1.8E-14	1.8E-14
TC-99	*0.00E+00*	*0.0E+00*	*8.3E-12*	*0.0E+00*	*0.0E+00*
TH-228	5.15E-07	1.1E-03	7.8E-08	8.4E-11	8.4E-11
TH-230	7.93E-06	1.7E-02	2.9E-08	4.8E-10	4.8E-10
TH-232	2.31E-07	4.9E-04	2.8E-08	1.4E-11	1.4E-11
U-234	3.72E-06	7.8E-03	2.6E-08	2.0E-10	2.0E-10
U-235/236	3.1E-07	6.5E-04	2.5E-08	1.6E-11	1.6E-11
U-238	1.3E-05	2.6E-02	5.20E-08	1.4E-09	1.4E-09
				Total Pathway:	2.2E-09

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	1.3E-09	7.0E-12	1.5E+01	1.1E-10	1.1E-10
Beryllium	2.7E-10	1.5E-12	8.4E+00	1.2E-11	1.2E-11
Cadmium	2.1E-10	1.2E-12			
Chromium	*2.9E-09*	*1.6E-11*	*4.1E+00*	*6.6E-11*	*6.6E-11*
Lead	4.9E-09	2.7E-11			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.8E-08	2.1E-10			
Aroclor-1254	1.0E-10	5.7E-13			0.0E+00
Benzo(b)anthracene	1.6E-10	8.8E-13	8.9E-01	7.9E-13	7.9E-13
Benzo(b)pyrene	2.0E-10	1.1E-12	6.1	6.5E-12	6.5E-12
Benzo(b)fluoranthene	1.8E-10	9.7E-13	7.5E-01	7.3E-13	7.3E-13
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.4E-10	7.8E-13	3.2E-01	2.5E-13	2.5E-13
bis(2-Ethylhexyl) phthalate	1.8E-09	9.7E-12			0.0E+00
Carbazole	*2.5E-11*	*1.4E-13*			*0.0E+00*
Chrysene	2.0E-10	1.1E-12	2.7E-02	2.9E-14	2.9E-14
Dibenzo(a,h)anthracene	5.7E-11	3.1E-13	6.8E+00	2.1E-12	2.1E-12
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	1.3E-10	7.0E-13	1.7E+00	1.2E-12	1.2E-12
Phenanthrene	0.0E+00	0.0E+00			
				Total Pathway:	2.0E-10

Total Rad + Chem 2.4E-09 *Total:* 2.4E-09

NON-CARCINOGENIC HAZARD

Radiation Hazard					Total
Inhalation of Particulates/Soil					
Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	1.24E-07	2.6E-04			
NP-237	1.28E-07	2.7E-04			
PU-238	1.02E-07	2.1E-04			
PU-239/240	2.39E-08	5.0E-05			
RA-226	3.40E-07	7.1E-04			
RA-228	2.90E-07	6.1E-04			
SR-90	1.39E-07	2.9E-04			
TC-99	0.00E+00	0.0E+00			
TH-228	5.15E-07	1.1E-03			
TH-230	7.93E-06	1.7E-02			
TH-232	2.31E-07	4.9E-04			
U-234	3.72E-06	7.8E-03			
U-235/236	3.09E-07	6.5E-04			
U-238	1.26E-05	2.6E-02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	1.27E-09	8.1E-11			0.0E+00
Beryllium	2.69E-10	1.7E-11			0.0E+00
Cadmium	2.13E-10	1.4E-11			0.0E+00
Chromium	2.94E-09	1.9E-10			0.0E+00
Lead	4.88E-09	3.1E-10			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.80E-08	2.4E-09			0.0
Aroclor-1254	1.04E-10	6.6E-12			
Benzo(b)anthracene	1.61E-10	1.0E-11			
Benzo(b)pyrene	1.95E-10	1.2E-11			
Benzo(b)fluoranthene	1.77E-10	1.1E-11			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	1.42E-10	9.1E-12			
bis(2-Ethylhexyl) phthalate	1.77E-09	1.1E-10			0.0E+00
Carbazole	2.48E-11	1.6E-12			
Chrysene	1.95E-10	1.2E-11			
Dibenzo(a,h)anthracene	5.67E-11	3.6E-12			
Dibenzofuran	0.00E+00	0.0E+00			0.0E+00
Indeno(1,2,3-cd)pyrene	1.28E-10	8.2E-12			0.0E+00
Phenanthrene	0.00E+00	0.0E+00			
			Total Pathway:	0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 0.0E+00

TABLE B.3.5-11(a)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	9.94E-04	1.8E+00	2.8E-11	5.1E-11	CS-137	3.48E-04	2.6E+00	2.8E-11	7.2E-11	1.2E-10
NP-237	2.79E-06	5.1E-03	2.2E-10	1.1E-12	NP-237	2.54E-07	1.9E-03	2.2E-10	4.1E-13	1.5E-12
PU-238	2.01E-08	3.7E-05	2.2E-10	8.1E-15	PU-238	4.02E-09	3.0E-05	2.2E-10	6.5E-15	1.5E-14
PU-239/240	4.74E-09	8.7E-06	2.3E-10	2.0E-15	PU-239/240	9.48E-10	7.0E-06	2.3E-10	1.6E-15	3.6E-15
RA-226	3.37E-05	6.2E-02	1.2E-10	7.4E-12	RA-226	6.06E-05	4.5E-01	1.2E-10	5.3E-11	6.1E-11
RA-228	2.78E-05	5.1E-02	1.0E-10	5.1E-12	RA-228	5.00E-05	3.7E-01	1.0E-10	3.7E-11	4.2E-11
SR-90	1.73E-05	3.2E-02	3.6E-11	1.1E-12	SR-90	8.65E-05	6.4E-01	3.6E-11	2.3E-11	2.4E-11
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	1.11E-06	2.0E-03	5.5E-11	1.1E-13	TH-228	9.23E-07	6.8E-03	5.5E-11	3.7E-13	4.9E-13
TH-230	1.88E-05	3.5E-02	1.3E-11	4.5E-13	TH-230	1.57E-05	1.2E-01	1.3E-11	1.5E-12	2.0E-12
TH-232	5.48E-07	1.0E-03	1.2E-11	1.2E-14	TH-232	4.57E-07	3.4E-03	1.2E-11	4.0E-14	5.2E-14
U-234	2.94E-04	5.4E-01	1.6E-11	8.7E-12	U-234	8.83E-04	6.5E+00	1.6E-11	1.0E-10	1.1E-10
U-235/236	2.45E-05	4.5E-02	1.6E-11	7.2E-13	U-235/236	7.35E-05	5.4E-01	1.6E-11	8.6E-12	9.4E-12
U-238	1.00E-03	1.8E+00	2.8E-11	5.2E-11	U-238	3.01E-03	2.2E+01	2.8E-11	6.2E-10	6.7E-10
			Total Pathway:	1.3E-10				Total Pathway:	9.2E-10	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.0E-06	1.0E-09	1.8E+00	1.8E-09	Arsenic	3.0E-08	1.2E-10	1.8E+00	2.2E-10	2.0E-09
Beryllium	1.1E-07	1.1E-10	4.3E+00	4.7E-10	Beryllium	9.6E-11	3.9E-13	4.3E+00	1.7E-12	4.7E-10
Cadmium	5.0E-07	5.2E-10			Cadmium	9.2E-08	3.8E-10			
Chromium	6.4E-06	6.6E-09			Chromium	1.7E-06	7.2E-09			
Lead	5.8E-07	6.0E-10			Lead	4.8E-07	2.0E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	3.1E-09			U-TOTAL	9.0E-06	3.7E-08			
Aroclor-1254	1.1E-06	1.1E-09	7.7E+00	8.9E-09	Aroclor-1254	3.5E-07	1.5E-09	7.7E+00	1.1E-08	2.0E-08
Benzo(a)anthracene	3.8E-07	3.9E-10	1.1E+00	4.3E-10	Benzo(a)anthracene	1.2E-07	4.9E-10	1.1E+00	5.4E-10	9.7E-10
Benzo(a)pyrene	1.1E-06	1.1E-09	7.3E+00	8.2E-09	Benzo(a)pyrene	3.4E-07	1.4E-09	7.3E+00	1.0E-08	1.8E-08
Benzo(b)fluoranthene	3.9E-06	4.0E-09	9.0E-01	3.6E-09	Benzo(b)fluoranthene	1.2E-06	5.0E-09	9.0E-01	4.5E-09	8.1E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	6.5E-09	3.8E-01	2.5E-09	Benzo(k)fluoranthene	2.0E-06	8.2E-09	3.8E-01	3.1E-09	5.6E-09
bis(2-Ethylhexyl) phthalate	8.7E-08	8.9E-11	1.4E-02	1.2E-12	bis(2-Ethylhexyl) phthalate	2.7E-08	1.1E-10	1.4E-02	1.6E-12	2.8E-12
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.6E-07	4.7E-10	3.2E-02	1.5E-11	Chrysene	1.5E-07	6.0E-10	3.2E-02	1.9E-11	3.4E-11
Dibenzo(a,h)anthracene	3.1E-07	3.2E-10	8.1E+00	2.6E-09	Dibenzo(a,h)anthracene	9.9E-08	4.1E-10	8.1E+00	3.3E-09	5.9E-09
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.8E-08				Total Pathway:	3.3E-08	

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Total Rad + Chem 2.9E-08

Total Rad + Chem 3.4E-08 *Total:* [redacted]E-08

TABLE B.3.5-11(a)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef

Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	2.65E-01	4.9E+02	1.30E-12	6.3E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00

Total Pathway: 6.3E-10

Ingestion/Milk

Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	3.12E-01	2.3E+03	1.3E-12	3.0E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00

Total Pathway: 3.0E-09

	Total	Total Dust & Groundwater Affected
CS-137	0.0E+00	1.2E-10
NP-237	0.0E+00	1.5E-12
PU-238	0.0E+00	1.5E-14
PU-239/240	0.0E+00	3.6E-15
RA-226	0.0E+00	6.1E-11
RA-228	0.0E+00	4.2E-11
SR-90	0.0E+00	2.4E-11
TC-99	3.6E-09	3.6E-09
TH-228	0.0E+00	4.9E-13
TH-230	0.0E+00	2.0E-12
TH-232	0.0E+00	5.2E-14
U-234	0.0E+00	1.1E-10
U-235/236	0.0E+00	9.4E-12
U-238	0.0E+00	6.7E-10

Chemical Risk

Ingestion of Beef

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.0E+00	0.0E+00		
Chromium	0.0E+00	0.0E+00		
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00		
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.0E+00	0.0E+00		
Chromium	0.0E+00	0.0E+00		
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00		
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		

Total Pathway: 0.0E+00

	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	2.0E-09
Beryllium	0.0E+00	4.7E-10
Aroclor-1254	0.0E+00	2.0E-08
Benzo(a)anthracene	0.0E+00	9.7E-10
Benzo(a)pyrene	0.0E+00	1.8E-08
Benzo(b)fluoranthene	0.0E+00	8.1E-09
Benzo(k)fluoranthene	0.0E+00	5.6E-09
bis(2-Ethylhexyl) phthalate	0.0E+00	2.8E-12
Carbazole	0.0E+00	0.0E+00
Chrysene	0.0E+00	3.4E-11
Dibenzo(a,h)anthracene	0.0E+00	5.9E-09
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00

Total Rad + Chem 6.3E-10

Total Rad + Chem 3.0E-09

	Total	Total Dust & Groundwater Affected
Total:	3.6E-09	6.6E-08

TABLE B.3.5-11(a) (continued)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	9.9E-04	1.8E+00			CS-137	3.48E-04	2.6E+00			
NP-237	2.8E-06	5.1E-03			NP-237	2.54E-07	1.9E-03			
PU-238	2.0E-08	3.7E-05			PU-238	4.02E-09	3.0E-05			
PU-239/240	4.7E-09	8.7E-06			PU-239/240	9.48E-10	7.0E-06			
RA-226	3.4E-05	6.2E-02			RA-226	6.06E-05	4.5E-01			
RA-228	2.8E-05	5.1E-02			RA-228	5.00E-05	3.7E-01			
SR-90	1.7E-05	3.2E-02			SR-90	8.65E-05	6.4E-01			
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00			
TH-228	1.1E-06	2.0E-03			TH-228	9.23E-07	6.8E-03			
TH-230	1.9E-05	3.5E-02			TH-230	1.57E-05	1.2E-01			
TH-232	5.5E-07	1.0E-03			TH-232	4.57E-07	3.4E-03			
U-234	2.9E-04	5.4E-01			U-234	8.83E-04	6.5E+00			
U-235/236	2.5E-05	4.5E-02			U-235/236	7.35E-05	5.4E-01			
U-238	1.0E-03	1.8E+00			U-238	3.01E-03	2.2E+01			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	1.0E-06	1.0E-09	3.0E-04	3.5E-06	Arsenic	3.0E-08	1.2E-10	3.0E-04	4.2E-07	3.9E-06
Beryllium	1.1E-07	1.1E-10	5.0E-03	2.2E-08	Beryllium	9.6E-11	3.9E-13	5.0E-03	7.9E-11	2.2E-08
Cadmium	5.0E-07	5.2E-10	1.0E-03	5.2E-07	Cadmium	9.2E-08	3.8E-10	1.0E-03	3.8E-07	8.9E-07
Chromium	6.4E-06	6.6E-09	5.0E-03	1.3E-06	Chromium	1.7E-06	7.2E-09	5.0E-03	1.4E-06	2.7E-06
Lead	5.8E-07	6.0E-10			Lead	4.8E-07	2.0E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	3.1E-09	3.0E-03	1.0E-06	U-TOTAL	9.0E-06	3.7E-08	3.0E-03	1.2E-05	1.3E-05
Aroclor-1254	1.1E-06	1.1E-09			Aroclor-1254	3.5E-07	1.5E-09			
Benzo(a)anthracene	3.8E-07	3.9E-10			Benzo(a)anthracene	1.2E-07	4.9E-10			
Benzo(a)pyrene	1.1E-06	1.1E-09			Benzo(a)pyrene	3.4E-07	1.4E-09			
Benzo(b)fluoranthene	3.9E-06	4.0E-09			Benzo(b)fluoranthene	1.2E-06	5.0E-09			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	6.5E-09			Benzo(k)fluoranthene	2.0E-06	8.2E-09			
bis(2-Ethylhexyl) phthalate	8.7E-08	8.9E-11	2.0E-02	4.4E-09	bis(2-Ethylhexyl) phthalate	2.7E-08	1.1E-10	2.0E-02	5.6E-09	1.0E-08
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	4.6E-07	4.7E-10			Chrysene	1.5E-07	6.0E-10			
Dibenzo(a,h)anthracene	3.1E-07	3.2E-10			Dibenzo(a,h)anthracene	9.9E-08	4.1E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:		6.4E-06			Total Pathway:		1.5E-05	

FE[illegible]2RI\ABQ\LBFOFRFD.XLS\1/27/94; 7:53 AM

Total Rad + Chem 6.4E-06

Total Rad + Chem 1.5E-05 Total [illegible]1E-05

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February 18, 1994

TABLE B.3.5-11(a) (continued)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00			PU-239/240	0.00E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00			SR-90	0.00E+00	0.0E+00				
TC-99	2.7E-01	4.9E+02			TC-99	3.12E-01	2.3E+03				
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00	0.0E+00				
U-234	0.0E+00	0.0E+00			U-234	0.00E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00			U-235/236	0.00E+00	0.0E+00				
U-238	0.0E+00	0.0E+00			U-238	0.00E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	3.9E-06
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.2E-08
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	8.9E-07
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.7E-06
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	1.3E-05
Aroclor-1254	0.0E+00	0.0E+00			Aroclor-1254	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.0E-08
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		
		Total Rad + Chem		0.0E+00			Total Rad + Chem		0.0E+00	*Total:* 0.0E+00	2.1E-05

FERNP-0002-4 DRAFT
February 18, 19

TABLE B.3.5-11(b)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	9.94E-04	6.1E-02	2.8E-11	1.7E-12	CS-137	3.48E-04	5.0E-01	2.8E-11	1.4E-11	1.6E-11
NP-237	2.79E-06	1.7E-04	2.2E-10	3.7E-14	NP-237	2.54E-07	3.6E-04	2.2E-10	8.0E-14	1.2E-13
PU-238	2.01E-08	1.2E-06	2.2E-10	2.7E-16	PU-238	4.02E-09	5.7E-06	2.2E-10	1.3E-15	1.5E-15
PU-239/240	4.74E-09	2.9E-07	2.3E-10	6.6E-17	PU-239/240	9.48E-10	1.4E-06	2.3E-10	3.1E-16	3.8E-16
RA-226	3.37E-05	2.1E-03	1.2E-10	2.5E-13	RA-226	6.06E-05	8.7E-02	1.2E-10	1.0E-11	1.1E-11
RA-228	2.78E-05	1.7E-03	1.0E-10	1.7E-13	RA-228	5.00E-05	7.1E-02	1.0E-10	7.1E-12	7.3E-12
SR-90	1.73E-05	1.1E-03	3.6E-11	3.8E-14	SR-90	8.65E-05	1.2E-01	3.6E-11	4.4E-12	4.5E-12
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	1.11E-06	6.7E-05	5.5E-11	3.7E-15	TH-228	9.23E-07	1.3E-03	5.5E-11	7.3E-14	7.6E-14
TH-230	1.88E-05	1.1E-03	1.3E-11	1.5E-14	TH-230	1.57E-05	2.2E-02	1.3E-11	2.9E-13	3.1E-13
TH-232	5.48E-07	3.3E-05	1.2E-11	4.0E-16	TH-232	4.57E-07	6.5E-04	1.2E-11	7.8E-15	8.2E-15
U-234	2.94E-04	1.8E-02	1.6E-11	2.9E-13	U-234	8.83E-04	1.3E+00	1.6E-11	2.0E-11	2.0E-11
U-235/236	2.45E-05	1.5E-03	1.6E-11	2.4E-14	U-235/236	7.35E-05	1.0E-01	1.6E-11	1.7E-12	1.7E-12
U-238	1.00E-03	6.1E-02	2.8E-11	1.7E-12	U-238	3.01E-03	4.3E+00	2.8E-11	1.2E-10	1.2E-10
			Total Pathway:	4.2E-12				Total Pathway:	1.8E-10	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.0E-06	1.6E-10	1.8E+00	2.8E-10	Arsenic	3.0E-08	1.1E-10	1.8E+00	2.0E-10	4.8E-10
Beryllium	1.1E-07	1.7E-11	4.3E+00	7.3E-11	Beryllium	9.6E-11	3.6E-13	4.3E+00	1.5E-12	7.4E-11
Cadmium	5.0E-07	8.0E-11			Cadmium	9.2E-08	3.4E-10			
Chromium	6.4E-06	1.0E-09			Chromium	1.7E-06	6.5E-09			
Lead	5.8E-07	9.2E-11			Lead	4.8E-07	1.8E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	4.8E-10			U-TOTAL	9.0E-06	3.4E-08			
Aroclor-1254	1.1E-06	1.8E-10	7.7E+00	1.4E-09	Aroclor-1254	3.5E-07	1.3E-09	7.7E+00	1.0E-08	1.2E-08
Benzo(b)anthracene	3.8E-07	6.0E-11	1.1E+00	6.6E-11	Benzo(b)anthracene	1.2E-07	4.5E-10	1.1E+00	4.9E-10	5.6E-10
Benzo(b)pyrene	1.1E-06	1.7E-10	7.3E+00	1.3E-09	Benzo(b)pyrene	3.4E-07	1.3E-09	7.3E+00	9.4E-09	1.1E-08
Benzo(b)fluoranthene	3.9E-06	6.2E-10	9.0E-01	5.5E-10	Benzo(b)fluoranthene	1.2E-06	4.6E-09	9.0E-01	4.1E-09	4.7E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	1.0E-09	3.8E-01	3.8E-10	Benzo(k)fluoranthene	2.0E-06	7.4E-09	3.8E-01	2.8E-09	3.2E-09
bis(2-Ethylhexyl) phthalate	8.7E-08	1.4E-11	1.4E-02	1.9E-13	bis(2-Ethylhexyl) phthalate	2.7E-08	1.0E-10	1.4E-02	1.4E-12	1.6E-12
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.6E-07	7.3E-11	3.2E-02	2.3E-12	Chrysene	1.5E-07	5.4E-10	3.2E-02	1.7E-11	2.0E-11
Dibenzo(a,h)anthracene	3.1E-07	5.0E-11	8.1E+00	4.0E-10	Dibenzo(a,h)anthracene	9.9E-08	3.7E-10	8.1E+00	3.0E-09	3.4E-09
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	4.4E-09				Total Pathway:	3.0E-08	

F[redacted]2RI\ABQ\LBFOFRCD.XLS\1/27/94; 7:56 AM

Total Rad + Chem 4.4E-09

Total Rad + Chem 3.0E-08 *Total:* [redacted]5E-08

TABLE B.3.5-11(b)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.6E-11
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.2E-13
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.5E-15
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	3.8E-16
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	1.1E-11
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	7.3E-12
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	4.5E-12
TC-99	2.65E-01	1.6E+01	1.30E-12	2.1E-11	TC-99	3.12E-01	4.5E+02	1.3E-12	5.8E-10	6.0E-10	6.0E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	7.6E-14
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	3.1E-13
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	8.2E-15
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	2.0E-11
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	1.7E-12
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.2E-10
			Total Pathway:	2.1E-11				Total Pathway:	5.8E-10		

Chemical Risk

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	4.8E-10
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	7.4E-11
Cadmium	0.0E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00			Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00			U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.2E-08
Benzo(b)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(b)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	5.6E-10
Benzo(b)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(b)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	1.1E-08
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	4.7E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	3.2E-09
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.6E-12
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	2.0E-11
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	3.4E-09
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	2.1E-11				Total Rad + Chem	5.8E-10	*Total:* 6.0E-10	3.5E-08

TABLE B.3.5-11(b) (continued)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	9.9E-04	6.1E-02			CS-137	3.48E-04	5.0E-01			
NP-237	2.8E-06	1.7E-04			NP-237	2.54E-07	3.6E-04			
PU-238	2.0E-08	1.2E-06			PU-238	4.02E-09	5.7E-06			
PU-239/240	4.7E-09	2.9E-07			PU-239/240	9.48E-10	1.4E-06			
RA-226	3.4E-05	2.1E-03			RA-226	6.06E-05	8.7E-02			
RA-228	2.8E-05	1.7E-03			RA-228	5.00E-05	7.1E-02			
SR-90	1.7E-05	1.1E-03			SR-90	8.65E-05	1.2E-01			
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00			
TH-228	1.1E-06	6.7E-05			TH-228	9.23E-07	1.3E-03			
TH-230	1.9E-05	1.1E-03			TH-230	1.57E-05	2.2E-02			
TH-232	5.5E-07	3.3E-05			TH-232	4.57E-07	6.5E-04			
U-234	2.9E-04	1.8E-02			U-234	8.83E-04	1.3E+00			
U-235/236	2.5E-05	1.5E-03			U-235/236	7.35E-05	1.0E-01			
U-238	1.0E-03	6.1E-02			U-238	3.01E-03	4.3E+00			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	1.0E-06	1.9E-09	3.0E-04	6.2E-06	Arsenic	3.0E-08	1.3E-09	3.0E-04	4.4E-06	1.1E-05
Beryllium	1.1E-07	2.0E-10	5.0E-03	4.0E-08	Beryllium	9.6E-11	4.2E-12	5.0E-03	8.3E-10	4.0E-08
Cadmium	5.0E-07	9.3E-10	1.0E-03	9.3E-07	Cadmium	9.2E-08	4.0E-09	1.0E-03	4.0E-06	4.9E-06
Chromium	6.4E-06	1.2E-08	5.0E-03	2.4E-06	Chromium	1.7E-06	7.6E-08	5.0E-03	1.5E-05	1.8E-05
Lead	5.8E-07	1.1E-09			Lead	4.8E-07	2.1E-08			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.0E-06	5.6E-09	3.0E-03	1.9E-06	U-TOTAL	9.0E-06	3.9E-07	3.0E-03	1.3E-04	1.3E-04
Aroclor-1254	1.1E-06	2.1E-09			Aroclor-1254	3.5E-07	1.5E-08			
Benzo(b)anthracene	3.8E-07	7.0E-10			Benzo(b)anthracene	1.2E-07	5.2E-09			
Benzo(b)pyrene	1.1E-06	2.0E-09			Benzo(b)pyrene	3.4E-07	1.5E-08			
Benzo(b)fluoranthene	3.9E-06	7.2E-09			Benzo(b)fluoranthene	1.2E-06	5.3E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.3E-06	1.2E-08			Benzo(k)fluoranthene	2.0E-06	8.6E-08			
bis(2-Ethylhexyl) phthalate	8.7E-08	1.6E-10	2.0E-02	8.0E-09	bis(2-Ethylhexyl) phthalate	2.7E-08	1.2E-09	2.0E-02	5.9E-08	6.7E-08
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	4.6E-07	8.5E-10			Chrysene	1.5E-07	6.3E-09			
Dibenzo(a,h)anthracene	3.1E-07	5.8E-10			Dibenzo(a,h)anthracene	9.9E-08	4.3E-09			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:		1.1E-05			Total Pathway:		1.5E-04	

FER\CP...\ABQ\LBFOFRCD.XLS\1/27/94; 7:56 AM	Total Rad + Chem	1.1E-05	Total Rad + Chem 1.5E-04 *Total:* ...04

TABLE B.3.5-11(b) (continued)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00			PU-239/240	0.00E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00			SR-90	0.00E+00	0.0E+00				
TC-99	2.7E-01	1.6E+01			TC-99	3.12E-01	4.5E+02				
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00	0.0E+00				
U-234	0.0E+00	0.0E+00			U-234	0.00E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00			U-235/236	0.00E+00	0.0E+00				
U-238	0.0E+00	0.0E+00			U-238	0.00E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.1E-05
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	4.0E-08
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	4.9E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.8E-05
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	1.3E-04
Aroclor-1254	0.0E+00	0.0E+00			Aroclor-1254	0.0E+00	0.0E+00				
Benzo(b)anthracene	0.0E+00	0.0E+00			Benzo(b)anthracene	0.0E+00	0.0E+00				
Benzo(b)pyrene	0.0E+00	0.0E+00			Benzo(b)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	6.7E-08
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		
		Total Rad + Chem		0.0E+00			Total Rad + Chem		0.0E+00	*Total:* 0.0E+00	1.7E-04

TABLE B.3.5-12(a)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	
CS-137	7.76E-04	1.2E+00	2.8E-11	3.2E-11	3.2E-11
NP-237	8.00E-04	1.2E+00	2.2E-10	2.6E-10	2.6E-10
PU-238	6.20E-04	9.3E-01	2.2E-10	2.0E-10	2.0E-10
PU-239/240	1.46E-04	2.2E-01	2.3E-10	5.0E-11	5.0E-11
RA-226	2.08E-03	3.1E+00	1.2E-10	3.7E-10	3.7E-10
RA-228	1.77E-03	2.7E+00	1.0E-10	2.7E-10	2.7E-10
SR-90	1.13E-03	1.7E+00	3.6E-11	6.1E-11	6.1E-11
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	3.13E-03	4.7E+00	5.5E-11	2.6E-10	2.6E-10
TH-230	4.83E-02	7.2E+01	1.3E-11	9.4E-10	9.4E-10
TH-232	1.41E-03	2.1E+00	1.2E-11	2.5E-11	2.5E-11
U-234	2.26E-02	3.4E+01	1.6E-11	5.4E-10	5.4E-10
U-235/236	1.88E-03	2.8E+00	1.6E-11	4.5E-11	4.5E-11
U-238	7.71E-02	1.2E+02	2.8E-11	3.2E-09	3.2E-09
			Total Pathway:	6.3E-09	

Chemical Risk					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.8E-06	6.6E-09	1.8E+00	1.1E-08	1.1E-08
Beryllium	1.6E-06	1.4E-09	4.3E+00	5.9E-09	5.9E-09
Cadmium	1.5E-06	1.3E-09			
Chromium	1.8E-05	1.5E-08			
Lead	3.0E-05	2.5E-08			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	1.9E-07			
Aroclor-1254	6.4E-07	5.3E-10	7.7E+00	4.1E-09	4.1E-09
Benzo(a)anthracene	9.6E-07	8.0E-10	1.1E+00	8.8E-10	8.8E-10
Benzo(a)pyrene	1.1E-06	9.6E-10	7.3E+00	7.0E-09	7.0E-09
Benzo(b)fluoranthene	1.0E-06	8.8E-10	9.0E-01	7.9E-10	7.9E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	7.1E-10	3.8E-01	2.7E-10	2.7E-10
bis(2-Ethylhexyl) phthalate	5.2E-06	4.4E-09	1.4E-02	6.1E-11	6.1E-11
Carbazole	1.6E-07	1.3E-10	2.0E-02	2.6E-12	2.6E-12
Chrysene	1.2E-06	9.7E-10	3.2E-02	3.1E-11	3.1E-11
Dibenzo(a,h)anthracene	3.4E-07	2.8E-10	8.1E+00	2.3E-09	2.3E-09
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	3.3E-08	

Total Rad + Chem 3.9E-08 *Total:* 3.9E-08

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TABLE B.3.5-12(a) (continued)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk — Ingestion of Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	3.2E-11
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.6E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.0E-10
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	5.0E-11
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.7E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.7E-10
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	6.1E-11
TC-99	1.32E+00	2.0E+03	1.30E-12	2.6E-09	2.6E-09	2.6E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.6E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	9.4E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	2.5E-11
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	5.4E-10
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.5E-11
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	3.2E-09
				Total Pathway:	2.6E-09	

Chemical Risk — Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.1E-08
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	5.9E-09
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	4.1E-09
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	8.8E-10
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	7.0E-09
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	7.9E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.7E-10
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	6.1E-11
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.6E-12
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	3.1E-11
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	2.3E-09
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	
				Total Rad + Chem	2.6E-09	*Total:* 2.6E-09 4.2E-08

TABLE B.3.5-12(a) (continued)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Homegrown Produce

Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	7.8E-04	1.2E+00			
NP-237	8.0E-04	1.2E+00			
PU-238	6.2E-04	9.3E-01			
PU-239/240	1.5E-04	2.2E-01			
RA-226	2.1E-03	3.1E+00			
RA-228	1.8E-03	2.7E+00			
SR-90	1.1E-03	1.7E+00			
TC-99	0.0E+00	0.0E+00			
TH-228	3.1E-03	4.7E+00			
TH-230	4.8E-02	7.2E+01			
TH-232	1.4E-03	2.1E+00			
U-234	2.3E-02	3.4E+01			
U-235/236	1.9E-03	2.8E+00			
U-238	7.7E-02	1.2E+02			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Homegrown Produce

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.8E-06	6.6E-09	3.0E-04	2.2E-05	2.2E-05
Beryllium	1.6E-06	1.4E-09	5.0E-03	2.7E-07	2.7E-07
Cadmium	1.5E-06	1.3E-09	1.0E-03	1.3E-06	1.3E-06
Chromium	1.8E-05	1.5E-08	5.0E-03	3.0E-06	3.0E-06
Lead	3.0E-05	2.5E-08			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	1.9E-07	3.0E-03	6.5E-05	6.5E-05
Aroclor-1254	6.4E-07	5.3E-10			
Benzo(a)anthracene	9.6E-07	8.0E-10			
Benzo(a)pyrene	1.1E-06	9.6E-10			
Benzo(b)fluoranthene	1.0E-06	8.8E-10			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	7.1E-10			
bis(2-Ethylhexyl) phthalate	5.2E-06	4.4E-09	2.0E-02	2.2E-07	2.2E-07
Carbazole	1.6E-07	1.3E-10			
Chrysene	1.2E-06	9.7E-10			
Dibenzo(a,h)anthracene	3.4E-07	2.8E-10			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			

Total Pathway: 9.1E-05

Total Rad + Chem 9.1E-05 *Total:* 9.1E-05

TABLE B.3.5-12(a) (continued)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard						
Ingestion of Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	1.3E+00	2.0E+03				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.2E-05
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.7E-07
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	1.3E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.0E-06
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	6.5E-05
Aroclor-1254	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.2E-07
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	9.1E-05

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TABLE B.3.5-12(b)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	
CS-137	7.76E-04	8.6E-02	2.8E-11	2.4E-12	2.4E-12
NP-237	8.00E-04	8.9E-02	2.2E-10	2.0E-11	2.0E-11
PU-238	6.20E-04	6.9E-02	2.2E-10	1.5E-11	1.5E-11
PU-239/240	1.46E-04	1.6E-02	2.3E-10	3.7E-12	3.7E-12
RA-226	2.08E-03	2.3E-01	1.2E-10	2.8E-11	2.8E-11
RA-228	1.77E-03	2.0E-01	1.0E-10	2.0E-11	2.0E-11
SR-90	1.13E-03	1.3E-01	3.6E-11	4.5E-12	4.5E-12
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	3.13E-03	3.5E-01	5.5E-11	1.9E-11	1.9E-11
TH-230	4.83E-02	5.4E+00	1.3E-11	7.0E-11	7.0E-11
TH-232	1.41E-03	1.6E-01	1.2E-11	1.9E-12	1.9E-12
U-234	2.26E-02	2.5E+00	1.6E-11	4.0E-11	4.0E-11
U-235/236	1.88E-03	2.1E-01	1.6E-11	3.4E-12	3.4E-12
U-238	7.71E-02	8.6E+00	2.8E-11	2.4E-10	2.4E-10
			Total Pathway:	4.7E-10	

Chemical Risk					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	7.8E-06	2.3E-09	1.8E+00	4.0E-09	4.0E-09
Beryllium	1.6E-06	4.8E-10	4.3E+00	2.1E-09	2.1E-09
Cadmium	1.5E-06	4.4E-10			
Chromium	1.8E-05	5.2E-09			
Lead	3.0E-05	8.7E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	6.7E-08			
Aroclor-1254	6.4E-07	1.9E-10	7.7E+00	1.4E-09	1.4E-09
Benzo(b)anthracene	9.6E-07	2.8E-10	1.1E+00	3.1E-10	3.1E-10
Benzo(b)pyrene	1.1E-06	3.3E-10	7.3E+00	2.4E-09	2.4E-09
Benzo(b)fluoranthene	1.0E-06	3.0E-10	9.0E-01	2.7E-10	2.7E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	2.5E-10	3.8E-01	9.4E-11	9.4E-11
bis(2-Ethylhexyl) phthalate	5.2E-06	1.5E-09	1.4E-02	2.1E-11	2.1E-11
Carbazole	1.6E-07	4.5E-11	2.0E-02	9.1E-13	9.1E-13
Chrysene	1.2E-06	3.4E-10	3.2E-02	1.1E-11	1.1E-11
Dibenzo(a,h)anthracene	3.4E-07	9.8E-11	8.1E+00	8.0E-10	8.0E-10
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.1E-08	

Total Rad + Chem 1.2E-08 *Total:* 1.2E-08

TABLE B.3.5-12(b) (continued)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						Total Dust & Groundwater Affected
Ingestion of Homegrown Produce					Total	
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.4E-12
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.0E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.5E-11
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	3.7E-12
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.8E-11
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.0E-11
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	4.5E-12
TC-99	1.32E+00	1.5E+02	1.30E-12	1.9E-10	1.9E-10	1.9E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.9E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	7.0E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.9E-12
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.0E-11
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	3.4E-12
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.4E-10
				Total Pathway:	1.9E-10	

Chemical Risk						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	4.0E-09
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.1E-09
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.4E-09
Benzo(b)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	3.1E-10
Benzo(b)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	2.4E-09
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	2.7E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	9.4E-11
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	2.1E-11
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	9.1E-13
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.1E-11
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	8.0E-10
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Total Rad + Chem	1.9E-10	*Total:* 1.9E-10	1.2E-08

TABLE B.3.5-12(b) (continued)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	7.8E-04	8.6E-02			
NP-237	8.0E-04	8.9E-02			
PU-238	6.2E-04	6.9E-02			
PU-239/240	1.5E-04	1.6E-02			
RA-226	2.1E-03	2.3E-01			
RA-228	1.8E-03	2.0E-01			
SR-90	1.1E-03	1.3E-01			
TC-99	0.0E+00	0.0E+00			
TH-228	3.1E-03	3.5E-01			
TH-230	4.8E-02	5.4E+00			
TH-232	1.4E-03	1.6E-01			
U-234	2.3E-02	2.5E+00			
U-235/236	1.9E-03	2.1E-01			
U-238	7.7E-02	8.6E+00			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	7.8E-06	2.3E-09	3.0E-04	7.6E-06	7.6E-06
Beryllium	1.6E-06	4.8E-10	5.0E-03	9.5E-08	9.5E-08
Cadmium	1.5E-06	4.4E-10	1.0E-03	4.4E-07	4.4E-07
Chromium	1.8E-05	5.2E-09	5.0E-03	1.0E-06	1.0E-06
Lead	3.0E-05	8.7E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.3E-04	6.7E-08	3.0E-03	2.2E-05	2.2E-05
Aroclor-1254	6.4E-07	1.9E-10			
Benzo(b)anthracene	9.6E-07	2.8E-10			
Benzo(b)pyrene	1.1E-06	3.3E-10			
Benzo(b)fluoranthene	1.0E-06	3.0E-10			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	8.5E-07	2.5E-10			
bis(2-Ethylhexyl) phthalate	5.2E-06	1.5E-09	2.0E-02	7.6E-08	7.6E-08
Carbazole	1.6E-07	4.5E-11			
Chrysene	1.2E-06	3.4E-10			
Dibenzo(a,h)anthracene	3.4E-07	9.8E-11			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	3.2E-05	

Total Rad + Chem 3.2E-05 *Total:* 3.2E-05

TABLE B.3.5-12(b) (continued)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard						
Ingestion of Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	1.3E+00	1.5E+02				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Chemical Hazard						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	7.6E-06
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	9.5E-08
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	4.4E-07
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.0E-06
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	2.2E-05
Aroclor-1254	0.0E+00	0.0E+00				
Benzo(b)anthracene	0.0E+00	0.0E+00				
Benzo(b)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	7.6E-08
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	
				Total Rad + Chem	0.0E+00	*Total:* 0.0E+00 3.2E-05

TABLE B.3.5-13(a)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PITS: GROUNDWATER

Carcinogenic Risk

Radiation Risk								
Ingestion/Groundwater					Inhalation/Groundwater	Dermal Contact/Groundwater	Total
Compoun	Conc'n (pCi/L)	Intake	SF(o)	Risk			
TC-99	1.4E-01	7.0E+03	1.3E-12	9.1E-09	Not applicable	Not applicable	9.1E-09
			Total Pathway:	9.1E-09	Total Pathway: 0.0E+00	Total Pathway: 0.0E+00	
			Total Rad + Chem	9.1E-09	Total Rad + Chem 0.0E+00	Total Rad + Chem 0.0E+00	*Total:* 9.1E-09

TABLE B.3.5-13(a) (continued)
FUTURE, OFF-PROPERTY FARMER
LIME SLUDGE PITS: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard								
Ingestion/Groundwater					Inhalation/Groundwater		Dermal Contact/Groundwater	
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard				
TC-99	1.4E-01	7.0E+03			Not applicable		Not applicable	
			Total Pathway:	0.0E+00	Total Pathway:	0.0E+00	Total Pathway:	0.0E+00
			Total Rad + Chem	0.0E+00	Total Rad + Chem	0.0E+00	Total Rad + Chem	0.0E+00

Total: 0.0E+00

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TABLE B.3.5-13(b)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PITS: GROUNDWATER

Carcinogenic Risk

Radiation Risk								
Ingestion/Groundwater					Inhalation/Groundwater	Dermal Contact/Groundwater	Total
Compoun	Conc'n (pCi/L)	Intake	SF(o)	Risk			
TC-99	1.4E-01	3.0E+02	1.3E-12	3.9E-10	Not applicable	Not applicable	3.9E-10
			Total Pathway:	3.9E-10	Total Pathway: 0.0E+00	Total Pathway: 0.0E+00	
			Total Rad + Chem	3.9E-10	Total Rad + Chem 0.0E+00	Total Rad + Chem 0.0E+00	*Total:* 3.9E-10

TABLE B.3.5-13(b) (continued)
FUTURE, OFF-PROPERTY CHILD
LIME SLUDGE PITS: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard								
Ingestion/Groundwater					Inhalation/Groundwater	Dermal Contact/Groundwater		
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard				
TC-99	1.4E-01	3.0E+02			Not applicable	Not applicable		
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00		Total Pathway: 0.0E+00	
			Total Rad + Chem	0.0E+00	Total Rad + Chem 0.0E+00		Total Rad + Chem 0.0E+00	*Total:* 0.0E+00

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TABLE B.3.5-14
FUTURE, EXPANDED TRESPASSER
LIME SLUDGE PONDS: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.05E-05	3.8E-02	1.9E-11	7.1E-13
NP-237	1.08E-05	3.9E-02	2.9E-08	1.1E-09
PU-238	8.64E-06	3.1E-02	3.9E-08	1.2E-09
PU-239/240	2.03E-06	7.3E-03	3.8E-08	2.8E-10
RA-226	2.88E-05	1.0E-01	3.0E-09	3.1E-10
RA-228	2.46E-05	8.8E-02	6.9E-10	6.1E-11
SR-90	1.18E-05	4.2E-02	6.2E-11	2.6E-12
TH-228	4.37E-05	1.6E-01	7.8E-08	1.2E-08
TH-230	6.72E-04	2.4E+00	2.9E-08	7.0E-08
TH-232	1.96E-05	7.0E-02	2.8E-08	2.0E-09
U-234	3.15E-04	1.1E+00	2.6E-08	2.9E-08
U-235/236	2.61E-05	9.3E-02	2.5E-08	2.3E-09
U-238	1.07E-03	3.8E+00	5.2E-08	2.0E-07
			Total Pathway:	3.2E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.70	2.6E-02	2.8E-11	7.3E-13
NP-237	0.72	2.7E-02	2.2E-10	5.9E-12
PU-238	0.58	2.1E-02	2.2E-10	4.7E-12
PU-239/240	0.13	5.0E-03	2.3E-10	1.2E-12
RA-226	1.92	7.2E-02	1.2E-10	8.6E-12
RA-228	1.64	6.1E-02	1.0E-10	6.1E-12
SR-90	0.79	2.9E-02	3.6E-11	1.1E-12
TH-228	2.91	1.1E-01	5.5E-11	6.0E-12
TH-230	44.80	1.7E+00	1.3E-11	2.2E-11
TH-232	1.31	4.9E-02	1.2E-11	5.8E-13
U-234	21.00	7.8E-01	1.6E-11	1.3E-11
U-235/236	1.74	6.5E-02	1.6E-11	1.0E-12
U-238	71.39	2.7E+00	2.8E-11	7.5E-11
			Total Pathway:	1.4E-10

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	SF(i)	Risk
Arsenic	1.1E-07	3.0E-10	1.5E+01	4.5E-09
Beryllium	2.3E-08	6.3E-11	8.4E+00	5.3E-10
Cadmium	1.8E-08	5.0E-11		
Chromium	2.5E-07	6.9E-10	4.1E+01	2.8E-08
Lead	4.1E-07	1.1E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.2E-06	8.9E-09		
Aroclor-1254	8.9E-09	2.4E-11		
Benzo(b)anthracene	1.4E-08	3.8E-11	8.9E-01	3.4E-11
Benzo(b)pyrene	1.7E-08	4.6E-11	6.1	2.8E-10
Benzo(b)fluoranthene	1.5E-08	4.2E-11	7.5E-01	3.1E-11
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.2E-08	3.3E-11	3.2E-01	1.1E-11
bis(2-Ethylhexyl) phthalate	1.5E-07	4.2E-10		
Carbazole	2.1E-09	5.8E-12		
Chrysene	1.7E-08	4.6E-11	2.7E-02	1.2E-12
Dibenzo(a,h)anthracene	4.8E-09	1.3E-11	6.8E+00	9.0E-11
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.1E-08	3.0E-11	1.7E+00	5.1E-11
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway:	3.4E-08
			Total Rad + Chem	3.5E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.190	1.9E-07	1.8E+00	3.4E-07
Beryllium	1.518	4.0E-08	4.3E+00	1.7E-07
Cadmium	1.200	3.2E-08		
Chromium	16.6	4.4E-07		
Lead	27.6	7.3E-07		
TH-TOTAL	25.1	6.7E-07		
U-TOTAL	214	5.7E-06		
Aroclor-1254	0.590	1.6E-08	7.7E+00	1.2E-07
Benzo(b)anthracene	0.910	2.4E-08	1.1E+00	2.7E-08
Benzo(b)pyrene	1.100	2.9E-08	7.3E+00	2.1E-07
Benzo(b)fluoranthene	1.000	2.7E-08	9.0E-01	2.4E-08
Benzo(g,h,i)perylene	0.630	1.7E-08		
Benzo(k)fluoranthene	0.800	2.1E-08	3.8E-01	8.1E-09
bis(2-Ethylhexyl) phthalate	10.000	2.7E-07	1.4E-02	3.7E-09
Carbazole	0.140	3.7E-09	2.0E-02	7.5E-11
Chrysene	1.100	2.9E-08	3.2E-02	9.4E-10
Dibenzo(a,h)anthracene	0.320	8.5E-09	8.1E+00	6.9E-08
Dibenzofuran	0.042	1.1E-09		
Indeno(1,2,3-cd)pyrene	0.720	1.9E-08	2.0E+00	3.8E-08
Phenanthrene	1.600	4.3E-08		
			Total Pathway:	1.0E-06
			Total Rad + Chem	1.0E-06

TABLE B.3.5-14 (continued)
FUTURE, EXPANDED TRESPASSER
LIME SLUDGE PONDS: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	2.8E-01	2.0E-06	5.5E-07	5.5E-07
	NP-237	2.8E-01	4.3E-07	1.2E-07	1.2E-07
	PU-238	2.3E-01	2.8E-11	6.3E-12	1.2E-09
	PU-239/240	5.3E-02	2.7E-11	1.4E-12	2.8E-10
	RA-226	7.5E-01	1.2E-08	9.0E-09	9.4E-09
	RA-228	6.4E-01	2.9E-06	1.9E-06	1.9E-06
	SR-90	3.1E-01	0.0E+00	0.0E+00	3.7E-12
	TH-228	1.1E+00	5.6E-06	6.4E-06	6.4E-06
	TH-230	1.8E+01	5.4E-11	9.5E-10	7.1E-08
	TH-232	5.1E-01	2.6E-11	1.3E-11	2.0E-09
	U-234	8.2E+00	3.0E-11	2.5E-10	3.0E-08
	U-235/236	6.8E-01	2.4E-07	1.6E-07	1.7E-07
	U-238	2.8E+01	3.6E-08	1.0E-06	1.2E-06
Total Pathway: 0.0E+00				Total Pathway:	1.0E-05

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	7.5E-08	1.8E+00	1.4E-07					4.8E-07
Beryllium	1.6E-07	4.3E+02	6.8E-05					6.8E-05
Cadmium	1.2E-07							
Chromium	1.7E-06			Not applicable				2.8E-08
Lead	2.9E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	2.2E-05							
Aroclor-1254	1.8E-06	1.0E+01	1.9E-05					1.9E-05
Benzo(b)anthracene	0.0E+00	2.6E+00	0.0E+00					2.7E-08
Benzo(b)pyrene	0.0E+00	1.7E+01	0.0E+00					2.1E-07
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					2.4E-08
Benzo(g,h,i)perylene	2.0E-06							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					8.1E-09
bis(2-Ethylhexyl) phthalate	4.2E-07	1.6E-02	6.5E-09					1.0E-08
Carbazole	0.0E+00	2.0E-02	0.0E+00					7.5E-11
Chrysene	0.0E+00	7.4E-02	0.0E+00					9.4E-10
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					6.9E-08
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					3.8E-08
Phenanthrene	5.0E-06							
		Total Pathway:	8.7E-05			Total Pathway:	0.0E+00	
		Total Rad + Chem	8.7E-05				1.0E-05	*Total:* 9.8E-05

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TABLE B.3.5-14 (continued)
FUTURE, EXPANDED TRESPASSER
LIME SLUDGE PONDS: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3	Intake	RfD(i)	Hazard
CS-137	1.1E-05	3.8E-02		
NP-237	1.1E-05	3.9E-02		
PU-238	8.6E-06	3.1E-02		
PU-239/240	2.0E-06	7.3E-03		
RA-226	2.9E-05	1.0E-01		
RA-228	2.5E-05	8.8E-02		
SR-90	1.2E-05	4.2E-02		
TH-228	4.4E-05	1.6E-01		
TH-230	6.7E-04	2.4E+00		
TH-232	2.0E-05	7.0E-02		
U-234	3.2E-04	1.1E+00		
U-235/236	2.6E-05	9.3E-02		
U-238	1.1E-03	3.8E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.70	2.6E-02		
NP-237	0.72	2.7E-02		
PU-238	0.58	2.1E-02		
PU-239/240	0.13	5.0E-03		
RA-226	1.92	7.2E-02		
RA-228	1.64	6.1E-02		
SR-90	0.79	2.9E-02		
TH-228	2.91	1.1E-01		
TH-230	44.80	1.7E+00		
TH-232	1.31	4.9E-02		
U-234	21.00	7.8E-01		
U-235/236	1.74	6.5E-02		
U-238	71.39	2.7E+00		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(i)	Hazard
Arsenic	1.1E-07	3.0E-10		
Beryllium	2.3E-08	6.3E-11		
Cadmium	1.8E-08	5.0E-11		
Chromium	2.5E-07	6.9E-10		
Lead	4.1E-07	1.1E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.2E-06	8.9E-09		
Aroclor-1254	8.9E-09	2.4E-11		
Benzo(b)anthracene	1.4E-08	3.8E-11		
Benzo(b)pyrene	1.7E-08	4.6E-11		
Benzo(b)fluoranthene	1.5E-08	4.2E-11		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.2E-08	3.3E-11		
bis(2-Ethylhexyl) phthalate	1.5E-07	4.2E-10		
Carbazole	2.1E-09	5.8E-12		
Chrysene	1.7E-08	4.6E-11		
Dibenzo(a,h)anthracene	4.8E-09	1.3E-11		
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.1E-08	3.0E-11		
Phenanthrene	0.0E+00	0.0E+00		

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.19	8.1E-07	3.0E-04	2.7E-03
Beryllium	1.52	1.7E-07	5.0E-03	3.4E-05
Cadmium	1.20	1.4E-07	1.0E-03	1.4E-04
Chromium	16.58	1.9E-06	5.0E-03	3.7E-04
Lead	27.56	3.1E-06		
TH-TOTAL	25.10	2.8E-06		
U-TOTAL	214.32	2.4E-05	3.0E-03	8.1E-03
Aroclor-1254	0.59	6.7E-08		
Benzo(b)anthracene	0.91	1.0E-07		
Benzo(b)pyrene	1.10	1.2E-07		
Benzo(b)fluoranthene	1.00	1.1E-07		
Benzo(g,h,i)perylene	0.63	7.1E-08		
Benzo(k)fluoranthene	0.80	9.0E-08		
bis(2-Ethylhexyl) phthalate	10.00	1.1E-06	2.0E-02	5.7E-05
Carbazole	0.14	1.6E-08		
Chrysene	1.10	1.2E-07		
Dibenzo(a,h)anthracene	0.32	3.6E-08		
Dibenzofuran	0.04	4.7E-09	4.0E-03	1.2E-06
Indeno(1,2,3-cd)pyrene	0.72	8.1E-08		
Phenanthrene	1.60	1.8E-07		

Total Pathway: 1.1E-02

Total Rad + Chem 1.1E-02

TABLE B.3.5-14 (continued)
FUTURE, EXPANDED TRESPASSER
LIME SLUDGE PONDS: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	RfD(e)	Hazard	
Not applicable	CS-137	2.8E-01			
	NP-237	2.8E-01			
	PU-238	2.3E-01			
	PU-239/24	5.3E-02			
	RA-226	7.5E-01			
	RA-228	6.4E-01			
	SR-90	3.1E-01			
	TH-228	1.1E+00			
	TH-230	1.8E+01			
	TH-232	5.1E-01			
	U-234	8.2E+00			
	U-235/236	6.8E-01			
	U-238	2.8E+01			
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00				

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	3.0E-07	2.9E-04	1.0E-03					3.7E-03
Beryllium	6.2E-07	5.0E-05	1.2E-02					1.3E-02
Cadmium	4.9E-07	5.0E-05	9.9E-03					1.0E-02
Chromium	6.8E-06	2.3E-03	3.0E-03		Not applicable			3.4E-03
Lead	1.1E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	8.8E-05	1.5E-04	0.6					0.6
Aroclor-1254	7.3E-06							
Benzo(b)anthracene	0.0E+00							
Benzo(b)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	7.8E-06							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	1.6E-06	1.8E-02	9.1E-05					1.5E-04
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					1.2E-06
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	2.0E-05							
Total Pathway:			0.6	Total Pathway: 0.0E+00				
Total Rad + Chem			0.6				0.0E+00	*Total:* 0.6

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TABLE B.3.5-15(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.05E-05	1.2E+00	1.9E-11	2.3E-11
NP-237	1.08E-05	1.3E+00	2.9E-08	3.6E-08
PU-238	8.64E-06	1.0E+00	3.9E-08	3.9E-08
PU-239/240	2.03E-06	2.4E-01	3.8E-08	8.9E-09
RA-226	2.88E-05	3.3E+00	3.0E-09	1.0E-08
RA-228	2.46E-05	2.9E+00	6.6E-10	1.9E-09
SR-90	1.18E-05	1.4E+00	6.2E-11	8.5E-11
TC-99	0.00E+00	0.0E+00	8.3E-12	0.0E+00
TH-228	4.37E-05	5.1E+00	7.8E-08	4.0E-07
TH-230	6.72E-04	7.8E+01	2.9E-08	2.3E-06
TH-232	1.96E-05	2.3E+00	2.8E-08	6.4E-08
U-234	3.15E-04	3.7E+01	2.6E-08	9.5E-07
U-235/236	2.6E-05	3.0E+00	2.5E-08	7.6E-08
U-238	1.1E-03	1.2E+02	5.20E-08	6.4E-06
			Total Pathway:	1.0E-05

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.702	3.1E+03	2.8E-11	8.7E-08
NP-237	0.720	3.2E+03	2.2E-10	7.0E-07
PU-238	0.576	2.5E+03	2.2E-10	5.6E-07
PU-239/240	0.13	6.0E+02	2.3E-10	1.4E-07
RA-226	1.9	8.5E+03	1.2E-10	1.0E-06
RA-228	1.639	7.2E+03	1.0E-10	7.2E-07
SR-90	0.8	3.5E+03	3.6E-11	1.2E-07
TC-99	0.000	0.0E+00	1.3E-12	0.0E+00
TH-228	2.910	1.3E+04	5.5E-11	7.1E-07
TH-230	44.8	2.0E+05	1.3E-11	2.6E-06
TH-232	1.306	5.8E+03	1.2E-11	6.9E-08
U-234	21.0	9.3E+04	1.6E-11	1.5E-06
U-235/236	1.743	7.7E+03	1.6E-11	1.2E-07
U-238	71.388	3.1E+05	2.8E-11	8.8E-06
			Total Pathway:	1.7E-05

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	1.1E-07	7.0E-09	1.5E+01	1.1E-07
Beryllium	2.3E-08	1.5E-09	8.4E+00	1.2E-08
Cadmium	1.8E-08	1.2E-09		
Chromium	2.5E-07	1.6E-08	4.1E+00	6.6E-08
Lead	4.1E-07	2.7E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.2E-06	2.1E-07		
Aroclor-1254	8.9E-09	5.7E-10		
Benzo(a)anthracene	1.4E-08	8.9E-10	8.9E-01	7.9E-10
Benzo(a)pyrene	1.7E-08	1.1E-09	6.1	6.5E-09
Benzo(b)fluoranthene	1.5E-08	9.7E-10	7.5E-01	7.3E-10
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.2E-08	7.8E-10	3.2E-01	2.5E-10
bis(2-Ethylhexyl) phthalate	1.5E-07	9.7E-09		
Carbazole	2.1E-09	1.4E-10		
Chrysene	1.7E-08	1.1E-09	2.7E-02	2.9E-11
Dibenzo(a,h)anthracene	4.8E-09	3.1E-10	6.8E+00	2.1E-09
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.1E-08	7.0E-10	1.7E+00	1.2E-09
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway:	2.0E-07
			Total Rad + Chem	1.0E-

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.190	1.8E-05	1.8E+00	3.1E-05
Beryllium	1.518	3.7E-06	4.3E+00	1.6E-05
Cadmium	1.200	3.0E-06		
Chromium	16.58	4.1E-05		
Lead	27.6	6.8E-05		
TH-TOTAL	25.100	6.2E-05		
U-TOTAL	214.3	5.3E-04		
Aroclor-1254	0.590	1.5E-06	7.7E+00	1.1E-05
Benzo(a)anthracene	0.910	2.2E-06	1.1E+00	2.5E-06
Benzo(a)pyrene	1.100	2.7E-06	7.3E+00	2.0E-05
Benzo(b)fluoranthene	1.000	2.5E-06	9.0E-01	2.2E-06
Benzo(g,h,i)perylene	0.630	1.6E-06		
Benzo(k)fluoranthene	0.800	2.0E-06	3.8E-01	7.5E-07
bis(2-Ethylhexyl) phthalate	10.000	2.5E-05	1.4E-02	3.5E-07
Carbazole	0.140	3.5E-07	2.0E-02	6.9E-09
Chrysene	1.100	2.7E-06	3.2E-02	8.7E-08
Dibenzo(a,h)anthracene	0.320	7.9E-07	8.1E+00	6.4E-06
Dibenzofuran	0.042	1.0E-07		
Indeno(1,2,3-cd)pyrene	0.720	1.8E-06	2.0E+00	3.6E-06
Phenanthrene	1.600	3.9E-06		
			Total Pathway:	9.4E-05
			Total Rad + Chem	1.1E-04

TABLE B.3.5-15(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	2.9E+01	2.0E-06	5.8E-05	5.8E-05
	NP-237	3.0E+01	4.3E-07	1.3E-05	1.4E-05
	PU-238	2.4E+01	2.8E-11	6.7E-10	6.0E-07
	PU-239/240	5.6E+00	2.7E-11	1.5E-10	1.5E-07
	RA-226	8.0E+01	1.2E-08	9.6E-07	2.0E-06
	RA-228	6.8E+01	2.9E-06	2.0E-04	2.0E-04
	SR-90	3.3E+01	0.0E+00	0.0E+00	1.2E-07
	TC-99	0.0E+00	6.0E-13	0.0E+00	0.0E+00
	TH-228	1.2E+02	5.6E-06	6.8E-04	6.8E-04
	TH-230	1.9E+03	5.4E-11	1.0E-07	4.9E-06
	TH-232	5.4E+01	2.6E-11	1.4E-09	1.3E-07
	U-234	8.7E+02	3.0E-11	2.6E-08	2.5E-06
	U-235/236	7.2E+01	2.4E-07	1.7E-05	1.8E-05
	U-238	3.0E+03	3.6E-08	1.1E-04	1.2E-04
Total Pathway: 0.0E+00				Total Pathway: 1.1E-03	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	5.7E-07	1.8E+00	1.0E-06					3.2E-05
Beryllium	1.2E-06	4.3E+02	5.1E-04					5.3E-04
Cadmium	9.5E-07							
Chromium	1.3E-05							6.6E-08
Lead	2.2E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	1.7E-04							
Aroclor-1254	1.4E-05	1.0E+01	1.4E-04					1.5E-04
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					2.5E-06
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	Not applicable				2.0E-05
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					2.2E-06
Benzo(g,h,i)perylene	1.5E-05							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					7.5E-07
bis(2-Ethylhexyl) phthalate	3.2E-06	1.6E-02	4.9E-08					3.9E-07
Carbazole	0.0E+00	2.0E-02	0.0E+00					6.9E-09
Chrysene	0.0E+00	7.4E-02	0.0E+00					8.7E-08
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					6.4E-06
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					3.6E-06
Phenanthrene	3.8E-05							
	Total Pathway:		6.6E-04		Total Pathway:		0.0E+00	
	Total Rad + Chem		6.6E-04				1.1E-03	*Total:* 1.9E-03

TABLE B.3.5-15(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.05E-05	1.2E+00		
NP-237	1.08E-05	1.3E+00		
PU-238	8.64E-06	1.0E+00		
PU-239/240	2.03E-06	2.4E-01		
RA-226	2.88E-05	3.3E+00		
RA-228	2.46E-05	2.9E+00		
SR-90	1.18E-05	1.4E+00		
TC-99	0.00E+00	0.0E+00		
TH-228	4.37E-05	5.1E+00		
TH-230	6.72E-04	7.8E+01		
TH-232	1.96E-05	2.3E+00		
U-234	3.15E-04	3.7E+01		
U-235/236	2.61E-05	3.0E+00		
U-238	1.07E-03	1.2E+02		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.702	3.1E+03		
NP-237	0.720	3.2E+03		
PU-238	0.576	2.5E+03		
PU-239/240	0.135	6.0E+02		
RA-226	1.919	8.5E+03		
RA-228	1.639	7.2E+03		
SR-90	0.785	3.5E+03		
TC-99	0.000	0.0E+00		
TH-228	2.910	1.3E+04		
TH-230	44.800	2.0E+05		
TH-232	1.306	5.8E+03		
U-234	21.003	9.3E+04		
U-235/236	1.743	7.7E+03		
U-238	71.388	3.1E+05		

Total Pathway: ######

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.08E-07	7.0E-09		
Beryllium	2.28E-08	1.5E-09		
Cadmium	1.80E-08	1.2E-09		
Chromium	2.49E-07	1.6E-08		
Lead	4.13E-07	2.7E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.21E-06	2.1E-07		
Aroclor-1254	8.85E-09	5.7E-10		
Benzo(a)anthracene	1.37E-08	8.9E-10		
Benzo(a)pyrene	1.65E-08	1.1E-09		
Benzo(b)fluoranthene	1.50E-08	9.7E-10		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	1.20E-08	7.8E-10		
bis(2-Ethylhexyl) phthalate	1.50E-07	9.7E-09		
Carbazole	2.10E-09	1.4E-10		
Chrysene	1.65E-08	1.1E-09		
Dibenzo(a,h)anthracene	4.80E-09	3.1E-10		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.08E-08	7.0E-10		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.190	1.8E-05	3.0E-04	5.9E-02
Beryllium	1.518	3.7E-06	5.0E-03	7.5E-04
Cadmium	1.200	3.0E-06	1.0E-03	3.0E-03
Chromium	16.579	4.1E-05	5.0E-03	8.2E-03
Lead	27.563	6.8E-05		
TH-TOTAL	25.100	6.2E-05		
U-TOTAL	214.323	5.3E-04	3.0E-03	0.2
Aroclor-1254	0.590	1.5E-06		
Benzo(a)anthracene	0.910	2.2E-06		
Benzo(a)pyrene	1.100	2.7E-06		
Benzo(b)fluoranthene	1.000	2.5E-06		
Benzo(g,h,i)perylene	0.630	1.6E-06		
Benzo(k)fluoranthene	0.800	2.0E-06		
bis(2-Ethylhexyl) phthalate	10.000	2.5E-05	2.0E-02	1.2E-03
Carbazole	0.140	3.5E-07		
Chrysene	1.100	2.7E-06		
Dibenzo(a,h)anthracene	0.320	7.9E-07		
Dibenzofuran	0.042	1.0E-07	4.0E-03	2.6E-05
Indeno(1,2,3-cd)pyrene	0.720	1.8E-06	2.0E+00	8.9E-07
Phenanthrene	1.600	3.9E-06		

Total Pathway: 2.5E-01

Total Rad + Chem 0.0E+

Total Rad + Chem 2.5E-01

TABLE B.3.5-15(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e) Hazard	
Not applicable	CS-137	2.9E+01		
	NP-237	3.0E+01		
	PU-238	2.4E+01		
	PU-239/240	5.6E+00		
	RA-226	8.0E+01		
	RA-228	6.8E+01		
	SR-90	3.3E+01		
	TC-99	0.0E+00		
	TH-228	1.2E+02		
	TH-230	1.9E+03		
	TH-232	5.4E+01		
	U-234	8.7E+02		
	U-235/236	7.2E+01		
	U-238	3.0E+03		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	5.7E-07	2.9E-04	1.6E-10					5.9E-02
Beryllium	1.2E-06	5.0E-05	6.0E-11					7.5E-04
Cadmium	9.5E-07	5.0E-05	4.7E-11					3.0E-03
Chromium	1.3E-05	2.3E-03	2.9E-08					8.2E-03
Lead	2.2E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	1.7E-04	1.5E-04	2.5E-08					0.2
Aroclor-1254	1.4E-05							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00			Not applicable				
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	1.5E-05							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	3.2E-06	1.8E-02	5.7E-08					1.2E-03
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					2.6E-05
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					8.9E-07
Phenanthrene	3.8E-05							
	Total Pathway:		1.1E-07	Total Pathway:			0.0E+00	
	Total Rad + Chem		1.1E-07				0.0E+00	*Total:* 2.5E-01

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TABLE B.3.5-15(b)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.05E-05	2.2E-02	1.9E-11	4.2E-13
NP-237	1.08E-05	2.3E-02	2.9E-08	6.6E-10
PU-238	8.64E-06	1.8E-02	3.9E-08	7.1E-10
PU-239/240	2.03E-06	4.3E-03	3.8E-08	1.6E-10
RA-226	2.88E-05	6.0E-02	3.0E-09	1.8E-10
RA-228	2.46E-05	5.2E-02	6.6E-10	3.4E-11
SR-90	1.18E-05	2.5E-02	6.2E-11	1.5E-12
TC-99	0.00E+00	0.0E+00	8.3E-12	0.0E+00
TH-228	4.37E-05	9.2E-02	7.8E-08	7.2E-09
TH-230	6.72E-04	1.4E+00	2.9E-08	4.1E-08
TH-232	1.96E-05	4.1E-02	2.8E-08	1.2E-09
U-234	3.15E-04	6.6E-01	2.6E-08	1.7E-08
U-235/236	2.6E-05	5.5E-02	2.5E-08	1.4E-09
U-238	1.1E-03	2.2E+00	5.20E-08	1.2E-07
			Total Pathway:	1.9E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.702	2.9E+02	2.8E-11	8.3E-09
NP-237	0.720	3.0E+02	2.2E-10	6.7E-08
PU-238	0.576	2.4E+02	2.2E-10	5.3E-08
PU-239/240	0.13	5.7E+01	2.3E-10	1.3E-08
RA-226	1.9	8.1E+02	1.2E-10	9.7E-08
RA-228	1.639	6.9E+02	1.0E-10	6.9E-08
SR-90	0.8	3.3E+02	3.6E-11	1.2E-08
TC-99	0.000	0.0E+00	1.3E-12	0.0E+00
TH-228	2.910	1.2E+03	5.5E-11	6.7E-08
TH-230	44.8	1.9E+04	1.3E-11	2.4E-07
TH-232	1.306	5.5E+02	1.2E-11	6.6E-09
U-234	21.0	8.8E+03	1.6E-11	1.4E-07
U-235/236	1.743	7.3E+02	1.6E-11	1.2E-08
U-238	71.388	3.0E+04	2.8E-11	8.4E-07
			Total Pathway:	1.6E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	1.1E-07	5.9E-10	1.5E+01	8.9E-09
Beryllium	2.3E-08	1.2E-10	8.4E+00	1.0E-09
Cadmium	1.8E-08	9.9E-11		
Chromium	2.5E-07	1.4E-09	4.1E+00	5.6E-09
Lead	4.1E-07	2.3E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.2E-06	1.8E-08		
Aroclor-1254	8.9E-09	4.8E-11		
Benzo(a)anthracene	1.4E-08	7.5E-11	8.9E-01	6.7E-11
Benzo(a)pyrene	1.7E-08	9.0E-11	6.1	5.5E-10
Benzo(b)fluoranthene	1.5E-08	8.2E-11	7.5E-01	6.2E-11
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.2E-08	6.6E-11	3.2E-01	2.1E-11
bis(2-Ethylhexyl) phthalate	1.5E-07	8.2E-10		
Carbazole	2.1E-09	1.2E-11		
Chrysene	1.7E-08	9.0E-11	2.7E-02	2.4E-12
Dibenzo(a,h)anthracene	4.8E-09	2.6E-11	6.8E+00	1.8E-10
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.1E-08	5.9E-11	1.7E+00	1.0E-10
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway:	1.7E-08
			Total Rad + Chem	2.0E

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.190	7.9E-06	1.8E+00	1.4E-05
Beryllium	1.518	1.7E-06	4.3E+00	7.2E-06
Cadmium	1.200	1.3E-06		
Chromium	16.58	1.8E-05		
Lead	27.6	3.0E-05		
TH-TOTAL	25.100	2.8E-05		
U-TOTAL	214.3	2.3E-04		
Aroclor-1254	0.590	6.5E-07	7.7E+00	5.0E-06
Benzo(a)anthracene	0.910	1.0E-06	1.1E+00	1.1E-06
Benzo(a)pyrene	1.100	1.2E-06	7.3E+00	8.8E-06
Benzo(b)fluoranthene	1.000	1.1E-06	9.0E-01	9.9E-07
Benzo(g,h,i)perylene	0.630	6.9E-07		
Benzo(k)fluoranthene	0.800	8.8E-07	3.8E-01	3.3E-07
bis(2-Ethylhexyl) phthalate	10.000	1.1E-05	1.4E-02	1.5E-07
Carbazole	0.140	1.5E-07	2.0E-02	3.1E-09
Chrysene	1.100	1.2E-06	3.2E-02	3.9E-08
Dibenzo(a,h)anthracene	0.320	3.5E-07	8.1E+00	2.8E-06
Dibenzofuran	0.042	4.6E-08		
Indeno(1,2,3-cd)pyrene	0.720	7.9E-07	2.0E+00	1.6E-06
Phenanthrene	1.600	1.8E-06		
			Total Pathway:	4.2E-05
			Total Rad + Chem	4.3E-05

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TABLE B.3.5-15(b) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	SF(e)	Risk	
Not applicable				CS-137	2.2E+00	2.0E-06	4.4E-06	4.4E-06
				NP-237	2.2E+00	4.3E-07	9.6E-07	1.0E-06
				PU-238	1.8E+00	2.8E-11	5.0E-11	5.4E-08
				PU-239/240	4.2E-01	2.7E-11	1.1E-11	1.3E-08
				RA-226	6.0E+00	1.2E-08	7.2E-08	1.7E-07
				RA-228	5.1E+00	2.9E-06	1.5E-05	1.5E-05
				SR-90	2.4E+00	0.0E+00	0.0E+00	1.2E-08
				TC-99	0.0E+00	6.0E-13	0.0E+00	0.0E+00
				TH-228	9.1E+00	5.6E-06	5.1E-05	5.1E-05
				TH-230	1.4E+02	5.4E-11	7.5E-09	2.9E-07
				TH-232	4.1E+00	2.6E-11	1.1E-10	7.8E-09
				U-234	6.5E+01	3.0E-11	2.0E-09	1.6E-07
				U-235/236	5.4E+00	2.4E-07	1.3E-06	1.3E-06
				U-238	2.2E+02	3.6E-08	8.0E-06	9.0E-06
Total Pathway:		0.0E+00		Total Pathway:			8.0E-05	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	7.1E-08	1.8E+00	1.3E-07					1.4E-05
Beryllium	1.5E-07	4.3E+02	6.4E-05					7.2E-05
Cadmium	1.2E-07							
Chromium	1.6E-06							5.6E-09
Lead	2.7E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	2.1E-05							
Aroclor-1254	1.7E-06	1.0E+01	1.8E-05					2.3E-05
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					1.1E-06
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	Not applicable				8.8E-06
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					9.9E-07
Benzo(g,h,i)perylene	1.9E-06							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					3.3E-07
bis(2-Ethylhexyl) phthalate	3.9E-07	1.6E-02	6.1E-09					1.6E-07
Carbazole	0.0E+00	2.0E-02	0.0E+00					3.1E-09
Chrysene	0.0E+00	7.4E-02	0.0E+00					3.9E-08
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					2.8E-06
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					1.6E-06
Phenanthrene	4.7E-06							
Total Pathway:		8.2E-05		Total Pathway:			0.0E+00	
Total Rad + Chem		8.2E-05					8.0E-05	*Total:* 2.1E-04

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NON-CARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.05E-05	2.2E-02		
NP-237	1.08E-05	2.3E-02		
PU-238	8.64E-06	1.8E-02		
PU-239/240	2.03E-06	4.3E-03		
RA-226	2.88E-05	6.0E-02		
RA-228	2.46E-05	5.2E-02		
SR-90	1.18E-05	2.5E-02		
TC-99	0.00E+00	0.0E+00		
TH-228	4.37E-05	9.2E-02		
TH-230	6.72E-04	1.4E+00		
TH-232	1.96E-05	4.1E-02		
U-234	3.15E-04	6.6E-01		
U-235/236	2.61E-05	5.5E-02		
U-238	1.07E-03	2.2E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.702	2.9E+02		
NP-237	0.720	3.0E+02		
PU-238	0.576	2.4E+02		
PU-239/240	0.13	5.7E+01		
RA-226	1.9	8.1E+02		
RA-228	1.639	6.9E+02		
SR-90	0.8	3.3E+02		
TC-99	0.000	0.0E+00		
TH-228	2.910	1.2E+03		
TH-230	44.8	1.9E+04		
TH-232	1.306	5.5E+02		
U-234	21.0	8.8E+03		
U-235/236	1.743	7.3E+02		
U-238	71.388	3.0E+04		

Total Pathway: ######

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.08E-07	6.9E-09		
Beryllium	2.28E-08	1.5E-09		
Cadmium	1.80E-08	1.2E-09		
Chromium	2.49E-07	1.6E-08		
Lead	4.13E-07	2.6E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.21E-06	2.1E-07		
Aroclor-1254	8.85E-09	5.7E-10		
Benzo(a)anthracene	1.37E-08	8.8E-10		
Benzo(a)pyrene	1.65E-08	1.1E-09		
Benzo(b)fluoranthene	1.50E-08	9.6E-10		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	1.20E-08	7.7E-10		
bis(2-Ethylhexyl) phthalate	1.50E-07	9.6E-09		
Carbazole	2.10E-09	1.3E-10		
Chrysene	1.65E-08	1.1E-09		
Dibenzo(a,h)anthracene	4.80E-09	3.1E-10		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.08E-08	6.9E-10		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.190	9.2E-05	3.0E-04	3.1E-01
Beryllium	1.518	1.9E-05	5.0E-03	3.9E-03
Cadmium	1.200	1.5E-05	1.0E-03	1.5E-02
Chromium	16.58	2.1E-04	5.0E-03	4.2E-02
Lead	27.6	3.5E-04		
TH-TOTAL	25.100	3.2E-04		
U-TOTAL	214.3	2.7E-03	3.0E-03	0.9
Aroclor-1254	0.590	7.5E-06		
Benzo(a)anthracene	0.910	1.2E-05		
Benzo(a)pyrene	1.100	1.4E-05		
Benzo(b)fluoranthene	1.000	1.3E-05		
Benzo(g,h,i)perylene	0.630	8.1E-06		
Benzo(k)fluoranthene	0.800	1.0E-05		
bis(2-Ethylhexyl) phthalate	10.000	1.3E-04	2.0E-02	6.4E-03
Carbazole	0.140	1.8E-06		
Chrysene	1.100	1.4E-05		
Dibenzo(a,h)anthracene	0.320	4.1E-06		
Dibenzofuran	0.042	5.4E-07	4.0E-03	1.3E-04
Indeno(1,2,3-cd)pyrene	0.720	9.2E-06	2.0E+00	4.6E-06
Phenanthrene	1.600	2.0E-05		

Total Pathway: ######

Total Rad + Chem 0.0E+

Total Rad + Chem ######

TABLE B.3.5-15(b) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	Hazard
Not applicable	CS-137	2.2E+00		
	NP-237	2.2E+00		
	PU-238	1.8E+00		
	PU-239/240	4.2E-01		
	RA-226	6.0E+00		
	RA-228	5.1E+00		
	SR-90	2.4E+00		
	TC-99	0.0E+00		
	TH-228	9.1E+00		
	TH-230	1.4E+02		
	TH-232	4.1E+00		
	U-234	6.5E+01		
	U-235/236	5.4E+00		
	U-238	2.2E+02		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	8.3E-07	2.9E-04	2.4E-10					3.1E-01
Beryllium	1.7E-06	5.0E-05	8.7E-11					3.9E-03
Cadmium	1.4E-06	5.0E-05	6.9E-11					1.5E-02
Chromium	1.9E-05	2.3E-03	4.3E-08					4.2E-02
Lead	3.2E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	2.5E-04	1.5E-04	3.7E-08					0.9
Aroclor-1254.	2.0E-05							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00			Not applicable				
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	2.2E-05							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	4.6E-06	1.8E-02	8.3E-08					6.4E-03
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					1.3E-04
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					4.6E-06
Phenanthrene	5.5E-05							
	Total Pathway:		1.6E-07		Total Pathway:		0.0E+00	
	Total Rad + Chem		1.6E-07				0.0E+00	*Total:* 1.3

TABLE B.3.5-16(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk	
CS-137	8.75E-02	1.6E+02	2.8E-11	4.5E-09	CS-137	3.06E-02	2.3E+02	2.8E-11	6.3E-09	1.1E-08
NP-237	2.46E-04	4.5E-01	2.2E-10	9.9E-11	NP-237	2.23E-05	1.6E-01	2.2E-10	3.6E-11	1.4E-10
PU-238	1.77E-06	3.3E-03	2.2E-10	7.2E-13	PU-238	3.55E-07	2.6E-03	2.2E-10	5.7E-13	1.3E-12
PU-239/240	4.18E-07	7.7E-04	2.3E-10	1.8E-13	PU-239/240	8.35E-08	6.1E-04	2.3E-10	1.4E-13	3.2E-13
RA-226	2.96E-03	5.4E+00	1.2E-10	6.5E-10	RA-226	5.33E-03	3.9E+01	1.2E-10	4.7E-09	5.4E-09
RA-228	2.44E-03	4.5E+00	1.0E-10	4.5E-10	RA-228	4.39E-03	3.2E+01	1.0E-10	3.2E-09	3.7E-09
SR-90	1.53E-03	2.8E+00	3.6E-11	1.0E-10	SR-90	7.63E-03	5.6E+01	3.6E-11	2.0E-09	2.1E-09
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	9.77E-05	1.8E-01	5.5E-11	9.9E-12	TH-228	8.14E-05	6.0E-01	5.5E-11	3.3E-11	4.3E-11
TH-230	1.66E-03	3.0E+00	1.3E-11	4.0E-11	TH-230	1.38E-03	1.0E+01	1.3E-11	1.3E-10	1.7E-10
TH-232	4.84E-05	8.9E-02	1.2E-11	1.1E-12	TH-232	4.04E-05	3.0E-01	1.2E-11	3.6E-12	4.6E-12
U-234	2.60E-02	4.8E+01	1.6E-11	7.6E-10	U-234	7.79E-02	5.7E+02	1.6E-11	9.2E-09	9.9E-09
U-235/236	2.16E-03	4.0E+00	1.6E-11	6.3E-11	U-235/236	6.47E-03	4.8E+01	1.6E-11	7.6E-10	8.2E-10
U-238	8.82E-02	1.6E+02	2.8E-11	4.5E-09	U-238	2.65E-01	1.9E+03	2.8E-11	5.4E-08	5.9E-08
			Total Pathway:	1.1E-08				Total Pathway:	8.1E-08	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	8.9E-05	9.1E-08	1.8E+00	1.6E-07	Arsenic	2.7E-06	1.1E-08	1.8E+00	1.9E-08	1.8E-07
Beryllium	9.4E-06	9.6E-09	4.3E+00	4.1E-08	Beryllium	8.4E-09	3.5E-11	4.3E+00	1.5E-10	4.2E-08
Cadmium	4.4E-05	4.6E-08			Cadmium	8.1E-06	3.3E-08			
Chromium	5.6E-04	5.8E-07			Chromium	1.5E-04	6.3E-07			
Lead	5.1E-05	5.3E-08			Lead	4.3E-05	1.8E-07			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	2.7E-07			U-TOTAL	8.0E-04	3.3E-06			
Aroclor-1254	9.9E-05	1.0E-07	7.7E+00	7.8E-07	Aroclor-1254	3.1E-05	1.3E-07	7.7E+00	9.9E-07	1.8E-06
Benzo(a)anthracene	3.3E-05	3.4E-08	1.1E+00	3.8E-08	Benzo(a)anthracene	1.1E-05	4.3E-08	1.1E+00	4.8E-08	8.5E-08
Benzo(a)pyrene	9.6E-05	9.9E-08	7.3E+00	7.2E-07	Benzo(a)pyrene	3.0E-05	1.2E-07	7.3E+00	9.1E-07	1.6E-06
Benzo(b)fluoranthene	3.4E-04	3.5E-07	9.0E-01	3.1E-07	Benzo(b)fluoranthene	1.1E-04	4.4E-07	9.0E-01	4.0E-07	7.1E-07
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	5.7E-07	3.8E-01	2.2E-07	Benzo(k)fluoranthene	1.8E-04	7.2E-07	3.8E-01	2.7E-07	4.9E-07
bis(2-Ethylhexyl) phthalate	7.6E-06	7.8E-09	1.4E-02	1.1E-10	bis(2-Ethylhexyl) phthalat	2.4E-06	9.9E-09	1.4E-02	1.4E-10	2.5E-10
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.1E-05	4.2E-08	3.2E-02	1.3E-09	Chrysene	1.3E-05	5.3E-08	3.2E-02	1.7E-09	3.0E-09
Dibenzo(a,h)anthracene	2.8E-05	2.8E-08	8.1E+00	2.3E-07	Dibenzo(a,h)anthracene	8.7E-06	3.6E-08	8.1E+00	2.9E-07	5.2E-07
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.5E-06				Total Pathway:	2.9E-06	
			Total Rad + Chem	2.5E-06				Total Rad + Chem	3.0E-06	*Total:* 06

TABLE B.3.5-16(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.1E-08
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.4E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.3E-12
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	3.2E-13
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	5.4E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	3.7E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	2.1E-09
TC-99	4.66E+00	8.6E+03	1.30E-12	1.1E-08	TC-99	5.48E+00	4.0E+04	1.30E-12	5.2E-08	6.3E-08	6.3E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	4.3E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	1.7E-10
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	4.6E-12
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	9.9E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	8.2E-10
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	5.9E-08
			Total Pathway:	1.1E-08				Total Pathway:	5.2E-08		

Chemical Risk

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.8E-07
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	4.2E-08
Cadmium	0.0E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00			Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00			U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.8E-06
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	8.5E-08
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	1.6E-06
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	7.1E-07
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	4.9E-07
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	2.5E-10
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	3.0E-09
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	5.2E-07
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	1.1E-08				Total Rad + Chem	5.2E-08	*Total:* 6.3E-08	5.6E-06

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TABLE B.3.5-16(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef

Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	8.8E-02	1.6E+02		
NP-237	2.5E-04	4.5E-01		
PU-238	1.8E-06	3.3E-03		
PU-239/240	4.2E-07	7.7E-04		
RA-226	3.0E-03	5.4E+00		
RA-228	2.4E-03	4.5E+00		
SR-90	1.5E-03	2.8E+00		
TC-99	0.0E+00	0.0E+00		
TH-228	9.8E-05	1.8E-01		
TH-230	1.7E-03	3.0E+00		
TH-232	4.8E-05	8.9E-02		
U-234	2.6E-02	4.8E+01		
U-235/236	2.2E-03	4.0E+00		
U-238	8.8E-02	1.6E+02		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	onc'n in Milk (pCi/L	Intake	RfD(o)	Hazard	Total
CS-137	3.06E-02	2.3E+02			
NP-237	2.23E-05	1.6E-01			
PU-238	3.55E-07	2.6E-03			
PU-239/240	8.35E-08	6.1E-04			
RA-226	5.33E-03	3.9E+01			
RA-228	4.39E-03	3.2E+01			
SR-90	7.63E-03	5.6E+01			
TC-99	0.00E+00	0.0E+00			
TH-228	8.14E-05	6.0E-01			
TH-230	1.38E-03	1.0E+01			
TH-232	4.04E-05	3.0E-01			
U-234	7.79E-02	5.7E+02			
U-235/236	6.47E-03	4.8E+01			
U-238	2.65E-01	1.9E+03			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Beef

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	8.9E-05	9.1E-08	3.0E-04	3.0E-04
Beryllium	9.4E-06	9.6E-09	5.0E-03	1.9E-06
Cadmium	4.4E-05	4.6E-08	1.0E-03	4.6E-05
Chromium	5.6E-04	5.8E-07	5.0E-03	1.2E-04
Lead	5.1E-05	5.3E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	2.7E-04	2.7E-07	3.0E-03	9.1E-05
Aroclor-1254	9.9E-05	1.0E-07		
Benzo(a)anthracene	3.3E-05	3.4E-08		
Benzo(a)pyrene	9.6E-05	9.9E-08		
Benzo(b)fluoranthene	3.4E-04	3.5E-07		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	5.5E-04	5.7E-07		
bis(2-Ethylhexyl) phthalate	7.6E-06	7.8E-09	2.0E-02	3.9E-07
Carbazole	0.0E+00	0.0E+00		
Chrysene	4.1E-05	4.2E-08		
Dibenzo(a,h)anthracene	2.8E-05	2.8E-08		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00		
Phenanthrene	0.0E+00	0.0E+00		

Total Pathway: 5.6E-04

Ingestion/Milk

Compound	Conc'n in Milk (mg/L	Intake	RfD(o)	Hazard	Total
Arsenic	2.7E-06	1.1E-08	3.0E-04	3.7E-05	3.4E-04
Beryllium	8.4E-09	3.5E-11	5.0E-03	6.9E-09	1.9E-06
Cadmium	8.1E-06	3.3E-08	1.0E-03	3.3E-05	7.9E-05
Chromium	1.5E-04	6.3E-07	5.0E-03	1.3E-04	2.4E-04
Lead	4.3E-05	1.8E-07			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	8.0E-04	3.3E-06	3.0E-03	1.1E-03	1.2E-03
Aroclor-1254	3.1E-05	1.3E-07			
Benzo(a)anthracene	1.1E-05	4.3E-08			
Benzo(a)pyrene	3.0E-05	1.2E-07			
Benzo(b)fluoranthene	1.1E-04	4.4E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.8E-04	7.2E-07			
bis(2-Ethylhexyl) phthalate	2.4E-06	9.9E-09	2.0E-02	4.9E-07	8.9E-07
Carbazole	0.0E+00	0.0E+00			
Chrysene	1.3E-05	5.3E-08			
Dibenzo(a,h)anthracene	8.7E-06	3.6E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			

Total Pathway: 1.3E-03

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Total Rad + Chem 5.6E-04

Total Rad + Chem 1.3E-03 *Total:* [redacted]03

TABLE B.3.5-16(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00	0.0E+00				0.0E+00
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00	0.0E+00				0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00				0.0E+00
PU-239/240	0.0E+00	0.0E+00			PU-239/240	0.00E+00	0.0E+00				0.0E+00
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00	0.0E+00				0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00	0.0E+00				0.0E+00
SR-90	0.0E+00	0.0E+00			SR-90	0.00E+00	0.0E+00				0.0E+00
TC-99	4.7E+00	8.6E+03			TC-99	5.48E+00	4.0E+04				0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00	0.0E+00				0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00	0.0E+00				0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00	0.0E+00				0.0E+00
U-234	0.0E+00	0.0E+00			U-234	0.00E+00	0.0E+00				0.0E+00
U-235/236	0.0E+00	0.0E+00			U-235/236	0.00E+00	0.0E+00				0.0E+00
U-238	0.0E+00	0.0E+00			U-238	0.00E+00	0.0E+00				0.0E+00
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		

Chemical Hazard

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	3.4E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.9E-06
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	7.9E-05
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.4E-04
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	1.2E-03
Aroclor-1254	0.0E+00	0.0E+00			Aroclor-1254	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	8.9E-07
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		
		Total Rad + Chem		0.0E+00			Total Rad + Chem		0.0E+00	*Total:* 0.0E+00	1.8E-03

TABLE B.3.5-16(b)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk	
CS-137	8.75E-02	5.3E+00	2.8E-11	1.5E-10	CS-137	3.06E-02	4.4E+01	2.8E-11	1.2E-09	1.4E-09
NP-237	2.46E-04	1.5E-02	2.2E-10	3.3E-12	NP-237	2.23E-05	3.2E-02	2.2E-10	7.0E-12	1.0E-11
PU-238	1.77E-06	1.1E-04	2.2E-10	2.4E-14	PU-238	3.55E-07	5.1E-04	2.2E-10	1.1E-13	1.4E-13
PU-239/240	4.18E-07	2.5E-05	2.3E-10	5.9E-15	PU-239/240	8.35E-08	1.2E-04	2.3E-10	2.7E-14	3.3E-14
RA-226	2.96E-03	1.8E-01	1.2E-10	2.2E-11	RA-226	5.33E-03	7.6E+00	1.2E-10	9.1E-10	9.3E-10
RA-228	2.44E-03	1.5E-01	1.0E-10	1.5E-11	RA-228	4.39E-03	6.3E+00	1.0E-10	6.3E-10	6.4E-10
SR-90	1.53E-03	9.3E-02	3.6E-11	3.3E-12	SR-90	7.63E-03	1.1E+01	3.6E-11	3.9E-10	4.0E-10
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	9.77E-05	5.9E-03	5.5E-11	3.3E-13	TH-228	8.14E-05	1.2E-01	5.5E-11	6.4E-12	6.7E-12
TH-230	1.66E-03	1.0E-01	1.3E-11	1.3E-12	TH-230	1.38E-03	2.0E+00	1.3E-11	2.6E-11	2.7E-11
TH-232	4.84E-05	3.0E-03	1.2E-11	3.5E-14	TH-232	4.04E-05	5.8E-02	1.2E-11	6.9E-13	7.3E-13
U-234	2.60E-02	1.6E+00	1.6E-11	2.5E-11	U-234	7.79E-02	1.1E+02	1.6E-11	1.8E-09	1.8E-09
U-235/236	2.16E-03	1.3E-01	1.6E-11	2.1E-12	U-235/236	6.47E-03	9.2E+00	1.6E-11	1.5E-10	1.5E-10
U-238	8.82E-02	5.4E+00	2.8E-11	1.5E-10	U-238	2.65E-01	3.8E+02	2.8E-11	1.1E-08	1.1E-08
			Total Pathway:	3.7E-10				Total Pathway:	1.6E-08	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	8.9E-05	1.4E-08	1.8E+00	2.5E-08	Arsenic	2.7E-06	1.0E-08	1.8E+00	1.7E-08	4.2E-08
Beryllium	9.4E-06	1.5E-09	4.3E+00	6.4E-09	Beryllium	8.4E-09	3.1E-11	4.3E+00	1.4E-10	6.5E-09
Cadmium	4.4E-05	7.0E-09			Cadmium	8.1E-06	3.0E-08			
Chromium	5.6E-04	8.9E-08			Chromium	1.5E-04	5.7E-07			
Lead	5.1E-05	8.1E-09			Lead	4.3E-05	1.6E-07			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	4.2E-08			U-TOTAL	8.0E-04	3.0E-06			
Aroclor-1254	9.9E-05	1.6E-08	7.7E+00	1.2E-07	Aroclor-1254	3.1E-05	1.2E-07	7.7E+00	8.9E-07	1.0E-06
Benzo(b)anthracene	3.3E-05	5.3E-09	1.1E+00	5.8E-09	Benzo(b)anthracene	1.1E-05	3.9E-08	1.1E+00	4.3E-08	4.9E-08
Benzo(b)pyrene	9.6E-05	1.5E-08	7.3E+00	1.1E-07	Benzo(b)pyrene	3.0E-05	1.1E-07	7.3E+00	8.3E-07	9.4E-07
Benzo(b)fluoranthene	3.4E-04	5.4E-08	9.0E-01	4.9E-08	Benzo(b)fluoranthene	1.1E-04	4.0E-07	9.0E-01	3.6E-07	4.1E-07
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	8.8E-08	3.8E-01	3.3E-08	Benzo(k)fluoranthene	1.8E-04	6.5E-07	3.8E-01	2.5E-07	2.8E-07
bis(2-Ethylhexyl) phthalate	7.6E-06	1.2E-09	1.4E-02	1.7E-11	bis(2-Ethylhexyl) phthalat	2.4E-06	9.0E-09	1.4E-02	1.3E-10	1.4E-10
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.1E-05	6.5E-09	3.2E-02	2.1E-10	Chrysene	1.3E-05	4.8E-08	3.2E-02	1.5E-09	1.7E-09
Dibenzo(a,h)anthracene	2.8E-05	4.4E-09	8.1E+00	3.5E-08	Dibenzo(a,h)anthracene	8.7E-06	3.2E-08	8.1E+00	2.6E-07	3.0E-07
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	3.9E-07				Total Pathway:	2.7E-06	

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Total Rad + Chem 3.9E-07

Total Rad + Chem 2.7E-06

Total: [redacted]E-06

TABLE B.3.5-16(b)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.4E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.0E-11
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.4E-13
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	3.3E-14
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	9.3E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	6.4E-10
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	4.0E-10
TC-99	4.66E+00	2.8E+02	1.30E-12	3.7E-10	TC-99	5.48E+00	7.8E+03	1.30E-12	1.0E-08	1.1E-08	1.1E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	6.7E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.7E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	7.3E-13
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	1.8E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	1.5E-10
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.1E-08
			Total Pathway:	3.7E-10				Total Pathway:	1.0E-08		

Chemical Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	4.2E-08
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	6.5E-09
Cadmium	0.0E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00			Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00			U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.0E-06
Benzo(b)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(b)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	4.9E-08
Benzo(b)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(b)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	9.4E-07
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	4.1E-07
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.8E-07
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.4E-10
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.7E-09
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	3.0E-07
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		

Total Rad + Chem 3.7E-10

Total Rad + Chem 1.0E-08

Total:	1.1E-08	3.1E-06

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TABLE B.3.5-16(b) (continued)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef

Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	8.8E-02	5.3E+00		
NP-237	2.5E-04	1.5E-02		
PU-238	1.8E-06	1.1E-04		
PU-239/240	4.2E-07	2.5E-05		
RA-226	3.0E-03	1.8E-01		
RA-228	2.4E-03	1.5E-01		
SR-90	1.5E-03	9.3E-02		
TC-99	0.0E+00	0.0E+00		
TH-228	9.8E-05	5.9E-03		
TH-230	1.7E-03	1.0E-01		
TH-232	4.8E-05	3.0E-03		
U-234	2.6E-02	1.6E+00		
U-235/236	2.2E-03	1.3E-01		
U-238	8.8E-02	5.4E+00		

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	onc'n in Milk (pCi/L	Intake	RfD(o)	Hazard
CS-137	3.06E-02	4.4E+01		
NP-237	2.23E-05	3.2E-02		
PU-238	3.55E-07	5.1E-04		
PU-239/240	8.35E-08	1.2E-04		
RA-226	5.33E-03	7.6E+00		
RA-228	4.39E-03	6.3E+00		
SR-90	7.63E-03	1.1E+01		
TC-99	0.00E+00	0.0E+00		
TH-228	8.14E-05	1.2E-01		
TH-230	1.38E-03	2.0E+00		
TH-232	4.04E-05	5.8E-02		
U-234	7.79E-02	1.1E+02		
U-235/236	6.47E-03	9.2E+00		
U-238	2.65E-01	3.8E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Beef

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	8.9E-05	1.7E-07	3.0E-04	5.5E-04
Beryllium	9.4E-06	1.7E-08	5.0E-03	3.5E-06
Cadmium	4.4E-05	8.2E-08	1.0E-03	8.2E-05
Chromium	5.6E-04	1.0E-06	5.0E-03	2.1E-04
Lead	5.1E-05	9.5E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	2.7E-04	4.9E-07	3.0E-03	1.6E-04
Aroclor-1254	9.9E-05	1.8E-07		
Benzo(b)anthracene	3.3E-05	6.2E-08		
Benzo(b)pyrene	9.6E-05	1.8E-07		
Benzo(b)fluoranthene	3.4E-04	6.3E-07		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	5.5E-04	1.0E-06		
bis(2-Ethylhexyl) phthalate	7.6E-06	1.4E-08	2.0E-02	7.1E-07
Carbazole	0.0E+00	0.0E+00		
Chrysene	4.1E-05	7.5E-08		
Dibenzo(a,h)anthracene	2.8E-05	5.1E-08		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00		
Phenanthrene	0.0E+00	0.0E+00		

Total Pathway: 1.0E-03

Ingestion/Milk

Compound	Conc'n in Milk (mg/L	Intake	RfD(o)	Hazard	Total
Arsenic	2.7E-06	1.2E-07	3.0E-04	3.9E-04	9.4E-04
Beryllium	8.4E-09	3.7E-10	5.0E-03	7.3E-08	3.5E-06
Cadmium	8.1E-06	3.5E-07	1.0E-03	3.5E-04	4.3E-04
Chromium	1.5E-04	6.7E-06	5.0E-03	1.3E-03	1.5E-03
Lead	4.3E-05	1.9E-06			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	8.0E-04	3.5E-05	3.0E-03	1.2E-02	1.2E-02
Aroclor-1254	3.1E-05	1.4E-06			
Benzo(b)anthracene	1.1E-05	4.6E-07			
Benzo(b)pyrene	3.0E-05	1.3E-06			
Benzo(b)fluoranthene	1.1E-04	4.7E-06			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	1.8E-04	7.6E-06			
bis(2-Ethylhexyl) phthalate	2.4E-06	1.0E-07	2.0E-02	5.2E-06	5.9E-06
Carbazole	0.0E+00	0.0E+00			
Chrysene	1.3E-05	5.6E-07			
Dibenzo(a,h)anthracene	8.7E-06	3.8E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			

Total Pathway: 1.4E-02

Total Rad + Chem 1.0E-03

Total Rad + Chem 1.4E-02 *Total:* 02

TABLE B.3.5-16(b) (continued)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00	0.0E+00				0.0E+00
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00	0.0E+00				0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00				0.0E+00
PU-239/240	0.0E+00	0.0E+00			PU-239/240	0.00E+00	0.0E+00				0.0E+00
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00	0.0E+00				0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00	0.0E+00				0.0E+00
SR-90	0.0E+00	0.0E+00			SR-90	0.00E+00	0.0E+00				0.0E+00
TC-99	4.7E+00	2.8E+02			TC-99	5.48E+00	7.8E+03				0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00	0.0E+00				0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00	0.0E+00				0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00	0.0E+00				0.0E+00
U-234	0.0E+00	0.0E+00			U-234	0.00E+00	0.0E+00				0.0E+00
U-235/236	0.0E+00	0.0E+00			U-235/236	0.00E+00	0.0E+00				0.0E+00
U-238	0.0E+00	0.0E+00			U-238	0.00E+00	0.0E+00				0.0E+00
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		

Chemical Hazard

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	9.4E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.5E-06
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	4.3E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.5E-03
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	1.2E-02
Aroclor-1254	0.0E+00	0.0E+00			Aroclor-1254	0.0E+00	0.0E+00				
Benzo(b)anthracene	0.0E+00	0.0E+00			Benzo(b)anthracene	0.0E+00	0.0E+00				
Benzo(b)pyrene	0.0E+00	0.0E+00			Benzo(b)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	5.9E-06
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		
		Total Rad + Chem		0.0E+00			Total Rad + Chem		0.0E+00	*Total:* 0.0E+00	1.5E-02

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TABLE B.3.5-17(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk — Ingestion of Homegrown Produce					
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Total
CS-137	6.83E-02	1.0E+02	2.8E-11	2.9E-09	2.9E-09
NP-237	7.05E-02	1.1E+02	2.2E-10	2.3E-08	2.3E-08
PU-238	5.47E-02	8.2E+01	2.2E-10	1.8E-08	1.8E-08
PU-239/240	1.28E-02	1.9E+01	2.3E-10	4.4E-09	4.4E-09
RA-226	1.83E-01	2.7E+02	1.2E-10	3.3E-08	3.3E-08
RA-228	1.56E-01	2.3E+02	1.0E-10	2.3E-08	2.3E-08
SR-90	9.96E-02	1.5E+02	3.6E-11	5.4E-09	5.4E-09
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	2.76E-01	4.1E+02	5.5E-11	2.3E-08	2.3E-08
TH-230	4.25E+00	6.4E+03	1.3E-11	8.3E-08	8.3E-08
TH-232	1.24E-01	1.9E+02	1.2E-11	2.2E-09	2.2E-09
U-234	2.00E+00	3.0E+03	1.6E-11	4.8E-08	4.8E-08
U-235/236	1.66E-01	2.5E+02	1.6E-11	4.0E-09	4.0E-09
U-238	6.79E+00	1.0E+04	2.8E-11	2.8E-07	2.8E-07
			Total Pathway:	5.5E-07	

Chemical Risk — Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	6.9E-04	5.8E-07	1.8E+00	1.0E-06	1.0E-06
Beryllium	1.4E-04	1.2E-07	4.3E+00	5.2E-07	5.2E-07
Cadmium	1.3E-04	1.1E-07			
Chromium	1.6E-03	1.3E-06			
Lead	2.7E-03	2.2E-06			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.0E-02	1.7E-05			
Aroclor-1254	5.6E-05	4.7E-08	7.7E+00	3.6E-07	3.6E-07
Benzo(a)anthracene	8.4E-05	7.0E-08	1.1E+00	7.7E-08	7.7E-08
Benzo(a)pyrene	1.0E-04	8.4E-08	7.3E+00	6.2E-07	6.2E-07
Benzo(b)fluoranthene	9.2E-05	7.7E-08	9.0E-01	6.9E-08	6.9E-08
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.5E-05	6.3E-08	3.8E-01	2.4E-08	2.4E-08
bis(2-Ethylhexyl) phthalate	4.6E-04	3.8E-07	1.4E-02	5.4E-09	5.4E-09
Carbazole	1.4E-05	1.1E-08	2.0E-02	2.3E-10	2.3E-10
Chrysene	1.0E-04	8.6E-08	3.2E-02	2.7E-09	2.7E-09
Dibenzo(a,h)anthracene	3.0E-05	2.5E-08	8.1E+00	2.0E-07	2.0E-07
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	2.9E-06	

Total Rad + Chem 3.4E-06 *Total:* 3.4E-06

TABLE B.3.5-17(a)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk — Ingestion of Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.9E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.3E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.8E-08
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	4.4E-09
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.3E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.3E-08
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	5.4E-09
TC-99	2.31E+01	3.5E+04	1.3E-12	4.5E-08	4.5E-08	4.5E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.3E-08
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	8.3E-08
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	2.2E-09
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.8E-08
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.0E-09
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.8E-07
				Total Pathway:	4.5E-08	

Chemical Risk — Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.0E-06
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	5.2E-07
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	3.6E-07
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	7.7E-08
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	6.2E-07
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	6.9E-08
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.4E-08
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	5.4E-09
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.3E-10
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	2.7E-09
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	2.0E-07
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Total Rad + Chem	4.5E-08	*Total:*	4.5E-08	3.5E-06

TABLE B.3.5-17(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Homegrown Produce

Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard	Total
CS-137	6.8E-02	1.0E+02			
NP-237	7.1E-02	1.1E+02			
PU-238	5.5E-02	8.2E+01			
PU-239/240	1.3E-02	1.9E+01			
RA-226	1.8E-01	2.7E+02			
RA-228	1.6E-01	2.3E+02			
SR-90	1.0E-01	1.5E+02			
TC-99	0.0E+00	0.0E+00			
TH-228	2.8E-01	4.1E+02			
TH-230	4.3E+00	6.4E+03			
TH-232	1.2E-01	1.9E+02			
U-234	2.0E+00	3.0E+03			
U-235/236	1.7E-01	2.5E+02			
U-238	6.8E+00	1.0E+04			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Homegrown Produce

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	6.9E-04	5.8E-07	3.0E-04	1.9E-03	1.9E-03
Beryllium	1.4E-04	1.2E-07	5.0E-03	2.4E-05	2.4E-05
Cadmium	1.3E-04	1.1E-07	1.0E-03	1.1E-04	1.1E-04
Chromium	1.6E-03	1.3E-06	5.0E-03	2.6E-04	2.6E-04
Lead	2.7E-03	2.2E-06			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.0E-02	1.7E-05	3.0E-03	5.7E-03	5.7E-03
Aroclor-1254	5.6E-05	4.7E-08			
Benzo(a)anthracene	8.4E-05	7.0E-08			
Benzo(a)pyrene	1.0E-04	8.4E-08			
Benzo(b)fluoranthene	9.2E-05	7.7E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.5E-05	6.3E-08			
bis(2-Ethylhexyl) phthalate	4.6E-04	3.8E-07	2.0E-02	1.9E-05	1.9E-05
Carbazole	1.4E-05	1.1E-08			
Chrysene	1.0E-04	8.6E-08			
Dibenzo(a,h)anthracene	3.0E-05	2.5E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			

Total Pathway: 8.0E-03

Total Rad + Chem 8.0E-03 *Total:* 8.0E-03

TABLE B.3.5-17(a) (continued)
FUTURE, ON-PROPERTY FARMER (RME VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion of Homegrown Produce						
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	2.3E+01	3.5E+04				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Chemical Hazard					Total	Total Dust & Groundwater Affected
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.9E-03
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.4E-05
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	1.1E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.6E-04
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	5.7E-03
Aroclor-1254	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.9E-05
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	8.0E-03

TABLE B.3.5-17(b)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	
CS-137	6.83E-02	7.6E+00	2.8E-11	2.1E-10	2.1E-10
NP-237	7.05E-02	7.8E+00	2.2E-10	1.7E-09	1.7E-09
PU-238	5.47E-02	6.1E+00	2.2E-10	1.3E-09	1.3E-09
PU-239/240	1.28E-02	1.4E+00	2.3E-10	3.3E-10	3.3E-10
RA-226	1.83E-01	2.0E+01	1.2E-10	2.4E-09	2.4E-09
RA-228	1.56E-01	1.7E+01	1.0E-10	1.7E-09	1.7E-09
SR-90	9.96E-02	1.1E+01	3.6E-11	4.0E-10	4.0E-10
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	2.76E-01	3.1E+01	5.5E-11	1.7E-09	1.7E-09
TH-230	4.25E+00	4.7E+02	1.3E-11	6.2E-09	6.2E-09
TH-232	1.24E-01	1.4E+01	1.2E-11	1.7E-10	1.7E-10
U-234	2.00E+00	2.2E+02	1.6E-11	3.6E-09	3.6E-09
U-235/236	1.66E-01	1.8E+01	1.6E-11	3.0E-10	3.0E-10
U-238	6.79E+00	7.6E+02	2.8E-11	2.1E-08	2.1E-08
			Total Pathway:	4.1E-08	

Chemical Risk					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	6.9E-04	2.0E-07	1.8E+00	3.5E-07	3.5E-07
Beryllium	1.4E-04	4.2E-08	4.3E+00	1.8E-07	1.8E-07
Cadmium	1.3E-04	3.9E-08			
Chromium	1.6E-03	4.6E-07			
Lead	2.7E-03	7.7E-07			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.0E-02	5.9E-06			
Aroclor-1254	5.6E-05	1.6E-08	7.7E+00	1.3E-07	1.3E-07
Benzo(b)anthracene	8.4E-05	2.4E-08	1.1E+00	2.7E-08	2.7E-08
Benzo(b)pyrene	1.0E-04	2.9E-08	7.3E+00	2.1E-07	2.1E-07
Benzo(b)fluoranthene	9.2E-05	2.7E-08	9.0E-01	2.4E-08	2.4E-08
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.5E-05	2.2E-08	3.8E-01	8.3E-09	8.3E-09
bis(2-Ethylhexyl) phthalate	4.6E-04	1.3E-07	1.4E-02	1.9E-09	1.9E-09
Carbazole	1.4E-05	4.0E-09	2.0E-02	8.0E-11	8.0E-11
Chrysene	1.0E-04	3.0E-08	3.2E-02	9.5E-10	9.5E-10
Dibenzo(a,h)anthracene	3.0E-05	8.7E-09	8.1E+00	7.0E-08	7.0E-08
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.0E-06	

Total Rad + Chem 1.0E-06 *Total:* 1.0E-06

TABLE B.3.5-17(b) (continued)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk — Ingestion of Homegrown Produce						
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.1E-10
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.7E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.3E-09
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	3.3E-10
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.4E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.7E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	4.0E-10
TC-99	2.31E+01	2.6E+03	1.3E-12	3.3E-09	3.3E-09	3.3E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.7E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	6.2E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.7E-10
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	3.6E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	3.0E-10
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.1E-08
				Total Pathway:	3.3E-09	

Chemical Risk — Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	3.5E-07
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.8E-07
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.3E-07
Benzo(b)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	2.7E-08
Benzo(b)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	2.1E-07
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	2.4E-08
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	8.3E-09
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	1.9E-09
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	8.0E-11
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	9.5E-10
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	7.0E-08
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	

Total Rad + Chem 3.3E-09 *Total:* 3.3E-09 1.0E-06

TABLE B.3.5-17(b) (continued)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					Total
Ingestion of Homegrown Produce					
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard	
CS-137	6.8E-02	7.6E+00			
NP-237	7.1E-02	7.8E+00			
PU-238	5.5E-02	6.1E+00			
PU-239/240	1.3E-02	1.4E+00			
RA-226	1.8E-01	2.0E+01			
RA-228	1.6E-01	1.7E+01			
SR-90	1.0E-01	1.1E+01			
TC-99	0.0E+00	0.0E+00			
TH-228	2.8E-01	3.1E+01			
TH-230	4.3E+00	4.7E+02			
TH-232	1.2E-01	1.4E+01			
U-234	2.0E+00	2.2E+02			
U-235/236	1.7E-01	1.8E+01			
U-238	6.8E+00	7.6E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	6.9E-04	2.3E-06	3.0E-04	7.8E-03	7.8E-03
Beryllium	1.4E-04	4.9E-07	5.0E-03	9.8E-05	9.8E-05
Cadmium	1.3E-04	4.6E-07	1.0E-03	4.6E-04	4.6E-04
Chromium	1.6E-03	5.3E-06	5.0E-03	1.1E-03	1.1E-03
Lead	2.7E-03	9.0E-06			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.0E-02	6.9E-05	3.0E-03	2.3E-02	2.3E-02
Aroclor-1254	5.6E-05	1.9E-07			
Benzo(b)anthracene	8.4E-05	2.9E-07			
Benzo(b)pyrene	1.0E-04	3.4E-07			
Benzo(b)fluoranthene	9.2E-05	3.1E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.5E-05	2.6E-07			
bis(2-Ethylhexyl) phthalate	4.6E-04	1.6E-06	2.0E-02	7.8E-05	7.8E-05
Carbazole	1.4E-05	4.7E-08			
Chrysene	1.0E-04	3.5E-07			
Dibenzo(a,h)anthracene	3.0E-05	1.0E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	3.3E-02	
			Total Rad + Chem	3.3E-02	*Total:* 3.3E-02

TABLE B.3.5-17(b) (continued)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion of Homegrown Produce						
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	2.3E+01	2.6E+03				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	7.8E-03
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	9.8E-05
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	4.6E-04
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.1E-03
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	2.3E-02
Aroclor-1254	0.0E+00	0.0E+00				
Benzo(b)anthracene	0.0E+00	0.0E+00				
Benzo(b)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	7.8E-05
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	3.3E-02

TABLE B.3.5-18
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.05E-05	9.1E-02	1.9E-11	1.7E-12
NP-237	1.08E-05	9.3E-02	2.9E-08	2.7E-09
PU-238	8.64E-06	7.5E-02	3.9E-08	2.9E-09
PU-239/240	2.03E-06	1.8E-02	3.8E-08	6.7E-10
RA-226	2.88E-05	2.5E-01	3.0E-09	7.5E-10
RA-228	2.46E-05	2.1E-01	6.6E-10	1.4E-10
SR-90	1.18E-05	1.0E-01	6.2E-11	6.3E-12
TC-99	0.00E+00	0.0E+00	8.3E-12	0.0E+00
TH-228	4.37E-05	3.8E-01	7.8E-08	2.9E-08
TH-230	6.72E-04	5.8E+00	2.9E-08	1.7E-07
TH-232	1.96E-05	1.7E-01	2.8E-08	4.7E-09
U-234	3.15E-04	2.7E+00	2.6E-08	7.1E-08
U-235/236	2.6E-05	2.3E-01	2.5E-08	5.6E-09
U-238	1.1E-03	9.2E+00	5.20E-08	4.8E-07
			Total Pathway:	7.7E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.702	2.1E+02	2.8E-11	5.9E-09
NP-237	0.720	2.2E+02	2.2E-10	4.8E-08
PU-238	0.576	1.7E+02	2.2E-10	3.8E-08
PU-239/240	0.13	4.1E+01	2.3E-10	9.4E-09
RA-226	1.9	5.8E+02	1.2E-10	7.0E-08
RA-228	1.639	4.9E+02	1.0E-10	4.9E-08
SR-90	0.8	2.4E+02	3.6E-11	8.5E-09
TC-99	0.000	0.0E+00	1.3E-12	0.0E+00
TH-228	2.910	8.8E+02	5.5E-11	4.8E-08
TH-230	44.8	1.4E+04	1.3E-11	1.8E-07
TH-232	1.306	3.9E+02	1.2E-11	4.7E-09
U-234	21.0	6.3E+03	1.6E-11	1.0E-07
U-235/236	1.743	5.3E+02	1.6E-11	8.4E-09
U-238	71.388	2.2E+04	2.8E-11	6.0E-07
			Total Pathway:	1.2E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	1.1E-07	5.2E-10	1.5E+01	7.9E-09
Beryllium	2.3E-08	1.1E-10	8.4E+00	9.2E-10
Cadmium	1.8E-08	8.7E-11		
Chromium	2.5E-07	1.2E-09	4.1E+00	4.9E-09
Lead	4.1E-07	2.0E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.2E-06	1.5E-08		
Aroclor-1254	8.9E-09	4.3E-11		
Benzo(a)anthracene	1.4E-08	6.6E-11	8.9E-01	5.9E-11
Benzo(a)pyrene	1.7E-08	8.0E-11	6.1	4.9E-10
Benzo(b)fluoranthene	1.5E-08	7.2E-11	7.5E-01	5.4E-11
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	1.2E-08	5.8E-11	3.2E-01	1.9E-11
bis(2-Ethylhexyl) phthalate	1.5E-07	7.2E-10		
Carbazole	2.1E-09	1.0E-11		
Chrysene	1.7E-08	8.0E-11	2.7E-02	2.1E-12
Dibenzo(a,h)anthracene	4.8E-09	2.3E-11	6.8E+00	1.6E-10
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.1E-08	5.2E-11	1.7E+00	8.9E-11
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway:	1.5E-08
			Total Rad + Chem	7.8E-[illegible]

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.190	1.2E-06	1.8E+00	2.1E-06
Beryllium	1.518	2.6E-07	4.3E+00	1.1E-06
Cadmium	1.200	2.0E-07		
Chromium	16.58	2.8E-06		
Lead	27.6	4.7E-06		
TH-TOTAL	25.100	4.2E-06		
U-TOTAL	214.3	3.6E-05		
Aroclor-1254	0.590	1.0E-07	7.7E+00	7.7E-07
Benzo(a)anthracene	0.910	1.5E-07	1.1E+00	1.7E-07
Benzo(a)pyrene	1.100	1.9E-07	7.3E+00	1.4E-06
Benzo(b)fluoranthene	1.000	1.7E-07	9.0E-01	1.5E-07
Benzo(g,h,i)perylene	0.630	1.1E-07		
Benzo(k)fluoranthene	0.800	1.4E-07	3.8E-01	5.1E-08
bis(2-Ethylhexyl) phthalate	10.000	1.7E-06	1.4E-02	2.4E-08
Carbazole	0.140	2.4E-08	2.0E-02	4.7E-10
Chrysene	1.100	1.9E-07	3.2E-02	5.9E-09
Dibenzo(a,h)anthracene	0.320	5.4E-08	8.1E+00	4.4E-07
Dibenzofuran	0.042	7.1E-09		
Indeno(1,2,3-cd)pyrene	0.720	1.2E-07	2.0E+00	2.4E-07
Phenanthrene	1.600	2.7E-07		
			Total Pathway:	6.4E-06
			Total Rad + Chem	7.6E-06

TABLE B.3.5-18 (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	2.8E+00	2.0E-06	5.6E-06	5.6E-06
	NP-237	2.9E+00	4.3E-07	1.2E-06	1.3E-06
	PU-238	2.3E+00	2.8E-11	6.4E-11	4.1E-08
	PU-239/240	5.4E-01	2.7E-11	1.5E-11	1.0E-08
	RA-226	7.6E+00	1.2E-08	9.2E-08	1.6E-07
	RA-228	6.5E+00	2.9E-06	1.9E-05	1.9E-05
	SR-90	3.1E+00	0.0E+00	0.0E+00	8.5E-09
	TC-99	0.0E+00	6.0E-13	0.0E+00	0.0E+00
	TH-228	1.2E+01	5.6E-06	6.5E-05	6.5E-05
	TH-230	1.8E+02	5.4E-11	9.6E-09	3.5E-07
	TH-232	5.2E+00	2.6E-11	1.4E-10	9.6E-09
	U-234	8.4E+01	3.0E-11	2.5E-09	1.7E-07
	U-235/236	6.9E+00	2.4E-07	1.7E-06	1.7E-06
	U-238	2.8E+02	3.6E-08	1.0E-05	1.1E-05
Total Pathway: 0.0E+00				Total Pathway: 1.0E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	5.0E-08	1.8E+00	9.2E-08					2.2E-06
Beryllium	1.1E-07	4.3E+02	4.5E-05					4.6E-05
Cadmium	8.3E-08							
Chromium	1.1E-06							4.9E-09
Lead	1.9E-06							
TH-TOTAL	0.0E+00							
U-TOTAL	1.5E-05							
Aroclor-1254	1.2E-06	1.0E+01	1.3E-05					1.3E-05
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					1.7E-07
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	Not applicable				1.4E-06
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					1.5E-07
Benzo(g,h,i)perylene	1.3E-06							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					5.1E-08
bis(2-Ethylhexyl) phthalate	2.8E-07	1.6E-02	4.3E-09					2.8E-08
Carbazole	0.0E+00	2.0E-02	0.0E+00					4.7E-10
Chrysene	0.0E+00	7.4E-02	0.0E+00					5.9E-09
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					4.4E-07
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					2.4E-07
Phenanthrene	3.3E-06							
Total Pathway: 5.8E-05				Total Pathway: 0.0E+00				

Total Rad + Chem 5.8E-05 — 1.0E-04 *Total:* 1.7E-04

TABLE B.3.5-18 (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.05E-05	9.1E-02		
NP-237	1.08E-05	9.3E-02		
PU-238	8.64E-06	7.5E-02		
PU-239/240	2.03E-06	1.8E-02		
RA-226	2.88E-05	2.5E-01		
RA-228	2.46E-05	2.1E-01		
SR-90	1.18E-05	1.0E-01		
TC-99	0.00E+00	0.0E+00		
TH-228	4.37E-05	3.8E-01		
TH-230	6.72E-04	5.8E+00		
TH-232	1.96E-05	1.7E-01		
U-234	3.15E-04	2.7E+00		
U-235/236	2.61E-05	2.3E-01		
U-238	1.07E-03	9.2E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.702	2.1E+02		
NP-237	0.720	2.2E+02		
PU-238	0.576	1.7E+02		
PU-239/240	0.13	4.1E+01		
RA-226	1.9	5.8E+02		
RA-228	1.639	4.9E+02		
SR-90	0.8	2.4E+02		
TC-99	0.000	0.0E+00		
TH-228	2.910	8.8E+02		
TH-230	44.8	1.4E+04		
TH-232	1.306	3.9E+02		
U-234	21.0	6.3E+03		
U-235/236	1.743	5.3E+02		
U-238	71.388	2.2E+04		

Total Pathway: ######

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	1.08E-07	4.1E-09		
Beryllium	2.28E-08	8.6E-10		
Cadmium	1.80E-08	6.8E-10		
Chromium	2.49E-07	9.3E-09		
Lead	4.13E-07	1.5E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	3.21E-06	1.2E-07		
Aroclor-1254	8.85E-09	3.3E-10		
Benzo(a)anthracene	1.37E-08	5.1E-10		
Benzo(a)pyrene	1.65E-08	6.2E-10		
Benzo(b)fluoranthene	1.50E-08	5.6E-10		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	1.20E-08	4.5E-10		
bis(2-Ethylhexyl) phthalate	1.50E-07	5.6E-09		
Carbazole	2.10E-09	7.9E-11		
Chrysene	1.65E-08	6.2E-10		
Dibenzo(a,h)anthracene	4.80E-09	1.8E-10		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	1.08E-08	4.1E-10		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.190	9.4E-06	3.0E-04	3.1E-02
Beryllium	1.518	2.0E-06	5.0E-03	4.0E-04
Cadmium	1.200	1.6E-06	1.0E-03	1.6E-03
Chromium	16.58	2.2E-05	5.0E-03	4.4E-03
Lead	27.6	3.6E-05		
TH-TOTAL	25.100	3.3E-05		
U-TOTAL	214.3	2.8E-04	3.0E-03	0.1
Aroclor-1254	0.590	7.7E-07		
Benzo(a)anthracene	0.910	1.2E-06		
Benzo(a)pyrene	1.100	1.4E-06		
Benzo(b)fluoranthene	1.000	1.3E-06		
Benzo(g,h,i)perylene	0.630	8.3E-07		
Benzo(k)fluoranthene	0.800	1.1E-06		
bis(2-Ethylhexyl) phthalate	10.000	1.3E-05	2.0E-02	6.6E-04
Carbazole	0.140	1.8E-07		
Chrysene	1.100	1.4E-06		
Dibenzo(a,h)anthracene	0.320	4.2E-07		
Dibenzofuran	0.042	5.5E-08	4.0E-03	1.4E-05
Indeno(1,2,3-cd)pyrene	0.720	9.5E-07	2.0E+00	4.7E-07
Phenanthrene	1.600	2.1E-06		

Total Pathway: 1.3E-01

Total Rad + Chem 0.0E+00

Total Rad + Chem 1.3E-01

TABLE B.3.5-18 (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e) Hazard	
Not applicable	CS-137	2.8E+00		
	NP-237	2.9E+00		
	PU-238	2.3E+00		
	PU-239/240	5.4E-01		
	RA-226	7.6E+00		
	RA-228	6.5E+00		
	SR-90	3.1E+00		
	TC-99	0.0E+00		
	TH-228	1.2E+01		
	TH-230	1.8E+02		
	TH-232	5.2E+00		
	U-234	8.4E+01		
	U-235/236	6.9E+00		
	U-238	2.8E+02		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	3.9E-07	2.9E-04	1.1E-10					3.1E-02
Beryllium	8.2E-07	5.0E-05	4.1E-11					4.0E-04
Cadmium	6.5E-07	5.0E-05	3.2E-11					1.6E-03
Chromium	8.9E-06	2.3E-03	2.0E-08					4.4E-03
Lead	1.5E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	1.2E-04	1.5E-04	1.7E-08					0.1
Aroclor-1254	9.5E-06							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00			Not applicable				
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	1.0E-05							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	2.2E-06	1.8E-02	3.9E-08					6.6E-04
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					1.4E-05
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					4.7E-07
Phenanthrene	2.6E-05							
Total Pathway:			7.6E-08	Total Pathway: 0.0E+00				
Total Rad + Chem			7.6E-08				0.0E+00	*Total:* 0.1

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5178

TABLE B.3.5-19
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	
CS-137	6.83E-02	6.6E+00	2.8E-11	1.8E-10	1.8E-10
NP-237	7.05E-02	6.8E+00	2.2E-10	1.5E-09	1.5E-09
PU-238	5.47E-02	5.3E+00	2.2E-10	1.2E-09	1.2E-09
PU-239/240	1.28E-02	1.2E+00	2.3E-10	2.9E-10	2.9E-10
RA-226	1.83E-01	1.8E+01	1.2E-10	2.1E-09	2.1E-09
RA-228	1.56E-01	1.5E+01	1.0E-10	1.5E-09	1.5E-09
SR-90	9.96E-02	9.6E+00	3.6E-11	3.5E-10	3.5E-10
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	2.76E-01	2.7E+01	5.5E-11	1.5E-09	1.5E-09
TH-230	4.25E+00	4.1E+02	1.3E-11	5.3E-09	5.3E-09
TH-232	1.24E-01	1.2E+01	1.2E-11	1.4E-10	1.4E-10
U-234	2.00E+00	1.9E+02	1.6E-11	3.1E-09	3.1E-09
U-235/236	1.66E-01	1.6E+01	1.6E-11	2.6E-10	2.6E-10
U-238	6.79E+00	6.5E+02	2.8E-11	1.8E-08	1.8E-08
				Total Pathway:	3.6E-08

Chemical Risk					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	6.9E-04	3.7E-08	1.8E+00	6.5E-08	6.5E-08
Beryllium	1.4E-04	7.8E-09	4.3E+00	3.4E-08	3.4E-08
Cadmium	1.3E-04	7.3E-09			
Chromium	1.6E-03	8.5E-08			
Lead	2.7E-03	1.4E-07			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.0E-02	1.1E-06			
Aroclor-1254	5.6E-05	3.0E-09	7.7E+00	2.3E-08	2.3E-08
Benzo(a)anthracene	8.4E-05	4.5E-09	1.1E+00	5.0E-09	5.0E-09
Benzo(a)pyrene	1.0E-04	5.5E-09	7.3E+00	4.0E-08	4.0E-08
Benzo(b)fluoranthene	9.2E-05	5.0E-09	9.0E-01	4.5E-09	4.5E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.5E-05	4.1E-09	3.8E-01	1.5E-09	1.5E-09
bis(2-Ethylhexyl) phthalate	4.6E-04	2.5E-08	1.4E-02	3.5E-10	3.5E-10
Carbazole	1.4E-05	7.4E-10	2.0E-02	1.5E-11	1.5E-11
Chrysene	1.0E-04	5.5E-09	3.2E-02	1.8E-10	1.8E-10
Dibenzo(a,h)anthracene	3.0E-05	1.6E-09	8.1E+00	1.3E-08	1.3E-08
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
				Total Pathway:	1.9E-07

Total Rad + Chem 2.2E-07 *Total:* 2.2E-07

TABLE B.3.5-19 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						Total Dust & Groundwater
Ingestion of Homegrown Produce					Total	Affected
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.8E-10
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.5E-09
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	1.2E-09
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	2.9E-10
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.1E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.5E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00	3.5E-10
TC-99	2.31E+01	2.2E+03	1.3E-12	2.9E-09	2.9E-09	2.9E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.5E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	5.3E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.4E-10
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	3.1E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	2.6E-10
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.8E-08
				Total Pathway:	2.9E-09	

Chemical Risk						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	6.5E-08
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	3.4E-08
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	2.3E-08
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	5.0E-09
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	4.0E-08
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	4.5E-09
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	1.5E-09
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	3.5E-10
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.5E-11
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.8E-10
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	1.3E-08
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00				
				Total Pathway:	0.0E+00	
				Total Rad + Chem	2.9E-09	*Total:* 2.9E-09 2.3E-07

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TABLE B.3.5-19 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Homegrown Produce

Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard	Total
CS-137	6.8E-02	6.6E+00			
NP-237	7.1E-02	6.8E+00			
PU-238	5.5E-02	5.3E+00			
PU-239/240	1.3E-02	1.2E+00			
RA-226	1.8E-01	1.8E+01			
RA-228	1.6E-01	1.5E+01			
SR-90	1.0E-01	9.6E+00			
TC-99	0.0E+00	0.0E+00			
TH-228	2.8E-01	2.7E+01			
TH-230	4.3E+00	4.1E+02			
TH-232	1.2E-01	1.2E+01			
U-234	2.0E+00	1.9E+02			
U-235/236	1.7E-01	1.6E+01			
U-238	6.8E+00	6.5E+02			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion of Homegrown Produce

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	6.9E-04	2.9E-07	3.0E-04	9.7E-04	9.7E-04
Beryllium	1.4E-04	6.1E-08	5.0E-03	1.2E-05	1.2E-05
Cadmium	1.3E-04	5.6E-08	1.0E-03	5.6E-05	5.6E-05
Chromium	1.6E-03	6.6E-07	5.0E-03	1.3E-04	1.3E-04
Lead	2.7E-03	1.1E-06			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.0E-02	8.6E-06	3.0E-03	2.9E-03	2.9E-03
Aroclor-1254	5.6E-05	2.4E-08			
Benzo(a)anthracene	8.4E-05	3.5E-08			
Benzo(a)pyrene	1.0E-04	4.2E-08			
Benzo(b)fluoranthene	9.2E-05	3.9E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	7.5E-05	3.2E-08			
bis(2-Ethylhexyl) phthalate	4.6E-04	1.9E-07	2.0E-02	9.6E-06	9.6E-06
Carbazole	1.4E-05	5.8E-09			
Chrysene	1.0E-04	4.3E-08			
Dibenzo(a,h)anthracene	3.0E-05	1.3E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			

Total Pathway: 4.0E-03

Total Rad + Chem 4.0E-03 *Total:* 4.0E-03

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TABLE B.3.5-19 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard						
Ingestion of Homegrown Produce						
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard	Total	Total Dust & Groundwater Affected
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	0.0E+00	0.0E+00				
TC-99	2.3E+01	2.2E+03				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	9.7E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.2E-05
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	5.6E-05
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.3E-04
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	2.9E-03
Aroclor-1254	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	9.6E-06
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	4.0E-03

TABLE B.3.5-20
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk	
CS-137	8.75E-02	1.1E+01	2.8E-11	3.0E-10	CS-137	3.06E-02	1.2E+01	2.8E-11	3.4E-10	6.4E-10
NP-237	2.46E-04	3.0E-02	2.2E-10	6.7E-12	NP-237	2.23E-05	8.8E-03	2.2E-10	1.9E-12	8.6E-12
PU-238	1.77E-06	2.2E-04	2.2E-10	4.8E-14	PU-238	3.55E-07	1.4E-04	2.2E-10	3.1E-14	7.9E-14
PU-239/240	4.18E-07	5.2E-05	2.3E-10	1.2E-14	PU-239/240	8.35E-08	3.3E-05	2.3E-10	7.6E-15	1.9E-14
RA-226	2.96E-03	3.7E-01	1.2E-10	4.4E-11	RA-226	5.33E-03	2.1E+00	1.2E-10	2.5E-10	3.0E-10
RA-228	2.44E-03	3.0E-01	1.0E-10	3.0E-11	RA-228	4.39E-03	1.7E+00	1.0E-10	1.7E-10	2.0E-10
SR-90	1.53E-03	1.9E-01	3.6E-11	6.8E-12	SR-90	7.63E-03	3.0E+00	3.6E-11	1.1E-10	1.2E-10
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	9.77E-05	1.2E-02	5.5E-11	6.6E-13	TH-228	8.14E-05	3.2E-02	5.5E-11	1.8E-12	2.4E-12
TH-230	1.66E-03	2.1E-01	1.3E-11	2.7E-12	TH-230	1.38E-03	5.5E-01	1.3E-11	7.1E-12	9.8E-12
TH-232	4.84E-05	6.0E-03	1.2E-11	7.2E-14	TH-232	4.04E-05	1.6E-02	1.2E-11	1.9E-13	2.6E-13
U-234	2.60E-02	3.2E+00	1.6E-11	5.1E-11	U-234	7.79E-02	3.1E+01	1.6E-11	4.9E-10	5.4E-10
U-235/236	2.16E-03	2.7E-01	1.6E-11	4.3E-12	U-235/236	6.47E-03	2.6E+00	1.6E-11	4.1E-11	4.5E-11
U-238	8.82E-02	1.1E+01	2.8E-11	3.1E-10	U-238	2.65E-01	1.0E+02	2.8E-11	2.9E-09	3.2E-09
			Total Pathway:	7.6E-10				Total Pathway:	4.4E-09	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	8.9E-05	6.2E-09	1.8E+00	1.1E-08	Arsenic	2.7E-06	5.9E-10	1.8E+00	1.0E-09	1.2E-08
Beryllium	9.4E-06	6.5E-10	4.3E+00	2.8E-09	Beryllium	8.4E-09	1.9E-12	4.3E+00	8.0E-12	2.8E-09
Cadmium	4.4E-05	3.1E-09			Cadmium	8.1E-06	1.8E-09			
Chromium	5.6E-04	3.9E-08			Chromium	1.5E-04	3.4E-08			
Lead	5.1E-05	3.5E-09			Lead	4.3E-05	9.5E-09			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	1.8E-08			U-TOTAL	8.0E-04	1.8E-07			
Aroclor-1254	9.9E-05	6.8E-09	7.7E+00	5.2E-08	Aroclor-1254	3.1E-05	6.9E-09	7.7E+00	5.3E-08	1.1E-07
Benzo(a)anthracene	3.3E-05	2.3E-09	1.1E+00	2.5E-09	Benzo(a)anthracene	1.1E-05	2.3E-09	1.1E+00	2.6E-09	5.1E-09
Benzo(a)pyrene	9.6E-05	6.7E-09	7.3E+00	4.9E-08	Benzo(a)pyrene	3.0E-05	6.7E-09	7.3E+00	4.9E-08	9.8E-08
Benzo(b)fluoranthene	3.4E-04	2.4E-08	9.0E-01	2.1E-08	Benzo(b)fluoranthene	1.1E-04	2.4E-08	9.0E-01	2.1E-08	4.3E-08
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	3.8E-08	3.8E-01	1.5E-08	Benzo(k)fluoranthene	1.8E-04	3.9E-08	3.8E-01	1.5E-08	2.9E-08
bis(2-Ethylhexyl) phthalate	7.6E-06	5.3E-10	1.4E-02	7.4E-12	bis(2-Ethylhexyl) phthalat	2.4E-06	5.3E-10	1.4E-02	7.5E-12	1.5E-11
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	4.1E-05	2.8E-09	3.2E-02	9.0E-11	Chrysene	1.3E-05	2.9E-09	3.2E-02	9.1E-11	1.8E-10
Dibenzo(a,h)anthracene	2.8E-05	1.9E-09	8.1E+00	1.5E-08	Dibenzo(a,h)anthracene	8.7E-06	1.9E-09	8.1E+00	1.6E-08	3.1E-08
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.7E-07				Total Pathway:	1.6E-07	

Total Rad + Chem	1.7E-07	Total Rad + Chem	1.6E-07

TABLE B.3.5-20 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef

Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	4.66E+00	5.8E+02	1.30E-12	7.5E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00

Total Pathway: 7.5E-10

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	5.48E+00	2.2E+03	1.30E-12	2.8E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00

Total Pathway: 2.8E-09

Total	Total Dust & Groundwater Affected
0.0E+00	6.4E-10
0.0E+00	8.6E-12
0.0E+00	7.9E-14
0.0E+00	1.9E-14
0.0E+00	3.0E-10
0.0E+00	2.0E-10
0.0E+00	1.2E-10
3.6E-09	3.6E-09
0.0E+00	2.4E-12
0.0E+00	9.8E-12
0.0E+00	2.6E-13
0.0E+00	5.4E-10
0.0E+00	4.5E-11
0.0E+00	3.2E-09

Chemical Risk

Ingestion of Beef

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.0E+00	0.0E+00		
Chromium	0.0E+00	0.0E+00		
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00		
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		

Total Pathway: 0.0E+00

Total Rad + Chem 7.5E-10

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00
Cadmium	0.0E+00	0.0E+00		
Chromium	0.0E+00	0.0E+00		
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00		
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		

Total Pathway: 0.0E+00

Total Rad + Chem 2.8E-09

Total	Total Dust & Groundwater Affected
0.0E+00	1.2E-08
0.0E+00	2.8E-09
0.0E+00	1.1E-07
0.0E+00	5.1E-09
0.0E+00	9.8E-08
0.0E+00	4.3E-08
0.0E+00	2.9E-08
0.0E+00	1.5E-11
0.0E+00	0.0E+00
0.0E+00	1.8E-10
0.0E+00	3.1E-08
0.0E+00	0.0E+00

Total:	3.6E-09	3.3E-07

TABLE B.3.5-20 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	onc'n in Milk (pCi/L	Intake	RfD(o)	Hazard	Total
CS-137	8.8E-02	1.1E+01			CS-137	3.06E-02	1.2E+01			
NP-237	2.5E-04	3.0E-02			NP-237	2.23E-05	8.8E-03			
PU-238	1.8E-06	2.2E-04			PU-238	3.55E-07	1.4E-04			
PU-239/240	4.2E-07	5.2E-05			PU-239/240	8.35E-08	3.3E-05			
RA-226	3.0E-03	3.7E-01			RA-226	5.33E-03	2.1E+00			
RA-228	2.4E-03	3.0E-01			RA-228	4.39E-03	1.7E+00			
SR-90	1.5E-03	1.9E-01			SR-90	7.63E-03	3.0E+00			
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00			
TH-228	9.8E-05	1.2E-02			TH-228	8.14E-05	3.2E-02			
TH-230	1.7E-03	2.1E-01			TH-230	1.38E-03	5.5E-01			
TH-232	4.8E-05	6.0E-03			TH-232	4.04E-05	1.6E-02			
U-234	2.6E-02	3.2E+00			U-234	7.79E-02	3.1E+01			
U-235/236	2.2E-03	2.7E-01			U-235/236	6.47E-03	2.6E+00			
U-238	8.8E-02	1.1E+01			U-238	2.65E-01	1.0E+02			
		Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L	Intake	RfD(o)	Hazard	
Arsenic	8.9E-05	4.8E-08	3.0E-04	1.6E-04	Arsenic	2.7E-06	4.6E-09	3.0E-04	1.5E-05	1.8E-04
Beryllium	9.4E-06	5.0E-09	5.0E-03	1.0E-06	Beryllium	8.4E-09	1.5E-11	5.0E-03	2.9E-09	1.0E-06
Cadmium	4.4E-05	2.4E-08	1.0E-03	2.4E-05	Cadmium	8.1E-06	1.4E-08	1.0E-03	1.4E-05	3.8E-05
Chromium	5.6E-04	3.0E-07	5.0E-03	6.1E-05	Chromium	1.5E-04	2.6E-07	5.0E-03	5.3E-05	1.1E-04
Lead	5.1E-05	2.8E-08			Lead	4.3E-05	7.4E-08			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	1.4E-07	3.0E-03	4.8E-05	U-TOTAL	8.0E-04	1.4E-06	3.0E-03	4.6E-04	5.0E-04
Aroclor-1254	9.9E-05	5.3E-08			Aroclor-1254	3.1E-05	5.4E-08			
Benzo(a)anthracene	3.3E-05	1.8E-08			Benzo(a)anthracene	1.1E-05	1.8E-08			
Benzo(a)pyrene	9.6E-05	5.2E-08			Benzo(a)pyrene	3.0E-05	5.2E-08			
Benzo(b)fluoranthene	3.4E-04	1.8E-07			Benzo(b)fluoranthene	1.1E-04	1.9E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	3.0E-07			Benzo(k)fluoranthene	1.8E-04	3.0E-07			
bis(2-Ethylhexyl) phthalate	7.6E-06	4.1E-09	2.0E-02	2.0E-07	bis(2-Ethylhexyl) phthalate	2.4E-06	4.1E-09	2.0E-02	2.1E-07	4.1E-07
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	4.1E-05	2.2E-08			Chrysene	1.3E-05	2.2E-08			
Dibenzo(a,h)anthracene	2.8E-05	1.5E-08			Dibenzo(a,h)anthracene	8.7E-06	1.5E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:	2.9E-04				Total Pathway:	5.4E-04		

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Total Rad + Chem 2.9E-04

Total Rad + Chem 5.4E-04 *Total:* ...04

TABLE B.3.5-20 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef

Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	0.0E+00	0.0E+00		
NP-237	0.0E+00	0.0E+00		
PU-238	0.0E+00	0.0E+00		
PU-239/240	0.0E+00	0.0E+00		
RA-226	0.0E+00	0.0E+00		
RA-228	0.0E+00	0.0E+00		
SR-90	0.0E+00	0.0E+00		
TC-99	4.7E+00	5.8E+02		
TH-228	0.0E+00	0.0E+00		
TH-230	0.0E+00	0.0E+00		
TH-232	0.0E+00	0.0E+00		
U-234	0.0E+00	0.0E+00		
U-235/236	0.0E+00	0.0E+00		
U-238	0.0E+00	0.0E+00		
Total Pathway:		0.0E+00		

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L	Intake	RfD(o)	Hazard
CS-137	0.00E+00	0.0E+00		
NP-237	0.00E+00	0.0E+00		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	0.00E+00	0.0E+00		
RA-228	0.00E+00	0.0E+00		
SR-90	0.00E+00	0.0E+00		
TC-99	5.48E+00	2.2E+03		
TH-228	0.00E+00	0.0E+00		
TH-230	0.00E+00	0.0E+00		
TH-232	0.00E+00	0.0E+00		
U-234	0.00E+00	0.0E+00		
U-235/236	0.00E+00	0.0E+00		
U-238	0.00E+00	0.0E+00		
Total Pathway:		0.0E+00		

Total	Total Dust & Groundwater Affected
	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
	0.0E+00
	0.0E+00
	0.0E+00

Chemical Hazard

Ingestion of Beef

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00
Aroclor-1254	0.0E+00	0.0E+00		
Benzo(a)anthracene	0.0E+00	0.0E+00		
Benzo(a)pyrene	0.0E+00	0.0E+00		
Benzo(b)fluoranthene	0.0E+00	0.0E+00		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00		
Chrysene	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00		
Phenanthrene	0.0E+00	0.0E+00		
Total Pathway:		0.0E+00		
Total Rad + Chem		0.0E+00		

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Lead	0.0E+00	0.0E+00		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00
Aroclor-1254	0.0E+00	0.0E+00		
Benzo(a)anthracene	0.0E+00	0.0E+00		
Benzo(a)pyrene	0.0E+00	0.0E+00		
Benzo(b)fluoranthene	0.0E+00	0.0E+00		
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00		
Chrysene	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00		
Phenanthrene	0.0E+00	0.0E+00		
Total Pathway:		0.0E+00		
Total Rad + Chem		0.0E+00		

Total	Total Dust & Groundwater Affected
0.0E+00	1.8E-04
0.0E+00	1.0E-06
0.0E+00	3.8E-05
0.0E+00	1.1E-04
0.0E+00	5.0E-04
0.0E+00	4.1E-07
0.0E+00	0.0E+00
Total: 0.0E+00	8.3E-04

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TABLE B.3.5-21
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PITS: GROUNDWATER

Carcinogenic Risk

Radiation Risk								
Ingestion/Groundwater					Inhalation/Groundwater	Dermal Contact/Groundwater		Total
Compoun	Conc'n (pCi/L)	Intake	SF(o)	Risk				
TC-99	2.5E+00	8.7E+03	1.3E-12	1.1E-08	Not applicable	Not applicable		1.1E-08
			Total Pathway:	1.1E-08	Total Pathway: 0.0E+00	Total Pathway:	0.0E+00	
			Total Rad + Chem	1.1E-08	Total Rad + Chem 0.0E+00	Total Rad + Chem	0.0E+00	*Total:* 1.1E-08

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TABLE B.3.5-21 (continued)
FUTURE, ON-PROPERTY FARMER (CT VALUES)
LIME SLUDGE PITS: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard								
Ingestion/Groundwater					Inhalation/Groundwater		Dermal Contact/Groundwater	
Compoun	Conc'n (pCi/L)	Intake	RfD(o)	Hazard				
TC-99	2.5E+00	8.7E+03			Not applicable		Not applicable	
			Total Pathway:	0.0E+00	Total Pathway:	0.0E+00	Total Pathway:	0.0E+00
			Total Rad + Chem	0.0E+00	Total Rad + Chem	0.0E+00	Total Rad + Chem	0.0E+00

Total: 0.0E+00

TABLE B.3.5-22(a)

FUTURE, ON-PROPERTY FARMER

LIME SLUDGE PONDS: PERCHED GROUNDWATER

Carcinogenic Risk

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	5.5E-03	2.7E+02	2.2E-10	5.9E-08	Not applicable
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	1.9E-03	9.4E+01	3.6E-11	3.4E-09	
TC-99	7.0E-02	3.4E+03	1.3E-12	4.4E-09	
U234	0.0E+00	0.0E+00	1.60E-11	0.0E+00	
U235/236	0.0E+00	0.0E+00	1.60E-11	0.0E+00	
U238	0.0E+00	0.0E+00	2.8E-11	0.0E+00	
			Total Pathway:	6.7E-08	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	1.45E-05	4.0E-07	1.8E+00	7.0E-07	Arsenic	1.5E-06		
Beryllium	0	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Lead	0	0.0E+00			Lead	0.0E+00		
Manganese	1.94E-02	5.3E-04			Manganese	2.0E-03		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
			Total Pathway:	7.0E-07			Total Pathway:	0.0E+00
			Total Rad + Chem	7.6E-07			Total Rad + Chem	0.0E+00

TABLE B.3.5-22(a) (continued)
FUTURE, ON-PROPERTY FARMER
LIME SLUDGE PONDS: PERCHED GROUNDWATER

Carcinogenic Risk

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		5.9E-08
		0.0E+00
		0.0E+00
		3.4E-09
		4.4E-09
		0.0E+00
		0.0E+00
		0.0E+00
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	2.9E-09	1.8E+00	5.3E-09	7.0E-07
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Lead	0.0E+00			
Manganese	3.9E-06			
Tetrachlorodibenzofuran	0.0E+00	7.5E+04	0.0E+00	0.0E+00
		Total Pathway:	5.3E-09	

Total Rad + Chem 5.3E-09 *Total:* 7.7E-07

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TABLE B.3.5-22(a) (continued)

FUTURE, ON-PROPERTY FARMER

LIME SLUDGE PONDS: PERCHED GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.0	2.7E+02			Not applicable
RA-226	0.0E+00	0.0E+00			
RA-228		0.0E+00			
SR-90		0.0E+00			
TC-99	0.1	3.4E+03			
U234	0.0	0.0E+00			
U235/236	0.0	0.0E+00			
U238	0.0	0.0E+00			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	1.5E-05	4.0E-07	3.0E-04	1.3E-03	Arsenic	1.5E-06		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Lead	0.0E+00	0.0E+00			Lead	0.0E+00		
Manganese	1.9E-02	5.3E-04	1.4E-01	3.8E-03	Manganese	2.0E-03		
Tetrachlorodibenzofuran		0.0E+00			Tetrachlorodibenzofuran	0.0E+00		
		Total Pathway:		5.1E-03		Total Pathway:		0.0E+00
		Total Rad + Chem		5.1E-03		Total Rad + Chem		0.0E+00

TABLE B.3.5-22(a) (continued)
FUTURE, ON-PROPERTY FARMER
LIME SLUDGE PONDS: PERCHED GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	2.9E-09	2.9E-04	1.0E-05	1.3E-03
Beryllium	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Lead	0.0E+00			
Manganese	3.9E-06	4.2E-03	9.2E-04	4.7E-03
Tetrachlorodibenzofuran	0.0E+00			

Total Pathway: 9.3E-04

Total Rad + Chem 9.3E-04 *Total:* 6.0E-03

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TABLE B.3.5-22(b)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: PERCHED GROUNDWATER

Carcinogenic Risk

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	5.5E-03	1.2E+01	2.2E-10	2.5E-09	
RA-226	0.0E+00	0.0E+00	1.2E-10	0.0E+00	Not applicable
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	1.9E-03	4.0E+00	3.6E-11	1.4E-10	
TC-99	7.0E-02	1.5E+02	1.3E-12	1.9E-10	
U234	0.0E+00	0.0E+00	1.60E-11	0.0E+00	
U235/236	0.0E+00	0.0E+00	1.60E-11	0.0E+00	
U238	0.0E+00	0.0E+00	2.8E-11	0.0E+00	
			Total Pathway:	2.9E-09	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	1.45E-05	7.9E-08	1.8E+00	1.4E-07	Arsenic	6.0E-07		
Beryllium	0	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Lead	0	0.0E+00			Lead	0.0E+00		
Manganese	1.94E-02	1.1E-04			Manganese	8.0E-04		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
			Total Pathway:	1.4E-07			Total Pathway:	0.0E+00
			Total Rad + Chem	1.4E-07			Total Rad + Chem	0.0E+00

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TABLE B.3.5-22(b) (continued)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: PERCHED GROUNDWATER

Carcinogenic Risk

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		2.5E-09
		0.0E+00
		0.0E+00
		1.4E-10
		1.9E-10
		0.0E+00
		0.0E+00
		0.0E+00
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	4.0E-10	1.8E+00	7.4E-10	1.4E-07
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Lead	0.0E+00			
Manganese	5.4E-07			
Tetrachlorodibenzofuran	0.0E+00	7.5E+04	0.0E+00	0.0E+00
		Total Pathway:	7.4E-10	

Total Rad + Chem 7.4E-10 *Total:* 1.4E-07

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TABLE B.3.5-22(b) (continued)

FUTURE, ON-PROPERTY CHILD

LIME SLUDGE PONDS: PERCHED GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.0	1.2E+01			Not applicable
RA-226	0.0E+00	0.0E+00			
RA-228		0.0E+00			
SR-90		0.0E+00			
TC-99	0.1	1.5E+02			
U234	0.0	0.0E+00			
U235/236	0.0	0.0E+00			
U238	0.0	0.0E+00			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	1.5E-05	9.3E-07	3.0E-04	3.1E-03	Arsenic	7.0E-06		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Lead	0.0E+00	0.0E+00			Lead	0.0E+00		
Manganese	1.9E-02	1.2E-03	1.4E-01	8.8E-03	Manganese	9.3E-03		
Tetrachlorodibenzofuran		0.0E+00			Tetrachlorodibenzofuran	0.0E+00		
		Total Pathway:		1.2E-02		Total Pathway:		0.0E+00
		Total Rad + Chem		1.2E-02		Total Rad + Chem		0.0E+00

TABLE B.3.5-22(b) (continued)
FUTURE, ON-PROPERTY CHILD
LIME SLUDGE PONDS: PERCHED GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	1.2E-12	2.9E-04	4.1E-09	3.1E-03
Beryllium	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Lead	0.0E+00			
Manganese	1.6E-09	4.2E-03	3.7E-07	8.8E-03
Tetrachlorodibenzofuran	0.0E+00			
		Total Pathway:	3.8E-07	

Total Rad + Chem 3.8E-07 *Total:* 1.2E-02

TABLE B.3.6-1
FUTURE, OFF-PROPERTY FARMER
OU2-WIDE: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk					
Inhalation of Particulates/Soil					Total
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	
CS-137	1.79E-04	2.1E+01	1.9E-11	3.9E-10	3.9E-10
NP-237	8.82E-05	1.0E+01	2.9E-08	3.0E-07	3.0E-07
PU-238	4.38E-05	5.1E+00	3.9E-08	2.0E-07	2.0E-07
PU-239/240	1.86E-05	2.2E+00	3.8E-08	8.2E-08	8.2E-08
RA-226	1.10E-02	1.3E+03	3.0E-09	3.8E-06	3.8E-06
RA-228	1.39E-03	1.6E+02	6.9E-10	1.1E-07	1.1E-07
SR-90	3.63E-04	4.2E+01	6.2E-11	2.6E-09	2.6E-09
TC-99	5.07E-02	5.9E+03	8.3E-12	4.9E-08	4.9E-08
TH-228	1.58E-03	1.8E+02	7.8E-08	1.4E-05	1.4E-05
TH-230	4.94E-03	5.7E+02	2.9E-08	1.7E-05	1.7E-05
TH-232	1.43E-03	1.7E+02	2.8E-08	4.6E-06	4.6E-06
U-234	3.11E-03	3.6E+02	2.6E-08	9.4E-06	9.4E-06
U-235/236	1.51E-04	1.8E+01	2.5E-08	4.4E-07	4.4E-07
U-238	3.35E-03	3.9E+02	5.2E-08	2.0E-05	2.0E-05
			Total Pathway:	7.0E-05	

Chemical Risk					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	
Arsenic	2.73E-06	1.8E-07	1.5E+01	2.7E-06	2.7E-06
Barium	3.28E-05	2.1E-06			
Beryllium	3.44E-07	2.2E-08	8.4E+00	1.9E-07	1.9E-07
Cadmium	3.55E-09	2.3E-10			
Chromium	1.99E-06	1.3E-07	4.1E+01	5.3E-06	5.3E-06
Lead	9.88E-06	6.4E-07			
Nickel	6.17E-06	4.0E-07	8.4E-01	3.4E-07	3.4E-07
TH-TOTAL	1.32E-05	8.6E-07			
U-TOTAL	1.06E-05	6.9E-07			
4,4'-DDE	1.43E-12	9.3E-14			
Benzo(a)anthracene	1.96E-06	1.3E-07	8.9E-01	1.1E-07	1.1E-07
Benzo(a)pyrene	3.36E-06	2.2E-07	6.1E+00	1.3E-06	1.3E-06
Benzo(b)fluoranthene	2.21E-06	1.4E-07	7.5E-01	1.1E-07	1.1E-07
Benzo(g,h,i)perylene	2.21E-06	1.4E-07			
Benzo(k)fluoranthene	2.61E-06	1.7E-07	3.2E-01	5.4E-08	5.4E-08
bis(2-Ethylhexyl) phthalate	3.98E-08	2.6E-09			0.0E+00
Carbazole	6.13E-08	4.0E-09			0.0E+00
Chrysene	2.14E-06	1.4E-07	2.7E-02	3.7E-09	3.7E-09
Dibenzo(a,h)anthracene	6.81E-07	4.4E-08	6.8E+00	3.0E-07	3.0E-07
Dibenzofuran	4.67E-08	3.0E-09			
Dieldrin	3.57E-09	2.3E-10	1.6E+01	3.7E-09	3.7E-09
Indeno(1,2,3-cd)pyrene	2.14E-06	1.4E-07	1.7E+00	2.4E-07	2.4E-07
Methylene chloride	1.79E-09	1.2E-10	2.0E-03	2.3E-13	2.3E-13
Phenanthrene	8.21E-07	5.3E-08			
Toluene	8.59E-13	5.6E-14			
			Total Pathway:	1.1E-05	
			Total Rad + Chem	8.1E-05	*Total:* 8.1E-05

TABLE B.3.6-1
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Inhalation of Particulates/Soil					Total
Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard	
CS-137	1.79E-04	2.1E+01			
NP-237	8.82E-05	1.0E+01			
PU-238	4.38E-05	5.1E+00			
PU-239/240	1.86E-05	2.2E+00			
RA-226	1.10E-02	1.3E+03			
RA-228	1.39E-03	1.6E+02			
SR-90	3.63E-04	4.2E+01			
TC-99	5.07E-02	5.9E+03			
TH-228	1.58E-03	1.8E+02			
TH-230	4.94E-03	5.7E+02			
TH-232	1.43E-03	1.7E+02			
U-234	3.11E-03	3.6E+02			
U-235/236	1.51E-04	1.8E+01			
U-238	3.35E-03	3.9E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard	
Arsenic	2.73E-06	1.8E-07			
Barium	3.28E-05	2.1E-06	1.4E-04	1.6E-02	1.6E-02
Beryllium	3.44E-07	2.2E-08			
Cadmium	3.55E-09	2.3E-10			
Chromium	1.99E-06	1.3E-07			
Lead	9.88E-06	6.4E-07			
Nickel	6.17E-06	4.0E-07			
TH-TOTAL	1.32E-05	8.6E-07			
U-TOTAL	1.06E-05	6.9E-07			
4,4'-DDE	1.43E-12	9.3E-14			
Benzo(a)anthracene	1.96E-06	1.3E-07			
Benzo(a)pyrene	3.36E-06	2.2E-07			
Benzo(b)fluoranthene	2.21E-06	1.4E-07			
Benzo(g,h,i)perylene	2.21E-06	1.4E-07			
Benzo(k)fluoranthene	2.61E-06	1.7E-07			
bis(2-Ethylhexyl) phthalate	3.98E-08	2.6E-09			
Carbazole	6.13E-08	4.0E-09			
Chrysene	2.14E-06	1.4E-07			
Dibenzo(a,h)anthracene	6.81E-07	4.4E-08			
Dibenzofuran	4.67E-08	3.0E-09			
Dieldrin	3.57E-09	2.3E-10			
Indeno(1,2,3-cd)pyrene	2.14E-06	1.4E-07			
Methylene chloride	1.79E-09	1.2E-10	8.2E-01	1.4E-10	1.4E-10
Phenanthrene	8.21E-07	5.3E-08			
Toluene	8.59E-13	5.6E-14	1.10E-01	5.1E-13	5.1E-13
			Total Pathway:	1.6E-02	
			Total Rad + Chem	1.6E-02	*Total:* 1.6E-02

TABLE B.3.6-2
FUTURE OFF-PROPERTY FARMER
OU2-WIDE: BEEF AND MILK (DUST AFFECTED)
CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	6.01E-03	1.1E+01	2.8E-11	3.1E-10	CS-137	2.10E-03	1.5E+01	2.8E-11	4.3E-10	7.4E-10
NP-237	7.51E-06	1.4E-02	2.2E-10	3.0E-12	NP-237	6.82E-07	5.0E-03	2.2E-10	1.1E-12	4.1E-12
PU-238	3.58E-08	6.6E-05	2.2E-10	1.4E-14	PU-238	7.16E-09	5.3E-05	2.2E-10	1.2E-14	2.6E-14
PU-239	1.52E-08	2.8E-05	2.3E-10	6.4E-15	PU-239	3.04E-09	2.2E-05	2.3E-10	5.1E-15	1.2E-14
RA-226	4.59E-03	8.4E+00	1.2E-10	1.0E-09	RA-226	8.26E-03	6.1E+01	1.2E-10	7.3E-09	8.3E-09
RA-228	5.59E-04	1.0E+00	1.0E-10	1.0E-10	RA-228	1.01E-03	7.4E+00	1.0E-10	7.4E-10	8.4E-10
SR-90	1.86E-04	3.4E-01	3.6E-11	1.2E-11	SR-90	9.28E-04	6.8E+00	3.6E-11	2.5E-10	2.6E-10
TC-99	8.60E-01	1.6E+03	1.3E-12	2.1E-09	TC-99	1.01E+00	7.4E+03	1.3E-12	9.7E-09	1.2E-08
TH-228	1.43E-05	2.6E-02	5.5E-11	1.4E-12	TH-228	1.19E-05	8.8E-02	5.5E-11	4.8E-12	6.3E-12
TH-230	4.95E-05	9.1E-02	1.3E-11	1.2E-12	TH-230	4.12E-05	3.0E-01	1.3E-11	3.9E-12	5.1E-12
TH-232	1.43E-05	2.6E-02	1.2E-11	3.1E-13	TH-232	1.19E-05	8.7E-02	1.2E-11	1.0E-12	1.4E-12
U-234	1.03E-03	1.9E+00	1.6E-11	3.0E-11	U-234	3.10E-03	2.3E+01	1.6E-11	3.6E-10	4.0E-10
U-235	5.00E-05	9.2E-02	1.6E-11	1.5E-12	U-235	1.50E-04	1.1E+00	1.6E-11	1.8E-11	1.9E-11
U-238	1.11E-03	2.0E+00	2.8E-11	5.7E-11	U-238	3.34E-03	2.5E+01	2.8E-11	6.9E-10	7.4E-10
			Total Pathway:	3.6E-09				Total Pathway:	1.9E-08	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	8.70E-06	8.9E-09	1.8E+00	1.6E-08	Arsenic	2.61E-07	1.1E-09	1.8E+00	1.9E-09	1.8E-08
Beryllium	5.61E-07	5.8E-10	4.3E+00	2.5E-09	Beryllium	5.05E-10	2.1E-12	4.3E+00	8.9E-12	2.5E-09
Chromium	4.58E-05	4.7E-08			Chromium	1.25E-05	5.1E-08			
Lead	4.41E-06	4.5E-09			Lead	3.68E-06	1.5E-08			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.53E-06	3.6E-09			U-TOTAL	1.06E-05	4.4E-08			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.95E-05	2.0E-08	1.1E+00	2.2E-08	Benzo(a)anthracene	6.17E-06	2.5E-08	1.1E+00	2.8E-08	5.0E-08
Benzo(a)pyrene	7.94E-05	8.2E-08	7.3E+00	6.0E-07	Benzo(a)pyrene	2.51E-05	1.0E-07	7.3E+00	7.5E-07	1.3E-06
Benzo(b)fluoranthene	2.04E-04	2.1E-07	9.0E-01	1.9E-07	Benzo(b)fluoranthene	6.45E-05	2.7E-07	9.0E-01	2.4E-07	4.3E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.89E-04	5.0E-07	3.8E-01	1.9E-07	Benzo(k)fluoranthene	1.55E-04	6.3E-07	3.8E-01	2.4E-07	4.3E-07
bis(2-Ethylhexyl)phthalate	9.25E-09	9.5E-12	1.4E-02	1.3E-13	bis(2-Ethylhexyl)phthalate	2.92E-09	1.2E-11	1.4E-02	1.7E-13	3.0E-13
Carbazole	1.08E-06	1.1E-09	2.0E-02	2.2E-11	Carbazole	3.42E-07	1.4E-09	2.0E-02	2.8E-11	5.0E-11
Chrysene	2.15E-05	2.2E-08	3.2E-02	7.1E-10	Chrysene	6.79E-06	2.8E-08	3.2E-02	8.9E-10	1.6E-09
Dibenzo(a,h)anthracene	1.58E-05	1.6E-08	8.1E+00	1.3E-07	Dibenzo(a,h)anthracene	5.00E-06	2.1E-08	8.1E+00	1.7E-07	3.0E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.43E-03	2.5E-06	2.0E+00	5.0E-06	Indeno(1,2,3-cd)pyrene	7.68E-04	3.2E-06	2.0E+00	6.3E-06	1.1E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	7.15E-12	7.3E-15	7.5E-03	5.5E-17	Methylene chloride	2.26E-12	9.3E-15	7.5E-03	7.0E-17	1.2E-16
Aroclor 1254	1.44E-06	1.5E-09	7.7E+00	1.1E-08	Aroclor 1254	4.54E-07	1.9E-09	7.7E+00	1.4E-08	2.6E-08
Aroclor 1260	1.01E-06	1.0E-09	7.7E+00	8.0E-09	Aroclor 1260	3.20E-07	1.3E-09	7.7E+00	1.0E-08	1.8E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	6.2E-06				Total Pathway:	7.8E-06	
			Total Rad + Chem	6.2E-06				Total Rad + Chem	7.8E-06	*Total:* 1.4E-05

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TABLE B.3.6-2 (continued)

OU2-WIDE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	7.4E-10
NP-237	1.98E-04	3.6E-01	2.2E-10	8.0E-11	NP-237	1.80E-05	1.3E-01	2.2E-10	2.9E-11	1.1E-10	1.1E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.6E-14
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.2E-14
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	8.3E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	8.4E-10
SR-90	2.80E-03	5.1E+00	3.6E-11	1.9E-10	SR-90	1.40E-02	1.0E+02	3.6E-11	3.7E-09	3.9E-09	4.1E-09
TC-99	1.82E+00	3.3E+03	1.3E-12	4.3E-09	TC-99	2.14E+00	1.6E+04	1.3E-12	2.0E-08	2.5E-08	3.7E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	6.3E-12
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	5.1E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.4E-12
U-234	9.09E-01	1.7E+03	1.6E-11	2.7E-08	U-234	2.73E+00	2.0E+04	1.6E-11	3.2E-07	3.5E-07	3.5E-07
U-235	4.83E-02	8.9E+01	1.6E-11	1.4E-09	U-235	1.45E-01	1.1E+03	1.6E-11	1.7E-08	1.8E-08	1.8E-08
U-238	1.00E+00	1.8E+03	2.8E-11	5.2E-08	U-238	3.01E+00	2.2E+04	2.8E-11	6.2E-07	6.7E-07	6.7E-07
			Total Pathway:	8.4E-08				Total Pathway:	9.8E-07		

Chemical Risk

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	3.58E-08	3.7E-11	1.8E+00	6.4E-11	Arsenic	1.07E-09	4.4E-12	1.8E+00	7.7E-12	7.2E-11	1.8E-08
Beryllium	1.79E-09	1.8E-12	4.3E+00	7.9E-12	Beryllium	1.61E-12	6.6E-15	4.3E+00	2.8E-14	7.9E-12	2.5E-09
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Lead	1.08E-06	1.1E-09			Lead	8.98E-07	3.7E-09				
Molybdenum	5.57E-05	5.7E-08			Molybdenum	1.39E-05	5.7E-08				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	3.57E-03	3.7E-06			U-TOTAL	1.07E-02	4.4E-05				
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	5.0E-08
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	1.3E-06
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	4.3E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	4.3E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	3.0E-13
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	5.0E-11
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.6E-09
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	3.0E-07
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	1.1E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	1.2E-16
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	2.6E-08
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.8E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	7.2E-11				Total Pathway:	7.8E-12		
			Total Rad + Chem	8.4E-08				Total Rad + Chem	9.8E-07	*Total:* 1.1E-06	1.5E-05

TABLE B.3.6-2
(continued)
OU2-WIDE: BEEF AND MILK (DUST AFFECTED)
NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	6.0E-03	1.1E+01			CS-137	2.10E-03				
NP-237	7.5E-06	1.4E-02			NP-237	6.82E-07				
PU-238	3.6E-08	6.6E-05			PU-238	7.16E-09				
PU-239	1.5E-08	2.8E-05			PU-239	3.04E-09				
RA-226	4.6E-03	8.4E+00			RA-226	8.26E-03				
RA-228	5.6E-04	1.0E+00			RA-228	1.01E-03				
SR-90	1.9E-04	3.4E-01			SR-90	9.28E-04				
TC-99	8.6E-01	1.6E+03			TC-99	1.01E+00				
TH-228	1.4E-05	2.6E-02			TH-228	1.19E-05				
TH-230	4.9E-05	9.1E-02			TH-230	4.12E-05				
TH-232	1.4E-05	2.6E-02			TH-232	1.19E-05				
U-234	1.0E-03	1.9E+00			U-234	3.10E-03				
U-235	5.0E-05	9.2E-02			U-235	1.50E-04				
U-238	1.1E-03	2.0E+00								
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	8.7E-06	8.9E-09	3.0E-04	3.0E-05	Arsenic	2.6E-07	1.1E-09	3.0E-04	3.6E-06	3.3E-05
Beryllium	5.6E-07	5.8E-10	5.0E-03	1.2E-07	Beryllium	5.1E-10	2.1E-12	5.0E-03	4.2E-10	1.2E-07
Chromium	4.6E-05	4.7E-08	5.0E-03	9.4E-06	Chromium	1.2E-05	5.1E-08	5.0E-03	1.0E-05	2.0E-05
Lead	4.4E-06	4.5E-09			Lead	3.7E-06	1.5E-08			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.5E-06	3.6E-09	3.0E-03	1.2E-06	U-TOTAL	1.1E-05	4.4E-08	3.0E-03	1.5E-05	1.6E-05
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	2.0E-05	2.0E-08			Benzo(a)anthracene	6.2E-06	2.5E-08			
Benzo(a)pyrene	7.9E-05	8.2E-08			Benzo(a)pyrene	2.5E-05	1.0E-07			
Benzo(b)fluoranthene	2.0E-04	2.1E-07			Benzo(b)fluoranthene	6.5E-05	2.7E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.9E-04	5.0E-07			Benzo(k)fluoranthene	1.5E-04	6.3E-07			
bis(2-Ethylhexyl)phthalate	9.2E-09	9.5E-12	2.0E-02	4.7E-10	bis(2-Ethylhexyl)phthalate	2.9E-09	1.2E-11	2.0E-02	6.0E-10	1.1E-09
Carbazole	1.1E-06	1.1E-09			Carbazole	3.4E-07	1.4E-09			
Chrysene	2.1E-05	2.2E-08			Chrysene	6.8E-06	2.8E-08			
Dibenzo(a,h)anthracene	1.6E-05	1.6E-08			Dibenzo(a,h)anthracene	5.0E-06	2.1E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.4E-03	2.5E-06			Indeno(1,2,3-cd)pyrene	7.7E-04	3.2E-06			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	7.1E-12	7.3E-15	6.1E-02	1.2E-13	Methylene chloride	2.3E-12	9.3E-15	6.1E-02	1.5E-13	2 7E-13
Aroclor 1254	1.4E-06	1.5E-09			Aroclor 1254	4.5E-07	1.9E-09			
Aroclor 1260	1.0E-06	1.0E-09			Aroclor 1260	3.2E-07	1.3E-09			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	4.1E-05				Total Pathway:	2.8E-05	
			Total Rad + Chem	4.1E-05				Total Rad + Chem	2.8E-05	*Total:* 6.9E-05

TABLE B.3.6-2 (continued)

OU2-WIDE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00					
NP-237	2.0E-04	3.6E-01			NP-237	1.80E-05					
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00					
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00					
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00					
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00					
SR-90	2.8E-03	5.1E+00			SR-90	1.40E-02					
TC-99	1.8E+00	3.3E+03			TC-99	2.14E+00					
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00					
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00					
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00					
U-234	9.1E-01	1.7E+03			U-234	2.73E+00					
U-235	4.8E-02	8.9E+01			U-235	1.45E-01					
U-238	1.0E+00	1.8E+03									
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	3.6E-08	3.7E-11	3.0E-04	1.2E-07	Arsenic	1.1E-09	4.4E-12	3.0E-04	1.5E-08	1.4E-07	3.4E-05
Beryllium	1.8E-09	1.8E-12	5.0E-03	3.7E-10	Beryllium	1.6E-12	6.6E-15	5.0E-03	1.3E-12	3.7E-10	1.2E-07
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.0E-05
Lead	1.1E-06	1.1E-09			Lead	9.0E-07	3.7E-09				
Molybdenum	5.6E-05	5.7E-08	5.0E-03	1.1E-05	Molybdenum	1.4E-05	5.7E-08	5.0E-03	1.1E-05	2.3E-05	2.3E-05
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	3.6E-03	3.7E-06	3.0E-03	1.2E-03	U-TOTAL	1.1E-02	4.4E-05	3.0E-03	1.5E-02	1.6E-02	1.6E-02
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.1E-09
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	2.7E-13
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
			Total Pathway:	1.2E-03				Total Pathway:	1.5E-02		
			Total Rad + Chem	1.2E-03				Total Rad + Chem	1.5E-02	*Total:* 1.6E-02	1.6E-02

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TABLE B.3.6-3
FUTURE OFF-PROPERTY FARMER
OU2-WIDE: HOME GROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	4.69E-03	7.0E+00	2.8E-11	2.0E-10	2.0E-10
NP-237	2.15E-03	3.2E+00	2.2E-10	7.1E-10	7.1E-10
PU-238	1.10E-03	1.6E+00	2.2E-10	3.6E-10	3.6E-10
PU-239	4.67E-04	7.0E-01	2.3E-10	1.6E-10	1.6E-10
RA-226	2.83E-01	4.2E+02	1.2E-10	5.1E-08	5.1E-08
RA-228	3.57E-02	5.3E+01	1.0E-10	5.3E-09	5.3E-09
SR-90	1.18E-02	1.8E+01	3.6E-11	6.4E-10	6.4E-10
TC-99	2.22E+00	3.3E+03	1.3E-12	4.3E-09	4.3E-09
TH-228	4.04E-02	6.0E+01	5.5E-11	3.3E-09	3.3E-09
TH-230	1.27E-01	1.9E+02	1.3E-11	2.5E-09	2.5E-09
TH-232	3.66E-02	5.5E+01	1.2E-11	6.6E-10	6.6E-10
U-234	7.95E-02	1.2E+02	1.6E-11	1.9E-09	1.9E-09
U-235	3.85E-03	5.7E+00	1.6E-11	9.2E-11	9.2E-11
U-238	8.56E-02	1.3E+02	2.8E-11	3.6E-09	3.6E-09
			Total Pathway:	7.5E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	6.75E-05	5.6E-08	1.8E+00	9.9E-08	9.9E-08
Beryllium	8.65E-06	7.2E-09	4.3E+00	3.1E-08	3.1E-08
Chromium	1.28E-04	1.1E-07			
Lead	2.28E-04	1.9E-07			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.71E-04	2.3E-07			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.92E-05	4.1E-08	1.1E+00	4.5E-08	4.5E-08
Benzo(a)pyrene	8.35E-05	7.0E-08	7.3E+00	5.1E-07	5.1E-07
Benzo(b)fluoranthene	5.53E-05	4.6E-08	9.0E-01	4.2E-08	4.2E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	6.64E-05	5.5E-08	3.8E-01	2.1E-08	2.1E-08
bis(2-Ethylhexyl)phthalate	4.88E-07	4.1E-10	1.4E-02	5.7E-12	5.7E-12
Carbazole	1.62E-06	1.4E-09	2.0E-02	2.7E-11	2.7E-11
Chrysene	5.42E-05	4.5E-08	3.2E-02	1.4E-09	1.4E-09
Dibenzo(a,h)anthracene	1.71E-05	1.4E-08	8.1E+00	1.2E-07	1.2E-07
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	5.38E-05	4.5E-08	2.0E+00	9.0E-08	9.0E-08
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.57E-07	1.3E-10	7.5E-03	9.8E-13	9.8E-13
Aroclor 1254	8.19E-07	6.8E-10	7.7E+00	5.3E-09	5.3E-09
Aroclor 1260	4.78E-07	4.0E-10	7.7E+00	3.1E-09	3.1E-09
Dieldrin	9.39E-08	7.8E-11	1.6E+01	1.3E-09	1.3E-09
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	9.6E-07	
			Total Rad + Chem	1.0E-06	*Total:* 1.0E-06

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TABLE B.3.6-3
FUTURE OFF-PROPERTY FARMER
OU2-WIDE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						Total Dust & Groundwater
Ingestion/Homegrown Produce					Total	Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.0E-10
NP-237	1.02E-01	1.5E+02	2.2E-10	3.3E-08	3.3E-08	3.4E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.6E-10
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.6E-10
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	5.1E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	5.3E-09
SR-90	3.34E-01	5.0E+02	3.6E-11	1.8E-08	1.8E-08	1.9E-08
TC-99	9.04E+00	1.4E+04	1.3E-12	1.8E-08	1.8E-08	2.2E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	3.3E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.5E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	6.6E-10
U-234	1.25E+02	1.9E+05	1.6E-11	3.0E-06	3.0E-06	3.0E-06
U-235	6.63E+00	9.9E+03	1.6E-11	1.6E-07	1.6E-07	1.6E-07
U-238	1.37E+02	2.1E+05	2.8E-11	5.8E-06	5.8E-06	5.8E-06
			Total Pathway:	9.0E-06		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	4.97E-07	4.2E-10	1.8E+00	7.3E-10	7.3E-10	9.9E-08
Beryllium	4.91E-08	4.1E-11	4.3E+00	1.8E-10	1.8E-10	3.1E-08
Chromium	0.00E+00	0.0E+00				
Lead	9.97E-05	8.3E-08				
Molybdenum	2.70E-04	2.3E-07				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	4.90E-01	4.1E-04				
Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	4.5E-08
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	5.1E-07
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	4.2E-08
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	2.1E-08
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	5.7E-12
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.7E-11
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.4E-09
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	1.2E-07
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	9.0E-08
Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	9.8E-13
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	5.3E-09
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	3.1E-09
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	1.3E-09
Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	9.0E-10		
			Total Rad + Chem	9.0E-06	*Total:* 9.0E-06	1.0E-05

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TABLE B.3.6-3
(continued)
OU2-WIDE: HOME GROWN PRODUCE (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	4.7E-03	7.0E+00			
NP-237	2.2E-03	3.2E+00			
PU-238	1.1E-03	1.6E+00			
PU-239	4.7E-04	7.0E-01			
RA-226	2.8E-01	4.2E+02			
RA-228	3.6E-02	5.3E+01			
SR-90	1.2E-02	1.8E+01			
TC-99	2.2E+00	3.3E+03			
TH-228	4.0E-02	6.0E+01			
TH-230	1.3E-01	1.9E+02			
TH-232	3.7E-02	5.5E+01			
U-234	8.0E-02	1.2E+02			
U-235	3.8E-03	5.7E+00			
U-238	8.6E-02	1.3E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	6.8E-05	5.6E-08	3.0E-04	1.9E-04	1.9E-04
Beryllium	8.6E-06	7.2E-09	5.0E-03	1.4E-06	1.4E-06
Chromium	1.3E-04	1.1E-07	5.0E-03	2.1E-05	2.1E-05
Lead	2.3E-04	1.9E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.7E-04	2.3E-07	3.0E-03	7.6E-05	7.6E-05
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	4.9E-05	4.1E-08			
Benzo(a)pyrene	8.3E-05	7.0E-08			
Benzo(b)fluoranthene	5.5E-05	4.6E-08			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	6.6E-05	5.5E-08			
bis(2-Ethylhexyl)phthalate	4.9E-07	4.1E-10	2.0E-02	2.0E-08	2.0E-08
Carbazole	1.6E-06	1.4E-09			
Chrysene	5.4E-05	4.5E-08			
Dibenzo(a,h)anthracene	1.7E-05	1.4E-08			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	5.4E-05	4.5E-08			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	1.6E-07	1.3E-10	6.1E-02	2.2E-09	2.2E-09
Aroclor 1254	8.2E-07	6.8E-10			
Aroclor 1260	4.8E-07	4.0E-10			
Dieldrin	9.4E-08	7.8E-11	5.0E-05	1.6E-06	1.6E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	2.9E-04	
			Total Rad + Chem	2.9E-04	*Total:* 2.9E-04

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TABLE B.3.6-3
(continued)
OU2-WIDE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
CS-137	0.0E+00	0.0E+00				0.0E+00
NP-237	1.0E-01	1.5E+02				0.0E+00
PU-238	0.0E+00	0.0E+00				0.0E+00
PU-239	0.0E+00	0.0E+00				0.0E+00
RA-226	0.0E+00	0.0E+00				0.0E+00
RA-228	0.0E+00	0.0E+00				0.0E+00
SR-90	3.3E-01	5.0E+02				0.0E+00
TC-99	9.0E+00	1.4E+04				0.0E+00
TH-228	0.0E+00	0.0E+00				0.0E+00
TH-230	0.0E+00	0.0E+00				0.0E+00
TH-232	0.0E+00	0.0E+00				0.0E+00
U-234	1.2E+02	1.9E+05				0.0E+00
U-235	6.6E+00	9.9E+03				0.0E+00
U-238	1.4E+02	2.1E+05				0.0E+00
				Total Pathway:		0.0E+00

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
Arsenic	5.0E-07	4.2E-10	3.0E-04	1.4E-06	1.4E-06	1.9E-04
Beryllium	4.9E-08	4.1E-11	5.0E-03	8.2E-09	8.2E-09	1.5E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.1E-05
Lead	1.0E-04	8.3E-08				
Molybdenum	2.7E-04	2.3E-07	5.0E-03	4.5E-05	4.5E-05	4.5E-05
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	4.9E-01	4.1E-04	3.0E-03	1.4E-01	1.4E-01	1.4E-01
Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.0E-08
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	2.2E-09
Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	1.6E-06
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
				Total Pathway:	1.4E-01	
				Total Rad + Chem	1.4E-01	*Total:* 1.4E-01 1.4E-01

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TABLE B.3.6-4
FUTURE, OFF-PROPERTY FARMER
OU2-WIDE: GROUNDWATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater

Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk
NP-237	2.00E-02	9.8E+02	2.2E-10	2.2E-07
SR-90	5.00E-02	2.5E+03	3.6E-11	8.8E-08
TC-99	9.81E-01	4.8E+04	1.3E-12	6.2E-08
U234	2.54E+01	1.2E+06	1.6E-11	2.0E-05
U235/236	1.35E+00	6.6E+04	1.6E-11	1.1E-06
U238	2.80E+01	1.4E+06	2.8E-11	3.8E-05

Total Pathway: 6.0E-05

Inhalation/Groundwater

Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater

Compound	Conc'n (mg/L)	Intake	SF(o)	Risk
Arsenic	1.00E-07	2.7E-09	1.8E+00	4.8E-09
Beryllium	1.00E-08	2.7E-10	4.3E+00	1.2E-09
Cadmium	2.74E-10	7.5E-12		
Lead	2.00E-05	5.5E-07		
Molybdenum	5.00E-05	1.4E-06		
U-Total	9.98E-02	2.7E-03		

Total Pathway: 6.0E-09

Inhalation/Groundwater

Compound	Intake	SF(i)	Risk
Arsenic	1.0E-08		
Beryllium	1.0E-09		
Cadmium	2.8E-11		
Lead	2.1E-06		
Molybdenum	5.1E-06		
U-Total	1.0E-02		

Total Pathway: 0.0E+00

Total Rad + Chem 6.0E-05

Total Rad + Chem 0.0E+00

TABLE B.3.6-4
(continued)

CARCINOGENIC RISK

Radiation Risk				
Dermal Contact/Groundwater				Total
				2.2E-07
				8.8E-08
				6.2E-08
				2.0E-05
				1.1E-06
				3.8E-05
Total Pathway:			0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	2.0E-11	1.8E+00	3.7E-11	4.8E-09
Beryllium	2.0E-12	4.3E+02	8.6E-10	2.0E-09
Cadmium	5.5E-14			
Lead	1.6E-11			
Molybdenum	1.0E-08			
U-Total	2.0E-05			
Total Pathway:			8.9E-10	

Total Rad + Chem 8.9E-10 *Total:* 6.0E-05

TABLE B.3.6-4
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	2.0E-02	9.8E+02			
SR-90	5.0E-02	2.5E+03			
TC-99	9.8E-01	4.8E+04			
U234	2.5E+01	1.2E+06			
U235/236	1.4E+00	6.6E+04			
U238	2.8E+01	1.4E+06			
Total Pathway:				0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	1.0E-07	2.7E-09	3.0E-04	9.1E-06	Arsenic	1.0E-08		
Beryllium	1.0E-08	2.7E-10	5.0E-03	5.5E-08	Beryllium	1.0E-09		
Cadmium	2.7E-10	7.5E-12	5.0E-04	1.5E-08	Cadmium	2.8E-11		
Lead	2.0E-05	5.5E-07			Lead	2.1E-06		
Molybdenum	5.0E-05	1.4E-06	5.0E-03	2.7E-04	Molybdenum	5.1E-06		
U-Total	1.0E-01	2.7E-03	3.0E-03	9.1E-01	U-Total	1.0E-02		
			Total Pathway:	9.1E-01			Total Pathway:	0.0E+00
			Total Rad + Chem	9.1E-01			Total Rad + Chem	0.0E+00

TABLE B.3.6-4
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard				
Dermal Contact/Groundwater				**Total**
			Total Pathway:	0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	2.0E-11	2.9E-04	7.0E-08	9.2E-06
Beryllium	2.0E-12	5.0E-05	4.0E-08	9.5E-08
Cadmium	5.5E-14	2.5E-05	2.2E-09	1.7E-08
Lead	1.6E-11			
Molybdenum	1.0E-08	1.9E-03	5.3E-06	2.8E-04
U-Total	2.0E-05	1.5E-04	1.3E-01	1.0E+00
			Total Pathway:	1.3E-01

Total Rad + Chem 1.3E-01 *Total:* 1.0E+00

TABLE B.3.6-5
FUTURE, ON-PROPERTY FARMER (RME VALUES)
OU2-WIDE: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.79E-04	2.1E+01	1.9E-11	3.9E-10
NP-237	8.82E-05	1.0E+01	2.9E-08	3.0E-07
PU-238	4.38E-05	5.1E+00	3.9E-08	2.0E-07
PU-239/240	1.86E-05	2.2E+00	3.8E-08	8.2E-08
RA-226	1.10E-02	1.3E+03	3.0E-09	3.8E-06
RA-228	1.39E-03	1.6E+02	6.9E-10	1.1E-07
SR-90	3.63E-04	4.2E+01	6.2E-11	2.6E-09
TC-99	5.07E-02	5.9E+03	8.3E-12	4.9E-08
TH-228	1.58E-03	1.8E+02	7.8E-08	1.4E-05
TH-230	4.94E-03	5.7E+02	2.9E-08	1.7E-05
TH-232	1.43E-03	1.7E+02	2.8E-08	4.6E-06
U-234	3.11E-03	3.6E+02	2.6E-08	9.4E-06
U-235/236	1.51E-04	1.8E+01	2.5E-08	4.4E-07
U-238	3.35E-03	3.9E+02	5.2E-08	2.0E-05
			Total Pathway:	7.0E-05

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	5.0E-01	2.2E+03	2.8E-11	6.2E-08
NP-237	2.3E-01	1.0E+03	2.2E-10	2.2E-07
PU-238	1.2E-01	5.3E+02	2.2E-10	1.2E-07
PU-239/240	5.1E-02	2.3E+02	2.3E-10	5.2E-08
RA-226	3.1E+01	1.4E+05	1.2E-10	1.6E-05
RA-228	3.9E+00	1.7E+04	1.0E-10	1.7E-06
SR-90	1.0E+00	4.4E+03	3.6E-11	1.6E-07
TC-99	1.4E+02	6.3E+05	1.3E-12	8.1E-07
TH-228	4.4E+00	1.9E+04	5.5E-11	1.1E-06
TH-230	1.4E+01	6.1E+04	1.3E-11	7.9E-07
TH-232	4.0E+00	1.8E+04	1.2E-11	2.1E-07
U-234	8.7E+00	3.8E+04	1.6E-11	6.1E-07
U-235/236	4.2E-01	1.8E+03	1.6E-11	3.0E-08
U-238	9.3E+00	4.1E+04	2.8E-11	1.1E-06
			Total Pathway:	2.3E-05

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.73E-06	1.8E-07	1.5E+01	2.7E-06
Barium	3.28E-05	2.1E-06		
Beryllium	3.44E-07	2.2E-08	8.4E+00	1.9E-07
Cadmium	3.55E-09	2.3E-10		
Chromium	1.99E-06	1.3E-07	4.1E+01	5.3E-06
Lead	9.88E-06	6.4E-07		
Nickel	6.17E-06	4.0E-07	8.4E-01	3.4E-07
TH-TOTAL	1.32E-05	8.6E-07		
U-TOTAL	1.06E-05	6.9E-07		
4,4'-DDE	1.43E-12	9.3E-14		
Benzo(a)anthracene	1.96E-06	1.3E-07	8.9E-01	1.1E-07
Benzo(a)pyrene	3.36E-06	2.2E-07	6.1E+00	1.3E-06
Benzo(b)fluoranthene	2.21E-06	1.4E-07	7.5E-01	1.1E-07
Benzo(g,h,i)perylene	2.21E-06	1.4E-07		
Benzo(k)fluoranthene	2.61E-06	1.7E-07	3.2E-01	5.4E-08
bis(2-Ethylhexyl) phthalate	3.98E-08	2.6E-09		
Carbazole	6.13E-08	4.0E-09		
Chrysene	2.14E-06	1.4E-07	2.7E-02	3.7E-09
Dibenzo(a,h)anthracene	6.81E-07	4.4E-08	6.8E+00	3.0E-07
Dibenzofuran	4.67E-08	3.0E-09		
Dieldrin	3.57E-09	2.3E-10	1.6E+01	3.7E-09
Indeno(1,2,3-cd)pyrene	2.14E-06	1.4E-07	1.7E+00	2.4E-07
Methylene chloride	1.79E-09	1.2E-10	2.0E-03	2.3E-13
Phenanthrene	8.21E-07	5.3E-08		
Toluene	8.59E-13	5.6E-14		
			Total Pathway:	1.1E-05
			Total Rad + Chem	8.1E-05

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	1.8E-05	1.75E+00	3.1E-05
Barium		0.0E+00		
Beryllium	9.4E-01	2.3E-06	4.30E+00	1.0E-05
Cadmium		0.0E+00		
Chromium	13.90	3.4E-05		
Lead	24.58	6.1E-05		
Nickel		0.0E+00		
TH-TOTAL	36.70	9.0E-05		
U-TOTAL	29.58	7.3E-05		
4,4'-DDE		0.0E+00	3.40E-01	0.0E+00
Benzo(a)anthracene	5.5	1.4E-05	1.10E+00	1.5E-05
Benzo(a)pyrene	9.4	2.3E-05	7.30E+00	1.7E-04
Benzo(b)fluoranthene	6.2	1.5E-05	9.00E-01	1.4E-05
Benzo(g,h,i)perylene	6.2	1.5E-05		
Benzo(k)fluoranthene	7.3	1.8E-05	3.80E-01	6.8E-06
bis(2-Ethylhexyl) phthalate	1.1E-01	2.7E-07	1.40E-02	3.8E-09
Carbazole	1.7E-01	4.2E-07	2.00E-02	8.4E-09
Chrysene	6.0	1.5E-05	3.20E-02	4.7E-07
Dibenzo(a,h)anthracene	1.9	4.7E-06	8.10E+00	3.8E-05
Dibenzofuran	1.3E-01	3.2E-07		
Dieldrin	9.7E-03	2.4E-08	1.60E+01	3.8E-07
Indeno(1,2,3-cd)pyrene	6.0	1.5E-05	2.00E+00	3.0E-05
Methylene chloride	5.0E-03	1.2E-08	7.50E-03	9.2E-11
Phenanthrene	2.3	5.7E-06		
Toluene		0.0E+00		
			Total Pathway:	3.1E-04
			Total Rad + Chem	3.4E-04

TABLE B.3.6-5
(continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	SF(e)	Risk	Total
CS-137	2.1E+01	2.0E-06	4.1E-05	4.1E-05
NP-237	9.5E+00	4.3E-07	4.1E-06	4.6E-06
PU-238	5.0E+00	2.8E-11	1.4E-10	3.1E-07
PU-239/240	2.1E+00	2.7E-11	5.8E-11	1.3E-07
RA-226	1.3E+03	1.2E-08	1.5E-05	3.5E-05
RA-228	1.6E+02	2.9E-06	4.7E-04	4.7E-04
SR-90	4.2E+01	0.0E+00	0.0E+00	1.6E-07
TC-99	5.9E+03	6.0E-13	3.5E-09	8.7E-07
TH-228	1.8E+02	5.6E-06	1.0E-03	1.0E-03
TH-230	5.7E+02	5.4E-11	3.1E-08	1.7E-05
TH-232	1.7E+02	2.6E-11	4.3E-09	4.9E-06
U-234	3.6E+02	3.0E-11	1.1E-08	1.0E-05
U-235/236	1.7E+01	2.4E-07	4.2E-06	4.6E-06
U-238	3.9E+02	3.6E-08	1.4E-05	3.5E-05

Total Pathway: 1.6E-03

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	Total
Arsenic	5.7E-07	1.8E+00	1.1E-06	3.5E-05
Barium	0.0E+00			
Beryllium	7.4E-07	4.3E+02	3.2E-04	3.3E-04
Cadmium	0.0E+00			
Chromium	1.1E-05			5.3E-06
Lead	1.9E-05			
Nickel	0.0E+00			3.4E-07
TH-TOTAL	0.0E+00			
U-TOTAL	2.3E-05			
4,4'-DDE	0.0E+00	3.8E-01	0.0E+00	
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00	1.5E-05
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	1.7E-04
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00	1.4E-05
Benzo(g,h,i)perylene	1.5E-04			
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00	6.9E-06
bis(2-Ethylhexyl) phthalate	3.5E-08	1.6E-02	5.4E-10	4.3E-09
Carbazole	0.0E+00	2.0E-02	0.0E+00	8.4E-09
Chrysene	0.0E+00	7.4E-02	0.0E+00	4.8E-07
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00	3.8E-05
Dibenzofuran	0.0E+00			
Dieldrin	2.3E-07	1.8E+01	4.1E-06	4.5E-06
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00	3.0E-05
Methylene chloride	1.6E-07	7.5E-03	1.2E-09	1.3E-09
Phenanthrene	5.4E-05			
Toluene	0.0E+00			

Total Pathway: 3.2E-04

External Radiation/Soil

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 3.2E-04 1.6E-03 *Total:* 2.3E-03

TABLE B.3.6-5
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.79E-04	2.1E+01		
NP-237	8.82E-05	1.0E+01		
PU-238	4.38E-05	5.1E+00		
PU-239/240	1.86E-05	2.2E+00		
RA-226	1.10E-02	1.3E+03		
RA-228	1.39E-03	1.6E+02		
SR-90	3.63E-04	4.2E+01		
TC-99	5.07E-02	5.9E+03		
TH-228	1.58E-03	1.8E+02		
TH-230	4.94E-03	5.7E+02		
TH-232	1.43E-03	1.7E+02		
U-234	3.11E-03	3.6E+02		
U-235/236	1.51E-04	1.8E+01		
U-238	3.35E-03	3.9E+02		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	2.2E+03		
NP-237	0.23	1.0E+03		
PU-238	0.12	5.3E+02		
PU-239/240	0.05	2.3E+02		
RA-226	30.80	1.4E+05		
RA-228	3.88	1.7E+04		
SR-90	1.00	4.4E+03		
TC-99				
TH-228	4.41	1.9E+04		
TH-230	13.80	6.1E+04		
TH-232	3.99	1.8E+04		
U-234	8.66	3.8E+04		
U-235/236	0.42	1.8E+03		
U-238	9.31	4.1E+04		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.73E-06	1.8E-07		
Barium	3.28E-05	2.1E-06	1.4E-04	1.6E-02
Beryllium	3.44E-07	2.2E-08		
Cadmium	3.55E-09	2.3E-10		
Chromium	1.99E-06	1.3E-07		
Lead	9.88E-06	6.4E-07		
Nickel	6.17E-06	4.0E-07		
TH-TOTAL	1.32E-05	8.6E-07		
U-TOTAL	1.06E-05	6.9E-07		
4,4'-DDE	1.43E-12	9.3E-14		
Benzo(a)anthracene	1.96E-06	1.3E-07		
Benzo(a)pyrene	3.36E-06	2.2E-07		
Benzo(b)fluoranthene	2.21E-06	1.4E-07		
Benzo(g,h,i)perylene	2.21E-06	1.4E-07		
Benzo(k)fluoranthene	2.61E-06	1.7E-07		
bis(2-Ethylhexyl) phthalate	3.98E-08	2.6E-09		
Carbazole	6.13E-08	4.0E-09		
Chrysene	2.14E-06	1.4E-07		
Dibenzo(a,h)anthracene	6.81E-07	4.4E-08		
Dibenzofuran	4.67E-08	3.0E-09		
Dieldrin	3.57E-09	2.3E-10		
Indeno(1,2,3-cd)pyrene	2.14E-06	1.4E-07		
Methylene chloride	1.79E-09	1.2E-10	8.2E-01	1.4E-10
Phenanthrene	8.21E-07	5.3E-08		
Toluene	8.59E-13	5.6E-14	1.10E-01	5.1E-13

Total Pathway: 1.6E-02

Total Rad + Chem 1.6E-02

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.27	1.8E-05	3.0E-04	6.0E-02
Barium	0.00	0.0E+00	7.0E-02	0.0E+00
Beryllium	0.94	2.3E-06	5.0E-03	4.6E-04
Cadmium	0.00	0.0E+00	1.0E-03	0.0E+00
Chromium	13.90	3.4E-05	5.0E-03	6.9E-03
Lead	24.58	6.1E-05		
Nickel	0.00	0.0E+00	2.0E-02	0.0E+00
TH-TOTAL	36.70	9.0E-05		
U-TOTAL	29.58	7.3E-05	3.0E-03	2.4E-02
4,4'-DDE	0.00	0.0E+00		
Benzo(a)anthracene	5.50	1.4E-05		
Benzo(a)pyrene	9.40	2.3E-05		
Benzo(b)fluoranthene	6.20	1.5E-05		
Benzo(g,h,i)perylene	6.20	1.5E-05		
Benzo(k)fluoranthene	7.30	1.8E-05		
bis(2-Ethylhexyl) phthalate	0.11	2.7E-07	2.0E-02	1.4E-05
Carbazole	0.17	4.2E-07		
Chrysene	6.00	1.5E-05		
Dibenzo(a,h)anthracene	1.90	4.7E-06		
Dibenzofuran	0.13	3.2E-07	4.00E-03	8.0E-05
Dieldrin	0.01	2.4E-08		
Indeno(1,2,3-cd)pyrene	6.00	1.5E-05		
Methylene chloride	0.01	1.2E-08	6.10E-02	2.0E-07
Phenanthrene	2.30	5.7E-06		
Toluene	0.00	0.0E+00	2.00E-01	0.0E+00

Total Pathway: 9.1E-02

Total Rad + Chem 9.1E-02

TABLE B.3.6-5
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	RfD(e)	Hazard
CS-137	2.1E+01		
NP-237	9.5E+00		
PU-238	5.0E+00		
PU-239/240	2.1E+00		
RA-226	1.3E+03		
RA-228	1.6E+02		
SR-90	4.2E+01		
TC-99	0.0E+00		
TH-228	1.8E+02		
TH-230	5.7E+02		
TH-232	1.7E+02		
U-234	3.6E+02		
U-235/236	1.7E+01		
U-238	3.9E+02		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm	Hazard	Total
Arsenic	5.7E-07	2.9E-04	2.0E-03	6.2E-02
Barium	0.0E+00	6.4E-02	0.0E+00	1.6E-02
Beryllium	7.4E-07	5.0E-05	1.5E-02	1.5E-02
Cadmium	0.0E+00	5.0E-05	0.0E+00	
Chromium	1.1E-05	2.3E-03	4.9E-03	1.2E-02
Lead	1.9E-05			
Nickel	0.0E+00	1.0E-03	0.0E+00	
TH-TOTAL	0.0E+00			
U-TOTAL	2.3E-05	1.5E-04	1.6E-01	1.8E-01
4,4'-DDE	0.0E+00			
Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	0.0E+00			
Benzo(g,h,i)perylene	1.5E-04			
Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl) phthalate	3.5E-08	1.8E-02	1.9E-06	1.5E-05
Carbazole	0.0E+00			
Chrysene	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00			
Dibenzofuran	0.0E+00			8.0E-05
Dieldrin	2.3E-07			
Indeno(1,2,3-cd)pyrene	0.0E+00			
Methylene chloride	1.6E-07	6.1E-02	2.6E-06	2.8E-06
Phenanthrene	5.4E-05			
Toluene	0.0E+00	2.0E-01	0.0E+00	5.1E-13

Total Pathway: 1.8E-01

External Radiation/Soil

Compound	Intake	RfD(o)	Hazard

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 1.8E-01

0.0E+00 *Total:* 2.8E-01

TABLE B.3.6-5
FUTURE, ON-PROPERTY FARMER (RME VALUES)
OU2-WIDE: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.79E-04	2.1E+01	1.9E-11	3.9E-10
NP-237	8.82E-05	1.0E+01	2.9E-08	3.0E-07
PU-238	4.38E-05	5.1E+00	3.9E-08	2.0E-07
PU-239/240	1.86E-05	2.2E+00	3.8E-08	8.2E-08
RA-226	1.10E-02	1.3E+03	3.0E-09	3.8E-06
RA-228	1.39E-03	1.6E+02	6.9E-10	1.1E-07
SR-90	3.63E-04	4.2E+01	6.2E-11	2.6E-09
TC-99	5.07E-02	5.9E+03	8.3E-12	4.9E-08
TH-228	1.58E-03	1.8E+02	7.8E-08	1.4E-05
TH-230	4.94E-03	5.7E+02	2.9E-08	1.7E-05
TH-232	1.43E-03	1.7E+02	2.8E-08	4.6E-06
U-234	3.11E-03	3.6E+02	2.6E-08	9.4E-06
U-235/236	1.51E-04	1.8E+01	2.5E-08	4.4E-07
U-238	3.35E-03	3.9E+02	5.2E-08	2.0E-05
			Total Pathway:	7.0E-05

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	5.0E-01	2.2E+03	2.8E-11	6.2E-08
NP-237	2.3E-01	1.0E+03	2.2E-10	2.2E-07
PU-238	1.2E-01	5.3E+02	2.2E-10	1.2E-07
PU-239/240	5.1E-02	2.3E+02	2.3E-10	5.2E-08
RA-226	3.1E+01	1.4E+05	1.2E-10	1.6E-05
RA-228	3.9E+00	1.7E+04	1.0E-10	1.7E-06
SR-90	1.0E+00	4.4E+03	3.6E-11	1.6E-07
TC-99	1.4E+02	6.3E+05	1.3E-12	8.1E-07
TH-228	4.4E+00	1.9E+04	5.5E-11	1.1E-06
TH-230	1.4E+01	6.1E+04	1.3E-11	7.9E-07
TH-232	4.0E+00	1.8E+04	1.2E-11	2.1E-07
U-234	8.7E+00	3.8E+04	1.6E-11	6.1E-07
U-235/236	4.2E-01	1.8E+03	1.6E-11	3.0E-08
U-238	9.3E+00	4.1E+04	2.8E-11	1.1E-06
			Total Pathway:	2.3E-05

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.73E-06	1.8E-07	1.5E+01	2.7E-06
Barium	3.28E-05	2.1E-06		
Beryllium	3.44E-07	2.2E-08	8.4E+00	1.9E-07
Cadmium	3.55E-09	2.3E-10		
Chromium	1.99E-06	1.3E-07	4.1E+01	5.3E-06
Lead	9.88E-06	6.4E-07		
Nickel	6.17E-06	4.0E-07	8.4E-01	3.4E-07
TH-TOTAL	1.32E-05	8.6E-07		
U-TOTAL	1.06E-05	6.9E-07		
4,4'-DDE	1.43E-12	9.3E-14		
Benzo(a)anthracene	1.96E-06	1.3E-07	8.9E-01	1.1E-07
Benzo(a)pyrene	3.36E-06	2.2E-07	6.1E+00	1.3E-06
Benzo(b)fluoranthene	2.21E-06	1.4E-07	7.5E-01	1.1E-07
Benzo(g,h,i)perylene	2.21E-06	1.4E-07		
Benzo(k)fluoranthene	2.61E-06	1.7E-07	3.2E-01	5.4E-08
bis(2-Ethylhexyl) phthalate	3.98E-08	2.6E-09		
Carbazole	6.13E-08	4.0E-09		
Chrysene	2.14E-06	1.4E-07	2.7E-02	3.7E-09
Dibenzo(a,h)anthracene	6.81E-07	4.4E-08	6.8E+00	3.0E-07
Dibenzofuran	4.67E-08	3.0E-09		
Dieldrin	3.57E-09	2.3E-10	1.6E+01	3.7E-09
Indeno(1,2,3-cd)pyrene	2.14E-06	1.4E-07	1.7E+00	2.4E-07
Methylene chloride	1.79E-09	1.2E-10	2.0E-03	2.3E-13
Phenanthrene	8.21E-07	5.3E-08		
Toluene	8.59E-13	5.6E-14		
			Total Pathway:	1.1E-05
			Total Rad + Chem	8.1E-05

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	1.8E-05	1.75E+00	3.1E-05
Barium		0.0E+00		
Beryllium	9.4E-01	2.3E-06	4.30E+00	1.0E-05
Cadmium		0.0E+00		
Chromium	13.90	3.4E-05		
Lead	24.58	6.1E-05		
Nickel		0.0E+00		
TH-TOTAL	36.70	9.0E-05		
U-TOTAL	29.58	7.3E-05		
4,4'-DDE		0.0E+00	3.40E-01	0.0E+00
Benzo(a)anthracene	5.5	1.4E-05	1.10E+00	1.5E-05
Benzo(a)pyrene	9.4	2.3E-05	7.30E+00	1.7E-04
Benzo(b)fluoranthene	6.2	1.5E-05	9.00E-01	1.4E-05
Benzo(g,h,i)perylene	6.2	1.5E-05		
Benzo(k)fluoranthene	7.3	1.8E-05	3.80E-01	6.8E-06
bis(2-Ethylhexyl) phthalate	1.1E-01	2.7E-07	1.40E-02	3.8E-09
Carbazole	1.7E-01	4.2E-07	2.00E-02	8.4E-09
Chrysene	6.0	1.5E-05	3.20E-02	4.7E-07
Dibenzo(a,h)anthracene	1.9	4.7E-06	8.10E+00	3.8E-05
Dibenzofuran	1.3E-01	3.2E-07		
Dieldrin	9.7E-03	2.4E-08	1.60E+01	3.8E-07
Indeno(1,2,3-cd)pyrene	6.0	1.5E-05	2.00E+00	3.0E-05
Methylene chloride	5.0E-03	1.2E-08	7.50E-03	9.2E-11
Phenanthrene	2.3	5.7E-06		
Toluene		0.0E+00		
			Total Pathway:	3.1E-04
			Total Rad + Chem	3.4E-04

TABLE B.3.6-5
(continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	SF(e)	Risk	Total
CS-137	2.1E+01	2.0E-06	4.1E-05	4.1E-05
NP-237	9.5E+00	4.3E-07	4.1E-06	4.6E-06
PU-238	5.0E+00	2.8E-11	1.4E-10	3.1E-07
PU-239/240	2.1E+00	2.7E-11	5.8E-11	1.3E-07
RA-226	1.3E+03	1.2E-08	1.5E-05	3.5E-05
RA-228	1.6E+02	2.9E-06	4.7E-04	4.7E-04
SR-90	4.2E+01	0.0E+00	0.0E+00	1.6E-07
TC-99	5.9E+03	6.0E-13	3.5E-09	8.7E-07
TH-228	1.8E+02	5.6E-06	1.0E-03	1.0E-03
TH-230	5.7E+02	5.4E-11	3.1E-08	1.7E-05
TH-232	1.7E+02	2.6E-11	4.3E-09	4.9E-06
U-234	3.6E+02	3.0E-11	1.1E-08	1.0E-05
U-235/236	1.7E+01	2.4E-07	4.2E-06	4.6E-06
U-238	3.9E+02	3.6E-08	1.4E-05	3.5E-05

Total Pathway: 1.6E-03

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	Total
Arsenic	5.7E-07	1.8E+00	1.1E-06	3.5E-05
Barium	0.0E+00			
Beryllium	7.4E-07	4.3E+02	3.2E-04	3.3E-04
Cadmium	0.0E+00			
Chromium	1.1E-05			5.3E-06
Lead	1.9E-05			
Nickel	0.0E+00			3.4E-07
TH-TOTAL	0.0E+00			
U-TOTAL	2.3E-05			
4,4'-DDE	0.0E+00	3.8E-01	0.0E+00	
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00	1.5E-05
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	1.7E-04
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00	1.4E-05
Benzo(g,h,i)perylene	1.5E-04			
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00	6.9E-06
bis(2-Ethylhexyl) phthalate	3.5E-08	1.6E-02	5.4E-10	4.3E-09
Carbazole	0.0E+00	2.0E-02	0.0E+00	8.4E-09
Chrysene	0.0E+00	7.4E-02	0.0E+00	4.8E-07
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00	3.8E-05
Dibenzofuran	0.0E+00			
Dieldrin	2.3E-07	1.8E+01	4.1E-06	4.5E-06
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00	3.0E-05
Methylene chloride	1.6E-07	7.5E-03	1.2E-09	1.3E-09
Phenanthrene	5.4E-05			
Toluene	0.0E+00			

Total Pathway: 3.2E-04

External Radiation/Soil

Compound	Intake	SF(o)	Risk

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 3.2E-04

1.6E-03 *Total:* 2.3E-03

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TABLE B.3.6-5
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.79E-04	2.1E+01		
NP-237	8.82E-05	1.0E+01		
PU-238	4.38E-05	5.1E+00		
PU-239/240	1.86E-05	2.2E+00		
RA-226	1.10E-02	1.3E+03		
RA-228	1.39E-03	1.6E+02		
SR-90	3.63E-04	4.2E+01		
TC-99	5.07E-02	5.9E+03		
TH-228	1.58E-03	1.8E+02		
TH-230	4.94E-03	5.7E+02		
TH-232	1.43E-03	1.7E+02		
U-234	3.11E-03	3.6E+02		
U-235/236	1.51E-04	1.8E+01		
U-238	3.35E-03	3.9E+02		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	2.2E+03		
NP-237	0.23	1.0E+03		
PU-238	0.12	5.3E+02		
PU-239/240	0.05	2.3E+02		
RA-226	30.80	1.4E+05		
RA-228	3.88	1.7E+04		
SR-90	1.00	4.4E+03		
TC-99				
TH-228	4.41	1.9E+04		
TH-230	13.80	6.1E+04		
TH-232	3.99	1.8E+04		
U-234	8.66	3.8E+04		
U-235/236	0.42	1.8E+03		
U-238	9.31	4.1E+04		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.73E-06	1.8E-07		
Barium	3.28E-05	2.1E-06	1.4E-04	1.6E-02
Beryllium	3.44E-07	2.2E-08		
Cadmium	3.55E-09	2.3E-10		
Chromium	1.99E-06	1.3E-07		
Lead	9.88E-06	6.4E-07		
Nickel	6.17E-06	4.0E-07		
TH-TOTAL	1.32E-05	8.6E-07		
U-TOTAL	1.06E-05	6.9E-07		
4,4'-DDE	1.43E-12	9.3E-14		
Benzo(a)anthracene	1.96E-06	1.3E-07		
Benzo(a)pyrene	3.36E-06	2.2E-07		
Benzo(b)fluoranthene	2.21E-06	1.4E-07		
Benzo(g,h,i)perylene	2.21E-06	1.4E-07		
Benzo(k)fluoranthene	2.61E-06	1.7E-07		
bis(2-Ethylhexyl) phthalate	3.98E-08	2.6E-09		
Carbazole	6.13E-08	4.0E-09		
Chrysene	2.14E-06	1.4E-07		
Dibenzo(a,h)anthracene	6.81E-07	4.4E-08		
Dibenzofuran	4.67E-08	3.0E-09		
Dieldrin	3.57E-09	2.3E-10		
Indeno(1,2,3-cd)pyrene	2.14E-06	1.4E-07		
Methylene chloride	1.79E-09	1.2E-10	8.2E-01	1.4E-10
Phenanthrene	8.21E-07	5.3E-08		
Toluene	8.59E-13	5.6E-14	1.10E-01	5.1E-13

Total Pathway: 1.6E-02

Total Rad + Chem 1.6E-02

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.27	1.8E-05	3.0E-04	6.0E-02
Barium	0.00	0.0E+00	7.0E-02	0.0E+00
Beryllium	0.94	2.3E-06	5.0E-03	4.6E-04
Cadmium	0.00	0.0E+00	1.0E-03	0.0E+00
Chromium	13.90	3.4E-05	5.0E-03	6.9E-03
Lead	24.58	6.1E-05		
Nickel	0.00	0.0E+00	2.0E-02	0.0E+00
TH-TOTAL	36.70	9.0E-05		
U-TOTAL	29.58	7.3E-05	3.0E-03	2.4E-02
4,4'-DDE	0.00	0.0E+00		
Benzo(a)anthracene	5.50	1.4E-05		
Benzo(a)pyrene	9.40	2.3E-05		
Benzo(b)fluoranthene	6.20	1.5E-05		
Benzo(g,h,i)perylene	6.20	1.5E-05		
Benzo(k)fluoranthene	7.30	1.8E-05		
bis(2-Ethylhexyl) phthalate	0.11	2.7E-07	2.0E-02	1.4E-05
Carbazole	0.17	4.2E-07		
Chrysene	6.00	1.5E-05		
Dibenzo(a,h)anthracene	1.90	4.7E-06		
Dibenzofuran	0.13	3.2E-07	4.00E-03	8.0E-05
Dieldrin	0.01	2.4E-08		
Indeno(1,2,3-cd)pyrene	6.00	1.5E-05		
Methylene chloride	0.01	1.2E-08	6.10E-02	2.0E-07
Phenanthrene	2.30	5.7E-06		
Toluene	0.00	0.0E+00	2.00E-01	0.0E+00

Total Pathway: 9.1E-02

Total Rad + Chem 9.1E-02

TABLE B.3.6-5
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e) Hazard	
Not applicable	CS-137	2.1E+01		
	NP-237	9.5E+00		
	PU-238	5.0E+00		
	PU-239/240	2.1E+00		
	RA-226	1.3E+03		
	RA-228	1.6E+02		
	SR-90	4.2E+01		
	TC-99	0.0E+00		
	TH-228	1.8E+02		
	TH-230	5.7E+02		
	TH-232	1.7E+02		
	U-234	3.6E+02		
	U-235/236	1.7E+01		
	U-238	3.9E+02		
Total Pathway: 0.0E+00			Total Pathway: 0.0E+00	

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	5.7E-07	2.9E-04	2.0E-03					6.2E-02
Barium	0.0E+00	6.4E-02	0.0E+00					1.6E-02
Beryllium	7.4E-07	5.0E-05	1.5E-02					1.5E-02
Cadmium	0.0E+00	5.0E-05	0.0E+00	Not applicable				
Chromium	1.1E-05	2.3E-03	4.9E-03					1.2E-02
Lead	1.9E-05							
Nickel	0.0E+00	1.0E-03	0.0E+00					
TH-TOTAL	0.0E+00							
U-TOTAL	2.3E-05	1.5E-04	1.6E-01					1.8E-01
4,4'-DDE	0.0E+00							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	1.5E-04							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	3.5E-08	1.8E-02	1.9E-06					1.5E-05
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00							8.0E-05
Dieldrin	2.3E-07							
Indeno(1,2,3-cd)pyrene	0.0E+00							
Methylene chloride	1.6E-07	6.1E-02	2.6E-06					2.8E-06
Phenanthrene	5.4E-05							
Toluene	0.0E+00	2.0E-01	0.0E+00					5.1E-13
	Total Pathway:		1.8E-01		Total Pathway:		0.0E+00	
	Total Rad + Chem		1.8E-01				0.0E+00	*Total:* 2.8E-01

TABLE B.3.6-6
FUTURE ON-PROPERTY FARMER (RME VALUES)
OU2-WIDE: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	5.20E-02	9.6E+01	2.8E-11	2.7E-09	CS-137	1.82E-02	1.3E+02	2.8E-11	3.7E-09	6.4E-09
NP-237	6.51E-05	1.2E-01	2.2E-10	2.6E-11	NP-237	5.92E-06	4.4E-02	2.2E-10	9.6E-12	3.6E-11
PU-238	3.08E-07	5.7E-04	2.2E-10	1.2E-13	PU-238	6.15E-08	4.5E-04	2.2E-10	1.0E-13	2.2E-13
PU-239	1.31E-07	2.4E-04	2.3E-10	5.6E-14	PU-239	2.63E-08	1.9E-04	2.3E-10	4.4E-14	1.0E-13
RA-226	3.34E-02	6.1E+01	1.2E-10	7.4E-09	RA-226	6.01E-02	4.4E+02	1.2E-10	5.3E-08	6.0E-08
RA-228	4.84E-03	8.9E+00	1.0E-10	8.9E-10	RA-228	8.71E-03	6.4E+01	1.0E-10	6.4E-09	7.3E-09
SR-90	1.61E-03	3.0E+00	3.6E-11	1.1E-10	SR-90	8.06E-03	5.9E+01	3.6E-11	2.1E-09	2.2E-09
TC-99	7.46E+00	1.4E+04	1.3E-12	1.8E-08	TC-99	8.78E+00	6.5E+04	1.3E-12	8.4E-08	1.0E-07
TH-228	1.24E-04	2.3E-01	5.5E-11	1.3E-11	TH-228	1.03E-04	7.6E-01	5.5E-11	4.2E-11	5.4E-11
TH-230	4.27E-04	7.9E-01	1.3E-11	1.0E-11	TH-230	3.56E-04	2.6E+00	1.3E-11	3.4E-11	4.4E-11
TH-232	1.23E-04	2.3E-01	1.2E-11	2.7E-12	TH-232	1.03E-04	7.6E-01	1.2E-11	9.1E-12	1.2E-11
U-234	8.96E-03	1.6E+01	1.6E-11	2.6E-10	U-234	2.69E-02	2.0E+02	1.6E-11	3.2E-09	3.4E-09
U-235	4.33E-04	8.0E-01	1.6E-11	1.3E-11	U-235	1.30E-03	9.5E+00	1.6E-11	1.5E-10	1.7E-10
U-238	9.63E-03	1.8E+01	2.8E-11	5.0E-10	U-238	2.89E-02	2.1E+02	2.8E-11	5.9E-09	6.4E-09
			Total Pathway:	3.0E-08				Total Pathway:	1.6E-07	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	7.53E-05	7.7E-08	1.8E+00	1.4E-07	Arsenic	2.26E-06	9.3E-09	1.8E+00	1.6E-08	1.5E-07
Beryllium	4.87E-06	5.0E-09	4.3E+00	2.1E-08	Beryllium	4.38E-09	1.8E-11	4.3E+00	7.7E-11	2.2E-08
Chromium	3.96E-04	4.1E-07			Chromium	1.08E-04	4.4E-07			
Lead	3.82E-05	3.9E-08			Lead	3.18E-05	1.3E-07			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.06E-05	3.1E-08			U-TOTAL	9.17E-05	3.8E-07			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	1.69E-04	1.7E-07	1.1E+00	1.9E-07	Benzo(a)anthracene	5.34E-05	2.2E-07	1.1E+00	2.4E-07	4.3E-07
Benzo(a)pyrene	6.87E-04	7.1E-07	7.3E+00	5.2E-06	Benzo(a)pyrene	2.17E-04	8.9E-07	7.3E+00	6.5E-06	1.2E-05
Benzo(b)fluoranthene	1.76E-03	1.8E-06	9.0E-01	1.6E-06	Benzo(b)fluoranthene	5.58E-04	2.3E-06	9.0E-01	2.1E-06	3.7E-06
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	4.23E-03	4.3E-06	3.8E-01	1.7E-06	Benzo(k)fluoranthene	1.34E-03	5.5E-06	3.8E-01	2.1E-06	3.7E-06
bis(2-Ethylhexyl)phthalate	7.98E-08	8.2E-11	1.4E-02	1.1E-12	bis(2-Ethylhexyl)phthalate	2.52E-08	1.0E-10	1.4E-02	1.5E-12	2.6E-12
Carbazole	9.27E-06	9.5E-09	2.0E-02	1.9E-10	Carbazole	2.95E-06	1.2E-08	2.0E-02	2.4E-10	4.3E-10
Chrysene	1.86E-04	1.9E-07	3.2E-02	6.1E-09	Chrysene	5.87E-05	2.4E-07	3.2E-02	7.7E-09	1.4E-08
Dibenzo(a,h)anthracene	1.37E-04	1.4E-07	8.1E+00	1.1E-06	Dibenzo(a,h)anthracene	4.33E-05	1.8E-07	8.1E+00	1.4E-06	2.6E-06
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	2.10E-02	2.2E-05	2.0E+00	4.3E-05	Indeno(1,2,3-cd)pyrene	6.65E-03	2.7E-05	2.0E+00	5.5E-05	9.8E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	6.18E-11	6.3E-14	7.5E-03	4.8E-16	Methylene chloride	1.95E-11	8.0E-14	7.5E-03	6.0E-16	1.1E-15
Aroclor 1254	1.24E-05	1.3E-08	7.7E+00	9.8E-08	Aroclor 1254	3.93E-06	1.6E-08	7.7E+00	1.2E-07	2.2E-07
Aroclor 1260	8.74E-06	9.0E-09	7.7E+00	6.9E-08	Aroclor 1260	2.76E-06	1.1E-08	7.7E+00	8.7E-08	1.6E-07
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	5.3E-05				Total Pathway:	6.7E-05	
			Total Rad + Chem	5.3E-05				Total Rad + Chem	6.7E-05	*Total:* 1.2E-04

TABLE B.3.6-6
FUTURE ON-PROPERTY FARMER (RME VALUES)
OU2-WIDE: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	6.4E-09
NP-237	3.06E-04	5.6E-01	2.2E-10	1.2E-10	NP-237	2.78E-05	2.0E-01	2.2E-10	4.5E-11	1.7E-10	2.0E-10
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	2.2E-13
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.0E-13
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	6.0E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	7.3E-09
SR-90	6.27E-04	1.2E+00	3.6E-11	4.1E-11	SR-90	3.13E-03	2.3E+01	3.6E-11	8.3E-10	8.7E-10	3.1E-09
TC-99	3.38E+00	6.2E+03	1.3E-12	8.1E-09	TC-99	3.97E+00	2.9E+04	1.3E-12	3.8E-08	4.6E-08	1.5E-07
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	5.4E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	4.4E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.2E-11
U-234	1.68E+01	3.1E+04	1.6E-11	4.9E-07	U-234	5.03E+01	3.7E+05	1.6E-11	5.9E-06	6.4E-06	6.4E-06
U-235	8.95E-01	1.6E+03	1.6E-11	2.6E-08	U-235	2.68E+00	2.0E+04	1.6E-11	3.2E-07	3.4E-07	3.4E-07
U-238	1.85E+01	3.4E+04	2.8E-11	9.5E-07	U-238	5.55E+01	4.1E+05	2.8E-11	1.1E-05	1.2E-05	1.2E-05
			Total Pathway:	1.5E-06				Total Pathway:	1.8E-05		

Chemical Risk

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.5E-07
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.2E-08
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Lead	7.70E-05	7.9E-08			Lead	6.42E-05	2.6E-07				
Molybdenum	6.22E-03	6.4E-06			Molybdenum	1.56E-03	6.4E-06				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	6.58E-02	6.8E-05			U-TOTAL	1.98E-01	8.1E-04				
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	4.3E-07
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	1.2E-05
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	3.7E-06
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	3.7E-06
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	2.6E-12
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	4.3E-10
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.4E-08
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	2.6E-06
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	9.8E-05
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	1.1E-15
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	2.2E-07
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	1.6E-07
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	1.5E-06				Total Rad + Chem	1.8E-05	*Total:* 1.9E-05	1.4E-04

TABLE B.3.6-6
(continued)
OU2-WIDE: BEEF AND MILK (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	5.2E-02	9.6E+01			CS-137	1.82E-02				
NP-237	6.5E-05	1.2E-01			NP-237	5.92E-06				
PU-238	3.1E-07	5.7E-04			PU-238	6.15E-08				
PU-239	1.3E-07	2.4E-04			PU-239	2.63E-08				
RA-226	3.3E-02	6.1E+01			RA-226	6.01E-02				
RA-228	4.8E-03	8.9E+00			RA-228	8.71E-03				
SR-90	1.6E-03	3.0E+00			SR-90	8.06E-03				
TC-99	7.5E+00	1.4E+04			TC-99	8.78E+00				
TH-228	1.2E-04	2.3E-01			TH-228	1.03E-04				
TH-230	4.3E-04	7.9E-01			TH-230	3.56E-04				
TH-232	1.2E-04	2.3E-01			TH-232	1.03E-04				
U-234	9.0E-03	1.6E+01			U-234	2.69E-02				
U-235	4.3E-04	8.0E-01			U-235	1.30E-03				
U-238	9.6E-03	1.8E+01								
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	7.5E-05	7.7E-08	3.0E-04	2.6E-04	Arsenic	2.3E-06	9.3E-09	3.0E-04	3.1E-05	2.9E-04
Beryllium	4.9E-06	5.0E-09	5.0E-03	1.0E-06	Beryllium	4.4E-09	1.8E-11	5.0E-03	3.6E-09	1.0E-06
Chromium	4.0E-04	4.1E-07	5.0E-03	8.1E-05	Chromium	1.1E-04	4.4E-07	5.0E-03	8.9E-05	1.7E-04
Lead	3.8E-05	3.9E-08			Lead	3.2E-05	1.3E-07			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.1E-05	3.1E-08	3.0E-03	1.0E-05	U-TOTAL	9.2E-05	3.8E-07	3.0E-03	1.3E-04	1.4E-04
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	1.7E-04	1.7E-07			Benzo(a)anthracene	5.3E-05	2.2E-07			
Benzo(a)pyrene	6.9E-04	7.1E-07			Benzo(a)pyrene	2.2E-04	8.9E-07			
Benzo(b)fluoranthene	1.8E-03	1.8E-06			Benzo(b)fluoranthene	5.6E-04	2.3E-06			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	4.2E-03	4.3E-06			Benzo(k)fluoranthene	1.3E-03	5.5E-06			
bis(2-Ethylhexyl)phthalate	8.0E-08	8.2E-11	2.0E-02	4.1E-09	bis(2-Ethylhexyl)phthalate	2.5E-08	1.0E-10	2.0E-02	5.2E-09	9.3E-09
Carbazole	9.3E-06	9.5E-09			Carbazole	2.9E-06	1.2E-08			
Chrysene	1.9E-04	1.9E-07			Chrysene	5.9E-05	2.4E-07			
Dibenzo(a,h)anthracene	1.4E-04	1.4E-07			Dibenzo(a,h)anthracene	4.3E-05	1.8E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	2.1E-02	2.2E-05			Indeno(1,2,3-cd)pyrene	6.6E-03	2.7E-05			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	6.2E-11	6.3E-14	6.1E-02	1.0E-12	Methylene chloride	2.0E-11	8.0E-14	6.1E-02	1.3E-12	2.4E-12
Aroclor 1254	1.2E-05	1.3E-08			Aroclor 1254	3.9E-06	1.6E-08			
Aroclor 1260	8.7E-06	9.0E-09			Aroclor 1260	2.8E-06	1.1E-08			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00			
			Total Pathway:	3.5E-04				Total Pathway:	2.5E-04	
			Total Rad + Chem	3.5E-04				Total Rad + Chem	2.5E-04	*Total:* 6.0E-04

TABLE B.3.6-6
(continued)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00					0.0E+00
NP-237	3.1E-04	5.6E-01			NP-237	2.78E-05					0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00					0.0E+00
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00					0.0E+00
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00					0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00					0.0E+00
SR-90	6.3E-04	1.2E+00			SR-90	3.13E-03					0.0E+00
TC-99	3.4E+00	6.2E+03			TC-99	3.97E+00					0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00					0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00					0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00					0.0E+00
U-234	1.7E+01	3.1E+04			U-234	5.03E+01					0.0E+00
U-235	8.9E-01	1.6E+03			U-235	2.68E+00					0.0E+00
U-238	1.9E+01	3.4E+04									0.0E+00
			Total Pathway:	0.0E+00							

Chemical Hazard

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.9E-04
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.0E-06
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.7E-04
Lead	7.7E-05	7.9E-08			Lead	6.4E-05	2.6E-07				
Molybdenum	6.2E-03	6.4E-06	5.0E-03	1.3E-03	Molybdenum	1.6E-03	6.4E-06	5.0E-03	1.3E-03	2.6E-03	2.6E-03
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	6.6E-02	6.8E-05	3.0E-03	2.3E-02	U-TOTAL	2.0E-01	8.1E-04	3.0E-03	2.7E-01	2.9E-01	2.9E-01
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	9.3E-09
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	2.4E-12
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00				
			Total Pathway:	2.4E-02					Total Pathway:	2.7E-01	
			Total Rad + Chem	2.4E-02					Total Rad + Chem	2.7E-01	*Total:* 3.0E-01 3.0E-01

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TABLE B.3.6-7
FUTURE ON-PROPERTY FARMER (RME VALUES)
OU2-WIDE: HOME GROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.88E-02	5.8E+01	2.8E-11	1.6E-09	1.6E-09
NP-237	1.79E-02	2.7E+01	2.2E-10	5.9E-09	5.9E-09
PU-238	9.14E-03	1.4E+01	2.2E-10	3.0E-09	3.0E-09
PU-239	3.87E-03	5.8E+00	2.3E-10	1.3E-09	1.3E-09
RA-226	2.35E+00	3.5E+03	1.2E-10	4.2E-07	4.2E-07
RA-228	2.95E-01	4.4E+02	1.0E-10	4.4E-08	4.4E-08
SR-90	9.81E-02	1.5E+02	3.6E-11	5.3E-09	5.3E-09
TC-99	1.84E+01	2.7E+04	1.3E-12	3.6E-08	3.6E-08
TH-228	3.34E-01	5.0E+02	5.5E-11	2.7E-08	2.7E-08
TH-230	1.04E+00	1.6E+03	1.3E-11	2.0E-08	2.0E-08
TH-232	3.03E-01	4.5E+02	1.2E-11	5.4E-09	5.4E-09
U-234	6.59E-01	9.8E+02	1.6E-11	1.6E-08	1.6E-08
U-235	3.19E-02	4.8E+01	1.6E-11	7.6E-10	7.6E-10
U-238	7.08E-01	1.1E+03	2.8E-11	3.0E-08	3.0E-08
			Total Pathway:	6.2E-07	

Chemical Risk

Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.59E-04	4.7E-07	1.8E+00	8.2E-07	8.2E-07
Beryllium	7.17E-05	6.0E-08	4.3E+00	2.6E-07	2.6E-07
Chromium	1.05E-03	8.8E-07			
Lead	1.89E-03	1.6E-06			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.25E-03	1.9E-06			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	4.07E-04	3.4E-07	1.1E+00	3.7E-07	3.7E-07
Benzo(a)pyrene	6.91E-04	5.8E-07	7.3E+00	4.2E-06	4.2E-06
Benzo(b)fluoranthene	4.58E-04	3.8E-07	9.0E-01	3.4E-07	3.4E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	5.49E-04	4.6E-07	3.8E-01	1.7E-07	1.7E-07
bis(2-Ethylhexyl)phthalate	4.04E-06	3.4E-09	1.4E-02	4.7E-11	4.7E-11
Carbazole	1.34E-05	1.1E-08	2.0E-02	2.2E-10	2.2E-10
Chrysene	4.48E-04	3.7E-07	3.2E-02	1.2E-08	1.2E-08
Dibenzo(a,h)anthracene	1.42E-04	1.2E-07	8.1E+00	9.6E-07	9.6E-07
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	4.45E-04	3.7E-07	2.0E+00	7.4E-07	7.4E-07
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	1.30E-06	1.1E-09	7.5E-03	8.1E-12	8.1E-12
Aroclor 1254	6.78E-06	5.7E-09	7.7E+00	4.4E-08	4.4E-08
Aroclor 1260	3.96E-06	3.3E-09	7.7E+00	2.5E-08	2.5E-08
Dieldrin	7.79E-07	6.5E-10	1.6E+01	1.0E-08	1.0E-08
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	8.0E-06	
			Total Rad + Chem	8.6E-06	*Total:* 8.6E-06

TABLE B.3.6-7 (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
OU2-WIDE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						Total Dust & Groundwater Affected
Ingestion/Homegrown Produce					Total	
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.6E-09
NP-237	1.58E-01	2.4E+02	2.2E-10	5.2E-08	5.2E-08	5.8E-08
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	3.0E-09
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	1.3E-09
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	4.2E-07
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	4.4E-08
SR-90	7.49E-02	1.1E+02	3.6E-11	4.0E-09	4.0E-09	9.3E-09
TC-99	1.68E+01	2.5E+04	1.3E-12	3.3E-08	3.3E-08	6.8E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.7E-08
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.0E-08
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	5.4E-09
U-234	2.30E+03	3.4E+06	1.6E-11	5.5E-05	5.5E-05	5.5E-05
U-235	1.23E+02	1.8E+05	1.6E-11	2.9E-06	2.9E-06	2.9E-06
U-238	2.54E+03	3.8E+06	2.8E-11	1.1E-04	1.1E-04	1.1E-04
			Total Pathway:	1.6E-04		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	8.2E-07
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.6E-07
Chromium	0.00E+00	0.0E+00				
Lead	7.13E-03	6.0E-06				
Molybdenum	3.02E-02	2.5E-05				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	9.03E+00	7.5E-03				
Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	3.7E-07
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	4.2E-06
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	3.4E-07
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	1.7E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	4.7E-11
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	2.2E-10
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	1.2E-08
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	9.6E-07
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	
Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	8.1E-12
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	4.4E-08
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	2.5E-08
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	1.0E-08
Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	1.6E-04	*Total:* 1.6E-04	1.7E-04

TABLE B.3.6-7
(continued)
OU2-WIDE: HOME GROWN PRODUCE (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total
CS-137	3.9E-02				
NP-237	1.8E-02				
PU-238	9.1E-03				
PU-239	3.9E-03				
RA-226	2.3E+00				
RA-228	3.0E-01				
SR-90	9.8E-02				
TC-99	1.8E+01				
TH-228	3.3E-01				
TH-230	1.0E+00				
TH-232	3.0E-01				
U-234	6.6E-01				
U-235	3.2E-02				

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Homegrown Produce

Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total
Arsenic	5.6E-04	4.7E-07	3.0E-04	1.6E-03	1.6E-03
Beryllium	7.2E-05	6.0E-08	5.0E-03	1.2E-05	1.2E-05
Chromium	1.1E-03	8.8E-07	5.0E-03	1.8E-04	1.8E-04
Lead	1.9E-03	1.6E-06			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.2E-03	1.9E-06	3.0E-03	6.3E-04	6.3E-04
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	4.1E-04	3.4E-07			
Benzo(a)pyrene	6.9E-04	5.8E-07			
Benzo(b)fluoranthene	4.6E-04	3.8E-07			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	5.5E-04	4.6E-07			
bis(2-Ethylhexyl)phthalate	4.0E-06	3.4E-09	2.0E-02	1.7E-07	1.7E-07
Carbazole	1.3E-05	1.1E-08			
Chrysene	4.5E-04	3.7E-07			
Dibenzo(a,h)anthracene	1.4E-04	1.2E-07			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	4.4E-04	3.7E-07			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	1.3E-06	1.1E-09	6.1E-02	1.8E-08	1.8E-08
Aroclor 1254	6.8E-06	5.7E-09			
Aroclor 1260	4.0E-06	3.3E-09			
Dieldrin	7.8E-07	6.5E-10	5.0E-05	1.3E-05	1.3E-05
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	

Total Pathway: 2.4E-03

Total Rad + Chem 2.4E-03 *Total:* 2.4E-03

TABLE B.3.6-7 (continued)
(continued)
OU2-WIDE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard						Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce							
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard			
CS-137	0.0E+00						
NP-237	1.6E-01						
PU-238	0.0E+00						
PU-239	0.0E+00						
RA-226	0.0E+00						
RA-228	0.0E+00						
SR-90	7.5E-02						
TC-99	1.7E+01						
TH-228	0.0E+00						
TH-230	0.0E+00						
TH-232	0.0E+00						
U-234	2.3E+03						
U-235	1.2E+02						
			Total Pathway:	0.0E+00			
Chemical Hazard							
Ingestion/Homegrown Produce							
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard			
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00		0.0E+00	1.6E-03
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00		0.0E+00	1.2E-05
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00		0.0E+00	1.8E-04
Lead	7.1E-03	6.0E-06					
Molybdenum	3.0E-02	2.5E-05	5.0E-03	5.0E-03		5.0E-03	5.0E-03
TH-TOTAL	0.0E+00	0.0E+00					
U-TOTAL	9.0E+00	7.5E-03	3.0E-03	2.5E+00		2.5E+00	2.5E+00
Acenaphthylene	0.0E+00	0.0E+00					
Benzo(a)anthracene	0.0E+00	0.0E+00					
Benzo(a)pyrene	0.0E+00	0.0E+00					
Benzo(b)fluoranthene	0.0E+00	0.0E+00					
Benzo(g,h,i)perylene	0.0E+00	0.0E+00					
Benzo(k)fluoranthene	0.0E+00	0.0E+00					
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00		0.0E+00	1.7E-07
Carbazole	0.0E+00	0.0E+00					
Chrysene	0.0E+00	0.0E+00					
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00					
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00		0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00					
Phenanthrene	0.0E+00	0.0E+00					
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00		0.0E+00	1.8E-08
Aroclor 1254	0.0E+00	0.0E+00					
Aroclor 1260	0.0E+00	0.0E+00					
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00		0.0E+00	1.3E-05
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00			
			Total Pathway:	2.5E+00			
			Total Rad + Chem	2.5E+00	*Total:*	2.5E+00	2.5E+00

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TABLE B.3.6-8
FUTURE, ON-PROPERTY FARMER
OU2-WIDE: GROUNDWATER
CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk				
NP-237	3.1E-02	1.5E+03	2.2E-10	3.3E-07				
SR-90	1.1E-02	5.5E+02	3.60E-11	2.0E-08				
TC-99	1.8E+00	8.9E+04	1.3E-12	1.2E-07				
U234	469	2.3E+07	1.6E-11	3.7E-04				
U235/236	25	1.2E+06	1.6E-11	2.0E-05				
U238	517	2.5E+07	2.8E-11	7.1E-04				
			Total Pathway:	1.1E-03			Total Pathway:	0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Cadmium	5.7E-04	1.6E-05			Cadmium	5.9E-05		
Lead	1.4E-03	3.9E-05			Lead	1.5E-04		
Molybdenum	5.6E-03	1.5E-04			Molybdenum	5.7E-04		
U-Total	1.8E+00	5.0E-02			U-Total	1.9E-01		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	1.1E-03			Total Rad + Chem	0.0E+00

TABLE B.3.6-8
(continued)

CARCINOGENIC RISK

Radiation Risk	
Dermal Contact/Groundwater	
	3.3E-07
	2.0E-08
	1.2E-07
	3.7E-04
	2.0E-05
	7.1E-04
Total Pathway:	0.0E+00

Chemical Risk			
Dermal Contact/Groundwater			
Compound	Intake	SF(derm)	Risk
Cadmium	1.1E-07		
Lead	1.1E-09		
Molybdenum	1.1E-06		
U-Total	3.7E-04		
	Total Pathway:		0.0E+00

Total Rad + Chem 0.0E+00 *Total:* 1.1E-03

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TABLE B.3.6-8
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.0	1.5E+03			
SR-90	0.0	5.5E+02			
TC-99	1.8	8.9E+04			
U234	469.0	2.3E+07			
U235/236	25.0	1.2E+06			
U238	517.0	2.5E+07			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Cadmium	5.7E-04	1.6E-05	5.0E-04	3.1E-02	Cadmium	5.9E-05		
Lead	1.4E-03	3.9E-05			Lead	1.5E-04		
Molybdenum	5.6E-03	1.5E-04	5.0E-03	3.1E-02	Molybdenum	5.7E-04		
U-Total	1.8E+00	5.0E-02	3.00E-03	1.7E+01	U-Total	1.9E-01		
		Total Pathway:		1.7E+01	Total Pathway:			0.0E+00
		Total Rad + Chem		1.7E+01	Total Rad + Chem			0.0E+00

TABLE B.3.6-8
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard	
Dermal Contact/Groundwater	
Total Pathway:	0.0E+00

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Cadmium	1.1E-07	2.5E-05	4.6E-03	3.6E-02
Lead	1.1E-09			
Molybdenum	1.1E-06	1.9E-03	5.9E-04	3.1E-02
U-Total	3.7E-04	1.5E-04	2.4E+00	19.3
		Total Pathway:	2.5E+00	

Total Rad + Chem	2.5E+00	*Total:*	19.3

TABLE B.3.6-9(a)
FUTURE, GREAT MIAMI RIVER USER: ADULT
OU2-WIDE: SURFACE WATER
CARCINOGENIC RISK

	Radiation Risk									
	Ingestion/Surface Water				Dermal Contact/Surface Water	Ingestion of Fish				Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		Conc'n-Fish (pCi/kg)	Intake	SF(o)	Risk	
CS-137	2.4E-07	5.1E-06	2.8E-11	1.4E-16		0.0E+00	0.0E+00	2.8E-11	0.0E+00	1.4E-16
NP-237	4.2E-04	8.8E-03	2.2E-10	1.9E-12		0.0E+00	0.0E+00	2.2E-10	0.0E+00	1.9E-12
PU-238	7.2E-06	1.5E-04	2.2E-10	3.3E-14		0.0E+00	0.0E+00	2.2E-10	0.0E+00	3.3E-14
PU-239/240	1.7E-06	3.5E-05	2.3E-10	8.0E-15		0.0E+00	0.0E+00	2.3E-10	0.0E+00	8.0E-15
RA-226	1.8E-04	3.8E-03	1.2E-10	4.6E-13		9.1E-03	1.4E+00	1.2E-10	1.7E-10	1.7E-10
RA-228	3.3E-05	7.0E-04	1.0E-10	7.0E-14		1.7E-03	2.6E-01	1.0E-10	2.6E-11	2.6E-11
SR-90	2.4E-04	5.0E-03	3.6E-11	1.8E-13		7.2E-03	1.1E+00	3.6E-11	4.0E-11	4.0E-11
TC-99	5.0E-01	1.0E+01	1.3E-12	1.4E-11		7.5E+00	1.2E+03	1.3E-12	1.5E-09	1.5E-09
TH-228	5.0E-01	1.0E+01	5.5E-11	5.8E-10		1.5E+01	2.3E+03	5.5E-11	1.3E-07	1.3E-07
TH-230	3.9E-06	8.1E-05	1.3E-11	1.1E-15		1.2E-04	1.8E-02	1.3E-11	2.3E-13	2.3E-13
TH-232	1.1E-06	2.3E-05	1.2E-11	2.7E-16		3.2E-05	5.0E-03	1.2E-11	6.0E-14	6.0E-14
U-234	1.3E-02	2.7E-01	1.6E-11	4.3E-12		2.6E-02	3.9E+00	1.6E-11	6.3E-11	6.7E-11
U-235/236	2.9E-04	6.0E-03	1.6E-11	9.6E-14		5.7E-04	8.8E-02	1.6E-11	1.4E-12	1.5E-12
U-238	6.2E-03	1.3E-01	2.8E-11	3.6E-12		1.2E-02	1.9E+00	2.8E-11	5.3E-11	5.7E-11
			Total Pathway:	6.0E-10	Total Pathway: 0.0E+00			Total Pathway:	1.3E-07	

TABLE B.3.6-9(a)
(continued)

CARCINOGENIC RISK

Chemical Risk													
	Ingestion/Surface Water				Dermal Contact/Surface Water			Ingestion of Fish				Total
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Intake	SF(derm)	Risk	Conc'n-Fish (mg/kg)	Intake	SF(o)	Risk	
Antimony	4.04E-08	4.7E-13			4.5E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Arsenic	1.99E-07	2.3E-12	1.8E+00	4.1E-12	2.2E-12	1.8E+00	4.0E-12	8.8E-06	7.5E-10	1.8E+00	1.3E-09	1.3E-09
Barium	7.86E-03	9.2E-08			8.7E-08			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Beryllium	9.64E-09	1.1E-13	4.3E+00	4.9E-13	1.1E-13	4.3E+02	4.6E-11	1.8E-07	1.6E-11	4.3E+00	6.8E-11	1.1E-10
Cadmium	2.38E-08	2.8E-13			2.6E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Chromium	1.94E-07	2.3E-12			4.3E-12			3.1E-06	2.7E-10	0.0E+00	0.0E+00	
Copper	1.09E-06	1.3E-11			1.2E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Cyanide	5.56E-07	6.5E-12			6.1E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Lead	9.43E-07	1.1E-11			4.2E-14			4.6E-05	4.0E-09	0.0E+00	0.0E+00	
Manganese	6.23E-08	7.3E-13			6.9E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Mercury	1.08E-09	1.3E-14			1.2E-15			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Molybdenum	7.12E-07	8.4E-12			7.9E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Nickel	7.26E-08	8.5E-13			8.0E-14			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Selenium	1.94E-08	2.3E-13			2.1E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Silver	3.78E-08	4.4E-13			2.5E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Thallium	6.43E-10	7.5E-15			7.1E-15			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Vanadium	9.97E-08	1.2E-12			1.1E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Zinc	2.40E-07	2.8E-12			1.6E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
U-TOTAL	3.34E-05	3.9E-10			3.7E-10			6.7E-05	5.7E-09	0.0E+00	0.0E+00	
2-Butanone	2.15E-09	2.5E-14			1.2E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
4-4'-DDE	1.27E-14	1.5E-19	3.4E-01	5.1E-20	4.5E-17	3.8E-01	1.7E-17	0.0E+00	0.0E+00	3.4E-01	0.0E+00	1.7E-17
Acenaphthene	2.69E-09	3.2E-14			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Acenaphthylene	5.19E-09	6.1E-14			1.0E-11			3.8E-06	3.3E-10	0.0E+00	0.0E+00	
Acetone	4.28E-07	5.0E-12			6.6E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Anthracene	1.09E-08	1.3E-13			2.7E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Aroclor-1254	2.57E-11	3.0E-16	7.7E+00	2.3E-15	2.8E-13	1.0E+01	2.9E-12	2.6E-06	2.2E-10	7.7E+00	1.7E-09	1.7E-09
Aroclor-1260	1.25E-11	1.5E-16	7.7E+00	1.1E-15	1.4E-13	1.0E+01	1.4E-12	2.4E-06	2.1E-10	7.7E+00	1.6E-09	1.6E-09
Benzoic Acid	6.75E-07	7.9E-12			5.3E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Benzo(a)anthracene	4.27E-09	5.0E-14	1.1E+00	5.5E-14	0.0E+00	2.6E+00	0.0E+00	4.6E-05	4.0E-09	1.1E+00	4.4E-09	4.4E-09
Benzo(a)pyrene	3.05E-09	3.6E-14	7.3E+00	2.6E-13	0.0E+00	1.7E+01	0.0E+00	6.3E-05	5.4E-09	7.3E+00	3.9E-08	3.9E-08
Benzo(b) fluoranthene	5.18E-10	6.1E-15	9.0E-01	5.5E-15	0.0E+00	2.1E+00	0.0E+00	3.0E-05	2.6E-09	9.0E-01	2.3E-09	2.3E-09
Benzo(k)fluoranthene	3.27E-10	3.8E-15	3.8E-01	1.5E-15	0.0E+00	8.8E-01	0.0E+00	0.0E+00	0.0E+00	3.8E-01	0.0E+00	1.5E-15
Benzo(g,h,i)perylene	1.63E-12	1.9E-17			9.6E-14			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
bis(2-Ethylhexyl) phthalate	3.72E-08	4.4E-13	1.4E-02	6.1E-15	1.9E-11	1.6E-02	2.9E-13	2.3E-04	2.0E-08	1.4E-02	2.8E-10	2.8E-10
Bromomethane	7.46E-10	8.8E-15			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Carbazole	3.83E-08	4.5E-13	2.0E-02	9.0E-15	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00	9.0E-15
Chloromethane	1.54E-09	1.8E-14	1.3E-02	2.4E-16	0.0E+00			0.0E+00	0.0E+00	1.3E-02	0.0E+00	2.4E-16
Chrysene	4.66E-09	5.5E-14	3.2E-02	1.8E-15	0.0E+00	7.4E-02	0.0E+00	5.0E-05	4.3E-09	3.2E-02	1.4E-10	1.4E-10
Di-n-butylphthalate	3.67E-12	4.3E-17			7.6E-15			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Dibenzo(a,h)anthracene	7.41E-10	8.7E-15	8.1E+00	7.0E-14	0.0E+00	1.9E+01	0.0E+00	1.5E-05	1.3E-09	8.1E+00	1.0E-08	1.0E-08
Dieldrin	9.65E-10	1.1E-14	1.6E+01	1.8E-13	2.0E-13	1.8E+01	3.6E-12	4.6E-06	3.9E-10	1.6E+01	6.3E-09	6.3E-09
Dimethyl phthalate	1.06E-07	1.2E-12			1.9E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Fluoranthene	2.71E-09	3.2E-14			1.3E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Fluorene	6.16E-09	7.2E-14			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Indeno(1,2,3-cd)pyrene	4.08E-11	4.8E-16	2.0E+00	9.6E-16	0.0E+00	4.7E+00	0.0E+00	1.6E-05	1.4E-09	2.0E+00	2.7E-09	2.7E-09
Methylene chloride	2.29E-08	2.7E-13	7.5E-03	2.0E-15	1.0E-12	7.5E-03	7.8E-15	0.0E+00	0.0E+00	7.5E-03	0.0E+00	9.8E-15
Naphthalene	1.93E-09	2.3E-14			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Pyrene	1.69E-08	2.0E-13			9.9E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Toluene	4.06E-08	4.8E-13			2.0E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
			Total Pathway:	5.2E-12			Total Pathway:	5.8E-11			Total Pathway:	7.1E-08	
			Total Rad + Chem	6.1E-10			Total Rad + Chem	5.8E-11			Total Rad + Chem	2.0E-07	*Total:* 2.0E-07

TABLE B.3.6-9(a)
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard									
Ingestion/Surface Water					Dermal Contact/Surface Water	Ingestion of Fish				Total
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard		Conc'n-Fish (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	2.4E-07	5.1E-06				0.0E+00		0.0E+00	0.0E+00	
NP-237	4.2E-04	8.8E-03				0.0E+00		0.0E+00	0.0E+00	
PU-238	7.2E-06	1.5E-04				0.0E+00		0.0E+00	0.0E+00	
PU-239/240	1.7E-06	3.5E-05				0.0E+00		0.0E+00	0.0E+00	
RA-226	1.8E-04	3.8E-03				9.1E-03		0.0E+00	0.0E+00	
RA-228	3.3E-05	7.0E-04				1.7E-03		0.0E+00	0.0E+00	
SR-90	2.4E-04	5.0E-03				7.2E-03		0.0E+00	0.0E+00	
TC-99	5.0E-01	1.0E+01				7.5E+00		0.0E+00	0.0E+00	
TH-228	5.0E-01	1.0E+01				1.5E+01		0.0E+00	0.0E+00	
TH-230	3.9E-06	8.1E-05				1.2E-04		0.0E+00	0.0E+00	
TH-232	1.1E-06	2.3E-05				3.2E-05		0.0E+00	0.0E+00	
U-234	1.3E-02	2.7E-01				2.6E-02		0.0E+00	0.0E+00	
U-235/236	2.9E-04	6.0E-03				5.7E-04		0.0E+00	0.0E+00	
U-238	6.2E-03	1.3E-01				1.2E-02		0.0E+00	0.0E+00	
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00					

TABLE B.3.6-9(a)
(continued)

NONCARCINOGENIC HAZARD

Chemical Hazard												
	Ingestion/Surface Water				Dermal Contact/Surface Water			Ingestion of Fish				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Intake	RfD(derm)	Hazard	Conc'n-Fish (pCi/kg)	Intake	RfD(o)	Hazard	
Antimony	4.0E-08	1.1E-12	4.0E-04	2.8E-09	1.0E-12	6.0E-05	1.7E-08	0.0E+00	0.0E+00	4.0E-04	0.0E+00	2.0E-08
Arsenic	2.0E-07	5.5E-12	3.0E-04	1.8E-08	5.1E-12	2.9E-04	1.8E-08	8.8E-06	1.8E-09	3.0E-04	5.9E-06	5.9E-06
Barium	7.9E-03	2.2E-07	7.0E-02	3.1E-06	2.0E-07	6.4E-02	3.2E-06	0.0E+00	0.0E+00	7.0E-02	0.0E+00	6.3E-06
Beryllium	9.6E-09	2.6E-13	5.0E-03	5.3E-11	2.5E-13	5.0E-05	5.0E-09	1.8E-07	3.7E-11	5.0E-03	7.3E-09	1.2E-08
Cadmium	2.4E-08	6.5E-13	1.0E-03	6.5E-10	6.1E-13	5.0E-05	1.2E-08	0.0E+00	0.0E+00	1.0E-03	0.0E+00	1.3E-08
Chromium	1.9E-07	5.3E-12	5.0E-03	1.1E-09	1.0E-11	2.3E-03	4.4E-09	3.1E-06	6.2E-10	5.0E-03	1.2E-07	1.3E-07
Copper	1.1E-06	3.0E-11	4.0E-02	7.5E-10	2.8E-11	2.4E-02	1.2E-09	0.0E+00	0.0E+00	4.0E-02	0.0E+00	1.9E-09
Cyanide	5.6E-07	1.5E-11	2.0E-02	7.6E-10	1.4E-11	1.4E-02	9.9E-10	0.0E+00	0.0E+00	2.0E-02	0.0E+00	1.8E-09
Lead	9.4E-07	2.6E-11			9.7E-14			4.6E-05	9.3E-09			
Manganese	6.2E-08	1.7E-12	1.4E-01	1.2E-11	1.6E-12	4.2E-03	3.8E-10	0.0E+00	0.0E+00	1.4E-01	0.0E+00	3.9E-10
Mercury	1.1E-09	3.0E-14	3.0E-04	9.9E-11	2.8E-15	4.5E-05	6.2E-11	0.0E+00	0.0E+00	3.0E-04	0.0E+00	1.6E-10
Molybdenum	7.1E-07	2.0E-11	5.0E-03	3.9E-09	1.8E-11	1.9E-03	9.6E-09	0.0E+00	0.0E+00	5.0E-03	0.0E+00	1.4E-08
Nickel	7.3E-08	2.0E-12	2.0E-02	9.9E-11	1.9E-13	1.0E-03	1.9E-10	0.0E+00	0.0E+00	2.0E-02	0.0E+00	2.9E-10
Selenium	1.9E-08	5.3E-13	5.0E-03	1.1E-10	5.0E-13	4.0E-03	1.2E-10	0.0E+00	0.0E+00	5.0E-03	0.0E+00	2.3E-10
Silver	3.8E-08	1.0E-12	5.0E-03	2.1E-10	5.8E-13	2.5E-04	2.3E-09	0.0E+00	0.0E+00	5.0E-03	0.0E+00	2.5E-09
Thallium	6.4E-10	1.8E-14	7.0E-05	2.5E-10	1.7E-14	7.0E-05	2.4E-10	0.0E+00	0.0E+00	7.0E-05	0.0E+00	4.9E-10
Vanadium	1.0E-07	2.7E-12	7.0E-03	3.9E-10	2.6E-12	3.5E-04	7.3E-09	0.0E+00	0.0E+00	7.0E-03	0.0E+00	7.7E-09
Zinc	2.4E-07	6.6E-12	3.0E-01	2.2E-11	3.7E-12	7.5E-02	4.9E-11	0.0E+00	0.0E+00	3.0E-01	0.0E+00	7.1E-11
U-TOTAL	3.3E-05	9.2E-10	3.0E-03	3.1E-07	8.6E-10	1.5E-04	5.7E-06	6.7E-05	1.3E-08	3.0E-03	4.5E-06	1.1E-05
2-Butanone	2.2E-09	5.9E-14	6.0E-01	9.8E-14	2.8E-13	5.4E-01	5.1E-13	0.0E+00	0.0E+00	6.0E-01	0.0E+00	6.1E-13
4-4'-DDE	1.3E-14	3.5E-19			1.0E-16			0.0E+00	0.0E+00			
Acenaphthene	2.7E-09	7.4E-14	6.0E-02	1.2E-12	0.0E+00			0.0E+00	0.0E+00	6.0E-02	0.0E+00	1.2E-12
Acenaphthylene	5.2E-09	1.4E-13			2.3E-11			3.8E-06	7.6E-10			
Acetone	4.3E-07	1.2E-11	1.0E-01	1.2E-10	1.5E-11	8.3E-02	1.9E-10	0.0E+00	0.0E+00	1.0E-01	0.0E+00	3.0E-10
Anthracene	1.1E-08	3.0E-13	3.0E-01	1.0E-12	6.3E-11	1.3E-01	4.9E-10	0.0E+00	0.0E+00	3.0E-01	0.0E+00	4.9E-10
Aroclor-1254	2.6E-11	7.0E-16			6.6E-13			2.6E-06	5.2E-10			
Aroclor-1260	1.3E-11	3.4E-16			3.2E-13			2.4E-06	4.9E-10			
Benzoic Acid	6.8E-07	1.8E-11	4.0E+00	4.6E-12	1.2E-10	3.6E+00	3.4E-11	0.0E+00	0.0E+00	4.0E+00	0.0E+00	3.9E-11
Benzo(a)anthracene	4.3E-09	1.2E-13			0.0E+00			4.6E-05	9.2E-09			
Benzo(a)pyrene	3.1E-09	8.4E-14			0.0E+00			6.3E-05	1.3E-08			
Benzo(b) fluoranthene	5.2E-10	1.4E-14			0.0E+00			3.0E-05	6.0E-09			
Benzo(k)fluoranthene	3.3E-10	9.0E-15			0.0E+00			0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	1.6E-12	4.5E-17			2.2E-13			0.0E+00	0.0E+00			
bis(2-Ethylhexyl) phthalate	3.7E-08	1.0E-12	2.0E-02	5.1E-11	4.4E-11	1.8E-02	2.4E-09	2.3E-04	4.7E-08	2.0E-02	2.3E-06	2.3E-06
Bromomethane	7.5E-10	2.0E-14	1.4E-03	1.5E-11	0.0E+00			0.0E+00	0.0E+00	1.4E-03	0.0E+00	1.5E-11
Carbazole	3.8E-08	1.0E-12			0.0E+00			0.0E+00	0.0E+00			
Chloromethane	1.5E-09	4.2E-14			0.0E+00			0.0E+00	0.0E+00			
Chrysene	4.7E-09	1.3E-13			0.0E+00			5.0E-05	1.0E-08			
Di-n-butylphthalate	3.7E-12	1.0E-16	1.0E-01	1.0E-15	1.8E-14	8.5E-02	2.1E-13	0.0E+00	0.0E+00	1.0E-01	0.0E+00	2.1E-13
Dibenzo(a,h)anthracene	7.4E-10	2.0E-14			0.0E+00			1.5E-05	3.0E-09			
Dieldrin	9.7E-10	2.6E-14	5.0E-05	5.3E-10	4.7E-13	4.5E-05	1.0E-08	4.6E-06	9.2E-10	5.0E-05	1.8E-05	1.8E-05
Dimethyl phthalate	1.1E-07	2.9E-12	1.0E+00	2.9E-12	4.4E-12	9.0E-01	4.9E-12	0.0E+00	0.0E+00	1.0E+00	0.0E+00	7.8E-12
Fluoranthene	2.7E-09	7.4E-14	4.0E-02	1.9E-12	3.0E-11	1.7E-02	1.7E-09	0.0E+00	0.0E+00	4.0E-02	0.0E+00	1.7E-09
Fluorene	6.2E-09	1.7E-13	4.0E-02	4.2E-12	0.0E+00			0.0E+00	0.0E+00	4.0E-02	0.0E+00	4.2E-12
Indeno(1,2,3-cd)pyrene	4.1E-11	1.1E-15			0.0E+00			1.6E-05	3.2E-09			
Methylene chloride	2.3E-08	6.3E-13	6.1E-02	1.0E-11	2.4E-12	6.1E-02	4.0E-11	0.0E+00	0.0E+00	6.1E-02	0.0E+00	5.0E-11
Naphthalene	1.9E-09	5.3E-14	4.0E-02	1.3E-12	0.0E+00			0.0E+00	0.0E+00	4.0E-02	0.0E+00	1.3E-12
Pyrene	1.7E-08	4.6E-13	3.0E-02	1.5E-11	2.3E-10	1.3E-02	1.8E-08	0.0E+00	0.0E+00	3.0E-02	0.0E+00	1.8E-08
Toluene	4.1E-08	1.1E-12	2.0E-01	5.6E-12	4.7E-11	2.0E-01	2.4E-10	0.0E+00	0.0E+00	2.0E-01	0.0E+00	2.4E-10
			Total Pathway:	3.4E-06		Total Pathway:	9.0E-06			Total Pathway:	3.1E-05	
			Total Rad + Chem	3.4E-06		Total Rad + Chem	9.0E-06			Total Rad + Chem	3.1E-05	*Total:* 4.4E-05

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TABLE B.3.6-9(b)
FUTURE, GREAT MIAMI RIVER USER: YOUTH
OU2-WIDE: SURFACE WATER
CARCINOGENIC RISK

Radiation Risk										
Ingestion/Surface Water					Dermal Contact/Surface Water	Ingestion of Fish				Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		Conc'n-Fish (pCi/kg)	Intake	SF(o)	Risk	
CS-137	2.4E-07	2.0E-06	2.8E-11	5.7E-17		0.0E+00	0.0E+00	2.8E-11	0.0E+00	5.7E-17
NP-237	4.2E-04	3.5E-03	2.2E-10	7.8E-13		0.0E+00	0.0E+00	2.2E-10	0.0E+00	7.8E-13
PU-238	7.2E-06	6.0E-05	2.2E-10	1.3E-14		0.0E+00	0.0E+00	2.2E-10	0.0E+00	1.3E-14
PU-239/240	1.7E-06	1.4E-05	2.3E-10	3.2E-15		0.0E+00	0.0E+00	2.3E-10	0.0E+00	3.2E-15
RA-226	1.8E-04	1.5E-03	1.2E-10	1.8E-13		9.1E-03	5.6E-01	1.2E-10	6.7E-11	6.7E-11
RA-228	3.3E-05	2.8E-04	1.0E-10	2.8E-14		1.7E-03	1.0E-01	1.0E-10	1.0E-11	1.0E-11
SR-90	2.4E-04	2.0E-03	3.6E-11	7.3E-14		7.2E-03	4.4E-01	3.6E-11	1.6E-11	1.6E-11
TC-99	5.0E-01	4.2E+00	1.3E-12	5.4E-12		7.5E+00	4.6E+02	1.3E-12	6.0E-10	6.0E-10
TH-228	5.0E-01	4.2E+00	5.5E-11	2.3E-10		1.5E+01	9.2E+02	5.5E-11	5.1E-08	5.1E-08
TH-230	3.9E-06	3.3E-05	1.3E-11	4.2E-16		1.2E-04	7.2E-03	1.3E-11	9.3E-14	9.3E-14
TH-232	1.1E-06	9.1E-06	1.2E-11	1.1E-16		3.2E-05	2.0E-03	1.2E-11	2.4E-14	2.4E-14
U-234	1.3E-02	1.1E-01	1.6E-11	1.7E-12		2.6E-02	1.6E+00	1.6E-11	2.5E-11	2.7E-11
U-235/236	2.9E-04	2.4E-03	1.6E-11	3.9E-14		5.7E-04	3.5E-02	1.6E-11	5.6E-13	6.0E-13
U-238	6.2E-03	5.2E-02	2.8E-11	1.4E-12		1.2E-02	7.6E-01	2.8E-11	2.1E-11	2.3E-11
			Total Pathway:	2.4E-10	Total Pathway: 0.0E+00			Total Pathway:	5.1E-08	

TABLE B.3.6-9(b)
(continued)

CARCINOGENIC RISK

Chemical Risk													
	Ingestion/Surface Water				Dermal Contact/Surface Water			Ingestion of Fish				
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Intake	SF(derm)	Risk	Conc'n-Fish (pCi/kg)	Intake	SF(o)	Risk	
Antimony	4.04E-08	3.1E-13			2.1E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Arsenic	1.99E-07	1.5E-12	1.8E+00	2.7E-12	1.1E-12	1.8E+00	1.9E-12	8.8E-06	4.9E-10	1.8E+00	8.6E-10	8.6E-10
Barium	7.86E-03	6.0E-08			4.2E-08			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Beryllium	9.64E-09	7.4E-14	4.3E+00	3.2E-13	5.1E-14	4.3E+02	2.2E-11	1.8E-07	1.0E-11	4.3E+00	4.4E-11	6.6E-11
Cadmium	2.38E-08	1.8E-13			1.3E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Chromium	1.94E-07	1.5E-12			2.1E-12			3.1E-06	1.7E-10	0.0E+00	0.0E+00	
Copper	1.09E-06	8.3E-12			5.8E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Cyanide	5.56E-07	4.3E-12			3.0E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Lead	9.43E-07	7.2E-12			2.0E-14			4.6E-05	2.6E-09	0.0E+00	0.0E+00	
Manganese	6.23E-08	4.8E-13			3.3E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Mercury	1.08E-09	8.3E-15			5.7E-16			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Molybdenum	7.12E-07	5.4E-12			3.8E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Nickel	7.26E-08	5.6E-13			3.9E-14			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Selenium	1.94E-08	1.5E-13			1.0E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Silver	3.78E-08	2.9E-13			1.2E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Thallium	6.43E-10	4.9E-15			3.4E-15			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Vanadium	9.97E-08	7.6E-13			5.3E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Zinc	2.40E-07	1.8E-12			7.6E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
U-TOTAL	3.34E-05	2.6E-10			1.8E-10			6.7E-05	3.7E-09	0.0E+00	0.0E+00	
2-Butanone	2.15E-09	1.6E-14			5.7E-14			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
4-4'-DDE	1.27E-14	9.7E-20	3.4E-01	3.3E-20	2.2E-17	3.8E-01	8.2E-18	0.0E+00	0.0E+00	3.4E-01	0.0E+00	8.2E-18
Acenaphthene	2.69E-09	2.1E-14			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Acenaphthylene	5.19E-09	4.0E-14			4.8E-12			3.8E-06	2.1E-10	0.0E+00	0.0E+00	
Acetone	4.28E-07	3.3E-12			3.2E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Anthracene	1.09E-08	8.3E-14			1.3E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Aroclor-1254	2.57E-11	2.0E-16	7.7E+00	1.5E-15	1.4E-13	1.0E+01	1.4E-12	2.6E-06	1.4E-10	7.7E+00	1.1E-09	1.1E-09
Aroclor-1260	1.25E-11	9.6E-17	7.7E+00	7.4E-16	6.6E-14	1.0E+01	6.8E-13	2.4E-06	1.4E-10	7.7E+00	1.0E-09	1.0E-09
Benzoic Acid	6.75E-07	5.2E-12			2.5E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Benzo(a)anthracene	4.27E-09	3.3E-14	1.1E+00	3.6E-14	0.0E+00	2.6E+00	0.0E+00	4.6E-05	2.6E-09	1.1E+00	2.8E-09	2.8E-09
Benzo(a)pyrene	3.05E-09	2.3E-14	7.3E+00	1.7E-13	0.0E+00	1.7E+01	0.0E+00	6.3E-05	3.5E-09	7.3E+00	2.6E-08	2.6E-08
Benzo(b) fluoranthene	5.18E-10	4.0E-15	9.0E-01	3.6E-15	0.0E+00	2.1E+00	0.0E+00	3.0E-05	1.7E-09	9.0E-01	1.5E-09	1.5E-09
Benzo(k)fluoranthene	3.27E-10	2.5E-15	3.8E-01	9.5E-16	0.0E+00	8.8E-01	0.0E+00	0.0E+00	0.0E+00	3.8E-01	0.0E+00	9.5E-16
Benzo(g,h,i)perylene	1.63E-12	1.2E-17			4.6E-14			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
bis(2-Ethylhexyl) phthalate	3.72E-08	2.8E-13	1.4E-02	4.0E-15	9.0E-12	1.6E-02	1.4E-13	2.3E-04	1.3E-08	1.4E-02	1.8E-10	1.8E-10
Bromomethane	7.46E-10	5.7E-15			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Carbazole	3.83E-08	2.9E-13	2.0E-02	5.9E-15	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00	5.9E-15
Chloromethane	1.54E-09	1.2E-14	1.3E-02	1.5E-16	0.0E+00			0.0E+00	0.0E+00	1.3E-02	0.0E+00	1.5E-16
Chrysene	4.66E-09	3.6E-14	3.2E-02	1.1E-15	0.0E+00	7.4E-02	0.0E+00	5.0E-05	2.8E-09	3.2E-02	9.0E-11	9.0E-11
Di-n-butylphthalate	3.67E-12	2.8E-17			3.7E-15			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Dibenzo(a,h)anthracene	7.41E-10	5.7E-15	8.1E+00	4.6E-14	0.0E+00	1.9E+01	0.0E+00	1.5E-05	8.4E-10	8.1E+00	6.8E-09	6.8E-09
Dieldrin	9.65E-10	7.4E-15	1.6E+01	1.2E-13	9.7E-14	1.8E+01	1.7E-12	4.6E-06	2.6E-10	1.6E+01	4.1E-09	4.1E-09
Dimethyl phthalate	1.06E-07	8.1E-13			9.0E-13			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Fluoranthene	2.71E-09	2.1E-14			6.2E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Fluorene	6.16E-09	4.7E-14			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Indeno(1,2,3-cd)pyrene	4.08E-11	3.1E-16	2.0E+00	6.2E-16	0.0E+00	4.7E+00	0.0E+00	1.6E-05	8.9E-10	2.0E+00	1.8E-09	1 8E-09
Methylene chloride	2.29E-08	1.8E-13	7.5E-03	1.3E-15	5.0E-13	7.5E-03	3.7E-15	0.0E+00	0.0E+00	7.5E-03	0.0E+00	5.1E-15
Naphthalene	1.93E-09	1.5E-14			0.0E+00			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Pyrene	1.69E-08	1.3E-13			4.8E-11			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Toluene	4.06E-08	3.1E-13			9.7E-12			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
			Total Pathway:	3.4E-12			Total Pathway:	2.8E-11			Total Pathway:	4.6E-08	
			Total Rad + Chem	2.4E-10			Total Rad + Chem	2.8E-11			Total Rad + Chem	9.7E-08	*Total:* 9.8E-08

TABLE B.3.6-9(b)
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard										
Ingestion/Surface Water					Dermal Contact/Surface Water	Ingestion of Fish				Total
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard		Conc'n-Fish (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	2.4E-07	2.0E-06				0.0E+00		0.0E+00	0.0E+00	
NP-237	4.2E-04	3.5E-03				0.0E+00		0.0E+00	0.0E+00	
PU-238	7.2E-06	6.0E-05				0.0E+00		0.0E+00	0.0E+00	
PU-239/240	1.7E-06	1.4E-05				0.0E+00		0.0E+00	0.0E+00	
RA-226	1.8E-04	1.5E-03				9.1E-03		0.0E+00	0.0E+00	
RA-228	3.3E-05	2.8E-04				1.7E-03		0.0E+00	0.0E+00	
SR-90	2.4E-04	2.0E-03				7.2E-03		0.0E+00	0.0E+00	
TC-99	5.0E-01	4.2E+00				7.5E+00		0.0E+00	0.0E+00	
TH-228	5.0E-01	4.2E+00				1.5E+01		0.0E+00	0.0E+00	
TH-230	3.9E-06	3.3E-05				1.2E-04		0.0E+00	0.0E+00	
TH-232	1.1E-06	9.1E-06				3.2E-05		0.0E+00	0.0E+00	
U-234	1.3E-02	1.1E-01				2.6E-02		0.0E+00	0.0E+00	
U-235/236	2.9E-04	2.4E-03				5.7E-04		0.0E+00	0.0E+00	
U-238	6.2E-03	5.2E-02				1.2E-02		0.0E+00	0.0E+00	
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00			Total Pathway:	0.0E+00	

TABLE B.3.6-9(b)
(continued)

NONCARCINOGENIC HAZARD

Chemical Hazard													
	Ingestion/Surface Water				Dermal Contact/Surface Water			Ingestion of Fish				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Intake	RfD(derm)	Hazard	Conc'n-Fish (pCi/kg)	Intake	RfD(o)	Hazard	
Antimony	4.0E-08	1.8E-12	4.0E-04	4.5E-09	1.3E-12	6.0E-05	2.1E-08	0.0E+00	0.0E+00	4.0E-04	0.0E+00	2.5E-08
Arsenic	2.0E-07	8.9E-12	3.0E-04	3.0E-08	6.2E-12	2.9E-04	2.2E-08	8.8E-06	2.9E-09	3.0E-04	9.5E-06	9.6E-06
Barium	7.9E-03	3.5E-07	7.0E-02	5.0E-06	2.4E-07	6.4E-02	3.8E-06	0.0E+00	0.0E+00	7.0E-02	0.0E+00	8.8E-06
Beryllium	9.6E-09	4.3E-13	5.0E-03	8.6E-11	3.0E-13	5.0E-05	6.0E-09	1.8E-07	6.0E-11	5.0E-03	1.2E-08	1.8E-08
Cadmium	2.4E-08	1.1E-12	1.0E-03	1.1E-09	7.4E-13	5.0E-05	1.5E-08	0.0E+00	0.0E+00	1.0E-03	0.0E+00	1.6E-08
Chromium	1.9E-07	8.7E-12	5.0E-03	1.7E-09	1.2E-11	2.3E-03	5.3E-09	3.1E-06	1.0E-09	5.0E-03	2.0E-07	2.1E-07
Copper	1.1E-06	4.9E-11	4.0E-02	1.2E-09	3.4E-11	2.4E-02	1.4E-09	0.0E+00	0.0E+00	4.0E-02	0.0E+00	2.6E-09
Cyanide	5.6E-07	2.5E-11	2.0E-02	1.2E-09	1.7E-11	1.4E-02	1.2E-09	0.0E+00	0.0E+00	2.0E-02	0.0E+00	2.4E-09
Lead	9.4E-07	4.2E-11			1.2E-13			4.6E-05	1.5E-08			
Manganese	6.2E-08	2.8E-12	1.4E-01	2.0E-11	1.9E-12	4.2E-03	4.6E-10	0.0E+00	0.0E+00	1.4E-01	0.0E+00	4.8E-10
Mercury	1.1E-09	4.8E-14	3.0E-04	1.6E-10	3.3E-15	4.5E-05	7.4E-11	0.0E+00	0.0E+00	3.0E-04	0.0E+00	2.3E-10
Molybdenum	7.1E-07	3.2E-11	5.0E-03	6.4E-09	2.2E-11	1.9E-03	1.2E-08	0.0E+00	0.0E+00	5.0E-03	0.0E+00	1.8E-08
Nickel	7.3E-08	3.2E-12	2.0E-02	1.6E-10	2.2E-13	1.0E-03	2.2E-10	0.0E+00	0.0E+00	2.0E-02	0.0E+00	3.9E-10
Selenium	1.9E-08	8.7E-13	5.0E-03	1.7E-10	6.0E-13	4.0E-03	1.5E-10	0.0E+00	0.0E+00	5.0E-03	0.0E+00	3.2E-10
Silver	3.8E-08	1.7E-12	5.0E-03	3.4E-10	7.0E-13	2.5E-04	2.8E-09	0.0E+00	0.0E+00	5.0E-03	0.0E+00	3.1E-09
Thallium	6.4E-10	2.9E-14	7.0E-05	4.1E-10	2.0E-14	7.0E-05	2.8E-10	0.0E+00	0.0E+00	7.0E-05	0.0E+00	6.9E-10
Vanadium	1.0E-07	4.4E-12	7.0E-03	6.4E-10	3.1E-12	3.5E-04	8.8E-09	0.0E+00	0.0E+00	7.0E-03	0.0E+00	9.5E-09
Zinc	2.4E-07	1.1E-11	3.0E-01	3.6E-11	4.5E-12	7.5E-02	5.9E-11	0.0E+00	0.0E+00	3.0E-01	0.0E+00	9.5E-11
U-TOTAL	3.3E-05	1.5E-09	3.0E-03	5.0E-07	1.0E-09	1.5E-04	6.9E-06	6.7E-05	2.2E-08	3.0E-03	7.3E-06	1.5E-05
2-Butanone	2.2E-09	9.6E-14	6.0E-01	1.6E-13	3.3E-13	5.4E-01	6.2E-13	0.0E+00	0.0E+00	6.0E-01	0.0E+00	7.8E-13
4-4'-DDE	1.3E-14	5.7E-19			1.3E-16			0.0E+00	0.0E+00			
Acenaphthene	2.7E-09	1.2E-13	6.0E-02	2.0E-12	0.0E+00			0.0E+00	0.0E+00	6.0E-02	0.0E+00	2.0E-12
Acenaphthylene	5.2E-09	2.3E-13			2.8E-11			3.8E-06	1.2E-09			
Acetone	4.3E-07	1.9E-11	1.0E-01	1.9E-10	1.9E-11	8.3E-02	2.2E-10	0.0E+00	0.0E+00	1.0E-01	0.0E+00	4.1E-10
Anthracene	1.1E-08	4.9E-13	3.0E-01	1.6E-12	7.6E-11	1.3E-01	5.9E-10	0.0E+00	0.0E+00	3.0E-01	0.0E+00	5.9E-10
Aroclor-1254	2.6E-11	1.1E-15			8.0E-13			2.6E-06	8.4E-10			
Aroclor-1260	1.3E-11	5.6E-16			3.9E-13			2.4E-06	7.9E-10			
Benzoic Acid	6.8E-07	3.0E-11	4.0E+00	7.5E-12	1.5E-10	3.6E+00	4.1E-11	0.0E+00	0.0E+00	4.0E+00	0.0E+00	4.9E-11
Benzo(a)anthracene	4.3E-09	1.9E-13			0.0E+00			4.6E-05	1.5E-08			
Benzo(a)pyrene	3.1E-09	1.4E-13			0.0E+00			6.3E-05	2.1E-08			
Benzo(b) fluoranthene	5.2E-10	2.3E-14			0.0E+00			3.0E-05	9.8E-09			
Benzo(k)fluoranthene	3.3E-10	1.5E-14			0.0E+00			0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	1.6E-12	7.3E-17			2.7E-13			0.0E+00	0.0E+00			
bis(2-Ethylhexyl) phthalate	3.7E-08	1.7E-12	2.0E-02	8.3E-11	5.3E-11	1.8E-02	2.9E-09	2.3E-04	7.6E-08	2.0E-02	3.8E-06	3.8E-06
Bromomethane	7.5E-10	3.3E-14	1.4E-03	2.4E-11	0.0E+00			0.0E+00	0.0E+00	1.4E-03	0.0E+00	2.4E-11
Carbazole	3.8E-08	1.7E-12			0.0E+00			0.0E+00	0.0E+00			
Chloromethane	1.5E-09	6.9E-14			0.0E+00			0.0E+00	0.0E+00			
Chrysene	4.7E-09	2.1E-13			0.0E+00			5.0E-05	1.6E-08			
Di-n-butylphthalate	3.7E-12	1.6E-16	1.0E-01	1.6E-15	2.1E-14	8.5E-02	2.5E-13	0.0E+00	0.0E+00	1.0E-01	0.0E+00	2.5E-13
Dibenzo(a,h)anthracene	7.4E-10	3.3E-14			0.0E+00			1.5E-05	4.9E-09			
Dieldrin	9.7E-10	4.3E-14	5.0E-05	8.6E-10	5.7E-13	4.5E-05	1.3E-08	4.6E-06	1.5E-09	5.0E-05	3.0E-05	3.0E-05
Dimethyl phthalate	1.1E-07	4.7E-12	1.0E+00	4.7E-12	5.3E-12	9.0E-01	5.8E-12	0.0E+00	0.0E+00	1.0E+00	0.0E+00	1.1E-11
Fluoranthene	2.7E-09	1.2E-13	4.0E-02	3.0E-12	3.6E-11	1.7E-02	2.1E-09	0.0E+00	0.0E+00	4.0E-02	0.0E+00	2.1E-09
Fluorene	6.2E-09	2.7E-13	4.0E-02	6.9E-12	0.0E+00			0.0E+00	0.0E+00	4.0E-02	0.0E+00	6.9E-12
Indeno(1,2,3-cd)pyrene	4.1E-11	1.8E-15			0.0E+00			1.6E-05	5.2E-09			
Methylene chloride	2.3E-08	1.0E-12	6.1E-02	1.7E-11	2.9E-12	6.1E-02	4.8E-11	0.0E+00	0.0E+00	6.1E-02	0.0E+00	6.4E-11
Naphthalene	1.9E-09	8.6E-14	4.0E-02	2.2E-12	0.0E+00			0.0E+00	0.0E+00	4.0E-02	0.0E+00	2.2E-12
Pyrene	1.7E-08	7.5E-13	3.0E-02	2.5E-11	2.8E-10	1.3E-02	2.2E-08	0.0E+00	0.0E+00	3.0E-02	0.0E+00	2.2E-08
Toluene	4.1E-08	1.8E-12	2.0E-01	9.1E-12	5.7E-11	2.0E-01	2.8E-10	0.0E+00	0.0E+00	2.0E-01	0.0E+00	2.9E-10
			Total Pathway:	5.6E-06		Total Pathway:	1.1E-05			Total Pathway:	5.1E-05	
			Total Rad + Chem	5.6E-06		Total Rad + Chem	1.1E-05			Total Rad + Chem	5.1E-05	*Total:* 6.7E-05

TABLE B.3.6-9(b)
(continued)

NONCARCINOGENIC HAZARD

Chemical Hazard													
	Ingestion/Surface Water				Dermal Contact/Surface Water			Ingestion of Fish				
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Intake	RfD(derm)	Hazard	Conc'n-Fish (pCi/kg)	Intake	RfD(o)	Hazard	
Antimony	4.0E-08	1.8E-12	4.0E-04	4.5E-09	1.3E-12	6.0E-05	2.1E-08	0.0E+00	0.0E+00	4.0E-04	0.0E+00	2.5E-08
Arsenic	2.0E-07	8.9E-12	3.0E-04	3.0E-08	6.2E-12	2.9E-04	2.2E-08	8.8E-06	2.9E-09	3.0E-04	9.5E-06	9.6E-06
Barium	7.9E-03	3.5E-07	7.0E-02	5.0E-06	2.4E-07	6.4E-02	3.8E-06	0.0E+00	0.0E+00	7.0E-02	0.0E+00	8.8E-06
Beryllium	9.6E-09	4.3E-13	5.0E-03	8.6E-11	3.0E-13	5.0E-05	6.0E-09	1.8E-07	6.0E-11	5.0E-03	1.2E-08	1.8E-08
Cadmium	2.4E-08	1.1E-12	1.0E-03	1.1E-09	7.4E-13	5.0E-05	1.5E-08	0.0E+00	0.0E+00	1.0E-03	0.0E+00	1.6E-08
Chromium	1.9E-07	8.7E-12	5.0E-03	1.7E-09	1.2E-11	2.3E-03	5.3E-09	3.1E-06	1.0E-09	5.0E-03	2.0E-07	2.1E-07
Copper	1.1E-06	4.9E-11	4.0E-02	1.2E-09	3.4E-11	2.4E-02	1.4E-09	0.0E+00	0.0E+00	4.0E-02	0.0E+00	2.6E-09
Cyanide	5.6E-07	2.5E-11	2.0E-02	1.2E-09	1.7E-11	1.4E-02	1.2E-09	0.0E+00	0.0E+00	2.0E-02	0.0E+00	2.4E-09
Lead	9.4E-07	4.2E-11			1.2E-13			4.6E-05	1.5E-08			
Manganese	6.2E-08	2.8E-12	1.4E-01	2.0E-11	1.9E-12	4.2E-03	4.6E-10	0.0E+00	0.0E+00	1.4E-01	0.0E+00	4.8E-10
Mercury	1.1E-09	4.8E-14	3.0E-04	1.6E-10	3.3E-15	4.5E-05	7.4E-11	0.0E+00	0.0E+00	3.0E-04	0.0E+00	2.3E-10
Molybdenum	7.1E-07	3.2E-11	5.0E-03	6.4E-09	2.2E-11	1.9E-03	1.2E-08	0.0E+00	0.0E+00	5.0E-03	0.0E+00	1.8E-08
Nickel	7.3E-08	3.2E-12	2.0E-02	1.6E-10	2.2E-13	1.0E-03	2.2E-10	0.0E+00	0.0E+00	2.0E-02	0.0E+00	3.9E-10
Selenium	1.9E-08	8.7E-13	5.0E-03	1.7E-10	6.0E-13	4.0E-03	1.5E-10	0.0E+00	0.0E+00	5.0E-03	0.0E+00	3.2E-10
Silver	3.8E-08	1.7E-12	5.0E-03	3.4E-10	7.0E-13	2.5E-04	2.8E-09	0.0E+00	0.0E+00	5.0E-03	0.0E+00	3.1E-09
Thallium	6.4E-10	2.9E-14	7.0E-05	4.1E-10	2.0E-14	7.0E-05	2.8E-10	0.0E+00	0.0E+00	7.0E-05	0.0E+00	6.9E-10
Vanadium	1.0E-07	4.4E-12	7.0E-03	6.4E-10	3.1E-12	3.5E-04	8.8E-09	0.0E+00	0.0E+00	7.0E-03	0.0E+00	9.5E-09
Zinc	2.4E-07	1.1E-11	3.0E-01	3.6E-11	4.5E-12	7.5E-02	5.9E-11	0.0E+00	0.0E+00	3.0E-01	0.0E+00	9.5E-11
U-TOTAL	3.3E-05	1.5E-09	3.0E-03	5.0E-07	1.0E-09	1.5E-04	6.9E-06	6.7E-05	2.2E-08	3.0E-03	7.3E-06	1.5E-05
2-Butanone	2.2E-09	9.6E-14	6.0E-01	1.6E-13	3.3E-13	5.4E-01	6.2E-13	0.0E+00	0.0E+00	6.0E-01	0.0E+00	7.8E-13
4-4'-DDE	1.3E-14	5.7E-19			1.3E-16			0.0E+00	0.0E+00			
Acenaphthene	2.7E-09	1.2E-13	6.0E-02	2.0E-12	0.0E+00			0.0E+00	0.0E+00	6.0E-02	0.0E+00	2.0E-12
Acenaphthylene	5.2E-09	2.3E-13			2.8E-11			3.8E-06	1.2E-09			
Acetone	4.3E-07	1.9E-11	1.0E-01	1.9E-10	1.9E-11	8.3E-02	2.2E-10	0.0E+00	0.0E+00	1.0E-01	0.0E+00	4.1E-10
Anthracene	1.1E-08	4.9E-13	3.0E-01	1.6E-12	7.6E-11	1.3E-01	5.9E-10	0.0E+00	0.0E+00	3.0E-01	0.0E+00	5.9E-10
Aroclor-1254	2.6E-11	1.1E-15			8.0E-13			2.6E-06	8.4E-10			
Aroclor-1260	1.3E-11	5.6E-16			3.9E-13			2.4E-06	7.9E-10			
Benzoic Acid	6.8E-07	3.0E-11	4.0E+00	7.5E-12	1.5E-10	3.6E+00	4.1E-11	0.0E+00	0.0E+00	4.0E+00	0.0E+00	4.9E-11
Benzo(a)anthracene	4.3E-09	1.9E-13			0.0E+00			4.6E-05	1.5E-08			
Benzo(a)pyrene	3.1E-09	1.4E-13			0.0E+00			6.3E-05	2.1E-08			
Benzo(b) fluoranthene	5.2E-10	2.3E-14			0.0E+00			3.0E-05	9.8E-09			
Benzo(k)fluoranthene	3.3E-10	1.5E-14			0.0E+00			0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	1.6E-12	7.3E-17			2.7E-13			0.0E+00	0.0E+00			
bis(2-Ethylhexyl) phthalate	3.7E-08	1.7E-12	2.0E-02	8.3E-11	5.3E-11	1.8E-02	2.9E-09	2.3E-04	7.6E-08	2.0E-02	3.8E-06	3.8E-06
Bromomethane	7.5E-10	3.3E-14	1.4E-03	2.4E-11	0.0E+00			0.0E+00	0.0E+00	1.4E-03	0.0E+00	2.4E-11
Carbazole	3.8E-08	1.7E-12			0.0E+00			0.0E+00	0.0E+00			
Chloromethane	1.5E-09	6.9E-14			0.0E+00			0.0E+00	0.0E+00			
Chrysene	4.7E-09	2.1E-13			0.0E+00			5.0E-05	1.6E-08			
Di-n-butylphthalate	3.7E-12	1.6E-16	1.0E-01	1.6E-15	2.1E-14	8.5E-02	2.5E-13	0.0E+00	0.0E+00	1.0E-01	0.0E+00	2.5E-13
Dibenzo(a,h)anthracene	7.4E-10	3.3E-14			0.0E+00			1.5E-05	4.9E-09			
Dieldrin	9.7E-10	4.3E-14	5.0E-05	8.6E-10	5.7E-13	4.5E-05	1.3E-08	4.6E-06	1.5E-09	5.0E-05	3.0E-05	3.0E-05
Dimethyl phthalate	1.1E-07	4.7E-12	1.0E+00	4.7E-12	5.3E-12	9.0E-01	5.8E-12	0.0E+00	0.0E+00	1.0E+00	0.0E+00	1.1E-11
Fluoranthene	2.7E-09	1.2E-13	4.0E-02	3.0E-12	3.6E-11	1.7E-02	2.1E-09	0.0E+00	0.0E+00	4.0E-02	0.0E+00	2.1E-09
Fluorene	6.2E-09	2.7E-13	4.0E-02	6.9E-12	0.0E+00			0.0E+00	0.0E+00	4.0E-02	0.0E+00	6.9E-12
Indeno(1,2,3-cd)pyrene	4.1E-11	1.8E-15			0.0E+00			1.6E-05	5.2E-09			
Methylene chloride	2.3E-08	1.0E-12	6.1E-02	1.7E-11	2.9E-12	6.1E-02	4.8E-11	0.0E+00	0.0E+00	6.1E-02	0.0E+00	6.4E-11
Naphthalene	1.9E-09	8.6E-14	4.0E-02	2.2E-12	0.0E+00			0.0E+00	0.0E+00	4.0E-02	0.0E+00	2.2E-12
Pyrene	1.7E-08	7.5E-13	3.0E-02	2.5E-11	2.8E-10	1.3E-02	2.2E-08	0.0E+00	0.0E+00	3.0E-02	0.0E+00	2.2E-08
Toluene	4.1E-08	1.8E-12	2.0E-01	9.1E-12	5.7E-11	2.0E-01	2.8E-10	0.0E+00	0.0E+00	2.0E-01	0.0E+00	2.9E-10
			Total Pathway:	5.6E-06		Total Pathway:	1.1E-05			Total Pathway:	5.1E-05	
			Total Rad + Chem	5.6E-06		Total Rad + Chem	1.1E-05			Total Rad + Chem	5.1E-05	*Total:* 6.7E-05

TABLE B.3.6-10
FUTURE, EXPANDED TRESPASSER
OU2-WIDE: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	1.79E-04	6.4E-01	1.9E-11	1.2E-11
NP-237	8.82E-05	3.2E-01	2.9E-08	9.1E-09
PU-238	4.38E-05	1.6E-01	3.9E-08	6.1E-09
PU-239/240	1.86E-05	6.6E-02	3.8E-08	2.5E-09
RA-226	1.10E-02	3.9E+01	3.0E-09	1.2E-07
RA-228	1.39E-03	5.0E+00	6.9E-10	3.4E-09
SR-90	3.63E-04	1.3E+00	6.2E-11	8.0E-11
TC-99	5.07E-02	1.8E+02	8.3E-12	1.5E-09
TH-228	1.58E-03	5.6E+00	7.8E-08	4.4E-07
TH-230	4.94E-03	1.8E+01	2.9E-08	5.1E-07
TH-232	1.43E-03	5.1E+00	2.8E-08	1.4E-07
U-234	3.11E-03	1.1E+01	2.6E-08	2.9E-07
U-235/236	1.51E-04	5.4E-01	2.5E-08	1.3E-08
U-238	3.35E-03	1.2E+01	5.20E-08	6.2E-07
			Total Pathway:	2.2E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	5.0E-01	1.9E-02	2.8E-11	5.2E-13
NP-237	2.3E-01	8.5E-03	2.2E-10	1.9E-12
PU-238	1.2E-01	4.5E-03	2.2E-10	9.8E-13
PU-239/240	5.1E-02	1.9E-03	2.3E-10	4.4E-13
RA-226	3.1E+01	1.1E+00	1.2E-10	1.4E-10
RA-228	3.9E+00	1.4E-01	1.0E-10	1.4E-11
SR-90	1.0E+00	3.7E-02	3.6E-11	1.3E-12
TC-99	1.4E+02	5.3E+00	1.3E-12	6.9E-12
TH-228	4.4E+00	1.6E-01	5.5E-11	9.0E-12
TH-230	1.4E+01	5.1E-01	1.3E-11	6.7E-12
TH-232	4.0E+00	1.5E-01	1.2E-11	1.8E-12
U-234	8.7E+00	3.2E-01	1.6E-11	5.2E-12
U-235/236	4.2E-01	1.6E-02	1.6E-11	2.5E-13
U-238	9.3E+00	3.5E-01	2.8E-11	9.7E-12
			Total Pathway:	2.0E-10

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	2.73E-06	7.6E-09	1.5E+01	1.1E-07
Barium	3.28E-05	9.1E-08		
Beryllium	3.44E-07	9.5E-10	8.4E+00	8.0E-09
Cadmium	3.55E-09	9.8E-12		
Chromium	1.99E-06	5.5E-09	4.1E+01	2.3E-07
Lead	9.88E-06	2.7E-08		
Nickel	6.17E-06	1.7E-08	8.4E-01	1.4E-08
TH-TOTAL	1.32E-05	3.7E-08		
U-TOTAL	1.06E-05	2.9E-08		
4,4'-DDE	1.43E-12	4.0E-15		
Benzo(a)anthracene	1.96E-06	5.4E-09	8.9E-01	4.8E-09
Benzo(a)pyrene	3.36E-06	9.3E-09	6.1E+00	5.7E-08
Benzo(b)fluoranthene	2.21E-06	6.1E-09	7.5E-01	4.6E-09
Benzo(g,h,i)perylene	2.21E-06	6.1E-09		
Benzo(k)fluoranthene	2.61E-06	7.2E-09	3.2E-01	2.3E-09
bis(2-Ethylhexyl) phthalate	3.98E-08	1.1E-10		
Carbazole	6.13E-08	1.7E-10		
Chrysene	2.14E-06	5.9E-09	2.7E-02	1.6E-10
Dibenzo(a,h)anthracene	6.81E-07	1.9E-09	6.8E+00	1.3E-08
Dibenzofuran	4.67E-08	1.3E-10		
Dieldrin	3.57E-09	9.9E-12	1.6E+01	1.6E-10
Indeno(1,2,3-cd)pyrene	2.14E-06	5.9E-09	1.7E+00	1.0E-08
Methylene chloride	1.79E-09	5.0E-12	2.0E-03	9.9E-15
Phenanthrene	8.21E-07	2.3E-09		
Toluene	8.59E-13	2.4E-15		
			Total Pathway:	4.5E-07
			Total Rad + Chem	2.6E-06

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	7.27	1.9E-07	1.75E+00	3.4E-07
Barium		0.0E+00		
Beryllium	9.4E-01	2.5E-08	4.30E+00	1.1E-07
Cadmium		0.0E+00		
Chromium	13.90	3.7E-07		
Lead	24.58	6.6E-07		
Nickel		0.0E+00		
TH-TOTAL	36.70	9.8E-07		
U-TOTAL	29.58	7.9E-07		
4,4'-DDE		0.0E+00	3.40E-01	0.0E+00
Benzo(a)anthracene	5.5	1.5E-07	1.10E+00	1.6E-07
Benzo(a)pyrene	9.4	2.5E-07	7.30E+00	1.8E-06
Benzo(b)fluoranthene	6.2	1.7E-07	9.00E-01	1.5E-07
Benzo(g,h,i)perylene	6.2	1.7E-07		
Benzo(k)fluoranthene	7.3	1.9E-07	3.80E-01	7.4E-08
bis(2-Ethylhexyl) phthalate	1.1E-01	2.9E-09	1.40E-02	4.1E-11
Carbazole	1.7E-01	4.5E-09	2.00E-02	9.1E-11
Chrysene	6.0	1.6E-07	3.20E-02	5.1E-09
Dibenzo(a,h)anthracene	1.9	5.1E-08	8.10E+00	4.1E-07
Dibenzofuran	1.3E-01	3.5E-09		
Dieldrin	9.7E-03	2.6E-10	1.60E+01	4.1E-09
Indeno(1,2,3-cd)pyrene	6.0	1.6E-07	2.00E+00	3.2E-07
Methylene chloride	5.0E-03	1.3E-10	7.50E-03	1.0E-12
Phenanthrene	2.3	6.1E-08		
Toluene		0.0E+00		
			Total Pathway:	3.4E-06
			Total Rad + Chem	3.4E-06

TABLE B.3.6-10
(continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	SF(e)	Risk	Total
CS-137	2.0E-01	2.0E-06	3.9E-07	3.9E-07
NP-237	9.0E-02	4.3E-07	3.9E-08	4.8E-08
PU-238	4.7E-02	2.8E-11	1.3E-12	6.1E-09
PU-239/240	2.0E-02	2.7E-11	5.4E-13	2.5E-09
RA-226	1.2E+01	1.2E-08	1.5E-07	2.6E-07
RA-228	1.5E+00	2.9E-06	4.4E-06	4.4E-06
SR-90	3.9E-01	0.0E+00	0.0E+00	8.2E-11
TC-99	5.6E+01	6.0E-13	3.3E-11	1.5E-09
TH-228	1.7E+00	5.6E-06	9.7E-06	1.0E-05
TH-230	5.4E+00	5.4E-11	2.9E-10	5.1E-07
TH-232	1.6E+00	2.6E-11	4.1E-11	1.4E-07
U-234	3.4E+00	3.0E-11	1.0E-10	2.9E-07
U-235/236	1.6E-01	2.4E-07	3.9E-08	5.3E-08
U-238	3.7E+00	3.6E-08	1.3E-07	7.5E-07

Total Pathway: 1.5E-05

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	Total
Arsenic	7.6E-08	1.8E+00	1.4E-07	5.9E-07
Barium	0.0E+00			
Beryllium	9.8E-08	4.3E+02	4.2E-05	4.2E-05
Cadmium	0.0E+00			
Chromium	1.4E-06			2.3E-07
Lead	2.6E-06			
Nickel	0.0E+00			1.4E-08
TH-TOTAL	0.0E+00			
U-TOTAL	3.1E-06			
4,4'-DDE	0.0E+00	3.8E-01	0.0E+00	
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00	1.7E-07
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	1.9E-06
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00	1.5E-07
Benzo(g,h,i)perylene	1.9E-05			
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00	7.6E-08
bis(2-Ethylhexyl) phthalate	4.6E-09	1.6E-02	7.1E-11	1.1E-10
Carbazole	0.0E+00	2.0E-02	0.0E+00	9.1E-11
Chrysene	0.0E+00	7.4E-02	0.0E+00	5.3E-09
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00	4.2E-07
Dibenzofuran	0.0E+00			
Dieldrin	3.0E-08	1.8E+01	5.4E-07	5.4E-07
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00	3.3E-07
Methylene chloride	2.1E-08	7.5E-03	1.6E-10	1.6E-10
Phenanthrene	7.2E-06			
Toluene	0.0E+00			

Total Pathway: 4.3E-05

External Radiation/Soil

Compound	Intake	SF(e)	Risk
Not applicable			

Total Pathway: 0.0E+00

Total Rad + Chem 4.3E-05

1.5E-05 *Total:* 6.4E-05

TABLE B.3.6-10
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.79E-04	6.4E-01		
NP-237	8.82E-05	3.2E-01		
PU-238	4.38E-05	1.6E-01		
PU-239/240	1.86E-05	6.6E-02		
RA-226	1.10E-02	3.9E+01		
RA-228	1.39E-03	5.0E+00		
SR-90	3.63E-04	1.3E+00		
TC-99	5.07E-02	1.8E+02		
TH-228	1.58E-03	5.6E+00		
TH-230	4.94E-03	1.8E+01		
TH-232	1.43E-03	5.1E+00		
U-234	3.11E-03	1.1E+01		
U-235/236	1.51E-04	5.4E-01		
U-238	3.35E-03	1.2E+01		
		Total Pathway:	0.0E+00	

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.50	1.9E-02		
NP-237	0.23	8.5E-03		
PU-238	0.12	4.5E-03		
PU-239/240	0.05	1.9E-03		
RA-226	30.80	1.1E+00		
RA-228	3.88	1.4E-01		
SR-90	1.00	3.7E-02		
TC-99				
TH-228	4.41	1.6E-01		
TH-230	13.80	5.1E-01		
TH-232	3.99	1.5E-01		
U-234	8.66	3.2E-01		
U-235/236	0.42	1.6E-02		
U-238	9.31	3.5E-01		
		Total Pathway:	0.0E+00	

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.73E-06	3.6E-08		
Barium	3.28E-05	4.4E-07	1.4E-04	3.2E-03
Beryllium	3.44E-07	4.6E-09		
Cadmium	3.55E-09	4.7E-11		
Chromium	1.99E-06	2.7E-08		
Lead	9.88E-06	1.3E-07		
Nickel	6.17E-06	8.2E-08		
TH-TOTAL	1.32E-05	1.8E-07		
U-TOTAL	1.06E-05	1.4E-07		
4,4'-DDE	1.43E-12	1.9E-14		
Benzo(a)anthracene	1.96E-06	2.6E-08		
Benzo(a)pyrene	3.36E-06	4.5E-08		
Benzo(b)fluoranthene	2.21E-06	2.9E-08		
Benzo(g,h,i)perylene	2.21E-06	2.9E-08		
Benzo(k)fluoranthene	2.61E-06	3.5E-08		
bis(2-Ethylhexyl) phthalate	3.98E-08	5.3E-10		
Carbazole	6.13E-08	8.2E-10		
Chrysene	2.14E-06	2.9E-08		
Dibenzo(a,h)anthracene	6.81E-07	9.1E-09		
Dibenzofuran	4.67E-08	6.2E-10		
Dieldrin	3.57E-09	4.8E-11		
Indeno(1,2,3-cd)pyrene	2.14E-06	2.9E-08		
Methylene chloride	1.79E-09	2.4E-11	8.2E-01	2.9E-11
Phenanthrene	8.21E-07	1.1E-08		
Toluene	8.59E-13	1.1E-14	1.10E-01	1.0E-13
		Total Pathway:		3.2E-03
		Total Rad + Chem		3.2E-03

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	7.27	8.2E-07	3.0E-04	2.7E-03
Barium	0.00	0.0E+00	7.0E-02	0.0E+00
Beryllium	0.94	1.1E-07	5.0E-03	2.1E-05
Cadmium	0.00	0.0E+00	1.0E-03	0.0E+00
Chromium	13.90	1.6E-06	5.0E-03	3.1E-04
Lead	24.58	2.8E-06		
Nickel	0.00	0.0E+00	2.0E-02	0.0E+00
TH-TOTAL	36.70	4.1E-06		
U-TOTAL	29.58	3.3E-06	3.0E-03	1.1E-03
4,4'-DDE	0.00	0.0E+00		
Benzo(a)anthracene	5.50	6.2E-07		
Benzo(a)pyrene	9.40	1.1E-06		
Benzo(b)fluoranthene	6.20	7.0E-07		
Benzo(g,h,i)perylene	6.20	7.0E-07		
Benzo(k)fluoranthene	7.30	8.3E-07		
bis(2-Ethylhexyl) phthalate	0.11	1.2E-08	2.0E-02	6.2E-07
Carbazole	0.17	1.9E-08		
Chrysene	6.00	6.8E-07		
Dibenzo(a,h)anthracene	1.90	2.1E-07		
Dibenzofuran	0.13	1.5E-08	4.00E-03	3.7E-06
Dieldrin	0.01	1.1E-09		
Indeno(1,2,3-cd)pyrene	6.00	6.8E-07		
Methylene chloride	0.01	5.7E-10	6.10E-02	9.3E-09
Phenanthrene	2.30	2.6E-07		
Toluene	0.00	0.0E+00	2.00E-01	0.0E+00
		Total Pathway:		4.2E-03
		Total Rad + Chem		4.2E-03

TABLE B.3.6-10
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e) Hazard	
Not applicable	CS-137	2.0E-01		
	NP-237	9.0E-02		
	PU-238	4.7E-02		
	PU-239/240	2.0E-02		
	RA-226	1.2E+01		
	RA-228	1.5E+00		
	SR-90	3.9E-01		
	TC-99	0.0E+00		
	TH-228	1.7E+00		
	TH-230	5.4E+00		
	TH-232	1.6E+00		
	U-234	3.4E+00		
	U-235/236	1.6E-01		
	U-238	3.7E+00		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	3.0E-07	2.9E-04	1.0E-03					3.8E-03
Barium	0.0E+00	6.4E-02	0.0E+00					3.2E-03
Beryllium	3.9E-07	5.0E-05	7.8E-03					7.8E-03
Cadmium	0.0E+00	5.0E-05	0.0E+00	Not applicable				
Chromium	5.7E-06	2.3E-03	2.5E-03					2.9E-03
Lead	1.0E-05							
Nickel	0.0E+00	1.0E-03	0.0E+00					
TH-TOTAL	0.0E+00							
U-TOTAL	1.2E-05	1.5E-04	8.1E-02					8.2E-02
4,4'-DDE	0.0E+00							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	7.7E-05							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	1.8E-08	1.8E-02	1.0E-06					1.6E-06
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00							3.7E-06
Dieldrin	1.2E-07							
Indeno(1,2,3-cd)pyrene	0.0E+00							
Methylene chloride	8.2E-08	6.1E-02	1.3E-06					1.4E-06
Phenanthrene	2.8E-05							
Toluene	0.0E+00	2.0E-01	0.0E+00					1.0E-13
	Total Pathway:		9.2E-02		Total Pathway:		0.0E+00	
	Total Rad + Chem		9.2E-02				0.0E+00	*Total:* 1.0E-01

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TABLE B.3.6-11
FUTURE, EXPANDED TRESPASSER
OU2-WIDE: SURFACE WATER
CARCINOGENIC RISK

Radiation Risk						
	Ingestion/Surface Water				Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk		
CS-137	2.0E-04	1.5E-02	2.8E-11	4.2E-13		4.2E-13
NP-237	3.5E-01	2.6E+01	2.2E-10	5.7E-09		5.7E-09
PU-238	5.9E-03	4.5E-01	2.2E-10	9.8E-11	Not applicable (1)	9.8E-11
PU-239/240	1.4E-03	1.0E-01	2.3E-10	2.3E-11		2.3E-11
RA-226	1.5E-01	1.1E+01	1.2E-10	1.3E-09		1.3E-09
RA-228	2.8E-02	2.1E+00	1.0E-10	2.1E-10		2.1E-10
SR-90	2.0E-01	1.5E+01	3.6E-11	5.3E-10		5.3E-10
TC-99	4.1E+02	3.1E+04	1.3E-12	4.0E-08		4.0E-08
TH-228	4.1E+02	3.1E+04	5.5E-11	1.7E-06		1.7E-06
TH-230	3.2E-03	2.4E-01	1.3E-11	3.1E-12		3.1E-12
TH-232	9.0E-04	6.7E-02	1.2E-11	8.1E-13		8.1E-13
U-234	1.1E+01	8.0E+02	1.6E-11	1.3E-08		1.3E-08
U-235/236	2.4E-01	1.8E+01	1.6E-11	2.8E-10		2.8E-10
U-238	5.1E+00	3.8E+02	2.8E-11	1.1E-08		1.1E-08
			Total Pathway:	1.8E-06	Total Pathway:	0.0E+00

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TABLE B.3.6-11
(continued)
CARCINOGENIC RISK

Chemical Risk									
Ingestion/Surface Water					Dermal Contact/Surface Water				Total
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(derm)	Risk	
Antimony	3.33E-05	1.6E-09			Antimony	3.2E-10			
Arsenic	1.64E-04	7.8E-09	1.8E+00	1.4E-08	Arsenic	1.6E-09	1.8E+00	2.9E-09	1.7E-08
Barium	6.49E-03	3.1E-07			Barium	6.2E-08			
Beryllium	7.96E-06	3.8E-10	4.3E+00	1.6E-09	Beryllium	7.7E-11	4.3E+02	3.3E-08	3.5E-08
Cadmium	1.96E-05	9.4E-10			Cadmium	1.9E-10			
Chromium	1.60E-04	7.7E-09			Chromium	3.1E-09			
Copper	9.01E-04	4.3E-08			Copper	8.7E-09			
Cyanide	4.59E-04	2.2E-08			Cyanide	4.4E-09			
Lead	7.79E-04	3.7E-08			Lead	3.0E-11			
Manganese	5.15E-05	2.5E-09			Manganese	5.0E-10			
Mercury	8.91E-07	4.3E-11			Mercury	8.6E-13			
Molybdenum	5.89E-04	2.8E-08			Molybdenum	5.7E-09			
Nickel	5.99E-05	2.9E-09			Nickel	5.8E-11			
Selenium	1.60E-05	7.7E-10			Selenium	1.5E-10			
Silver	3.12E-05	1.5E-09			Silver	1.8E-10			
Thallium	5.31E-07	2.5E-11			Thallium	5.1E-12			
Vanadium	8.24E-05	3.9E-09			Vanadium	7.9E-10			
Zinc	1.98E-04	9.5E-09			Zinc	1.1E-09			
U-TOTAL	2.76E-02	1.3E-06			U-TOTAL	2.7E-07			
2-Butanone	1.77E-06	8.5E-11			2-Butanone	8.5E-11			
4-4'-DDE	1.04E-11	5.0E-16	3.4E-01	1.7E-16	4-4'-DDE	3.2E-14	3.8E-01	1.2E-14	1.2E-14
Acenaphthene	2.22E-06	1.1E-10			Acenaphthene	0.0E+00			
Acenaphthylene	4.29E-06	2.1E-10			Acenaphthylene	7.2E-09			
Acetone	3.54E-04	1.7E-08			Acetone	4.8E-09			
Anthracene	9.04E-06	4.3E-10			Anthracene	2.0E-08			
Aroclor-1254	2.13E-08	1.0E-12	7.7E+00	7.8E-12	Aroclor-1254	2.0E-10	1.0E+01	2.1E-09	2.1E-09
Aroclor-1260	1.03E-08	4.9E-13	7.7E+00	3.8E-12	Aroclor-1260	9.9E-11	1.0E+01	1.0E-09	1.0E-09
Benzoic Acid	5.57E-04	2.7E-08			Benzoic Acid	3.8E-08			
Benzo(a)anthracene	3.52E-06	1.7E-10	1.1E+00	1.9E-10	Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00	1.9E-10
Benzo(a)pyrene	2.52E-06	1.2E-10	7.3E+00	8.8E-10	Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	8.8E-10
Benzo(b) fluoranthene	4.28E-07	2.0E-11	9.0E-01	1.8E-11	Benzo(b) fluoranthene	0.0E+00	2.1E+00	0.0E+00	1.8E-11
Benzo(k)fluoranthene	2.70E-07	1.3E-11	3.8E-01	4.9E-12	Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00	4.9E-12
Benzo(g,h,i)perylene	1.35E-09	6.5E-14			Benzo(g,h,i)perylene	6.9E-11			
bis(2-Ethylhexyl) phthalate	3.08E-05	1.5E-09	1.4E-02	2.1E-11	bis(2-Ethylhexyl) phthalate	1.4E-08	1.6E-02	2.1E-10	2.3E-10
Bromomethane	6.16E-07	2.9E-11			Bromomethane	0.0E+00			
Carbazole	3.16E-05	1.5E-09	2.0E-02	3.0E-11	Carbazole	0.0E+00	2.0E-02	0.0E+00	3.0E-11
Chloromethane	1.27E-06	6.1E-11	1.3E-02	7.9E-13	Chloromethane	0.0E+00			7.9E-13
Chrysene	3.85E-06	1.8E-10	3.2E-02	5.9E-12	Chrysene	0.0E+00	7.4E-02	0.0E+00	5.9E-12
Di-n-butylphthalate	3.03E-09	1.5E-13			Di-n-butylphthalate	5.5E-12			
Dibenzo(a,h)anthracene	6.12E-07	2.9E-11	8.1E+00	2.4E-10	Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00	2.4E-10
Dieldrin	7.97E-07	3.8E-11	1.6E+01	6.1E-10	Dieldrin	1.5E-10	1.8E+01	2.6E-09	3.2E-09
Dimethyl phthalate	8.73E-05	4.2E-09			Dimethyl phthalate	1.3E-09			
Fluoranthene	2.24E-06	1.1E-10			Fluoranthene	9.3E-09			
Fluorene	5.09E-06	2.4E-10			Fluorene	0.0E+00			
Indeno(1,2,3-cd)pyrene	3.37E-08	1.6E-12	2.0E+00	3.2E-12	Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00	3.2E-12
Methylene chloride	1.89E-05	9.0E-10	7.5E-03	6.8E-12	Methylene chloride	7.5E-10	7.5E-03	5.6E-12	1.2E-11
Naphthalene	1.60E-06	7.7E-11			Naphthalene	0.0E+00			
Pyrene	1.39E-05	6.7E-10			Pyrene	7.1E-08			
Toluene	3.35E-05	1.6E-09			Toluene	1.4E-08			
			Total Pathway:	1.7E-08			Total Pathway:	4.2E-08	
			Total Rad + Chem	1.8E-06			Total Rad + Chem	4.2E-08	*Total:* 1.8E-06

TABLE B.3.6-11
(continued)

NONCARCINOGENIC HAZARD

Radiation Hazard						
Ingestion/Surface Water					Dermal Contact/Surface Water	Total
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	2.0E-04	1.5E-02				
NP-237	3.5E-01	2.6E+01				
PU-238	5.9E-03	4.5E-01				
PU-239/240	1.4E-03	1.0E-01				
RA-226	1.5E-01	1.1E+01				
RA-228	2.8E-02	2.1E+00				
SR-90	2.0E-01	1.5E+01				
TC-99	4.1E+02	3.1E+04				
TH-228	4.1E+02	3.1E+04				
TH-230	3.2E-03	2.4E-01				
TH-232	9.0E-04	6.7E-02				
U-234	1.1E+01	8.0E+02				
U-235/236	2.4E-01	1.8E+01				
U-238	5.1E+00	3.8E+02				
			Total Pathway:	0.0E+00	Total Pathway:	0.0E+00

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TABLE B.3.6-11
(continued)
NONCARCINOGENIC HAZARD

Chemical Hazard								
	Ingestion/Surface Water				Dermal Contact/Surface Water			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Intake	RfD(derm)	Hazard	
Antimony	3.3E-05	5.3E-09	4.0E-04	1.3E-05	1.0E-09	6.0E-05	1.7E-05	3.1E-05
Arsenic	1.6E-04	2.6E-08	3.0E-04	8.8E-05	5.1E-09	2.9E-04	1.8E-05	1.1E-04
Barium	6.5E-03	1.0E-06	7.0E-02	1.5E-05	2.0E-07	6.4E-02	3.2E-06	1.8E-05
Beryllium	8.0E-06	1.3E-09	5.0E-03	2.6E-07	2.5E-10	5.0E-05	5.0E-06	5.3E-06
Cadmium	2.0E-05	3.1E-09	1.0E-03	3.1E-06	6.2E-10	5.0E-05	1.2E-05	1.5E-05
Chromium	1.6E-04	2.6E-08	5.0E-03	5.1E-06	1.0E-08	2.3E-03	4.5E-06	9.6E-06
Copper	9.0E-04	1.4E-07	4.0E-02	3.6E-06	2.8E-08	2.4E-02	1.2E-06	4.8E-06
Cyanide	4.6E-04	7.4E-08	2.0E-02	3.7E-06	1.4E-08	1.4E-02	1.0E-06	4.7E-06
Lead	7.8E-04	1.2E-07			9.8E-11			
Manganese	5.2E-05	8.3E-09	1.4E-01	5.9E-08	1.6E-09	4.2E-03	3.8E-07	4.4E-07
Mercury	8.9E-07	1.4E-10	3.0E-04	4.8E-07	2.8E-12	4.5E-05	6.2E-08	5.4E-07
Molybdenum	5.9E-04	9.4E-08	5.0E-03	1.9E-05	1.8E-08	1.9E-03	9.7E-06	2.9E-05
Nickel	6.0E-05	9.6E-09	2.0E-02	4.8E-07	1.9E-10	1.0E-03	1.9E-07	6.7E-07
Selenium	1.6E-05	2.6E-09	5.0E-03	5.1E-07	5.0E-10	4.0E-03	1.3E-07	6.4E-07
Silver	3.1E-05	5.0E-09	5.0E-03	1.0E-06	5.9E-10	2.5E-04	2.3E-06	3.4E-06
Thallium	5.3E-07	8.5E-11	7.0E-05	1.2E-06	1.7E-11	7.0E-05	2.4E-07	1.5E-06
Vanadium	8.2E-05	1.3E-08	7.0E-03	1.9E-06	2.6E-09	3.5E-04	7.4E-06	9.3E-06
Zinc	2.0E-04	3.2E-08	3.0E-01	1.1E-07	3.7E-09	7.5E-02	5.0E-08	1.6E-07
U-TOTAL	2.8E-02	4.4E-06	3.0E-03	1.5E-03	8.7E-07	1.5E-04	5.8E-03	7.3E-03
2-Butanone	1.8E-06	2.8E-10	6.0E-01	4.7E-10	2.8E-10	5.4E-01	5.1E-10	9.9E-10
4-4'-DDE	1.0E-11	1.7E-15			1.0E-13			
Acenaphthene	2.2E-06	3.6E-10	6.0E-02	5.9E-09	0.0E+00			5.9E-09
Acenaphthylene	4.3E-06	6.9E-10			2.3E-08			
Acetone	3.5E-04	5.7E-08	1.0E-01	5.7E-07	1.6E-08	8.3E-02	1.9E-07	7.6E-07
Anthracene	9.0E-06	1.5E-09	3.0E-01	4.8E-09	6.4E-08	1.3E-01	4.9E-07	5.0E-07
Aroclor-1254	2.1E-08	3.4E-12			6.7E-10			
Aroclor-1260	1.0E-08	1.7E-12			3.2E-10			
Benzoic Acid	5.6E-04	8.9E-08	4.0E+00	2.2E-08	1.2E-07	3.6E+00	3.4E-08	5.7E-08
Benzo(a)anthracene	3.5E-06	5.6E-10			0.0E+00			
Benzo(a)pyrene	2.5E-06	4.0E-10			0.0E+00			
Benzo(b) fluoranthene	4.3E-07	6.9E-11			0.0E+00			
Benzo(k)fluoranthene	2.7E-07	4.3E-11			0.0E+00			
Benzo(g,h,i)perylene	1.4E-09	2.2E-13			2.3E-10			
bis(2-Ethylhexyl) phthalate	3.1E-05	4.9E-09	2.0E-02	2.5E-07	4.4E-08	1.8E-02	2.5E-06	2.7E-06
Bromomethane	6.2E-07	9.9E-11	1.4E-03	7.1E-08	0.0E+00			7.1E-08
Carbazole	3.2E-05	5.1E-09			0.0E+00			
Chloromethane	1.3E-06	2.0E-10			0.0E+00			
Chrysene	3.9E-06	6.2E-10			0.0E+00			
Di-n-butylphthalate	3.0E-09	4.9E-13	1.0E-01	4.9E-12	1.8E-11	8.5E-02	2.1E-10	2.2E-10
Dibenzo(a,h)anthracene	6.1E-07	9.8E-11			0.0E+00			
Dieldrin	8.0E-07	1.3E-10	5.0E-05	2.6E-06	4.8E-10	4.5E-05	1.1E-05	1.3E-05
Dimethyl phthalate	8.7E-05	1.4E-08	1.0E+00	1.4E-08	4.4E-09	9.0E-01	4.9E-09	1.9E-08
Fluoranthene	2.2E-06	3.6E-10	4.0E-02	9.0E-09	3.0E-08	1.7E-02	1.8E-06	1.8E-06
Fluorene	5.1E-06	8.2E-10	4.0E-02	2.0E-08	0.0E+00			2.0E-08
Indeno(1,2,3-cd)pyrene	3.4E-08	5.4E-12			0.0E+00			
Methylene chloride	1.9E-05	3.0E-09	6.1E-02	5.0E-08	2.4E-09	6.1E-02	4.0E-08	9.0E-08
Naphthalene	1.6E-06	2.6E-10	4.0E-02	6.4E-09	0.0E+00			6.4E-09
Pyrene	1.4E-05	2.2E-09	3.0E-02	7.4E-08	2.3E-07	1.3E-02	1.8E-05	1.8E-05
Toluene	3.4E-05	5.4E-09	2.0E-01	2.7E-08	4.7E-08	2.0E-01	2.4E-07	2.6E-07
			Total Pathway:	1.6E-03		Total Pathway:	5.9E-03	
			Total Rad + Chem	1.6E-03		Total Rad + Chem	5.9E-03	*Total:* 7.5E-03

TABLE B.4-11(a)
RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER]
ACTIVE FLYASH PILE: SURFACE MATERIAL (RME VALUES)
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
NP-237	0.00E+00	0.0E+00	2.9E-08	0.0E+00
PU-238	0.00E+00	0.0E+00	3.9E-08	0.0E+00
PU-239/240	0.00E+00	0.0E+00	3.8E-08	0.0E+00
RA-226	9.21E-06	1.1E+00	3.0E-09	3.2E-09
RA-228	8.55E-06	9.9E-01	6.9E-10	6.8E-10
SR-90	0.00E+00	0.0E+00	6.2E-11	0.0E+00
TH-228	8.39E-06	9.7E-01	7.8E-08	7.6E-08
TH-230	1.12E-05	1.3E+00	2.9E-08	3.8E-08
TH-232	8.09E-06	9.4E-01	2.8E-08	2.6E-08
U-234	7.77E-06	9.0E-01	2.6E-08	2.3E-08
U-235/236	6.60E-07	7.7E-02	2.5E-08	1.9E-09
U-238	8.08E-06	9.4E-01	5.2E-08	4.9E-08

Total Pathway: 2.2E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	1.2E+00	5.4E+03	1.2E-10	6.5E-07
RA-228	1.1E+00	5.0E+03	1.0E-10	5.0E-07
SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00
TH-228	1.1E+00	4.9E+03	5.5E-11	2.7E-07
TH-230	1.5E+00	6.6E+03	1.3E-11	8.6E-08
TH-232	1.1E+00	4.8E+03	1.2E-11	5.7E-08
U-234	1.0E+00	4.6E+03	1.6E-11	7.3E-08
U-235/236	8.8E-02	3.9E+02	1.6E-11	6.2E-09
U-238	1.1E+00	4.7E+03	2.8E-11	1.3E-07

Total Pathway: 1.8E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	4.34E-08	2.8E-09	1.5E+01	4.2E-08
Barium	5.23E-07	3.4E-08		
Beryllium	4.50E-09	2.9E-10	8.4E+00	2.4E-09
Chromium	8.70E-08	5.6E-09	4.1E+01	2.3E-07
Cobalt	8.22E-08	5.3E-09		
Copper	6.45E-08	4.2E-09		
Cyanide	1.13E-09	7.3E-11		
Lead	1.44E-07	9.3E-09		
Molybdenum	0.00E+00	0.0E+00		
Nickel	9.50E-08	6.2E-09		
Selenium	5.40E-09	3.5E-10		
Thallium	4.35E-09	2.8E-10		
Toluene	0.00E+00	0.0E+00		
Vanadium	1.67E-07	1.1E-08		
Zinc	3.22E-07	2.1E-08		

Total Pathway: 2.8E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	5.8E+00	1.4E-05	1.8E+00	2.5E-05
Barium	7.0E+01	1.7E-04		
Beryllium	6.0E-01	1.5E-06		
Chromium	1.2E+01	2.9E-05		
Cobalt	1.1E+01	2.7E-05		
Copper	8.6E+00	2.1E-05		
Cyanide	1.5E-01	3.7E-07		
Lead	1.9E+01	4.7E-05		
Molybdenum	0.0E+00	0.0E+00		
Nickel	1.3E+01	3.1E-05		
Selenium	7.2E-01	1.8E-06		
Thallium	5.8E-01	1.4E-06		
Toluene	0.0E+00	0.0E+00		
Vanadium	2.2E+01	5.5E-05		
Zinc	4.3E+01	1.1E-04		

Total Pathway: 2.5E-05

Total Rad + Chem 4.9E-07

Total Rad + Chem 2 7E-05

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TABLE B.4-11(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Conc'n (pCi/g)	Intake	SF(e)	Risk	Total
NP-237	0.0E+00	0.0E+00	4.3E-07	0.0E+00	0.0E+00
PU-238	0.0E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00
PU-239/240	0.0E+00	0.0E+00	2.7E-11	0.0E+00	0.0E+00
RA-226	1.2E+00	5.1E+01	1.2E-08	6.1E-07	1.3E-06
RA-228	1.1E+00	4.7E+01	2.9E-06	1.4E-04	1.4E-04
SR-90	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TH-228	1.1E+00	4.6E+01	5.6E-06	2.6E-04	2.6E-04
TH-230	1.5E+00	6.2E+01	5.4E-11	3.4E-09	1.3E-07
TH-232	1.1E+00	4.5E+01	2.6E-11	1.2E-09	8.5E-08
U-234	1.0E+00	4.3E+01	3.0E-11	1.3E-09	9.8E-08
U-235/236	8.8E-02	3.7E+00	2.4E-07	8.8E-07	8.9E-07
U-238	1.1E+00	4.5E+01	3.6E-08	1.6E-06	1.8E-06

Total Pathway: 4.0E-04

Chemical Risk

Dermal Contact/Soil

Compound	Intake	SF(derm)	Risk	Total
Arsenic	4.6E-07	1.8E+00	8.4E-07	2.6E-05
Barium	5.5E-05			
Beryllium	4.7E-07			2.4E-09
Chromium	9.1E-06			2.3E-07
Cobalt	8.6E-06			
Copper	6.8E-07			
Cyanide	1.2E-07			
Lead	1.5E-05			
Molybdenum	0.0E+00			
Nickel	5.0E-07			
Selenium	5.7E-07			
Thallium	4.6E-07			
Toluene	0.0E+00			
Vanadium	1.8E-06			
Zinc	3.4E-05			

Total Pathway: 8.4E-07

External Radiation/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 8.4E-07

Total Rad + Chem 4.0E-04 *Total:* 4.3E-04

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TABLE B.4-11(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
NP-237	0.00E+00	0.0E+00		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	9.21E-06	1.1E+00		
RA-228	8.55E-06	9.9E-01		
SR-90	0.00E+00	0.0E+00		
TH-228	8.39E-06	9.7E-01		
TH-230	1.12E-05	1.3E+00		
TH-232	8.09E-06	9.4E-01		
U-234	7.77E-06	9.0E-01		
U-235/236	6.60E-07	7.7E-02		
U-238	8.08E-06	9.4E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
NP-237	5.5E+00	2.4E+04		
PU-238	7.2E-01	3.2E+03		
PU-239/240	3.3E-01	1.5E+03		
RA-226	4.6E+00	2.0E+04		
RA-228	3.2E+00	1.4E+04		
SR-90	4.5E+00	2.0E+04		
TH-228	3.8E+00	1.7E+04		
TH-230	3.7E+00	1.6E+04		
TH-232	2.7E+00	1.2E+04		
U-234	3.6E+00	1.6E+04		
U-235/236	1.6E-01	7.1E+02		
U-238	3.6E+00	1.6E+04		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	4.34E-08	2.8E-09		
Barium	5.23E-07	3.4E-08	1.4E-04	2.4E-04
Beryllium	4.50E-09	2.9E-10		
Chromium	8.70E-08	5.6E-09		
Cobalt	8.22E-08	5.3E-09		
Copper	6.45E-08	4.2E-09		
Cyanide	1.13E-09	7.3E-11		
Lead	1.44E-07	9.3E-09		
Molybdenum	0.00E+00	0.0E+00		
Nickel	9.50E-08	6.2E-09		
Selenium	5.40E-09	3.5E-10		
Thallium	4.35E-09	2.8E-10		
Toluene	0.00E+00	0.0E+00		
Vanadium	1.67E-07	1.1E-08		
Zinc	3.22E-07	2.1E-08		

Total Pathway: 2.4E-04

Total Rad + Chem 2.4E-04

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	5.8	1.4E-05	3.0E-04	4.8E-02
Barium	69.7	1.7E-04	7.0E-02	2.5E-03
Beryllium	0.6	1.5E-06	5.0E-03	3.0E-04
Chromium	11.6	2.9E-05	5.0E-03	5.7E-03
Cobalt	11.0	2.7E-05		
Copper	8.6	2.1E-05	4.0E-02	5.3E-04
Cyanide	0.2	3.7E-07	2.0E-02	1.8E-05
Lead	19.2	4.7E-05		
Molybdenum	0.0	0.0E+00	5.0E-03	0.0E+00
Nickel	12.7	3.1E-05	2.0E-02	1.6E-03
Selenium	0.7	1.8E-06	5.0E-03	3.6E-04
Thallium	0.6	1.4E-06	7.0E-05	2.0E-02
Toluene	0.0	0.0E+00	2.0E-01	0.0E+00
Vanadium	22.3	5.5E-05	7.0E-03	7.8E-03
Zinc	42.9	1.1E-04	3.0E-01	3 5E-04

Total Pathway: 8.7E-02

Total Rad + Chem 8.7E 02

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TABLE B.4-11(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	RfD(e)	Hazard	
Not applicable	NP-237	2.3E+02			
	PU-238	3.0E+01			
	PU-239/240	1.4E+01			
	RA-226	1.9E+02			
	RA-228	1.3E+02			
	SR-90	1.9E+02			
	TH-228	1.6E+02			
	TH-230	1.5E+02			
	TH-232	1.1E+02			
	U-234	1.5E+02			
	U-235/236	6.7E+00			
	U-238	1.5E+02			
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00				

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	4.6E-07	2.9E-04	1.6E-03					4.9E-02
Barium	5.5E-05	6.4E-02	8.6E-04					3.6E-03
Beryllium	4.7E-07	5.0E-05	9.5E-03					9.7E-03
Chromium	9.1E-06	2.3E-03	4.1E-03					9.8E-03
Cobalt	8.6E-06							
Copper	6.8E-07	2.4E-02	2.8E-05					5.6E-04
Cyanide	1.2E-07	1.4E-02	8.2E-06					2.7E-05
Lead	1.5E-05				Not applicable			
Molybdenum	0.0E+00	1.9E-03	0.0E+00					0.0E+00
Nickel	5.0E-07	1.0E-03	5.0E-04					2.1E-03
Selenium	5.7E-07	4.0E-03	1.4E-04					5.0E-04
Thallium	4.6E-07	7.0E-05	6.5E-03					2.7E-02
Toluene	0.0E+00	6.0E-03	0.0E+00					0.0E+00
Vanadium	1.8E-06	3.5E-04	5.0E-03					1.3E-02
Zinc	3.4E-05	7.5E-02	4.5E-04					8.0E-04
Total Pathway: 2.9E-02				Total Pathway: 0.0E+00				
Total Rad + Chem 2.9E-02				Total Rad + Chem 0.0E+00				*Total:* 1.2E-01

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TABLE B.4-11(b)

RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER]

ACTIVE FLYASH PILE: GROUNDWATER (RME VALUES)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00	
SR-90	4.9E-03	2.4E+02	3.6E-11	8.7E-09	Not applicable
U234	7.9E-02	3.9E+03	1.6E-11	6.2E-08	
U235/236	7.1E-03	3.5E+02	1.6E-11	5.6E-09	
U238	7.9E-02	3.9E+03	2.8E-11	1.1E-07	
			Total Pathway:	1.9E-07	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Lead	6.79E-09	1.9E-10			Lead	7.0E-10		
U-Total	2.38E-04	6.5E-06			U-Total	2.4E-05		
1,2-Dichloroethane	0.00E+00	0.0E+00	9.1E-02	0.0E+00	1,2-Dichloroethane	0.0E+00	9.10E-02	0.0E+00
Vinyl chloride	0.00E+00	0.0E+00	1.9E+00	0.0E+00	Vinyl chloride	0.0E+00	3.00E-01	0.0E+00
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	1.9E-07			Total Rad + Chem	0.0E+00

TABLE B.4-11(b) (continued)

CARCINOGENIC RISK

Radiation Risk				
Dermal Contact/Groundwater				Total
Not applicable				0.0E+00
				8.7E-09
				6.2E-08
				5.6E-09
				1.1E-07
		Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Lead	5.4E-15			
U-Total	4.8E-08			
1,2-Dichloroethane	0.0E+00			0.0E+00
Vinyl chloride	0.0E+00	1.9E+00	0.0E+00	0.0E+00
		Total Pathway:	0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 1.9E-07

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TABLE B.4-11(b) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.0E+00	0.0E+00			Not applicable
SR-90	4.9E-03	2.4E+02			
U234	0.1	3.9E+03			
U235/236	7.1E-03	3.5E+02			
U238	0.1	3.9E+03			
		Total Pathway:		0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Lead	6.8E-09	1.9E-10			Lead	7.0E-10		
U-Total	2.4E-04	6.5E-06	3.0E-03	2.2E-03	U-Total	2.4E-05		
1,2-Dichloroethane	0.0E+00	0.0E+00			1,2-Dichloroethane	0.0E+00		
Vinyl chloride	0.0E+00	0.0E+00			Vinyl chloride	0.0E+00		
		Total Pathway:		2.2E-03		Total Pathway:		0.0E+00
		Total Rad + Chem		2.2E-03		Total Rad + Chem		0.0E+00

TABLE B.4-11(b) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard				
Dermal Contact/Groundwater				Total
Not applicable				
Total Pathway:	0.0E+00			

Chemical Hazard				
Dermal Contact/Groundwater				
Compound	Intake	RfD(derm)	Hazard	
Arsenic	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Lead	5.4E-15			
U-Total	4.8E-08	1.5E-04	3.2E-04	2.5E-03
1,2-Dichloroethane	0.0E+00			
Vinyl chloride	0.0E+00			
Total Pathway:	3.2E-04			

Total Rad + Chem 3.2E-04 *Total:* 2.5E-03

TABLE B.4-11(c)

RISKS DUE TO BACKGROUND [FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)]

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
	Ingestion/Homegrown Produce				Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	3.16E-01	4.7E+02	1.2E-10	5.7E-08	5.7E-08
RA-228	2.93E-01	4.4E+02	1.0E-10	4.4E-08	4.4E-08
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TH-228	2.86E-01	4.3E+02	5.5E-11	2.4E-08	2.4E-08
TH-230	3.83E-01	5.7E+02	1.3E-11	7.4E-09	7.4E-09
TH-232	2.76E-01	4.1E+02	1.2E-11	4.9E-09	4.9E-09
U-234	2.66E-01	4.0E+02	1.6E-11	6.4E-09	6.4E-09
U-235/236	2.26E-02	3.4E+01	1.6E-11	5.2E-10	5.2E-10
U-238	2.77E-01	4.1E+02	2.8E-11	1.2E-08	1.2E-08
			Total Pathway:	1.5E-07	

Chemical Risk					
	Ingestion/Homegrown Produce				
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	1.50E-06	1.3E-09	1.8E+00	2.2E-09	2.2E-09
Barium	1.87E-05	1.6E-08			
Beryllium	1.54E-07	1.3E-10	4.3E+00	5.5E-10	5.5E-10
Chromium	2.98E-06	2.5E-09			
Cobalt	2.81E-06	2.4E-09			
Copper	2.26E-06	1.9E-09			
Cyanide	1.08E-07	9.0E-11			
Lead	4.99E-06	4.2E-09			
Molybdenum	0.00E+00	0.0E+00			
Nickel	3.31E-06	2.8E-09			
Selenium	1.85E-07	1.5E-10			
Thallium	1.48E-07	1.2E-10			
Toluene	0.00E+00	0.0E+00			
Vanadium	5.71E-06	4.8E-09			
Zinc	1.64E-05	1.4E-08			
U-Total	0.00E+00	0.0E+00			
			Total Pathway:	2.7E-09	

Total Rad + Chem	1.6E-07	*Total:*	1.6E-07

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TABLE B.4-11(c) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	5.7E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	4.4E-08
SR-90	3.41E-02	5.1E+01	3.6E-11	1.8E-09	1.8E-09	1.8E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	2.4E-08
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	7.4E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	4.9E-09
U-234	3.89E-01	5.8E+02	1.6E-11	9.3E-09	9.3E-09	1.6E-08
U-235/236	3.50E-02	5.2E+01	1.6E-11	8.1E-10	8.1E-10	1.3E-09
U-238	3.89E-01	5.8E+02	2.8E-11	1.6E-08	1.6E-08	2.8E-08
			Total Pathway:	2.8E-08		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	2.2E-09
Barium	0.00E+00	0.0E+00				
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	5.5E-10
Chromium	0.00E+00	0.0E+00				
Cobalt	0.00E+00	0.0E+00				
Copper	0.00E+00	0.0E+00				
Cyanide	0.00E+00	0.0E+00				
Lead	3.38E-08	2.8E-11				
Molybdenum	7.56E-05	6.3E-08				
Nickel	0.00E+00	0.0E+00				
Selenium	0.00E+00	0.0E+00				
Thallium	0.00E+00	0.0E+00				
Toluene	0.00E+00	0.0E+00				
Vanadium	0.00E+00	0.0E+00				
Zinc	0.00E+00	0.0E+00				
U-Total	1.17E-03	9.8E-07				
			Total Pathway:	0.0E+00		

Total Rad + Chem	2.8E-08	*Total:*	2.8E-08	1.9E-07

TABLE B.4-11(c) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
NP-237	0.0E+00				
PU-238	0.0E+00				
PU-239/240	0.0E+00				
RA-226	3.2E-01				
RA-228	2.9E-01				
SR-90	0.0E+00				
TH-228	2.9E-01				
TH-230	3.8E-01				
TH-232	2.8E-01				
U-234	2.7E-01				
U-235/236	2.3E-02				
U-238	2.8E-01				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	1.5E-06	1.3E-09	3.0E-04	4.2E-06	0.0
Barium	1.9E-05	1.6E-08	7.0E-02	2.2E-07	2.2E-07
Beryllium	1.5E-07	1.3E-10	5.0E-03	2.6E-08	2.6E-08
Chromium	3.0E-06	2.5E-09	5.0E-03	5.0E-07	5.0E-07
Cobalt	2.8E-06	2.4E-09			
Copper	2.3E-06	1.9E-09	4.0E-02	4.7E-08	4.7E-08
Cyanide	1.1E-07	9.0E-11	2.0E-02	4.5E-09	4.5E-09
Lead	5.0E-06	4.2E-09			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
Nickel	3.3E-06	2.8E-09	2.0E-02	1.4E-07	1.4E-07
Selenium	1.8E-07	1.5E-10	5.0E-03	3.1E-08	3.1E-08
Thallium	1.5E-07	1.2E-10	7.0E-05	1.8E-06	1.8E-06
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00
Vanadium	5.7E-06	4.8E-09	7.0E-03	6.8E-07	6.8E-07
Zinc	1.6E-05	1.4E-08	3.0E-01	4.6E-08	4.6E-08
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	7.6E-06	

Total Rad + Chem	7.6E-06	*Total:*	7.6E-06

TABLE B.4-11(c) (continued)

ACTIVE FLYASH PILE: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard						
Ingestion/Homegrown Produce					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
NP-237	0.0E+00					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	0.0E+00					
RA-228	0.0E+00					
SR-90	3.4E-02					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	3.9E-01					
U-235/236	3.5E-02					
U-238	3.9E-01					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	4.2E-06
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00	0.0E+00	2.2E-07
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.6E-08
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.0E-07
Cobalt	0.0E+00	0.0E+00				
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00	0.0E+00	4.7E-08
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	4.5E-09
Lead	3.4E-08	2.8E-11				
Molybdenum	7.6E-05	6.3E-08	5.0E-03	1.3E-05	1.3E-05	1.3E-05
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	1.4E-07
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.1E-08
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00	0.0E+00	1.8E-06
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00	0.0E+00
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00	0.0E+00	6.8E-07
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00	0.0E+00	4.6E-08
U-Total	1.2E-03	9.8E-07	3.0E-03	3.3E-04	3.3E-04	3.3E-04
			Total Pathway:	3.4E-04		

Total Rad + Chem	3.4E-04	*Total:*	3.4E-04	3.5E-04

TABLE B.4-11 (d)

RISKS DUE TO BACKGROUND [FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)]

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	5.12E-03	9.4E+00	1.2E-10	1.1E-09	RA-226	9.22E-03	6.8E+01	1.2E-10	8.1E-09	9.3E-09
RA-228	4.60E-03	8.5E+00	1.0E-10	8.5E-10	RA-228	8.28E-03	6.1E+01	1.0E-10	6.1E-09	6.9E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TH-228	1.02E-04	1.9E-01	5.5E-11	1.0E-11	TH-228	8.46E-05	6.2E-01	5.5E-11	3.4E-11	4.4E-11
TH-230	1.49E-04	2.7E-01	1.3E-11	3.6E-12	TH-230	1.24E-04	9.1E-01	1.3E-11	1.2E-11	1.5E-11
TH-232	1.08E-04	2.0E-01	1.2E-11	2.4E-12	TH-232	8.97E-05	6.6E-01	1.2E-11	7.9E-12	1.0E-11
U-234	3.46E-03	6.4E+00	1.6E-11	1.0E-10	U-234	1.04E-02	7.6E+01	1.6E-11	1.2E-09	1.3E-09
U-235/236	2.93E-04	5.4E-01	1.6E-11	8.4E-12	U-235/236	8.80E-04	6.5E+00	1.6E-11	1.0E-10	1.1E-10
U-238	3.60E-03	6.6E+00	2.8E-11	1.9E-10	U-238	1.08E-02	7.9E+01	2.8E-11	2.2E-09	2.4E-09
			Total Pathway:	2.3E-09				Total Pathway:	1.8E-08	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	1.94E-07	2.0E-10	1.8E+00	3.5E-10	Arsenic	5.81E-09	2.4E-11	1.8E+00	4.2E-11	3.9E-10
Barium	1.76E-07	1.8E-10			Barium	4.10E-07	1.7E-09			
Beryllium	9.99E-09	1.0E-11	4.3E+00	4.4E-11	Beryllium	8.99E-12	3.7E-14	4.3E+00	1.6E-13	4.4E-11
Chromium	1.07E-06	1.1E-09			Chromium	2.91E-07	1.2E-09			
Cobalt	3.66E-06	3.8E-09			Cobalt	3.66E-07	1.5E-09			
Copper	1.48E-06	1.5E-09			Copper	2.22E-07	9.1E-10			
Cyanide	5.97E-13	6.1E-16			Cyanide	1.89E-13	7.8E-16			
Lead	9.64E-08	9.9E-11			Lead	8.03E-08	3.3E-10			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
Nickel	1.31E-06	1.3E-09			Nickel	2.18E-07	9.0E-10			
Selenium	1.81E-07	1.9E-10			Selenium	4.82E-08	2.0E-10			
Thallium	3.86E-07	4.0E-10			Thallium	1.93E-08	7.9E-11			
Toluene	0.00E+00	0.0E+00			Toluene	0.00E+00	0.0E+00			
Vanadium	9.28E-07	9.5E-10			Vanadium	7.43E-09	3.1E-11			
Zinc	1.09E-04	1.1E-07			Zinc	1.09E-05	4.5E-08			
U-Total	0.00E+00	0.0E+00			U-Total	0.00E+00	0.0E+00			
			Total Pathway:	3.9E-10				Total Pathway:	4.2E-11	
			Total Rad + Chem	2.7E-09				Total Rad + Chem	1.8E-08	*Total:* 2.1E-08

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TABLE B.4-11(d) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk
NP-237	3.10E-06	5.7E-03	2.2E-10	1.3E-12
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	3.09E-02	5.7E+01	3.6E-11	2.0E-09
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	7.07E-01	1.3E+03	1.6E-11	2.1E-08
U-235/236	3.77E-02	6.9E+01	1.6E-11	1.1E-09
U-238	7.80E-01	1.4E+03	2.8E-11	4.0E-08

Total Pathway: 6.4E-08

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk
NP-237	2.82E-07	2.1E-03	2.2E-10	4.6E-13
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00
SR-90	1.54E-01	1.1E+03	3.6E-11	4.1E-08
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00
U-234	2.12E+00	1.6E+04	1.6E-11	2.5E-07
U-235/236	1.13E-01	8.3E+02	1.6E-11	1.3E-08
U-238	2.34E+00	1.7E+04	2.8E-11	4.8E-07

Total Pathway: 7.8E-07

	Total	Total Dust & Groundwater Affected
NP-237	1.7E-12	1.7E-12
PU-238	0.0E+00	0.0E+00
PU-239/240	0.0E+00	0.0E+00
RA-226	0.0E+00	9.3E-09
RA-228	0.0E+00	6.9E-09
SR-90	4.3E-08	4.3E-08
TH-228	0.0E+00	4.4E-11
TH-230	0.0E+00	1.5E-11
TH-232	0.0E+00	1.0E-11
U-234	2.7E-07	2.7E-07
U-235/236	1.4E-08	1.4E-08
U-238	5.2E-07	5.2E-07

Chemical Risk

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk
Arsenic	1.71E-14	1.8E-17	1.8E+00	3.1E-17
Barium	0.00E+00	0.0E+00		
Beryllium	8.45E-17	8.7E-20	4.3E+00	3.7E-19
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	1.11E-10	1.1E-13		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	2.78E-03	2.9E-06		

Total Pathway: 3.1E-17

Total Rad + Chem 6.4E-08

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk
Arsenic	5.13E-16	2.1E-18	1.8E+00	3.7E-18
Barium	0.00E+00	0.0E+00		
Beryllium	7.60E-20	3.1E-22	4.3E+00	1.3E-21
Chromium	0.00E+00	0.0E+00		
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00		
Cyanide	0.00E+00	0.0E+00		
Lead	9.24E-11	3.8E-13		
Molybdenum	0.00E+00	0.0E+00		
Nickel	0.00E+00	0.0E+00		
Selenium	0.00E+00	0.0E+00		
Thallium	0.00E+00	0.0E+00		
Toluene	0.00E+00	0.0E+00		
Vanadium	0.00E+00	0.0E+00		
Zinc	0.00E+00	0.0E+00		
U-Total	8.33E-03	3.4E-05		

Total Pathway: 3.7E-18

Total Rad + Chem 7.8E-07

	Total	Total Dust & Groundwater Affected
Arsenic	3.4E-17	3.9E-10
Barium		
Beryllium	3.7E-19	4.4E-11
Chromium		
Cobalt		
Copper		
Cyanide		
Lead		
Molybdenum		
Nickel		
Selenium		
Thallium		
Toluene		
Vanadium		
Zinc		
U-Total		
Total:	8.5E-07	8.7E-07

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TABLE B.4-11(d) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	
NP-237	0.0E+00				NP-237	0.00E+00				
PU-238	0.0E+00				PU-238	0.00E+00				
PU-239/240	0.0E+00				PU-239/240	0.00E+00				
RA-226	5.1E-03				RA-226	9.22E-03				
RA-228	4.6E-03				RA-228	8.28E-03				
SR-90	0.0E+00				SR-90	0.00E+00				
TH-228	1.0E-04				TH-228	8.46E-05				
TH-230	1.5E-04				TH-230	1.24E-04				
TH-232	1.1E-04				TH-232	8.97E-05				
U-234	3.5E-03				U-234	1.04E-02				
U-235/236	2.9E-04				U-235/236	8.80E-04				
U-238	3.6E-03				U-238	1.08E-02				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	1.9E-07	2.0E-10	3.0E-04	6.6E-07	Arsenic	5.81E-09	2.4E-11	3.0E-04	8.0E-08	7.4E-07
Barium	1.8E-07	1.8E-10	7.0E-02	2.6E-09	Barium	4.10E-07	1.7E-09	7.0E-02	2.4E-08	2.7E-08
Beryllium	1.0E-08	1.0E-11	5.0E-03	2.1E-09	Beryllium	8.99E-12	3.7E-14	5.0E-03	7.4E-12	2.1E-09
Chromium	1.1E-06	1.1E-09	5.0E-03	2.2E-07	Chromium	2.91E-07	1.2E-09	5.0E-03	2.4E-07	4.6E-07
Cobalt	3.7E-06	3.8E-09			Cobalt	3.66E-07	1.5E-09			
Copper	1.5E-06	1.5E-09	4.0E-02	3.8E-08	Copper	2.22E-07	9.1E-10	4.0E-02	2.3E-08	6.1E-08
Cyanide	6.0E-13	6.1E-16	2.0E-02	3.1E-14	Cyanide	1.89E-13	7.8E-16	2.0E-02	3.9E-14	6.9E-14
Lead	9.6E-08	9.9E-11			Lead	8.03E-08	3.3E-10			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00	
Nickel	1.3E-06	1.3E-09	2.0E-02	6.7E-08	Nickel	2.18E-07	9.0E-10	2.0E-02	4.5E-08	1.1E-07
Selenium	1.8E-07	1.9E-10	5.0E-03	3.7E-08	Selenium	4.82E-08	2.0E-10	5.0E-03	4.0E-08	7.7E-08
Thallium	3.9E-07	4.0E-10	7.0E-05	5.7E-06	Thallium	1.93E-08	7.9E-11	7.0E-05	1.1E-06	6.8E-06
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00	Toluene	0.00E+00	0.0E+00	2.0E-01	0.0E+00	0.0E+00
Vanadium	9.3E-07	9.5E-10	7.0E-03	1.4E-07	Vanadium	7.43E-09	3.1E-11	7.0E-03	4.4E-09	1.4E-07
Zinc	1.1E-04	1.1E-07	3.0E-01	3.7E-07	Zinc	1.09E-05	4.5E-08	3.0E-01	1.5E-07	5.2E-07
U-Total	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-Total	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00
			Total Pathway:	7.2E-06				Total Pathway:	1.7E-06	
			Total Rad + Chem	7.2E-06				Total Rad + Chem	1.7E-06	*Total:* 8.9E-06

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TABLE B.4-11(d) (continued)

ACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
NP-237	3.1E-06			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	0.0E+00			
RA-228	0.0E+00			
SR-90	3.1E-02			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	7.1E-01			
U-235/236	3.8E-02			
U-238	7.8E-01			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
NP-237	2.82E-07			
PU-238	0.00E+00			
PU-239/240	0.00E+00			
RA-226	0.00E+00			
RA-228	0.00E+00			
SR-90	1.54E-01			
TH-228	0.00E+00			
TH-230	0.00E+00			
TH-232	0.00E+00			
U-234	2.12E+00			
U-235/236	1.13E-01			
U-238	2.34E+00			

Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	1.7E-14	1.8E-17	3.0E-04	5.9E-14
Barium	0.0E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	8.4E-17	8.7E-20	5.0E-03	1.7E-17
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.0E+00	0.0E+00		
Copper	0.0E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Lead	1.1E-10	1.1E-13		
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.0E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.0E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.0E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.0E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	2.8E-03	2.9E-06	3.0E-03	9.5E-04

Total Pathway: 9.5E-04

Total Rad + Chem 9.5E-04

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk
Arsenic	5.13E-16	2.1E-18	3.0E-04	7.0E-15
Barium	0.00E+00	0.0E+00	7.0E-02	0.0E+00
Beryllium	7.60E-20	3.1E-22	5.0E-03	6.2E-20
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Cobalt	0.00E+00	0.0E+00		
Copper	0.00E+00	0.0E+00	4.0E-02	0.0E+00
Cyanide	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Lead	9.24E-11	3.8E-13		
Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Nickel	0.00E+00	0.0E+00	2.0E-02	0.0E+00
Selenium	0.00E+00	0.0E+00	5.0E-03	0.0E+00
Thallium	0.00E+00	0.0E+00	7.0E-05	0.0E+00
Toluene	0.00E+00	0.0E+00	2.0E-01	0.0E+00
Vanadium	0.00E+00	0.0E+00	7.0E-03	0.0E+00
Zinc	0.00E+00	0.0E+00	3.0E-01	0.0E+00
U-Total	8.33E-03	3.4E-05	3.0E-03	1.1E-02

Total Pathway: 1.1E-02

Total Rad + Chem 1.1E-02

	Total	Total Dust & Groundwater Affected
	6.6E-14	7.4E-07
	0.0E+00	2.7E-08
	1.7E-17	2.1E-09
	0.0E+00	4.6E-07
	0.0E+00	6.1E-08
	0.0E+00	6.9E-14
	0.0E+00	1.1E-07
	0.0E+00	7.7E-08
	0.0E+00	6.8E-06
	0.0E+00	0.0E+00
	0.0E+00	1.4E-07
	0.0E+00	5.2E-07
	1.2E-02	1.2E-02
Total:	1.2E-02	1.2E-02

TABLE B.4-13(a)
RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)]
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Inhalation of Particulates/Soil					Ingestion/Soil				
Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk	Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	1.8E-04	2.1E+01	1.9E-11	4.0E-10	CS-137	0.44	1.9E+03	2.8E-11	5.4E-08
NP-237	0.0E+00	0.0E+00	2.9E-08	0.0E+00	NP-237	0.00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.0E+00	0.0E+00	3.9E-08	0.0E+00	PU-238	0.00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.0E+00	0.0E+00	3.8E-08	0.0E+00	PU-239/240	0.00	0.0E+00	2.3E-10	0.0E+00
RA-226	5.0E-04	5.8E+01	3.0E-09	1.7E-07	RA-226	1.23	5.4E+03	1.2E-10	6.5E-07
RA-228	4.7E-04	5.4E+01	6.9E-10	3.7E-08	RA-228	1.14	5.0E+03	1.0E-10	5.0E-07
SR-90	0.0E+00	0.0E+00	6.2E-11	0.0E+00	SR-90	0.00	0.0E+00	3.6E-11	0.0E+00
TC-99	0.0E+00	0.0E+00	8.3E-12	0.0E+00	TC-99	0.00	0.0E+00	1.3E-12	0.0E+00
TH-228	4.6E-04	5.3E+01	7.8E-08	4.1E-06	TH-228	1.12	4.9E+03	5.5E-11	2.7E-07
TH-230	6.1E-04	7.1E+01	2.9E-08	2.1E-06	TH-230	1.50	6.6E+03	1.3E-11	8.6E-08
TH-232	4.4E-04	5.1E+01	2.8E-08	1.4E-06	TH-232	1.08	4.8E+03	1.2E-11	5.7E-08
U-234	4.3E-04	4.9E+01	2.6E-08	1.3E-06	U-234	1.04	4.6E+03	1.6E-11	7.3E-08
U-235/236	3.6E-05	4.2E+00	2.5E-08	1.0E-07	U-235/236	0.09	3.9E+02	1.6E-11	6.2E-09
U-238	4.4E-04	5.1E+01	5.2E-08	2.7E-06	U-238	1.08	4.7E+03	2.8E-11	1.3E-07
			Total Pathway:	1.2E-05				Total Pathway:	1.8E-06

Chemical Risk

Inhalation of Particulates/Soil					Ingestion/Soil				
Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk	Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	2.4E-06	1.5E-07	1.5E+00	2.3E-07	Arsenic	5.78	1.4E-05	1.8E+00	2.5E-05
Beryllium	2.5E-07	1.6E-08	8.4E+00	1.3E-07	Beryllium	0.60	1.5E-06	4.3E+00	6.4E-06
Chromium	4.8E-06	3.1E-07	4.1E+01	1.3E-05	Chromium	11.60	2.9E-05		
Lead	7.9E-06	5.1E-07			Lead	19.20	4.7E-05		
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.00	0.0E+00		
U-TOTAL	1.3E-06	8.6E-08			U-TOTAL	3.24	8.0E-06		
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.00	0.0E+00		
Benzo(a)anthracene	0.0E+00	0.0E+00	8.9E-01	0.0E+00	Benzo(a)anthracene	0.00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	6.1E+00	0.0E+00	Benzo(a)pyrene	0.00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	7.5E-01	0.0E+00	Benzo(b)fluoranthene	0.00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.2E-01	0.0E+00	Benzo(k)fluoranthene	0.00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00			bis(2-Ethylhexyl) phthalate	0.00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00			Carbazole	0.00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	2.7E-02	0.0E+00	Chrysene	0.00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	6.8E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	1.7E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.00	0.0E+00		
Methylene chloride	0.0E+00	0.0E+00	2.0E-03	0.0E+00	Methylene chloride	0.00	0.0E+00	7.5E-03	0.0E+00
Aroclor-1254	0.0E+00	0.0E+00			Aroclor-1254	0.00	0.0E+00	7.7E+00	0.0E+00
Aroclor-1260	0.0E+00	0.0E+00			Aroclor-1260	0.00	0.0E+00	7.7E+00	0.0E+00
Dieldrin	0.0E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00	0.0E+00	1.6E+01	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.00	0.0E+00		
			Total Pathway:	1.3E-05				Total Pathway:	3.1E-05
			Total Rad + Chem	2.5E-05				Total Rad + Chem	3.3E-05

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TABLE B.4-13(a) (continued)
RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)]
SOUTH FIELD: SURFACE SOIL
Carcinogenic Risk

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil				Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.8E+01	2.0E-06	3.7E-05	3.7E-05
	NP-237	0.0E+00	4.3E-07	0.0E+00	0.0E+00
	PU-238	0.0E+00	2.8E-11	0.0E+00	0.0E+00
	PU-239/240	0.0E+00	2.7E-11	0.0E+00	0.0E+00
	RA-226	5.1E+01	1.2E-08	6.1E-07	1.4E-06
	RA-228	4.7E+01	2.90E-06	1.4E-04	1.4E-04
	SR-90	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	TC-99	0.0E+00	6.0E-13	0.0E+00	0.0E+00
	TH-228	4.6E+01	5.6E-06	2.6E-04	2.6E-04
	TH-230	6.2E+01	5.4E-11	3.4E-09	2.1E-06
	TH-232	4.5E+01	2.6E-11	1.2E-09	1.5E-06
	U-234	4.3E+01	3.0E-11	1.3E-09	1.4E-06
	U-235/236	3.7E+00	2.4E-07	8.8E-07	9.9E-07
	U-238	4.5E+01	3.6E-08	1.6E-06	4.4E-06
Total Pathway: 0.0E+00			Total Pathway:	4.4E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	4.6E-07	1.8E+00	8.4E-07					2.6E-05
Beryllium	4.7E-07	4.30E+02	2.0E-04					2.1E-04
Chromium	9.1E-06			Not applicable				1.3E-05
Lead	1.5E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	2.6E-06							
Acenaphthylene	0.0E+00							
Benzo(a)anthracene	0.0E+00	2.56E+00	0.0E+00					0.0E+00
Benzo(a)pyrene	0.0E+00	1.70E+01	0.0E+00					0.0E+00
Benzo(b)fluoranthene	0.0E+00	2.09E+00	0.0E+00					0.0E+00
Benzo(g,h,i)perylene	0.0E+00							
Benzo(k)fluoranthene	0.0E+00	8.84E-01	0.0E+00					0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	1.56E-02	0.0E+00					0.0E+00
Carbazole	0.0E+00	2.00E-02	0.0E+00					0.0E+00
Chrysene	0.0E+00	3.56E-02	0.0E+00					0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	9.00E+00	0.0E+00					0.0E+00
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	2.22E+00	0.0E+00					0.0E+00
Phenanthrene	0.0E+00							
Methylene chloride	0.0E+00	7.50E-03	0.0E+00					0.0E+00
Aroclor-1254	0.0E+00	1.03E+01	0.0E+00					0.0E+00
Aroclor-1260	0.0E+00	1.03E+01	0.0E+00					0.0E+00
Dieldrin	0.0E+00	1.78E+01	0.0E+00					0.0E+00
Endrin ketone	0.0E+00							
		Total Pathway:	2.0E-04			Total Pathway:	0.0E+00	7.0E-04
		Total Rad + Chem	2.0E-04				4.4E-04	*Total:* 7.0E-04

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TABLE B.4-13(a) (continued)
RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)]
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	1.8E-04	2.1E+01		
NP-237	0.0E+00	0.0E+00		
PU-238	0.0E+00	0.0E+00		
PU-239/240	0.0E+00	0.0E+00		
RA-226	5.0E-04	5.8E+01		
RA-228	4.7E-04	5.4E+01		
SR-90	0.0E+00	0.0E+00		
TC-99	0.0E+00	0.0E+00		
TH-228	4.6E-04	5.3E+01		
TH-230	6.1E-04	7.1E+01		
TH-232	4.4E-04	5.1E+01		
U-234	4.3E-04	4.9E+01		
U-235/236	3.6E-05	4.2E+00		
U-238	4.4E-04	5.1E+01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.44	1.9E+03		
NP-237	0.00	0.0E+00		
PU-238	0.00	0.0E+00		
PU-239/240	0.00	0.0E+00		
RA-226	1.23	5.4E+03		
RA-228	1.14	5.0E+03		
SR-90	0.00	0.0E+00		
TC-99	0.00	0.0E+00		
TH-228	1.12	4.9E+03		
TH-230	1.50	6.6E+03		
TH-232	1.08	4.8E+03		
U-234	1.04	4.6E+03		
U-235/236	0.09	3.9E+02		
U-238	1.08	4.7E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	2.37E-06	1.5E-07		
Beryllium	2.46E-07	1.6E-08		
Chromium	4.76E-06	3.1E-07		
Lead	7.87E-06	5.1E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	1.33E-06	8.6E-08		
Acenaphthylene	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00		
Benzo(a)pyrene	0.00E+00	0.0E+00		
Benzo(b)fluoranthene	0.00E+00	0.0E+00		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Chrysene	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00		
Phenanthrene	0.00E+00	0.0E+00		
Methylene chloride	0.00E+00	0.0E+00	8.2E-01	0.0E+00
Aroclor-1254	0.00E+00	0.0E+00		
Aroclor-1260	0.00E+00	0.0E+00		
Dieldrin	0.00E+00	0.0E+00		
Endrin ketone	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Total Rad + Chem 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg	Intake	RfD(o)	Hazard
Arsenic	5.78	1.4E-05	3.0E-04	0.0
Beryllium	0.60	1.5E-06	5.0E-03	3.0E-04
Chromium	11.60	2.9E-05	5.0E-03	5.7E-03
Lead	19.20	4.7E-05		
TH-TOTAL	0.00	0.0E+00		
U-TOTAL	3.24	8.0E-06	3.0E-03	0.0
Acenaphthylene	0.00	0.0E+00		
Benzo(a)anthracene	0.00	0.0E+00		
Benzo(a)pyrene	0.00	0.0E+00		
Benzo(b)fluoranthene	0.00	0.0E+00		
Benzo(g,h,i)perylene	0.00	0.0E+00		
Benzo(k)fluoranthene	0.00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.00	0.0E+00		
Chrysene	0.00	0.0E+00		
Dibenzo(a,h)anthracene	0.00	0.0E+00		
Dibenzofuran	0.00	0.0E+00	4.0E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00	0.0E+00		
Phenanthrene	0.00	0.0E+00		
Methylene chloride	0.00	0.0E+00	6.1E-02	0.0E+00
Aroclor-1254	0.00	0.0E+00		
Aroclor-1260	0.00	0.0E+00		
Dieldrin	0.00	0.0E+00	5.0E-05	0.0E+00
Endrin ketone	0.00	0.0E+00	3.0E-04	0.0E+00

Total Pathway: 0.1

Total Rad + Chem 0.1

TABLE B.4-13(a) (continued)
RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY RESIDENT FARMER (RME VALUES)]
SOUTH FIELD: SURFACE SOIL
Non-carcinogenic Hazard

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	RfD(e)	Hazard	
Not applicable	CS-137	1.8E+01			
	NP-237	0.0E+00			
	PU-238	0.0E+00			
	PU-239/24	0.0E+00			
	RA-226	5.1E+01			
	RA-228	4.7E+01			
	SR-90	0.0E+00			
	TC-99	0.0E+00			
	TH-228	4.6E+01			
	TH-230	6.2E+01			
	TH-232	4.5E+01			
	U-234	4.3E+01			
	U-235/236	3.7E+00			
	U-238	4.5E+01			
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	4.6E-07	2.9E-04	1.6E-03					4.9E-02
Beryllium	4.7E-07	5.0E-05	9.5E-03					9.7E-03
Chromium	9.1E-06	2.3E-03	4.1E-03	Not applicable				9.8E-03
Lead	1.5E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	2.6E-06	1.5E-04	0.0					2.0E-02
Acenaphthylene	0.0E+00							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	0.0E+00							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	0.0E+00	1.8E-02	0.0E+00					0.0E+00
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	0.0E+00							
Methylene chloride	0.0E+00	6.1E-02	0.0E+00					0.0E+00
Aroclor-1254	0.0E+00							
Aroclor-1260	0.0E+00							
Dieldrin	0.0E+00	4.5E-05	0.0E+00					0.0E+00
Endrin ketone	0.0E+00	2.7E-04	0.0E+00					0.0E+00
	Total Pathway:		0.0		Total Pathway:		0.0E+00	
	Total Rad + Chem		0.0				0.0E+00	*Total:* 0.1

TABLE B.4-13(b)

RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER]

SOUTH FIELD: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0	0.0E+00	2.2E-10	0.0E+00	
RA-226	1.6E-04	7.7E+00	1.2E-10	9.3E-10	Not applicable
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	2.1E-03	1.0E+02	3.60E-11	3.7E-09	
TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	
U234	0.187	9.2E+03	1.6E-11	1.5E-07	
U235/236	0.0169	8.3E+02	1.6E-11	1.3E-08	
U238	0.24	1.2E+04	2.8E-11	3.3E-07	
			Total Pathway:	4.9E-07	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	0	0.0E+00			Cadmium	0.0E+00		
Lead	5.6E-05	1.5E-06			Lead	5.8E-06		
Mercury	0	0.0E+00			Mercury	0.0E+00		
Molybdenum	8.1E-05	2.2E-06			Molybdenum	8.3E-06		
Tetrachlorodibenzofuran	0	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	0	0.0E+00			U-Total	0.0E+00		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00

Total Rad + Chem 4.9E-07

Total Rad + Chem 0.0E+00

TABLE B.4-13(b) (continued)

CARCINOGENIC RISK

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		0.0E+00
		9.3E-10
		0.0E+00
		3.7E-09
		0.0E+00
		1.5E-07
		1.3E-08
		3.3E-07
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	0.0E+00			
Lead	4.5E-11			
Mercury	0.0E+00			
Molybdenum	1.6E-08			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	0.0E+00			
		Total Pathway:	0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 4.9E-07

TABLE B.4-13(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.0	0.0E+00			Not applicable
RA-226	0.0	7.7E+00			
RA-228	0.0	0.0E+00			
SR-90	0.0	1.0E+02			
TC-99	0.0	0.0E+00			
U234	0.2	9.2E+03			
U235/236	0.0	8.3E+02			
U238	0.2	1.2E+04			
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Cadmium	0.0E+00	0.0E+00	5.0E-04	0.0E+00	Cadmium	0.0E+00		
Lead	5.6E-05	1.5E-06			Lead	5.8E-06		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Mercury	0.0E+00		
Molybdenum	8.1E-05	2.2E-06	5.0E-03	4.4E-04	Molybdenum	8.3E-06		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			Tetrachlorodibenzofuran	0.0E+00		
U-Total	0.0E+00	0.0E+00	3.00E-03	0.0E+00	U-Total	0.0E+00		
			Total Pathway:	4.4E-04			Total Pathway:	0.0E+00
			Total Rad + Chem	4.4E-04			Total Rad + Chem	0.0E+00

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TABLE B.4-13(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	0.0E+00	2.5E-05	0.0E+00	0.0E+00
Lead	4.00E-06	4.5E-11			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	1.6E-08	1.9E-03	8.5E-06	4.5E-04
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	0.0E+00	1.5E-04	0.0E+00	0.0E+00
			Total Pathway:	8.5E-06	

Total Rad + Chem 8.5E-06 *Total:* 4.5E-04

TABLE B.4-13(c)
FUTURE ON-PROPERTY FARMER (RME VALUES)
RISKS DUE TO BACKGROUND [SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)]
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.42E-02	5.1E+01	2.8E-11	1.4E-09	1.4E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	9.36E-03	1.4E+01	1.2E-10	1.7E-09	1.7E-09
RA-228	8.66E-02	1.3E+02	1.0E-10	1.3E-08	1.3E-08
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	8.48E-02	1.3E+02	5.5E-11	7.0E-09	7.0E-09
TH-230	1.14E-01	1.7E+02	1.3E-11	2.2E-09	2.2E-09
TH-232	8.19E-02	1.2E+02	1.2E-11	1.5E-09	1.5E-09
U-234	7.88E-02	1.2E+02	1.6E-11	1.9E-09	1.9E-09
U-235	6.69E-03	1.0E+01	1.6E-11	1.6E-10	1.6E-10
U-238	8.19E-02	1.2E+02	2.8E-11	3.4E-09	3.4E-09
			Total Pathway:	3.2E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	4.45E-07	3.7E-10	1.8E+00	6.5E-10	6.5E-10
Beryllium	4.57E-08	3.8E-11	4.3E+00	1.6E-10	1.6E-10
Chromium	8.81E-07	7.4E-10			
Lead	1.48E-06	1.2E-09			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.46E-04	2.1E-07			
Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	8.1E-10	
			Total Rad + Chem	3.3E-08	*Total:* 3.3E-08

TABLE B.4-13(c) (continued)

SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.4E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	0.0E+00
RA-226	7.78E-04	1.2E+00	1.2E-10	1.4E-10	1.4E-10	1.8E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.3E-08
SR-90	1.38E-02	2.1E+01	3.6E-11	7.4E-10	7.4E-10	7.4E-10
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00	0.0E+00
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	7.0E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.2E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.5E-09
U-234	9.18E-01	1.4E+03	1.6E-11	2.2E-08	2.2E-08	2.4E-08
U-235	8.30E-02	1.2E+02	1.6E-11	2.0E-09	2.0E-09	2.1E-09
U-238	1.18E+00	1.8E+03	2.8E-11	4.9E-08	4.9E-08	5.3E-08
			Total Pathway:	7.4E-08		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	6.5E-10
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.6E-10
Chromium	0.00E+00	0.0E+00				
Lead	2.80E-04	2.3E-07				
Molybdenum	4.37E-04	3.7E-07				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	7.4E-08	*Total:* 7.4E-08	1.1E-07

TABLE B.4-13(c) (continued)
FUTURE ON-PROPERTY FARMER (RME VALUES)
RISKS DUE TO BACKGROUND [SOUTH FIELD: HOME GROWN PRODUCE (DUST AFFECTED)]
Noncarcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	3.4E-02				
NP-237	0.0E+00				
PU-238	0.0E+00				
PU-239	0.0E+00				
RA-226	9.4E-03				
RA-228	8.7E-02				
SR-90	0.0E+00				
TC-99	0.0E+00				
TH-228	8.5E-02				
TH-230	1.1E-01				
TH-232	8.2E-02				
U-234	7.9E-02				
U-235	6.7E-03				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	4.4E-07	3.7E-10	3.0E-04	1.2E-06	1.2E-06
Beryllium	4.6E-08	3.8E-11	5.0E-03	7.6E-09	7.6E-09
Chromium	8.8E-07	7.4E-10	5.0E-03	1.5E-07	1.5E-07
Lead	1.5E-06	1.2E-09			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	2.5E-04	2.1E-07	3.0E-03	6.9E-05	6.9E-05
Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	0.0E+00	0.0E+00			
Benzo(a)pyrene	0.0E+00	0.0E+00			
Benzo(b)fluoranthene	0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.0E+00	0.0E+00			
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00			
Chrysene	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00
Aroclor 1254	0.0E+00	0.0E+00			
Aroclor 1260	0.0E+00	0.0E+00			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00	
			Total Pathway:	7.0E-05	
			Total Rad + Chem	7.0E-05	*Total:* 7.0E-05

TABLE B.4-13(c) (continued)

SOUTH FIELD: HOME GROWN PRODUCE (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
CS-137	0.0E+00					
NP-237	0.0E+00					
PU-238	0.0E+00					
PU-239	0.0E+00					
RA-226	7.8E-04					
RA-228	0.0E+00					
SR-90	1.4E-02					
TC-99	0.0E+00					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	9.2E-01					
U-235	8.3E-02					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.2E-06
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	7.6E-09
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.5E-07
Lead	2.8E-04	2.3E-07				
Molybdenum	4.4E-04	3.7E-07	5.0E-03	7.3E-05	7.3E-05	7.3E-05
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	6.9E-05
Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	0.0E+00
Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00	3.0E-04	0.0E+00		
			Total Pathway:	7.3E-05		
			Total Rad + Chem	7.3E-05	*Total:* 7.3E-05	1.4E-04

TABLE B.4-13(d)
RISKS DUE TO BACKGROUND [FUTURE ON-PROPERTY FARMER (RME VALUES)]
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	4.39E-02	8.1E+01	2.8E-11	2.3E-09	CS-137	1.54E-02	1.1E+02	2.8E-11	3.2E-09	5.4E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	1.51E-04	2.8E-01	1.2E-10	3.3E-11	RA-226	2.73E-04	2.0E+00	1.2E-10	2.4E-10	2.7E-10
RA-228	1.36E-03	2.5E+00	1.0E-10	2.5E-10	RA-228	2.44E-03	1.8E+01	1.0E-10	1.8E-09	2.0E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	3.01E-05	5.5E-02	5.5E-11	3.0E-12	TH-228	2.51E-05	1.8E-01	5.5E-11	1.0E-11	1.3E-11
TH-230	4.44E-05	8.2E-02	1.3E-11	1.1E-12	TH-230	3.70E-05	2.7E-01	1.3E-11	3.5E-12	4.6E-12
TH-232	3.20E-05	5.9E-02	1.2E-11	7.0E-13	TH-232	2.66E-05	2.0E-01	1.2E-11	2.3E-12	3.1E-12
U-234	1.03E-03	1.9E+00	1.6E-11	3.0E-11	U-234	3.08E-03	2.3E+01	1.6E-11	3.6E-10	3.9E-10
U-235	8.70E-05	1.6E-01	1.6E-11	2.6E-12	U-235	2.61E-04	1.9E+00	1.6E-11	3.1E-11	3.3E-11
U-238	1.07E-03	2.0E+00	2.8E-11	5.5E-11	U-238	3.20E-03	2.3E+01	2.8E-11	6.6E-10	7.1E-10
			Total Pathway:	2.6E-09				Total Pathway:	6.3E-09	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	5.73E-08	5.9E-11	1.8E+00	1.0E-10	Arsenic	1.72E-09	7.1E-12	1.8E+00	1.2E-11	1.2E-10
Beryllium	2.96E-09	3.0E-12	4.3E+00	1.3E-11	Beryllium	2.67E-12	1.1E-14	4.3E+00	4.7E-14	1.3E-11
Chromium	3.15E-07	3.2E-10			Chromium	8.60E-08	3.5E-10			
Lead	2.86E-08	2.9E-11			Lead	2.38E-08	9.8E-11			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	3.20E-06	3.3E-09			U-TOTAL	9.61E-06	3.9E-08			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00			
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00			
			Total Pathway:	1.2E-10				Total Pathway:	1.2E-11	
			Total Rad + Chem	2.7E-09				Total Rad + Chem	6.3E-09	*Total:* 9.0E-09

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TABLE B.4-13(d)

SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	5.4E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	0.0E+00
RA-226	7.05E-06	1.3E-02	1.2E-10	1.6E-12	RA-226	1.27E-05	9.3E-02	1.2E-10	1.1E-11	1.3E-11	2.9E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.0E-09
SR-90	1.09E-04	2.0E-01	3.6E-11	7.2E-12	SR-90	5.47E-04	4.0E+00	3.6E-11	1.4E-10	1.5E-10	1.5E-10
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00	0.0E+00
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.3E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	4.6E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	3.1E-12
U-234	6.67E-03	1.2E+01	1.6E-11	2.0E-10	U-234	2.00E-02	1.5E+02	1.6E-11	2.4E-09	2.6E-09	2.9E-09
U-235	6.03E-04	1.1E+00	1.6E-11	1.8E-11	U-235	1.81E-03	1.3E+01	1.6E-11	2.1E-10	2.3E-10	2.6E-10
U-238	8.57E-03	1.6E+01	2.8E-11	4.4E-10	U-238	2.57E-02	1.9E+02	2.8E-11	5.3E-09	5.7E-09	6.4E-09
			Total Pathway:	6.6E-10				Total Pathway:	8.0E-09		

Chemical Risk

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.2E-10
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.3E-11
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Lead	3.00E-06	3.1E-09			Lead	2.50E-06	1.0E-08				
Molybdenum	8.67E-05	8.9E-08			Molybdenum	2.17E-05	8.9E-08				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00			U-TOTAL	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.00E+00	0.0E+00				
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	0.0E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.00E+00	0.0E+00				
Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	Methylene chloride	0.00E+00	0.0E+00	7.5E-03	0.0E+00	0.0E+00	0.0E+00
Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1254	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	0.0E+00
Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor 1260	0.00E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	0.0E+00
Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	Dieldrin	0.00E+00	0.0E+00	1.6E+01	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.00E+00	0.0E+00			Endrin ketone	0.00E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	6.6E-10				Total Rad + Chem	8.0E-09	*Total:* 8.7E-09	1.8E-08

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TABLE B.4-13(d) (continued)
RISKS DUE TO BACKGROUND [FUTURE ON-PROPERTY FARMER (RME VALUES)]
SOUTH FIELD: BEEF AND MILK (DUST AFFECTED)
Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard	
CS-137	4.4E-02	8.1E+01			CS-137	1.54E-02				
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00				
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00				
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00				
RA-226	1.5E-04	2.8E-01			RA-226	2.73E-04				
RA-228	1.4E-03	2.5E+00			RA-228	2.44E-03				
SR-90	0.0E+00	0.0E+00			SR-90	0.00E+00				
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00				
TH-228	3.0E-05	5.5E-02			TH-228	2.51E-05				
TH-230	4.4E-05	8.2E-02			TH-230	3.70E-05				
TH-232	3.2E-05	5.9E-02			TH-232	2.66E-05				
U-234	1.0E-03	1.9E+00			U-234	3.08E-03				
U-235	8.7E-05	1.6E-01			U-235	2.61E-04				
U-238	1.1E-03	2.0E+00								
			Total Pathway:	0.0E+00						

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	5.7E-08	5.9E-11	3.0E-04	2.0E-07	Arsenic	1.7E-09	7.1E-12	3.0E-04	2.4E-08	2.2E-07
Beryllium	3.0E-09	3.0E-12	5.0E-03	6.1E-10	Beryllium	2.7E-12	1.1E-14	5.0E-03	2.2E-12	6.1E-10
Chromium	3.2E-07	3.2E-10	5.0E-03	6.5E-08	Chromium	8.6E-08	3.5E-10	5.0E-03	7.1E-08	1.4E-07
Lead	2.9E-08	2.9E-11			Lead	2.4E-08	9.8E-11			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.2E-06	3.3E-09	3.0E-03	1.1E-06	U-TOTAL	9.6E-06	3.9E-08	3.0E-03	1.3E-05	1.4E-05
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00			
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00			
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00			
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00			
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00			
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00			
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00			
			Total Pathway:	1.4E-06				Total Pathway:	1.3E-05	
			Total Rad + Chem	1.4E-06				Total Rad + Chem	1.3E-05	*Total:* 1.5E-05

TABLE B.4-13(d) (continued)

SOUTH FIELD: BEEF AND MILK (GROUNDWATER AFFECTED)

Noncarcinogenic Hazard

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00					0.0E+00
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00					0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00					0.0E+00
PU-239	0.0E+00	0.0E+00			PU-239	0.00E+00					0.0E+00
RA-226	7.0E-06	1.3E-02			RA-226	1.27E-05					0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00					0.0E+00
SR-90	1.1E-04	2.0E-01			SR-90	5.47E-04					0.0E+00
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00					0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00					0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00					0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00					0.0E+00
U-234	6.7E-03	1.2E+01			U-234	2.00E-02					0.0E+00
U-235	6.0E-04	1.1E+00			U-235	1.81E-03					0.0E+00
U-238	8.6E-03	1.6E+01									0.0E+00
			Total Pathway:	0.0E+00							

Chemical Hazard

Ingestion/Beef					Ingestion/Milk						
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.2E-07
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	6.1E-10
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.4E-07
Lead	3.0E-06	3.1E-09			Lead	2.5E-06	1.0E-08				
Molybdenum	8.7E-05	8.9E-08	5.0E-03	1.8E-05	Molybdenum	2.2E-05	8.9E-08	5.0E-03	1.8E-05	3.6E-05	3.6E-05
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	1.4E-05
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl)phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	Methylene chloride	0.0E+00	0.0E+00	6.1E-02	0.0E+00	0.0E+00	0.0E+00
Aroclor 1254	0.0E+00	0.0E+00			Aroclor 1254	0.0E+00	0.0E+00				
Aroclor 1260	0.0E+00	0.0E+00			Aroclor 1260	0.0E+00	0.0E+00				
Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	Dieldrin	0.0E+00	0.0E+00	5.0E-05	0.0E+00	0.0E+00	0.0E+00
Endrin ketone	0.0E+00	0.0E+00			Endrin ketone	0.0E+00	0.0E+00				
			Total Pathway:	1.8E-05				Total Pathway:	1.8E-05		
			Total Rad + Chem	1.8E-05				Total Rad + Chem	1.8E-05	*Total:* 3.6E-05	5.0E-05

TABLE B.4-15(a)

RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT FARMER (RME VALUES)]

INACTIVE FLYASH PILE: SURFACE SOIL

CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	3.1E-06	3.6E-01	1.9E-11	6.8E-12
NP-237	0.0E+00	0.0E+00	2.9E-08	0.0E+00
PU-238	0.0E+00	0.0E+00	3.9E-08	0.0E+00
PU-239/240	0.0E+00	0.0E+00	3.8E-08	0.0E+00
RA-226	8.6E-06	1.0E+00	3.0E-09	3.0E-09
RA-228	8.0E-06	9.2E-01	6.6E-10	6.1E-10
SR-90	0.0E+00	0.0E+00	6.2E-11	0.0E+00
TH-228	7.8E-06	9.1E-01	7.8E-08	7.1E-08
TH-230	1.1E-05	1.2E+00	2.9E-08	3.5E-08
TH-232	7.6E-06	8.8E-01	2.8E-08	2.5E-08
U-234	7.3E-06	8.4E-01	2.6E-08	2.2E-08
U-235/236	6.2E-07	7.1E-02	2.5E-08	1.8E-09
U-238	7.5E-06	8.7E-01	5.2E-08	4.5E-08

Total Pathway: 2.0E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	0.44	1.9E+03	2.8E-11	5.4E-08
NP-237	0.00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.00	0.0E+00	2.3E-10	0.0E+00
RA-226	1.23	5.4E+03	1.2E-10	6.5E-07
RA-228	1.14	5.0E+03	1.0E-10	5.0E-07
SR-90	0.00	0.0E+00	3.6E-11	0.0E+00
TH-228	1.1	4.9E+03	5.5E-11	2.7E-07
TH-230	1.50	6.6E+03	1.3E-11	8.6E-08
TH-232	1.08	4.8E+03	1.2E-11	5.7E-08
U-234	1.04	4.6E+03	1.6E-11	7.3E-08
U-235/236	0.09	3.9E+02	1.6E-11	6.2E-09
U-238	1.08	4.7E+03	2.8E-11	1.3E-07

Total Pathway: 1.8E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	4.1E-08	2.6E-09	1.5E+01	4.0E-08
Beryllium	4.2E-09	2.7E-10	8.4E+00	2.3E-09
Cadmium	3.6E-09	2.4E-10	6.1E+00	1.4E-09
Chromium	8.1E-08	5.3E-09	4.1E+01	2.2E-07
Lead	1.3E-07	8.7E-09		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	2.3E-08	1.5E-09		
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	6.8E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		

Total Pathway: 2.6E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	5.78	1.4E-05	1.8E+00	2.5E-05
Beryllium	0.60	1.5E-06	4.3E+00	6.4E-06
Cadmium	0.52	1.3E-06		
Chromium	11.60	2.9E-05		
Lead	19.20	4.7E-05		
TH-TOTAL	0.00	0.0E+00		
U-TOTAL	0.00	0.0E+00		
2-Methylnaphthalene	0.00	0.0E+00		
Acenaphthylene	0.00	0.0E+00		
Carbazole	0.00	0.0E+00	2.0E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00	0.0E+00		

Total Pathway: 3.1E-05

Total Rad + Chem 4.6E-07

Total Rad + Chem 3.3E-05

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TABLE B.4-15(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil				External Radiation/Soil				Total
				Compound	Intake	SF(e)	Risk	
Not applicable				CS-137	1.8E+01	2.0E-06	3.7E-05	3.7E-05
				NP-237	0.0E+00	4.3E-07	0.0E+00	0.0E+00
				PU-238	0.0E+00	2.8E-11	0.0E+00	0.0E+00
				PU-239/240	0.0E+00	2.7E-11	0.0E+00	0.0E+00
				RA-226	5.1E+01	1.2E-08	6.1E-07	1.3E-06
				RA-228	4.7E+01	2.9E-06	1.4E-04	1.4E-04
				SR-90	0.0E+00	0.0E+00	0.0E+00	0.0E+00
				TH-228	4.6E+01	5.6E-06	2.6E-04	2.6E-04
				TH-230	6.2E+01	5.4E-11	3.4E-09	1.2E-07
				TH-232	4.5E+01	2.6E-11	1.2E-09	8.3E-08
				U-234	4.3E+01	3.0E-11	1.3E-09	9.6E-08
				U-235/236	3.7E+00	2.4E-07	8.8E-07	8.9E-07
				U-238	4.5E+01	3.6E-08	1.6E-06	1.8E-06
Total Pathway:		0.0E+00		Total Pathway:			4.4E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	4.6E-07	1.8E+00	8.4E-07					2.6E-05
Beryllium	4.7E-07	4.3E+02	2.0E-04					2.1E-04
Cadmium	4.1E-07							1.4E-09
Chromium	9.1E-06							2.2E-07
Lead	1.5E-05							
TH-TOTAL	0.0E+00			Not applicable				
U-TOTAL	0.0E+00							
2-Methylnaphthalene	0.0E+00							
Acenaphthylene	0.0E+00							
Carbazole	0.0E+00	2.0E-02	0.0E+00					0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					0.0E+00
Dibenzofuran	0.0E+00							
Total Pathway:		2.0E-04		Total Pathway:			0.0E+00	

Total Rad + Chem 2.0E-04 4.4E-04 *Total:* 6.7E-04

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TABLE B.4-15(a) (continued)

RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY (SOUTH FIELD) RESIDENT FARMER (RME VALUES)]

INACTIVE FLYASH PILE: SURFACE SOIL

Non-carcinogenic Hazard

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	3.1E-06	3.6E-01		
NP-237	0.0E+00	0.0E+00		
PU-238	0.0E+00	0.0E+00		
PU-239/240	0.0E+00	0.0E+00		
RA-226	8.6E-06	1.0E+00		
RA-228	8.0E-06	9.2E-01		
SR-90	0.0E+00	0.0E+00		
TH-228	7.8E-06	9.1E-01		
TH-230	1.1E-05	1.2E+00		
TH-232	7.6E-06	8.8E-01		
U-234	7.3E-06	8.4E-01		
U-235/236	6.2E-07	7.1E-02		
U-238	7.5E-06	8.7E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.44	1.9E+03		
NP-237	0.00	0.0E+00		
PU-238	0.00	0.0E+00		
PU-239/240	0.00	0.0E+00		
RA-226	1.23	5.4E+03		
RA-228	1.14	5.0E+03		
SR-90	0.00	0.0E+00		
TH-228	1.12	4.9E+03		
TH-230	1.50	6.6E+03		
TH-232	1.08	4.8E+03		
U-234	1.04	4.6E+03		
U-235/236	0.09	3.9E+02		
U-238	1.08	4.7E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	4.05E-08	2.6E-09		
Beryllium	4.20E-09	2.7E-10		
Cadmium	3.64E-09	2.4E-10		
Chromium	8.12E-08	5.3E-09		
Lead	1.34E-07	8.7E-09		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.27E-08	1.5E-09		
2-Methylnaphthalene	0.00E+00	0.0E+00		
Acenaphthylene	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	5.78	1.4E-05	3.0E-04	4.8E-02
Beryllium	0.60	1.5E-06	5.0E-03	3.0E-04
Cadmium	0.52	1.3E-06	1.0E-03	1.3E-03
Chromium	11.60	2.9E-05	5.0E-03	5.7E-03
Lead	19.20	4.7E-05		
TH-TOTAL	0.00	0.0E+00		
U-TOTAL	0.00	0.0E+00	3.0E-03	0.0E+00
2-Methylnaphthalene	0.00	0.0E+00		
Acenaphthylene	0.00	0.0E+00		
Carbazole	0.00	0.0E+00		
Dibenzo(a,h)anthracene	0.00	0.0E+00		
Dibenzofuran	0.00	0.0E+00	4.0E-03	0.0E+00

Total Pathway: 5.5E-02

Total Rad + Chem 0.0E+00

Total Rad + Chem 5.5E-02

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TABLE B.4-15(a) (continued)

CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil		External Radiation/Soil				Total
		Compound	Intake	RfD(e)	Hazard	
Not applicable		CS-137	1.8E+01			
		NP-237	0.0E+00			
		PU-238	0.0E+00			
		PU-239/24	0.0E+00			
		RA-226	5.1E+01			
		RA-228	4.7E+01			
		SR-90	0.0E+00			
		TH-228	4.6E+01			
		TH-230	6.2E+01			
		TH-232	4.5E+01			
		U-234	4.3E+01			
		U-235/236	3.7E+00			
		U-238	4.5E+01			
Total Pathway:	0.0E+00	Total Pathway:	0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	RfD(derm)	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	4.6E-07	3.2E-04	1.4E-03					4.9E-02
Beryllium	4.7E-07	5.0E-01	9.5E-07					3.0E-04
Cadmium	4.1E-07							1.3E-03
Chromium	9.1E-06							5.7E-03
Lead	1.5E-05							
TH-TOTAL	0.0E+00			Not applicable				
U-TOTAL	0.0E+00							0.0E+00
2-Methylnaphthalene	0.0E+00							
Acenaphthylene	0.0E+00							
Carbazole	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00					0.0E+00
Total Pathway:	1.4E-03			Total Pathway:	0.0E+00			

Total Rad + Chem 1.4E-03 0.0E+00 *Total:* 5.6E-02

TABLE B.4-15(b)

RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY (SOUTH FIELD) FARMER]

INACTIVE FLYASH PILE: GROUNDWATER

CARCINOGENIC RISK

Radiation Risk

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	SF(o)	Risk	
NP-237	0	0.0E+00	2.2E-10	0.0E+00	Not applicable
RA-226	1.6E-04	7.7E+00	1.2E-10	9.3E-10	
RA-228	0.0E+00	0.0E+00	1.0E-10	0.0E+00	
SR-90	2.1E-03	1.0E+02	3.60E-11	3.7E-09	
TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	
U234	0.187	9.2E+03	1.6E-11	1.5E-07	
U235/236	0.0169	8.3E+02	1.6E-11	1.3E-08	
U238	0.24	1.2E+04	2.8E-11	3.3E-07	
			Total Pathway:	4.9E-07	Total Pathway: 0.0E+00

Chemical Risk

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	SF(o)	Risk	Compound	Intake	SF(i)	Risk
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00		
Cadmium	0.0E+00	0.0E+00			Cadmium	0.0E+00		
Lead	5.6E-05	1.5E-06			Lead	5.8E-06		
Mercury	0.0E+00	0.0E+00			Mercury	0.0E+00		
Molybdenum	8.1E-05	2.2E-06			Molybdenum	8.3E-06		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.0E+00		
U-Total	0.0E+00	0.0E+00			U-Total	0.0E+00		
			Total Pathway:	0.0E+00			Total Pathway:	0.0E+00
			Total Rad + Chem	4.9E-07			Total Rad + Chem	0.0E+00

TABLE B.4-15(b) (continued)

CARCINOGENIC RISK

Radiation Risk		
Dermal Contact/Groundwater		
Not applicable		0.0E+00
		9.3E-10
		0.0E+00
		3.7E-09
		0.0E+00
		1.5E-07
		1.3E-08
		3.3E-07
Total Pathway:	0.0E+00	

Chemical Risk				
Dermal Contact/Groundwater				
Compound	Intake	SF(derm)	Risk	
Arsenic	0.0E+00	1.8E+00	0.0E+00	0.0E+00
Beryllium	0.0E+00	4.3E+02	0.0E+00	0.0E+00
Cadmium	0.0E+00			
Lead	4.5E-11			
Mercury	0.0E+00			
Molybdenum	1.6E-08			
Tetrachlorodibenzofuran	0.0E+00	3.0E+04	0.0E+00	0.0E+00
U-Total	0.0E+00			
Total Pathway:			0.0E+00	

Total Rad + Chem 0.0E+00 *Total:* 4.9E-07

TABLE B.4-15(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Groundwater					Inhalation/Groundwater
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard	
NP-237	0.0	0.0E+00			
RA-226	0.0	7.7E+00			Not applicable
RA-228	0.0	0.0E+00			
SR-90	0.0	1.0E+02			
TC-99	0.0	0.0E+00			
U234	0.2	9.2E+03			
U235/236	0.0	8.3E+02			
U238	0.2	1.2E+04			
			Total Pathway:	0.0E+00	Total Pathway: 0.0E+00

Chemical Hazard

Ingestion/Groundwater					Inhalation/Groundwater			
Compound	Conc'n (mg/L)	Intake	RfD(o)	Hazard	Compound	Intake	RfD(i)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00		
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00		
Cadmium	0.0E+00	0.0E+00	5.0E-04	0.0E+00	Cadmium	0.0E+00		
Lead	5.6E-05	1.5E-06			Lead	5.8E-06		
Mercury	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Mercury	0.0E+00		
Molybdenum	8.1E-05	2.2E-06	5.0E-03	4.4E-04	Molybdenum	8.3E-06		
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			Tetrachlorodibenzofuran	0.0E+00		
U-Total	0.0E+00	0.0E+00	3.00E-03	0.0E+00	U-Total	0.0E+00		
			Total Pathway:	4.4E-04			Total Pathway:	0.0E+00
			Total Rad + Chem	4.4E-04			Total Rad + Chem	0.0E+00

TABLE B.4-15(b) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard
Dermal Contact/Groundwater
Not applicable

Total Pathway: 0.0E+00

Chemical Hazard					
Dermal Contact/Groundwater					
Compound	PC (cm/hr)	Intake	RfD(derm)	Hazard	
Arsenic	1.00E-03	0.0E+00	2.9E-04	0.0E+00	0.0E+00
Beryllium	1.00E-03	0.0E+00	5.0E-05	0.0E+00	0.0E+00
Cadmium	1.00E-03	0.0E+00	2.5E-05	0.0E+00	0.0E+00
Lead	4.00E-06	4.5E-11			
Mercury	1.00E-04	0.0E+00	4.5E-05	0.0E+00	0.0E+00
Molybdenum	1.00E-03	1.6E-08	1.9E-03	8.5E-06	4.5E-04
Tetrachlorodibenzofuran	1.40E+00	0.0E+00			
U-Total	1.00E-03	0.0E+00	1.5E-04	0.0E+00	0.0E+00

Total Pathway: 8.5E-06

Total Rad + Chem 8.5E-06 *Total:* 4.5E-04

TABLE B.4-15(c)

RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)]

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	1.46E-03	2.2E+00	2.8E-11	6.1E-11	6.1E-11
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	3.99E-03	6.0E+00	1.2E-10	7.2E-10	7.2E-10
RA-228	3.71E-03	5.5E+00	1.0E-10	5.5E-10	5.5E-10
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TH-228	3.62E-03	5.4E+00	5.5E-11	3.0E-10	3.0E-10
TH-230	4.85E-03	7.2E+00	1.3E-11	9.4E-11	9.4E-11
TH-232	3.49E-03	5.2E+00	1.2E-11	6.3E-11	6.3E-11
U-234	3.36E-03	5.0E+00	1.6E-11	8.0E-11	8.0E-11
U-235/236	2.85E-04	4.3E-01	1.6E-11	6.8E-12	6.8E-12
U-238	3.49E-03	5.2E+00	2.8E-11	1.5E-10	1.5E-10
			Total Pathway:	2.0E-09	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	1.83E-06	1.5E-09	1.8E+00	2.7E-09	2.7E-09
Beryllium	1.95E-09	1.6E-12	4.3E+00	7.0E-12	7.0E-12
Cadmium	1.99E-09	1.7E-12			
Chromium	3.77E-08	3.1E-11			
Lead	6.31E-08	5.3E-11			
Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.05E-05	8.8E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	2.7E-09	

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Total Rad + Chem 4.7E-09 | *Total:* 4.7E-09

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	6.1E-11
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	0.0E+00
RA-226	7.78E-04	1.2E+00	1.2E-10	1.4E-10	1.4E-10	8.6E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	5.5E-10
SR-90	1.38E-02	2.1E+01	3.6E-11	7.4E-10	7.4E-10	7.4E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	3.0E-10
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	9.4E-11
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	6.3E-11
U-234	9.18E-01	1.4E+03	1.6E-11	2.2E-08	2.2E-08	2.2E-08
U-235/236	8.30E-02	1.2E+02	1.6E-11	2.0E-09	2.0E-09	2.0E-09
U-238	1.18E+00	1.8E+03	2.8E-11	4.9E-08	4.9E-08	4.9E-08
			Total Pathway:	7.4E-08		

Chemical Risk						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	2.7E-09
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	7.0E-12
Cadmium	5.05E-09	4.2E-12				
Chromium	0.00E+00	0.0E+00				
Lead	2.80E-04	2.3E-07				
Molybdenum	4.37E-04	3.7E-07				
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00				
2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00				
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00		

Total Rad + Chem	7.4E-08	*Total:* 7.4E-08	7.9E-08

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TABLE B.4-15(c) (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	1.5E-03				
NP-237	0.0E+00				
PU-238	0.0E+00				
PU-239/240	0.0E+00				
RA-226	4.0E-03				
RA-228	3.7E-03				
SR-90	0.0E+00				
TH-228	3.6E-03				
TH-230	4.8E-03				
TH-232	3.5E-03				
U-234	3.4E-03				
U-235/236	2.9E-04				
U-238	3.5E-03				
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	1.8E-06	1.5E-09	3.0E-04	5.1E-06	5.1E-06
Beryllium	1.9E-09	1.6E-12	5.0E-03	3.3E-10	3.3E-10
Cadmium	2.0E-09	1.7E-12	1.0E-03	1.7E-09	1.7E-09
Chromium	3.8E-08	3.1E-11	5.0E-03	6.3E-09	6.3E-09
Lead	6.3E-08	5.3E-11			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	1.1E-05	8.8E-09	3.0E-03	2.9E-06	2.9E-06
2-Methylnaphthalene	0.0E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00			
			Total Pathway:	8.1E-06	

FER\CRU2RI\ABQ\IBVONRFD.XLS\12/29/93; 3:07 PM

Total Rad + Chem 8.1E-06 *Total:* 8.1E-06

TABLE B.4-15(c) (continued)

INACTIVE FLYASH PILE: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard		
CS-137	0.0E+00					
NP-237	0.0E+00					
PU-238	0.0E+00					
PU-239/240	0.0E+00					
RA-226	7.8E-04					
RA-228	0.0E+00					
SR-90	1.4E-02					
TH-228	0.0E+00					
TH-230	0.0E+00					
TH-232	0.0E+00					
U-234	9.2E-01					
U-235/236	8.3E-02					
U-238	1.2E+00					
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion/Homegrown Produce						
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	5.1E-06
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	3.3E-10
Cadmium	5.0E-09	4.2E-12	1.0E-03	4.2E-09	4.2E-09	5.9E-09
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	6.3E-09
Lead	2.8E-04	2.3E-07				
Molybdenum	4.4E-04	3.7E-07	5.0E-03	7.3E-05	7.3E-05	7.3E-05
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	2.9E-06
2-Methylnaphthalene	0.0E+00	0.0E+00				
Acenaphthylene	0.0E+00	0.0E+00				
Carbazole	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Tetrachlorodibenzofuran	0.0E+00	0.0E+00				
			Total Pathway:	7.3E-05		

FER\CRU2RI\ABQ\IBVONRFW.XLS\12/29/93; 3:09 PM	Total Rad + Chem	7.3E-05	*Total:* 7.3E-05	8.1E-05

TABLE B.4-15(d)

RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)]

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	1.87E-03	3.4E+00	2.8E-11	9.6E-11	CS-137	6.55E-04	4.8E+00	2.8E-11	1.3E-10	2.3E-10
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	6.47E-05	1.2E-01	1.2E-10	1.4E-11	RA-226	1.16E-04	8.6E-01	1.2E-10	1.0E-10	1.2E-10
RA-228	5.81E-05	1.1E-01	1.0E-10	1.1E-11	RA-228	1.05E-04	7.7E-01	1.0E-10	7.7E-11	8.8E-11
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TH-228	1.28E-06	2.4E-03	5.5E-11	1.3E-13	TH-228	1.07E-06	7.9E-03	5.5E-11	4.3E-13	5.6E-13
TH-230	1.89E-06	3.5E-03	1.3E-11	4.5E-14	TH-230	1.58E-06	1.2E-02	1.3E-11	1.5E-13	2.0E-13
TH-232	1.36E-06	2.5E-03	1.2E-11	3.0E-14	TH-232	1.14E-06	8.3E-03	1.2E-11	1.0E-13	1.3E-13
U-234	4.37E-05	8.0E-02	1.6E-11	1.3E-12	U-234	1.31E-04	9.6E-01	1.6E-11	1.5E-11	1.7E-11
U-235/236	3.71E-06	6.8E-03	1.6E-11	1.1E-13	U-235/236	1.11E-05	8.2E-02	1.6E-11	1.3E-12	1.4E-12
U-238	4.54E-05	8.3E-02	2.8E-11	2.3E-12	U-238	1.36E-04	1.0E+00	2.8E-11	2.8E-11	3.0E-11
			Total Pathway:	1.3E-10				Total Pathway:	3.6E-10	

Chemical Risk

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	2.36E-07	2.4E-10	1.8E+00	4.2E-10	Arsenic	7.09E-09	2.9E-11	1.8E+00	5.1E-11	4.8E-10
Beryllium	1.26E-10	1.3E-13	4.3E+00	5.6E-13	Beryllium	1.14E-13	4.7E-16	4.3E+00	2.0E-15	5.6E-13
Cadmium	6.55E-10	6.7E-13			Cadmium	1.19E-10	4.9E-13			
Chromium	1.35E-08	1.4E-11			Chromium	3.68E-09	1.5E-11			
Lead	1.22E-09	1.3E-12			Lead	1.02E-09	4.2E-12			
Molybdenum	0.00E+00	0.0E+00			Molybdenum	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.37E-07	1.4E-10			U-TOTAL	4.11E-07	1.7E-09			
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00			
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	4.3E-10				Total Pathway:	5.1E-11	

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Total Rad + Chem 5.5E-10

Total Rad + Chem 4.1E-10 *Total:* 9.6E-10

TABLE B.4-15(d)(continued)

RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE ON-PROPERTY (SOUTH FIELD) FARMER (RME VALUES)]

INACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

CARCINOGENIC RISK

Radiation Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L)	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	2.3E-10
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	0.0E+00
RA-226	7.05E-06	1.3E-02	1.2E-10	1.6E-12	RA-226	1.27E-05	9.3E-02	1.2E-10	1.1E-11	1.3E-11	1.3E-10
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	8.8E-11
SR-90	1.09E-04	2.0E-01	3.6E-11	7.2E-12	SR-90	5.47E-04	4.0E+00	3.6E-11	1.4E-10	1.5E-10	1.5E-10
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	5.6E-13
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.0E-13
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.3E-13
U-234	6.67E-03	1.2E+01	1.6E-11	2.0E-10	U-234	2.00E-02	1.5E+02	1.6E-11	2.4E-09	2.6E-09	2.6E-09
U-235/236	6.03E-04	1.1E+00	1.6E-11	1.8E-11	U-235/236	1.81E-03	1.3E+01	1.6E-11	2.1E-10	2.3E-10	2.3E-10
U-238	8.57E-03	1.6E+01	2.8E-11	4.4E-10	U-238	2.57E-02	1.9E+02	2.8E-11	5.3E-09	5.7E-09	5.8E-09
			Total Pathway:	6.6E-10				Total Pathway:	8.0E-09		

Chemical Risk

Ingestion/Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n in Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.00E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	4.8E-10
Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.00E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	5.6E-13
Cadmium	8.25E-10	8.5E-13			Cadmium	1.50E-10	6.2E-13				
Chromium	0.00E+00	0.0E+00			Chromium	0.00E+00	0.0E+00				
Lead	3.00E-06	3.1E-09			Lead	2.50E-06	1.0E-08				
Molybdenum	8.67E-05	8.9E-08			Molybdenum	2.17E-05	8.9E-08				
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00			U-TOTAL	0.00E+00	0.0E+00				
2-Methylnaphthalene	0.00E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.00E+00	0.0E+00				
Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+04	0.0E+00	Tetrachlorodibenzofuran	0.00E+00	0.0E+00	1.5E+04	0.0E+00	0.0E+00	0.0E+00
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	6.6E-10				Total Rad + Chem	8.0E-09	*Total:* 8.7E-09	9.6E-09

TABLE B.4-15(d) (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (DUST AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	1.9E-03				CS-137	6.55E-04				
NP-237	0.0E+00				NP-237	0.00E+00				
PU-238	0.0E+00				PU-238	0.00E+00				
PU-239/240	0.0E+00				PU-239/240	0.00E+00				
RA-226	6.5E-05				RA-226	1.16E-04				
RA-228	5.8E-05				RA-228	1.05E-04				
SR-90	0.0E+00				SR-90	0.00E+00				
TH-228	1.3E-06				TH-228	1.07E-06				
TH-230	1.9E-06				TH-230	1.58E-06				
TH-232	1.4E-06				TH-232	1.14E-06				
U-234	4.4E-05				U-234	1.31E-04				
U-235/236	3.7E-06				U-235/236	1.11E-05				
U-238	4.5E-05				U-238	1.36E-04				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion/Beef					Ingestion/Milk					Total
Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	
Arsenic	2.4E-07	2.4E-10	3.0E-04	8.1E-07	Arsenic	7.09E-09	2.9E-11	3.0E-04	9.7E-08	9.1E-07
Beryllium	1.3E-10	1.3E-13	5.0E-03	2.6E-11	Beryllium	1.14E-13	4.7E-16	5.0E-03	9.3E-14	2.6E-11
Cadmium	6.5E-10	6.7E-13	1.0E-03	6.7E-10	Cadmium	1.19E-10	4.9E-13	1.0E-03	4.9E-10	1.2E-09
Chromium	1.3E-08	1.4E-11	5.0E-03	2.8E-09	Chromium	3.68E-09	1.5E-11	5.0E-03	3.0E-09	5.8E-09
Lead	1.2E-09	1.3E-12			Lead	1.02E-09	4.2E-12			
Molybdenum	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Molybdenum	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	1.4E-07	1.4E-10	3.0E-03	4.7E-08	U-TOTAL	4.11E-07	1.7E-09	3.0E-03	5.6E-07	6.1E-07
2-Methylnaphthalene	0.0E+00	0.0E+00			2-Methylnaphthalene	0.00E+00	0.0E+00			
Acenaphthylene	0.0E+00	0.0E+00			Acenaphthylene	0.00E+00	0.0E+00			
Carbazole	0.0E+00	0.0E+00			Carbazole	0.00E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00			Tetrachlorodibenzofura	0.00E+00	0.0E+00			
			Total Pathway:	8.6E-07				Total Pathway:	6.6E-07	

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Total Rad + Chem 8.6E-07

Total Rad + Chem 6.6E-07 *Total:* 1.5E-06

TABLE B.4-15(d) (continued)

INACTIVE FLYASH PILE: BEEF AND MILK (GROUNDWATER AFFECTED)

NONCARCINOGENIC HAZARD

Radiation Hazard

Ingestion/Beef

Compound	Conc'n in Beef (pCi/kg)	Intake	RfD(o)	Hazard
CS-137	0.0E+00			
NP-237	0.0E+00			
PU-238	0.0E+00			
PU-239/240	0.0E+00			
RA-226	7.0E-06			
RA-228	0.0E+00			
SR-90	1.1E-04			
TH-228	0.0E+00			
TH-230	0.0E+00			
TH-232	0.0E+00			
U-234	6.7E-03			
U-235/236	6.0E-04			
U-238	8.6E-03			

Total Pathway: 0.0E+00

Ingestion/Milk

Compound	Conc'n in Milk (pCi/L)	Intake	RfD(o)	Risk
CS-137	0.00E+00			
NP-237	0.00E+00			
PU-238	0.00E+00			
PU-239/240	0.00E+00			
RA-226	1.27E-05			
RA-228	0.00E+00			
SR-90	5.47E-04			
TH-228	0.00E+00			
TH-230	0.00E+00			
TH-232	0.00E+00			
U-234	2.00E-02			
U-235/236	1.81E-03			
U-238	2.57E-02			

Total Pathway: 0.0E+00

	Total	Total Dust & Groundwater Affected

Chemical Hazard

Ingestion/Beef

Compound	Conc'n in Beef (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Cadmium	8.3E-10	8.5E-13	1.0E-03	8.5E-10
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00
Lead	3.0E-06	3.1E-09		
Molybdenum	8.7E-05	8.9E-08	5.0E-03	1.8E-05
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00
2-Methylnaphthalene	0.0E+00	0.0E+00		
Acenaphthylene	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00		
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00
Tetrachlorodibenzofura	0.0E+00	0.0E+00		

Total Pathway: 1.8E-05

Ingestion/Milk

Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Risk	Total	Total Dust & Groundwater Affected
Arsenic	0.00E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	9.1E-07
Beryllium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	2.6E-11
Cadmium	1.50E-10	6.2E-13	1.0E-03	6.2E-10	1.5E-09	2.6E-09
Chromium	0.00E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	5.8E-09
Lead	2.50E-06	1.0E-08				
Molybdenum	2.17E-05	8.9E-08	5.0E-03	1.8E-05	3.6E-05	3.6E-05
TH-TOTAL	0.00E+00	0.0E+00				
U-TOTAL	0.00E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	6.1E-07
2-Methylnaphthalene	0.00E+00	0.0E+00				
Acenaphthylene	0.00E+00	0.0E+00				
Carbazole	0.00E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00				
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00

Total Pathway: 1.8E-05

Total Rad + Chem 1.8E-05

Total Rad + Chem 1.8E-05

Total:	3.6E-05	3.7E-05

TABLE B.4-17(a)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
SOLID WASTE LANDFILL: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	4.00E-06	4.6E-01	1.9E-11	8.8E-12
NP-237	0.00E+00	0.0E+00	2.9E-08	0.0E+00
PU-238	0.00E+00	0.0E+00	3.9E-08	0.0E+00
PU-239/240	0.00E+00	0.0E+00	3.8E-08	0.0E+00
RA-226	1.12E-04	1.3E+01	3.0E-09	3.9E-08
RA-228	1.04E-04	1.2E+01	6.9E-10	8.3E-09
SR-90	0.00E+00	0.0E+00	6.2E-11	0.0E+00
TH-228	0.00E+00	0.0E+00	7.8E-08	0.0E+00
TH-230	1.02E-04	1.2E+01	2.9E-08	3.4E-07
TH-232	1.36E-04	1.6E+01	2.8E-08	4.4E-07
U-234	9.82E-05	1.1E+01	2.6E-08	3.0E-07
U-235/236	9.43E-05	1.1E+01	2.5E-08	2.7E-07
U-238	8.01E-06	9.3E-01	5.2E-08	4.8E-08

Total Pathway: 1.4E-06

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	4.4E-01	1.9E+03	2.8E-11	5.4E-08
NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	1.2E+00	5.4E+03	1.2E-10	6.5E-07
RA-228	1.1E+00	4.9E+03	1.0E-10	4.9E-07
SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00
TH-228	1.1E+00	4.9E+03	5.5E-11	2.7E-07
TH-230	1.5E+00	6.6E+03	1.3E-11	8.6E-08
TH-232	1.1E+00	4.8E+03	1.2E-11	5.7E-08
U-234	1.0E+00	4.6E+03	1.6E-11	7.3E-08
U-235/236	8.8E-02	3.9E+02	1.6E-11	6.2E-09
U-238	1.1E+00	4.7E+03	2.8E-11	1.3E-07

Total Pathway: 1.8E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	5.26E-07	3.4E-08	1.5E+01	5.1E-07
Beryllium	5.46E-08	3.5E-09	8.4E+00	3.0E-08
Cadmium	4.73E-08	3.1E-09		
Chromium	1.06E-06	6.9E-08	4.1E+01	2.8E-06
Lead	1.75E-06	1.1E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.95E-07	1.9E-08		
4,4'-DDE	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00	8.9E-01	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	6.1E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	7.5E-01	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.2E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Chrysene	0	0.0E+00	2.7E-02	0.0E+00
Dibenzo(a,h)anthracene	0	0.0E+00	6.8E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	1.7E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 3.4E-06

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	5.78	1.4E-05	1.8E+00	2.5E-05
Beryllium	0.60	1.5E-06	4.3E+00	6.4E-06
Cadmium	0.52	1.3E-06		
Chromium	11.60	2.9E-05		
Lead	19.20	4.7E-05		
TH-TOTAL	0.00	0.0E+00		
U-TOTAL	0.00	0.0E+00		
4,4'-DDE	0.00	0.0E+00	3.4E-01	0.0E+00
Benzo(a)anthracene	0.00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.00	0.0E+00		
Benzo(k)fluoranthene	0.00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.00	0.0E+00		

Total Pathway: 3.1E-05

Total Rad + Chem 4.8E-06

Total Rad + Chem 3.3E-05

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TABLE B.4-17(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil					Total
	Compound	c'n (p	Intake	SF(e)	Risk	
Not applicable	CS-137	0.44	1.8E+01	2.0E-06	3.7E-05	3.7E-05
	NP-237	0.00	0.0E+00	4.3E-07	0.0E+00	0.0E+00
	PU-238	0.00	0.0E+00	2.8E-11	0.0E+00	0.0E+00
	PU-239/240	0.00	0.0E+00	2.7E-11	0.0E+00	0.0E+00
	RA-226	1.23	5.1E+01	1.2E-08	6.1E-07	1.3E-06
	RA-228	1.11	4.6E+01	2.9E-06	1.3E-04	1.3E-04
	SR-90	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	TH-228	1.12	4.6E+01	5.6E-06	2.6E-04	2.6E-04
	TH-230	1.50	6.2E+01	5.4E-11	3.4E-09	4.3E-07
	TH-232	1.08	4.5E+01	2.6E-11	1.2E-09	5.0E-07
	U-234	1.04	4.3E+01	3.0E-11	1.3E-09	3.7E-07
	U-235/236	0.09	3.7E+00	2.4E-07	8.8E-07	1.2E-06
	U-238	1.08	4.5E+01	3.6E-08	1.6E-06	1.8E-06
Total Pathway: 0.0E+00				Total Pathway:	4.3E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil					Total
Compound	Intake	SF(derm)	Risk	Compound	c'n (m	Intake	SF(o)	Risk	
Arsenic	4.6E-07	1.8E+00	8.4E-07						2.6E-05
Beryllium	4.7E-07	4.3E+02	2.0E-04						2.1E-04
Cadmium	4.1E-07			Not applicable					
Chromium	9.1E-06								2.8E-06
Lead	1.5E-05								
TH-TOTAL	0.0E+00								
U-TOTAL	0.0E+00								
4,4'-DDE	0.0E+00	3.8E-01	0.0E+00						0.0E+00
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00						0.0E+00
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00						0.0E+00
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00						0.0E+00
Benzo(g,h,i)perylene	0.0E+00								
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00						0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	1.6E-02	0.0E+00						0.0E+00
Carbazole	0.0E+00	2.0E-02	0.0E+00						0.0E+00
Chrysene	0.0E+00	7.4E-02	0.0E+00						0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00						0.0E+00
Dibenzofuran	0.0E+00								
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00						0.0E+00
Phenanthrene	0.0E+00								
	Total Pathway:		2.0E-04			Total Pathway:		0.0E+00	

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Total Rad + Chem 2.0E-04 | 4.3E-04 | *Total:* 6.8E-04

TABLE B.4-17(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
NP-237	4.00E-06	4.6E-01		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	0.00E+00	0.0E+00		
RA-228	1.12E-04	1.3E+01		
SR-90	1.04E-04	1.2E+01		
TH-228	0.00E+00	0.0E+00		
TH-230	0.00E+00	0.0E+00		
TH-232	1.02E-04	1.2E+01		
U-234	1.36E-04	1.6E+01		
U-235/236	9.82E-05	1.1E+01		
U-238	9.43E-05	1.1E+01		
U-239	8.01E-06	9.3E-01		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
NP-237	0.44	1.9E+03		
PU-238	0.00	0.0E+00		
PU-239/240	0.00	0.0E+00		
RA-226	0.00	0.0E+00		
RA-228	1.23	5.4E+03		
SR-90	1.11	4.9E+03		
TH-228	0.00	0.0E+00		
TH-230	1.12	4.9E+03		
TH-232	1.50	6.6E+03		
U-234	1.08	4.8E+03		
U-235/236	1.04	4.6E+03		
U-238	0.09	3.9E+02		
U-239	1.08	4.7E+03		

Total Pathway: 0.0E+00

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	5.26E-07	3.4E-08		
Beryllium	5.46E-08	3.5E-09		
Cadmium	4.73E-08	3.1E-09		
Chromium	1.06E-06	6.9E-08		
Lead	1.75E-06	1.1E-07		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	2.95E-07	1.9E-08		
4,4'-DDE	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00		
Benzo(a)pyrene	0.00E+00	0.0E+00		
Benzo(b)fluoranthene	0.00E+00	0.0E+00		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Chrysene	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	5.78	1.4E-05	3.0E-04	4.8E-02
Beryllium	0.60	1.5E-06	5.0E-03	3.0E-04
Cadmium	0.52	1.3E-06	1.0E-03	1.3E-03
Chromium	11.60	2.9E-05	5.0E-03	5.7E-03
Lead	19.20	4.7E-05		
TH-TOTAL	0.00	0.0E+00		
U-TOTAL	0.00	0.0E+00	3.0E-03	0.0E+00
4,4'-DDE	0.00	0.0E+00		
Benzo(a)anthracene	0.00	0.0E+00		
Benzo(a)pyrene	0.00	0.0E+00		
Benzo(b)fluoranthene	0.00	0.0E+00		
Benzo(g,h,i)perylene	0.00	0.0E+00		
Benzo(k)fluoranthene	0.00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.00	0.0E+00	2.0E-02	0.0E+00
Carbazole	0.00	0.0E+00		
Chrysene	0.00	0.0E+00		
Dibenzo(a,h)anthracene	0.00	0.0E+00		
Dibenzofuran	0.00	0.0E+00	4.00E-03	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00	0.0E+00		
Phenanthrene	0.00	0.0E+00		

Total Pathway: 5.5E-02

Total Rad + Chem 0.0E+00

Total Rad + Chem 5.5E-02

TABLE B.4-17(a) (continued)

NONCARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil	External Radiation/Soil			
	Compound	Intake	RfD(e)	Hazard
Not applicable	NP-237	1.8E+01		
	PU-238	0.0E+00		
	PU-239/24	0.0E+00		
	RA-226	0.0E+00		
	RA-228	5.1E+01		
	SR-90	4.6E+01		
	TH-228	0.0E+00		
	TH-230	4.6E+01		
	TH-232	6.2E+01		
	U-234	4.5E+01		
	U-235/236	4.3E+01		
	U-238	3.7E+00		
	U-239	4.5E+01		
Total Pathway: 0.0E+00	Total Pathway: 0.0E+00			

Chemical Hazard

Dermal Contact/Soil				External Radiation/Soil				Total
Compound	Intake	RfD(derm	Hazard	Compound	Intake	RfD(o)	Hazard	
Arsenic	4.6E-07	2.9E-04	1.6E-03					4.9E-02
Beryllium	4.7E-07	5.0E-05	9.5E-03					9.7E-03
Cadmium	4.1E-07	5.0E-05	8.2E-03	Not applicable				9.5E-03
Chromium	9.1E-06	2.3E-03	4.1E-03					9.8E-03
Lead	1.5E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	0.0E+00	1.5E-04	0.0E+00					0.0E+00
4,4'-DDE	0.0E+00							
Benzo(a)anthracene	0.0E+00							
Benzo(a)pyrene	0.0E+00							
Benzo(b)fluoranthene	0.0E+00							
Benzo(g,h,i)perylene	0.0E+00							
Benzo(k)fluoranthene	0.0E+00							
bis(2-Ethylhexyl) phthalate	0.0E+00	1.8E-02	0.0E+00					0.0E+00
Carbazole	0.0E+00							
Chrysene	0.0E+00							
Dibenzo(a,h)anthracene	0.0E+00							
Dibenzofuran	0.0E+00							0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00							
Phenanthrene	0.0E+00							
	Total Pathway:		2.3E-02	Total Pathway:			0.0E+00	
FER\CRU2RI\ABQ\SBSLONRF.XLS\1/4/94; 11:24 AM	Total Rad + Chem		2.3E-02				0.0E+00	*Total:* 7.8E-02

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TABLE B.4-17(b)
RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	SF(o)	Risk	
CS-137	3.81E-02	5.7E+01	2.8E-11	1.6E-09	1.6E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	1.04E-01	1.6E+02	1.2E-10	1.9E-08	1.9E-08
RA-228	9.70E-02	1.4E+02	1.0E-10	1.4E-08	1.4E-08
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	9.47E-02	1.4E+02	5.5E-11	7.8E-09	7.8E-09
TH-230	1.27E-01	1.9E+02	1.3E-11	2.5E-09	2.5E-09
TH-232	9.14E-02	1.4E+02	1.2E-11	1.6E-09	1.6E-09
U-234	8.82E-02	1.3E+02	1.6E-11	2.1E-09	2.1E-09
U-235/236	7.45E-03	1.1E+01	1.6E-11	1.7E-10	1.7E-10
U-238	9.16E-02	1.4E+02	2.8E-11	3.8E-09	3.8E-09
			Total Pathway:	5.3E-08	

Chemical Risk					
Ingestion/Homegrown Produce					
Compound	Conc'n in Plants (mg/kg)	Intake	SF(o)	Risk	
Arsenic	4.94E-07	4.1E-10	1.5E+01	6.2E-09	6.2E-09
Beryllium	5.09E-08	4.2E-11	8.4E+00	3.6E-10	3.6E-10
Cadmium	5.20E-08	4.3E-11			
Chromium	9.85E-07	8.2E-10			
Lead	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.75E-04	2.3E-07			
4,4'-DDE	0.00E+00	0.0E+00			
Benzo(a)anthracene	0.00E+00	0.0E+00	8.9E-01	0.0E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	6.1E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	7.5E-01	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.2E-01	0.0E+00	0.0E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00			
Chrysene	0.00E+00	0.0E+00	2.7E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	6.8E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	1.7E+00	0.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	6.6E-09	

Total Rad + Chem	5.9E-08	*Total:*	5.9E-08

FER\CRU2RI\ABQ\SBVONRFD.XLS\12/30/93; 2:34 PM

TABLE B.4-17(b) (continued)
RISKS DUE TO BACKGROUND [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
SOLID WASTE LANDFILL: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion/Homegrown Produce					Total
Compound	Conc'n in Plants (pCi/kg)	Intake	RfD(o)	Hazard	
CS-137	3.8E-02	5.7E+01			
NP-237	0.0E+00	0.0E+00			
PU-238	0.0E+00	0.0E+00			
PU-239/240	0.0E+00	0.0E+00			
RA-226	1.0E-01	1.6E+02			
RA-228	9.7E-02	1.4E+02			
SR-90	0.0E+00	0.0E+00			
TC-99	0.0E+00	0.0E+00			
TH-228	9.5E-02	1.4E+02			
TH-230	1.3E-01	1.9E+02			
TH-232	9.1E-02	1.4E+02			
U-234	8.8E-02	1.3E+02			
U-235/236	7.5E-03	1.1E+01			
U-238	9.2E-02	1.4E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Inhalation of Particulates/Soil					
Compound	Conc'n in Plants (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	4.94E-07	4.1E-10	3.0E-04	1.4E-06	1.4E-06
Beryllium	5.09E-08	4.2E-11	5.0E-03	8.5E-09	8.5E-09
Cadmium	5.20E-08	4.3E-11	1.0E-03	4.3E-08	4.3E-08
Chromium	9.85E-07	8.2E-10	5.0E-03	1.6E-07	1.6E-07
Lead	0.00E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			
U-TOTAL	2.75E-04	2.3E-07	3.0E-03	7.7E-05	7.7E-05
4,4'-DDE	0.00E+00	0.0E+00			
Benzo(a)anthracene	0.00E+00	0.0E+00			
Benzo(a)pyrene	0.00E+00	0.0E+00			
Benzo(b)fluoranthene	0.00E+00	0.0E+00			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			
Benzo(k)fluoranthene	0.00E+00	0.0E+00			
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00			
Carbazole	0.00E+00	0.0E+00			
Chrysene	0.00E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			
Dibenzofuran	0.00E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00			
Phenanthrene	0.00E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			
			Total Pathway:	7.8E-05	

Total Rad + Chem	7.8E-05	*Total:*	7.8E-05

FER\CRU2RI\ABQ\SBVONRFD.XLS\12/30/93; 2:34 PM

TABLE B.4-17(c)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (pCi/L)	Intake	SF(o)	Risk	
CS-137	4.89E-02	9.0E+01	2.8E-11	2.5E-09	CS-137	1.7E-02	1.3E+02	2.8E-11	3.5E-09	6.0E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	1.68E-03	3.1E+00	1.2E-10	3.7E-10	RA-226	3.0E-03	2.2E+01	1.2E-10	2.7E-09	3.0E-09
RA-228	1.52E-03	2.8E+00	1.0E-10	2.8E-10	RA-228	2.7E-03	2.0E+01	1.0E-10	2.0E-09	2.3E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TC-99	0.0E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	3.36E-05	6.2E-02	5.5E-11	3.4E-12	TH-228	2.8E-05	2.1E-01	5.5E-11	1.1E-11	1.5E-11
TH-230	4.95E-05	9.1E-02	1.3E-11	1.2E-12	TH-230	4.1E-05	3.0E-01	1.3E-11	3.9E-12	5.1E-12
TH-232	3.57E-05	6.6E-02	1.2E-11	7.9E-13	TH-232	3.0E-05	2.2E-01	1.2E-11	2.6E-12	3.4E-12
U-234	1.15E-03	2.1E+00	1.6E-11	3.4E-11	U-234	3.4E-03	2.5E+01	1.6E-11	4.0E-10	4.4E-10
U-235/236	9.69E-05	1.8E-01	1.6E-11	2.8E-12	U-235/236	2.9E-04	2.1E+00	1.6E-11	3.4E-11	3.7E-11
U-238	1.19E-03	2.2E+00	2.8E-11	6.1E-11	U-238	3.6E-03	2.6E+01	2.8E-11	7.4E-10	8.0E-10
			Total Pathway:	3.3E-09				Total Pathway:	9.4E-09	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n-Beef (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n-Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	6.37E-08	6.5E-11	1.8E+00	1.1E-10	Arsenic	1.9E-09	7.9E-12	1.8E+00	1.4E-11	1.3E-10
Beryllium	3.30E-09	3.4E-12	4.3E+00	1.5E-11	Beryllium	3.0E-12	1.2E-14	4.3E+00	5.2E-14	1.5E-11
Cadmium	1.71E-08	1.8E-11			Cadmium	3.1E-09	1.3E-11			
Chromium	3.52E-07	3.6E-10			Chromium	9.6E-08	4.0E-10			
Lead	0.00E+00	0.0E+00			Lead	0.0E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.57E-06	3.7E-09			U-TOTAL	1.1E-05	4.4E-08			
4,4'-DDE	0.00E+00	0.0E+00	3.4E-01	0.0E+00	4,4'-DDE	0.0E+00	0.0E+00	3.4E-01	0.0E+00	0.0E+00
Benzo(a)anthracene	0.00E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.00E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.00E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.00E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00
Carbazole	0.00E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	0.00E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.00E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00	1.5E+05	0.0E+00	Heptachloro-p-dioxin	0.0E+00	0.0E+00	1.5E+05	0.0E+00	0.0E+00
			Total Pathway:	1.3E-10				Total Pathway:	1.4E-11	1.3E-08
FER\CRU2RI\ABQ\SBBONRFD.XLS\12/30/93; 2:32 PM			Total Rad + Chem	3.4E-09				Total Rad + Chem	9.4E-09	*Total:* 1.3E-08

TABLE B.4-17(c) (continued)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
SOLID WASTE LANDFILL: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (pCi/L)	Intake	RfD(o)	Risk	
CS-137	4.89E-02	9.0E+01			CS-137	1.7E-02	1.3E+02			
NP-237	0.00E+00	0.0E+00			NP-237	0.0E+00	0.0E+00			
PU-238	0.00E+00	0.0E+00			PU-238	0.0E+00	0.0E+00			
PU-239/240	0.00E+00	0.0E+00			PU-239/240	0.0E+00	0.0E+00			
RA-226	1.68E-03	3.1E+00			RA-226	3.0E-03	2.2E+01			
RA-228	1.52E-03	2.8E+00			RA-228	2.7E-03	2.0E+01			
SR-90	0.00E+00	0.0E+00			SR-90	0.0E+00	0.0E+00			
TC-99	0.00E+00	0.0E+00			TC-99	0.0E+00	0.0E+00			
TH-228	3.36E-05	6.2E-02			TH-228	2.8E-05	2.1E-01			
TH-230	4.95E-05	9.1E-02			TH-230	4.1E-05	3.0E-01			
TH-232	3.57E-05	6.6E-02			TH-232	3.0E-05	2.2E-01			
U-234	1.15E-03	2.1E+00			U-234	3.4E-03	2.5E+01			
U-235/236	9.69E-05	1.8E-01			U-235/236	2.9E-04	2.1E+00			
U-238	1.19E-03	2.2E+00			U-238	3.6E-03	2.6E+01			
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n-Beef (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n-Milk (mg/L)	Intake	RfD(o)	Hazard	
Arsenic	6.37E-08	6.5E-11	3.0E-04	2.2E-07	Arsenic	1.9E-09	7.9E-12	3.0E-04	2.6E-08	2.4E-07
Beryllium	3.30E-09	3.4E-12	5.0E-03	6.8E-10	Beryllium	3.0E-12	1.2E-14	5.0E-03	2.4E-12	6.8E-10
Cadmium	1.71E-08	1.8E-11	1.0E-03	1.8E-08	Cadmium	3.1E-09	1.3E-11	1.0E-03	1.3E-08	3.0E-08
Chromium	3.52E-07	3.6E-10	5.0E-03	7.2E-08	Chromium	9.6E-08	4.0E-10	5.0E-03	7.9E-08	1.5E-07
Lead	0.00E+00	0.0E+00			Lead	0.0E+00	0.0E+00			
TH-TOTAL	0.00E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.57E-06	3.7E-09	3.0E-03	1.2E-06	U-TOTAL	1.1E-05	4.4E-08	3.0E-03	1.5E-05	1.6E-05
4,4'-DDE	0.00E+00	0.0E+00			4,4'-DDE	0.0E+00	0.0E+00			
Benzo(a)anthracene	0.00E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00			
Benzo(a)pyrene	0.00E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00			
Benzo(b)fluoranthene	0.00E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	0.00E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.00E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00			
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Carbazole	0.00E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	0.00E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.00E+00	0.0E+00	4.00E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.00E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
Heptachloro-p-dioxin	0.00E+00	0.0E+00			Heptachloro-p-dioxin	0.0E+00	0.0E+00			
		Total Pathway:		1.5E-06			Total Pathway:		1.5E-05	

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Total Rad + Chem 1.5E-06

Total Rad + Chem 1.5E-05 *Total:* 1.6E-05

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TABLE B.4-19(a)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: SURFACE SOIL
CARCINOGENIC RISK

Radiation Risk

Inhalation of Particulates/Soil

Compound	Conc'n in Air (pCi/m3)	Intake	SF(i)	Risk
CS-137	6.60E-06	7.7E-01	1.9E-11	1.5E-11
NP-237	0.00E+00	0.0E+00	2.9E-08	0.0E+00
PU-238	0.00E+00	0.0E+00	3.9E-08	0.0E+00
PU-239/240	0.00E+00	0.0E+00	3.8E-08	0.0E+00
RA-226	1.84E-05	2.1E+00	3.0E-09	6.4E-09
RA-228	1.71E-05	2.0E+00	6.6E-10	1.3E-09
SR-90	0.00E+00	0.0E+00	6.2E-11	0.0E+00
TC-99	0.00E+00	0.0E+00	8.3E-12	0.0E+00
TH-228	1.68E-05	1.9E+00	7.8E-08	1.5E-07
TH-230	2.24E-05	2.6E+00	2.9E-08	7.5E-08
TH-232	1.62E-05	1.9E+00	2.8E-08	5.3E-08
U-234	1.55E-05	1.8E+00	2.6E-08	4.7E-08
U-235/236	1.32E-06	1.5E-01	2.5E-08	3.8E-09
U-238	1.62E-05	1.9E+00	5.20E-08	9.8E-08
			Total Pathway:	4.4E-07

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	SF(o)	Risk
CS-137	4.4E-01	1.9E+03	2.8E-11	5.4E-08
NP-237	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-238	0.0E+00	0.0E+00	2.2E-10	0.0E+00
PU-239/240	0.0E+00	0.0E+00	2.3E-10	0.0E+00
RA-226	1.2E+00	5.4E+03	1.2E-10	6.5E-07
RA-228	1.1E+00	5.0E+03	1.0E-10	5.0E-07
SR-90	0.0E+00	0.0E+00	3.6E-11	0.0E+00
TC-99	0.0E+00	0.0E+00	1.3E-12	0.0E+00
TH-228	1.1E+00	4.9E+03	5.5E-11	2.7E-07
TH-230	1.5E+00	6.6E+03	1.3E-11	8.6E-08
TH-232	1.1E+00	4.8E+03	1.2E-11	5.7E-08
U-234	1.0E+00	4.6E+03	1.6E-11	7.3E-08
U-235/236	8.8E-02	3.9E+02	1.6E-11	6.2E-09
U-238	1.1E+00	4.7E+03	2.8E-11	1.3E-07
			Total Pathway:	1.8E-06

Chemical Risk

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	SF(i)	Risk
Arsenic	8.7E-08	5.6E-09	1.5E+01	8.5E-08
Beryllium	9.0E-09	5.8E-10	8.4E+00	4.9E-09
Cadmium	7.8E-09	5.1E-10		
Chromium	1.7E-07	1.1E-08	4.1E+00	4.6E-08
Lead	2.9E-07	1.9E-08		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	4.9E-08	3.1E-09		
Aroclor-1254	0.0E+00	0.0E+00		
Benzo(a)anthracene	0.0E+00	0.0E+00	8.9E-01	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	6.1	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	7.5E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.2E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00		
Carbazole	0.0E+00	0.0E+00		
Chrysene	0.0E+00	0.0E+00	2.7E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	6.8E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	1.7E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway:	1.4E-07
			Total Rad + Chem	5.7E-07

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk
Arsenic	5.8E+00	1.4E-05	1.8E+00	2.5E-05
Beryllium	6.0E-01	1.5E-06	4.3E+00	6.4E-06
Cadmium	5.2E-01	1.3E-06		
Chromium	1.2E+01	2.9E-05		
Lead	1.9E+01	4.7E-05		
TH-TOTAL	0.0E+00	0.0E+00		
U-TOTAL	3.2E+00	8.0E-06		
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00		
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00		
			Total Pathway:	3.1E-05
			Total Rad + Chem	3.3E-05

TABLE B.4-19(a) (continued)

CARCINOGENIC RISK

Radiation Risk

Dermal Contact/Soil	External Radiation/Soil			Total
	Compound	Intake	SF(e)	Risk	
Not applicable	CS-137	1.8E+01	2.0E-06	3.7E-05	3.7E-05
	NP-237	0.0E+00	4.3E-07	0.0E+00	0.0E+00
	PU-238	0.0E+00	2.8E-11	0.0E+00	0.0E+00
	PU-239/240	0.0E+00	2.7E-11	0.0E+00	0.0E+00
	RA-226	5.1E+01	1.2E-08	6.1E-07	1.3E-06
	RA-228	4.7E+01	2.9E-06	1.4E-04	1.4E-04
	SR-90	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	TC-99	0.0E+00	6.0E-13	0.0E+00	0.0E+00
	TH-228	4.6E+01	5.6E-06	2.6E-04	2.6E-04
	TH-230	6.2E+01	5.4E-11	3.4E-09	1.6E-07
	TH-232	4.5E+01	2.6E-11	1.2E-09	1.1E-07
	U-234	4.3E+01	3.0E-11	1.3E-09	1.2E-07
	U-235/236	3.7E+00	2.4E-07	8.8E-07	8.9E-07
	U-238	4.5E+01	3.6E-08	1.6E-06	1.8E-06
Total Pathway: 0.0E+00				Total Pathway: 4.4E-04	

Chemical Risk

Dermal Contact/Soil				External Radiation/Soil				
Compound	Intake	SF(derm)	Risk	Compound	Intake	SF(o)	Risk	
Arsenic	4.6E-07	1.8E+00	8.4E-07					2.6E-05
Beryllium	4.7E-07	4.3E+02	2.0E-04					2.1E-04
Cadmium	4.1E-07							
Chromium	9.1E-06							4.6E-08
Lead	1.5E-05							
TH-TOTAL	0.0E+00							
U-TOTAL	2.6E-06							
Aroclor-1254	0.0E+00	1.0E+01	0.0E+00					0.0E+00
Benzo(a)anthracene	0.0E+00	2.6E+00	0.0E+00					0.0E+00
Benzo(a)pyrene	0.0E+00	1.7E+01	0.0E+00	Not applicable				0.0E+00
Benzo(b)fluoranthene	0.0E+00	2.1E+00	0.0E+00					0.0E+00
Benzo(g,h,i)perylene	0.0E+00							
Benzo(k)fluoranthene	0.0E+00	8.8E-01	0.0E+00					0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	1.6E-02	0.0E+00					0.0E+00
Carbazole	0.0E+00	2.0E-02	0.0E+00					0.0E+00
Chrysene	0.0E+00	7.4E-02	0.0E+00					0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	1.9E+01	0.0E+00					0.0E+00
Dibenzofuran	0.0E+00							
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00					0.0E+00
Phenanthrene	0.0E+00							
	Total Pathway:		2.0E-04		Total Pathway:		0.0E+00	
	Total Rad + Chem		2.0E-04				4.4E-04	*Total:* 6.7E-04

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TABLE B.4-19(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Inhalation of Particulates/Soil

Compound	Conc'n-Air (pCi/m3)	Intake	RfD(i)	Hazard
CS-137	6.60E-06	7.7E-01		
NP-237	0.00E+00	0.0E+00		
PU-238	0.00E+00	0.0E+00		
PU-239/240	0.00E+00	0.0E+00		
RA-226	1.84E-05	2.1E+00		
RA-228	1.71E-05	2.0E+00		
SR-90	0.00E+00	0.0E+00		
TC-99	0.00E+00	0.0E+00		
TH-228	1.68E-05	1.9E+00		
TH-230	2.24E-05	2.6E+00		
TH-232	1.62E-05	1.9E+00		
U-234	1.55E-05	1.8E+00		
U-235/236	1.32E-06	1.5E-01		
U-238	1.62E-05	1.9E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (pCi/g)	Intake	RfD(o)	Hazard
CS-137	0.440	1.9E+03		
NP-237	0.000	0.0E+00		
PU-238	0.000	0.0E+00		
PU-239/240	0.000	0.0E+00		
RA-226	1.228	5.4E+03		
RA-228	1.140	5.0E+03		
SR-90	0.000	0.0E+00		
TC-99	0.000	0.0E+00		
TH-228	1.119	4.9E+03		
TH-230	1.496	6.6E+03		
TH-232	1.079	4.8E+03		
U-234	1.036	4.6E+03		
U-235/236	0.088	3.9E+02		
U-238	1.077	4.7E+03		

Total Pathway: ######

Chemical Hazard

Inhalation of Particulates/Soil

Compound	Conc'n (mg/m3)	Intake	RfD(i)	Hazard
Arsenic	8.67E-08	5.6E-09		
Beryllium	9.00E-09	5.8E-10		
Cadmium	7.80E-09	5.1E-10		
Chromium	1.74E-07	1.1E-08		
Lead	2.88E-07	1.9E-08		
TH-TOTAL	0.00E+00	0.0E+00		
U-TOTAL	4.86E-08	3.1E-09		
Aroclor-1254	0.00E+00	0.0E+00		
Benzo(a)anthracene	0.00E+00	0.0E+00		
Benzo(a)pyrene	0.00E+00	0.0E+00		
Benzo(b)fluoranthene	0.00E+00	0.0E+00		
Benzo(g,h,i)perylene	0.00E+00	0.0E+00		
Benzo(k)fluoranthene	0.00E+00	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.00E+00	0.0E+00		
Carbazole	0.00E+00	0.0E+00		
Chrysene	0.00E+00	0.0E+00		
Dibenzo(a,h)anthracene	0.00E+00	0.0E+00		
Dibenzofuran	0.00E+00	0.0E+00		
Indeno(1,2,3-cd)pyrene	0.00E+00	0.0E+00		
Phenanthrene	0.00E+00	0.0E+00		

Total Pathway: 0.0E+00

Ingestion/Soil

Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard
Arsenic	5.780	1.4E-05	3.0E-04	4.8E-02
Beryllium	0.600	1.5E-06	5.0E-03	3.0E-04
Cadmium	0.520	1.3E-06	1.0E-03	1.3E-03
Chromium	11.600	2.9E-05	5.0E-03	5.7E-03
Lead	19.200	4.7E-05		
TH-TOTAL	0.000	0.0E+00		
U-TOTAL	3.240	8.0E-06	3.0E-03	0.0
Aroclor-1254	0.000	0.0E+00		
Benzo(a)anthracene	0.000	0.0E+00		
Benzo(a)pyrene	0.000	0.0E+00		
Benzo(b)fluoranthene	0.000	0.0E+00		
Benzo(g,h,i)perylene	0.000	0.0E+00		
Benzo(k)fluoranthene	0.000	0.0E+00		
bis(2-Ethylhexyl) phthalate	0.000	0.0E+00	2.0E-02	######
Carbazole	0.000	0.0E+00		
Chrysene	0.000	0.0E+00		
Dibenzo(a,h)anthracene	0.000	0.0E+00		
Dibenzofuran	0.000	0.0E+00	4.0E-03	######
Indeno(1,2,3-cd)pyrene	0.000	0.0E+00	2.0E+00	######
Phenanthrene	0.000	0.0E+00		

Total Pathway: 5.7E-02

Total Rad + Chem 0.0E+00

Total Rad + Chem 5.7E-02

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TABLE B.4-19(a) (continued)

NON-CARCINOGENIC HAZARD

Radiation Hazard

Dermal Contact/Soil

Not applicable

Total Pathway: 0.0E+00

External Radiation/Soil

Compound	Intake	RfD(e)	Hazard
CS-137	1.8E+01		
NP-237	0.0E+00		
PU-238	0.0E+00		
PU-239/240	0.0E+00		
RA-226	5.1E+01		
RA-228	4.7E+01		
SR-90	0.0E+00		
TC-99	0.0E+00		
TH-228	4.6E+01		
TH-230	6.2E+01		
TH-232	4.5E+01		
U-234	4.3E+01		
U-235/236	3.7E+00		
U-238	4.5E+01		

Total Pathway: 0.0E+00

Chemical Hazard

Dermal Contact/Soil

Compound	Intake	RfD(derm	Hazard	Total
Arsenic	4.6E-07	2.9E-04	1.3E-10	4.8E-02
Beryllium	4.7E-07	5.0E-05	2.4E-11	3.0E-04
Cadmium	4.1E-07	5.0E-05	2.0E-11	1.3E-03
Chromium	9.1E-06	2.3E-03	2.1E-08	5.7E-03
Lead	1.5E-05			
TH-TOTAL	0.0E+00			
U-TOTAL	2.6E-06	1.5E-04	3.8E-10	2.7E-03
Aroclor-1254	0.0E+00			
Benzo(a)anthracene	0.0E+00			
Benzo(a)pyrene	0.0E+00			
Benzo(b)fluoranthene	0.0E+00			
Benzo(g,h,i)perylene	0.0E+00			
Benzo(k)fluoranthene	0.0E+00			
bis(2-Ethylhexyl) phthalate	0.0E+00	1.8E-02	0.0E+00	0.0E+00
Carbazole	0.0E+00			
Chrysene	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00			
Dibenzofuran	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	4.7E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00			

Total Pathway: 2.1E-08

External Radiation/Soil

Compound	Intake	RfD(o)	Hazard

Not applicable

Total Pathway: 0.0E+00

Total Rad + Chem 2.1E-08

0.0E+00 *Total:* 5.7E-02

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TABLE B.4-19(b)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER]
LIME SLUDGE PITS: GROUNDWATER

Carcinogenic Risk

Radiation Risk								
Ingestion/Groundwater					Inhalation/Groundwater	Dermal Contact/Groundwater	Total
Compoun	Conc'n (pCi/L)	Intake	SF(o)	Risk			
SR-90	1.2E-07	6.1E-03	3.60E-11	2.2E-13	Not applicable	Not applicable	2.2E-13
			Total Pathway:	2.2E-13	Total Pathway: 0.0E+00	Total Pathway: 0.0E+00	
			Total Rad + Chem	2.2E-13	Total Rad + Chem 0.0E+00	Total Rad + Chem 0.0E+00	*Total:* 2.2E-13

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TABLE B.4-19(b) (continued)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER]
LIME SLUDGE PITS: GROUNDWATER

Non-carcinogenic Hazard

Radiation Hazard										
Ingestion/Groundwater					Inhalation/Groundwater		Dermal Contact/Groundwater			
Compound	Conc'n (pCi/L)	Intake	RfD(o)	Hazard						
SR-90	1.2E-07	6.1E-03			Not applicable		Not applicable			
		Total Pathway:		0.0E+00	Total Pathway:	0.0E+00	Total Pathway:	0.0E+00		
		Total Rad + Chem		0.0E+00	Total Rad + Chem	0.0E+00	Total Rad + Chem	0.0E+00	*Total:*	0.0E+00

TABLE B.4-19(c)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)

Carcinogenic Risk

Radiation Risk					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	
CS-137	4.28E-02	6.4E+01	2.8E-11	1.8E-09	1.8E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	1.17E-01	1.7E+02	1.2E-10	2.1E-08	2.1E-08
RA-228	1.08E-01	1.6E+02	1.0E-10	1.6E-08	1.6E-08
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00
TH-228	1.06E-01	1.6E+02	5.5E-11	8.7E-09	8.7E-09
TH-230	1.42E-01	2.1E+02	1.3E-11	2.8E-09	2.8E-09
TH-232	1.03E-01	1.5E+02	1.2E-11	1.8E-09	1.8E-09
U-234	9.85E-02	1.5E+02	1.6E-11	2.4E-09	2.4E-09
U-235/236	8.37E-03	1.3E+01	1.6E-11	2.0E-10	2.0E-10
U-238	1.02E-01	1.5E+02	2.8E-11	4.3E-09	4.3E-09
			Total Pathway:	5.9E-08	

Chemical Risk					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	
Arsenic	5.6E-07	4.6E-10	1.8E+00	8.1E-10	8.1E-10
Beryllium	5.7E-08	4.8E-11	4.3E+00	2.1E-10	2.1E-10
Cadmium	5.8E-08	4.9E-11			
Chromium	1.1E-06	9.2E-10			
Lead	1.8E-06	1.5E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.1E-07	2.6E-10			
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.0E-09	
			Total Rad + Chem	6.0E-08	*Total:* 6.0E-08

TABLE B.4-19(c)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk						
Ingestion of Homegrown Produce						
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	1.8E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	2.1E-08
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	1.6E-08
SR-90	8.62E-07	1.3E-03	3.6E-11	4.6E-14	4.6E-14	4.6E-14
TC-99	0.00E+00	0.0E+00	1.3E-12	0.0E+00	0.0E+00	0.0E+00
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	8.7E-09
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	2.8E-09
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	1.8E-09
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	2.4E-09
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	2.0E-10
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	4.3E-09
			Total Pathway:	4.6E-14		

Chemical Risk						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Total	Total Dust & Groundwater Affected
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	8.1E-10
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	2.1E-10
Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	4.6E-14	*Total:* 4.6E-14	6.0E-08

TABLE B.4-19(c) (continued)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard					
Ingestion of Homegrown Produce					Total
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard	
CS-137	4.3E-02	6.4E+01			
NP-237	0.0E+00	0.0E+00			
PU-238	0.0E+00	0.0E+00			
PU-239/240	0.0E+00	0.0E+00			
RA-226	1.2E-01	1.7E+02			
RA-228	1.1E-01	1.6E+02			
SR-90	0.0E+00	0.0E+00			
TC-99	0.0E+00	0.0E+00			
TH-228	1.1E-01	1.6E+02			
TH-230	1.4E-01	2.1E+02			
TH-232	1.0E-01	1.5E+02			
U-234	9.9E-02	1.5E+02			
U-235/236	8.4E-03	1.3E+01			
U-238	1.0E-01	1.5E+02			
			Total Pathway:	0.0E+00	

Chemical Hazard					
Ingestion of Homegrown Produce					
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	
Arsenic	5.6E-07	4.6E-10	3.0E-04	1.5E-06	1.5E-06
Beryllium	5.7E-08	4.8E-11	5.0E-03	9.5E-09	9.5E-09
Cadmium	5.8E-08	4.9E-11	1.0E-03	4.9E-08	4.9E-08
Chromium	1.1E-06	9.2E-10	5.0E-03	1.8E-07	1.8E-07
Lead	1.8E-06	1.5E-09			
TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	3.1E-07	2.6E-10	3.0E-03	8.6E-08	8.6E-08
Aroclor-1254	0.0E+00	0.0E+00			
Benzo(a)anthracene	0.0E+00	0.0E+00			
Benzo(a)pyrene	0.0E+00	0.0E+00			
Benzo(b)fluoranthene	0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.0E+00	0.0E+00			
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00			
Chrysene	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.9E-06	
			Total Rad + Chem	1.9E-06	*Total:* 1.9E-06

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TABLE B.4-19(c) (continued)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: HOMEGROWN PRODUCE (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard					Total	Total Dust & Groundwater Affected
Ingestion of Homegrown Produce						
Compound	Conc'n (pCi/kg)	Intake	RfD(i)	Hazard		
CS-137	0.0E+00	0.0E+00				
NP-237	0.0E+00	0.0E+00				
PU-238	0.0E+00	0.0E+00				
PU-239/240	0.0E+00	0.0E+00				
RA-226	0.0E+00	0.0E+00				
RA-228	0.0E+00	0.0E+00				
SR-90	8.6E-07	1.3E-03				
TC-99	0.0E+00	0.0E+00				
TH-228	0.0E+00	0.0E+00				
TH-230	0.0E+00	0.0E+00				
TH-232	0.0E+00	0.0E+00				
U-234	0.0E+00	0.0E+00				
U-235/236	0.0E+00	0.0E+00				
U-238	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		

Chemical Hazard						
Ingestion of Homegrown Produce						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	1.5E-06
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	9.5E-09
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	4.9E-08
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.8E-07
Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	8.6E-08
Aroclor-1254	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00		
			Total Rad + Chem	0.0E+00	*Total:* 0.0E+00	1.9E-06

TABLE B.4-19(d)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk	
CS-137	5.49E-02	1.0E+02	2.8E-11	2.8E-09	CS-137	1.92E-02	1.4E+02	2.8E-11	4.0E-09	6.8E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00
RA-226	1.89E-03	3.5E+00	1.2E-10	4.2E-10	RA-226	3.41E-03	2.5E+01	1.2E-10	3.0E-09	3.4E-09
RA-228	1.70E-03	3.1E+00	1.0E-10	3.1E-10	RA-228	3.05E-03	2.2E+01	1.0E-10	2.2E-09	2.6E-09
SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	SR-90	0.00E+00	0.0E+00	3.6E-11	0.0E+00	0.0E+00
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00
TH-228	3.76E-05	6.9E-02	5.5E-11	3.8E-12	TH-228	3.14E-05	2.3E-01	5.5E-11	1.3E-11	1.6E-11
TH-230	5.55E-05	1.0E-01	1.3E-11	1.3E-12	TH-230	4.63E-05	3.4E-01	1.3E-11	4.4E-12	5.7E-12
TH-232	4.00E-05	7.4E-02	1.2E-11	8.8E-13	TH-232	3.34E-05	2.5E-01	1.2E-11	2.9E-12	3.8E-12
U-234	1.28E-03	2.4E+00	1.6E-11	3.8E-11	U-234	3.84E-03	2.8E+01	1.6E-11	4.5E-10	4.9E-10
U-235/236	1.09E-04	2.0E-01	1.6E-11	3.2E-12	U-235/236	3.26E-04	2.4E+00	1.6E-11	3.8E-11	4.2E-11
U-238	1.33E-03	2.4E+00	2.8E-11	6.8E-11	U-238	3.98E-03	2.9E+01	2.8E-11	8.2E-10	8.9E-10
			Total Pathway:	3.7E-09				Total Pathway:	1.1E-08	

Chemical Risk

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk	
Arsenic	7.2E-08	7.4E-11	1.8E+00	1.3E-10	Arsenic	2.1E-09	8.8E-12	1.8E+00	1.5E-11	1.4E-10
Beryllium	3.7E-09	3.8E-12	4.3E+00	1.6E-11	Beryllium	3.3E-12	1.4E-14	4.3E+00	5.9E-14	1.6E-11
Cadmium	1.9E-08	2.0E-11			Cadmium	3.5E-09	1.4E-11			
Chromium	4.0E-07	4.1E-10			Chromium	1.1E-07	4.4E-10			
Lead	3.6E-08	3.7E-11			Lead	3.0E-08	1.2E-10			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	4.0E-09	4.1E-12			U-TOTAL	1.2E-08	4.9E-11			
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalat	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00			
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
			Total Pathway:	1.5E-10				Total Pathway:	1.6E-11	

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Total Rad + Chem 3.8E-09

Total Rad + Chem 1.1E-08

Total: 1.4E-08

TABLE B.4-19(d)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Carcinogenic Risk

Radiation Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (pCi/L	Intake	SF(o)	Risk		
CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	CS-137	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	6.8E-09
NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	NP-237	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	PU-238	0.00E+00	0.0E+00	2.2E-10	0.0E+00	0.0E+00	0.0E+00
PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	PU-239/240	0.00E+00	0.0E+00	2.3E-10	0.0E+00	0.0E+00	0.0E+00
RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	RA-226	0.00E+00	0.0E+00	1.2E-10	0.0E+00	0.0E+00	3.4E-09
RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	RA-228	0.00E+00	0.0E+00	1.0E-10	0.0E+00	0.0E+00	2.6E-09
SR-90	6.56E-09	1.2E-05	3.6E-11	4.3E-16	SR-90	3.28E-08	2.4E-04	3.6E-11	8.7E-15	9.1E-15	9.1E-15
TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	TC-99	0.00E+00	0.0E+00	1.30E-12	0.0E+00	0.0E+00	0.0E+00
TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	TH-228	0.00E+00	0.0E+00	5.5E-11	0.0E+00	0.0E+00	1.6E-11
TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	TH-230	0.00E+00	0.0E+00	1.3E-11	0.0E+00	0.0E+00	5.7E-12
TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	TH-232	0.00E+00	0.0E+00	1.2E-11	0.0E+00	0.0E+00	3.8E-12
U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-234	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.9E-10
U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	U-235/236	0.00E+00	0.0E+00	1.6E-11	0.0E+00	0.0E+00	4.2E-11
U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	U-238	0.00E+00	0.0E+00	2.8E-11	0.0E+00	0.0E+00	8.9E-10
			Total Pathway:	4.3E-16				Total Pathway:	8.7E-15		

Chemical Risk

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (mg/kg)	Intake	SF(o)	Risk	Compound	Conc'n in Milk (mg/L)	Intake	SF(o)	Risk		
Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	Arsenic	0.0E+00	0.0E+00	1.8E+00	0.0E+00	0.0E+00	1.4E-10
Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	Beryllium	0.0E+00	0.0E+00	4.3E+00	0.0E+00	0.0E+00	1.6E-11
Cadmium	0.0E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00				
Chromium	0.0E+00	0.0E+00			Chromium	0.0E+00	0.0E+00				
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00			U-TOTAL	0.0E+00	0.0E+00				
Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	Aroclor-1254	0.0E+00	0.0E+00	7.7E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	Benzo(a)anthracene	0.0E+00	0.0E+00	1.1E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	Benzo(a)pyrene	0.0E+00	0.0E+00	7.3E+00	0.0E+00	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	Benzo(b)fluoranthene	0.0E+00	0.0E+00	9.0E-01	0.0E+00	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	Benzo(k)fluoranthene	0.0E+00	0.0E+00	3.8E-01	0.0E+00	0.0E+00	0.0E+00
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	1.4E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	Carbazole	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	Chrysene	0.0E+00	0.0E+00	3.2E-02	0.0E+00	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	Dibenzo(a,h)anthracene	0.0E+00	0.0E+00	8.1E+00	0.0E+00	0.0E+00	0.0E+00
Dibenzofuran	0.0E+00	0.0E+00			Dibenzofuran	0.0E+00	0.0E+00				
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00	2.0E+00	0.0E+00	0.0E+00	0.0E+00
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
			Total Pathway:	0.0E+00				Total Pathway:	0.0E+00		
			Total Rad + Chem	4.3E-16				Total Rad + Chem	8.7E-15	*Total:* 9.1E-15	1.4E-08

TABLE B.4-19(d) (continued)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: BEEF AND MILK (DUST AFFECTED)
Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	onc'n in Milk (pCi/L	Intake	RfD(o)	Hazard	Total
CS-137	5.5E-02	1.0E+02			CS-137	1.92E-02	1.4E+02			
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00	0.0E+00			
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00			
PU-239/240	0.0E+00	0.0E+00			PU-239/240	0.00E+00	0.0E+00			
RA-226	1.9E-03	3.5E+00			RA-226	3.41E-03	2.5E+01			
RA-228	1.7E-03	3.1E+00			RA-228	3.05E-03	2.2E+01			
SR-90	0.0E+00	0.0E+00			SR-90	0.00E+00	0.0E+00			
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00			
TH-228	3.8E-05	6.9E-02			TH-228	3.14E-05	2.3E-01			
TH-230	5.6E-05	1.0E-01			TH-230	4.63E-05	3.4E-01			
TH-232	4.0E-05	7.4E-02			TH-232	3.34E-05	2.5E-01			
U-234	1.3E-03	2.4E+00			U-234	3.84E-03	2.8E+01			
U-235/236	1.1E-04	2.0E-01			U-235/236	3.26E-04	2.4E+00			
U-238	1.3E-03	2.4E+00			U-238	3.98E-03	2.9E+01			
		Total Pathway:	0.0E+00					Total Pathway:	0.0E+00	

Chemical Hazard

Ingestion of Beef					Ingestion/Milk					
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L	Intake	RfD(o)	Hazard	Total
Arsenic	7.2E-08	7.4E-11	3.0E-04	2.5E-07	Arsenic	2.1E-09	8.8E-12	3.0E-04	2.9E-08	2.7E-07
Beryllium	3.7E-09	3.8E-12	5.0E-03	7.6E-10	Beryllium	3.3E-12	1.4E-14	5.0E-03	2.7E-12	7.6E-10
Cadmium	1.9E-08	2.0E-11	1.0E-03	2.0E-08	Cadmium	3.5E-09	1.4E-11	1.0E-03	1.4E-08	3.4E-08
Chromium	4.0E-07	4.1E-10	5.0E-03	8.1E-08	Chromium	1.1E-07	4.4E-10	5.0E-03	8.9E-08	1.7E-07
Lead	3.6E-08	3.7E-11			Lead	3.0E-08	1.2E-10			
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00			
U-TOTAL	4.0E-09	4.1E-12	3.0E-03	1.4E-09	U-TOTAL	1.2E-08	4.9E-11	3.0E-03	1.6E-08	1.8E-08
Aroclor-1254	0.0E+00	0.0E+00			Aroclor-1254	0.0E+00	0.0E+00			
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00			
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00			
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00			
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00			
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00			
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00			
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00			
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00			
		Total Pathway:	3.5E-07					Total Pathway:	1.5E-07	

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Total Rad + Chem 3.5E-07

Total Rad + Chem 1.5E-07 *Total:* 5.0E-07

TABLE B.4-19(d) (continued)
RISKS DUE TO BACKGROUND CONCENTRATIONS [FUTURE, ON-PROPERTY FARMER (RME VALUES)]
LIME SLUDGE PONDS: BEEF AND MILK (GROUNDWATER AFFECTED)

Non-carcinogenic Hazard

Radiation Hazard

Ingestion of Beef					Ingestion/Milk					Total	Total Dust & Groundwater Affected
Compound	Conc'n (pCi/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (pCi/L	Intake	RfD(o)	Hazard		
CS-137	0.0E+00	0.0E+00			CS-137	0.00E+00	0.0E+00				0.0E+00
NP-237	0.0E+00	0.0E+00			NP-237	0.00E+00	0.0E+00				0.0E+00
PU-238	0.0E+00	0.0E+00			PU-238	0.00E+00	0.0E+00				0.0E+00
PU-239/240	0.0E+00	0.0E+00			PU-239/240	0.00E+00	0.0E+00				0.0E+00
RA-226	0.0E+00	0.0E+00			RA-226	0.00E+00	0.0E+00				0.0E+00
RA-228	0.0E+00	0.0E+00			RA-228	0.00E+00	0.0E+00				0.0E+00
SR-90	6.6E-09	1.2E-05			SR-90	3.28E-08	2.4E-04				0.0E+00
TC-99	0.0E+00	0.0E+00			TC-99	0.00E+00	0.0E+00				0.0E+00
TH-228	0.0E+00	0.0E+00			TH-228	0.00E+00	0.0E+00				0.0E+00
TH-230	0.0E+00	0.0E+00			TH-230	0.00E+00	0.0E+00				0.0E+00
TH-232	0.0E+00	0.0E+00			TH-232	0.00E+00	0.0E+00				0.0E+00
U-234	0.0E+00	0.0E+00			U-234	0.00E+00	0.0E+00				0.0E+00
U-235/236	0.0E+00	0.0E+00			U-235/236	0.00E+00	0.0E+00				0.0E+00
U-238	0.0E+00	0.0E+00			U-238	0.00E+00	0.0E+00				0.0E+00
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		

Chemical Hazard

Ingestion of Beef					Ingestion/Milk						
Compound	Conc'n (mg/kg)	Intake	RfD(o)	Hazard	Compound	Conc'n in Milk (mg/L)	Intake	RfD(o)	Hazard		
Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	Arsenic	0.0E+00	0.0E+00	3.0E-04	0.0E+00	0.0E+00	2.7E-07
Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Beryllium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	7.6E-10
Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	Cadmium	0.0E+00	0.0E+00	1.0E-03	0.0E+00	0.0E+00	3.4E-08
Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	Chromium	0.0E+00	0.0E+00	5.0E-03	0.0E+00	0.0E+00	1.7E-07
Lead	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00				
TH-TOTAL	0.0E+00	0.0E+00			TH-TOTAL	0.0E+00	0.0E+00				
U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	U-TOTAL	0.0E+00	0.0E+00	3.0E-03	0.0E+00	0.0E+00	1.8E-08
Aroclor-1254	0.0E+00	0.0E+00			Aroclor-1254	0.0E+00	0.0E+00				
Benzo(a)anthracene	0.0E+00	0.0E+00			Benzo(a)anthracene	0.0E+00	0.0E+00				
Benzo(a)pyrene	0.0E+00	0.0E+00			Benzo(a)pyrene	0.0E+00	0.0E+00				
Benzo(b)fluoranthene	0.0E+00	0.0E+00			Benzo(b)fluoranthene	0.0E+00	0.0E+00				
Benzo(g,h,i)perylene	0.0E+00	0.0E+00			Benzo(g,h,i)perylene	0.0E+00	0.0E+00				
Benzo(k)fluoranthene	0.0E+00	0.0E+00			Benzo(k)fluoranthene	0.0E+00	0.0E+00				
bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	bis(2-Ethylhexyl) phthalate	0.0E+00	0.0E+00	2.0E-02	0.0E+00	0.0E+00	0.0E+00
Carbazole	0.0E+00	0.0E+00			Carbazole	0.0E+00	0.0E+00				
Chrysene	0.0E+00	0.0E+00			Chrysene	0.0E+00	0.0E+00				
Dibenzo(a,h)anthracene	0.0E+00	0.0E+00			Dibenzo(a,h)anthracene	0.0E+00	0.0E+00				
Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	Dibenzofuran	0.0E+00	0.0E+00	4.0E-03	0.0E+00	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00			Indeno(1,2,3-cd)pyrene	0.0E+00	0.0E+00				
Phenanthrene	0.0E+00	0.0E+00			Phenanthrene	0.0E+00	0.0E+00				
		Total Pathway:		0.0E+00			Total Pathway:		0.0E+00		
		Total Rad + Chem		0.0E+00			Total Rad + Chem		0.0E+00	*Total:* 0.0E+00	5.0E-07

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