5477

PROJECT SPECIFIC PLAN FOR INVESTIGATING SUBSURFACE MATERIAL FROM WASTE PITS 4 THROUGH 6, AND THE BURN PIT

FERNALD CLOSURE PROJECT
FERNALD, OHIO

MAY 2004

U.S. DEPARTMENT OF ENERGY

20600-PSP-0009
REVISION 0
FINAL

000001

PROJECT SPECIFIC PLAN FOR INVESTIGATING SUBSURFACE MATERIAL FROM WASTE PITS 4 THROUGH 6, AND THE BURN PIT

Document Number 20600-PSP-0009
Revision 0, Final

MAY 2004

APPROVAL:

Jyh-Dong Chiou, Project Manager — 5/20/04 — Date
Demolition, Soil and Disposal Project

Frank Miller, Characterization/Waste Management Manager — 5-20-04 — Date
Demolition, Soil and Disposal Project

Linda Barlow, Waste Acceptance Organization — 5/20/04 — Date
Safety, Health and Quality

Reinhard Friske, Quality Assurance — 5-20-04 — Date
Safety, Health and Quality

Tom Buhrlage, Soil Sampling — 5-20-04 — Date
Demolition, Soil and Disposal Project

Brian McDaniel, Real-Time Instrumentation Measurement Program Manager — 05/20/04 — Date
Demolition, Soil and Disposal Project

FERNALD CLOSURE PROJECT

Fluor Fernald
P.O. Box 538704
Cincinnati, Ohio 45253-8704

TABLE OF CONTENTS

LIST OF APPENDICES

TABLE OF CONTENTS
(Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

ASL	analytical support level
BTV	benchmark toxicity value
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Constituent of Concern
DOE	U.S. Department of Energy
DSDP	Demolition, Soil and Disposal Project
DQO	Data Quality Objective
EPA	U.S. Environmental Protection Agency
FACTS	Fernald Analytical Computerized Tracking System
FCP	Fernald Closure Project
FF	Fluor Fernald
FRL	final remediation level
GC	gas chromatography
GMA	Great Miami Aquifer
GPS	global positioning system
HPGe	high-purity germanium (detector)
IEMP	Integrated Environmental Monitoring Plan
LAN	Local Area Network
mCi/g	milliCuries per gram
mg/kg	milligram per kilogram
MS	mass spectrograph
MTU	metric tons of uranium
NaI	sodium iodide
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
OU	Operable Unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
pCi	picoCuries
pCi/g	picoCuries per gram
PID	photoionization detector
ppb	parts per billion
PSP	project-specific plan
QA	Quality Assurance

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

RI/FS	Remedial Investigation/Feasibility Study
RSS	Radiation Scanning System
RTIMP	Real-Time Instrumentation Measurement Program
RTRAK	Real-Time Radiation Tracking System
RWP	Radiological Work Permit
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SED	Sitewide Environmental Database
SEP	Sitewide Excavation Plan
SPL	Sample Processing Laboratory
SVOC	semi-volatile organic compound
SWMU	solid waste management unit
TAL	target analyte list
TEF	Toxicity Equivalence Factor
µg/kg	micrograms per kilogram
V/FCN	Variance/Field Change Notice
VOC	volatile organic compound
WAC	waste acceptance criteria
WAO	Waste Acceptance Organization
WPP	Waste Pits Project

1.0 INTRODUCTION

1.1 PURPOSE

This project-specific plan (PSP) has been developed to gather information pertaining to the berms and the material underlying Waste Pits 4 through 6 and the Burn Pit hereafter, collectively referred to as the Waste Pits, in the Fernald Closure Project (FCP) Waste Storage Area. The resulting data from the Waste Pits subsurface material (i.e., liner and/or native material) investigation will assist in:

- Verifying the general assumptions supporting overall schedule and management decisions associated with the remediation of the berms and subsurface materials underlying the waste pits

- Updating/refining volume estimates and schedule for on-site disposal facility (OSDF) waste placement and Envirocare railcar shipments

It is anticipated that waste pit subsurface sampling will be conducted in multiple phases as excavation of the waste pits progresses. Sampling under this PSP specifically addresses the berms, sidewalls, and floor of Waste Pits 4, 5, 6 and the Burn Pit. Sampling under this PSP will also be conducted in a manner that will prevent impact to the Great Miami Aquifer (GMA).

1.2 BACKGROUND

The Waste Storage Area at the FCP covers approximately 38 acres and is located west of the former production area (Figure 1-1). Designated as Operable Unit (OU) 1 during the Remedial Investigation/Feasibility Study (RI/FS), this area consists of Waste Pits 1 through 6, the Burn Pit, and the Clearwell. The various components of OU1 were constructed from 1952 (Waste Pit 1) through 1979 (Waste Pit 6) and were used to store waste products generated by the FCP uranium refinement process. The waste product sources were numerous production byproducts from chemical feed material extraction and precipitation, filtering and settling operations, drying operations, chemical conversion, and heat treatment. The waste pits were also used to dispose of other wastes generated in the refinement process and site support activities, including pollution control products, flyash from the boiler plant, residues from the process water treatment plant, construction debris, and discarded equipment, vessels, and containers. These wastes were contaminated with numerous radiological and chemical constituents, including uranium isotopes and their decay products, thorium isotopes and their decay products, fission products such as technetium-99, potentially hazardous metals (such as arsenic, chromium, and lead) extracted as impurities from the uranium-bearing feedstock, and organic chemical constituents used in various plant processes and maintenance operations.

Waste Pit 4 was used from August 1960 until 2004 and was classified as a dry pit. (Figure 1-2) The waste pit sides and bottom are lined with 1 to 2 feet of low permeability clay. The surface area boundary is a trapezoidal in shape and has maximum dimensions of approximately 380 feet by 310 feet and is approximately 32 feet deep. The main sources of waste were Plant 8 trailer cake, process residues, contaminated graphite, and non-burnable trash. Between May 1981 and April 1983, Waste Pit 4 also received low-level radioactive wasted containing barium chloride salt. Radioactive contaminated construction rubble, asbestos, and graphite were also placed in Waste Pit 4 after 1983. Based on process knowledge, Waste Pit 4 contained an estimated 2203 metric tons of uranium (MTU). Additional information for Waste Pit 4 can be found in the Remedial Investigation Report for Operable Unit 1, August 1994.

Waste Pit 5 was in use from October 1968 to 1983 and was classified as a wet pit. (Figure 1-2) The surface area boundary is rectangular in shape and is approximately 820 feet by 240 feet and is approximately 29 feet deep. It was lined with a 60-mil thick Royal-Seal ethelyene propylene diene monometer (EPDM) elastomeric membrane. The sources of waste were from the Refinery and Plant 8. Waste Pit 5 contained settled solids from neutralized raffinate, slag leach slurry, and sump slurries. Based on process knowledge, Waste Pit 5 contained an estimated 100 MTU. Additional information for Waste Pit 5 can be found in the Remedial Investigation Report for Operable Unit 1, August 1994.

Waste Pit 6 received wastes from June 1979 through March 1985 and was classified as a wet pit. (Figure 1-2) Waste Pit 6 was constructed in the same manner as Waste Pit 5 and lined with a 60-mil EPDM elastomeric liner. It is square in shape with sides measuring approximately 210 feet and approximate depth measuring 24 feet. Waste Pit 6 has received depleted slag, scrap green salt, process residues, and filter cake. Based on process knowledge, Waste Pit 6 contained approximately 1432 MTU. Additional information for Waste Pit 6 can be found in the Remedial Investigation Report for Operable Unit 1, August 1994.

The Burn Pit was formerly known as the clay pit and the clay was used to line Waste Pits 1 and 2. (Figure 1-2) It was in use from before 1957 to 1968 to burn materials such as laboratory chemicals, oils, low-level contaminated combustible material, cafeteria debris, and general refuse. The Burn Pit was located between Waste Pits 2, 3, 4, and 5. Additional information about the Burn Pit can be found in the Remedial Investigation Report for Operable Unit 1, August 1994.

Characterization of the physical, chemical, and radiological profiles of the contents of each waste pit, supplemented by treatability studies, were completed in 1992 to meet the objectives of the OU1 RI/FS. No analytical information on the nature and extent of contaminants in the native clay material used to line some of the waste pits, as well as the soils beneath the pits is available, however the northwest portion of Waste Pit 3 was sampled and analyzed in March 2004 per the Project Specific Plan for Investigating Subsurface Material From the Northwestern Portion of Waste Pit 3 (DOE, 2003).

Because of the concern about maintaining the integrity of the waste pit liners to prevent environmental migration of pit contaminants into the underlying GMA, waste pit content characterization borings were carefully conducted so as not to breach the pit lining material. The informational needs of the RI/FS were satisfied through the use of computer modeling that simulated the migration of contaminants from the waste pits to the underlying soils.

Lining material used in the waste pits includes native clay (either from an existing in-situ clay lens, or dug from the Burn Pit) used for Waste Pit 4. A 60-mil thick ethylene propylene diene monomer elastomeric membrane underlain with native soil was used for Waste Pits 5 and 6, and native soil is beneath the Burn Pit (which was created as the result of removal of clay for lining other pits).

1.3 SCOPE

Under this PSP, physical samples will be collected of the clay liner and soil that remains following the removal of the waste pit material to meet the objectives stated in Section 1-1. The analytical results of this investigation will be compiled to support the overall schedule and management decisions associated with remediation of waste pits. All physical sampling activities carried out under this PSP will be performed in accordance with the Sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ), and Data Quality Objective (DQO) SL-048, Revision 5 (Appendix A). As much of the investigation area as possible will be scanned with real-time *in situ* sodium iodide (NaI) and high-purity germanium (HPGe) detectors. Real-time data collection activities will be in accordance with DQO SL-054 and SL-055. (Appendix A)

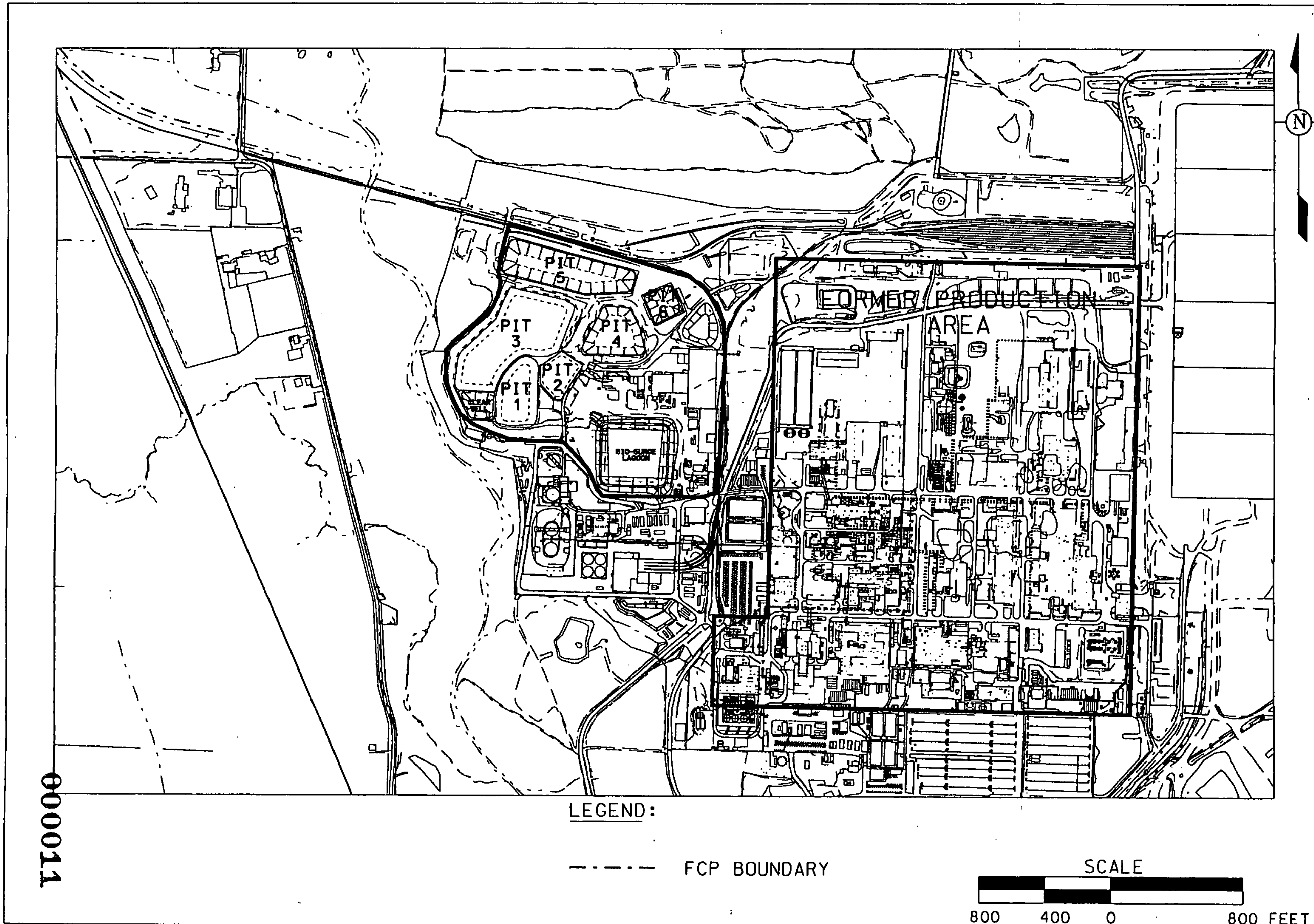
1.4 KEY PROJECT PERSONNEL

The key project personnel are listed in Table 1-1:

TABLE 1-1
KEY PERSONNEL

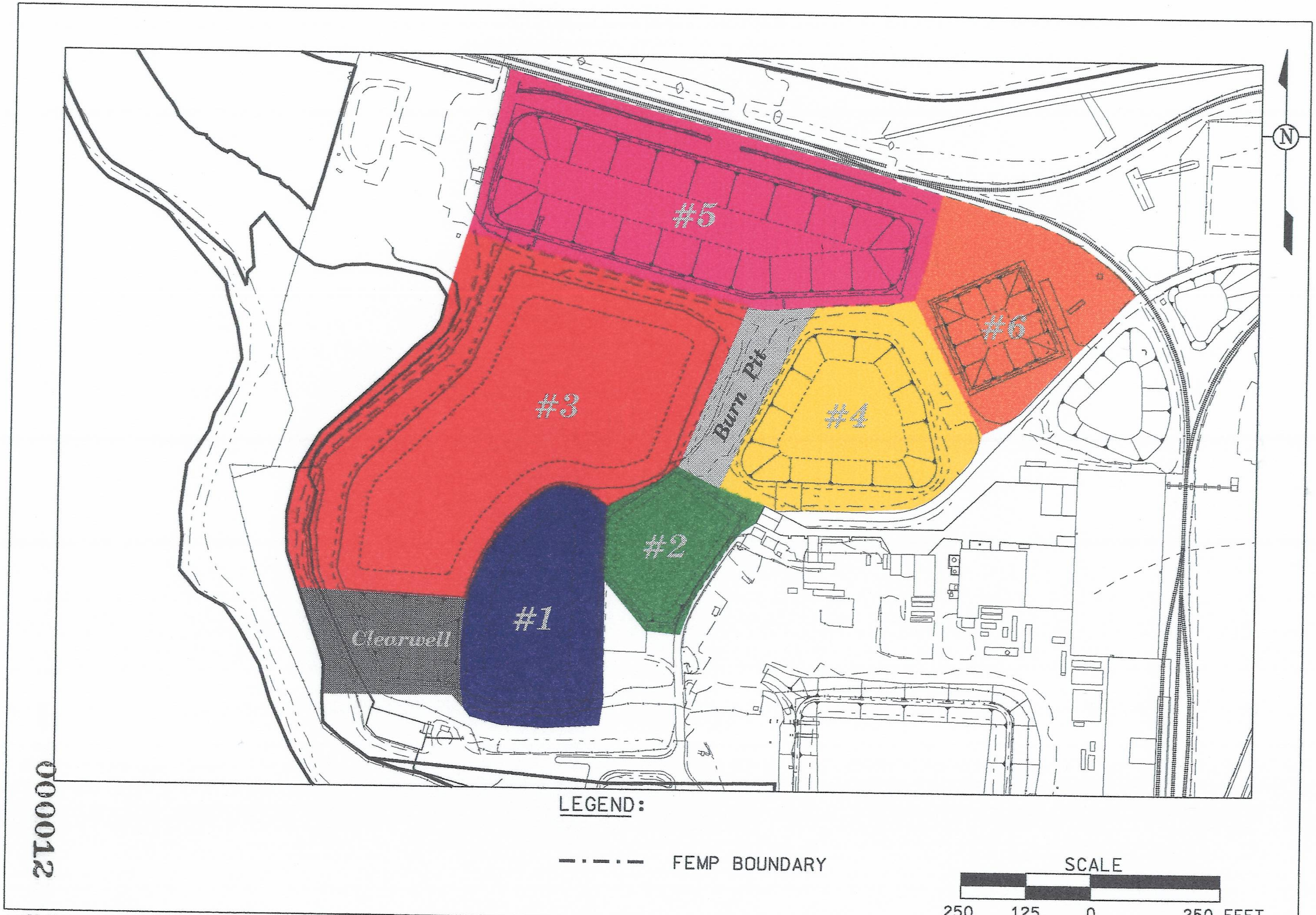
Title	Primary	Alternate
DOE Contact	Nina Akgunduz	Johnny Reising
Demolition, Soil and Disposal Project (DSDP) – Project Manager	Jyh-Dong Chiou	Rich Abitz
Waste Pits Project (WPP) – Project Manager	Mark Cherry	Dennis Dalga
Characterization Manager	Frank Miller	Krista Flaugh
Field Sampling Manager	Tom Buhrlage	Jim Hey
Real-Time Instrumentation Measurement Program (RTIMP) Manager	Brian McDaniel	Dale Seiller
Project Geologist[a]	Hank Becker	Jonathon Walters
Surveying Manager	James Schwing	Andy Clinton
Waste Acceptance Organization (WAO) Contact	Linda Barlow	Joe Jacoboski
Laboratory Contact	Heather Medley	Keith Tomlinson
Data Management Lead	Krista Flaugh	Denise Arico
Field Data Validation Contact	Demetria Edwards	Andy Sandfoss
Data Validation Contact	James Chambers	Andy Sandfoss
Fernald Analytical Computerized Tracking System (FACTS)/Sitewide Environmental Database (SED) Contact	Kym Lockard	Laurie Kahill
Quality Assurance Contact	Reinhard Friske	Darren Wessel
Radiological Control	Robert Holley	Russ Hall
WPP Excavation Manager	Marshall Linton	Jerry Boeckman
Health and Safety Contact	Charlie Lineberry	Gregg Johnson

[a]Bill Hertel (primary project geologist) and Karen Voisard will provide additional support, as necessary.



V:/5FGP1/DGN/WESTERMAN04.DGN
STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 1-1. LOCATION OF OU1 WASTE PITS AT FCP



000012

5477

v:*2fm12*dgn*wp_shapes.dgn
STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 1-2. LOCATION OF SPECIFIC WASTE PITS

17-MAY-2004

2.0 PHYSICAL SAMPLING STRATEGY

2.1 SELECTION OF CONSTITUENTS

The constituents of concern (COCs) in the Sitewide Excavation Plan (SEP) for Remediation Area 6 (i.e., Waste Storage Area) are listed in Table 2-1.

The sampling results from the Project Specific Plan for Investigating Subsurface Material from the Northwestern Portion of Waste Pit 3 (DOE, 2003), which are presented in Appendix B, were evaluated and radiological constituents will drive the excavation over the majority of the area. For the Waste Pits, much like the former production area, the major source of contamination stems from the enormous mass of uranium and other select radionuclides. Therefore, only the radiological constituents, total uranium, radium-226, radium-228, thorium 228, thorium-230, thorium-232, cesium-137, and technetium-99, will be kept as COCs for this PSP to define the depths of excavation as they will be the driver of the excavation. The Target Analyte List(s) TAL for this investigation is listed in Appendix C. The other COCs for Area 6 will likely be retained for certification in this area and will be discussed in the Certification Design Letter, which will follow the remediation of the area.

2.2 SELECTION OF SAMPLE LOCATIONS

Sample locations were placed to meet the objectives presented in Section 1.1 and were based on a variety of factors, including:

- Accessibility of pit bottom (i.e., area that waste has been removed)
- Safety factors (e.g., sidewall setbacks, on-going excavation operation areas)
- Proximity to areas of special interest (e.g., GMA, sump area)
- Waste pit floor conditions (e.g., pooled water, areas susceptible to damage from tracked equipment).

Borings were placed on the floors of the Waste Pits to assess the extent of contamination within or below the liners, on the sidewalls or each pit to determine if contamination penetrated the sidewalls of the Waste Pits, and on the berms to determine the extent of contamination. Figure 2-1 depicts the locations on the floors and sidewalls of the waste pits and Figure 2-2 depicts the locations on the berms of the waste pits. If any location is moved more than three feet as a result of the boring location walk-down or during contingencies experienced at the time of sampling, the revised coordinates will be documented with a variance/field change notice (V/FCN) to this PSP.

Based on OU5 and OU1 RI/FS information, it is projected that there is at least 4 to 6 feet of clay material (i.e., liner and native material) above the unsaturated portion of the GMA sand and gravel in the area where sampling will occur. Additionally, it is at least 30 feet to the saturated portion of the GMA based on data from the Integrated Environmental Management Plan (IEMP) summary reports.

On the Waste Pits and Burn Pit floors, sampling within each boring core will be conducted at six-inch intervals to a depth of 3.5 feet (refer to Section 2.3). The first six-inch interval of non-waste material (i.e., liner) was included as part of the general pit excavation effort, with the material presumed to be contaminated and shipped offsite for disposal. Eight of the borings located on the Waste Pit floors will be advanced to the unsaturated sands and gravels of the GMA and two six-inch intervals spaced 1-foot apart will be collected to determine if contamination has penetrated this area. The sample intervals collected from each of the Waste Pits locations are identified in Section 1 of Appendix D.

On the Waste Pits sidewalls the borings will be advanced perpendicular to the bottom of the waste pit floor. The first six-inch interval of non-waste material (i.e., liner) was included as part of the general pit excavation effort, with the material presumed to be contaminated and shipped offsite for disposal. Sampling will be conducted at the first six-inch interval and the 3.5 – 4.0 foot interval (refer to Section 2.3). The borings were placed on the sidewalls in a staggered manner such that the samples would represent the sidewall from the top to the floor of the pit. The borings that are located near the bottom of the pits were selected so that the 3.5 – 4.0 foot interval corresponds as close as possible to the elevation of the bottom of the pit material. The sidewall borings are depicted in Figure 2-1 and the sample intervals to be collected from the sidewalls of the Waste Pit locations are identified in Section 2 of Appendix D.

The borings placed on the berms and the surrounding areas will also be collected at six-inch intervals ranging in depths from 0 feet to 6.0 feet to investigate historical above-FRL levels and to fill data gaps. The berm borings are depicted in Figure 2-2 and the sample intervals that are to be collected for the berm locations are identified in Section 3 of Appendix D.

2.3 SAMPLE COLLECTION METHODS

All physical sampling locations will be marked by the Fluor Fernald Surveying and Mapping group. Northing (Y), easting (X), and elevation (Z) coordinate values (NAD83, Ohio South Zone, #3402) will be determined using standard survey practices and standard positioning instrumentation (electronic total stations and GPS receivers). All field personnel using survey stakes or flags will mark field locations in a manner easily identifiable. Survey information (coordinate data) will be downloaded at the completion of each survey job or at the end of each day and transferred electronically to the Survey Lead. This information will be forwarded to the Data Management Lead and/or designees.

Soil borings for the pit floors and sidewalls will be completed using the Geoprobe® core sampling assembly, in accordance with procedure EQT-06, Geoprobe® Model 5400 and Model 6600 Operation and Maintenance Manual. Soil borings for the berms may also be completed using the Geoprobe® core sampling assembly or by another appropriate sampling method determined by the Field Sampling Manager or designee. Soil samples will be collected in accordance with procedure SMPL-01, Solids Sampling. If refusal or resistance is encountered during sample collection, the boring location may be relocated up to three feet away. Any movement of the boring location by more than three feet will be documented on a V/FCN form, as described in Section 4.4. Changes of less than three feet from the scheduled location will be documented (distance and direction) in the Field Activity Log associated with that boring. These activities will be coordinated with and authorized by the Characterization Lead and the WPP Excavation Manager.

If the condition exists where pit waste material is still overlying the pit floor then it will be removed to a 12-inch radius from the point to be sampled. The boring will be advanced through the pit liner and the first six-inches of non-waste material (liner) will be committed as being above the OSDF waste acceptance criteria (WAC). The anticipated surface (0') will begin after the top six-inches of the core is discarded. Then the first six-inch sample interval from this new 'surface' will begin and will be noted with a "1" as the depth indicator. These activities will be described in the Field Activity Log and reported to the Characterization Manager or designee so that the elevations can be adjusted in the database. The Geoprobe® will then be driven to the appropriate depth and, upon removal, each core will be laid out on clean plastic. Any debris (e.g., wood not part of undisturbed native till material, glass, metal) contained in the sample intervals will be removed and identified in a visual description of the sample core material. The entire length of each soil core will be surveyed with both beta/gamma (Geiger-Mueller) and alpha survey meters. Both radiological activity measurements for each six-inch interval will be recorded in the field documentation. Following radiological screening, the highest total alpha/beta/gamma reading from each boring core will be used to indicate the highest measured radiological activity for all samples from that boring, for off-site shipping purposes. The entire length of each soil core will also be screened with a photoionization detector and the results for each six-inch interval will be recorded in the field documentation.

Lithological descriptions of the cores will be completed by the project geologist. The project geologist will attempt to identify the interface between the constructed clay pit liner material and the material below the constructed liner by evaluation of certain lithological characteristics. These characteristics will be recorded on a lithological log and will include, at minimum, material stratification; particle size; color; moisture content; density; and related geotechnical properties. Additionally, any debris (e.g., wood not part of undisturbed native till material, glass, metal) contained in the sample intervals will be removed and identified in a visual description of the sample core material. Lithologic Logs are required.

Because of the propensity for contaminants to collect at interfaces of differing material, it has been determined that at conditions where there is a clear/major interface between material types (e.g., clay versus sand), the six-inch sample interval will be adjusted such that one six-inch interval will be collected immediately above the material interface and one six-inch interval will be collected immediately below the interface. The six-inch interval spacing will proceed in both directions (up and down the core) starting from the interface. If there is less than six inches remaining that can't provide the sufficient amount of soil volume at the uppermost interval of the boring, that interval will only be analyzed for total uranium and technetium-99. Any such interval adjustments must be noted in the Field Activity Log.

During this investigation, it is critical to prevent cross-contamination within the boreholes due to the proximity of the GMA to the bottom of the waste pit liner. Therefore, a project geologist from Aquifer Restoration/Water Management group will monitor all boring activities associated with this investigation to ensure that every effort is taken to protect the GMA. No borehole will be placed within ten feet of any liquid pooled on the waste pit floor. Weather forecasts will be monitored to prevent sampling during precipitation events. A containment barrier will be closely available to place around a borehole in process in the case of unexpected rain. Boreholes in the pit liner will be plugged (as specified in Section 2.8) immediately upon completion and any partially completed borehole shall not be left unplugged overnight or left unattended during the day of sampling.

Additionally, if the sand and gravel of the GMA is encountered prior to the 3.5 foot depth in a borehole that has not been previously identified in Section 1 of Appendix D to purposely reach the sand and gravel of the GMA, then adjacent borehole depths will be altered to a depth six inches above the depth from which the sand and gravel was encountered (e.g., encounter sand and gravel at 2.0 feet, then adjacent borehole depths would be 1.5 feet). If in adjacent boreholes, sand and gravel is not encountered, then sample interval depths will proceed. Changes will be documented in the Field Activity Log associated for borings of interest and activities will be coordinated with and authorized by the Characterization Lead. Note that monitoring of the GMA will continue as part of the groundwater remedy performance monitoring specified in the IEMP and Geoprobe activities in the Waste Storage Area are being planned for 2004 to ensure that there is no adverse impact to the aquifer and/or to determine if groundwater remedy design changes are necessary.

2.4 SAMPLE IDENTIFICATION

All physical samples collected for laboratory analysis will be assigned a unique sample identification number as A6WP-Waste Pit,Specific Area Location^Depth-Analysis, where:

A6WP	Sample collected from Remediation Area 6 Waste Pits
Waste Pit Identifier	4 = Waste Pit 4 5 = Waste Pit 5 6 = Waste Pit 6 BP = Burn Pit
Specific Area	F = Floor sample location S = Sidewall sample location B = Berm or Surrounding Area DL = Ditch line north of Waste Pit 5
Location	Sample Location number
Depth Interval	"1"= 0 to 0.5 feet "2"= 0.5 to 1 feet (where depth interval indicator equals two times the bottom depth for the respective interval and is measured in feet, i.e., "1"= 2 x 0.5', "2" = 2 x 1', etc.)
Analysis	R = Radiological AB = Alpha Beta V = Archive

For example:

Sample identifier A6WP5-F-04^3-R is a sample collected from the floor of Waste Pit 5 at boring location 4, at the 1 to 1.5 foot boring interval, for radiological analysis.

Refer to Appendix D for a listing of sample identifiers for all samples from each boring location.

2.5 SAMPLE ANALYSIS

Sample volume, container, and preservation requirements for samples collected are listed in Table 2-2. All samples will be delivered to the on-site Sample Processing Laboratory (SPL), where samples to be analyzed offsite will be prepared for shipment to an approved off-site laboratory, in accordance with procedure 9501, Shipping Samples to Off-Site Laboratories. Those samples to be analyzed onsite will be delivered to or received by the appropriate on-site laboratory personnel.

2.6 EQUIPMENT DECONTAMINATION

Decontamination is performed on the sampling equipment to protect worker health and safety and to prevent the introduction of contaminants into subsequent soil samples. Equipment that comes into contact with sample material (i.e., cutting shoes, etc.) will be decontaminated at Level II (Section K.11, SCQ) prior to transport to the field site, between sample locations, and after sampling performed under this PSP is completed. Other equipment that does not contact sample media may be decontaminated at Level I, or wiped down using disposable towels. Clean disposable wipes may be used to replace air-drying of the equipment.

Based on the Waste Pits isotope of concern (thorium-230) and due to the nature and extent of work to be performed within the waste pit areas it may be necessary to incorporate additional radiological controls on equipment or supplies to prevent or mitigate the potential spread of radiological contamination. Thus, in an effort to reduce the decontamination effort prior to release from radiological areas, members of the sampling team may be required to use plastic, herculite or other non-permeable materials on items that come or are likely to come into direct contact with sample material.

2.7 SAMPLING WASTE DISPOSITION

Excess soil from the borings will be disposed of in the waste pit from which it was collected. Any water (used decontamination water, flushed groundwater, etc.) generated during sampling will be disposed at the wastewater discharge sump located in each waste pit.

2.8 BOREHOLE ABANDONMENT

Each borehole will be plugged using a bentonite grout slurry injected immediately after sampling is completed. The bentonite grout slurry will have a density of at least 9.4 pounds per gallon. A Borehole Abandonment Log will be completed for each borehole. Each plugged borehole will be checked 24 hours after placement of the bentonite grout slurry and additional sealing material will be added if settling has occurred.

If the borehole is limited in depth of less than 4-feet, the alternative method of injection grouting described below may be used.

1. A rigid, PVC tremie-pipe will be placed in the open borehole immediately after removing the sampling apparatus in order to prevent borehole collapse.
2. The tremie-pipe will be as close in diameter to the borehole as possible in order to reduce open space between the pipe and borehole wall, and will be at least four feet in length.

3. The tremie pipe will be set at the bottom of the borehole (maximum expected depth of 3.5 feet).
4. Bentonite slurry (>9.4 lbs/gal) will be poured into the tremie-pipe through a funnel placed on top of the pipe.
5. The tremie-pipe will be slowly lifted to inject the slurry into the borehole from the bottom to surface, ensuring that the base of the tremie-pipe remains lower than the slurry level in the borehole.
6. Slurry will be added so that the borehole is sealed in one continuous action until slurry is at or above ground surface.
7. In the event of bridging or stuck slurry, a swab will be used to force the slurry down and out the tremie pipe.
8. The swab will be as close to the inner diameter of the tremie-pipe as possible to promote full evacuation of slurry from the tremie-pipe. It will have at least a four-foot handle.

This alternative method of grouting is only acceptable for boreholes of less than 4-feet in depth. Any borehole that is greater than 4-feet in depth must be injection grouted using the Geoprobe.

TABLE 2-1

SEP REMEDIATION AREA 6 COC LIST

Primary COCs	Secondary COCs	Ecological COCs
Radium-226	Fluoride	Antimony
Radium-228		Cadmium
Thorium-228	Arsenic	Silver
Thorium-232	Beryllium	
Total Uranium		Benzo(a)anthracene
	Aroclor-1254	Benzo(k)fluoranthene
	Aroclor-1260	Chrysene
	Dieldrin	Benzo(g,h,i)perylene[a]
		Fluoranthene[a]
	Benzo(a)pyrene	Phenanthrene[a]
	Benzo(b)fluoranthene	Pyrene[a]
	Dibenzo(a,h)anthracene	
	Indeno(1,2,3-cd)pyrene	
	Bromodichloromethane	
	1,1-Dichloroethene	
	Tetrachloroethene	
	Heptachloradibenzo-p-dioxin	
	Octochlorodibenzo-p-dioxin	
	Cesium-137	
	Technetium-99	
	Thorium-230	

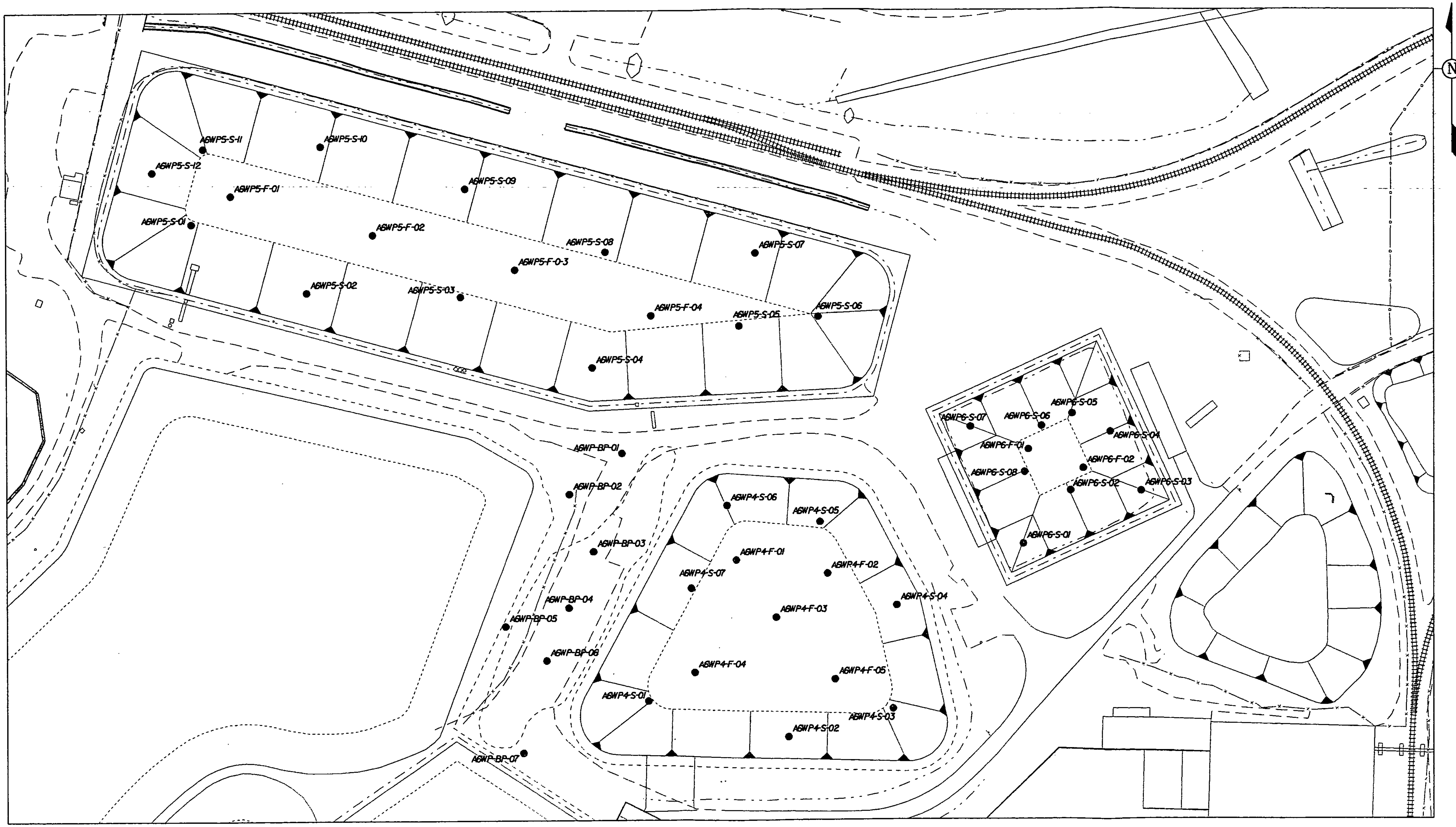
[a]Constituent has no associated final remediation level (FRL)

TABLE 2-2

SAMPLING AND ANALYTICAL REQUIREMENTS

Analyte	Method	Sample Matrix	Lab	ASL	Preservation	Holding Time	Container	Sample Mass
TAL A	ICP-MS, GPC or LSC, Gamma Spectroscopy	Solid	Off-Site	B	none	one year	Glass or Plastic	400 grams
Alpha/Beta Screen*	GPC	Solid	On-site	B	none	not applicable	any	10 grams

* If all intervals indicate no contamination above background, the alpha/beta sample will be collected from the first 6-inch interval of non-waste material.



LEGEND:

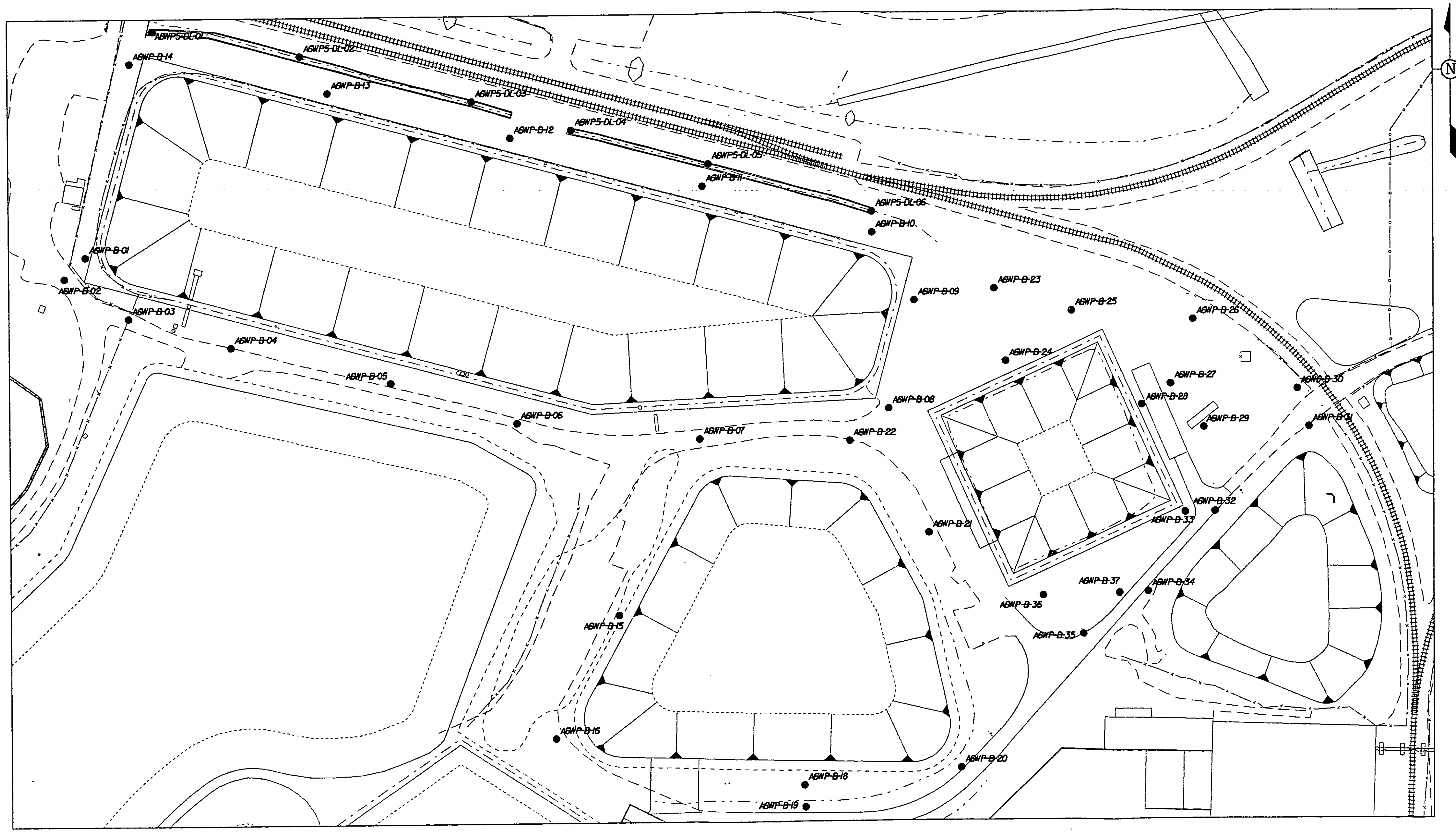
● PROPOSED BORING LOCATION

SCALE

100 50 0 100 FEET

v:\2fm12\dgn\wp_405.dgn   STATE PLANAR COORDINATE SYSTEM 1983   17-MAY-2004

FIGURE 2-1. PROPOSED BORING LOCATIONS FOR THE FLOORS AND SIDEWALLS OF THE WASTE PITS



LEGEND:

● PROPOSED BORING LOCATION

SCALE

100 50 0 100 FEET

v:*2fm12*dgn*wp_406.dgn STATE PLANAR COORDINATE SYSTEM 1983 17-MAY-2004

FIGURE 2-2. PROPOSED BORING LOCATIONS FOR THE BERMS

3.0 INSTRUMENTATION AND TECHNIQUES

Reference the corresponding section of 20300-PSP-0011, Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation (DOE, 2004) for each of the following sections:

3.1 MEASUREMENT INSTRUMENTATION AND TECHNIQUES

3.1.1 Real-time

3.1.1.1 Sodium Iodide Data Acquisition (RTRAK, RSS, GATOR, EMS)

3.1.1.2 HPGe Data Acquisition

3.1.1.3 Excavation Monitoring System

3.1.1.4 Radon Monitor

3.1.2 Surface Moisture Measurements

3.2 REAL-TIME MEASUREMENT IDENTIFICATION

3.3 REAL-TIME DATA MAPPING

3.4 REAL-TIME SURVEYING

4.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

4.1 FIELD QUALITY CONTROL SAMPLES, ANALYTICAL REQUIREMENTS, AND DATA VALIDATION

One duplicate HPGe measurement will be collected for every 20 HPGe measurements performed. The duplicate will be collected immediately after the initial measurement at the same acquisition time and detector height. In accordance with Data Quality Objectives (DQO) SL-054 and SL-055, RTIMP measurements will be classified as ASL A or ASL B depending on validation needs. Data validation is performed per the SCQ, Appendix H. Data verification is also performed per DQOs SL-054 and SL-055, SCQ Appendix H, and RTIMP Protocols. All real-time data collection (NaI and HPGe) will be collected and reported at ASL A or ASL B, depending on validation needs per DQO SL-054 and SL-055.

In accordance with the requirements of DQO SL-048, Revision 5 (see Appendix A), the field quality control, analytical, and data validation requirements are as follows:

- All laboratory analyses will be performed at ASL B (ASLs are defined in the SCQ).

- All field data will be validated. Ten percent of the analytical data will be validated to validation support level B and require a certificate of analysis and associated laboratory quality assurance/quality control results.

4.2 PROJECT-SPECIFIC PROCEDURES, MANUALS, AND DOCUMENTS

To assure consistency and data integrity, field activities in support of this PSP will follow the requirements and responsibilities outlined in controlled procedures and manufacturer operational manuals. Applicable procedures, manuals, and documents include:

- SMPL-01, Solids Sampling
- SMPL-02, Liquids and Sludge Sampling
- SMPL-21, Collection of Field Quality Control Samples
- EQT-06, Geoprobe® Model 5400 and Model 6600 Operation and Maintenance Manual
- EW-0002, Chain of Custody/Request for Analysis Record for Sample Control
- 5507, Drying and Grinding Solid Samples in Preparation for Laboratory Analysis
- 9503, Processing Samples through the Sample Processing Laboratory
- 9505, Using the FACTS Database to Process Samples
- 7532, Analytical Laboratory Services Internal Chain of Custody
- 9501, Shipping Samples to Off-Site Laboratories
- RM-0020, Radiological Control Requirements Manual
- 10500-H1, Shaw Environmental and Infrastructure, Incorporated (Shaw) Health and Safety Program
- 10500-017, Shaw WPRAP Excavation Plan
- Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- Sitewide Excavation Plan (SEP)
- RTIMP-M-003, RTIMP Operation Manual

4.3 PROJECT REQUIREMENTS FOR INDEPENDENT ASSESSMENTS

Project management has ultimate responsibility for the quality of the work processes and the results of the sampling activities covered by this PSP. The Quality Assurance (QA) organization may conduct independent assessments of the work processes and operations to assure the quality of performance. Assessments will encompass technical and procedural requirements of this PSP and the SCQ.

4.4 IMPLEMENTATION OF FIELD CHANGES

If field conditions require changes or variances, the characterization manager or designee must prepare a V/FCN. The completed V/FCN must contain the signatures of all affected organizations, which at a minimum includes the Project Manager, Characterization Manager, and QA. A time-critical variance may be obtained in cases where expedited approval is needed to avoid costly project delays. In the case of a time-critical variance, verbal or written approval (electronic mail is acceptable) must be received from the Characterization Manager and from QA prior to implementing the variance. The completed approved V/FCN form must be completed within seven working days after the time-critical variance is approved.

5.0 HEALTH AND SAFETY

The Fluor Fernald (FF) and Shaw Excavation Managers, Shaw Health and Safety Lead, Field Sampling Leads, and RTIMP Leads and team members will assess the safety of performing sampling activities in the Waste Storage Area. This will include vehicle/equipment positioning limitations and fall hazards.

Personnel will conform to precautionary surveys performed by Radiological Control, Safety, and Industrial Hygiene personnel. All work on this project will be performed in accordance with applicable Environmental Monitoring procedures, RM-0020 (Radiological Control Requirements Manual), Shaw Health and Safety Plan, FF work permit, Radiological Work Permit (RWP), penetration permit and other applicable permits. Concurrence with applicable safety permits (as indicated by the signature of each field team member assigned to this project) is required by each team member in the performance of their assigned duties.

Personnel will also comply with any specific requirements for activity conducted within the waste pits area, including the Excavation Plan, the non-typical waste procedure, access restrictions, respiratory requirements, and health and safety briefings that may be required by Shaw procedures. Any access to the waste pits area must be authorized by a competent (i.e., certified in excavation activity) excavation manager. Members of the sampling team are also required to be on the beryllium monitoring list. Because waste pit excavation activities using heavy equipment may be ongoing during this sampling activity, the sampling team and support personnel must pay special attention to such activities and maintain a safe distance from the heavy equipment work zones, as well as, ensuring that the heavy equipment operators are aware of their presence.

Team Leads will ensure that each technician performing work related to this project has been trained to the relevant sampling procedures including safety precautions. Technicians who do not sign project safety and technical briefing forms will not participate in any activities related to the completion of assigned project responsibilities. A copy of applicable safety permits/surveys issued for worker safety and health will be posted in the affected area during field activities.

A daily safety briefing will be conducted prior to the initiation of field activities. All emergencies will be reported immediately to the Shaw control room at 648-4496, the site communication center at 648-6511 by cell phone, 911 on-site phone, or by contacting "control" on the radio.

6.0 DATA AND RECORDS MANAGEMENT

A data management process will be implemented so information collected during the investigation will be properly managed to satisfy data end use requirements after completion of the field activities.

6.1 REAL-TIME

The RTIMP group will provide hard copy maps and/or summary reports to the Characterization Manager or designees. All real-time data collection (NaI and HPGe) will be collected and reported at ASL A or ASL B, depending on validation needs per DQO SL-054 and SL-055. All electronically recorded field data will have the NaI or HPGe Data Verification Checklist (Section 5.4 of the User's Manual), which will be completed after each data collection event. Field documentation will be reviewed by RTIMP.

Electronically recorded data from the HPGe and NaI systems will be downloaded on a daily basis to the Local Area Network (LAN). The Characterization Manager or designee will be informed by the RTIMP Lead or designee when RTIMP equipment measurements do not meet data quality control checklist criteria. The Characterization Manager or designee will determine whether additional scanning, confirmation, or delineation measurements are required.

6.2 PHYSICAL SAMPLES

As specified in Section 5.1 of the SCQ, sampling teams will describe daily activities on a Field Activity Log, which should be sufficient for accurate reconstruction of the events without reliance on memory. Sample Collection Logs will be completed according to protocol specified in Appendix B of the SCQ and in applicable procedures. These forms will be maintained in loose-leaf form and uniquely numbered following the sampling event. A copy of the field logs will be sent to the Characterization Manager upon request.

All field measurements, observations, and sample collection information associated with physical sample collection will be recorded, as applicable, on the Sample Collection Log, the Field Activity Log, and the Chain of Custody/Request for Analysis Form, as required. The method of sample collection will be specified in the Field Activity Log. Borehole Abandonment Logs are required. The PSP number will be on all documentation associated with these sampling activities.

Samples will be assigned a unique sample number as explained in Section 2.4. This unique sample identifier will appear on the Sample Collection Log and Chain of Custody/Request for Analysis and will be used to identify the samples during analysis, data entry, and data management.

All physical samples will be collected and reported at ASL B unless otherwise specified in a V/FCN. Field data packages will consist of the chain of custody form, field activity logs, and sample collection logs, and lithological logs. Technicians will review all field data for completeness and accuracy and then forward the field data package to the Field Data Validation Contact for final review. All field data packages associated with physical sampling will be independently validated. Standard required information will be entered into the SED. The original field data packages will be filed and controlled by the Sample and Data Management department.

Laboratory analytical data packages will be filed and distributed in accordance with existing data management procedures. A minimum of 10 percent of predesign data packages will be forwarded to the Data Validation group for validation at VSL B. All analytical data and data validation qualifiers will be transferred (from FACTS) or entered into the SED per existing procedures. The data will be evaluated by the Data Management Contact or designee, and if needed, a data group form will be completed for each material tracking location (as identified by WAO) and transmitted to WAO for WAC documentation.

APPENDIX A

DATA QUALITY OBJECTIVES SL-048, SL-054, and SL-055

Control Number ___________

Fernald Environmental Management Project

Data Quality Objectives

Title: Delineating the Extent of Constituents of Concern During Remediation Sampling

Number: SL-048

Revision: 5

Effective Date: 2/26/99

Contact Name: Eric Kroger

Approval: ____________________ Date: 2/25/99
James E. Chambers
DQO Coordinator

Approval: ____________________ Date: 2/26/99
J.D. Chiou
SCEP Project Director

Rev. #	0	1	2	3	4	5	6
Effective Date:	9/19/97	10/3/97	4/15/98	6/17/98	7/14/98	2/26/99	

DATA QUALITY OBJECTIVES

Delineating the Extent of Constituents of Concern During Remediation Sampling

Members of Data Quality Objectives (DQO) Scoping Team

The members of the DQO team include a project lead, a project engineer, a field lead, a statistician, a lead chemist, a sampling supervisor, and a data management lead.

Conceptual Model of the Site

Media is considered contaminated if the concentration of a constituent of concern (COC) exceeds the final remediation levels (FRLs). The extent of specific media contamination was estimated and published in the Operable Unit 5 Feasibility Study (FS). These estimates were based on kriging analysis of available data for media collected during the Remedial Investigation (RI) effort and other FEMP environmental characterization studies. Maps outlining contaminated media boundaries were generated for the Operable Unit 5 FS by overlaying the results of the kriging analysis data with isoconcentration maps of the other constituents of concern (COCs), as presented in the Operable Unit 5 RI report, and further modified by spatial analysis of maps reflecting the most current media characterization data. A sequential remediation plan has been presented that subdivides the FEMP into seven construction areas. During the course of remediation, areas of specific media may require additional characterization so remediation can be carried out as thoroughly and efficiently as possible. As a result, additional sampling may be necessary to accurately delineate a volume of specific media as exceeding a target level, such as the FRL or the Waste Attainment Criterion (WAC). Each individual Project-Specific Plan (PSP) will identify and describe the particular media to be sampled. This DQO covers all physical sampling activities associated with Pre-design Investigations, precertification sampling, WAC attainment sampling or regulatory monitoring that is required during site remediation.

1.0 Statement of Problem

If the extent (depth and/or area) of the media COC contamination is unknown, then it must be defined with respect to the appropriate target level (FRL, WAC, or other specified media concentration).

2.0 Identify the Decision

Delineate the horizontal and/or vertical extent of media COC contamination in an area with respect to the appropriate target level.

3.0 Inputs That Affect the Decision

Informational Inputs - Historical data, process history knowledge, the modeled extent of COC contamination, and the origins of contamination will be required to establish a sampling plan to delineate the extent of COC contamination. The desired precision of the delineation must be weighed against the cost of collecting and analyzing additional samples in order to determine the optimal sampling density. The project-specific plan will identify the optimal sampling density.

Action Levels - COCs must be delineated with respect to a specific action level, such as FRLs and On-Site Disposal Facility (OSDF) WAC concentrations. Specific media FRLs are established in the OU2 and OU5 RODs, and the WAC concentrations are published in the OU5 ROD. Media COCs may also require delineation with respect to other action levels that act as remediation drivers, such as Benchmark Toxicity Values (BTVs).

4.0 The Boundaries of the Situation

Temporal Boundaries - Sampling must be completed within a time frame sufficient to meet the remediation schedule. Time frames must allow for the scheduling of sampling and analytical activities, the collection of samples, analysis of samples and the processing of analytical data when received.

Scale of Decision Making - The decision made based upon the data collected in this investigation will be the extent of COC contamination at or above the appropriate action level. This delineation will result in media contaminant concentration information being incorporated into engineering design, and the attainment of established remediation goals.

Parameters of Interest - The parameters of interest are the COCs that have been determined to require additional delineation before remediation design can be finalized with the optimal degree of accuracy.

5.0 Decision Rule

If existing data provide an unacceptable level of uncertainty in the COC delineation model, then additional sampling will take place to decrease the model uncertainty. When deciding what additional data is needed, the costs of additional sampling and analysis must be weighed against the benefit of reduced uncertainty in the delineation model, which will eventually be used for assigning excavation, or for other purposes.

6.0 Limits on Decision Errors

In order to be useful, data must be collected with sufficient areal and depth coverage, and at sufficient density to ensure an accurate delineation of COC concentrations. Analytical sensitivity and reproducibility must be sufficient to differentiate the COC concentrations below their respective target levels.

Types of Decision Errors and Consequences

Decision Error 1 - This decision error occurs when the decision maker determines that the extent of media contaminated with COCs above action levels is not as extensive as it actually is. This error can result in a remediation design that fails to incorporate media contaminated with COC(s) above the action level(s). This could result in the re-mobilization of excavation equipment and delays in the remediation schedule. Also, this could result in media contaminated above action levels remaining after remediation is considered complete, posing a potential threat to human health and the environment.

Decision Error 2 - This decision error occurs when the decision maker determines that the extent of media contaminated above COC action levels is more extensive than it actually is. This error could result in more excavation than necessary, and this excess volume of materials being transferred to the OSDF, or an off-site disposal facility if contamination levels exceed the OSDF WAC.

True State of Nature for the Decision Errors - The true state of nature for Decision Error 1 is that the maximum extent of contamination above the FRL is more extensive than was determined. The true state of nature for Decision Error 2 is that the maximum extent of contamination above the FRL is not as extensive as was determined. Decision Error 1 is the more severe error.

7.0 Optimizing Design for Useable Data

7.1 Sample Collection

A sampling and analytical testing program will delineate the extent of COC contamination in a given area with respect to the action level of interest. Existing data, process knowledge, modeled concentration data, and the origins of contamination will be considered when determining the lateral and vertical extent of sample collection. The cost of collecting and analyzing additional samples will be weighed against the benefit of reduced uncertainty in the delineation model. This will determine the sampling density. Individual PSPs will identify the locations and depths to be sampled, the sampling density necessary to obtain the desired accuracy of the delineation, and if samples will be analyzed by the on-site or off-site laboratory. The PSP will also identify the sampling increments to be selectively analyzed for concentrations of the COC(s) of interest, along with field work requirements. Analytical requirements will be listed in the PSP. The chosen analytical methodologies are able to achieve a detection limit capable of resolving the COC action level. Sampling of groundwater monitoring wells may require different purge requirements than those stated in the SCQ (i.e., dry well definitions or small purge volumes). In order to accommodate sampling of wells that go dry prior to completing the purge of the necessary well volume, attempts to sample the monitoring wells will be made 24 hours after purging the well dry. If, after the 24 hour period, the well does not yield the required volume, the analytes will be collected in the order stated in the applicable PSP until the well goes dry. Any remaining analytes will not be collected. In some instances, after the 24 hour wait the well may not yield any water. For these cases, the well will be considered dry and will not be sampled.

7.2 COC Delineation

The media COC delineation will use all data collected under the PSP, and if deemed appropriate by the Project Lead, may also include existing data obtained from physical samples, and if applicable, information obtained through real-time screening. The delineation may be accomplished through modeling (e.g. kriging) of the COC concentration data with a confidence limit specific to project needs that will reduce the potential for Decision Error 1. A very conservative approach to delineation may also be utilized where the boundaries of the contaminated media are extended to the first known vertical and horizontal sample locations that reveal concentrations below the desired action level.

7.3 QC Considerations

Laboratory work will follow the requirements specified in the SCQ. If analysis is to be carried out by an off-site laboratory, it will be a Fluor Daniel Fernald approved full service laboratory. Laboratory quality control measures include a media prep blank, a laboratory control sample (LCS), matrix duplicates and matrix spike. Typical Field QC samples are not required for ASL B analysis. However the PSPs may specify appropriate field QC samples for the media type with respect to the ASL in accordance with the SCQ, such as field blanks, trip blanks, and container blanks. All field QC samples will be analyzed at the associated field sample ASL. Data will be validated per project requirements, which must meet the requirements specified in the SCQ. Project-specific validation requirements will be listed in the PSP.

Per the Sitewide Excavation Plan, the following ASL and data validation requirements apply to all **soil and soil field QC samples** collected in association with this DQO:

- If samples are analyzed for Pre-design Investigations and/or Precertification, 100% of the data will be analyzed per ASL B requirements. For each laboratory used for a project, 90% of the data will require only a Certificate of Analysis, the other 10% will require the Certificate of Analysis and all associated QA/QC results, and will be validated to ASL B. Per Appendix H of the SEP, the minimum detection level (MDL) for these analyses will be established at approximately 10% of the action level (the action level for precertification is the

FRL; the action level for pre-design investigations can be several different action levels, including the FRL, the WAC, RCRA levels, ALARA levels, etc.). If this MDL is different from the SCQ-specified MDL, the ASL will default to ASL E, though other analytical requirements will remain as specified for ASL B.

- If samples are analyzed for WAC Attainment and/or RCRA Characteristic Areas Delineation, 100% of the data will be analyzed and reported to ASL B with 10% validated. The ASL B package will include a Certificate of Analysis along with all associated QA/QC results. Total uranium analyses using a higher detection limit than is required for ASL B (10 mg/kg) may be appropriate for WAC attainment purposes since the WAC limit for total uranium is 1,030 mg/kg. In this case, an ASL E designation will apply to the analysis and reporting to be performed under the following conditions:

  - all of the ASL B laboratory QA/QC methods and reporting criteria will apply with the exception of the total uranium detection limit

  - the detection limit will be ≤10% of the WAC limit (e.g., ≤103 mg/kg for total uranium).

- If delineation data are also to be used for certification, the data must meet the data quality objectives specified in the Certification DQO (SL-043).

- Validation will include field validation of field packages for ASL B or ASL D data.

All data will undergo an evaluation by the Project Team, including a comparison for consistency with historical data. Deviations from QC considerations resulting from evaluating inputs to the decision from Section 3, must be justified in the PSP such that the objectives of the decision rule in Section 5 are met.

7.4 Independent Assessment

Independent assessment shall be performed by the FEMP QA organization by conducting surveillances. Surveillances will be planned and documented in accordance with Section 12.3 of the SCQ.

7.5 Data Management

Upon receipt from the laboratory, all results will be entered into the SED as qualified data using standard data entry protocol. The required ASL B, D or E data will undergo analytical validation by the FEMP validation team, as required (see Section 7.3). The Project Manager will be responsible to determine data usability as it pertains to supporting the DQO decision of determining delineation of media

COC's.

7.6 Applicable Procedures

Sample collection will be described in the PSP with a listing of applicable procedures. Typical related plans and procedures are the following:

- Sitewide Excavation Plan (SEP)
- Sitewide CERCLA Quality Assurance Project Plan (SCQ).
- SMPL-01, *Solids Sampling*
- SMPL-02, *Liquids and Sludge Sampling*
- SMPL-21, *Collection of Field Quality Control Samples*
- EQT-06, *Geoprobe® Model 5400 Operation and Maintenance*
- EQT-23, *Operation of High Purity Germanium Detectors*
- EQT-30, *Operation of Radiation Tracking Vehicle Sodium Iodide Detection System*

Data Quality Objectives
Delineating the Extent of Constituents of Concern During Remediation Sampling

1A. Task/Description: Delineating the extent of contamination above the FRLs

1.B. Project Phase: (Put an X in the appropriate selection.)

RI ☐ FS ☐ RD ☒ RA ☐ R,A ☐ OTHER ☐

1.C. DQO No.: SL-048, Rev. 5 DQO Reference No.:__________

---

2. Media Characterization: (Put an X in the appropriate selection.)

Air ☐ Biological ☐ Groundwater ☒ Sediment ☒ Soil ☒

Waste ☒ Wastewater ☐ Surface water ☐ Other (specify) _____

---

3. Data Use with Analytical Support Level (A-E): (Put an X in the appropriate Analytical Support Level selection(s) beside each applicable Data Use.)

Site Characterization
A ☐ B ☒ C ☐ D ☒ E ☒

Risk Assessment
A ☐ B ☐ C ☐ D ☐ E ☐

Evaluation of Alternatives
A ☐ B ☐ C ☐ D ☐ E ☐

Engineering Design
A ☐ B ☒ C ☐ D ☒ E ☒

Monitoring during remediation
A ☒ B ☒ C ☐ D ☒ E ☒

Other
A ☐ B ☐ C ☐ D ☐ E ☐

4.A. Drivers: Remedial Action Work Plans, Applicable or Relevant and Appropriate Requirements (ARARs) and the OU2 and/or OU5 Record of Decision (ROD).

4.B. Objective: Delineate the extent of media contaminated with a COC (or COCs) with respect to the action level(s) of interest.

---

5. Site Information (Description):

6.A. Data Types with appropriate Analytical Support Level Equipment Selection and SCQ Reference: (Place an "X" to the right of the appropriate box or boxes selecting the type of analysis or analyses required. Then select the type of equipment to perform the analysis if appropriate. Please include a reference to the SCQ Section.)

1. pH [X] *
   Temperature [X] *
   Specific Conductance [X] *
   Dissolved Oxygen [X] *
   Technetium-99 [X] *

2. Uranium [X] *
   Full Radiological [X] *
   Metals [X] *
   Cyanide [ ]
   Silica [ ]

3. BTX [ ]
   TPH [ ]
   Oil/Grease [ ]

4. Cations [ ]
   Anions [ ]
   TOC [ ]
   TCLP [X] *
   CEC [ ]

5. VOA [X] *
   BNA [X] *
   Pesticides [X] *
   PCB [X] *
   COD [ ]

6. Other (specify)

*If constituent is identified for delineation in the individual PSP.

6.B. Equipment Selection and SCQ Reference:

Equipment Selection		Refer to SCQ Section
ASL A		SCQ Section:
ASL B	X	SCQ Section: App. G Tables G-1&G-3
ASL C		SCQ Section:
ASL D	X	SCQ Section: App. G Tables G-1&G-3
ASL E	X (See sect. 7.3, pg. 6)	SCQ Section: App. G Tables G-1&G-3

7.A. Sampling Methods: (Put an X in the appropriate selection.)

Biased [X] Composite [ ] Environmental [X] Grab [X] Grid [X]

Intrusive [X] Non-Intrusive [ ] Phased [ ] Source [ ]

DQO Number: SL-048, Rev. 5

7.B. Sample Work Plan Reference: This DQO is being written prior to the PSPs.

Background samples: OU5 RI

7.C. Sample Collection Reference:

Sample Collection Reference: SMPL-01, SMPL-02, EQT-06

---

8. Quality Control Samples: (Place an "X" in the appropriate selection box.)

8.A. Field Quality Control Samples:

Trip Blanks	[X]*	Container Blanks	[X]++
Field Blanks	[X]+	Duplicate Samples	[X]***
Equipment Rinsate Samples	[X]***	Split Samples	[X]**
Preservative Blanks	[ ]	Performance Evaluation Samples	[ ]
Other (specify)			

- * For volatile organics only
- ** Split samples will be collected where required by EPA or OEPA.
- *** If specified in PSP.
- \+ Collected at the discretion of the Project Manager (if warranted by field conditions)
- \++ One per Area and Phase Area per container type (i.e. stainless steel core liner/plastic core liner/Geoprobe tube).

8.B. Laboratory Quality Control Samples:

Method Blank	[X]	Matrix Duplicate/Replicate	[X]
Matrix Spike	[X]	Surrogate Spikes	[ ]
Tracer Spike	[ ]		

Other (specify) Per SCQ

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

Control Number ________

Fernald Closure Project

Data Quality Objectives

Title: Real Time Instrumentation Measurement Program: Precertification Monitoring

Number: SL-054

Revision: 2

Effective Date: 8/11/03

Contact Name: Richard J. Abitz

Approval: ____________________ Date: 8/6/03
James Chambers
DQO Coordinator

Approval: ____________________ Date: 8/6/03
Richard J. Abitz
Environmental Services Manager

Rev. #	0	1	2				
Effective Date:	6/03/99	12/01/02	8/11/03				

ORIGINAL

Data Quality Objectives
Real Time Instrumentation Measurement Program
Precertification Monitoring

1.0 Statement of Problem

This data quality objective (DQO) describes the Real Time Instrumentation Measurement Program (RTIMP) methods used to precertify remediated areas. If physical soil samples need to be collected during precertification activities, they will be collected under a separate DQO.

Conceptual Model of the Process

The general soil remediation process at the Fernald Closure Project (FCP) includes *in situ* gamma spectrometry measurements performed by the RTIMP. RTIMP supports 1) pre-design investigations that define excavation boundaries, 2) excavation activities to demonstrate that contaminated soil meets the On Site Disposal Facility (OSDF) waste acceptance criteria (WAC) for uranium, and 3) precertification activities to demonstrate that remediated areas are free of uranium (U), thorium (Th) and radium (Ra) concentrations that exceed 3 times their respective final remediation levels (FRLs). Item 3 is the subject of this DQO.

Precertification measurements of U-238, Th-232, and Ra-226 activity in surface soil are performed with mobile sodium iodide (NaI) and stationary high purity germanium (HPGe) detectors. Measurements can be made over a barren excavated surface or where vegetation is present on undisturbed soil. If vegetation is present, the only requirement is that personnel and equipment can traverse the area in a safe and efficient manner, which may require some cutting of the vegetation prior to performing the measurements.

RTIMP measurements are collected according to procedures in the RTIMP Operations Manual (RTIMP-M-003) and protocols discussed in the *User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectroscopy at the Fernald Site* (User's Manual), and the *Sitewide Excavation Plan* (SEP). The RTIMP Protocols in the User's Manual provide detail on the 3 phases of precertification monitoring, which can be summarized as follows:

- Phase 1 measurements consist primarily of scans with a mobile NaI detector over as much of the area as possible. In zones that are inaccessible to the mobile equipment that houses the NaI detectors, stationary HPGe detectors are used to obtain the remaining Phase 1 measurements. Target parameters for the NaI and HPGe measurements are gross gamma (only NaI), U-238, Th-232 and Ra-226 activity. Action levels for NaI measurements correspond to the highest gross gamma activity in each batch file (see Methods of Data Collection in Section 3), U-238 and Th-238 activities that exceed 3-times that exceed 3-times their respective FRL, and Ra-226 activity that exceeds its FRL by a factor of 7 (7xFRL). For HPGe measurements, the action levels for total uranium, Th-232 and Ra-226 activities are set to 3-times their respective FRL. Phase I action levels dictate the location of Phase 2 measurements.

- Phase 2 measurements are performed only with HPGe detectors. Measurements are collected at Phase 1 locations that correspond to the NaI action levels of highest gross gamma activity, total uranium or Th-232 activity greater than 3xFRL, and/or Ra-226 activity that exceeds 7xFRL. For HPGe Phase I locations, Phase 2 measurements are performed if total uranium, Th-232 or Ra-226 activity exceeds 3xFRL (i.e., a hotspot). The objective of Phase 2 measurements is to screen the locations that exceed Phase I action levels and to confirm and delineate any hotspots that may be present at these locations. If hotspots are absent, certification activities can begin in the area. When hotspots are found, they are excavated and removed prior to performing Phase 3 measurements.

- Phase 3 measurements are performed only with HPGe detectors, and only if hotspots were identified and removed during Phase 2 activities. The area impacted by the hotspot removal is covered with a triangular grid and each node (4-meter nodes) is measured to confirm that total uranium, Th-232 or Ra-226 activity is below 3xFRL (i.e., the hotspot is removed). If Phase 3 measurements confirm that the hotspot has been removed, certification activities can begin. When Phase 3 measurements indicate a hotspot remains in the area, additional Phase 2 measurements are performed to delineate the extent of the contamination.

Available Resources

Time: Precertification of remediated areas must be completed in a timely manner by the RTIMP field team to provide information required for the Certification Design Letter.

Project Constraints: Soil remediation activities must be consistent with the SEP and be completed in accordance with the Fluor Fernald Closure Plan. Precertification activities must be performed with existing manpower and equipment, with reasonable consideration given to the replacement or repair of equipment that fails. Certification of all site property as meeting the FRLs, and regrading of remediated areas to meet final land use commitments, is dependent on successful completion of the RTIMP precertification work.

Personnel: The RTIMP requires a staff of individual trained to internal procedural requirements and methods to maintain efficient operations under the current accelerated schedule. The staff size is dependent on the number of soil remediation areas requiring RTIMP services at any point in time. Personnel are distributed as follows: Manager, Field Operations Supervisor, Systems Supervisor, Technical Support Scientist and field technicians.

Equipment: The RTIMP maintains approximately six NaI and seven HPGe systems. Each system is comprised of a detector, a multi-channel analyzer, a portable PC, and associated electronic components (e.g., cables and batteries). Global Positioning Systems (GPS) are used with the NaI and HPGe detectors to determine the geographic coordinates of the measurements. The NaI detector systems are fixed to mobile platforms that consist of a John Deere tractor (RTRAK), a Gator vehicle, three three-wheeled carts (RSSI, RSSII and RSSIII), and an excavation monitoring system (EMS) attached to a John Deere excavator. HPGe systems are placed on stationary tripods to obtain the measurements as well the EMS in a stationary mode.

2.0 Identify the Decision

Decision

In situ measurements with the NaI and HPGe gamma-ray detectors support two decisions:

Decision 1: Phase 1 measurements indicate whether the area is free of total uranium, Th-232 and Ra-226 contamination in excess of 3xFRL (i.e., hotspots are absent) when using HPGe systems. When using NaI systems, measurements can indicate whether the area is free of total uranium and Th-232 contamination in excess of 3xFRL and 7xFRL for Ra-226 contamination.

Decision 2: Phase 2 measurements confirm whether hotspots (based on Phase 1 findings) are present (>3xFRL) or absent (<3xFRL), and whether additional excavation is required to remove the contamination. If no >3xFRL hotspots are identified in Phase 1, a Phase 2 measurement will be performed at the highest gross gamma count (if using a NaI detector in Phase 1) location to determine whether or not it represents a hotspot

Results of Decision 1

When Phase 1 measurements indicate the area contains no hotspots (as discussed in Decision 1 above), no Phase 2 HPGe measurements are necessary with one exception. The Phase 1 location having the highest gross gamma count will be measured with an HPGe detector to verify that this discrete area does not exceed the 3xFRL level. If Phase 1 indicates potential hotspots (as discussed in Decision 2 above), then Phase 2 measurements must be initiated.

If Phase 1 measurements indicate no hotspots, the area is released to begin the certification process. Precertification results are provided as maps to document that total uranium, Th-232 and Ra-226 levels are below 3xFRL, and these maps are placed in the Certification Design Letter.

Results of Decision 2

Phase 2 measurements that identify hotspots are used to delineate the extent of the excavation, and the contamination is removed as additional scope under the Integrated Remedial Design Plan that is applicable to the area. Upon completion of the excavation and removal of the contaminated soil, Phase 3 measurements must be performed to verify that total uranium, Th-232 and Ra-226 levels are below 3xFRL.

If Phase 3 measurements indicate the area contains no hotspots after excavation, the area is released to begin the certification process. Precertification results are provided as maps to document that total uranium, Th-232 and Ra-226 levels are below 3xFRL, and these maps are placed in the Certification Design Letter.

If Phase 3 measurements indicate hotspots remain in the area, additional Phase 2 measurements are required to delineate the extent of the contamination. Decision 2 is then repeated until the area is released for certification.

3.0 Identify Inputs That Affect the Decision

Required Information

Information needed to make the decisions identified in Section 2 include gamma spectra collected with the NaI and HPGe detectors, soil moisture readings to correct the measurement results to dry-weight basis, log files generated from the software reduction of the spectra to reportable nuclide activity, geographic coordinates to allow the plotting of results on maps, and maps indicating the activity of the total uranium, Th-232, and Ra-226 nuclides.

Sources of Information

GammaVision software is used to collect and save the gamma spectra and geographic coordinates obtained from the GPS. The spectra are then analyzed with LabView (NaI) or EGAS (HPGe) software to quantify the activity of total uranium, Th-232, and Ra-226. Log files written by LabView and EGAS report sample identification, collection date, geographic coordinates, nuclide results and errors, and a flag column that indicates potential problems during the data reduction process. The log files are imported into Excel to check the results and flag column and then assign final quality-check codes. Maps are produced using Surfer software and the information contained in the Excel spreadsheet.

Action Levels

Action levels for the NaI measurements are the highest value for gross gamma counts in each batch file (a batch file is a continuous scan that contains hundreds to thousands of 4-second spectra), total uranium and Th-232 levels that exceed 3XFRL, and Ra-226 results that exceed 7xFRL. For HPGe measurements, action levels are set at 3xFRL for U-238, Th-232 and Ra-226.

Methods of Data Collection

NaI measurements are collected in a continuous scan mode by moving the detector and GPS antenna over the surface at a nominal speed of 1 mph. Traverses across the area are carried out in a manner that produces approximately 40 cm of overlap on each adjacent path. The detector height above the surface is 31 cm and a spectrum and GPS coordinates are collected every 4 seconds and stored in a batch file. A batch file is generated each time the NaI systems are mobilized to a work area. Procedures that describe the initiation of the NaI system and acquisition of data are contained in RTIMP-M-003, *RTIMP Operations Manual.*

HPGe measurements are obtained from a stationary tripod at a detector height of 100 cm (Phase 1) ,31 cm or 15 cm (Phases 2 and 3) for a period of 300 seconds. A larger area is evaluated with the 100 cm detector height used for Phase 1 measurements, as this initial screening assumes no hotspots are present. If measurements cannot be obtained due to unsafe conditions (e.g., trench) or standing water, measurements may be carried out at a detector height of 15 cm on small circular soil pads that are created with a backhoe and placed adjacent to the area that is inaccessible. Procedures that describe the initiation of the HPGe system and acquisition of data are contained in RTIMP-M-003, *RTIMP Operations Manual.*

4.0 The Boundaries of the Situation

Spatial Boundaries

Domain of the Decision: Measurements are limited to the top 6 inches of soil in areas planned for certification, as defined in the precertification PSP.

Soil Population: All disturbed and undisturbed soil on the FCP property that has been passed into the precertification stage of remediation.

Temporal Boundaries

Time Constraints: The scheduling of precertification scanning is tied to the schedule for collection of certification samples. Precertification scans must be completed after excavation, if any, and before certification activities begin. The *in situ* measurements must be checked, verified and processed into maps to allow the information to be presented in the Certification Design Letter.

Practical Considerations: *In situ* measurements cannot be collected during precipitation events or if snow or water covers the soil. Additionally, if soil moisture exceeds 40 weight percent, measurements should be delayed until the soil moisture falls below this value. Prior to performing the measurements, some areas may require cutting of grass or removal of undergrowth, fencing and other obstacles, which requires coordination with appropriate maintenance personnel.

5.0 Develop a Logic Statement

Parameters of Interest

The parameters of interest are gross counts, total uranium, Th-232, Th-228, Ra-228 and Ra-226. Activities associated with the Th-228 and Ra-228 isotopes are not measured directly, as they are assumed to be equal to the Th-232 activity (i.e., in secular equilibrium with Th-232). The total uranium value is calculated based on the U-238 activity.

Action Levels

Precertification action levels for each batch file collected with a NaI system are values corresponding to the highest gross counts (i.e., total gamma activity), 3xFRL for total uranium and Th-232, and 7xFRL for Ra-226. For HPGe detectors, the action levels are 3xFRL for total uranium, Th-232 and Ra-226.

Decision Rules

If Phase 2 results indicate hotspots are absent (i.e., contamination is below 3xFRL for total uranium, Th-232 or Ra-226), certification sampling can begin. However, when a Phase 2 measurement indicates a hotpot is present, the extent of the hotspot will be delineated and mapped to provide a record for removal of the hotspot.

After the hotspot is excavated and removed from the area, Phase 3 measurements will be taken to verify the removal of the hotspot. If Phase 3 measurements indicate the hotspot is gone, certification activities may begin. When a Phase 3 measurement records total uranium, Th-232, or Ra-226 activity above 3xFRL, additional Phase 2 measurements are performed to delineate and map the additional contamination.

6.0 Establish Constraints on the Uncertainty of the Decision

Types of Decision Errors and Consequences

Decision Error 1: This decision error occurs when the Phase 2 measurements indicate an area is ready for certification when the soil contains one or more of the primary radiological COCs (U-238, Th-232, Th-228, Ra-228 and Ra-226) at levels above 3xFRL (i.e., the hotspot criterion fails when it is thought to pass). This decision error could lead to the area failing certification for one or several of the primary radiological COCs. If an area fails certification, additional excavation, precertification, and certification activities would be necessary.

Decision Error 2: This decision error occurs when the Phase 2 measurements indicate the area contains a hotspot when the soil activities of the primary radiological COCs are below 3xFRL (i.e., the hotspot criterion passes when it is thought to fail). This decision error results in additional excavation and precertification activities, as well as the placement of clean soil in the OSDF.

True Nature of the Decision Errors

Because Decision Error 2 results in additional costs that are incurred before a certification pass/fail decision is made, the funds must be expended every time this decision error occurs. However, with Decision Error 1, costs are incurred only if certification fails. Therefore, Decision Error 2 is the more severe error.

7.0 Optimize a Design for Obtaining Quality Data

In situ measurements are collected with the mobile NaI detectors (ASL A) and the stationary HPGe detectors (ASL A or B). Surface moisture readings are obtained in conjunction with the NaI and HPGe measurements using the Zeltex moisture meter. The soil moisture is used to correct the measured total uranium, Th-232, and Ra-226 activities to a dry-weight basis. Measured Ra-226 activity is also subject to a radon correction to account for differences in laboratory and *in situ* results and for background radon levels when evaluating Ra-226 hotspots. The User's Manual contains a detailed discussion on Ra-226 corrections.

Sodium Iodide Detectors

The NaI systems are used to scan as much of the area as possible, taking into consideration the topography and vegetation that may limit access. During the NaI scan, the mobile platform moves at a nominal speed of 1 mph and a gamma-ray spectrum is collected every 4 seconds and synchronized with GPS coordinates to locate each measurement. The spectra and GPS information are recorded and stored on a field PC hard drive until it is transferred to the FCP Local Area Network (LAN). Quality checks are performed on the data before the results are released to the SED or used in the preparation of maps, and optimization of the system operations occurs during calibration checks, field measurements and data reduction.

Prior to and after the NaI systems are mobilized to the field, the detector is checked with a Th-232 source to verify the location of the thallium-208 (Tl-208) peak and the net counts in the area under this peak. Detector efficiency is calculated annually for the protactinium-234, bismuth-214 and Tl-208 peaks, which are used to evaluate U-238 (total uranium), Ra-226 and Th-232 activity, respectively. Descriptions and pass/fail criteria for these calibration checks are given in the RTIMP-M-003, *RTIMP Operations Manual* and Appendix H of the SCQ.

Field measurements in forested areas are carried out during winter months, when the leaf canopy is absent and GPS signals can reach the receiver. Measurements over steep terrain and in trenches are executed using the EMS and John-Deere excavator to avoid unsafe working conditions for personnel.

Individual 4-second spectra are evaluated during the data reduction process and the net gross counts for each spectrum are used to plot total gamma activity. However, a meaningful evaluation of soil contamination associated with U-238 (total uranium), Th-232 and Ra-226 activities requires that two 4-second spectra be combined to obtain a sufficient number of counts in the area of interest. This optimization of the counting statistics allows total uranium and Th-232 contamination to be evaluated at levels that correspond to 3xFRL, and for Ra-226 at values 7xFRL. More measurements can be aggregated to achieve lower detection levels, but the area evaluated becomes very large and spatial resolution is lost.

High Purity Germanium Detectors

The HPGe systems are used to verify NaI measurements, identify and delineate hotspots (if found), and confirm that the area is ready for certification activities. HPGe detectors are set on stationary tripods, as well the EMS in a stationary mode, and a gamma-ray spectrum is collected every 300 seconds. GPS coordinates at the measurement location are obtained prior to or after the measurement. The spectra and GPS information are recorded and stored on a field PC hard drive until it is transferred to the FCP Local Area Network (LAN). Quality checks are performed on the data before the results are released to the SED or used in the preparation of maps, and optimization of the system operations occurs during calibration checks, field measurements and data reduction.

Prior to and after the HPGe systems are mobilized to the field, the detector is checked with a NIST source to verify the location and resolution of the americium-241 (Am-241), cesium-137 (Cs-137) and cobalt-60 (Co-60) peaks and the net counts in the area under each of the peaks. Detector efficiency is calculated annually using numerous gamma rays associated with the decay of Am-241, Cs-137, Co-60 and europium-152. Descriptions and pass/fail criteria for these calibration checks are given in the RTIMP-M-003, *RTIMP Operations Manual and* Appendix H of the SCQ.

Field measurements include a duplicate measurement for each detector in the field every 20 measurements or daily, whichever is more frequent. When Ra-226 hotspots are being evaluated, an independent HPGe detector is set up as a radon monitor to track daily variance in Ra-226 measurements that arises from a change in the rate of radon emanation from the soil. The HPGe detector serving as the radon monitor station collects a spectrum every 300 seconds, and the station is activated before the first HPGe field measurement and shut down after the last daily field measurement. The application of this information to the correction of Ra-226 results is discussed in the User's Manual.

Individual HPGe spectra are evaluated during the data reduction process and the results from one or more gamma-ray energy lines are used to quantify U-238 (to calculate total uranium), Th-232 and Ra-226 activities. In particular, interference from nearby sources of gamma radiation can be evaluated during the data reduction process to screen out anomalous results. For example, U-238 activity, and ultimately total uranium, is calculated using a low-energy and high-energy gamma ray. If the low-energy gamma ray is less than 80 percent of the activity recorded for the high-energy gamma ray, a local uranium source may be interfering with the measurement. Optimization of the data reduction process is discussed in RTIMP-M-003, *RTIMP Operations Manual.*

Data Quality Objectives
***In Situ* Precertification Measurements**

1A. Task/Description: *In situ* precertification measurements.

1B. Project Phase: (Put an X in the appropriate selection.)

RI		FS		RD		RA	X	RvA		OTHER	

1.C. DQO No.: SL-054, Rev. 2 DQO Reference No.: Current Sampling DQO

2. Media Characterization: (Put an X in the appropriate selection.)

Air		Biological		Groundwater		Sediment	X	Soil	X
Waste		Wastewater		Surface Water		Other (specify)			

3. Data Use with Analytical Support Level (A-E): (Put an X in the appropriate Analytical Support Level selection(s) beside each applicable Data Use.)

Site Characterization										Risk Assessment									
A	X	B	X	C		D		E		A		B		C		D		E	
Evaluation of Alternatives										Engineering Design									
A		B		C		D		E		A		B		C		D		E	
Monitoring during remediation activities										Other: Precertification									
A	X	B	X	C		D		E		A	X	B	X	C		D		E	

4.A. Drivers: Applicable or Relevant and Appropriate Requirements (ARARs), Operable Unit 5 Record of Decision (ROD), Appendix H of the SCQ, RTIMP-M-003, *RTIMP Operations Manual*, RTIMP User's Manual, Sitewide Excavation Plan, and various Project-Specific Plans (PSP).

4.B. Objective: To determine if the area of interest is free of hotspots (i.e., total uranium, Th-232 or Ra-226 less than 3xFRL) and likely to pass certification.

5. Site Information (Description): The OU2 and OU5 RODs have identified areas at the FCP that require remediation activities. The total uranium, Th-232 and Ra-226 levels in soil in these areas must be below the established FRLs.

6.A. Data Types with appropriate Analytical Support Level Equipment Selection and SCQ Reference: (Place an "X" to the right of the appropriate box or boxes selecting the type of analysis or analyses required. Then select the type of equipment to perform the analysis if appropriate. Please include a reference to the SCQ Section.)

1.	pH		2.	Uranium*	X*	3.	BTX	
	Temperature			Full Rad.*	X*		TPH	
	Spec. Conductance			Metals			Oil/Grease	
	Dissolved Oxygen			Cyanide				
	Technitium-99			Silica				
4.	Cations		5.	VOA		6.	Other (specify)	
	Anions			ABN			Percent Moisture	
	TOC			Pesticides				
	TCLP			PCB				
	CEC							
	COD							

* Full rad is total uranium, Th-232 and Ra-226.

6.B. Equipment Selection and SCQ Reference:

Equipment Selection	Refer to SCQ Section
ASL A Nal and HPGe	SCQ Section: Appendix H
ASL B HPGe	SCQ Section: Appendix H
ASL C ______	SCQ Section:
ASL D ______	SCQ Section:
ASL E ______	SCQ Section:

7.A. Sampling Methods: (Put an X in the appropriate selection.)

Biased	X	Composite		Environmental		Grab		Grid	X
Intrusive		Non-Intrusive	X	Phased		Source			

7.B. Sample Work Plan Reference: The DQO is being established prior to completion of the Project-Specific Plans.
Background samples: OU5 RI/FS

7.C. Sample Collection Reference:
RTIMP-M-003, *RTIMP Operations Manual*
User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectroscopy at the Fernald Site (User's Manual)

8. Quality Control Samples: (Place an "X" in the appropriate selection box.)

8.A. Field Quality Control Samples:

Trip Blanks		Container Blanks	
Field Blanks		Duplicate Samples	X*
Equipment Rinsate Samples			
Preservative Blanks			
Other (specify): *Source Checks, Control Charts, Radon Monitoring, Moisture*	X*		

* If specified in the PSP.

8.B. Laboratory Quality Control Samples:

Method Blank		Matrix Duplicate/Replicate	
Matrix Spike		Surrogate Spikes	
Other (specify):			

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

Control Number ________

Fernald Environmental Management Project

Data Quality Objectives

Title:	Real-Time Excavation Monitoring For Total Uranium Waste Acceptance Criteria (WAC)
Number:	SL-055
Revision:	0
Final Draft:	6/8/99
Contact Name:	Joan White

Approval: ____________ Date: 6/8/99
James E. Chambers
DQO Coordinator

Approval: ____________ Date: 6/8/99
Joan White
Real-Time Instrumentation Measurement
Program Manager

Rev. #	0						
Effective Date:	6/8/99						

DATA QUALITY OBJECTIVES
Excavation Monitoring for Total Uranium Waste Acceptance Criteria (WAC)

Members of Data Quality Objectives (DQO) Scoping Team

The members of the scoping team included individuals with expertise in QA, analytical methods, field construction, statistics, laboratory analytical techniques, waste management, waste acceptance, data management, and excavation monitoring.

Conceptual Model of the Site

Fernald Environmental Management Project (FEMP) remediation includes the construction of an on-site disposal facility (OSDF) to be used for the safe permanent disposal of materials at or above the site final remediation levels (FRLs), but below the waste acceptance criteria (WAC) for constituents of concern (WAC COCs). The WAC concentrations for several constituents, including total uranium, were developed using fate and transport modeling, and were established to prevent a breakthrough of unacceptable levels of contamination (greater than a specified Maximum Contaminant Level to the underlying Great Miami Aquifer) over a 1000-year period of OSDF performance. The WAC for total uranium and other area-specific WAC COCs as referenced in the Operable Unit 5 (OU5) and Operable Unit 2 (OU2) Records Of Decision (RODs), the Waste Acceptance Plan for the On-Site Disposal Facility (WAC Plan), and the OSDF Impacted Materials Placement Plan (IMPP), must be achieved for all soil and soil-like materials that have been identified for disposal in the OSDF.

The extent of soil contamination requiring remediation was estimated and published in both the Operable Unit 5 and Operable Unit 2 Feasibility Studies (FS). These estimates were based on modeling analysis of available uranium data from soil samples collected during the Remedial Investigation (RI) efforts and from other environmental studies conducted at the FEMP. Maps outlining boundaries of soil contamination were generated for both the Operable Unit 5 and Operable Unit 2 FS documents by overlaying the results of the modeling analysis of uranium data with isoconcentration maps of other COCs. The soil contamination maps were further modified by conducting spatial analysis on the most current soil characterization data.

A sequential remediation plan has been presented which subdivides the FEMP into ten (10) independent remediation areas. Extensive historical sampling has demonstrated that in each of these 10 areas potentially above-WAC concentrations may not be present, may be limited to one WAC COC, or consist of a subset of WAC COCs. According to the Sitewide Excavation Plan (SEP) only WAC COCs with a demonstrated or likely presence in an area will be evaluated during remedial design and implementation. This DQO will be used to define the WAC decision-making process using excavation monitoring instrumentation in areas where soil and soil-like material is being excavated and total uranium is a WAC COC.

1.0 Statement of Problem

Adequate information must be available to demonstrate excavated soils or soil-like material is acceptable or unacceptable for disposal in the OSDF, based on the total uranium WAC.

Available Resources

Time: WAC decision-making information of sufficient quality must be made available to the Project Manager (or designee), characterization representative, and Waste Acceptance Operations representative (decision makers) prior to excavation and disposition of soil and soil-like materials.

Project Constraints: WAC decision-making information must be collected and assimilated with existing manpower and instrumentation to support the remediation schedule. Successful remediation of applicable areas, including excavation and placement of soil and soil-like material in the OSDF, is dependent on the performance of this work.

Summary of the Problem

Excavated soil or soil-like material must be classified as either of the following:

1. Having concentrations of total uranium at or above the WAC, and therefore, unacceptable for disposal in the OSDF, or

2. Having concentrations of total uranium below the WAC, and therefore, acceptable for disposal in the OSDF.

2.0 Identify the Decision

Decision

The WAC decision-making process will result in the classification of defined soil or soil-like material volumes as either meeting or exceeding the 1,030 ppm total uranium WAC.

Possible Results

1. A defined volume of soil or soil-like material has a concentration of total uranium at or above the WAC. This material is classified as unacceptable for placement in the OSDF, and will be identified, excavated, and segregated pending off-site disposition.

2. A defined volume of soil or soil-like material has a concentration of total uranium below the total uranium WAC. This soil is classified as acceptable for placement in the OSDF and is transported directly from the excavation to the OSDF for placement.

3.0 Identify Inputs That Affect the Decision

Required Information

The total uranium WAC published in the Waste Acceptance Criteria Attainment Plan for the OSDF, historical data, pre-design investigation data, and in-situ gamma spectrometry information collected prior to and during excavation are required to determine whether a specified volume of soil or soil-like material meets or exceeds the total uranium WAC.

Source of Informational Input

The list of sitewide OSDF WAC COCs identified in the OU2 and OU5 RODs and the WAC Plan will be referenced. Historical area specific data from the Sitewide Environmental Database (SED) will also be retrieved and evaluated for both radiological and chemical WAC constituents. This information will be utilized to determine area specific WAC COCs.

Non-invasive real-time excavation monitoring in areas where total uranium is a WAC concern will involve measurements collected with mobile and/or stationary in-situ gamma spectrometry equipment. These measurements will be collected from the surface of each excavation lift prior to excavation. Information compiled from this real-time monitoring will be assimilated and reviewed by decision makers to classify lifts or sections of lifts as either acceptable or unacceptable for placement in the OSDF. These measurements may also be collected on soils exposed after the removal of suspect above WAC material to verify its removal.

Action Levels

To ensure no above WAC soil or soil-like material is sent to the OSDF, threshold values (trigger levels) have been set for NaI and HPGe Phase 1 and II measurements. These values are significantly lower than the 1030 ppm total uranium OSDF not-to-exceed (NTE) level. The WAC Phase I (detection phase) threshold value is 721 ppm total uranium for NaI instruments (31 cm detector height), and 400 ppm total uranium for the HPGe (1 meter detector height). The WAC Phase II (confirmation and delineation phase) threshold value is 928 ppm total uranium for the HPGe (31 cm and 15 cm detector heights).

Methods of Data Collection

WAC Phase 1 measurements will be collected to obtain as close to complete coverage of the areas of concern as possible using either the NaI Radiation Measurement Systems (RMS) or HPGe equipment to identify potential above WAC total uranium locations. WAC Phase II measurements will be collected with strategically placed HPGe equipment to confirm and delineate Phase I potential above WAC measurements, as needed. The project may decide not to collect Phase II measurements if the potential above WAC area boundary is discernable by visual observation (such as presence of process residue or other OSDF prohibited items, discoloration of soil or soil-like material, or other information).

The project will use the real-time WAC Phase I and Phase II data as ASL A, and will perform no data validation (however the data will be collected with ASL B quality control criteria, for real-time project internal quality control. All measurements will be performed in compliance with operating procedures identified in Section 7.5 of this DQO, the Real-Time User's Manual, and the SEP.

4.0 The Boundaries of the Situation

Spatial Boundaries

Domain of the Decision: The boundaries where excavation monitoring for total uranium will be used is limited to soils and/or soil-like material in remediation areas where total uranium is a WAC COC, excavation is planned, and material is designated for disposition in the OSDF.

Population of Soils:

Includes all at-and below-grade soil and soil-like material impacted with total uranium potentially exceeding the WAC and planned for disposition in the OSDF.

Scale of Decision Making

Areas designated for excavation will be evaluated as to whether the soil or soil-like material is below or above the OSDF WAC for total uranium. Excavation monitoring will be conducted on each excavation lift. Based on the information obtained as a result of reviewing and modeling existing data coupled with newly acquired excavation monitoring information, a decision will be made whether an individual excavation lift, or portion of a lift, meets or exceeds the OSDF WAC for total uranium.

Temporal Boundaries

Time Constraint: Real-time excavation monitoring information must be acquired and processed in time for review and use in decision making prior to excavation and disposition of excavated material. The scheduling of WAC excavation monitoring is directly tied to the excavation schedule. WAC excavation monitoring will be performed and a disposition decision made prior to excavation of each designated lift. Acquired information must be processed and reviewed by the project decision-makers prior to disposition of the lift being monitored. Time limits to complete measurements are specified in the excavation subcontracts.

Practical Considerations: Weather, moisture, field conditions, and unforseen events affect the ability to perform excavation monitoring and meet the schedule. To maintain safe working conditions, excavation and construction activities will comply with all FEMP and project specific health and safety protocols.

5.0 Develop a Logic Statement

Parameter(s) of Interest

The parameter of interest is the concentration of total uranium in soil or soil-like material designated for disposition in the OSDF.

Waste Acceptance Criteria Concentration

The OSDF WAC concentration is 1,030 ppm for total uranium in soil and soil-like materials. This concentration is considered a NTE level for OSDF WAC attainment, and no real-time measurement data point, as defined by the instrument-specific threshold values, can meet or exceed this level in material destined for the OSDF.

Decision Rules

If excavation monitoring results are below the total uranium WAC for a specified volume of soil or soil like material, then that soil is considered acceptable for final disposition in the OSDF. If monitoring results reveal concentrations at or above the total uranium WAC, as indicated by exceeding the instrument-specific threshold level, then the unacceptable soil will be delineated, removed, and segregated pending off-site disposal.

6.0 Limits on Decision Errors

Range of Parameter Limits

The area-specific total uranium soil concentrations anticipated in excavation areas will range from background levels (naturally-occurring soil concentrations) to concentrations greater than the total uranium WAC levels.

Types of Decision Errors and Consequences

Decision Error 1: This decision error occurs when the decision makers decide a specified volume of soil or soil-like material is below the WAC for total uranium, when in fact the uranium concentration in that soil is at or above the WAC. This error would result in soil or soil like material with concentrations above the WAC for total uranium being placed into the OSDF. Since the WAC is a NTE level, this error is unacceptable.

Decision Error 2: This decision error occurs when a volume of soil or soil-like material is identified as above WAC, excavated, and sent for off-site disposition when the material is actually below the WAC for total uranium. This error would result in added costs due to the unnecessary segregation and off-site disposition of material that is acceptable for disposal in the OSDF.

True State of Nature for the Decision Errors

The true state of nature for Decision Error 1 is that the actual concentration of total uranium in a volume of soil or soil-like material is greater than the WAC. The true state of nature for Decision Error 2 is that the actual concentration of total uranium in a volume of soil or soil-like material is below the WAC. Decision Error 1 is the more severe error.

7.0 Design for Obtaining Quality Data

7.1 WAC Attainment Excavation Monitoring

WAC attainment will be based on real-time excavation monitoring using the NaI and

HPGe measurement systems. Phase I (detection phase) measurements are collected with the NaI systems using a spectral acquisition time of 4 seconds, at a detector speed of 1 mile per hour (mph), and a detector height of 31 cm. These parameters achieve the required sensitivity, and are the best compromise of practical considerations such as detector speed and time in the field. In the NaI systems, the presence of thorium contamination can cause interferences which could affect total uranium concentration calculations. Uranium results associated with thorium values greater than 500 net counts per second will be reevaluated. The threshold value (trigger level) for Phase I NaI measurements is 721 ppm for total uranium (70% of the 1,030 ppm WAC concentration for soil, arrived at by agreement with the USEPA). Phase I measurements can also be collected with the HPGe systems using a spectral acquisition time of 5 minutes, and a detector height of 1 meter (the threshold value is lower than the NaI threshold value because of the larger field of view at the HPGe 1 meter detector height). (For more information reference the *RTRAK Applicability Study, 20701-RP-0003, Revision 1, May 1998).*

At the discretion of the characterization lead, Phase II confirmation and delineation measurements may be collected using the HPGe systems with a spectral acquisition time of 5 minutes at both the 31 cm and 15 cm detector heights. The HPGe detector will be placed directly over the zone of maximum activity identified by the Phase I measurements. The threshold value (trigger level) for Phase II measurements is 928 ppm for total uranium at either detector height. Lower (more conservative) threshold values may be defined in the PSP. (For more information reference the *User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site, 20701-RP-0006, Revision A, May 8, 1998.*)

In the event the monitoring data exceeds the trigger levels (see above), the entire vertical thickness (3 ± 1 foot) of the areal extent of above-WAC material will be removed and segregated pending off-site disposal.

7.2 Interpretation of Results

The results obtained from real-time monitoring for purposes of WAC attainment will be compared to the published OSDF WAC concentration for total uranium. If results are equal to or greater than the WAC concentration (as defined by exceeding the specific threshold value level), the decision makers may take one of the following actions:

- Determine that the entire unit volume or "lift" subjected to excavation monitoring is at or above WAC and requires segregation pending off-site disposal.

- Based on adequacy of existing information (including visual inspection), excavate and segregate the portion of the lift material that is at or above WAC pending off-site disposition.

- Perform additional real-time monitoring to more accurately delineate the areal extent of above-WAC contamination. Using this information, define the extent of removal efforts to be conducted.

7.3 QC Considerations

The following data management requirements will be met prior to evaluation of acquired WAC attainment information:

1) An excavation monitoring form will be completed and reviewed in the field.

2) WAC data and decision-making information will be assigned to respective soil profiles, so characterization and tracking information can be maintained and retrieved.

3) The mobile sodium iodide systems will generate ASL level A data, with no data validation. The HPGe detectors are capable of providing either ASL level A or B data, however for WAC determination only ASL A data will be generated.

4) When using the HPGe detectors, duplicate measurements will be taken at a frequency of one in twenty measurements or one per excavation lift, whichever is greater.

7.4 Independent Assessment

Independent assessment shall be performed by the FEMP QA organization by conducting surveillances. Surveillances shall be planned and documented in accordance with Section 12.3 of the SCQ.

7.5 Applicable Procedures

Real-time monitoring performed under the PSP shall follow the requirements outlined within the following procedures:

- ADM-16, In-Situ Gamma Spectrometry Quality Control Measurements
- EQT-22, High Purity Germanium Detector In-Situ Efficiency Calibration
- EQT-23, Operation of ADCAM Series Analyzers with Gamma Sensitive Detectors
- EQT-32, Troxler 3440 Series Surface Moisture/Density Gauge

- EQT-33, Real Time Differential Global Positioning System
- EQT-39, Zeltex Infrared Moisture Meter
- EQT-40, Satloc Real-time Differential Global PositioningSystem
- EQT-41, Radiation Measurement Systems
- 20300-PL-002, Real Time Instrumentation Measurement Program Quality Assurance Plan
- EW-1022, On-Site Tracking and Manifesting of Bulk Impacted Material

7.6 References

- Sitewide CERCLA Quality Assurance Project Plan (SCQ), May 1995, FD-1000
- Sitewide Excavation Plan, July 1998, 2500-WP-0028, Revision 0
- Waste Acceptance Criteria Attainment Plan for the On-Site Disposal Facility, June 1998, 20100-PL-0014, Revision 0
- Impacted Materials Placement Plan for the On-Site Disposal Facility, January 1998, 20100-PL-007, Revision 0
- Area 2, Phase 1 Southern Waste Units Implementation Plan for Operational Unit 2, July 1998, 2502-WP-0029, Revision 0
- RTRAK Applicability Study, May 1998, 20701-RP-0003, Revision 1
- User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site, July 1998, 20701-RP-0006 Revision B

Data Quality Objectives
Excavation Monitoring for Total Uranium Waste Acceptance Criteria (WAC)

1A. Task/Description: Waste Acceptance Criteria Monitoring

1.B. Project Phase: (Put an X in the appropriate selection.)

RI ☐ FS ☐ RD ☐ RA ☒ R_vA ☐ OTHER

1.C. DQO No.: SL-055 DQO Reference No.: N/A

---

2. Media Characterization: (Put an X in the appropriate selection.)

Air ☐ Biological ☐ Groundwater ☐ Sediment ☐

Soil and Soil Like Material ☒

Waste ☐ Wastewater ☐ Surface water ☐ Other (specify) ________

---

3. Data Use with Analytical Support Level (A-E): (Put an X in the appropriate Analytical Support Level selection(s) beside each applicable Data Use.)

Site Characterization
A ☐ B ☐ C ☐ D ☐ E ☐

Risk Assessment
A ☐ B ☐ C ☐ D ☐ E ☐

Evaluation of Alternatives
A ☐ B ☐ C ☐ D ☐ E ☐

Engineering Design
A ☐ B ☐ C ☐ D ☐ E ☐

Monitoring during remediation activities
A ☐ B ☐ C ☐ D ☐ E ☐

Other Waste Acceptance Evaluation
A ☒ B ☐ C ☐ D ☐ E ☐

4.A. Drivers: Specific construction work plans, Applicable or Relevant and Appropriate Requirements (ARARs) and Operable Unit 2 and Operable Unit 5 Records of Decision (ROD).

4.B. Objective: To provide data for identification of soils and soil-like materials for compliance with Waste Acceptance Criteria.

5. Site Information (Description):

The RODs specify that FEMP soils will be below the WAC for disposal in the OSDF. WAC determination will be necessary for site soils and soil like material that is scheduled for excavation and potential OSDF disposition.

6.A. Data Types with appropriate Analytical Support Level Equipment Selection and SCQ Reference: (Place an "X" to the right of the appropriate box or boxes selecting the type of analysis or analyses required. Then select the type of equipment to perform the analysis if appropriate. Please include a reference to the SCQ Section.)

1. pH ☐
   Temperature ☐
   Specific Conductance ☐
   Dissolved Oxygen ☐
   Technetium-99 ☐
2. Uranium ☒
   Full Radiological ☐
   Metals ☐
   Cyanide ☐
   Silica ☐
3. BTX ☐
   TPH ☐
   Oil/Grease ☐
4. Cations ☐
   Anions ☐
   TOC ☐
   TCLP ☐
   CEC ☐
   COD ☐
5. VOA ☐
   BNA ☐
   Pesticides ☐
   PCB ☐
6. Other (specify) ☒
   Moisture

6.B. Equipment Selection and SCQ Reference:

ASL A	NaI and HPGe	SCQ Section:	Appendix H
ASL B		SCQ Section:	
ASL C		SCQ Section:	
ASL D		SCQ Section:	
ASL E		SCQ Section:	

7.A. Sampling Methods: (Put an X in the appropriate selection.)

Biased	☐	Composite	☐	Environmental	☐	Grab	☐	Grid	☐
Intrusive	☐	Non-Intrusive	☒	Phased	☐	Source	☐		

DQO Number: SL-055

7.B. Sample Work Plan Reference: The DQO is being established prior to completion of the PSP.

Background samples: SED

8. Quality Control Samples: (Place an "X" in the appropriate selection box.)

8.A. Field Quality Control Samples:

Trip Blanks	☐	Container Blanks	☐
Field Blanks	☐	Duplicate Measurements	☒*
Equipment Rinsate Samples	☐	Split Samples	☐
Preservative Blanks	☐	Performance Evaluation Samples	☐

Other (specify) ____________

*For the HPGe detectors, duplicate measurements will be made every 1 in 20 or one per lift, whichever is greater.

8.B. Laboratory Quality Control Samples:

Method Blank	☐	Matrix Duplicate/Replicate	☐
Matrix Spike	☐	Surrogate Spikes	☐

Other (specify) Per method

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

APPENDIX B

DATA FROM WASTE PIT 3
SUBSURFACE MATERIAL INVESTIGATION

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-1	A6WP3-1^2-L	1,1,1-Trichloroethane	0.607	ug/kg	J	NA
A6WP3-1	A6WP3-1^2-L	1,1,2-Trichloroethane	16.3	ug/kg	J	4.3 ug/kg
A6WP3-1	A6WP3-1^2-L	1,1-Dichloroethene	1.15	ug/kg	U	0.41 ug/kg
A6WP3-1	A6WP3-1^2-L	cis-1,2-Dichloroethene	1.15	ug/kg	U	NA
A6WP3-1	A6WP3-1^2-L	Tetrachloroethene	410	ug/kg	H	3.6 ug/kg
A6WP3-1	A6WP3-1^2-L	trans-1,2-Dichloroethene	1.15	ug/kg	U	NA
A6WP3-1	A6WP3-1^2-L	Trichloroethene	4.38	ug/kg	J	25 ug/kg
A6WP3-1	A6WP3-1^2-L	Vinyl chloride	1.15	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^2-MPS	Aroclor-1254	124	ug/kg		0.13 ug/kg
A6WP3-1	A6WP3-1^2-MPS	Aroclor-1260	35.4	ug/kg		0.13 ug/kg
A6WP3-1	A6WP3-1^2-MPS	Arsenic	18.4	mg/kg		12 mg/kg
A6WP3-1	A6WP3-1^2-MPS	Benzo(g,h,i)perylene	93.9	ug/kg	U	NA
A6WP3-1	A6WP3-1^2-MPS	Beryllium	0.795	mg/kg		1.5 mg/kg
A6WP3-1	A6WP3-1^2-MPS	Dieldrin	0.749	ug/kg	U	0.015 ug/kg
A6WP3-1	A6WP3-1^2-MPS	Fluoranthene	212	ug/kg	J	NA
A6WP3-1	A6WP3-1^2-MPS	Phenanthrene	129	ug/kg	J	NA
A6WP3-1	A6WP3-1^2-MPS	Pyrene	162	ug/kg	J	NA
A6WP3-1	A6WP3-1^2-RA	Technetium-99	8.5	pCi/g dry		30 pCi/g
A6WP3-1	A6WP3-1^2-RA	Uranium, Total	264	mg/kg dry		50 mg/kg
A6WP3-1	A6WP3-1^2-RB	Cesium-137	0.117	pCi/g	U	1.4 pCi/g
A6WP3-1	A6WP3-1^2-RB	Radium-226	40.2	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^2-RB	Radium-228	48.9	pCi/g		1.8 pCi/g
A6WP3-1	A6WP3-1^2-RB	Thorium-228	49.3	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^2-RB	Thorium-230	753	pCi/g		280 pCi/g
A6WP3-1	A6WP3-1^2-RB	Thorium-232	48.9	pCi/g		1.5 pCi/g
A6WP3-1	A6WP3-1^3-L	1,1,1-Trichloroethane	1.15	ug/kg	U	NA
A6WP3-1	A6WP3-1^3-L	1,1,2-Trichloroethane	1.15	ug/kg	U	4.3 ug/kg
A6WP3-1	A6WP3-1^3-L	1,1-Dichloroethene	1.15	ug/kg	U	0.41 ug/kg
A6WP3-1	A6WP3-1^3-L	cis-1,2-Dichloroethene	1.15	ug/kg	U	NA
A6WP3-1	A6WP3-1^3-L	Tetrachloroethene	352	ug/kg	HJ	3.6 ug/kg
A6WP3-1	A6WP3-1^3-L	trans-1,2-Dichloroethene	1.15	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-1	A6WP3-1^3-L	Trichloroethene	2.19	ug/kg	J	25 ug/kg
A6WP3-1	A6WP3-1^3-L	Vinyl chloride	1.15	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^3-MPS	Aroclor-1254	347	ug/kg		0.13 ug/kg
A6WP3-1	A6WP3-1^3-MPS	Aroclor-1260	145	ug/kg		0.13 ug/kg
A6WP3-1	A6WP3-1^3-MPS	Arsenic	39.7	mg/kg		12 mg/kg
A6WP3-1	A6WP3-1^3-MPS	Benzo(g,h,i)perylene	51.5	ug/kg	J	NA
A6WP3-1	A6WP3-1^3-MPS	Beryllium	1.39	mg/kg		1.5 mg/kg
A6WP3-1	A6WP3-1^3-MPS	Dieldrin	0.814	ug/kg	U	0.015 ug/kg
A6WP3-1	A6WP3-1^3-MPS	Fluoranthene	439	ug/kg	J	NA
A6WP3-1	A6WP3-1^3-MPS	Phenanthrene	397	ug/kg	J	NA
A6WP3-1	A6WP3-1^3-MPS	Pyrene	357	ug/kg	J	NA
A6WP3-1	A6WP3-1^3-RA	Technetium-99	0.5	pCi/g dry	U	30 pCi/g
A6WP3-1	A6WP3-1^3-RA	Uranium, Total	12.4	mg/kg dry		50 mg/kg
A6WP3-1	A6WP3-1^3-RB	Cesium-137	0.0622	pCi/g	U	1.4 pCi/g
A6WP3-1	A6WP3-1^3-RB	Radium-226	17.1	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^3-RB	Radium-228	19.6	pCi/g		1.8 pCi/g
A6WP3-1	A6WP3-1^3-RB	Thorium-228	20.2	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^3-RB	Thorium-230	143	pCi/g		280 pCi/g
A6WP3-1	A6WP3-1^3-RB	Thorium-232	19.6	pCi/g		1.5 pCi/g
A6WP3-1	A6WP3-1^4-L	1,1,1-Trichloroethane	0.992	ug/kg	U	NA
A6WP3-1	A6WP3-1^4-L	1,1,2-Trichloroethane	0.992	ug/kg	U	4.3 ug/kg
A6WP3-1	A6WP3-1^4-L	1,1-Dichloroethene	0.992	ug/kg	U	0.41 ug/kg
A6WP3-1	A6WP3-1^4-L	cis-1,2-Dichloroethene	0.992	ug/kg	U	NA
A6WP3-1	A6WP3-1^4-L	Tetrachloroethene	0.403	ug/kg	J	3.6 ug/kg
A6WP3-1	A6WP3-1^4-L	trans-1,2-Dichloroethene	0.992	ug/kg	U	NA
A6WP3-1	A6WP3-1^4-L	Trichloroethene	0.992	ug/kg	U	25 ug/kg
A6WP3-1	A6WP3-1^4-L	Vinyl chloride	0.992	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^4-MPS	Aroclor-1254	8.98	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^4-MPS	Aroclor-1260	8.98	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^4-MPS	Arsenic	3.66	mg/kg	J	12 mg/kg
A6WP3-1	A6WP3-1^4-MPS	Benzo(g,h,i)perylene	90.4	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-1	A6WP3-1^4-MPS	Beryllium	0.372	mg/kg		1.5 mg/kg
A6WP3-1	A6WP3-1^4-MPS	Dieldrin	0.718	ug/kg	U	0.015 ug/kg
A6WP3-1	A6WP3-1^4-MPS	Fluoranthene	90.4	ug/kg	U	NA
A6WP3-1	A6WP3-1^4-MPS	Phenanthrene	90.4	ug/kg	U	NA
A6WP3-1	A6WP3-1^4-MPS	Pyrene	90.4	ug/kg	U	NA
A6WP3-1	A6WP3-1^4-RA	Technetium-99	0.47	pCi/g dry	U	30 pCi/g
A6WP3-1	A6WP3-1^4-RA	Uranium, Total	4.42	mg/kg dry	U	50 mg/kg
A6WP3-1	A6WP3-1^4-RB	Cesium-137	-0.0166	pCi/g	U	1.4 pCi/g
A6WP3-1	A6WP3-1^4-RB	Radium-226	0.788	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^4-RB	Radium-228	0.699	pCi/g		1.8 pCi/g
A6WP3-1	A6WP3-1^4-RB	Thorium-228	0.716	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^4-RB	Thorium-230	-13.1	pCi/g	U	280 pCi/g
A6WP3-1	A6WP3-1^4-RB	Thorium-232	0.699	pCi/g		1.5 pCi/g
A6WP3-1	A6WP3-1^5-L	1,1,1-Trichloroethane	1.11	ug/kg	U	NA
A6WP3-1	A6WP3-1^5-L	1,1,2-Trichloroethane	1.11	ug/kg	U	4.3 ug/kg
A6WP3-1	A6WP3-1^5-L	1,1-Dichloroethene	1.11	ug/kg	U	0.41 ug/kg
A6WP3-1	A6WP3-1^5-L	cis-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-1	A6WP3-1^5-L	Tetrachloroethene	1.11	ug/kg	U	3.6 ug/kg
A6WP3-1	A6WP3-1^5-L	trans-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-1	A6WP3-1^5-L	Trichloroethene	1.11	ug/kg	U	25 ug/kg
A6WP3-1	A6WP3-1^5-L	Vinyl chloride	1.11	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^5-MPS	Aroclor-1254	9.24	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^5-MPS	Aroclor-1260	9.24	ug/kg	U	0.13 ug/kg
A6WP3-1	A6WP3-1^5-MPS	Arsenic	6.08	mg/kg	J	12 mg/kg
A6WP3-1	A6WP3-1^5-MPS	Benzo(g,h,i)perylene	93.1	ug/kg	U	NA
A6WP3-1	A6WP3-1^5-MPS	Beryllium	0.479	mg/kg		1.5 mg/kg
A6WP3-1	A6WP3-1^5-MPS	Dieldrin	0.739	ug/kg	U	0.015 ug/kg
A6WP3-1	A6WP3-1^5-MPS	Fluoranthene	93.1	ug/kg	U	NA
A6WP3-1	A6WP3-1^5-MPS	Phenanthrene	93.1	ug/kg	U	NA
A6WP3-1	A6WP3-1^5-MPS	Pyrene	93.1	ug/kg	U	NA
A6WP3-1	A6WP3-1^5-RA	Technetium-99	-0.048	pCi/g dry	U	30 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

5477

0070

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-1	A6WP3-1^5-RA	Uranium, Total	4.36	mg/kg dry	U	50 mg/kg
A6WP3-1	A6WP3-1^5-RB	Cesium-137	0.0176	pCi/g	U	1.4 pCi/g
A6WP3-1	A6WP3-1^5-RB	Radium-226	0.88	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^5-RB	Radium-228	0.774	pCi/g		1.8 pCi/g
A6WP3-1	A6WP3-1^5-RB	Thorium-228	0.773	pCi/g		1.7 pCi/g
A6WP3-1	A6WP3-1^5-RB	Thorium-230	6.98	pCi/g	U	280 pCi/g
A6WP3-1	A6WP3-1^5-RB	Thorium-232	0.774	pCi/g		1.5 pCi/g
Location A6WP3-2 was not sampled due to field conditions.						
A6WP3-3	A6WP3-3^1-L	1,1,1-Trichloroethane	1.12	ug/kg	U	NA
A6WP3-3	A6WP3-3^1-L	1,1,2-Trichloroethane	1.12	ug/kg	U	4.3 ug/kg
A6WP3-3	A6WP3-3^1-L	1,1-Dichloroethene	1.12	ug/kg	U	0.41 ug/kg
A6WP3-3	A6WP3-3^1-L	cis-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-3	A6WP3-3^1-L	Tetrachloroethene	0.758	ug/kg	J	3.6 ug/kg
A6WP3-3	A6WP3-3^1-L	trans-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-3	A6WP3-3^1-L	Trichloroethene	1.12	ug/kg	U	25 ug/kg
A6WP3-3	A6WP3-3^1-L	Vinyl chloride	1.12	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^1-MPS	Aroclor-1254	175	ug/kg		0.13 ug/kg
A6WP3-3	A6WP3-3^1-MPS	Aroclor-1260	75	ug/kg		0.13 ug/kg
A6WP3-3	A6WP3-3^1-MPS	Arsenic	77.9	mg/kg		12 mg/kg
A6WP3-3	A6WP3-3^1-MPS	Benzo(g,h,i)perylene	82.4	ug/kg	J	NA
A6WP3-3	A6WP3-3^1-MPS	Beryllium	1.01	mg/kg		1.5 mg/kg
A6WP3-3	A6WP3-3^1-MPS	Dieldrin	0.755	ug/kg	U	0.015 ug/kg
A6WP3-3	A6WP3-3^1-MPS	Fluoranthene	387	ug/kg	J	NA
A6WP3-3	A6WP3-3^1-MPS	Phenanthrene	224	ug/kg	J	NA
A6WP3-3	A6WP3-3^1-MPS	Pyrene	337	ug/kg	J	NA
A6WP3-3	A6WP3-3^1-RA	Technetium-99	23.9	pCi/g dry		30 pCi/g
A6WP3-3	A6WP3-3^1-RA	Uranium, Total	298	mg/kg dry		50 mg/kg
A6WP3-3	A6WP3-3^1-RB	Cesium-137	-0.00691	pCi/g	U	1.4 pCi/g

000071

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-3	A6WP3-3^1-RB	Radium-226	12.1	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^1-RB	Radium-228	17.3	pCi/g		1.8 pCi/g
A6WP3-3	A6WP3-3^1-RB	Thorium-228	17.1	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^1-RB	Thorium-230	289	pCi/g		280 pCi/g
A6WP3-3	A6WP3-3^1-RB	Thorium-232	17.3	pCi/g		1.5 pCi/g
A6WP3-3	A6WP3-3^2-L	1,1,1-Trichloroethane	1.06	ug/kg	U	NA
A6WP3-3	A6WP3-3^2-L	1,1,2-Trichloroethane	1.06	ug/kg	U	4.3 ug/kg
A6WP3-3	A6WP3-3^2-L	1,1-Dichloroethene	1.06	ug/kg	U	0.41 ug/kg
A6WP3-3	A6WP3-3^2-L	cis-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-3	A6WP3-3^2-L	Tetrachloroethene	9.15	ug/kg	J	3.6 ug/kg
A6WP3-3	A6WP3-3^2-L	trans-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-3	A6WP3-3^2-L	Trichloroethene	1.06	ug/kg	U	25 ug/kg
A6WP3-3	A6WP3-3^2-L	Vinyl chloride	1.06	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^2-MPS	Aroclor-1254	8.83	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^2-MPS	Aroclor-1260	8.83	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^2-MPS	Arsenic	0.938	mg/kg	U	12 mg/kg
A6WP3-3	A6WP3-3^2-MPS	Benzo(g,h,i)perylene	88.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^2-MPS	Beryllium	0.351	mg/kg		1.5 mg/kg
A6WP3-3	A6WP3-3^2-MPS	Dieldrin	0.706	ug/kg	U	0.015 ug/kg
A6WP3-3	A6WP3-3^2-MPS	Fluoranthene	88.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^2-MPS	Phenanthrene	88.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^2-MPS	Pyrene	88.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^2-RA	Technetium-99	1.7	pCi/g dry	U	30 pCi/g
A6WP3-3	A6WP3-3^2-RA	Uranium, Total	4.69	mg/kg dry	U	50 mg/kg
A6WP3-3	A6WP3-3^2-RB	Cesium-137	-0.0284	pCi/g	U	1.4 pCi/g
A6WP3-3	A6WP3-3^2-RB	Radium-226	1.41	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^2-RB	Radium-228	1.19	pCi/g		1.8 pCi/g
A6WP3-3	A6WP3-3^2-RB	Thorium-228	1.22	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^2-RB	Thorium-230	0.147	pCi/g	U	280 pCi/g
A6WP3-3	A6WP3-3^2-RB	Thorium-232	1.19	pCi/g		1.5 pCi/g
A6WP3-3	A6WP3-3^3-L	1,1,1-Trichloroethane	1.11	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-3	A6WP3-3^3-L	1,1,2-Trichloroethane	1.11	ug/kg	U	4.3 ug/kg
A6WP3-3	A6WP3-3^3-L	1,1-Dichloroethene	1.11	ug/kg	U	0.41 ug/kg
A6WP3-3	A6WP3-3^3-L	cis-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-3	A6WP3-3^3-L	Tetrachloroethene	1.11	ug/kg	U	3.6 ug/kg
A6WP3-3	A6WP3-3^3-L	trans-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-3	A6WP3-3^3-L	Trichloroethene	1.11	ug/kg	U	25 ug/kg
A6WP3-3	A6WP3-3^3-L	Vinyl chloride	1.11	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^3-MPS	Aroclor-1254	9.14	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^3-MPS	Aroclor-1260	9.14	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^3-MPS	Arsenic	3.89	mg/kg	J	12 mg/kg
A6WP3-3	A6WP3-3^3-MPS	Benzo(g,h,i)perylene	90.3	ug/kg	U	NA
A6WP3-3	A6WP3-3^3-MPS	Beryllium	0.405	mg/kg		1.5 mg/kg
A6WP3-3	A6WP3-3^3-MPS	Dieldrin	0.731	ug/kg	U	0.015 ug/kg
A6WP3-3	A6WP3-3^3-MPS	Fluoranthene	90.3	ug/kg	U	NA
A6WP3-3	A6WP3-3^3-MPS	Phenanthrene	90.3	ug/kg	U	NA
A6WP3-3	A6WP3-3^3-MPS	Pyrene	90.3	ug/kg	U	NA
A6WP3-3	A6WP3-3^3-RA	Technetium-99	1.56	pCi/g dry	U	30 pCi/g
A6WP3-3	A6WP3-3^3-RA	Uranium, Total	4.81	mg/kg dry	U	50 mg/kg
A6WP3-3	A6WP3-3^3-RB	Cesium-137	0.0034	pCi/g	U	1.4 pCi/g
A6WP3-3	A6WP3-3^3-RB	Radium-226	0.742	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^3-RB	Radium-228	0.719	pCi/g		1.8 pCi/g
A6WP3-3	A6WP3-3^3-RB	Thorium-228	0.732	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^3-RB	Thorium-230	13.1	pCi/g		280 pCi/g
A6WP3-3	A6WP3-3^3-RB	Thorium-232	0.719	pCi/g		1.5 pCi/g
A6WP3-3	A6WP3-3^4-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-3	A6WP3-3^4-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-3	A6WP3-3^4-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-3	A6WP3-3^4-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-3	A6WP3-3^4-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-3	A6WP3-3^4-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-3	A6WP3-3^4-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION (SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-3	A6WP3-3^4-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^4-MPS	Aroclor-1254	9.15	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^4-MPS	Aroclor-1260	9.15	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^4-MPS	Arsenic	2.8	mg/kg	J	12 mg/kg
A6WP3-3	A6WP3-3^4-MPS	Benzo(g,h,i)perylene	91.8	ug/kg	U	NA
A6WP3-3	A6WP3-3^4-MPS	Beryllium	0.406	mg/kg		1.5 mg/kg
A6WP3-3	A6WP3-3^4-MPS	Dieldrin	0.732	ug/kg	U	0.015 ug/kg
A6WP3-3	A6WP3-3^4-MPS	Fluoranthene	91.8	ug/kg	U	NA
A6WP3-3	A6WP3-3^4-MPS	Phenanthrene	91.8	ug/kg	U	NA
A6WP3-3	A6WP3-3^4-MPS	Pyrene	91.8	ug/kg	U	NA
A6WP3-3	A6WP3-3^4-RA	Technetium-99	-0.24	pCi/g dry	U	30 pCi/g
A6WP3-3	A6WP3-3^4-RA	Uranium, Total	5.05	mg/kg dry	U	50 mg/kg
A6WP3-3	A6WP3-3^4-RB	Cesium-137	-0.00173	pCi/g	U	1.4 pCi/g
A6WP3-3	A6WP3-3^4-RB	Radium-226	0.765	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^4-RB	Radium-228	0.687	pCi/g		1.8 pCi/g
A6WP3-3	A6WP3-3^4-RB	Thorium-228	0.669	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^4-RB	Thorium-230	-5.89	pCi/g	U	280 pCi/g
A6WP3-3	A6WP3-3^4-RB	Thorium-232	0.687	pCi/g		1.5 pCi/g
A6WP3-3	A6WP3-3^5-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-3	A6WP3-3^5-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-3	A6WP3-3^5-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-3	A6WP3-3^5-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-3	A6WP3-3^5-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-3	A6WP3-3^5-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-3	A6WP3-3^5-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg
A6WP3-3	A6WP3-3^5-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^5-MPS	Aroclor-1254	9.31	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^5-MPS	Aroclor-1260	9.31	ug/kg	U	0.13 ug/kg
A6WP3-3	A6WP3-3^5-MPS	Arsenic	0.996	mg/kg	U	12 mg/kg
A6WP3-3	A6WP3-3^5-MPS	Benzo(g,h,i)perylene	92.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^5-MPS	Beryllium	0.459	mg/kg		1.5 mg/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-3	A6WP3-3^5-MPS	Dieldrin	0.745	ug/kg	U	0.015 ug/kg
A6WP3-3	A6WP3-3^5-MPS	Fluoranthene	92.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^5-MPS	Phenanthrene	92.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^5-MPS	Pyrene	92.6	ug/kg	U	NA
A6WP3-3	A6WP3-3^5-RA	Technetium-99	-0.19	pCi/g dry	U	30 pCi/g
A6WP3-3	A6WP3-3^5-RA	Uranium, Total	4.8	mg/kg dry	U	50 mg/kg
A6WP3-3	A6WP3-3^5-RB	Cesium-137	-0.00581	pCi/g	U	1.4 pCi/g
A6WP3-3	A6WP3-3^5-RB	Radium-226	0.801	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^5-RB	Radium-228	0.703	pCi/g		1.8 pCi/g
A6WP3-3	A6WP3-3^5-RB	Thorium-228	0.776	pCi/g		1.7 pCi/g
A6WP3-3	A6WP3-3^5-RB	Thorium-230	-5.47	pCi/g	U	280 pCi/g
A6WP3-3	A6WP3-3^5-RB	Thorium-232	0.703	pCi/g		1.5 pCi/g
A6WP3-4	A6WP3-4^1-RA	Technetium-99	58	pCi/g dry		30 pCi/g
A6WP3-4	A6WP3-4^1-RA	Uranium, Total	1920	mg/kg dry		50 mg/kg
A6WP3-4	A6WP3-4^2-L	1,1,1-Trichloroethane	1.11	ug/kg	U	NA
A6WP3-4	A6WP3-4^2-L	1,1,2-Trichloroethane	1.11	ug/kg	U	4.3 ug/kg
A6WP3-4	A6WP3-4^2-L	1,1-Dichloroethene	1.11	ug/kg	U	0.41 ug/kg
A6WP3-4	A6WP3-4^2-L	cis-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-4	A6WP3-4^2-L	Tetrachloroethene	1.11	ug/kg	U	3.6 ug/kg
A6WP3-4	A6WP3-4^2-L	trans-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-4	A6WP3-4^2-L	Trichloroethene	1.11	ug/kg	U	25 ug/kg
A6WP3-4	A6WP3-4^2-L	Vinyl chloride	1.11	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^2-MPS	Aroclor-1254	7.28	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^2-MPS	Aroclor-1260	7.28	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^2-MPS	Arsenic	5.68	mg/kg	J	12 mg/kg
A6WP3-4	A6WP3-4^2-MPS	Benzo(g,h,i)perylene	91	ug/kg	U	NA
A6WP3-4	A6WP3-4^2-MPS	Beryllium	0.486	mg/kg		1.5 mg/kg
A6WP3-4	A6WP3-4^2-MPS	Dieldrin	0.583	ug/kg	U	0.015 ug/kg
A6WP3-4	A6WP3-4^2-MPS	Fluoranthene	91	ug/kg	U	NA
A6WP3-4	A6WP3-4^2-MPS	Phenanthrene	91	ug/kg	U	NA
A6WP3-4	A6WP3-4^2-MPS	Pyrene	91	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-4	A6WP3-4^2-RA	Technetium-99	0.7	pCi/g dry	U	30 pCi/g
A6WP3-4	A6WP3-4^2-RA	Uranium, Total	4.16	mg/kg dry	U	50 mg/kg
A6WP3-4	A6WP3-4^2-RB	Cesium-137	0.0241	pCi/g	U	1.4 pCi/g
A6WP3-4	A6WP3-4^2-RB	Radium-226	0.8	pCi/g		1.7 pCi/g
A6WP3-4	A6WP3-4^2-RB	Radium-228	0.812	pCi/g		1.8 pCi/g
A6WP3-4	A6WP3-4^2-RB	Thorium-228	0.777	pCi/g		1.7 pCi/g
A6WP3-4	A6WP3-4^2-RB	Thorium-230	-3.24	pCi/g	U	280 pCi/g
A6WP3-4	A6WP3-4^2-RB	Thorium-232	0.812	pCi/g		1.5 pCi/g
A6WP3-4	A6WP3-4^3-L	1,1,1-Trichloroethane	1.12	ug/kg	U	NA
A6WP3-4	A6WP3-4^3-L	1,1,2-Trichloroethane	1.12	ug/kg	U	4.3 ug/kg
A6WP3-4	A6WP3-4^3-L	1,1-Dichloroethene	1.12	ug/kg	U	0.41 ug/kg
A6WP3-4	A6WP3-4^3-L	cis-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-4	A6WP3-4^3-L	Tetrachloroethene	1.12	ug/kg	U	3.6 ug/kg
A6WP3-4	A6WP3-4^3-L	trans-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-4	A6WP3-4^3-L	Trichloroethene	1.12	ug/kg	U	25 ug/kg
A6WP3-4	A6WP3-4^3-L	Vinyl chloride	1.12	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^3-MPS	Aroclor-1254	7.31	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^3-MPS	Aroclor-1260	7.31	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^3-MPS	Arsenic	3.63	mg/kg	J	12 mg/kg
A6WP3-4	A6WP3-4^3-MPS	Benzo(g,h,i)perylene	92.3	ug/kg	U	NA
A6WP3-4	A6WP3-4^3-MPS	Beryllium	0.507	mg/kg		1.5 mg/kg
A6WP3-4	A6WP3-4^3-MPS	Dieldrin	0.585	ug/kg	U	0.015 ug/kg
A6WP3-4	A6WP3-4^3-MPS	Fluoranthene	92.3	ug/kg	U	NA
A6WP3-4	A6WP3-4^3-MPS	Phenanthrene	92.3	ug/kg	U	NA
A6WP3-4	A6WP3-4^3-MPS	Pyrene	92.3	ug/kg	U	NA
A6WP3-4	A6WP3-4^3-RA	Technetium-99	0.049	pCi/g dry	U	30 pCi/g
A6WP3-4	A6WP3-4^3-RA	Uranium, Total	4.35	mg/kg dry	U	50 mg/kg
A6WP3-4	A6WP3-4^3-RB	Cesium-137	0.00796	pCi/g	U	1.4 pCi/g
A6WP3-4	A6WP3-4^3-RB	Radium-226	0.781	pCi/g		1.7 pCi/g
A6WP3-4	A6WP3-4^3-RB	Radium-228	0.748	pCi/g		1.8 pCi/g
A6WP3-4	A6WP3-4^3-RB	Thorium-228	0.738	pCi/g		1.7 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000076

5477

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-4	A6WP3-4^3-RB	Thorium-230	-10.1	pCi/g	U	280 pCi/g
A6WP3-4	A6WP3-4^3-RB	Thorium-232	0.748	pCi/g		1.5 pCi/g
A6WP3-4	A6WP3-4^4-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-4	A6WP3-4^4-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-4	A6WP3-4^4-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-4	A6WP3-4^4-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-4	A6WP3-4^4-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-4	A6WP3-4^4-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-4	A6WP3-4^4-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg
A6WP3-4	A6WP3-4^4-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^4-MPS	Aroclor-1254	7.49	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^4-MPS	Aroclor-1260	7.49	ug/kg	U	0.13 ug/kg
A6WP3-4	A6WP3-4^4-MPS	Arsenic	4.43	mg/kg	J	12 mg/kg
A6WP3-4	A6WP3-4^4-MPS	Benzo(g,h,i)perylene	93.5	ug/kg	U	NA
A6WP3-4	A6WP3-4^4-MPS	Beryllium	0.432	mg/kg		1.5 mg/kg
A6WP3-4	A6WP3-4^4-MPS	Dieldrin	0.599	ug/kg	U	0.015 ug/kg
A6WP3-4	A6WP3-4^4-MPS	Fluoranthene	93.5	ug/kg	U	NA
A6WP3-4	A6WP3-4^4-MPS	Phenanthrene	93.5	ug/kg	U	NA
A6WP3-4	A6WP3-4^4-MPS	Pyrene	93.5	ug/kg	U	NA
A6WP3-4	A6WP3-4^4-RA	Technetium-99	0.21	pCi/g dry	U	30 pCi/g
A6WP3-4	A6WP3-4^4-RA	Uranium, Total	4.33	mg/kg dry	U	50 mg/kg
A6WP3-4	A6WP3-4^4-RB	Cesium-137	0.0306	pCi/g	U	1.4 pCi/g
A6WP3-4	A6WP3-4^4-RB	Radium-226	0.827	pCi/g		1.7 pCi/g
A6WP3-4	A6WP3-4^4-RB	Radium-228	0.68	pCi/g		1.8 pCi/g
A6WP3-4	A6WP3-4^4-RB	Thorium-228	0.698	pCi/g		1.7 pCi/g
A6WP3-4	A6WP3-4^4-RB	Thorium-230	14.3	pCi/g	U	280 pCi/g
A6WP3-4	A6WP3-4^4-RB	Thorium-232	0.68	pCi/g		1.5 pCi/g
A6WP3-5	A6WP3-5^1-L	1,1,1-Trichloroethane	0.388	ug/kg	J	NA
A6WP3-5	A6WP3-5^1-L	1,1,2-Trichloroethane	1.09	ug/kg	U	4.3 ug/kg
A6WP3-5	A6WP3-5^1-L	1,1-Dichloroethene	1.09	ug/kg	U	0.41 ug/kg
A6WP3-5	A6WP3-5^1-L	cis-1,2-Dichloroethene	1.09	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-5	A6WP3-5^1-L	Tetrachloroethene	1.09	ug/kg	U	3.6 ug/kg
A6WP3-5	A6WP3-5^1-L	trans-1,2-Dichloroethene	1.09	ug/kg	U	NA
A6WP3-5	A6WP3-5^1-L	Trichloroethene	1.09	ug/kg	U	25 ug/kg
A6WP3-5	A6WP3-5^1-L	Vinyl chloride	1.09	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^1-MPS	Aroclor-1254	9.14	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^1-MPS	Aroclor-1260	9.14	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^1-MPS	Arsenic	7.3	mg/kg		12 mg/kg
A6WP3-5	A6WP3-5^1-MPS	Benzo(g,h,i)perylene	89.7	ug/kg	U	NA
A6WP3-5	A6WP3-5^1-MPS	Beryllium	0.448	mg/kg		1.5 mg/kg
A6WP3-5	A6WP3-5^1-MPS	Dieldrin	0.731	ug/kg	U	0.015 ug/kg
A6WP3-5	A6WP3-5^1-MPS	Fluoranthene	89.7	ug/kg	U	NA
A6WP3-5	A6WP3-5^1-MPS	Phenanthrene	89.7	ug/kg	U	NA
A6WP3-5	A6WP3-5^1-MPS	Pyrene	89.7	ug/kg	U	NA
A6WP3-5	A6WP3-5^1-RA	Technetium-99	1.6	pCi/g dry	U	30 pCi/g
A6WP3-5	A6WP3-5^1-RA	Uranium, Total	27.6	mg/kg dry		50 mg/kg
A6WP3-5	A6WP3-5^1-RB	Cesium-137	0.0114	pCi/g	U	1.4 pCi/g
A6WP3-5	A6WP3-5^1-RB	Radium-226	0.907	pCi/g		1.7 pCi/g
A6WP3-5	A6WP3-5^1-RB	Radium-228	0.864	pCi/g		1.8 pCi/g
A6WP3-5	A6WP3-5^1-RB	Thorium-228	0.929	pCi/g		1.7 pCi/g
A6WP3-5	A6WP3-5^1-RB	Thorium-230	11.8	pCi/g		280 pCi/g
A6WP3-5	A6WP3-5^1-RB	Thorium-232	0.864	pCi/g		1.5 pCi/g
A6WP3-5	A6WP3-5^2-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-5	A6WP3-5^2-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-5	A6WP3-5^2-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-5	A6WP3-5^2-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-5	A6WP3-5^2-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-5	A6WP3-5^2-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-5	A6WP3-5^2-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg
A6WP3-5	A6WP3-5^2-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^2-MPS	Aroclor-1254	9.09	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^2-MPS	Aroclor-1260	9.09	ug/kg	U	0.13 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000078

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION

(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-5	A6WP3-5^2-MPS	Arsenic	6.76	mg/kg		12 mg/kg
A6WP3-5	A6WP3-5^2-MPS	Benzo(g,h,i)perylene	89.2	ug/kg	U	NA
A6WP3-5	A6WP3-5^2-MPS	Beryllium	0.529	mg/kg		1.5 mg/kg
A6WP3-5	A6WP3-5^2-MPS	Dieldrin	0.727	ug/kg	U	0.015 ug/kg
A6WP3-5	A6WP3-5^2-MPS	Fluoranthene	89.2	ug/kg	U	NA
A6WP3-5	A6WP3-5^2-MPS	Phenanthrene	89.2	ug/kg	U	NA
A6WP3-5	A6WP3-5^2-MPS	Pyrene	89.2	ug/kg	U	NA
A6WP3-5	A6WP3-5^2-RA	Technetium-99	1.63	pCi/g dry	U	30 pCi/g
A6WP3-5	A6WP3-5^2-RA	Uranium, Total	4.24	mg/kg dry	U	50 mg/kg
A6WP3-5	A6WP3-5^2-RB	Cesium-137	0.0115	pCi/g	U	1.4 pCi/g
A6WP3-5	A6WP3-5^2-RB	Radium-226	0.747	pCi/g		1.7 pCi/g
A6WP3-5	A6WP3-5^2-RB	Radium-228	0.807	pCi/g		1.8 pCi/g
A6WP3-5	A6WP3-5^2-RB	Thorium-228	0.865	pCi/g		1.7 pCi/g
A6WP3-5	A6WP3-5^2-RB	Thorium-230	17.5	pCi/g		280 pCi/g
A6WP3-5	A6WP3-5^2-RB	Thorium-232	0.807	pCi/g		1.5 pCi/g
A6WP3-5	A6WP3-5^3-L	1,1,1-Trichloroethane	1.16	ug/kg	U	NA
A6WP3-5	A6WP3-5^3-L	1,1,2-Trichloroethane	1.16	ug/kg	U	4.3 ug/kg
A6WP3-5	A6WP3-5^3-L	1,1-Dichloroethene	1.16	ug/kg	U	0.41 ug/kg
A6WP3-5	A6WP3-5^3-L	cis-1,2-Dichloroethene	1.16	ug/kg	U	NA
A6WP3-5	A6WP3-5^3-L	Tetrachloroethene	1.16	ug/kg	U	3.6 ug/kg
A6WP3-5	A6WP3-5^3-L	trans-1,2-Dichloroethene	1.16	ug/kg	U	NA
A6WP3-5	A6WP3-5^3-L	Trichloroethene	1.16	ug/kg	U	25 ug/kg
A6WP3-5	A6WP3-5^3-L	Vinyl chloride	1.16	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^3-MPS	Aroclor-1254	10	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^3-MPS	Aroclor-1260	10	ug/kg	U	0.13 ug/kg
A6WP3-5	A6WP3-5^3-MPS	Arsenic	6.77	mg/kg		12 mg/kg
A6WP3-5	A6WP3-5^3-MPS	Benzo(g,h,i)perylene	98.4	ug/kg	U	NA
A6WP3-5	A6WP3-5^3-MPS	Beryllium	0.212	mg/kg		1.5 mg/kg
A6WP3-5	A6WP3-5^3-MPS	Dieldrin	0.801	ug/kg	U	0.015 ug/kg
A6WP3-5	A6WP3-5^3-MPS	Fluoranthene	98.4	ug/kg	U	NA
A6WP3-5	A6WP3-5^3-MPS	Phenanthrene	98.4	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000079

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-5	A6WP3-5^3-MPS	Pyrene	98.4	ug/kg	U	NA
A6WP3-5	A6WP3-5^3-RA	Technetium-99	1.61	pCi/g dry	U	30 pCi/g
A6WP3-5	A6WP3-5^3-RA	Uranium, Total	3.77	mg/kg dry	U	50 mg/kg
A6WP3-5	A6WP3-5^3-RB	Cesium-137	-0.0147	pCi/g	U	1.4 pCi/g
A6WP3-5	A6WP3-5^3-RB	Radium-226	0.766	pCi/g		1.7 pCi/g
A6WP3-5	A6WP3-5^3-RB	Radium-228	0.59	pCi/g		1.8 pCi/g
A6WP3-5	A6WP3-5^3-RB	Thorium-228	0.592	pCi/g		1.7 pCi/g
A6WP3-5	A6WP3-5^3-RB	Thorium-230	-3.55	pCi/g	U	280 pCi/g
A6WP3-5	A6WP3-5^3-RB	Thorium-232	0.59	pCi/g		1.5 pCi/g
A6WP3-6	A6WP3-6^2-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-6	A6WP3-6^2-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-6	A6WP3-6^2-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-6	A6WP3-6^2-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-6	A6WP3-6^2-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-6	A6WP3-6^2-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-6	A6WP3-6^2-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg
A6WP3-6	A6WP3-6^2-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^2-MPS	Aroclor-1254	9.09	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^2-MPS	Aroclor-1260	9.09	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^2-MPS	Arsenic	8.79	mg/kg		12 mg/kg
A6WP3-6	A6WP3-6^2-MPS	Benzo(g,h,i)perylene	89	ug/kg	U	NA
A6WP3-6	A6WP3-6^2-MPS	Beryllium	0.481	mg/kg		1.5 mg/kg
A6WP3-6	A6WP3-6^2-MPS	Dieldrin	0.727	ug/kg	U	0.015 ug/kg
A6WP3-6	A6WP3-6^2-MPS	Fluoranthene	89	ug/kg	U	NA
A6WP3-6	A6WP3-6^2-MPS	Phenanthrene	89	ug/kg	U	NA
A6WP3-6	A6WP3-6^2-MPS	Pyrene	89	ug/kg	U	NA
A6WP3-6	A6WP3-6^2-RA	Technetium-99	3.87	pCi/g dry		30 pCi/g
A6WP3-6	A6WP3-6^2-RA	Uranium, Total	4.88	mg/kg dry	U	50 mg/kg
A6WP3-6	A6WP3-6^2-RB	Cesium-137	-0.0249	pCi/g	U	1.4 pCi/g
A6WP3-6	A6WP3-6^2-RB	Radium-226	0.769	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^2-RB	Radium-228	0.642	pCi/g		1.8 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000080

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

5477

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-6	A6WP3-6^2-RB	Thorium-228	0.634	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^2-RB	Thorium-230	-16.4	pCi/g	U	280 pCi/g
A6WP3-6	A6WP3-6^2-RB	Thorium-232	0.642	pCi/g		1.5 pCi/g
A6WP3-6	A6WP3-6^3-L	1,1,1-Trichloroethane	1.11	ug/kg	U	NA
A6WP3-6	A6WP3-6^3-L	1,1,2-Trichloroethane	1.11	ug/kg	U	4.3 ug/kg
A6WP3-6	A6WP3-6^3-L	1,1-Dichloroethene	1.11	ug/kg	U	0.41 ug/kg
A6WP3-6	A6WP3-6^3-L	cis-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-6	A6WP3-6^3-L	Tetrachloroethene	1.11	ug/kg	U	3.6 ug/kg
A6WP3-6	A6WP3-6^3-L	trans-1,2-Dichloroethene	1.11	ug/kg	U	NA
A6WP3-6	A6WP3-6^3-L	Trichloroethene	1.11	ug/kg	U	25 ug/kg
A6WP3-6	A6WP3-6^3-L	Vinyl chloride	1.11	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^3-MPS	Aroclor-1254	9.37	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^3-MPS	Aroclor-1260	9.37	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^3-MPS	Arsenic	3.52	mg/kg	J	12 mg/kg
A6WP3-6	A6WP3-6^3-MPS	Benzo(g,h,i)perylene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^3-MPS	Beryllium	0.565	mg/kg		1.5 mg/kg
A6WP3-6	A6WP3-6^3-MPS	Dieldrin	0.75	ug/kg	U	0.015 ug/kg
A6WP3-6	A6WP3-6^3-MPS	Fluoranthene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^3-MPS	Phenanthrene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^3-MPS	Pyrene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^3-RA	Technetium-99	1.62	pCi/g dry	U	30 pCi/g
A6WP3-6	A6WP3-6^3-RA	Uranium, Total	4.18	mg/kg dry	U	50 mg/kg
A6WP3-6	A6WP3-6^3-RB	Cesium-137	0.00695	pCi/g	U	1.4 pCi/g
A6WP3-6	A6WP3-6^3-RB	Radium-226	0.785	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^3-RB	Radium-228	0.712	pCi/g		1.8 pCi/g
A6WP3-6	A6WP3-6^3-RB	Thorium-228	0.703	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^3-RB	Thorium-230	4.45	pCi/g	U	280 pCi/g
A6WP3-6	A6WP3-6^3-RB	Thorium-232	0.712	pCi/g		1.5 pCi/g
A6WP3-6	A6WP3-6^4-L	1,1,1-Trichloroethane	1.12	ug/kg	U	NA
A6WP3-6	A6WP3-6^4-L	1,1,2-Trichloroethane	1.12	ug/kg	U	4.3 ug/kg
A6WP3-6	A6WP3-6^4-L	1,1-Dichloroethene	1.12	ug/kg	U	0.41 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000081

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION (SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-6	A6WP3-6^4-L	cis-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-6	A6WP3-6^4-L	Tetrachloroethene	1.12	ug/kg	U	3.6 ug/kg
A6WP3-6	A6WP3-6^4-L	trans-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-6	A6WP3-6^4-L	Trichloroethene	1.12	ug/kg	U	25 ug/kg
A6WP3-6	A6WP3-6^4-L	Vinyl chloride	1.12	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^4-MPS	Aroclor-1254	9.38	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^4-MPS	Aroclor-1260	9.38	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^4-MPS	Arsenic	3.13	mg/kg	J	12 mg/kg
A6WP3-6	A6WP3-6^4-MPS	Benzo(g,h,i)perylene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^4-MPS	Beryllium	0.362	mg/kg		1.5 mg/kg
A6WP3-6	A6WP3-6^4-MPS	Dieldrin	0.75	ug/kg	U	0.015 ug/kg
A6WP3-6	A6WP3-6^4-MPS	Fluoranthene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^4-MPS	Phenanthrene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^4-MPS	Pyrene	91.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^4-RA	Technetium-99	1.44	pCi/g dry	U	30 pCi/g
A6WP3-6	A6WP3-6^4-RA	Uranium, Total	4.31	mg/kg dry	U	50 mg/kg
A6WP3-6	A6WP3-6^4-RB	Cesium-137	-0.0158	pCi/g	U	1.4 pCi/g
A6WP3-6	A6WP3-6^4-RB	Radium-226	0.71	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^4-RB	Radium-228	0.577	pCi/g		1.8 pCi/g
A6WP3-6	A6WP3-6^4-RB	Thorium-228	0.583	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^4-RB	Thorium-230	-7.56	pCi/g	U	280 pCi/g
A6WP3-6	A6WP3-6^4-RB	Thorium-232	0.577	pCi/g		1.5 pCi/g
A6WP3-6	A6WP3-6^5-L	1,1,1-Trichloroethane	1.09	ug/kg	U	NA
A6WP3-6	A6WP3-6^5-L	1,1,2-Trichloroethane	1.09	ug/kg	U	4.3 ug/kg
A6WP3-6	A6WP3-6^5-L	1,1-Dichloroethene	1.09	ug/kg	U	0.41 ug/kg
A6WP3-6	A6WP3-6^5-L	cis-1,2-Dichloroethene	1.09	ug/kg	U	NA
A6WP3-6	A6WP3-6^5-L	Tetrachloroethene	1.09	ug/kg	U	3.6 ug/kg
A6WP3-6	A6WP3-6^5-L	trans-1,2-Dichloroethene	1.09	ug/kg	U	NA
A6WP3-6	A6WP3-6^5-L	Trichloroethene	1.09	ug/kg	U	25 ug/kg
A6WP3-6	A6WP3-6^5-L	Vinyl chloride	1.09	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^5-MPS	Aroclor-1254	9.36	ug/kg	U	0.13 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-6	A6WP3-6^5-MPS	Aroclor-1260	9.36	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^5-MPS	Arsenic	4.72	mg/kg	J	12 mg/kg
A6WP3-6	A6WP3-6^5-MPS	Benzo(g,h,i)perylene	92.9	ug/kg	U	NA
A6WP3-6	A6WP3-6^5-MPS	Beryllium	0.377	mg/kg		1.5 mg/kg
A6WP3-6	A6WP3-6^5-MPS	Dieldrin	0.748	ug/kg	U	0.015 ug/kg
A6WP3-6	A6WP3-6^5-MPS	Fluoranthene	92.9	ug/kg	U	NA
A6WP3-6	A6WP3-6^5-MPS	Phenanthrene	92.9	ug/kg	U	NA
A6WP3-6	A6WP3-6^5-MPS	Pyrene	92.9	ug/kg	U	NA
A6WP3-6	A6WP3-6^5-RA	Technetium-99	0.33	pCi/g dry	U	30 pCi/g
A6WP3-6	A6WP3-6^5-RA	Uranium, Total	4.92	mg/kg dry	U	50 mg/kg
A6WP3-6	A6WP3-6^5-RB	Cesium-137	-0.00304	pCi/g	U	1.4 pCi/g
A6WP3-6	A6WP3-6^5-RB	Radium-226	0.725	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^5-RB	Radium-228	0.713	pCi/g		1.8 pCi/g
A6WP3-6	A6WP3-6^5-RB	Thorium-228	0.76	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^5-RB	Thorium-230	9.79	pCi/g		280 pCi/g
A6WP3-6	A6WP3-6^5-RB	Thorium-232	0.713	pCi/g		1.5 pCi/g
A6WP3-6	A6WP3-6^6-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-6	A6WP3-6^6-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-6	A6WP3-6^6-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-6	A6WP3-6^6-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-6	A6WP3-6^6-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-6	A6WP3-6^6-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-6	A6WP3-6^6-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg
A6WP3-6	A6WP3-6^6-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^6-MPS	Aroclor-1254	8.69	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^6-MPS	Aroclor-1260	8.69	ug/kg	U	0.13 ug/kg
A6WP3-6	A6WP3-6^6-MPS	Arsenic	4.86	mg/kg	J	12 mg/kg
A6WP3-6	A6WP3-6^6-MPS	Benzo(g,h,i)perylene	84.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^6-MPS	Beryllium	0.16	mg/kg		1.5 mg/kg
A6WP3-6	A6WP3-6^6-MPS	Dieldrin	0.695	ug/kg	U	0.015 ug/kg
A6WP3-6	A6WP3-6^6-MPS	Fluoranthene	84.6	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION (SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-6	A6WP3-6^6-MPS	Phenanthrene	84.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^6-MPS	Pyrene	84.6	ug/kg	U	NA
A6WP3-6	A6WP3-6^6-RA	Technetium-99	0.71	pCi/g dry	U	30 pCi/g
A6WP3-6	A6WP3-6^6-RA	Uranium, Total	4.78	mg/kg dry	U	50 mg/kg
A6WP3-6	A6WP3-6^6-RB	Cesium-137	-0.0103	pCi/g	U	1.4 pCi/g
A6WP3-6	A6WP3-6^6-RB	Radium-226	0.674	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^6-RB	Radium-228	0.524	pCi/g		1.8 pCi/g
A6WP3-6	A6WP3-6^6-RB	Thorium-228	0.523	pCi/g		1.7 pCi/g
A6WP3-6	A6WP3-6^6-RB	Thorium-230	-3.29	pCi/g	U	280 pCi/g
A6WP3-6	A6WP3-6^6-RB	Thorium-232	0.524	pCi/g		1.5 pCi/g
A6WP3-7	A6WP3-7^1-L	1,1,1-Trichloroethane	1.1	ug/kg	U	NA
A6WP3-7	A6WP3-7^1-L	1,1,2-Trichloroethane	1.1	ug/kg	U	4.3 ug/kg
A6WP3-7	A6WP3-7^1-L	1,1-Dichloroethene	1.1	ug/kg	U	0.41 ug/kg
A6WP3-7	A6WP3-7^1-L	cis-1,2-Dichloroethene	1.1	ug/kg	U	NA
A6WP3-7	A6WP3-7^1-L	Tetrachloroethene	0.282	ug/kg	J	3.6 ug/kg
A6WP3-7	A6WP3-7^1-L	trans-1,2-Dichloroethene	1.1	ug/kg	U	NA
A6WP3-7	A6WP3-7^1-L	Trichloroethene	1.1	ug/kg	U	25 ug/kg
A6WP3-7	A6WP3-7^1-L	Vinyl chloride	1.1	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^1-MPS	Aroclor-1254	54.6	ug/kg		0.13 ug/kg
A6WP3-7	A6WP3-7^1-MPS	Aroclor-1260	19.2	ug/kg		0.13 ug/kg
A6WP3-7	A6WP3-7^1-MPS	Arsenic	33	mg/kg		12 mg/kg
A6WP3-7	A6WP3-7^1-MPS	Benzo(g,h,i)perylene	92.1	ug/kg	U	NA
A6WP3-7	A6WP3-7^1-MPS	Beryllium	0.567	mg/kg		1.5 mg/kg
A6WP3-7	A6WP3-7^1-MPS	Dieldrin	0.734	ug/kg	U	0.015 ug/kg
A6WP3-7	A6WP3-7^1-MPS	Fluoranthene	97.6	ug/kg	J	NA
A6WP3-7	A6WP3-7^1-MPS	Phenanthrene	65.4	ug/kg	J	NA
A6WP3-7	A6WP3-7^1-MPS	Pyrene	77.8	ug/kg	J	NA
A6WP3-7	A6WP3-7^1-RA	Technetium-99	19.9	pCi/g dry		30 pCi/g
A6WP3-7	A6WP3-7^1-RA	Uranium, Total	751	mg/kg dry		50 mg/kg
A6WP3-7	A6WP3-7^1-RB	Cesium-137	0.223	pCi/g		1.4 pCi/g
A6WP3-7	A6WP3-7^1-RB	Radium-226	20.6	pCi/g		1.7 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

84

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-7	A6WP3-7^1-RB	Radium-228	10.3	pCi/g		1.8 pCi/g
A6WP3-7	A6WP3-7^1-RB	Thorium-228	10.6	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^1-RB	Thorium-230	538	pCi/g		280 pCi/g
A6WP3-7	A6WP3-7^1-RB	Thorium-232	10.3	pCi/g		1.5 pCi/g
A6WP3-7	A6WP3-7^2-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-7	A6WP3-7^2-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-7	A6WP3-7^2-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-7	A6WP3-7^2-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-7	A6WP3-7^2-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-7	A6WP3-7^2-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-7	A6WP3-7^2-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg
A6WP3-7	A6WP3-7^2-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^2-MPS	Aroclor-1254	9.38	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^2-MPS	Aroclor-1260	9.38	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^2-MPS	Arsenic	8.68	mg/kg		12 mg/kg
A6WP3-7	A6WP3-7^2-MPS	Benzo(g,h,i)perylene	93.3	ug/kg	U	NA
A6WP3-7	A6WP3-7^2-MPS	Beryllium	0.441	mg/kg		1.5 mg/kg
A6WP3-7	A6WP3-7^2-MPS	Dieldrin	0.75	ug/kg	U	0.015 ug/kg
A6WP3-7	A6WP3-7^2-MPS	Fluoranthene	93.3	ug/kg	U	NA
A6WP3-7	A6WP3-7^2-MPS	Phenanthrene	93.3	ug/kg	U	NA
A6WP3-7	A6WP3-7^2-MPS	Pyrene	93.3	ug/kg	U	NA
A6WP3-7	A6WP3-7^2-RA	Technetium-99	1.77	pCi/g dry	U	30 pCi/g
A6WP3-7	A6WP3-7^2-RA	Uranium, Total	6.59	mg/kg dry		50 mg/kg
A6WP3-7	A6WP3-7^2-RB	Cesium-137	0.00862	pCi/g	U	1.4 pCi/g
A6WP3-7	A6WP3-7^2-RB	Radium-226	0.794	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^2-RB	Radium-228	0.699	pCi/g		1.8 pCi/g
A6WP3-7	A6WP3-7^2-RB	Thorium-228	0.698	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^2-RB	Thorium-230	-11	pCi/g	U	280 pCi/g
A6WP3-7	A6WP3-7^2-RB	Thorium-232	0.699	pCi/g		1.5 pCi/g
A6WP3-7	A6WP3-7^3-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-7	A6WP3-7^3-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-7	A6WP3-7^3-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-7	A6WP3-7^3-L	cis-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-7	A6WP3-7^3-L	Tetrachloroethene	1.08	ug/kg	U	3.6 ug/kg
A6WP3-7	A6WP3-7^3-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-7	A6WP3-7^3-L	Trichloroethene	1.08	ug/kg	U	25 ug/kg
A6WP3-7	A6WP3-7^3-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^3-MPS	Aroclor-1254	9.21	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^3-MPS	Aroclor-1260	9.21	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^3-MPS	Arsenic	7.54	mg/kg		12 mg/kg
A6WP3-7	A6WP3-7^3-MPS	Benzo(g,h,i)perylene	91	ug/kg	U	NA
A6WP3-7	A6WP3-7^3-MPS	Beryllium	0.475	mg/kg		1.5 mg/kg
A6WP3-7	A6WP3-7^3-MPS	Dieldrin	0.737	ug/kg	U	0.015 ug/kg
A6WP3-7	A6WP3-7^3-MPS	Fluoranthene	91	ug/kg	U	NA
A6WP3-7	A6WP3-7^3-MPS	Phenanthrene	91	ug/kg	U	NA
A6WP3-7	A6WP3-7^3-MPS	Pyrene	91	ug/kg	U	NA
A6WP3-7	A6WP3-7^3-RA	Technetium-99	1.52	pCi/g dry	U	30 pCi/g
A6WP3-7	A6WP3-7^3-RA	Uranium, Total	4.75	mg/kg dry	U	50 mg/kg
A6WP3-7	A6WP3-7^3-RB	Cesium-137	-0.00787	pCi/g	U	1.4 pCi/g
A6WP3-7	A6WP3-7^3-RB	Radium-226	0.861	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^3-RB	Radium-228	0.726	pCi/g		1.8 pCi/g
A6WP3-7	A6WP3-7^3-RB	Thorium-228	0.737	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^3-RB	Thorium-230	-6.9	pCi/g	U	280 pCi/g
A6WP3-7	A6WP3-7^3-RB	Thorium-232	0.726	pCi/g		1.5 pCi/g
A6WP3-7	A6WP3-7^4-L	1,1,1-Trichloroethane	1.04	ug/kg	U	NA
A6WP3-7	A6WP3-7^4-L	1,1,2-Trichloroethane	1.04	ug/kg	U	4.3 ug/kg
A6WP3-7	A6WP3-7^4-L	1,1-Dichloroethene	1.04	ug/kg	U	0.41 ug/kg
A6WP3-7	A6WP3-7^4-L	cis-1,2-Dichloroethene	1.04	ug/kg	U	NA
A6WP3-7	A6WP3-7^4-L	Tetrachloroethene	1.04	ug/kg	U	3.6 ug/kg
A6WP3-7	A6WP3-7^4-L	trans-1,2-Dichloroethene	1.04	ug/kg	U	NA
A6WP3-7	A6WP3-7^4-L	Trichloroethene	1.04	ug/kg	U	25 ug/kg
A6WP3-7	A6WP3-7^4-L	Vinyl chloride	1.04	ug/kg	U	0.13 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION (SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-7	A6WP3-7^4-MPS	Aroclor-1254	9.14	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^4-MPS	Aroclor-1260	9.14	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^4-MPS	Arsenic	2.87	mg/kg	J	12 mg/kg
A6WP3-7	A6WP3-7^4-MPS	Benzo(g,h,i)perylene	90.9	ug/kg	U	NA
A6WP3-7	A6WP3-7^4-MPS	Beryllium	0.437	mg/kg		1.5 mg/kg
A6WP3-7	A6WP3-7^4-MPS	Dieldrin	0.732	ug/kg	U	0.015 ug/kg
A6WP3-7	A6WP3-7^4-MPS	Fluoranthene	90.9	ug/kg	U	NA
A6WP3-7	A6WP3-7^4-MPS	Phenanthrene	90.9	ug/kg	U	NA
A6WP3-7	A6WP3-7^4-MPS	Pyrene	90.9	ug/kg	U	NA
A6WP3-7	A6WP3-7^4-RA	Technetium-99	-0.096	pCi/g dry	U	30 pCi/g
A6WP3-7	A6WP3-7^4-RA	Uranium, Total	6.33	mg/kg dry		50 mg/kg
A6WP3-7	A6WP3-7^4-RB	Cesium-137	0.0139	pCi/g	U	1.4 pCi/g
A6WP3-7	A6WP3-7^4-RB	Radium-226	0.828	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^4-RB	Radium-228	0.752	pCi/g		1.8 pCi/g
A6WP3-7	A6WP3-7^4-RB	Thorium-228	0.763	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^4-RB	Thorium-230	2.54	pCi/g	U	280 pCi/g
A6WP3-7	A6WP3-7^4-RB	Thorium-232	0.752	pCi/g		1.5 pCi/g
A6WP3-7	A6WP3-7^5-L	1,1,1-Trichloroethane	1.09	ug/kg	U	NA
A6WP3-7	A6WP3-7^5-L	1,1,2-Trichloroethane	1.09	ug/kg	U	4.3 ug/kg
A6WP3-7	A6WP3-7^5-L	1,1-Dichloroethene	1.09	ug/kg	U	0.41 ug/kg
A6WP3-7	A6WP3-7^5-L	cis-1,2-Dichloroethene	1.09	ug/kg	U	NA
A6WP3-7	A6WP3-7^5-L	Tetrachloroethene	1.09	ug/kg	U	3.6 ug/kg
A6WP3-7	A6WP3-7^5-L	trans-1,2-Dichloroethene	1.09	ug/kg	U	NA
A6WP3-7	A6WP3-7^5-L	Trichloroethene	1.09	ug/kg	U	25 ug/kg
A6WP3-7	A6WP3-7^5-L	Vinyl chloride	1.09	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^5-MPS	Aroclor-1254	9.11	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^5-MPS	Aroclor-1260	9.11	ug/kg	U	0.13 ug/kg
A6WP3-7	A6WP3-7^5-MPS	Arsenic	5.27	mg/kg		12 mg/kg
A6WP3-7	A6WP3-7^5-MPS	Benzo(g,h,i)perylene	90.6	ug/kg	U	NA
A6WP3-7	A6WP3-7^5-MPS	Beryllium	0.49	mg/kg		1.5 mg/kg
A6WP3-7	A6WP3-7^5-MPS	Dieldrin	0.729	ug/kg	U	0.015 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-7	A6WP3-7^5-MPS	Fluoranthene	90.6	ug/kg	U	NA
A6WP3-7	A6WP3-7^5-MPS	Phenanthrene	90.6	ug/kg	U	NA
A6WP3-7	A6WP3-7^5-MPS	Pyrene	90.6	ug/kg	U	NA
A6WP3-7	A6WP3-7^5-RA	Technetium-99	0.48	pCi/g dry	U	30 pCi/g
A6WP3-7	A6WP3-7^5-RA	Uranium, Total	4.93	mg/kg dry	U	50 mg/kg
A6WP3-7	A6WP3-7^5-RB	Cesium-137	0.0178	pCi/g	U	1.4 pCi/g
A6WP3-7	A6WP3-7^5-RB	Radium-226	0.828	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^5-RB	Radium-228	0.792	pCi/g		1.8 pCi/g
A6WP3-7	A6WP3-7^5-RB	Thorium-228	0.817	pCi/g		1.7 pCi/g
A6WP3-7	A6WP3-7^5-RB	Thorium-230	-1.13	pCi/g	U	280 pCi/g
A6WP3-7	A6WP3-7^5-RB	Thorium-232	0.792	pCi/g		1.5 pCi/g
A6WP3-8	A6WP3-8^1-RA	Technetium-99	16	pCi/g dry		30 pCi/g
A6WP3-8	A6WP3-8^1-RA	Uranium, Total	662	mg/kg dry		50 mg/kg
A6WP3-8	A6WP3-8^2-L	1,1,1-Trichloroethane	1.14	ug/kg	U	NA
A6WP3-8	A6WP3-8^2-L	1,1,2-Trichloroethane	1.14	ug/kg	U	4.3 ug/kg
A6WP3-8	A6WP3-8^2-L	1,1-Dichloroethene	1.14	ug/kg	U	0.41 ug/kg
A6WP3-8	A6WP3-8^2-L	cis-1,2-Dichloroethene	1.14	ug/kg	U	NA
A6WP3-8	A6WP3-8^2-L	Tetrachloroethene	0.283	ug/kg	J	3.6 ug/kg
A6WP3-8	A6WP3-8^2-L	trans-1,2-Dichloroethene	1.14	ug/kg	U	NA
A6WP3-8	A6WP3-8^2-L	Trichloroethene	1.14	ug/kg	U	25 ug/kg
A6WP3-8	A6WP3-8^2-L	Vinyl chloride	1.14	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^2-MPS	Aroclor-1254	133	ug/kg		0.13 ug/kg
A6WP3-8	A6WP3-8^2-MPS	Aroclor-1260	30.8	ug/kg		0.13 ug/kg
A6WP3-8	A6WP3-8^2-MPS	Arsenic	14.4	mg/kg		12 mg/kg
A6WP3-8	A6WP3-8^2-MPS	Benzo(g,h,i)perylene	90.9	ug/kg	U	NA
A6WP3-8	A6WP3-8^2-MPS	Beryllium	0.56	mg/kg		1.5 mg/kg
A6WP3-8	A6WP3-8^2-MPS	Dieldrin	0.72	ug/kg	U	0.015 ug/kg
A6WP3-8	A6WP3-8^2-MPS	Fluoranthene	191	ug/kg	J	NA
A6WP3-8	A6WP3-8^2-MPS	Phenanthrene	118	ug/kg	J	NA
A6WP3-8	A6WP3-8^2-MPS	Pyrene	132	ug/kg	J	NA
A6WP3-8	A6WP3-8^2-RA	Technetium-99	5.5	pCi/g dry		30 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000088

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-8	A6WP3-8^2-RA	Uranium, Total	90.5	mg/kg dry		50 mg/kg
A6WP3-8	A6WP3-8^2-RB	Cesium-137	0.116	pCi/g	U	1.4 pCi/g
A6WP3-8	A6WP3-8^2-RB	Radium-226	37.9	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^2-RB	Radium-228	18.4	pCi/g		1.8 pCi/g
A6WP3-8	A6WP3-8^2-RB	Thorium-228	18.6	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^2-RB	Thorium-230	1130	pCi/g		280 pCi/g
A6WP3-8	A6WP3-8^2-RB	Thorium-232	18.4	pCi/g		1.5 pCi/g
A6WP3-8	A6WP3-8^3-L	1,1,1-Trichloroethane	1.06	ug/kg	U	NA
A6WP3-8	A6WP3-8^3-L	1,1,2-Trichloroethane	1.06	ug/kg	U	4.3 ug/kg
A6WP3-8	A6WP3-8^3-L	1,1-Dichloroethene	1.06	ug/kg	U	0.41 ug/kg
A6WP3-8	A6WP3-8^3-L	cis-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-8	A6WP3-8^3-L	Tetrachloroethene	7	ug/kg	J	3.6 ug/kg
A6WP3-8	A6WP3-8^3-L	trans-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-8	A6WP3-8^3-L	Trichloroethene	1.06	ug/kg	U	25 ug/kg
A6WP3-8	A6WP3-8^3-L	Vinyl chloride	1.06	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^3-MPS	Aroclor-1254	9.19	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^3-MPS	Aroclor-1260	9.19	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^3-MPS	Arsenic	6.21	mg/kg	J	12 mg/kg
A6WP3-8	A6WP3-8^3-MPS	Benzo(g,h,i)perylene	91.8	ug/kg	U	NA
A6WP3-8	A6WP3-8^3-MPS	Beryllium	0.455	mg/kg		1.5 mg/kg
A6WP3-8	A6WP3-8^3-MPS	Dieldrin	0.735	ug/kg	U	0.015 ug/kg
A6WP3-8	A6WP3-8^3-MPS	Fluoranthene	91.8	ug/kg	U	NA
A6WP3-8	A6WP3-8^3-MPS	Phenanthrene	91.8	ug/kg	U	NA
A6WP3-8	A6WP3-8^3-MPS	Pyrene	91.8	ug/kg	U	NA
A6WP3-8	A6WP3-8^3-RA	Technetium-99	4.8	pCi/g dry		30 pCi/g
A6WP3-8	A6WP3-8^3-RA	Uranium, Total	19.4	mg/kg dry		50 mg/kg
A6WP3-8	A6WP3-8^3-RB	Cesium-137	0.00598	pCi/g	U	1.4 pCi/g
A6WP3-8	A6WP3-8^3-RB	Radium-226	0.751	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^3-RB	Radium-228	0.617	pCi/g		1.8 pCi/g
A6WP3-8	A6WP3-8^3-RB	Thorium-228	0.601	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^3-RB	Thorium-230	6.26	pCi/g	U	280 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-8	A6WP3-8^3-RB	Thorium-232	0.617	pCi/g		1.5 pCi/g
A6WP3-8	A6WP3-8^4-L	1,1,1-Trichloroethane	1.04	ug/kg	U	NA
A6WP3-8	A6WP3-8^4-L	1,1,2-Trichloroethane	1.04	ug/kg	U	4.3 ug/kg
A6WP3-8	A6WP3-8^4-L	1,1-Dichloroethene	1.04	ug/kg	U	0.41 ug/kg
A6WP3-8	A6WP3-8^4-L	cis-1,2-Dichloroethene	1.04	ug/kg	U	NA
A6WP3-8	A6WP3-8^4-L	Tetrachloroethene	1.04	ug/kg	U	3.6 ug/kg
A6WP3-8	A6WP3-8^4-L	trans-1,2-Dichloroethene	1.04	ug/kg	U	NA
A6WP3-8	A6WP3-8^4-L	Trichloroethene	1.04	ug/kg	U	25 ug/kg
A6WP3-8	A6WP3-8^4-L	Vinyl chloride	1.04	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^4-MPS	Aroclor-1254	9.25	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^4-MPS	Aroclor-1260	9.25	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^4-MPS	Arsenic	2.02	mg/kg	U	12 mg/kg
A6WP3-8	A6WP3-8^4-MPS	Benzo(g,h,i)perylene	91.7	ug/kg	U	NA
A6WP3-8	A6WP3-8^4-MPS	Beryllium	0.537	mg/kg		1.5 mg/kg
A6WP3-8	A6WP3-8^4-MPS	Dieldrin	0.74	ug/kg	U	0.015 ug/kg
A6WP3-8	A6WP3-8^4-MPS	Fluoranthene	91.7	ug/kg	U	NA
A6WP3-8	A6WP3-8^4-MPS	Phenanthrene	91.7	ug/kg	U	NA
A6WP3-8	A6WP3-8^4-MPS	Pyrene	91.7	ug/kg	U	NA
A6WP3-8	A6WP3-8^4-RA	Technetium-99	-0.65	pCi/g dry	U	30 pCi/g
A6WP3-8	A6WP3-8^4-RA	Uranium, Total	3.67	mg/kg dry	U	50 mg/kg
A6WP3-8	A6WP3-8^4-RB	Cesium-137	-0.0182	pCi/g	U	1.4 pCi/g
A6WP3-8	A6WP3-8^4-RB	Radium-226	0.833	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^4-RB	Radium-228	0.622	pCi/g		1.8 pCi/g
A6WP3-8	A6WP3-8^4-RB	Thorium-228	0.602	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^4-RB	Thorium-230	-0.334	pCi/g	U	280 pCi/g
A6WP3-8	A6WP3-8^4-RB	Thorium-232	0.622	pCi/g		1.5 pCi/g
A6WP3-8	A6WP3-8^5-L	1,1,1-Trichloroethane	1.05	ug/kg	U	NA
A6WP3-8	A6WP3-8^5-L	1,1,2-Trichloroethane	1.05	ug/kg	U	4.3 ug/kg
A6WP3-8	A6WP3-8^5-L	1,1-Dichloroethene	1.05	ug/kg	U	0.41 ug/kg
A6WP3-8	A6WP3-8^5-L	cis-1,2-Dichloroethene	1.05	ug/kg	U	NA
A6WP3-8	A6WP3-8^5-L	Tetrachloroethene	1.05	ug/kg	U	3.6 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000090

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION (SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-8	A6WP3-8^5-L	trans-1,2-Dichloroethene	1.05	ug/kg	U	NA
A6WP3-8	A6WP3-8^5-L	Trichloroethene	1.05	ug/kg	U	25 ug/kg
A6WP3-8	A6WP3-8^5-L	Vinyl chloride	1.05	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^5-MPS	Aroclor-1254	9.35	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^5-MPS	Aroclor-1260	9.35	ug/kg	U	0.13 ug/kg
A6WP3-8	A6WP3-8^5-MPS	Arsenic	3.63	mg/kg	J	12 mg/kg
A6WP3-8	A6WP3-8^5-MPS	Benzo(g,h,i)perylene	93.4	ug/kg	U	NA
A6WP3-8	A6WP3-8^5-MPS	Beryllium	0.495	mg/kg		1.5 mg/kg
A6WP3-8	A6WP3-8^5-MPS	Dieldrin	0.748	ug/kg	U	0.015 ug/kg
A6WP3-8	A6WP3-8^5-MPS	Fluoranthene	93.4	ug/kg	U	NA
A6WP3-8	A6WP3-8^5-MPS	Phenanthrene	93.4	ug/kg	U	NA
A6WP3-8	A6WP3-8^5-MPS	Pyrene	93.4	ug/kg	U	NA
A6WP3-8	A6WP3-8^5-RA	Technetium-99	1.3	pCi/g dry	U	30 pCi/g
A6WP3-8	A6WP3-8^5-RA	Uranium, Total	4.79	mg/kg dry	U	50 mg/kg
A6WP3-8	A6WP3-8^5-RB	Cesium-137	0.124	pCi/g		1.4 pCi/g
A6WP3-8	A6WP3-8^5-RB	Radium-226	0.732	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^5-RB	Radium-228	0.869	pCi/g		1.8 pCi/g
A6WP3-8	A6WP3-8^5-RB	Thorium-228	0.906	pCi/g		1.7 pCi/g
A6WP3-8	A6WP3-8^5-RB	Thorium-230	-8.36	pCi/g	U	280 pCi/g
A6WP3-8	A6WP3-8^5-RB	Thorium-232	0.869	pCi/g		1.5 pCi/g
A6WP3-9	A6WP3-9^2-L	1,1,1-Trichloroethane	1.16	ug/kg	U	NA
A6WP3-9	A6WP3-9^2-L	1,1,2-Trichloroethane	1.16	ug/kg	U	4.3 ug/kg
A6WP3-9	A6WP3-9^2-L	1,1-Dichloroethene	1.16	ug/kg	U	0.41 ug/kg
A6WP3-9	A6WP3-9^2-L	cis-1,2-Dichloroethene	1.16	ug/kg	U	NA
A6WP3-9	A6WP3-9^2-L	Tetrachloroethene	1.16	ug/kg	U	3.6 ug/kg
A6WP3-9	A6WP3-9^2-L	trans-1,2-Dichloroethene	1.16	ug/kg	U	NA
A6WP3-9	A6WP3-9^2-L	Trichloroethene	1.16	ug/kg	U	25 ug/kg
A6WP3-9	A6WP3-9^2-L	Vinyl chloride	1.16	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^2-MPS	Aroclor-1254	93.5	ug/kg		0.13 ug/kg
A6WP3-9	A6WP3-9^2-MPS	Aroclor-1260	28	ug/kg		0.13 ug/kg
A6WP3-9	A6WP3-9^2-MPS	Arsenic	4.48	mg/kg	J	12 mg/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION (SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-9	A6WP3-9^2-MPS	Benzo(g,h,i)perylene	99.8	ug/kg	U	NA
A6WP3-9	A6WP3-9^2-MPS	Beryllium	0.566	mg/kg		1.5 mg/kg
A6WP3-9	A6WP3-9^2-MPS	Dieldrin	0.796	ug/kg	U	0.015 ug/kg
A6WP3-9	A6WP3-9^2-MPS	Fluoranthene	74	ug/kg	J	NA
A6WP3-9	A6WP3-9^2-MPS	Phenanthrene	52.4	ug/kg	J	NA
A6WP3-9	A6WP3-9^2-MPS	Pyrene	53.2	ug/kg	J	NA
A6WP3-9	A6WP3-9^2-RA	Technetium-99	1.1	pCi/g dry	U	30 pCi/g
A6WP3-9	A6WP3-9^2-RA	Uranium, Total	123	mg/kg dry		50 mg/kg
A6WP3-9	A6WP3-9^2-RB	Cesium-137	-0.0204	pCi/g	U	1.4 pCi/g
A6WP3-9	A6WP3-9^2-RB	Radium-226	3.56	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^2-RB	Radium-228	2.84	pCi/g		1.8 pCi/g
A6WP3-9	A6WP3-9^2-RB	Thorium-228	2.83	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^2-RB	Thorium-230	-2.56	pCi/g	U	280 pCi/g
A6WP3-9	A6WP3-9^2-RB	Thorium-232	2.84	pCi/g		1.5 pCi/g
A6WP3-9	A6WP3-9^3-L	1,1,1-Trichloroethane	1.1	ug/kg	U	NA
A6WP3-9	A6WP3-9^3-L	1,1,2-Trichloroethane	1.1	ug/kg	U	4.3 ug/kg
A6WP3-9	A6WP3-9^3-L	1,1-Dichloroethene	1.1	ug/kg	U	0.41 ug/kg
A6WP3-9	A6WP3-9^3-L	cis-1,2-Dichloroethene	1.1	ug/kg	U	NA
A6WP3-9	A6WP3-9^3-L	Tetrachloroethene	1.1	ug/kg	U	3.6 ug/kg
A6WP3-9	A6WP3-9^3-L	trans-1,2-Dichloroethene	1.1	ug/kg	U	NA
A6WP3-9	A6WP3-9^3-L	Trichloroethene	1.1	ug/kg	U	25 ug/kg
A6WP3-9	A6WP3-9^3-L	Vinyl chloride	1.1	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^3-MPS	Aroclor-1254	642	ug/kg		0.13 ug/kg
A6WP3-9	A6WP3-9^3-MPS	Aroclor-1260	182	ug/kg	P	0.13 ug/kg
A6WP3-9	A6WP3-9^3-MPS	Arsenic	3.82	mg/kg	J	12 mg/kg
A6WP3-9	A6WP3-9^3-MPS	Benzo(g,h,i)perylene	57.1	ug/kg	J	NA
A6WP3-9	A6WP3-9^3-MPS	Beryllium	0.635	mg/kg		1.5 mg/kg
A6WP3-9	A6WP3-9^3-MPS	Dieldrin	0.786	ug/kg	U	0.015 ug/kg
A6WP3-9	A6WP3-9^3-MPS	Fluoranthene	353	ug/kg	J	NA
A6WP3-9	A6WP3-9^3-MPS	Phenanthrene	197	ug/kg	J	NA
A6WP3-9	A6WP3-9^3-MPS	Pyrene	269	ug/kg	J	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

5477

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-9	A6WP3-9^3-RA	Technetium-99	6.6	pCi/g dry		30 pCi/g
A6WP3-9	A6WP3-9^3-RA	Uranium, Total	988	mg/kg dry		50 mg/kg
A6WP3-9	A6WP3-9^3-RB	Cesium-137	0.0597	pCi/g	U	1.4 pCi/g
A6WP3-9	A6WP3-9^3-RB	Radium-226	3.95	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^3-RB	Radium-228	3.71	pCi/g		1.8 pCi/g
A6WP3-9	A6WP3-9^3-RB	Thorium-228	4	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^3-RB	Thorium-230	665	pCi/g		280 pCi/g
A6WP3-9	A6WP3-9^3-RB	Thorium-232	3.71	pCi/g		1.5 pCi/g
A6WP3-9	A6WP3-9^4-L	1,1,1-Trichloroethane	14.2	ug/kg	J	NA
A6WP3-9	A6WP3-9^4-L	1,1,2-Trichloroethane	1.19	ug/kg	U	4.3 ug/kg
A6WP3-9	A6WP3-9^4-L	1,1-Dichloroethene	1.19	ug/kg	U	0.41 ug/kg
A6WP3-9	A6WP3-9^4-L	cis-1,2-Dichloroethene	1.19	ug/kg	U	NA
A6WP3-9	A6WP3-9^4-L	Tetrachloroethene	0.507	ug/kg	J	3.6 ug/kg
A6WP3-9	A6WP3-9^4-L	trans-1,2-Dichloroethene	1.19	ug/kg	U	NA
A6WP3-9	A6WP3-9^4-L	Trichloroethene	1.19	ug/kg	U	25 ug/kg
A6WP3-9	A6WP3-9^4-L	Vinyl chloride	1.19	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^4-MPS	Aroclor-1254	80.8	ug/kg		0.13 ug/kg
A6WP3-9	A6WP3-9^4-MPS	Aroclor-1260	26.6	ug/kg		0.13 ug/kg
A6WP3-9	A6WP3-9^4-MPS	Arsenic	3.31	mg/kg	J	12 mg/kg
A6WP3-9	A6WP3-9^4-MPS	Benzo(g,h,i)perylene	93.4	ug/kg	U	NA
A6WP3-9	A6WP3-9^4-MPS	Beryllium	0.405	mg/kg		1.5 mg/kg
A6WP3-9	A6WP3-9^4-MPS	Dieldrin	0.746	ug/kg	U	0.015 ug/kg
A6WP3-9	A6WP3-9^4-MPS	Fluoranthene	64.7	ug/kg	J	NA
A6WP3-9	A6WP3-9^4-MPS	Phenanthrene	41.4	ug/kg	J	NA
A6WP3-9	A6WP3-9^4-MPS	Pyrene	43.3	ug/kg	J	NA
A6WP3-9	A6WP3-9^4-RA	Technetium-99	3.4	pCi/g dry		30 pCi/g
A6WP3-9	A6WP3-9^4-RA	Uranium, Total	169	mg/kg dry		50 mg/kg
A6WP3-9	A6WP3-9^4-RB	Cesium-137	0.121	pCi/g		1.4 pCi/g
A6WP3-9	A6WP3-9^4-RB	Radium-226	8.77	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^4-RB	Radium-228	9.3	pCi/g		1.8 pCi/g
A6WP3-9	A6WP3-9^4-RB	Thorium-228	9.83	pCi/g		1.7 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-9	A6WP3-9^4-RB	Thorium-230	140	pCi/g		280 pCi/g
A6WP3-9	A6WP3-9^4-RB	Thorium-232	9.3	pCi/g		1.5 pCi/g
A6WP3-9	A6WP3-9^5-L	1,1,1-Trichloroethane	1.09	ug/kg	U	NA
A6WP3-9	A6WP3-9^5-L	1,1,2-Trichloroethane	1.09	ug/kg	U	4.3 ug/kg
A6WP3-9	A6WP3-9^5-L	1,1-Dichloroethene	1.09	ug/kg	U	0.41 ug/kg
A6WP3-9	A6WP3-9^5-L	cis-1,2-Dichloroethene	1.09	ug/kg	U	NA
A6WP3-9	A6WP3-9^5-L	Tetrachloroethene	1.09	ug/kg	U	3.6 ug/kg
A6WP3-9	A6WP3-9^5-L	trans-1,2-Dichloroethene	1.09	ug/kg	U	NA
A6WP3-9	A6WP3-9^5-L	Trichloroethene	1.09	ug/kg	U	25 ug/kg
A6WP3-9	A6WP3-9^5-L	Vinyl chloride	1.09	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^5-MPS	Aroclor-1254	9.21	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^5-MPS	Aroclor-1260	9.21	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^5-MPS	Arsenic	12	mg/kg		12 mg/kg
A6WP3-9	A6WP3-9^5-MPS	Benzo(g,h,i)perylene	92.1	ug/kg	U	NA
A6WP3-9	A6WP3-9^5-MPS	Beryllium	0.475	mg/kg		1.5 mg/kg
A6WP3-9	A6WP3-9^5-MPS	Dieldrin	0.737	ug/kg	U	0.015 ug/kg
A6WP3-9	A6WP3-9^5-MPS	Fluoranthene	92.1	ug/kg	U	NA
A6WP3-9	A6WP3-9^5-MPS	Phenanthrene	92.1	ug/kg	U	NA
A6WP3-9	A6WP3-9^5-MPS	Pyrene	92.1	ug/kg	U	NA
A6WP3-9	A6WP3-9^5-RA	Technetium-99	-0.22	pCi/g dry	U	30 pCi/g
A6WP3-9	A6WP3-9^5-RA	Uranium, Total	4.88	mg/kg dry	U	50 mg/kg
A6WP3-9	A6WP3-9^5-RB	Cesium-137	-0.0143	pCi/g	U	1.4 pCi/g
A6WP3-9	A6WP3-9^5-RB	Radium-226	0.844	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^5-RB	Radium-228	0.683	pCi/g		1.8 pCi/g
A6WP3-9	A6WP3-9^5-RB	Thorium-228	0.68	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^5-RB	Thorium-230	-9.04	pCi/g	U	280 pCi/g
A6WP3-9	A6WP3-9^5-RB	Thorium-232	0.683	pCi/g		1.5 pCi/g
A6WP3-9	A6WP3-9^6-L	1,1,1-Trichloroethane	1.17	ug/kg	U	NA
A6WP3-9	A6WP3-9^6-L	1,1,2-Trichloroethane	1.17	ug/kg	U	4.3 ug/kg
A6WP3-9	A6WP3-9^6-L	1,1-Dichloroethene	1.17	ug/kg	U	0.41 ug/kg
A6WP3-9	A6WP3-9^6-L	cis-1,2-Dichloroethene	1.17	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-9	A6WP3-9^6-L	Tetrachloroethene	1.17	ug/kg	U	3.6 ug/kg
A6WP3-9	A6WP3-9^6-L	trans-1,2-Dichloroethene	1.17	ug/kg	U	NA
A6WP3-9	A6WP3-9^6-L	Trichloroethene	1.17	ug/kg	U	25 ug/kg
A6WP3-9	A6WP3-9^6-L	Vinyl chloride	1.17	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^6-MPS	Aroclor-1254	9.98	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^6-MPS	Aroclor-1260	9.98	ug/kg	U	0.13 ug/kg
A6WP3-9	A6WP3-9^6-MPS	Arsenic	5.72	mg/kg	J	12 mg/kg
A6WP3-9	A6WP3-9^6-MPS	Benzo(g,h,i)perylene	98	ug/kg	U	NA
A6WP3-9	A6WP3-9^6-MPS	Beryllium	0.309	mg/kg		1.5 mg/kg
A6WP3-9	A6WP3-9^6-MPS	Dieldrin	0.798	ug/kg	U	0.015 ug/kg
A6WP3-9	A6WP3-9^6-MPS	Fluoranthene	98	ug/kg	U	NA
A6WP3-9	A6WP3-9^6-MPS	Phenanthrene	98	ug/kg	U	NA
A6WP3-9	A6WP3-9^6-MPS	Pyrene	98	ug/kg	U	NA
A6WP3-9	A6WP3-9^6-RA	Technetium-99	-0.046	pCi/g dry	U	30 pCi/g
A6WP3-9	A6WP3-9^6-RA	Uranium, Total	7.86	mg/kg dry		50 mg/kg
A6WP3-9	A6WP3-9^6-RB	Cesium-137	0.00296	pCi/g	U	1.4 pCi/g
A6WP3-9	A6WP3-9^6-RB	Radium-226	0.712	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^6-RB	Radium-228	0.637	pCi/g		1.8 pCi/g
A6WP3-9	A6WP3-9^6-RB	Thorium-228	0.712	pCi/g		1.7 pCi/g
A6WP3-9	A6WP3-9^6-RB	Thorium-230	3.64	pCi/g	U	280 pCi/g
A6WP3-9	A6WP3-9^6-RB	Thorium-232	0.637	pCi/g		1.5 pCi/g
A6WP3-10	A6WP3-10^2-L	1,1,1-Trichloroethane	1.08	ug/kg	U	NA
A6WP3-10	A6WP3-10^2-L	1,1,2-Trichloroethane	1.08	ug/kg	U	4.3 ug/kg
A6WP3-10	A6WP3-10^2-L	1,1-Dichloroethene	1.08	ug/kg	U	0.41 ug/kg
A6WP3-10	A6WP3-10^2-L	cis-1,2-Dichloroethene	1.8	ug/kg	J	NA
A6WP3-10	A6WP3-10^2-L	Tetrachloroethene	0.423	ug/kg	J	3.6 ug/kg
A6WP3-10	A6WP3-10^2-L	trans-1,2-Dichloroethene	1.08	ug/kg	U	NA
A6WP3-10	A6WP3-10^2-L	Trichloroethene	0.699	ug/kg	J	25 ug/kg
A6WP3-10	A6WP3-10^2-L	Vinyl chloride	1.08	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^2-MPS	Aroclor-1254	233	ug/kg		0.13 ug/kg
A6WP3-10	A6WP3-10^2-MPS	Aroclor-1260	129	ug/kg		0.13 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-10	A6WP3-10^2-MPS	Arsenic	7.51	mg/kg	J	12 mg/kg
A6WP3-10	A6WP3-10^2-MPS	Benzo(g,h,i)perylene	50.3	ug/kg	J	NA
A6WP3-10	A6WP3-10^2-MPS	Beryllium	0.497	mg/kg		1.5 mg/kg
A6WP3-10	A6WP3-10^2-MPS	Dieldrin	0.74	ug/kg	U	0.015 ug/kg
A6WP3-10	A6WP3-10^2-MPS	Fluoranthene	377	ug/kg	J	NA
A6WP3-10	A6WP3-10^2-MPS	Phenanthrene	250	ug/kg	J	NA
A6WP3-10	A6WP3-10^2-MPS	Pyrene	239	ug/kg	J	NA
A6WP3-10	A6WP3-10^2-RA	Technetium-99	1.7	pCi/g dry		30 pCi/g
A6WP3-10	A6WP3-10^2-RA	Uranium, Total	557	mg/kg dry		50 mg/kg
A6WP3-10	A6WP3-10^2-RB	Cesium-137	0.0309	pCi/g	U	1.4 pCi/g
A6WP3-10	A6WP3-10^2-RB	Radium-226	1.31	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^2-RB	Radium-228	1.06	pCi/g		1.8 pCi/g
A6WP3-10	A6WP3-10^2-RB	Thorium-228	1.1	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^2-RB	Thorium-230	2.14	pCi/g	U	280 pCi/g
A6WP3-10	A6WP3-10^2-RB	Thorium-232	1.06	pCi/g		1.5 pCi/g
A6WP3-10	A6WP3-10^3-L	1,1,1-Trichloroethane	1.06	ug/kg	U	NA
A6WP3-10	A6WP3-10^3-L	1,1,2-Trichloroethane	1.06	ug/kg	U	4.3 ug/kg
A6WP3-10	A6WP3-10^3-L	1,1-Dichloroethene	1.06	ug/kg	U	0.41 ug/kg
A6WP3-10	A6WP3-10^3-L	cis-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-10	A6WP3-10^3-L	Tetrachloroethene	1.06	ug/kg	U	3.6 ug/kg
A6WP3-10	A6WP3-10^3-L	trans-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-10	A6WP3-10^3-L	Trichloroethene	1.06	ug/kg	U	25 ug/kg
A6WP3-10	A6WP3-10^3-L	Vinyl chloride	1.06	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^3-MPS	Aroclor-1254	9.18	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^3-MPS	Aroclor-1260	9.18	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^3-MPS	Arsenic	8.29	mg/kg	J	12 mg/kg
A6WP3-10	A6WP3-10^3-MPS	Benzo(g,h,i)perylene	91.7	ug/kg	U	NA
A6WP3-10	A6WP3-10^3-MPS	Beryllium	0.506	mg/kg		1.5 mg/kg
A6WP3-10	A6WP3-10^3-MPS	Dieldrin	0.735	ug/kg	U	0.015 ug/kg
A6WP3-10	A6WP3-10^3-MPS	Fluoranthene	91.7	ug/kg	U	NA
A6WP3-10	A6WP3-10^3-MPS	Phenanthrene	91.7	ug/kg	U	NA

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

000096

5477

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION (SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-10	A6WP3-10^3-MPS	Pyrene	91.7	ug/kg	U	NA
A6WP3-10	A6WP3-10^3-RA	Technetium-99	0.21	pCi/g dry	U	30 pCi/g
A6WP3-10	A6WP3-10^3-RA	Uranium, Total	4.01	mg/kg dry	U	50 mg/kg
A6WP3-10	A6WP3-10^3-RB	Cesium-137	0.0517	pCi/g		1.4 pCi/g
A6WP3-10	A6WP3-10^3-RB	Radium-226	0.761	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^3-RB	Radium-228	0.674	pCi/g		1.8 pCi/g
A6WP3-10	A6WP3-10^3-RB	Thorium-228	0.678	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^3-RB	Thorium-230	-12.4	pCi/g	U	280 pCi/g
A6WP3-10	A6WP3-10^3-RB	Thorium-232	0.674	pCi/g		1.5 pCi/g
A6WP3-10	A6WP3-10^4-L	1,1,1-Trichloroethane	1.05	ug/kg	U	NA
A6WP3-10	A6WP3-10^4-L	1,1,2-Trichloroethane	1.05	ug/kg	U	4.3 ug/kg
A6WP3-10	A6WP3-10^4-L	1,1-Dichloroethene	1.05	ug/kg	U	0.41 ug/kg
A6WP3-10	A6WP3-10^4-L	cis-1,2-Dichloroethene	1.05	ug/kg	U	NA
A6WP3-10	A6WP3-10^4-L	Tetrachloroethene	1.05	ug/kg	U	3.6 ug/kg
A6WP3-10	A6WP3-10^4-L	trans-1,2-Dichloroethene	1.05	ug/kg	U	NA
A6WP3-10	A6WP3-10^4-L	Trichloroethene	1.05	ug/kg	U	25 ug/kg
A6WP3-10	A6WP3-10^4-L	Vinyl chloride	1.05	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^4-MPS	Aroclor-1254	8.88	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^4-MPS	Aroclor-1260	8.88	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^4-MPS	Arsenic	4.36	mg/kg	J	12 mg/kg
A6WP3-10	A6WP3-10^4-MPS	Benzo(g,h,i)perylene	88.8	ug/kg	U	NA
A6WP3-10	A6WP3-10^4-MPS	Beryllium	0.479	mg/kg		1.5 mg/kg
A6WP3-10	A6WP3-10^4-MPS	Dieldrin	0.711	ug/kg	U	0.015 ug/kg
A6WP3-10	A6WP3-10^4-MPS	Fluoranthene	88.8	ug/kg	U	NA
A6WP3-10	A6WP3-10^4-MPS	Phenanthrene	88.8	ug/kg	U	NA
A6WP3-10	A6WP3-10^4-MPS	Pyrene	88.8	ug/kg	U	NA
A6WP3-10	A6WP3-10^4-RA	Technetium-99	0.44	pCi/g dry	U	30 pCi/g
A6WP3-10	A6WP3-10^4-RA	Uranium, Total	4.11	mg/kg dry	U	50 mg/kg
A6WP3-10	A6WP3-10^4-RB	Cesium-137	0.024	pCi/g	U	1.4 pCi/g
A6WP3-10	A6WP3-10^4-RB	Radium-226	0.774	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^4-RB	Radium-228	0.641	pCi/g		1.8 pCi/g

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-10	A6WP3-10^4-RB	Thorium-228	0.653	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^4-RB	Thorium-230	-7.65	pCi/g	U	280 pCi/g
A6WP3-10	A6WP3-10^4-RB	Thorium-232	0.641	pCi/g		1.5 pCi/g
A6WP3-10	A6WP3-10^5-L	1,1,1-Trichloroethane	1.05	ug/kg	U	NA
A6WP3-10	A6WP3-10^5-L	1,1,2-Trichloroethane	1.05	ug/kg	U	4.3 ug/kg
A6WP3-10	A6WP3-10^5-L	1,1-Dichloroethene	1.05	ug/kg	U	0.41 ug/kg
A6WP3-10	A6WP3-10^5-L	cis-1,2-Dichloroethene	1.05	ug/kg	U	NA
A6WP3-10	A6WP3-10^5-L	Tetrachloroethene	1.05	ug/kg	U	3.6 ug/kg
A6WP3-10	A6WP3-10^5-L	trans-1,2-Dichloroethene	1.05	ug/kg	U	NA
A6WP3-10	A6WP3-10^5-L	Trichloroethene	1.05	ug/kg	U	25 ug/kg
A6WP3-10	A6WP3-10^5-L	Vinyl chloride	1.05	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^5-MPS	Aroclor-1254	9.06	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^5-MPS	Aroclor-1260	9.06	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^5-MPS	Arsenic	8.03	mg/kg	J	12 mg/kg
A6WP3-10	A6WP3-10^5-MPS	Benzo(g,h,i)perylene	90.9	ug/kg	U	NA
A6WP3-10	A6WP3-10^5-MPS	Beryllium	0.518	mg/kg		1.5 mg/kg
A6WP3-10	A6WP3-10^5-MPS	Dieldrin	0.725	ug/kg	U	0.015 ug/kg
A6WP3-10	A6WP3-10^5-MPS	Fluoranthene	90.9	ug/kg	U	NA
A6WP3-10	A6WP3-10^5-MPS	Phenanthrene	90.9	ug/kg	U	NA
A6WP3-10	A6WP3-10^5-MPS	Pyrene	90.9	ug/kg	U	NA
A6WP3-10	A6WP3-10^5-RA	Technetium-99	-0.049	pCi/g dry	U	30 pCi/g
A6WP3-10	A6WP3-10^5-RA	Uranium, Total	4.98	mg/kg dry	U	50 mg/kg
A6WP3-10	A6WP3-10^5-RB	Cesium-137	-0.00795	pCi/g	U	1.4 pCi/g
A6WP3-10	A6WP3-10^5-RB	Radium-226	0.761	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^5-RB	Radium-228	0.771	pCi/g		1.8 pCi/g
A6WP3-10	A6WP3-10^5-RB	Thorium-228	0.771	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^5-RB	Thorium-230	2.94	pCi/g	U	280 pCi/g
A6WP3-10	A6WP3-10^5-RB	Thorium-232	0.771	pCi/g		1.5 pCi/g
A6WP3-10	A6WP3-10^6-L	1,1,1-Trichloroethane	1.06	ug/kg	U	NA
A6WP3-10	A6WP3-10^6-L	1,1,2-Trichloroethane	1.06	ug/kg	U	4.3 ug/kg
A6WP3-10	A6WP3-10^6-L	1,1-Dichloroethene	1.06	ug/kg	U	0.41 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B

DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-10	A6WP3-10^6-L	cis-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-10	A6WP3-10^6-L	Tetrachloroethene	1.06	ug/kg	U	3.6 ug/kg
A6WP3-10	A6WP3-10^6-L	trans-1,2-Dichloroethene	1.06	ug/kg	U	NA
A6WP3-10	A6WP3-10^6-L	Trichloroethene	1.06	ug/kg	U	25 ug/kg
A6WP3-10	A6WP3-10^6-L	Vinyl chloride	1.06	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^6-MPS	Aroclor-1254	9.11	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^6-MPS	Aroclor-1260	9.11	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^6-MPS	Arsenic	5.11	mg/kg	J	12 mg/kg
A6WP3-10	A6WP3-10^6-MPS	Benzo(g,h,i)perylene	91.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^6-MPS	Beryllium	0.455	mg/kg		1.5 mg/kg
A6WP3-10	A6WP3-10^6-MPS	Dieldrin	0.729	ug/kg	U	0.015 ug/kg
A6WP3-10	A6WP3-10^6-MPS	Fluoranthene	91.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^6-MPS	Phenanthrene	91.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^6-MPS	Pyrene	91.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^6-RA	Technetium-99	0.41	pCi/g dry	U	30 pCi/g
A6WP3-10	A6WP3-10^6-RA	Uranium, Total	4.82	mg/kg dry	U	50 mg/kg
A6WP3-10	A6WP3-10^6-RB	Cesium-137	0.00127	pCi/g	U	1.4 pCi/g
A6WP3-10	A6WP3-10^6-RB	Radium-226	0.832	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^6-RB	Radium-228	0.78	pCi/g		1.8 pCi/g
A6WP3-10	A6WP3-10^6-RB	Thorium-228	0.764	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^6-RB	Thorium-230	-2.21	pCi/g	U	280 pCi/g
A6WP3-10	A6WP3-10^6-RB	Thorium-232	0.78	pCi/g		1.5 pCi/g
A6WP3-10	A6WP3-10^7-L	1,1,1-Trichloroethane	1.12	ug/kg	U	NA
A6WP3-10	A6WP3-10^7-L	1,1,2-Trichloroethane	1.12	ug/kg	U	4.3 ug/kg
A6WP3-10	A6WP3-10^7-L	1,1-Dichloroethene	1.12	ug/kg	U	0.41 ug/kg
A6WP3-10	A6WP3-10^7-L	cis-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-10	A6WP3-10^7-L	Tetrachloroethene	1.12	ug/kg	U	3.6 ug/kg
A6WP3-10	A6WP3-10^7-L	trans-1,2-Dichloroethene	1.12	ug/kg	U	NA
A6WP3-10	A6WP3-10^7-L	Trichloroethene	1.12	ug/kg	U	25 ug/kg
A6WP3-10	A6WP3-10^7-L	Vinyl chloride	1.12	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^7-MPS	Aroclor-1254	9.62	ug/kg	U	0.13 ug/kg

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

APPENDIX B
DATA FROM WASTE PIT 3 SUBSURFACE MATERIAL INVESTIGATION
(SAMPLED APRIL 2004)

Location	Sample ID	Constituent	Lab Result	Units	Lab Qualifier	FRL
A6WP3-10	A6WP3-10^7-MPS	Aroclor-1260	9.62	ug/kg	U	0.13 ug/kg
A6WP3-10	A6WP3-10^7-MPS	Arsenic	6.72	mg/kg		12 mg/kg
A6WP3-10	A6WP3-10^7-MPS	Benzo(g,h,i)perylene	96.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^7-MPS	Beryllium	0.429	mg/kg		1.5 mg/kg
A6WP3-10	A6WP3-10^7-MPS	Dieldrin	0.769	ug/kg	U	0.015 ug/kg
A6WP3-10	A6WP3-10^7-MPS	Fluoranthene	96.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^7-MPS	Phenanthrene	96.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^7-MPS	Pyrene	96.2	ug/kg	U	NA
A6WP3-10	A6WP3-10^7-RA	Technetium-99	-0.64	pCi/g dry	U	30 pCi/g
A6WP3-10	A6WP3-10^7-RA	Uranium, Total	4.32	mg/kg dry	U	50 mg/kg
A6WP3-10	A6WP3-10^7-RB	Cesium-137	-0.0156	pCi/g	U	1.4 pCi/g
A6WP3-10	A6WP3-10^7-RB	Radium-226	0.83	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^7-RB	Radium-228	0.534	pCi/g		1.8 pCi/g
A6WP3-10	A6WP3-10^7-RB	Thorium-228	0.54	pCi/g		1.7 pCi/g
A6WP3-10	A6WP3-10^7-RB	Thorium-230	-2.9	pCi/g	U	280 pCi/g
A6WP3-10	A6WP3-10^7-RB	Thorium-232	0.534	pCi/g		1.5 pCi/g

000100

Lab Qualifires:
H = hold time exceeded, J = estimated result, U = non-detected

5477

APPENDIX C

TARGET ANALYTE LISTS

TAL A

Soil Radiological Analysis, ASL B	**FRL (WAC[*])**	**MDL**
Total Uranium	82 mg/kg	8.2 mg/kg
Radium-226	1.7 pCi/g	0.17 pCi/g
Radium-228	1.8 pCi/g	0.18 pCi/g
Thorium-228	1.7 pCi/g	0.17 pCi/g
Thorium-230	280 pCi/g	28 pCi/g
Thorium-232	1.5 pCi/g	0.15 pCi/g
Cesium-137	1.4 pCi/g	0.14 pCi/g
Technetium-99	29.1 pCi/g[*]	2.9 pCi/g

[*]If the WAC is lower than the established FRL, the MDL will be set at 10 percent of the OSDF WAC.
WAC – waste acceptance criteria
MDL – minimum detection level
mg/kg – milligrams per kilogram
pCi/g – picoCuries per gram

APPENDIX D

SAMPLE LOCATIONS AND IDENTIFIERS

5477

APPENDIX D
SECTION 1

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
	0-0.5	A6WP-4F-01^1-R	A		
	0.5-1.0	A6WP-4F-01^2-R	A		
	1.0-1.5	A6WP-4F-01^3-R	A		
A6WP-4F-01	1.5-2.0	A6WP-4F-01^4-R	A	481825.17	1347362.25
	2.0-2.5	A6WP-4F-01^5-R	A		
	2.5-3.0	A6WP-4F-01^6-R	A		
	3.0-3.5	A6WP-4F-01^7-R	A		
	0-0.5	A6WP-4F-02^1-R	A		
	0.5-1.0	A6WP-4F-02^2-R	A		
	1.0-1.5	A6WP-4F-02^3-R	A		
	1.5-2.0	A6WP-4F-02^4-R	A		
*A6WP-4F-02	2.0-2.5	A6WP-4F-02^5-R	A	481811.13	1347456.68
	2.5-3.0	A6WP-4F-02^6-R	A		
	3.0-3.5	A6WP-4F-02^7-R	A		
	GMA	A6WP-4F-02^a-R	A		
	GMA	A6WP-4F-02^a-R	A		
	0-0.5	A6WP-4F-03^1-R	A		
	0.5-1.0	A6WP-4F-03^2-R	A		
	1.0-1.5	A6WP-4F-03^3-R	A		
	1.5-2.0	A6WP-4F-03^4-R	A		
*A6WP-4F-03	2.0-2.5	A6WP-4F-03^5-R	A	481766.22	1347403.39
	2.5-3.0	A6WP-4F-03^6-R	A		
	3.0-3.5	A6WP-4F-03^7-R	A		
	GMA	A6WP-4F-03^a-R	A		
	GMA	A6WP-4F-03^a-R	A		
	0-0.5	A6WP-4F-04^1-R	A		
	0.5-1.0	A6WP-4F-04^2-R	A		
	1.0-1.5	A6WP-4F-04^3-R	A		
	1.5-2.0	A6WP-4F-04^4-R	A		
*A6WP-4F-04	2.0-2.5	A6WP-4F-04^5-R	A	481710.09	1347319.24
	2.5-3.0	A6WP-4F-04^6-R	A		
	3.0-3.5	A6WP-4F-04^7-R	A		
	GMA	A6WP-4F-04^a-R	A		
	GMA	A6WP-4F-04^a-R	A		

* Boring will be advanced to the unsaturated sands and gravel of the GMA and sampled per Section 2.2
a - two times the bottom depth of the sample interval as described in Section 2.4

000104

APPENDIX D
SECTION 1

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-4F-05	0-0.5	A6WP-4F-05^1-R	A	481702.6	1347464.16
	0.5-1.0	A6WP-4F-05^2-R	A		
	1.0-1.5	A6WP-4F-05^3-R	A		
	1.5-2.0	A6WP-4F-05^4-R	A		
	2.0-2.5	A6WP-4F-05^5-R	A		
	2.5-3.0	A6WP-4F-05^6-R	A		
	3.0-3.5	A6WP-4F-05^7-R	A		
*A6WP-5F-01	0-0.5	A6WP-5F-01^1-R	A	482201.76	1346843.13
	0.5-1.0	A6WP-5F-01^2-R	A		
	1.0-1.5	A6WP-5F-01^3-R	A		
	1.5-2.0	A6WP-5F-01^4-R	A		
	2.0-2.5	A6WP-5F-01^5-R	A		
	2.5-3.0	A6WP-5F-01^6-R	A		
	3.0-3.5	A6WP-5F-01^7-R	A		
	GMA	A6WP-5F-01^a-R	A		
	GMA	A6WP-5F-01^a-R	A		
A6WP-5F-02	0-0.5	A6WP-5F-02^1-R	A	482161.31	1346989.97
	0.5-1.0	A6WP-5F-02^2-R	A		
	1.0-1.5	A6WP-5F-02^3-R	A		
	1.5-2.0	A6WP-5F-02^4-R	A		
	2.0-2.5	A6WP-5F-02^5-R	A		
	2.5-3.0	A6WP-5F-02^6-R	A		
	3.0-3.5	A6WP-5F-02^7-R	A		
*A6WP-5F-03	0-0.5	A6WP-5F-03^1-R	A	482125.02	1347135.51
	0.5-1.0	A6WP-5F-03^2-R	A		
	1.0-1.5	A6WP-5F-03^3-R	A		
	1.5-2.0	A6WP-5F-03^4-R	A		
	2.0-2.5	A6WP-5F-03^5-R	A		
	2.5-3.0	A6WP-5F-03^6-R	A		
	3.0-3.5	A6WP-5F-03^7-R	A		
	GMA	A6WP-5F-03^a-R	A		
	GMA	A6WP-5F-03^a-R	A		
A6WP-5F-04	0-0.5	A6WP-5F-04^1-R	A	482077.31	1347275.76
	0.5-1.0	A6WP-5F-04^2-R	A		
	1.0-1.5	A6WP-5F-04^3-R	A		
	1.5-2.0	A6WP-5F-04^4-R	A		
	2.0-2.5	A6WP-5F-04^5-R	A		
	2.5-3.0	A6WP-5F-04^6-R	A		
	3.0-3.5	A6WP-5F-04^7-R	A		

* Boring will be advanced to the unsaturated sands and gravel of the GMA and sampled per Section 2.2

a - two times the bottom depth of the sample interval as described in Section 2.4

APPENDIX D
SECTION 1

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
*A6WP-6F-01	0-0.5	A6WP-6F-01^1-R	A	481938.37	1347664.96
	0.5-1.0	A6WP-6F-01^2-R	A		
	1.0-1.5	A6WP-6F-01^3-R	A		
	1.5-2.0	A6WP-6F-01^4-R	A		
	2.0-2.5	A6WP-6F-01^5-R	A		
	2.5-3.0	A6WP-6F-01^6-R	A		
	3.0-3.5	A6WP-6F-01^7-R	A		
	GMA	A6WP-6F-01^a-R	A		
	GMA	A6WP-6F-01^a-R	A		
*A6WP-6F-02	0-0.5	A6WP-6F-02^1-R	A	481918.73	1347722
	0.5-1.0	A6WP-6F-02^2-R	A		
	1.0-1.5	A6WP-6F-02^3-R	A		
	1.5-2.0	A6WP-6F-02^4-R	A		
	2.0-2.5	A6WP-6F-02^5-R	A		
	2.5-3.0	A6WP-6F-02^6-R	A		
	3.0-3.5	A6WP-6F-02^7-R	A		
	GMA	A6WP-6F-02^a-R	A		
	GMA	A6WP-6F-02^a-R	A		
A6WP-BP-01	0-0.5	A6WP-BP-01^1-R	A	481935.58	1347244.19
	0.5-1.0	A6WP-BP-01^2-R	A		
	1.0-1.5	A6WP-BP-01^3-R	A		
	1.5-2.0	A6WP-BP-01^4-R	A		
	2.0-2.5	A6WP-BP-01^5-R	A		
	2.5-3.0	A6WP-BP-01^6-R	A		
	3.0-3.5	A6WP-BP-01^7-R	A		
A6WP-BP-02	0-0.5	A6WP-BP-02^1-R	A	481893.46	1347191.14
	0.5-1.0	A6WP-BP-02^2-R	A		
	1.0-1.5	A6WP-BP-02^3-R	A		
	1.5-2.0	A6WP-BP-02^4-R	A		
	2.0-2.5	A6WP-BP-02^5-R	A		
	2.5-3.0	A6WP-BP-02^6-R	A		
	3.0-3.5	A6WP-BP-02^7-R	A		

* Boring will be advanced to the unsaturated sands and gravel of the GMA and sampled per Section 2.2
a - two times the bottom depth of the sample interval as described in Section 2.4

000106

APPENDIX D
SECTION 1

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-BP-03	0-0.5	A6WP-BP-03^1-R	A	481834.52	1347215.45
	0.5-1.0	A6WP-BP-03^2-R	A		
	1.0-1.5	A6WP-BP-03^3-R	A		
	1.5-2.0	A6WP-BP-03^4-R	A		
	2.0-2.5	A6WP-BP-03^5-R	A		
	2.5-3.0	A6WP-BP-03^6-R	A		
	3.0-3.5	A6WP-BP-03^7-R	A		
*A6WP-BP-04	0-0.5	A6WP-BP-04^1-R	A	481776.78	1347190.2
	0.5-1.0	A6WP-BP-04^2-R	A		
	1.0-1.5	A6WP-BP-04^3-R	A		
	1.5-2.0	A6WP-BP-04^4-R	A		
	2.0-2.5	A6WP-BP-04^5-R	A		
	2.5-3.0	A6WP-BP-04^6-R	A		
	3.0-3.5	A6WP-BP-04^7-R	A		
	GMA	A6WP-BP-04^a-R	A		
	GMA	A6WP-BP-04^a-R	A		
A6WP-BP-05	0-0.5	A6WP-BP-05^1-R	A	481757.8	1347124.75
	0.5-1.0	A6WP-BP-05^2-R	A		
	1.0-1.5	A6WP-BP-05^3-R	A		
	1.5-2.0	A6WP-BP-05^4-R	A		
	2.0-2.5	A6WP-BP-05^5-R	A		
	2.5-3.0	A6WP-BP-05^6-R	A		
	3.0-3.5	A6WP-BP-05^7-R	A		
A6WP-BP-06	0-0.5	A6WP-BP-06^1-R	A	481722.64	1347167.12
	0.5-1.0	A6WP-BP-06^2-R	A		
	1.0-1.5	A6WP-BP-06^3-R	A		
	1.5-2.0	A6WP-BP-06^4-R	A		
	2.0-2.5	A6WP-BP-06^5-R	A		
	2.5-3.0	A6WP-BP-06^6-R	A		
	3.0-3.5	A6WP-BP-06^7-R	A		
A6WP-BP-07	0-0.5	A6WP-BP-07^1-R	A	481628.24	1347141.74
	0.5-1.0	A6WP-BP-07^2-R	A		
	1.0-1.5	A6WP-BP-07^3-R	A		
	4.0-4.5	A6WP-BP-07^9-R	A		
	5.5-6.0	A6WP-BP-07^12-R	A		

* Boring will be advanced to the unsaturated sands and gravel of the GMA and sampled per Section 2.2
a - two times the bottom depth of the sample interval as described in Section 2.4

000107

APPENDIX D
SECTION 2

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-4S-01	0-0.5	A6WP-4S-01^1-R	A	481681.04	1347270.74
	3.5-4.0	A6WP-4S-01^8-R	A		
A6WP-4S-02	0-0.5	A6WP-4S-02^1-R	A	481643.65	1347414.82
	3.5-4.0	A6WP-4S-02^8-R	A		
A6WP-4S-03	0-0.5	A6WP-4S-03^1-R	A	481672.3	1347523.64
	3.5-4.0	A6WP-4S-03^8-R	A		
A6WP-4S-04	0-0.5	A6WP-4S-04^1-R	A	481778.38	1347527.96
	3.5-4.0	A6WP-4S-04^8-R	A		
A6WP-4S-05	0-0.5	A6WP-4S-05^1-R	A	481864.22	1347448.45
	3.5-4.0	A6WP-4S-05^8-R	A		
A6WP-4S-06	0-0.5	A6WP-4S-06^1-R	A	481881.29	1347352.18
	3.5-4.0	A6WP-4S-06^8-R	A		
A6WP-4S-07	0-0.5	A6WP-4S-07^1-R	A	481796.44	1347315.4
	3.5-4.0	A6WP-4S-07^8-R	A		
A6WP-5S-01	0-0.5	A6WP-5S-01^1-R	A	482172.92	1346802.47
	3.5-4.0	A6WP-5S-01^8-R	A		
A6WP-5S-02	0-0.5	A6WP-5S-02^1-R	A	482102.14	1346920.03
	3.5-4.0	A6WP-5S-02^8-R	A		
A6WP-5S-03	0-0.5	A6WP-5S-03^1-R	A	482097.29	1347079.28
	3.5-4.0	A6WP-5S-03^8-R	A		
A6WP-5S-04	0-0.5	A6WP-5S-04^1-R	A	482023.97	1347214.27
	3.5-4.0	A6WP-5S-04^8-R	A		
A6WP-5S-05	0-0.5	A6WP-5S-05^1-R	A	482066.08	1347365.54
	3.5-4.0	A6WP-5S-05^8-R	A		
A6WP-5S-06	0-0.5	A6WP-5S-06^1-R	A	482075.55	1347447.47
	3.5-4.0	A6WP-5S-06^8-R	A		
A6WP-5S-07	0-0.5	A6WP-5S-07^1-R	A	482140.92	1347382.57
	3.5-4.0	A6WP-5S-07^8-R	A		
A6WP-5S-08	0-0.5	A6WP-5S-08^1-R	A	482142.78	1347228.12
	3.5-4.0	A6WP-5S-08^8-R	A		
A6WP-5S-09	0-0.5	A6WP-5S-09^1-R	A	482208.28	1347084.3
	3.5-4.0	A6WP-5S-09^8-R	A		
A6WP-5S-10	0-0.5	A6WP-5S-10^1-R	A	482252.25	1346934.69
	3.5-4.0	A6WP-5S-10^8-R	A		
A6WP-5S-11	0-0.5	A6WP-5S-11^1-R	A	482250.07	1346814.73
	3.5-4.0	A6WP-5S-11^8-R	A		
A6WP-5S-12	0-0.5	A6WP-5S-12^1-R	A	482226.06	1346762.65
	3.5-4.0	A6WP-5S-12^8-R	A		
A6WP-6S-01	0-0.5	A6WP-6S-01^1-R	A	481841.06	1347658.63
	3.5-4.0	A6WP-6S-01^8-R	A		

54 7 7

APPENDIX D
SECTION 2

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-6S-02	0-0.5	A6WP-6S-02^1-R	A	481895.77	1347708.21
	3.5-4.0	A6WP-6S-02^8-R	A		
A6WP-6S-03	0-0.5	A6WP-6S-03^1-R	A	481895.33	1347781.12
	3.5-4.0	A6WP-6S-03^8-R	A		
A6WP-6S-04	0-0.5	A6WP-6S-04^1-R	A	481956.15	1347749.33
	3.5-4.0	A6WP-6S-04^8-R	A		
A6WP-6S-05	0-0.5	A6WP-6S-05^1-R	A	481975.17	1347710.07
	3.5-4.0	A6WP-6S-05^8-R	A		
A6WP-6S-06	0-0.5	A6WP-6S-06^1-R	A	481962.61	1347678.12
	3.5-4.0	A6WP-6S-06^8-R	A		
A6WP-6S-07	0-0.5	A6WP-6S-07^1-R	A	481961.76	1347604.4
	3.5-4.0	A6WP-6S-07^8-R	A		
A6WP-6S-08	0-0.5	A6WP-6S-08^1-R	A	481915.02	1347660.21
	3.5-4.0	A6WP-6S-08^8-R	A		

APPENDIX D
SECTION 3

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-B-01	0-0.5	A6WP-B-01^1-R	A	482145.515	1346691.835
	0.5-1.0	A6WP-B-01^2-R	A		
	1.0-1.5	A6WP-B-01^3-R	A		
	4.0-4.5	A6WP-B-01^9-R	A		
A6WP-B-02	0-0.5	A6WP-B-02^1-R	A	482123.57	1346669.31
	0.5-1.0	A6WP-B-02^2-R	A		
	1.0-1.5	A6WP-B-02^3-R	A		
	4.0-4.5	A6WP-B-02^9-R	A		
A6WP-B-03	0-0.5	A6WP-B-03^1-R	A	482081.99	1346735.32
	0.5-1.0	A6WP-B-03^2-R	A		
	1.0-1.5	A6WP-B-03^3-R	A		
	4.0-4.5	A6WP-B-03^9-R	A		
A6WP-B-04	0-0.5	A6WP-B-04^1-R	A	482051.196	1346840.485
	0.5-1.0	A6WP-B-04^2-R	A		
	1.0-1.5	A6WP-B-04^3-R	A		
	1.5-2.0	A6WP-B-04^4-R	A		
	4.0-4.5	A6WP-B-04^9-R	A		
A6WP-B-05	0-0.5	A6WP-B-05^1-R	A	482013.18	1347004.42
	0.5-1.0	A6WP-B-05^2-R	A		
	1.0-1.5	A6WP-B-05^3-R	A		
	4.0-4.5	A6WP-B-05^9-R	A		
A6WP-B-06	0-0.5	A6WP-B-06^1-R	A	481970.65	1347134.57
	0.5-1.0	A6WP-B-06^2-R	A		
	1.0-1.5	A6WP-B-06^3-R	A		
	4.0-4.5	A6WP-B-06^9-R	A		
A6WP-B-07	0-0.5	A6WP-B-07^1-R	A	481952.87	1347322.51
	0.5-1.0	A6WP-B-07^2-R	A		
	1.0-1.5	A6WP-B-07^3-R	A		
	4.0-4.5	A6WP-B-07^9-R	A		
A6WP-B-08	0-0.5	A6WP-B-08^1-R	A	481982.81	1347518.87
	0.5-1.0	A6WP-B-08^2-R	A		
	1.0-1.5	A6WP-B-08^3-R	A		
	4.0-4.5	A6WP-B-08^9-R	A		
A6WP-B-09	0-0.5	A6WP-B-09^1-R	A	482094.15	1347545.98
	0.5-1.0	A6WP-B-09^2-R	A		
	1.0-1.5	A6WP-B-09^3-R	A		
	4.0-4.5	A6WP-B-09^9-R	A		

APPENDIX D
SECTION 3

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-B-10	0-0.5	A6WP-B-10^1-R	A	482164.32	1347502.97
	0.5-1.0	A6WP-B-10^2-R	A		
	1.0-1.5	A6WP-B-10^3-R	A		
	4.0-4.5	A6WP-B-10^9-R	A		
A6WP-B-11	0-0.5	A6WP-B-11^1-R	A	482212.97	1347327.19
	0.5-1.0	A6WP-B-11^2-R	A		
	1.0-1.5	A6WP-B-11^3-R	A		
	4.0-4.5	A6WP-B-11^9-R	A		
A6WP-B-12	0-0.5	A6WP-B-12^1-R	A	482264.43	1347129.9
	0.5-1.0	A6WP-B-12^2-R	A		
	1.0-1.5	A6WP-B-12^3-R	A		
	4.0-4.5	A6WP-B-12^9-R	A		
A6WP-B-13	0-0.5	A6WP-B-13^1-R	A	482312.14	1346941.96
	0.5-1.0	A6WP-B-13^2-R	A		
	1.0-1.5	A6WP-B-13^3-R	A		
	4.0-4.5	A6WP-B-13^9-R	A		
A6WP-B-14	0-0.5	A6WP-B-14^1-R	A	482343.95	1346738.12
	0.5-1.0	A6WP-B-14^2-R	A		
	1.0-1.5	A6WP-B-14^3-R	A		
	4.0-4.5	A6WP-B-14^9-R	A		
A6WP-B-15	0-0.5	A6WP-B-15^1-R	A	481771.84	1347237.89
	0.5-1.0	A6WP-B-15^2-R	A		
	1.0-1.5	A6WP-B-15^3-R	A		
	4.0-4.5	A6WP-B-15^9-R	A		
A6WP-B-16	0-0.5	A6WP-B-16^1-R	A	481645.58	1347172.26
	0.5-1.0	A6WP-B-16^2-R	A		
	1.0-1.5	A6WP-B-16^3-R	A		
	4.0-4.5	A6WP-B-16^9-R	A		
	5.5-6.0	A6WP-B-16^12-R	A		
A6WP-B-18	0-0.5	A6WP-B-18^1-R	A	481595.88	1347428.31
	0.5-1.0	A6WP-B-18^2-R	A		
	1.0-1.5	A6WP-B-18^3-R	A		
	4.0-4.5	A6WP-B-18^9-R	A		
A6WP-B-19	0-0.5	A6WP-B-19^1-R	A	481573.37	1347428.66
	0.5-1.0	A6WP-B-19^2-R	A		
	1.0-1.5	A6WP-B-19^3-R	A		
	4.0-4.5	A6WP-B-19^9-R	A		

APPENDIX D
SECTION 3

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-B-20	0-0.5	A6WP-B-20^1-R	A	481612.63	1347591.23
	0.5-1.0	A6WP-B-20^2-R	A		
	1.0-1.5	A6WP-B-20^3-R	A		
	4.0-4.5	A6WP-B-20^9-R	A		
A6WP-B-21	0-0.5	A6WP-B-21^1-R	A	481854.17	1347559.3
	0.5-1.0	A6WP-B-21^2-R	A		
	1.0-1.5	A6WP-B-21^3-R	A		
	4.0-4.5	A6WP-B-21^9-R	A		
A6WP-B-22	0-0.5	A6WP-B-22^1-R	A	481949.753	1347478.255
	0.5-1.0	A6WP-B-22^2-R	A		
	1.0-1.5	A6WP-B-22^3-R	A		
	4.0-4.5	A6WP-B-22^9-R	A		
A6WP-B-23	1.5-2.0	A6WP-B-23^4-R	A	482105.85	1347629.43
	2.0-2.5	A6WP-B-23^5-R	A		
	5.0-5.5	A6WP-B-23^11-R	A		
A6WP-B-24	1.5-2.0	A6WP-B-24^4-R	A	482031	1347640.65
	2.0-2.5	A6WP-B-24^5-R	A		
	5.0-5.5	A6WP-B-24^11-R	A		
A6WP-B-25	1.5-2.0	A6WP-B-25^4-R	A	482082.46	1347708.91
	2.0-2.5	A6WP-B-25^5-R	A		
	5.0-5.5	A6WP-B-25^11-R	A		
A6WP-B-26	1.5-2.0	A6WP-B-26^4-R	A	482073.1	1347835.13
	2.0-2.5	A6WP-B-26^5-R	A		
	5.0-5.5	A6WP-B-26^11-R	A		
A6WP-B-27	1.5-2.0	A6WP-B-27^4-R	A	482006.67	1347811.76
	2.0-2.5	A6WP-B-27^5-R	A		
	5.0-5.5	A6WP-B-27^11-R	A		
A6WP-B-28	1.5-2.0	A6WP-B-28^4-R	A	481985.06	1347781.09
	2.0-2.5	A6WP-B-28^5-R	A		
	5.0-5.5	A6WP-B-28^11-R	A		
A6WP-B-29	1.5-2.0	A6WP-B-29^4-R	A	481961.6	1347845.05
	2.0-2.5	A6WP-B-29^5-R	A		
	5.0-5.5	A6WP-B-29^11-R	A		

APPENDIX D
SECTION 3

Location	Sample Interval (feet)	Sample ID	TAL	Northing	Easting
A6WP-B-30	1.5-2.0	A6WP-B-30^4-R	A	482001.06	1347942.66
	2.0-2.5	A6WP-B-30^5-R	A		
	5.0-5.5	A6WP-B-30^11-R	A		
A6WP-B-31	1.5-2.0	A6WP-B-31^4-R	A	481961.76	1347954.82
	2.0-2.5	A6WP-B-31^5-R	A		
	5.0-5.5	A6WP-B-31^11-R	A		
A6WP-B-32	1.5-2.0	A6WP-B-32^4-R	A	481874.75	1347856.64
	2.0-2.5	A6WP-B-32^5-R	A		
	5.0-5.5	A6WP-B-32^11-R	A		
A6WP-B-33	1.5-2.0	A6WP-B-33^4-R	A	481873.94	1347825.34
	2.0-2.5	A6WP-B-33^5-R	A		
	5.0-5.5	A6WP-B-33^11-R	A		
A6WP-B-34	1.5-2.0	A6WP-B-34^4-R	A	481792.42	1347787.45
	2.0-2.5	A6WP-B-34^5-R	A		
	5.0-5.5	A6WP-B-34^11-R	A		
A6WP-B-35	1.5-2.0	A6WP-B-35^4-R	A	481749.25	1347718.55
	2.0-2.5	A6WP-B-35^5-R	A		
	5.0-5.5	A6WP-B-35^11-R	A		
A6WP-B-36	1.5-2.0	A6WP-B-36^4-R	A	481788.94	1347676.79
	2.0-2.5	A6WP-B-36^5-R	A		
	5.0-5.5	A6WP-B-36^11-R	A		
A6WP-B-37	1.5-2.0	A6WP-B-36^4-R	A	481791.235	1347757.546
	2.0-2.5	A6WP-B-37^5-R	A		
	3.0-3.5	A6WP-B-37^7-R	A		
	5.0-5.5	A6WP-B-37^11-R	A		
A6WP5-DL-01	0-0.5	A6WP-5DL-01^1-R	A	482377.25	1346761.75
A6WP5-DL-02	0-0.5	A6WP-5DL-02^1-R	A	482350.54	1346913.96
A6WP5-DL-03	0-0.5	A6WP-5DL-03^1-R	A	482302.18	1347090.7
A6WP5-DL-04	0-0.5	A6WP-5DL-04^1-R	A	482271.86	1347192.78
A6WP5-DL-05	0-0.5	A6WP-5DL-05^1-R	A	482235.77	1347333.45
A6WP5-DL-06	0-0.5	A6WP-5DL-06^1-R	A	482185.97	1347502.97