PROJECT SPECIFIC PLAN FOR THE PREDESIGN AND EXCAVATION CONTROL OF AREA 2, PHASE II – SUBAREA 3 (SUPPLEMENT TO 20300-PSP-0011)

DEMOLITION, SOIL AND DISPOSAL PROJECT

FERNALD CLOSURE PROJECT
FERNALD, OHIO

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FINAL

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FINAL

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FERNALD CLOSURE PROJECT

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LIST OF ACRONYMS AND ABBREVIATIONS

A2PII	Area 2, Phase II
ALS	Analytical Laboratory Services
ASCOC	area-specific constituent of concern
ASL	analytical support level
CDL	Certification Design Letter
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	constituent of concern
CU	certification unit
DOE	U.S. Department of Energy
DQO	Data Quality Objective
DSDP	Demolition, Soil and Disposal Project
EMS	Excavation Monitoring System
FACTS	Fernald Analytical Computerized Tracking System
FCP	Fernald Closure Project
FPA	former Production Area
FRL	final remediation level
FTF	Fire Training Facility
GC	gas chromatograph
GPS	global positioning system
GMA	Great Miami Aquifer
HPGe	high-purity germanium (detector)
LAN	Local Area Network
NaI	sodium iodide
OSDF	On-Site Disposal Facility
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
PSP	Project Specific Plan
PWID	Project Waste Identification and Disposition Report
QA/QC	Quality Assurance/Quality Control
RSS	Radiation Scanning System
RIMIA	Receiving, Incoming Materials Inspection Area
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

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

SMMP	Soil and Miscellaneous Media Sampling
SWL	Solid Waste Landfill
TAL	Target Analyte List
TCLP	Toxicity Characteristic Leaching Procedure
V/FCN	Variance/Field Change Notice
VOC	volatile organic compound
WAC	Waste Acceptance Criteria
WAO	Waste Acceptance Organization
WPRAP	Waste Pits Remedial Action Project

1.0 INTRODUCTION

This project specific plan (PSP) describes the data collection activities necessary to support predesign and excavation control activities of Area 2, Phase II (A2PII) – Subarea 3, the Infrastructure Area. The format of this PSP differs from that of previously submitted PSPs, as this PSP only presents the specific information regarding A2PII – Subarea 3. The general information that is routinely addressed in a PSP can be found in 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*. While this PSP (20450-PSP-0005) has section headings similar to a full-length PSP, where the information in the section is identical to the information in the general PSP (20300-PSP-0011), a reference to this general PSP is made and the information is not repeated.

1.1 PURPOSE

The purpose of this PSP is to provide specific direction regarding the predesign sampling and expected guidelines for excavation control of A2PII–Subarea 3. The detailed information for predesign includes reasons for sample collection, sample locations, number of borings, depth intervals, constituents of concern, etc. The details for excavation control cannot be established until predesign has begun. However, this document provides the expected guidelines for excavation control of A2PII – Subarea 3, based on process knowledge and information gathered from the predesign and excavation control activities of Subareas 1, 2, and 4 of A2PII.

1.2 SCOPE

The area included within the scope of this PSP is Area 2, Phase II –Subarea 3, the Infrastructure Area. See Figure 1-1 for areas included in the predesign sampling of this PSP. The schedule for implementation of this PSP is expected to begin early in 2004 and continue through the completion of the project.

1.3 VARIANCE / FIELD CHANGE NOTICE (V/FCN) DOCUMENTATION

The Variance/Field Change Notice (V/FCN) process is utilized to document the occurrence of two situations. The first is to document a change in protocol occurring when a modification in the characterization approach is required (e.g., a different decision process for defining the extent of contamination or for verifying that soil is below-waste acceptance criteria (WAC) or below-final remediation level (FRL) concentrations). Factors that will be considered under special circumstances include safety of the workers, cost effectiveness, the need for a timely response, and impending weather conditions. This type of V/FCN requires agency approval prior to implementation.

The second situation requiring a V/FCN is to provide direction and documentation of sampling and analytical activities and to provide variable information that is dependent upon field conditions and cannot be specified initially in this PSP. As part of the excavation control process, the collection of physical samples will be documented with V/FCNs as well as with applicable field logs and. In this situation the use of this V/FCN form is not used to document a change in the protocol of this PSP, but is used to document sampling and analytical activities in order to demonstrate that these activities are compliant with the protocols of this PSP. Additionally, the Data Group Form, FS-F-5157 will be generated per Procedure EW-1021, Preparation of the Project Waste Identification and Disposition (PWID) Report, following the generation of data from the analysis of physical samples.

If a V/FCN is required, the Characterization Manager or designee will document the change and requirements through the V/FCN process in accordance with Section 7.5 of the *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, 20300-PSP-0011.

1.4 KEY PERSONNEL

Refer to Section 1.4 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

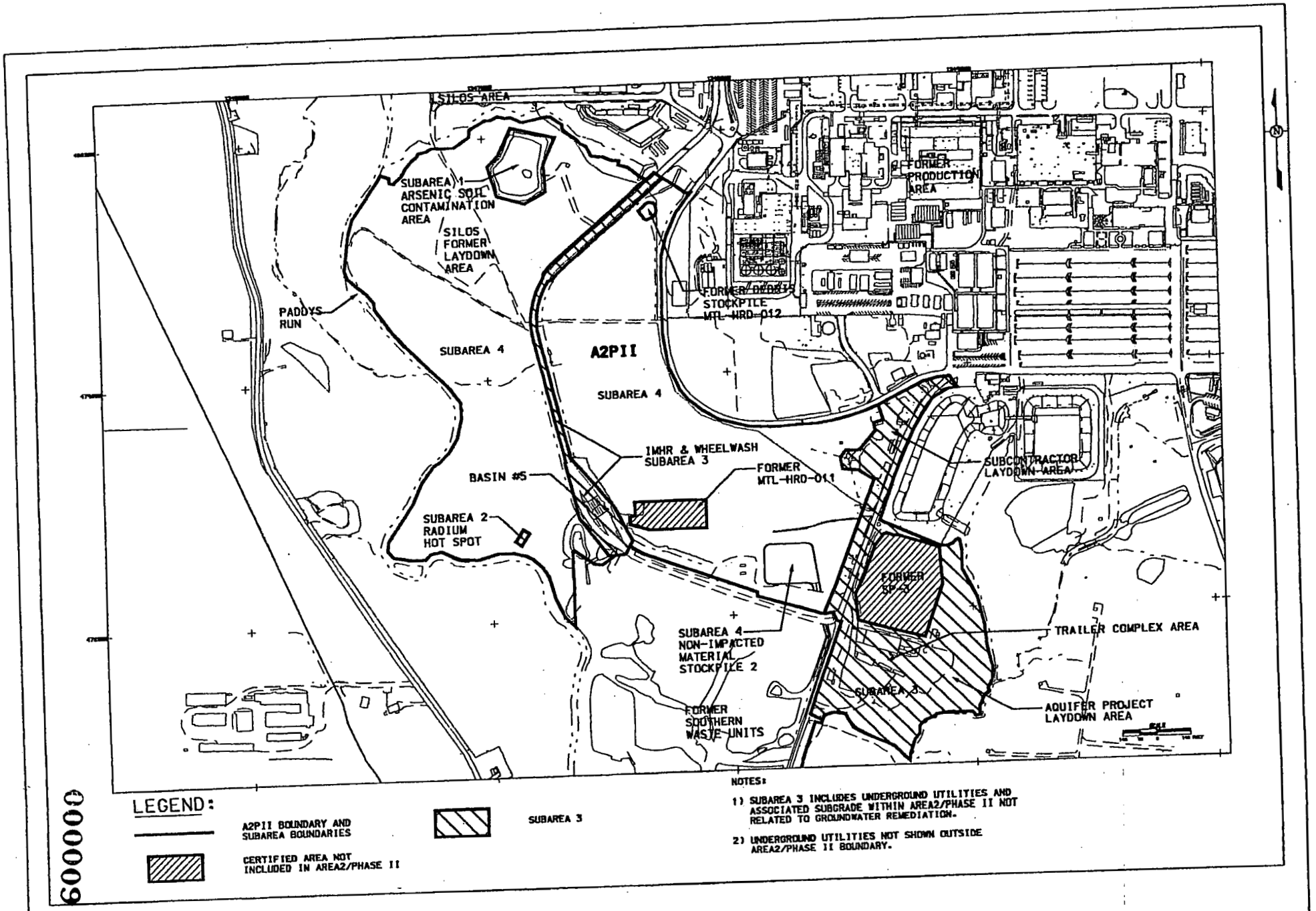

FIGURE 1-1. A2PII - SUBAREA 3, PREDESIGN LOCATION MAP

2.0 AREA-SPECIFIC WORK REMAINING STATUS

2.1 AREA 2, PHASE II – SUBAREA 3

2.1.1 History

Area 2, Phase II is located in the southwest portion of the Fernald Closure Project (FCP) due south of the Silo's Area. A2PII is immediately south of the Silos area, south, southwest, and west of the Advanced Waste Water Treatment Facility, east of Paddys Run, and north of Area 2, Phase I. As outlined in the A2PII Implementation Plan, A2PII has four Subareas. Subareas 1, 2, and 4 have already undergone predesign, excavation control, and precertification, and are currently being certified.

As stated in the A2PII Implementation Plan, the Subarea 3 Infrastructure Area includes at- and below-grade structures, roadways, and underground utilities not related to groundwater remediation. As seen in Figure 1-1, it includes:

- Trailer Complex Area (approximately 2.7 acres)
- Equipment Wash Facility (approximately 1.1 acres) and Impacted Material Haul Road
- Subcontractor Area (approximately 1.4 acres)
- Aquifer Project Laydown Area (approximately 3.2 acres)

2.1.2 Predesign

Predesign will be performed under the guidelines of Section 4.0 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

2.1.2.1 Scope

This PSP covers all data collection activities associated with predesign in A2PII – Subarea 3. This PSP supplements previous investigations for Area 2 and does not cover any certification sampling. Twenty-eight (28) boring locations have initially been selected within this investigation area for radiological field frisking and submittal for analysis. If anomalous material, including evidence of fill, is found in the boring, then a geologist will be notified to further define the material's characteristics. Full lithological characterization by a geologist will not be performed. Refer to Section 4.3 for a detailed description of physical sample identification. As much of the investigation area as possible will be scanned with real-time *in situ* Radiation Scanning System (RSS) and high-purity germanium (HPGe) detectors.

All data collection activities will be consistent with the Sitewide CERCLA Quality Assurance Plan (SCQ) and Section 3.1 of the Sitewide Excavation Plan (SEP). Physical samples will be collected in accordance with Data Quality Objective (DQO) SL-048. Real-time data collection activities will be in accordance with DQO SL-054 and SL-055. These DQOs are provided in the appendices of the general PSP (20300-PSP-0011). The data will be utilized to assess whether COC concentrations in these areas are lower than the FRLs outlined in the OU5 Record of Decision. The data collected under this plan will also be utilized to determine whether soil and soil-like material from the area meet the OSDF WAC, as defined in the SEP, the OSDF WAC Attainment Plan, and the Impacted Materials Placement Plan.

2.1.2.2 Determination of FRL ASCOCs and WAC ASCOCs

The FRL COCs for A2PII – Subarea 3 are listed in Section 2.1.2.2.2 of this document. Although uranium is a WAC COC, its presence is not anticipated to even approach the OSDF WAC limit. Other than uranium, there are no other WAC COCs investigation in planned for this area. Table 2-7 of the SEP and data from the rest of A2PII were used to determine the FRL COCs to investigate.

2.1.2.2.1 WAC ASCOCs

The A2PII data from the OU5 Remedial Investigation/Feasibility Study (RI/FS) were compared to the OSDF WAC to identify areas that exceed the OSDF WAC. This comparison confirmed that there are no known areas within the Subarea 3 boundary that exceed the OSDF WAC, however, through predesign sampling and excavation control the possibility of finding above-WAC material still exists.

2.1.2.2.2 FRL ASCOCs

The FRL ASCOCs for the A2PII – Subarea 3 are as follows:

Primary Radiological ASCOCs:

- Radium-226
- Total Uranium

Secondary ASCOCs:

- Aroclor-1254
- Aroclor-1260
- Arsenic
- Benzo(a)pyrene
- Beryllium
- Bromodichloromethane

- Cesium-137
- Dibenzo(a,h)anthracene
- 1,1-Dichloroethene
- Dieldrin
- Lead
- Neptunium-237
- Technetium-99
- Thorium-230

2.1.2.3 Sampling Strategy

2.1.2.3.1 WAC Sampling Strategy

This section is not applicable. There are no known WAC areas defined in Area 2 Phase II.

2.1.2.3.2 FRL Sampling Strategy

The physical sampling strategy is based upon RI/FS and real-time scan data. For predesign, see Appendix A for the target analyte lists and Appendix B for the boring table and sample identifiers. Table 2-1 addresses the physical sample volumes, preservation requirements, and analysis information.

Equipment Wash Facility and Impacted Material Haul Road

A total of 12 borings will be located along the Impacted Material Haul Road and Equipment Wash Facility. Figure 2-1 details the boring locations. All borings will be advanced to a depth of 3.5 feet and every other six-inch interval will be sampled (i.e. 0-0.5 ft., 1-1.5 ft., 2-2.5 ft. and 3-3.5 ft.).

The Equipment Wash Facility is located over an area that was identified as a potential fill area; four borings will be taken around the Equipment Wash Facility. One will be located directly under the wheel wash facility (A2P2-EWF2), one on the road entering the facility (A2P2-EWF1), and one on the road exiting the facility (A2P2-EWF4). In addition, one boring (A2P2-EWF3) will be located in the small lagoon (Basin 5) west of the wheel wash facility. All samples from these borings located around the wheel wash facility and in the small lagoon will be analyzed for all of the secondary COCs listed in Section 2.1.2.2.2 of this PSP, as well as total uranium and radium-226.

Eight of the 12 borings will be located along the haul road at approximately 200' intervals. Three of these borings (A2P2-IHR3, A2P2-IHR4, and A2P2-IHR5) are located over previously identified potential fill areas. Locations A2P2-IHR4 and A2P2-IHR5 are placed at the base of the ditches along either side of the haul road where runoff and sedimentation are likely. The remaining borings are positioned along the road

(A2P2-IHR1, A2P2-IHR2, A2P2-IHR6, A2P2-IHR7, and A2P2-IHR8). All of the samples from the borings along the road will be analyzed for total uranium, radium-226, technetium-99, arsenic, beryllium, lead, and semi-volatiles listed in Section 2.1.2.2.2.

(Electrical) Subcontractor Area

A total of five borings will be located in the Subcontractor Area. Figure 2-2 details the boring locations. All borings will be advanced to a depth of 3.5 feet and every other six-inch interval will be sampled (i.e. 0-0.5 ft., 1-1.5 ft., 2-2.5 ft., and 3-3.5 ft.). Two of the borings will be located on the road (A2P2-SUB1 and A2P2-SUB2) and three will be located within the area (A2P2-SUB3, A2P2-SUB4, and A2P2-SUB5). A2P2-SUB3 is located east of the meteorological tower and A2P2-SUB4 is located between the two trailers. A2P2-SUB5 is located in the staging area for the electrical subcontractors. All of the samples collected from borings will be analyzed for total uranium, arsenic, beryllium, lead, volatiles (1,1-dichloroethene and bromodichloromethane), semi-volatiles (dibenzo(a,h)anthracene and benzo(a)pyrene), and polychlorinated biphenyls (PCBs, aroclor-1254 and –1260). PCBs were specifically included for analysis in this area because they are often associated with electrical equipment and supplies.

Trailer Complex Area

A total of eight borings will be located in the Trailer Complex Area. Figure 2-3 details the boring locations. All borings will be advanced to a depth of 3.5 feet and every other six-inch interval will be sampled (i.e. 0-0.5 ft., 1-1.5 ft., 2-2.5 ft., and 3-3.5 ft.). Two borings (A2P2-TCA1 and A2P2-TCA2) will be placed on the road west of the former soil pile 3 (SP-3). Boring A2P2-TCA3 will be located between the trailers and the storage area of the new Receiving, Incoming Materials Inspection Area (RIMIA). Two borings (A2P2-TCA4 and A2P2-TCA5) will be placed in the parking lot for the trailers. All five of these borings will be analyzed for total uranium, arsenic, beryllium, lead, and the semi-volatiles listed in the secondary ASCOC list in Section 2.1.2.2.2.

Near the tree line, east of the trailers, there are three borings associated with the piles. Boring A2P2-TCA6 is situated in the footprint of a soil pile that was relocated to soil pile 8 (SP-8) in Area 7. SP-8 was sampled for total uranium and technetium-99 under V/FCN 20500-PSP-0001-33 for the *Project Specific Plan for WAC Attainment Sampling of Area 7 Soils* (20500-PSP-0001), and all of the results were below-FRL. Boring A2P2-TCA6 will be sampled to confirm the footprint of the relocated soil pile in Subarea 3 is also below-FRL. East of A2P2-TCA6 is a pile of soil that will be investigated as boring A2P2-TCA7. Boring A2P2-TCA8 will be located along the tree line in a mound of soil that is located south of A2P2-TCA6 and A2P2-TCA7. Samples collected at these locations will be analyzed for total uranium, radium-226, and all of the secondary ASCOCs listed in Section 2.1.2.2.2.

Aquifer Project Laydown Area

A total of three borings will be located in the Aquifer Project Laydown Area. Figure 2-3 details the boring locations. All borings will be advanced to a depth of 3.5 feet and every other six-inch interval will be sampled (i.e. 0-0.5 ft., 1-1.5 ft., 2-2.5 ft., and 3-3.5 ft.). A radium hot spot was identified during a real-time scan for the excavation of the Active Flyash Pile in Area 2, Phase I, which lies within the A2PII-Subarea 3 border. The hotspot is located along the ditch on the southern border of the Trailer Complex Area, just east of Paddy's Run. Boring A2P2-AQL1 will be located in this area and samples collected will be analyzed for radium-226 to confirm the results from the real-time scan. Two additional borings (A2P2-AQL2 and A2P2-AQL3) will be located within the Aquifer Project Laydown Area for general investigation and analysis of total uranium, arsenic, beryllium, lead, and semi-volatiles (dibenzo(a,h)anthracene and benzo(a)pyrene), listed in Section 2.1.2.2.2.

2.1.3 Excavation Control

2.1.3.1 ASCOCs

The preliminary list of ASCOCs found in the SEP Table 2-7 for Remediation Area 2 and historical information resulted in the following list of primary and secondary COCs:

Primary COCs

- Radium-226
- Total Uranium

Secondary COCs

- Aroclor-1254
- Aroclor-1260
- Arsenic
- Benzo(a)pyrene
- Beryllium
- Bromodichloromethane
- Cesium-137
- Dibenzo(a,h)anthracene
- 1,1-Dichloroethene
- Dieldrin
- Lead
- Neptunium-237

- Technetium-99
- Tetrachloroethene (PCE)
- Thorium-230
- Trichloroethene (TCE)

2.1.3.2 Excavation Types

There are no known OSDF WAC areas defined for A2PII-Subarea 3, so the types of excavation identified in A2PII-Subarea 3 will likely be either for above-FRL areas (driven by total uranium or radium-226) or simply to remove utilities, roads, or other structures. However, predesign sampling has not been finalized and may identify other constituents to drive excavation. For the radium hotspot identified during excavation of the Active Flyash Pile (predesign boring A2P2-AQL1), radium-226 will be the constituent driving excavation in that immediate location. However, predesign sampling has not occurred to confirm or refute its presence. Real-time scanning for total uranium will be performed for above-FRL uranium areas per 20300-PSP-0011, Section 5.1. Table 2-2 lists the excavation control COC limits for the potential COCs that may drive excavation in A2PII-Subarea 3. Table 2-3 addresses the excavation monitoring and sampling requirements.

2.1.3.3 Locations

The locations of various excavation types are dependent on, and will be determined subsequent to the results of the Predesign investigation to be performed per Section 2.1.1 of this document.

2.1.4 Precertification

Precertification will be performed per 20300-PSP-0011, Section 3.0 and Section 6.0.

TABLE 2-1
PHYSICAL SAMPLE ANALYTICAL REQUIREMENTS

TAL* (all ASL B)	Holding Time	Method	Sample Matrix	Preservative	Container	Minimum Sample Mass/Volume
A Rads Metals SVOCs	12 months 6 months 14 days	Gamma Spectroscopy ICP/AES or ICP/MS GC or GC/MS	Solid	Cool, 4°C	Glass with Teflon lined lid	500 grams
A/C/D/E/G Rads Metals SVOCs Pest&PCB	12 months 6 months 14 days 14 days	Gamma Spectroscopy ICP/AES or ICP/MS GC or GC/MS GC or GC/MS	Solid	Cool, 4°C	Glass with Teflon lined lid	400 grams
A/C/G Rads Metals SVOAs	12 months 6 months 14 days	Gamma Spectroscopy ICP/AES or ICP/MS GC or GC/MS	Solid	Cool, 4°C	Glass with Teflon lined lid	340 grams
A/D Rads Metals SVOCs Pest&PCB	12 months 6 months 14 days 14 days	Gamma Spectroscopy ICP/AES or ICP/MS GC or GC/MS GC or GC/MS	Solid	Cool, 4°C	Glass with Teflon lined lid	400 grams
B VOCs	14 days	GC/MS	Solid	Cool, 4°C	Glass with Teflon lined lid	60 grams
B VOCs	14 days	GC/MS	Trip Blank** (liquid)	H_2SO_4 pH < 2 Cool 4°C	3 x 40 ml Glass vial with Teflon lined septa	120 ml fill to zero headspace
B/F VOCs	14 days	GC/MS	Solid	Cool, 4°C	Glass with Teflon lined lid	60 grams
B/F VOCs	14 days	GC/MS	Trip Blank** (liquid	H_2SO_4 pH < 2 Cool 4°C	3 x 40 ml Glass vial with Teflon lined septa	120 ml fill to zero headspace
G Radium-226	12 months	Gamma Spectroscopy	Solid	None	Plastic or stainless steel core liner or glass or polyethylene sample container	300 grams

*One sample per release shipped to an off-site laboratory shall be identified on the Chain of Custody/Request for Analysis forms as "designated for laboratory QC

** Trip blanks are required if VOC samples are being collected. The frequency for a trip blank is one per day, or one per batch of 20 VOC samples collected, or one per cooler to be shipped, whichever is more frequent.

ASL – analytical support level

GC/MS – gas chromatograph/mass spectrography

GPC – gas proportional counting

ICP/AES – inductively coupled plasma/atomic electron spectrometry

ICP/MS – inductively coupled plasma/mass spectrometry

TABLE 2-2

LIMITS FOR AREA 2, PHASE II - SUBAREA 3 EXCAVATION CONTROL COCS

Area 2 COCs	FRL	MDC
Total Uranium	82 mg/kg	8.2 mg/kg
Radium-226	1.7 pCi/g	0.17 pCi/g

TABLE 2-3

EXCAVATION MONITORING/SAMPLING REQUIREMENTS

Type of Contamination Zone	Types of Samples/Measurements and Data Use		
	Sideslope of Each Excavation Lift	Floor of Each Excavation Lift	Floor/Sideslope at Design Depth for Contamination Zone
Above-FRL Uranium	• Real-time for Uranium FRL	• Real-time for Uranium (WAC)	• Real-time for Uranium FRL*
Above-FRL Radium-226	• Real-time for Radium-226 FRL	• Real-time for Uranium (WAC)	• Real-time for Radium-226 FRL*
Above-FRL Non-Rad COC (e.g. Arsenic)	• None	• Real-time for Uranium (WAC)	• Physical Sample per COC driving excavation

- During real-time uranium WAC/FRL scan, the data collected will be evaluated later for precertification purposes

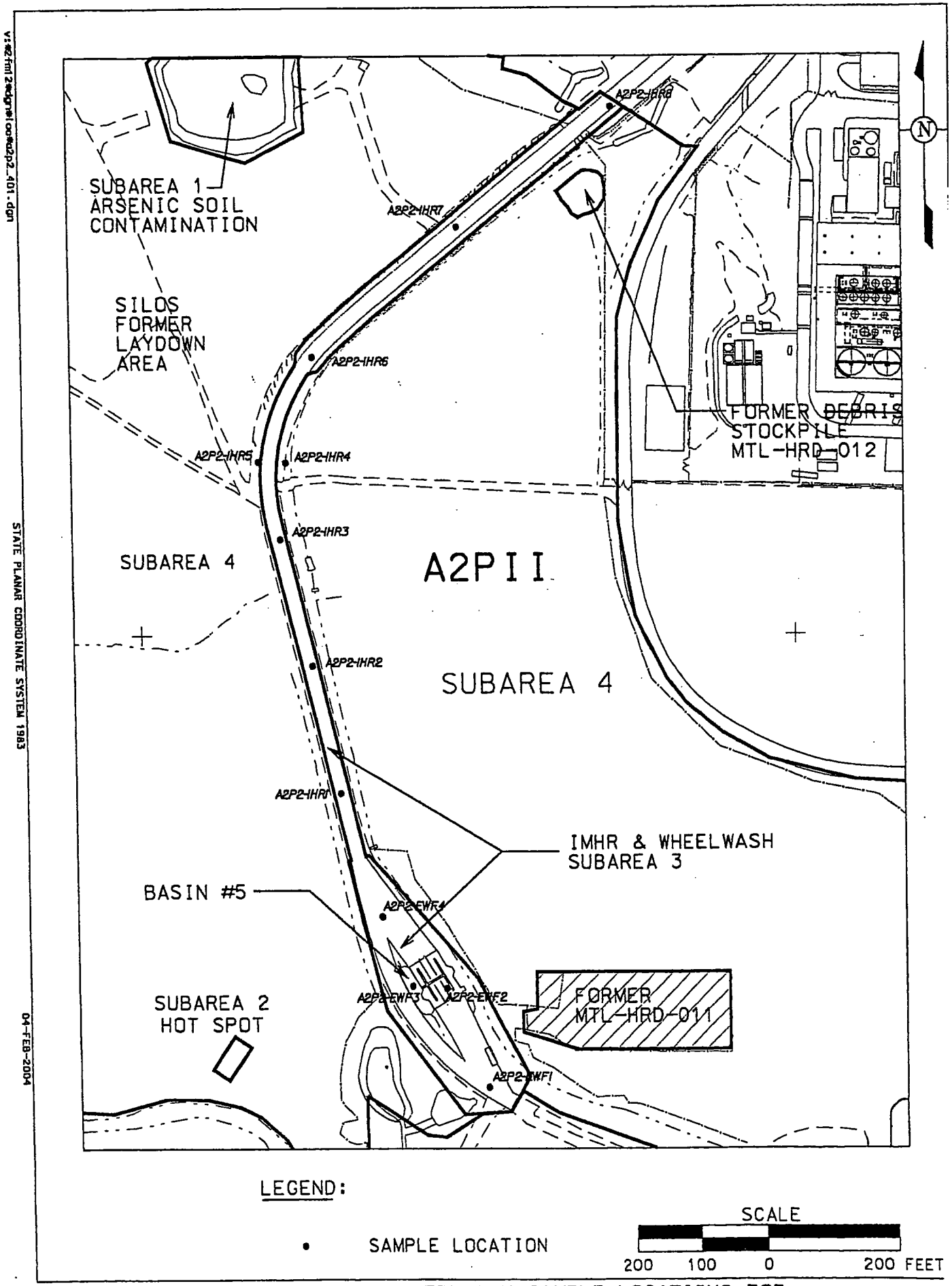

FIGURE 2-1. PREDESIGN SAMPLE LOCATIONS FOR THE IMHR AND EQUIPMENT WASH FACILITY

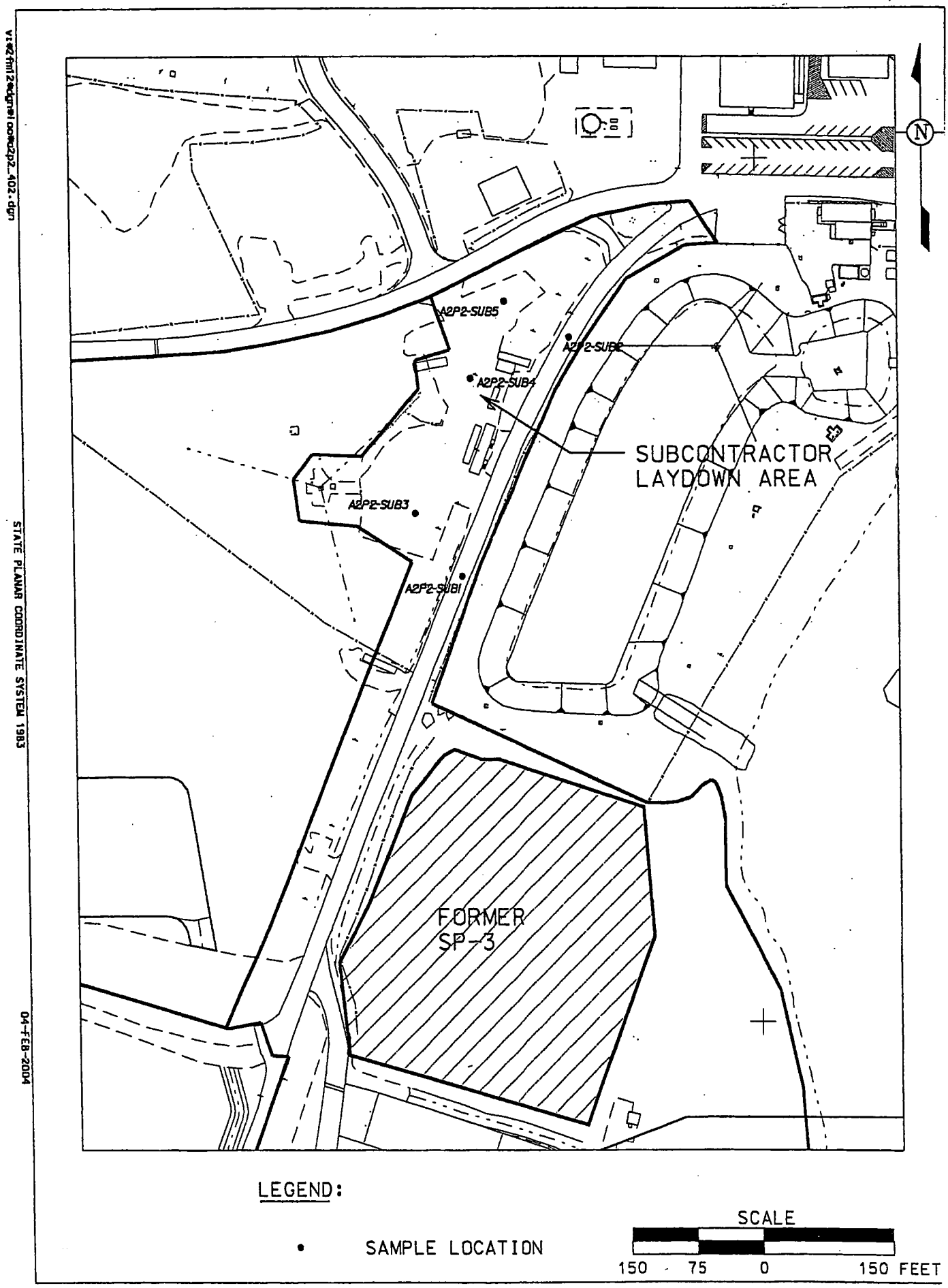

FIGURE 2-2. PREDESIGN SAMPLE LOCATIONS FOR THE SUBCONTRACTOR AREA

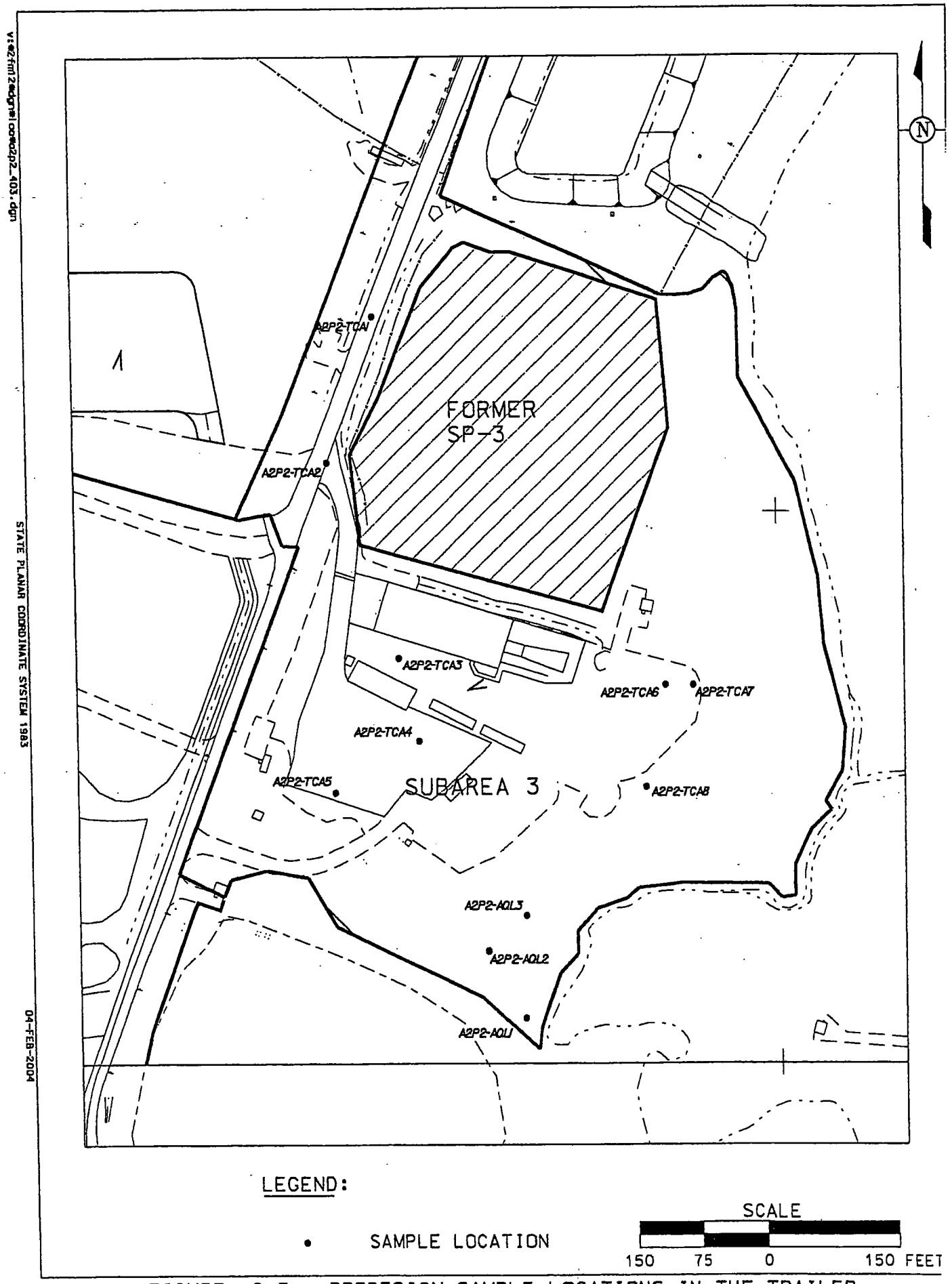

FIGURE 2-3. PREDESIGN SAMPLE LOCATIONS IN THE TRAILER COMPLEX AND AQUIFER PROJECTED LAYDOWN AREAS

3.0 INSTRUMENTATION AND TECHNIQUES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* 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 PREDESIGN

4.1 REAL-TIME ACTIVITIES

Refer to Section 4.1 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

4.2 SAMPLE COLLECTION METHODS

Refer to Section 4.2 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

4.3 PHYSICAL SAMPLE IDENTIFICATION

Refer to Section 4.3 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for general physical sample identification guidelines. A detailed description for identifying physical samples specific to Area 2, Phase II-Subarea 3 is given below. Each soil predesign sample will be assigned a unique sample identification number as *A2P2-SpecificArea-Location^Depth-Analysis-QC*, where:

A2P2:	Sample collected from Predesign A2P2
Specific Area:	EWF – Equipment Wash Facility IHR – Impacted Materials Haul Road SUB – Subcontractor Area TCA – Trailer Complex Area AQL – Aquifer Laydown Area
Location Designator:	The Location Designator is a sequential boring number (e.g., 1, 2, etc.) that follows the area designator and location designator (e.g., A2P2-EWF1, A2P2-EWF2, etc.).
^:	The ^ is placed between the location designator and the depth interval. When used, the information to the left of this symbol identifies the boring number and allows the automatic assignment of the boring identification number to be transferred to the appropriate field/table in the Sitewide Environmental Database (SED). The ^ is not used if the sample does not have coordinates such as trip blanks, a "-" is used instead.

Depth Interval Designator: This number indicates the depth interval of the sample from the soil surface. For example, "1" = 0 to 6-inch interval (where the 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 1.0', "3" = 2 x 1.5', etc.)

Analysis Type:
L = volatiles
M = metals
P = PCBs and pesticides
R = radionuclides
S = Semi-volatile organic (i.e. PAHs) analysis

Quality Control Designator: TB = trip blank

Appendix A contains the Physical Sample Identifications and Coordinates for the Predesign Sampling of A2P2-Subarea 3. Using the above guidelines, the sample A2P2-EWF1^3-MRS can be interpreted as sample #1 in the A2P2 Equipment Wash Facility, taken at a bottom-depth of 1.5 feet, which will be analyzed for metals, radionuclides and semi-volatile organics.

4.4 BOREHOLE ABANDONMENT

Refer to Section 4.4 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

5.0 EXCAVATION CONTROL MEASURES

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

5.1 EXCAVATION DESIGN CONTROL REQUIREMENTS

5.1.1 Contamination Zone

5.1.2 Floors, Roads and Foundations

5.1.3 Real-time Lift Scans

5.1.4 AWAC Lift Scans

5.2 ORGANIC SCREENING AND PHYSICAL SAMPLING REQUIREMENTS

5.2.1 Above-WAC Photoionization Detector (PID)/Gas Chromatograph (GC) Screening

5.2.2 All Other Physical Sample Requirements

5.2.3 PID Screening and Physical Sampling Procedures

5.2.4 Physical Sample Identification

6.0 PRECERTIFICATION

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

6.1 INITIAL PRECERTIFICATION NaI SCAN AT BASE OF DESIGN GRADE

6.2 PRECERTIFICATION HPGE MEASUREMENTS IN 20 PPM FRL (URANIUM) AREAS

6.3 PRECERTIFICATION HPGE MEASUREMENTS IN 82 PPM FRL (URANIUM) AREAS

6.4 DELINEATING HOT SPOTS FOLLOWING PRECERTIFICATION HPGE MEASUREMENTS

7.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

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

7.1 QUALITY CONTROL SAMPLES - REAL-TIME MEASUREMENTS AND PHYSICAL SAMPLES

7.2 DATA VALIDATION

7.2.1 Physical Sample Data Validation

7.2.2 Real-Time Data Verification/Validation

7.3 APPLICABLE DOCUMENTS, METHODS AND STANDARDS

7.4 SURVEILLANCES

7.5 IMPLEMENTATION AND DOCUMENTATION OF VARIANCE/ FIELD CHANGE NOTICES (V/FCN)

8.0 SAFETY AND HEALTH

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

9.0 EQUIPMENT DECONTAMINATION

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

10.0 DISPOSITION OF WASTES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

11.0 DATA AND RECORDS MANAGEMENT

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

11.1 REAL-TIME

11.2 PHYSICAL SAMPLES

APPENDIX A

TARGET ANALYTE LISTS FOR PREDESIGN

TAL A

Analyte	FRL	MDL (soil)
Total Uranium	82 mg/kg	8.2 mg/kg
Arsenic	12.0 mg/kg	1.2 mg/kg
Beryllium	1.5 mg/kg	0.15 mg/kg
Lead	400.0 mg/kg	40.0 mg/kg
Benzo(a)pyrene	2.0 mg/kg	0.20 mg/kg
Dibenzo(a,h)anthracene	2.0 mg/kg	0.20 mg/kg

TAL B

Analyte	FRL	MDL (soil)	MDL (water)
Bromodichloromethane	4.0 mg/kg	0.40 mg/kg	10 g/L
1,1-Dichloroethene	0.41 mg/kg	0.041 mg/kg	10 g/L

TAL C

Analyte	FRL	MDL (soil)
Technetium-99	30.0 pCi/g	3.0 pCi/g

TAL D

Analyte	FRL	MDL (soil)
Aroclor-1254	0.13 mg/kg	0.013 mg/kg
Aroclor-1260	0.13 mg/kg	0.013 mg/kg
Dieldrin	0.015 mg/kg	0.0015 mg/kg

TAL E

Analyte	FRL	MDL (soil)
Cesium-137	1.4 pCi/g	0.14 pCi/g
Neptunium-237	3.2 pCi/g	0.32 pCi/g
Thorium-230	280 pCi/g	28.0 pCi/g

TAL F

Analyte	FRL	MDL (soil)
Radium-226	1.7 pCi/g	0.17 pCi/g

APPENDIX B

BORING TABLE AND SAMPLE IDENTIFIERS FOR PREDESIGN

Boring ID	Sample ID	Northing	Easting	TAL	Depth Interval
A2P2-EWF1	A2P2-EWF1^1-MRS	478302.91	1347524.3	A,C,F	0 - 0.5'
	A2P2-EWF1^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-EWF1^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-EWF1^7-MRS			A,C,F	3.0' - 3.5'
A2P2-EWF2	A2P2-EWF2^1-MPRS	478453.4	1347461	A,C,D,E,F	0 - 0.5'
	A2P2-EWF2^1-L			B	
	A2P2-EWF2^3-MPRS			A,C,D,E,F	1.0' - 1.5'
	A2P2-EWF2^3-L			B	
	A2P2-EWF2^5-MPRS			A,C,D,E,F	2.0' - 2.5'
	A2P2-EWF2^5-L			B	
	A2P2-EWF2^7-MPRS			A,C,D,E,F	3.0' - 3.5'
	A2P2-EWF2^7-L			B	
A2P2-EWF3	A2P2-EWF3^1-MPRS	478456.78	1347408.2	A,C,D,E,F	0 - 0.5'
	A2P2-EWF3^1-L			B	
	A2P2-EWF3^3-MPRS			A,C,D,E,F	1.0' - 1.5'
	A2P2-EWF3^3-L			B	
	A2P2-EWF3^5-MPRS			A,C,D,E,F	2.0' - 2.5'
	A2P2-EWF3^5-L			B	
	A2P2-EWF3^7-MPRS			A,C,D,E,F	3.0' - 3.5'
	A2P2-EWF3^7-L			B	
A2P2-EWF4	A2P2-EWF4^1-MRS	478563.42	1347363.3	A,C,F	0 - 0.5'
	A2P2-EWF4^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-EWF4^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-EWF4^7-MRS			A,C,F	3.0' - 3.5'
A2P2-IHR1	A2P2-IHR1^1-MRS	478753.46	1347301.5	A,C,F	0 - 0.5'
	A2P2-IHR1^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR1^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR1^7-MRS			A,C,F	3.0' - 3.5'
A2P2-IHR2	A2P2-IHR2^1-MRS	478951.94	1347260.3	A,C,F	0 - 0.5'
	A2P2-IHR2^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR2^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR2^7-MRS			A,C,F	3.0' - 3.5'
A2P2-IHR3	A2P2-IHR3^1-MRS	479149.75	1347213.2	A,C,F	0 - 0.5'
	A2P2-IHR3^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR3^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR3^7-MRS			A,C,F	3.0' - 3.5'
A2P2-IHR4	A2P2-IHR4^1-MRS	479268.72	1347223.6	A,C,F	0 - 0.5'
	A2P2-IHR4^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR4^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR4^7-MRS			A,C,F	3.0' - 3.5'

Boring ID	Sample ID	Northing	Easting	TAL	Depth Interval
A2P2-IHR5	A2P2-IHR5^1-MRS	479269.97	1347181.9	A,C,F	0 - 0.5'
	A2P2-IHR5^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR5^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR5^7-MRS			A,C,F	3.0' - 3.5'
A2P2-IHR6	A2P2-IHR6^1-MRS	479432.15	1347266.4	A,C,F	0 - 0.5'
	A2P2-IHR6^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR6^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR6^7-MRS			A,C,F	3.0' - 3.5'
A2P2-IHR7	A2P2-IHR7^1-MRS	479631.61	1347492.4	A,C,F	0 - 0.5'
	A2P2-IHR7^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR7^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR7^7-MRS			A,C,F	3.0' - 3.5'
A2P2-IHR8	A2P2-IHR8^1-MRS	479815.21	1347729.9	A,C,F	0 - 0.5'
	A2P2-IHR8^3-MRS			A,C,F	1.0' - 1.5'
	A2P2-IHR8^5-MRS			A,C,F	2.0' - 2.5'
	A2P2-IHR8^7-MRS			A,C,F	3.0' - 3.5'
A2P2-TCA1	A2P2-TCA1^1-MRS	478228.15	1348544.7	A	0 - 0.5'
	A2P2-TCA1^3-MRS			A	1.0' - 1.5'
	A2P2-TCA1^5-MRS			A	2.0' - 2.5'
	A2P2-TCA1^7-MRS			A	3.0' - 3.5'
A2P2-TCA2	A2P2-TCA2^1-MRS	478058.74	1348484.7	A	0 - 0.5'
	A2P2-TCA2^3-MRS			A	1.0' - 1.5'
	A2P2-TCA2^5-MRS			A	2.0' - 2.5'
	A2P2-TCA2^7-MRS			A	3.0' - 3.5'
A2P2-TCA3	A2P2-TCA3^1-MRS	477828.93	1348566.2	A	0 - 0.5'
	A2P2-TCA3^3-MRS			A	1.0' - 1.5'
	A2P2-TCA3^5-MRS			A	2.0' - 2.5'
	A2P2-TCA3^7-MRS			A	3.0' - 3.5'
A2P2-TCA4	A2P2-TCA4^1-MRS	477731.81	1348587.8	A	0 - 0.5'
	A2P2-TCA4^3-MRS			A	1.0' - 1.5'
	A2P2-TCA4^5-MRS			A	2.0' - 2.5'
	A2P2-TCA4^7-MRS			A	3.0' - 3.5'
A2P2-TCA5	A2P2-TCA5^1-MRS	477671.82	1348488.8	A	0 - 0.5'
	A2P2-TCA5^3-MRS			A	1.0' - 1.5'
	A2P2-TCA5^5-MRS			A	2.0' - 2.5'
	A2P2-TCA5^7-MRS			A	3.0' - 3.5'

1

Boring ID	Sample ID	Northing	Easting	TAL	Depth Interval
A2P2-TCA6	A2P2-TCA6^1-MPRS	477796.9	1348870.3	A,C,D,E,F	0 - 0.5'
	A2P2-TCA6^1-L			B	
	A2P2-TCA6^3-MPRS			A,C,D,E,F	1.0' - 1.5'
	A2P2-TCA6^3-L			B	
	A2P2-TCA6^5-MPRS			A,C,D,E,F	2.0' - 2.5'
	A2P2-TCA6^5-L			B	
	A2P2-TCA6^7-MPRS			A,C,D,E,F	3.0' - 3.5'
	A2P2-TCA6^7-L			B	
A2P2-TCA7	A2P2-TCA7^1-MPRS	477796.9	1348903.2	A,C,D,E,F	0 - 0.5'
	A2P2-TCA7^1-L			B	
	A2P2-TCA7^3-MPRS			A,C,D,E,F	1.0' - 1.5'
	A2P2-TCA7^3-L			B	
	A2P2-TCA7^5-MPRS			A,C,D,E,F	2.0' - 2.5'
	A2P2-TCA7^5-L			B	
	A2P2-TCA7^7-MPRS			A,C,D,E,F	3.0' - 3.5'
	A2P2-TCA7^7-L			B	
A2P2-TCA8	A2P2-TCA8^1-MPRS	477677.73	1348846.7	A,C,D,E,F	0 - 0.5'
	A2P2-TCA8^1-L			B	
	A2P2-TCA8^3-MPRS			A,C,D,E,F	1.0' - 1.5'
	A2P2-TCA8^3-L			B	
	A2P2-TCA8^5-MPRS			A,C,D,E,F	2.0' - 2.5'
	A2P2-TCA8^5-L			B	
	A2P2-TCA8^7-MPRS			A,C,D,E,F	3.0' - 3.5'
	A2P2-TCA8^7-L			B	
A2P2-AQL1	A2P2-AQL1^1-R	477410.79	1348705.6	F	0 - 0.5'
	A2P2-AQL1^3-R			F	1.0' - 1.5'
	A2P2-AQL1^5-R			F	2.0' - 2.5'
	A2P2-AQL1^7-R			F	3.0' - 3.5'
A2P2-AQL2	A2P2-AQL2^1-MRS	477488.31	1348664.7	A	0 - 0.5'
	A2P2-AQL2^3-MRS			A	1.0' - 1.5'
	A2P2-AQL2^5-MRS			A	2.0' - 2.5'
	A2P2-AQL2^7-MRS			A	3.0' - 3.5'
AP2-AQL3	A2P2-AQL3^1-MRS	477529.27	1348707.8	A	0 - 0.5'
	A2P2-AQL3^3-MRS			A	1.0' - 1.5'
	A2P2-AQL3^5-MRS			A	2.0' - 2.5'
	A2P2-AQL3^7-MRS			A	3.0' - 3.5'

2

1

Boring ID	Sample ID	Northing	Easting	TAL	Depth Interval
A2P2-SUB1	A2P2-SUB1^1-MRPS	478516.2	1348659.4	A,D	0 - 0.5'
	A2P2-SUB1^1-L			B	
	A2P2-SUB1^3-MPRS			A,D	1.0' - 1.5'
	A2P2-SUB1^3-L			B	
	A2P2-SUB1^5-MPRS			A,D	2.0' - 2.5'
	A2P2-SUB1^5-L			B	
	A2P2-SUB1^7-MPRS			A,D	3.0' - 3.5'
	A2P2-SUB1^7-L			B	
A2P2-SUB2	A2P2-SUB2^1-MRPS	478794.63	1348787.3	A,D	0 - 0.5'
	A2P2-SUB2^1-L			B	
	A2P2-SUB2^3-MPRS			A,D	1.0' - 1.5'
	A2P2-SUB2^3-L			B	
	A2P2-SUB2^5-MPRS			A,D	2.0' - 2.5'
	A2P2-SUB2^5-L			B	
	A2P2-SUB2^7-MPRS			A,D	3.0' - 3.5'
	A2P2-SUB2^7-L			B	
A2P2-SUB3	A2P2-SUB3^1-MRPS	478589.67	1348605	A,D	0 - 0.5'
	A2P2-SUB3^1-L			B	
	A2P2-SUB3^3-MPRS			A,D	1.0' - 1.5'
	A2P2-SUB3^3-L			B	
	A2P2-SUB3^5-MPRS			A,D	2.0' - 2.5'
	A2P2-SUB3^5-L			B	
	A2P2-SUB3^7-MPRS			A,D	3.0' - 3.5'
	A2P2-SUB3^7-L			B	
A2P2-SUB4	A2P2-SUB4^1-MRPS	478746.87	1348672	A,D	0 - 0.5'
	A2P2-SUB4^1-L			B	
	A2P2-SUB4^3-MPRS			A,D	1.0' - 1.5'
	A2P2-SUB4^3-L			B	
	A2P2-SUB4^5-MPRS			A,D	2.0' - 2.5'
	A2P2-SUB4^5-L			B	
	A2P2-SUB4^7-MPRS			A,D	3.0' - 3.5'
	A2P2-SUB4^7-L			B	
A2P2-SUB5	A2P2-SUB5^1-MPRS	478835.75	1348711.8	A,D	0 - 0.5'
	A2P2-SUB5^1-L			B	
	A2P2-SUB5^3-MPRS			A,D	1.0' - 1.5'
	A2P2-SUB5^3-L			B	
	A2P2-SUB5^5-MPRS			A,D	2.0' - 2.5'
	A2P2-SUB5^5-L			B	
	A2P2-SUB5^7-MPRS			A,D	3.0' - 3.5'
	A2P2-SUB5^7-L			B	

2