Department of Energy

Ohio Field Office
Fernald Closure Project
175 Tri-County Parkway
Springdale, Ohio 45246

SEP 5 2006

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0195-06

Mr. Thomas Schneider, Project Manager
Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF THE FINAL CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR VARIOUS AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREA

References:
1) Letter, J. Saric to J. Reising, "CDL and PSP for Outside Areas," dated May 22, 2006

2) Letter DOE-0164-06, J. Reising to J. Saric/T. Schneider, "Transmittal of the Response to Ohio Environmental Protection Agency Comment Response on the Draft Certification Design Letter and Certification Project Specific Plan for Various Areas Outside of the Historically Radiologically Controlled Area," dated July 10, 2006

3) Letter, T. Schneider to J. Reising, "Approval-RTC on the RTC for the CDL and Certification PSP for Various Areas Outside of the Historically Radiologically Controlled Area," dated July 26, 2006

Enclosed for your approval is the final Certification Design Letter and Certification Project Specific Plan for Various Areas Outside of the Historically Radiologically Controlled Area. The draft plan was approved by the U.S. Environmental Protection Agency as noted in Reference 1. This final plan was revised to include approved Ohio Environmental Protection Agency comment responses as noted in References 2 and 3. Further revisions include figures and documentation pertinent to the high leachability areas present within this certification area.

If you have any questions or require additional information, please contact me at (513) 648-3139.

Sincerely,

Johnny W. Reising
Director

Enclosure

cc w/enclosure:
J. Desormeau, DOE-OH/FCP
T. Schneider, OEPA-Dayton (three copies of enclosure)
G. Jablonowski, USEPA-V, SRF-5J
M. Cullerton, Tetra Tech
M. Shupe, HSI GeoTrans
S. Helmer, ODH

cc w/o enclosure:
R. Abitz, Fluor Fernald, Inc./MS88
J. Chiou, Fluor Fernald, Inc./MS88
F. Johnston, Fluor Fernald, Inc./MS12
C. Murphy, Fluor Fernald, Inc./MS1
T. Terry, Fluor Fernald, Inc./MS1

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CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR VARIOUS AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREA

FERNALD CLOSURE PROJECT
FERNALD, OHIO

AUGUST 2006

U.S. DEPARTMENT OF ENERGY

20500-PSP-0014
REVISON 0

CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR VARIOUS AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREA

Document Number 20500-PSP-0014
Revision 0
August 2006

APPROVAL:

8/29/06

Jyh-Dong Chiou, Project Manager
Environmental Closure Project
Date

29 Aug 2006

Rich Abitz, Characterization Manager
Environmental Closure Project
Date

for TB 8-30-06

Tom Buhrlage, Sampling Manager
Environmental Closure Project
Date

8/29/06

Reinhard Friske, Quality Assurance/Quality Control
Safety, Health and Quality
Date

FERNALD CLOSURE PROJECT

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Cincinnati, Ohio 45253-8704

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LIST OF ACRONYMS AND ABBREVIATIONS

ASCOC	area-specific constituent of concern
ASL	analytical support level
BTV	benchmark toxicity value
CDL	Certification Design Letter
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	constituent of concern
CRDL	contract required detection limit
CU	certification unit
DOE	U.S. Department of Energy
DQO	Data Quality Objectives
ECOC	ecological constituent of concern
EPA	U.S. Environmental Protection Agency
FACTS	Fernald Analytical Computerized Tracking System
FAL	Field Activity Log
FCP	Fernald Closure Project
FRL	final remediation level
FTF	Fire Training Facility
GC-MS	gas chromatography-mass spectroscopy
GPC	gas proportional counting
GPS	global positioning system
HWMU	hazardous waste management unit
ICP-AES	inductively coupled plasma-atomic emission spectroscopy
ICP-MS	inductively coupled plasma-mass spectroscopy
LSC	liquid scintillation counting
µg/L	micrograms per liter
MDL	minimum detectable level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NAD83	North American Datum of 1983
OEPA	Ohio Environmental Protection Agency
OU	operable unit
PAH	polyaromatic hydrocarbon
PCB	polychlorinated biphenyl
pCi/g	picoCuries per gram
pCi/L	picoCuries per liter
PEDD	preliminary radiological analytical data
PSP	Project Specific Plan
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
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
SWL	Solid Waste Landfill

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

SWRB	Storm Water Retention Basin
TAL	Target Analyte List
TAT	turnaround time
UCL	upper confidence limit
UST	underground storage tank
V/FCN	Variance/Field Change Notice
VOA	volatile organic analysis
VOC	volatile organic compound
VSL	validation support level
WAC	waste acceptance criteria
WAO	Waste Acceptance Organization

EXECUTIVE SUMMARY

This document is a combination of the Certification Design Letter (CDL) and Certification Project Specific Plan (PSP) for various areas outside of the historically radiologically controlled area. These areas include: Area 1, Phase IV - Part Four; Area 6, Phase II; the Area 7 Silos Truck Staging Area, and the Area 7 South Access Road Area. This document describes the certification design, sampling, analysis, and validation for these areas. Certification demonstrates that risk based, area-specific constituents of concern (ASCOCs) meet the final remediation levels. The following information is included:

- The boundaries and description of the areas to be certified under the guidance of this document;
- A discussion of historical data from the areas proposed for certification;
- A discussion of the ASCOC selection process and list of ASCOCs assigned to Area 1, Phase IV - Part Four; Area 6, Phase II; the Area 7 Silos Truck Staging Area, and the Area 7 South Access Road Area;
- A presentation of the certification unit (CU) boundaries and proposed sampling strategy;
- Details of certification sampling, analysis, and validation that will take place;
- The analytical requirements and the statistical methodology that will be employed; and
- The proposed schedule for the certification activities.

The scope of this CDL and Certification PSP is limited to the certification of Area 1, Phase IV - Part Four; Area 6, Phase II; Area 7 Silos truck staging area and adjacent natural wetland; and Area 7 South Access Road including the security area and the southern ends of both the East and West Parking Lots. Because remedial excavation was not needed in these areas, the certification process described in this CDL and Certification PSP was initiated. Field sampling of this area is scheduled to begin immediately following approval of this document.

The certification design presented in this CDL and Certification PSP follows the general approach outlined in Section 3.4 of the Sitewide Excavation Plan (DOE 1998). The selection of ASCOCs was accomplished using constituent of concern (COC) lists in the Operable Unit 5 Record of Decision (DOE 1996), previous investigation data, and process knowledge. Twenty CUs have been defined for this CDL and Certification PSP. Also, additional sample points have been proposed to be collected from within the footprint of trailers present in the security area of the South Access Road Area. Total uranium, thorium-228, thorium-232, radium-226, and radium-228 (the sitewide primary radiological COCs) are considered ASCOCs in each CU. Secondary COCs are identified for specific CUs within the certification area.

Upon completion of the certification activities described in this document, a Certification Report will be issued.

1.0 INTRODUCTION

This Certification Design Letter (CDL)/Certification Project Specific Plan (PSP) describes the certification design, sampling, analysis, and validation necessary to demonstrate that soil within the boundaries of the Area 7 Silos truck staging area and natural wetland, henceforth referred to as Silos Truck Staging Area; Area 6, Phase II; Area 7 South Access Road including the security area, and the southern ends of both the East and West Parking Lots, henceforth referred to as South Access Road Area; and Area 1, Phase IV - Part Four have met the final remediation levels (FRLs) for all area-specific constituents of concern (ASCOCs). Certification demonstrates that risk-based ASCOCs meet the FRLs. The format of this document follows guidelines presented in the Sitewide Excavation Plan (SEP, DOE 1998) and SEP Addendum (DOE 2001a). Accordingly, this CDL and Certification PSP consists of ten sections:

1.0 Introduction - Presentation of the purpose, objectives, and scope of this CDL and Certification PSP

2.0 Historical and Precertification Data - Discussion of historical soil data and presentation of precertification data from the areas covered under this certification effort

3.0 Area-Specific Constituents of Concern - Discussion of selection criteria and ASCOCs for the areas covered under this certification effort

4.0 Certification Approach - Presentation of design, surveying, sampling and analytical methodologies

5.0 Schedule

6.0 Quality Assurance/Quality Control Requirements - Presents the field Quality Control (QC), analytical, and data validation requirements

7.0 Health and Safety

8.0 Disposition of Waste

9.0 Data Management

References

1.1 OBJECTIVES

The primary objectives of this document are to:

- Define the boundaries of the area to be certified under the guidance of this CDL/Certification PSP;
- Present maps for acquired real-time precertification data;

- Define the ASCOC selection process and list the selected Area 1, Phase IV - Part Four; Area 6, Phase II; the Silos Truck Staging Area, and the South Access Road Area ASCOCs;
- Present the certification unit (CU) boundaries and proposed certification sampling strategy;
- Present the details of certification sampling, analysis, and validation that will take place;
- Summarize the analytical requirements and the statistical methodology that will be employed; and
- Present the proposed schedule for the certification activities.

1.2 SCOPE AND AREA DESCRIPTION

The scope of this CDL and Certification PSP includes details of certification sampling, analysis, and validation that will take place in Area 1, Phase IV - Part Four; Area 6, Phase II; the Silos Truck Staging Area, and the South Access Road Area collectively named for the purposes of this document the Areas Outside of the Historically Radiologically Controlled Area. The area included in this CDL/PSP, is approximately 27 acres. Figure 1-1 depicts the boundaries, location, and layout of the areas to be certified under this CDL and Certification PSP.

Just as with other areas, certification of Areas 1, 6, and 7 is being performed in several phases based on the required action for each of the defined sections to be found in each area. This document only deals with the Areas Outside of the Historically Radiologically Controlled Area. Other portions of Areas 1, 6, and 7 either have been or will be submitted for certification under separate documentation.

Field activities for the Areas Outside of the Historically Radiologically Controlled Area are consistent with the Sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ) and Section 3.4 of the SEP. However, because part of Area 6, Phase II was needed as a laydown area for restoration, it was necessary to collect samples in the first two CUs in this area (CUs A6P2-C01 and A6P2-C02). These samples were collected and analyzed for the ASCOC list presented herein utilizing the appropriate certification protocols as per the approved Variance/ Field Change Notice (V/FCN) 20600-PSP-0016-76 (see Appendix D). This certification sampling program as discussed in Section 4.0 of this document will continue to be consistent with Data Quality Objectives (DQO) SL-052, Revision 3, which is included as Appendix B.

The ASCOCs for the CUs in the Areas Outside of the Historically Radiologically Controlled Area are total uranium, thorium-228, thorium-232, radium-226, and radium-228 [the sitewide primary radiological constituents of concern (COCs)]. Additionally, secondary COCs are identified for specific CUs within the certification area. Ecological COCs will be analyzed as required.

1.3 KEY PROJECT PERSONNEL

Key project personnel responsible for performance of the project are listed in Table 1-1.

TABLE 1-1
KEY PROJECT PERSONNEL

Title	Primary	Alternate
DOE Contact	Johnny Reising	Jane Powell
Project Manager	Jyh-Dong Chiou	Rich Abitz
Characterization Manager	Rich Abitz	Debbie Brennan
Field Sampling Manager	Tom Buhrlage	Mike Frank
Surveying Manager	Jim Schwing	Bernard Kienow/Andy Clinton
WAO Contact	Christa Walls	Pat Shanks
Laboratory Contact	Paul McSwigan	Amy Meyer
Data Management Lead	Debbie Brennan	Denise Arico
Data Validation Contact	James Chambers	Baohe Chen
Field Data Validation Contact	Ervin O'Bryan	James Chambers
FACTS/SED Database Contact	Larry Harmon	Susan Marsh
QA/QC Contact	Reinhard Friske	Darren Wessel
Safety and Health Contact	Garner Powell	Jeff Middaugh

DOE - U.S. Department of Energy
FACTS - Fernald Analytical Computerized Tracking System
QA/QC - Quality Assurance/Quality Control
SED - Sitewide Environmental Database
WAO - Waste Acceptance Organization

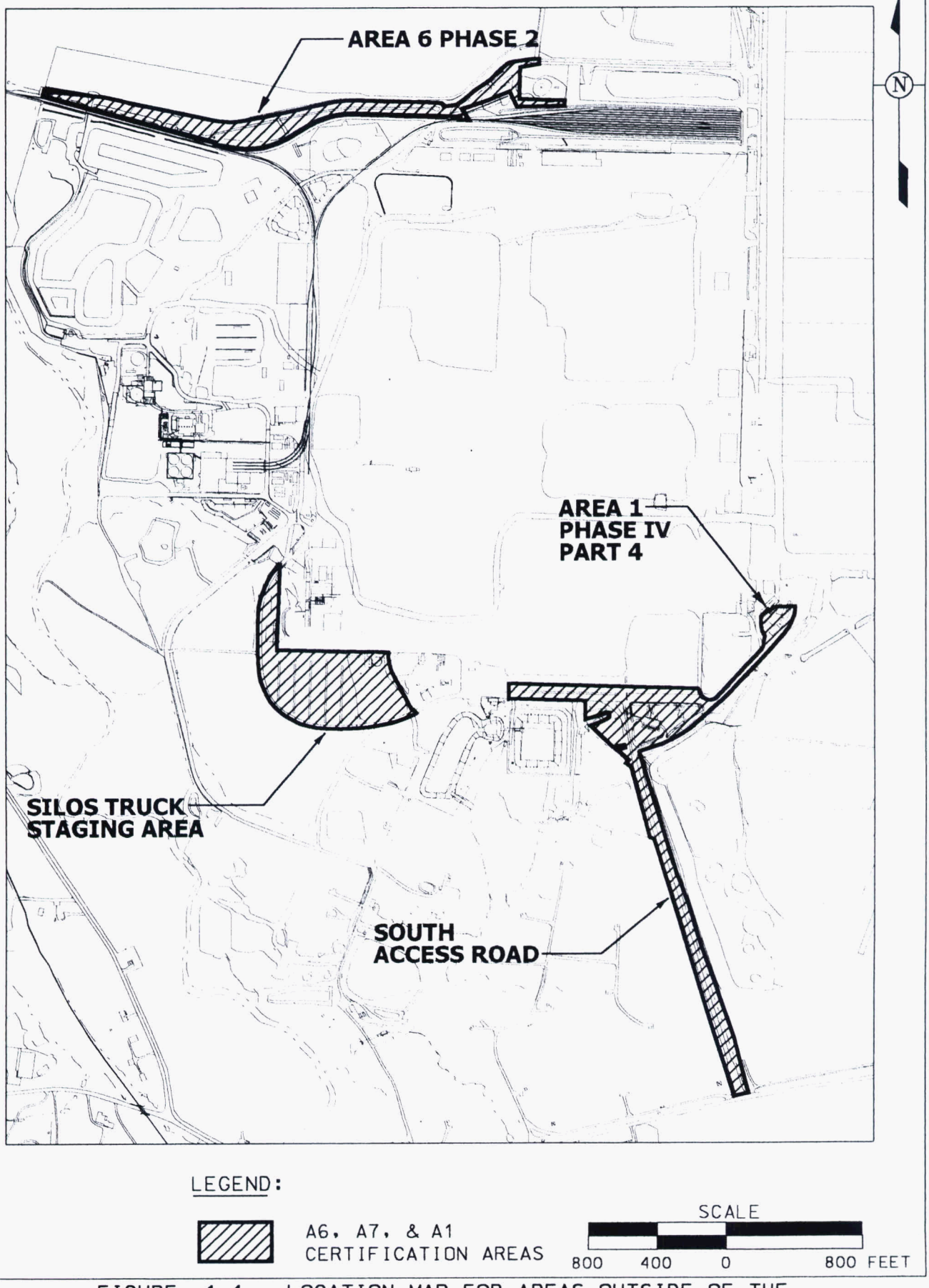

FIGURE 1-1. LOCATION MAP FOR AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREA

2.0 HISTORICAL AND PRECERTIFICATION DATA

In accordance with the SEP, prior to conducting precertification and certification activities, all soil demonstrated to contain contamination above the associated FRLs or other applicable action levels must be evaluated for remedial actions.

In addition to the Predesign Investigations, the Remedial Investigation Reports (RI, DOE 1995a and 1995b), and Feasibility Study Reports (FS, DOE 1995c and 1995d) for Operable Units (OUs) 1 and 5 were used for remedial design of Areas 1, 6 and 7. Predesign sampling data have been collected pursuant to the RI/FS.

Before initiating the certification process, all historical soil data was pulled from the Sitewide Environmental Database (SED), and is summarized in Sections 2.1 through 2.4. Based on the results of sampling activities summarized below, it has been determined that no further remedial actions are necessary to remove above-FRL or above-waste acceptance criteria (WAC) soil.

Because no remedial excavation was needed in any of the areas covered under this document, those utilities, which needed to be removed were taken out after precertification had been completed. Once the utility had been removed as required by the technical specification, precertification was performed on the trench bottom created by the removal of these utilities and then back-filled with the precertified overburden soil. These sampling events are described in V/FCNs 20600-PSP-0016-47, 20500-PSP-0010-10, and 20500-PSP-0009-35 written to the PSP for Excavation Control and Precertification of the Area 6 Waste Pits and General Area (Supplement to 20300-PSP-0011) (DOE 2005a), the PSP for Excavation Control and Precertification of Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011) (DOE 2005b), and the PSP for Excavation Control and Precertification of Area 7 Silos and General Area (Supplement to 20300-PSP-0011) (DOE 2005c) respectively.

2.1 AREA 6, PHASE II

2.1.1 Historical, Predesign and Excavation Control

Based on the results of historical data collection, predesign sampling was done to determine the nature and extent of the contamination in Area 6, Phase II. Additionally, samples were collected to fill any data gaps left in this area. The results of the investigations are presented in the Excavation Plan for Area 6 Waste Pits and General Area (DOE 2005d).

Because part of Area 6, Phase II was needed as a laydown area for restoration, it was necessary to collect samples in the first two CUs in this area (CUs A6P2-PC01 and A6P2-PC02). These samples were collected and analyzed utilizing V/FCN 20600-PSP-0016-76 for the ASCOC list presented herein utilizing

the appropriate certification protocols. The variance and the data associated with this sampling event are presented in Appendix D.

2.1.2 Precertification Data

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of the Area 6 Waste Pits and General Area (Supplement to 20300-PSP-0011). The Silos Truck Staging Area passed the precertification requirements. Precertification real-time scanning results are provided in Appendix A.

2.2 SILOS TRUCK STAGING AREA

2.2.1 Historical, Predesign and Excavation Control

After a review of the historical data, predesign samples were collected to determine the nature and extent of contamination in the Silos Truck Staging Area. Sampling was also done to fill any data gaps left in the area. The results of these investigations are presented in the Excavation Plan for Area 7 Support and Silos Process Areas (DOE 2006).

Although above-FRL arsenic was determined to be present in some locations in this area, it is concluded that these levels are consistent with background conditions. This approach is more fully explained/discussed in the Addendum to the CERCLA/RCRA Background Soil Study (DOE 2001b) [where results in the 12 to 36-inch interval ranged from below the FRL to 15.8 milligrams per kilogram (mg/kg)] and was used in the approved Addendum No. 1 to the Area 2, Phase II Implementation Plan for Subarea 3 (Infrastructure) Subcontractor Laydown Area and Equipment Wash Facility (DOE 2005e). No further investigation for this COC (i.e., arsenic) was planned.

2.2.2 Precertification Data

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of the Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011). The Silo Truck Staging Area passed the precertification requirements. Precertification real-time scanning results are provided in Appendix A.

To evaluate the potential contamination from the use of this area to stage sealed containers, a scan of the gravel was performed prior to operations in this area. This scan will be used as a reference point for comparison once the staging operations have been completed, at which time a post-operations scan of the gravel will be performed.

2.3 AREA 1, PHASE IV - PART FOUR

2.3.1 Historical, Predesign and Excavation Control

Because no historical data existed for this area, predesign samples were collected to determine the nature and extent of contamination in Area 1, Phase IV-Part Four. The results of the investigations are presented in the Excavation Plan for Area 1, Phase IV (DOE 2003a).

2.3.2 Precertification Data

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Area 1, Phase IV Excavation Characterization and Precertification (DOE 2003b). All of Area 1, Phase IV-Part Four passed the precertification requirements. Precertification real-time scanning results are provided in Appendix A.

2.4 SOUTH ROAD ACCESS AREA

2.4.1 Historical, Predesign and Excavation Control

Based on the results of historical data collection, predesign sampling was done to determine the nature and extent of the contamination in Area 7K. Additionally, samples were collected to fill any data gaps left in this area. The results of the investigations are presented in the Excavation Plan for Area 7 Support and Silos Process Areas and the Excavation Plan for Area 7 Silos and General Area (DOE 2005f).

In anticipation of it's construction and expected usage by DOE-Legacy Management, four samples were collected in the area where the Communications Hut was expected to be built. The information relating to this sampling event is presented in Appendix E.

In February of 2005, significant radiological contamination was found on one of the three steel I-beams used to support a billboard adjacent to the South Access Road. In order to prevent the spread of contamination in this uncontrolled area, the sign was dismantled and the I-beams along with their associated concrete anchors were removed. Real-time measurements were collected from the holes created by this removal resulting in additional excavation of one of the holes. After this was completed, real-time as well as physical sampling data confirmed that the removal of contaminated material was complete. Further, the physical sampling data will be used in conjunction with the certification data collected as part of the effort described in this document.

2.4.2 Precertification Data

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of the Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011) and the PSP for Excavation Control and Precertification of the Area 7 Silos and General Area (Supplement to

20300-PSP-0011). All of the South Access Road Area passed the precertification requirements. Precertification real-time scanning results are provided in Appendix A.

3.0 AREA-SPECIFIC CONSTITUENTS OF CONCERN

In the OU5 Record of Decision (ROD, DOE 1996), there are 80 soil COCs with established FRLs. These COCs were retained for further investigation based on a screening process that considered the presence of the constituent in site soil and the potential risk to a receptor exposed to soil containing this contaminant. In spite of the conservative nature of this COC retention process, many of the COCs with established FRLs have a limited distribution in site soil or the presence of the COC is based on high contract required detection limits (CRDLs). When FRLs were established for these COCs in the OU5 ROD, the FRLs were initially screened against site data presented on spatial maps to establish a picture of potential remediation areas.

By reviewing existing RI/FS data presented on spatial distribution maps, the sitewide list of soil COCs in the OU5 ROD was reduced from 80 to 30. This reduction was possible because the majority of the COCs with FRLs listed in the OU5 ROD have no detections above their corresponding FRL, thus eliminating them from further consideration. The 30 remaining sitewide COCs account for over 99 percent of the combined risk to a site receptor model, and they comprise the list from which all of the remediation ASCOCs are drawn. When planning certification for a remediation area, additional selection criteria are used to derive a subset of these 30 COCs. This subset of COCs is passed along to the certification process.

3.1 SELECTION CRITERIA

All of the sitewide primary ASCOCs (total uranium, radium-226, radium-228, thorium-228, and thorium-232) will be retained as ASCOCs for certification. The selection process for retaining secondary ASCOCs for a remediation area is driven by applying a set of decision criteria. A soil contaminant will be retained as a secondary ASCOC if:

- It is listed as a soil COC in the OU5 ROD, and it is listed as an ASCOC in Table 2-7 of the SEP for the Remediation Area of interest;
- It is listed as a COC for a hazardous waste management unit (HWMU) or an underground storage tank (UST) that lies within the certification area boundary;
- It can be traced to site use in the remediation area of interest, either through process knowledge or known release of the constituent to the environment;
- Analytical results indicate that a contaminant is present above its FRL, and the above-FRL concentrations are not attributable to false positives or elevated CRDLs; or
- Physical characteristics of the contaminant, such as degradation rate and volatility, indicate it is likely to persist in the soil between time of release and remediation.

Using the above process, the ASCOCs were refined to those listed in Table 2-7 of the SEP. The list of ASCOCs is also presented in Table 3-1.

3.2 ASCOC SELECTION PROCESS

3.2.1 Area 6, Phase II ASCOC Selection

Each ASCOC on the Area 6 list (see Table 3-1) was evaluated for its relevance to Area 6, Phase II. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228, and thorium-232 are sitewide primary ASCOCs and will be retained as ASCOCs for the Area 6, Phase II CUs. Additional secondary COCs have been retained in this area due to historical above-WAC or above-FRL results as well as former land use in adjacent areas. The complete list of COCs that are going to be retained for certification can be found in Table 3-3. The specific secondary COCs for this area are as follows:

Area 6, Phase II Secondary ASCOCs

- Aroclor-1254
- Aroclor-1260
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perlene
- Benzo(k)fluoroanthene
- Beryllium
- Chrysene
- Dibenzo(a,h)anthracene
- 1,1-Dichloroethene
- Dieldrin
- Fluoranthene
- Indeno(1,2,3-cd)pyrene
- Phenanthrene
- Pyrene
- Technetium-99
- Tetrachloroethene
- Thorium-230

3.2.2 Silos Truck Staging Area ASCOC Selection

Each ASCOC on the Area 7 list (see Table 3-1) was evaluated for its relevance to the Silos Truck Staging Area. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228, and thorium-232 are sitewide primary ASCOCs and will be retained as ASCOCs for the Silos Truck Staging Area CUs. No additional secondary COCs have been retained in this area. The complete list of COCs that are going to be retained for certification can be found in Table 3-3.

3.2.3 Area 1, Phase IV - Part Four ASCOC Selection

Each ASCOC on the Area 1 list (see Table 3-1) was evaluated for its relevance to Area 1, Phase IV-Part Four. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228, and thorium-232 are sitewide primary ASCOCs and will be

retained as ASCOCs for Area 1, Phase IV-Part Four CUs. Additional secondary COCs have been retained in this area due to historical above-FRL results as well as former land use in adjacent areas. The complete list of COCs that are going to be retained for certification can be found in Table 3-3. The specific secondary COCs for this area are as follows:

Area 1, Phase IV - Part Four Secondary ASCOC

- Aroclor-1254
- Aroclor-1260
- Beryllium

3.2.4 South Access Road Area ASCOC Selection

Each ASCOC on the Area 7 list (see Table 3-1) was evaluated for its relevance to the South Access Road Area. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228, and thorium-232 are sitewide primary ASCOCs and will be retained as ASCOCs for the South Access Road Area CUs. Additional secondary COCs have been retained in this area due to historical above-FRL results as well as former land use in adjacent areas. The complete list of COCs that are going to be retained for certification can be found in Table 3-3. The specific secondary COCs for this area are as follows:

South Access Road Area Secondary ASCOC

- Aroclor-1254
- Beryllium

TABLE 3-1
ASCOCs FOR REMEDIATION AREAS 1, 6, AND 7 FROM TABLE 2-7 OF THE SEP

Primary COCs	Secondary COCs for Area 1	Secondary COCs for Area 6	Secondary COCs for Area 7
Radium-226	Aroclor-1254	Aroclor-1254	Aroclor-1254
Radium-228	Aroclor-1260	Aroclor-1260	Aroclor-1260
Thorium-228	Arsenic	Arsenic	Arsenic
Thorium-232	Beryllium	Benzo(a)pyrene	Beryllium
Total Uranium	Cesium-137	Benzo(b)fluoranthene	Cesium-137
	Dieldrin	Beryllium	Dieldrin
	Heptachlorodibenzo-p-dioxins	Bromodichloromethane	Lead
	Lead	Cesium-137	Lead-210
	Manganese	Dibenzo(a,h)anthracene	Manganese
	Neptunium-237	1,1-Dichloroethene	Technetium-99
	Technetium-99	Dieldrin	Tetrachloroethene
	Thorium-230	Fluoride	Thorium-230
		Heptachlorodibenzo-p-dioxins	
		Indeno(1,2,3-c,d)pyrene	
		Octachlorodibenzo-p-dioxins	
		Technetium-99	
		Tetrachloroethene	
		Thorium-230	

Ecological COCs for Area 1	Ecological COCs for Area 6	Ecological COCs for Area 7
Cadmium	Cadmium	Antimony
Lead	Silver	Cadmium
Molybdenum	Antimony	Molybdenum
	PAHs	Silver
		PAHs

PAHs - polyaromatic hydrocarbons: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perlene, benzo(k)fluoranthene, fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene

TABLE 3-2
ASCOC SELECTION FOR AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREAS

Area 6 ASCOCs	Retained As ASCOC?	Justification	CUs
PRIMARY ASCOCs			
Radium-226	Yes	Retained as primary ASCOC	All
Radium-228	Yes	Retained as primary ASCOC	All
Thorium-228	Yes	Retained as primary ASCOC	All
Thorium-232	Yes	Retained as primary ASCOC	All
Total Uranium	Yes	Retained as primary ASCOC	All
SECONDARY ASCOCs			
Aroclor-1254	Yes	ASCOC in Areas 1, 6, and 7 FTF and Area 1 adjacent area	A7SAR-C01, C02, C03, C05 A6P2-C05
Aroclor-1260	Yes	ASCOC in Areas 1, 6, and 7 FTF and Area 1 adjacent area	A7SAR-C05 A6P2-C05
Arsenic	No	ASCOC in Areas 1, 6, and 7	None
Benzo(a)pyrene	Yes	ASCOC in Area 6 - FTF Buffer CU	A6P2-C05
Benzo(b)fluoranthene	Yes	ASCOC in Area 6 - FTF Buffer CU	A6P2-C05
Beryllium	Yes	ASCOC in Areas 1, 6, and 7 - FTF and Area 7 South Access Road	A6P2-C05 A7SAR-C05 and C08
Bromodichloromethane	No	ASCOC in Area 6 No above-FRL results present	None
Cesium-137	No	ASCOC in Areas 1, 6, and 7 No above-FRL results present	None
Dibenzo(a,h)anthracene	Yes	ASCOC in Area 6 - FTF Buffer CU	A6P2-C05
1,1-Dichloroethene	Yes	ASCOC in Area 6 - FTF Buffer CU	A6P2-C05
Dieldrin	Yes	ASCOC in Areas 1, 6, and 7 ASCOC in adjacent Waste Pits and SWL	A6P2-C05
Fluoride	No	ASCOC in Area 6 No above-FRL results present	None
Heptachlorodibenzo-p-dioxins	No	ASCOC in Areas 1 and 6 No above-FRL results present	None
Indeno(1,2,3-c,d)pyrene	Yes	ASCOC in Area 6 - FTF Buffer CU	A6P2-C05
Octachlorodibenzo-p-dioxins	No	ASCOC in Area 6 No above-FRL results present	None
Lead	No	ASCOC in Areas 1 and 7 No above-FRL results present	None
Lead-210	No	ASCOC in Area 7 No above-FRL results present	None
Manganese	No	ASCOC in Areas 1 and 7 No above-FRL results present	None

TABLE 3-2
ASCOC SELECTION FOR AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREAS

Area 6 ASCOCs	Retained As ASCOC?	Justification	CUs
SECONDARY ASCOCs (cont.)			
Neptunium-237	No	ASCOC in Area 1 No above-FRL results present	None
Technetium-99	Yes	ASCOC in Areas 1, 6, and 7 - SWRB adjacent area - above-FRL in FTF	A6P2-C05
Tetrachloroethene	Yes	ASCOC in Areas 6 and 7 - FTF Buffer CU	A6P2-C05
Thorium-230	Yes	ASCOC in Areas 1, 6, and 7 ASCOC in Waste Pits - FTF Buffer CU	A6P2-C03, C04, and C05
ECOLOGICAL ASCOCs			
Antimony	No	ECOC for Areas 6 and 7	None
Cadmium	No	ECOC for Areas 1, 6, and 7	None
Lead	No	ECOC for Area 1	None
Silver	No	ECOC for Areas 6 and 7	None
Molybdenum	No	ECOC for Areas 1 and 7	None
PAHs	Yes	ECOC for Areas 6 and 7 - Retained for BTV	A6P2-C05

BTV - benchmark toxicity value
ECOC - Ecological constituent of concern
FTF - Fire Training Facility
SWL - Solid Waste Landfill
SWRB - Storm Water Retention Basin

TABLE 3-3
ASCOC LIST FOR AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREAS

ASCOC	FRL/(*BTV*)
Radionuclides	
Total Uranium	82 mg/kg
Total Uranium (hi-leachability)	20 mg/kg
Radium-226	1.7 pCi/g
Radium-228	1.8 pCi/g
Thorium-228	1.7 pCi/g
Thorium-232	1.5 pCi/g
Technetium-99	30.0 pCi/g
Thorium-230	280 pCi/g
Organic	
1,1-dichloroethene	0.16 mg/kg
Aroclor-1254	0.13 mg/kg
Aroclor-1260	0.13 mg/kg
Benzo(a)pyrene	2.0 mg/kg /(*1.0 mg/kg*)
Benzo(b)fluoranthene	20 mg/kg /(*1.0 mg/kg*)
Dibenzo(a,h)anthracene	2.0 mg/kg /(*0.088 mg/kg*)
Dieldrin	0.015 mg/kg
Indeno(1,2,3-cd)pyrene	20 mg/kg /(*1.0 mg/kg*)
Tetrachloroethene	3.6 mg/kg
Metals	
Beryllium	1.5 mg/kg
Ecological	
Benzo(a)anthracene	20 mg/kg /(*1.0 mg/kg*)
Benzo(g,h,i)perylene	(*1.0 mg/kg*)
Benzo(k)fluoranthene	200 mg/kg /(*1.0 mg/kg*)
Chrysene	2000 mg/kg /(*1.0 mg/kg*)
Fluoranthene	(*10 mg/kg*)
Phenanthrene	(*5 mg/kg*)
Pyrene	(*10 mg/kg*)

pCi/g - picoCuries per gram

4.0 CERTIFICATION APPROACH

4.1 CERTIFICATION DESIGN

The intent of this effort is to certify the soil within the Areas Outside of the Historically Radiologically Controlled Area. The certification design for the Areas Outside of the Historically Radiologically Controlled Area follows the general approach outlined in Section 3.4 of the SEP. The CU design for these areas are depicted on Figures 4-1 through 4-3 and the sub-CUs and sample locations are depicted in Figures 4-4 through 4-12. As discussed in Section 3.0 of this document, the five primary ASCOCs (total uranium, radium-226, radium-228, thorium-228, and thorium-232) will be retained in each CU. Additional secondary COCs are identified for specific CUs within the areas to be certified.

Many factors were taken into consideration when determining the boundaries for each CU within these areas. These factors include: historical land use, proximity to other areas of the site, and residual COC data. Additionally, because most of the areas in this certification effort have contained impacted material, they will be comprised of 20 Group 1 CUs. This will allow for more concentrated sampling and ensure excavation activities had no effect on the soil. The CUs are shown on Figures 4-1 through 4-3.

4.1.1 Certification Unit Design

As stated above, because the majority of the areas included in this certification effort have contained impacted material, as a conservative measure, all of the areas were made up of Group 1 CUs. The Areas Outside of the Historically Radiologically Controlled Area consist of 20 Group 1 CUs that were designed around a combination of former land use, location, and COCs for each area. As shown in Figures 4-1 through 4-3, the separate areas included in this certification effort are represented by groups of CUs as follows:

- Area 6, Phase II - North of the West Rail Spur - CUs A6P2-C01 through A6P2-C04
- Area 6, Phase II - Fire Training Facility Adjacent - CU A6P2-C05
- Area 7, Silos Truck Staging Area - CUs A7STSA-C01 through A7STSA-C07
- Area 7, South Access Road Area - CUs A7SAR-C01 through A7SAR-C04 and A7SAR-C06 through A7SAR-C08
- Area 1, Phase IV-Part Four - CU A7SAR-C05

In 2001, a Communications Facility was erected in the Area 7 South Access Road Area. Samples were collected from the footprint of the proposed facility prior to construction since the facility was anticipated to remain intact beyond certification of the area. These samples were collected under 20600-PSP-0001,

PSP for Sampling of Miscellaneous Areas for WAC Attainment (DOE 2001c). The information relating to this effort is presented in Appendix E and will be included in the certification effort and used in place of A7SAR-C04-11 (see Figure 4-9).

Also, in Area 6, Phase II and the Silos Truck Staging Area 3 CUs (A6P2-C05, A7STSA-C03, and A7STSA-C04) contain high leachability zones. The minimum detectable level (MDL) for total uranium in these CUs reflect the more restrictive criteria imposed for these areas.

Additional samples are being collected in the security area of the South Access Road. These samples represent the area within the footprint of the trailers present at this time (see Figure 4-13).

4.1.2 Sample Location Design

The selection of certification sampling locations was conducted according to Section 3.4.2 of the SEP. Each CU was first divided into 16 approximately equal sub-CUs. Sample locations were then generated by randomly selecting an easting and northing coordinate within the boundaries of each sub-CU, then testing those locations against the minimum distance criteria for the CU. If the minimum distance criteria were not met, an alternative random location was selected for that sub-CU, and all the locations were re-tested. This process continued, until all random locations met the minimum distance criteria.

Several areas within this certification effort are covered with either asphalt or gravel. Sample locations that fall within these areas will require boring through the asphalt/gravel to the native soil below. Samples will be collected from the 0 to 6-inch interval of the native soil.

All sub-CUs for the Silos Truck Staging Area; Area 6, Phase II; South Access Road Area; and Area 1, Phase IV-Part Four and planned certification sampling locations are shown on Figures 4-4 through 4-12. Samples will be collected for analysis from 0 to 6 inches in each CU. Four of the 16 sample locations are designated with a "V," indicating archive sample locations. Archive samples will not be collected unless they are needed for additional analysis. One sample location in each CU is designated with a "D," indicating a field duplicate sample collection location. The sample locations, field duplicates, and archives are identified in Appendix C. Several bias sample locations are included in the Security Area of the South Access Road. These sample points are shown on Figure 4-13.

4.2 SURVEYING

Before certification sampling activities begin, the North American Datum of 1983 (NAD83) State Planar coordinates for each selected sampling location (with the exception of the archive sample locations) will be surveyed and identified in the field with a flag.

The certification area boundaries are shown on Figures 4-1 through 4-3, and the certification sampling locations are shown on Figures 4-4 through 4-13. All certification sample locations meet the minimum distance criterion. All sample location information can be found in Appendix C.

4.3 PHYSICAL SOIL SAMPLE COLLECTION

4.3.1 Sample Collection

Soil samples will be collected in accordance with procedure SMPL-01, Solids Sampling. Surface samples will be collected using 3-inch diameter, 6-inch long, plastic liners, or an alternate method as identified in SMPL-01, as long as sufficient volume is collected from the appropriate depth to perform the prescribed analyses. Following sample collection, each soil core shall be divided, if necessary, and placed into the proper sample containers. Upon completion of sample collection, the boreholes will be collapsed and no additional abandonment is necessary. Ultimately, the method of sample collection will be left to the discretion of the Field Sampling Lead.

Soil sampling at depth (e.g., beneath asphalt) will be completed using Geoprobe® Model 6600 per EQT-06, Geoprobe® Model 5400 and Model 6600, or an alternate method identified in SMPL-01, as long as sufficient volume is collected from the appropriate depth to perform the prescribed analyses. Following sample collection, each soil core shall be divided, if necessary, and placed into the proper sample containers. Upon completion of sample collection, the boreholes will be plugged in accordance with DRL-01, Plugging and Abandonment or EQT-06. Any concrete or asphalt that must be removed will be replaced with an equal thickness of cement. Ultimately, the method of sample collection will be left to the discretion of the Field Sampling Lead.

Quality control sample requirements will include a duplicate field sample, a trip blank, and a container blank and/or rinsate. Quality control samples will be collected per procedure SMPL-21, Collection of Field Quality Control Samples. For the duplicate field sample, twice the soil volume (a second core) will be collected at one location in the CU, and will not be homogenized with the original sample. The location that requires the collection of a duplicate sample is identified in Appendix C. A trip blank will be collected each day that volatile organic compound (VOC) samples are collected, or one per 20 VOC samples that are collected, or one per cooler that will be shipped, whichever is more frequent. Depending on the sample collection method used, container blanks or rinsates will be collected. A container blank will be collected prior to sample collection and at the conclusion of sample collection for this project. All samples will be assigned unique sample identification numbers. Additional information regarding quality control requirements can be found in Section 6.1.

If a subsurface obstacle (e.g., a utility) prevents sample collection at the specified location, it can be moved according to the following guidelines:

- The distance moved must be as small as possible (less than 3 feet);
- It must remain within the boundary of the same CU and sub-CU, and must still meet the minimum distance criterion;
- If the distance moved is greater than 3 feet, the move must be documented in a V/FCN, considered as significant, which will be approved by the agencies prior to collection.
- Anytime a location is moved, the appropriate figure should be used to determine the best direction to move the point to adhere to the above guidelines. The Characterization Manager or designee should be contacted when a sample location is moved. All final sampling locations will be documented in the Certification Report.

Customer sample numbers and FACTS identification numbers will be assigned to all samples collected. The sample labels will be completed with sample collection information, and technicians will complete a Field Activity Log (FAL), a Sample Collection Log, and a Chain of Custody/Request for Analysis form in the field prior to submittal of the samples.

All soil samples from the CU with like analyses (including the field duplicate) will be batched and submitted to the Sample Processing Laboratory (SPL) under one set of Chain of Custody/Request for Analysis forms which will represent one analytical release. The container blank and/or rinsate will be listed on a separate Chain of Custody/Request for Analysis form. No alpha/beta screens will be required, as historical information can be used for shipping purposes.

4.3.2 Equipment Decontamination

Decontamination is performed to prevent the introduction of contaminants from sampling equipment to subsequent soil samples. Field Technicians will ensure that sampling equipment (core tubes and caps) has been decontaminated prior to transport to the field. As described in SMPL-01, all sampling equipment will have been decontaminated before it is transported to the field site, and the 6-inch core liners will be decontaminated using the Level II (Section K.11 of the SCQ) procedure upon receipt from the manufacturer. Decontamination is also necessary in the field if sampling equipment is reused. If an alternate sampling method is used, equipment will be decontaminated between collections of sample intervals, and again after the sampling performed under this CDL and Certification PSP is completed. Following decontamination, clean disposable wipes may be used to replace air-drying of the equipment.

4.3.3 Physical Sample Identification

Each soil certification sample will be assigned a unique sample identification number as *Remediation Area-C##-Location^Analysis-QC,* where:

A7STSA = Sample collected from Area 7 Silos Truck Staging Area; A6P2 = Area 6, Phase II; A7SAR = Area 7 South Access Road Area (Area 1, Phase IV-Part Four is included as part of this area)

C## = Certification unit from which sample was collected

Location = Sample location number within the CU (1 through 16)

Analysis = "R" indicates radiological analysis; "M" indicates metals analysis; "P" indicates polychlorinated biphenyl (PCB) and/or pesticides analysis; "S" indicates semi-volatiles or PAHs; and "L" indicates VOC analysis.

QC = Quality control sample, if applicable. A "D" indicates a field duplicate sample; "Y1" indicates the first container blank sample; "X1" indicates the first rinsate sample; "TB1" indicates the first trip blank collected, and each additional trip blank collected will be consecutively numbered.

For example, a field duplicate sample taken from the 2nd sample location from CU A6P2-05, for radiological, metals, semi-volatile organic compounds (SVOCs), and PCB analysis would be identified as A6P2-C05-2^RMPS-D.

Because a proposed laydown area for restoration necessitated sampling of the designated area prior to submission of this document the sample identifiers for these two CUs do not follow the convention outlined above. Refer to Appendix D for the convention used for these samples. The sampler identifiers for all other CUs are presented in Appendix C.

As stated in Section 2.4.1, four samples were collected in the projected footprint of the Communications Hut in anticipation of its construction and expected usage by DOE-Legacy Management. Upon review, two of the sample points fall within the actual Communications Hut footprint. These two sample points will be used in place of the proposed sample point A7SAR-C04-11. The data from these sample points are presented in Appendix E.

Additionally, because trailers are still present in the security trailer area, shown in Figure 4-3 as CUs A7SAR-C03 and A7SAR-C04, samples will be collected from within the footprint of all impermanent structures (see Figure 4-13). This is being done to demonstrate that the trailers have not been a source of contamination. The sample identifiers for these samples are presented in Appendix C.

4.4 ANALYTICAL METHODOLOGY

All soil samples from the CU with like analyses (including the field duplicate) will be batched and submitted to the SPL under one set of Chain of Custody/Request for Analysis forms which will represent

one analytical release. Container blanks will be listed on a separate Chain of Custody/Request for Analysis form but may be batched together in one analytical release.

All samples will be prepared for shipment to off-site laboratories per procedure 9501, Shipping Samples to Off-site Laboratories. Samples will only be shipped to off-site laboratories that are listed on the Fluor Fernald Approved Laboratories List. Predesign data from the area will be used to ship the samples off site. The highest predesign total uranium result is 23.5 mg/kg from boring A6-SA3-8.

Samples collected for VOC analysis should be shipped to an off-site laboratory within 24 hours of sample collection. As soon as the samples arrive at the laboratory where the analysis will take place, all samples should be prepared for analysis (including homogenization for non-VOC samples), and radiological samples should be sealed to begin the in-growth period for radium analysis. A 10-day turnaround time (TAT) will be required for all non-radiological and non-gamma analytical data reporting. A 10-day TAT will be required for preliminary radiological analytical data (PEDD) reporting followed by a 30-day TAT for the standard in-growth gamma analysis and reporting (see Table 4-1).

The sampling and analytical requirements are listed in Table 4-1 and the Target Analyte Lists (TAL) are shown in Table 4-2. Those used for CUs A6P2-PC02 and A6PC-C02 are presented in V/FCN 20600-PSP-0016-76 (see Appendix D).

Laboratory analysis of certification samples will be conducted using an approved analytical method, as discussed in Appendix H of the SEP. The CRDL is set at 10 percent of the FRL. Analyses will be conducted to either Analytical Support Level (ASL) D or E. All requirements for ASL E are the same as for ASL D except the minimum detection level for the selected analytical method must be at least 10 percent of FRL. All results will be validated to Validation Support Level (VSL) B, and a minimum of 10 percent of the results will be validated to VSL D. The CU(s) to be validated to VSL D will be A6P2-C05 AND A7SAR-C05. Samples rejected during validation will be re-analyzed, or an alternate sample may be collected and substituted if there is insufficient material available from the initial sample. If any sample fails validation, all data from the laboratory with the rejected result will then be validated to VSL D to determine the integrity of all data from that laboratory. Once data are validated, results will be entered into the SED.

4.5 STATISTICAL ANALYSIS

Once data are entered into the SED, a statistical analysis will be performed to evaluate the pass/fail criteria for each CU. The statistical approach is discussed in Section 3.4.3, Appendix G of the SEP, and Section 3.4.8 of the SEP Addendum.

Two criteria must be met for the CU to pass certification. If the data distribution is normal or lognormal, the first criterion compares the 95 percent upper confidence limit (UCL) on the mean of each primary COC to its FRL, or the 90 percent UCL on the mean of each secondary ASCOC. On an individual CU basis, any ASCOC with the 95 percent UCL above the FRL for primary ASCOCs (or 90 percent UCL above the FRL results for secondary COCs) results in that CU failing certification. If the data distribution is not normal or lognormal, the appropriate nonparametric approach discussed in Appendix G of the SEP will be used to evaluate the first criterion. The second criterion is the hotspot criterion, which states that primary or secondary ASCOC results must not exceed two times the FRL. When the given UCL on the mean for each COC is less than its FRL and the hotspot criterion is met, the CU will be considered certified.
In the event that the CU fails certification, the following scenarios will be evaluated: 1) a high variability in the data set, 2) localized contamination, and 3) widespread contamination. Details on the evaluation and responses to these possible outcomes are provided in Section 3.4.5 of the SEP. When the CU within the scope of this CDL/Certification PSP has passed certification, a certification report will be issued. The Certification Report will be submitted to the U.S. Environmental Protection Agency (EPA) and the Ohio Environmental Protection Agency (OEPA) to receive acknowledgement that the pertinent operable unit remedial action was completed and the individual CU is certified to be released for interim or final land use. Section 7.4 of the SEP provides additional details and describes the required content of the Certification Reports.

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TABLE 4-1
SAMPLING AND ANALYTICAL REQUIREMENTS

Analyte	Method	Sample Matrix	ASL	Preservation	Hold Time	TAT	Container[b]	Minimum Mass/ Volume
Any combination of Rads, Metals, PCBs, and/or SVOCs (any combination of TALs A, B, C, D, E, F, G, and/or I)	Gamma Spec and LSC or GPC	Solid	D/E[a]	Cool to 4°C	12 months	10-day preliminary 30-day final (for gamma spec) 10-day final (for all other Rads)	Glass with Teflon-lined lid	700 g (2100 g)[c]
	ICP-AES or ICP-MS				6 months	10 days		
	GC				14 days	10 days		
	GC				14 days	10 days		
Radiological (TALs A, B, and/or C)	Gamma Spec and LSC or GPC	Liquid[d]	D/E[a]	HNO_3 to pH<2	6 months	30 days	Polyethylene	4 Liters
Metals (TAL D)	ICP-AES or ICP-MS	Liquid[d]	D/E[a]	HNO_3 to pH<2	6 months	10 days	Polyethylene	500 mL
VOCs (TAL H)	GC-MS	Solid	D/E[a]	Cool to 4°C	48 hours	10 days	3 x 1-Encore Sampler[c] plus 1 x 2-oz. Jar for % moisture	Each full Encore Sampler[c] will hold approx. 5 g.
VOCs (TAL H)	GC-MS	Liquid (trip blank)	D/E[a]	H_2SO_4 to pH<2 Cool to 4°C	14 days	10 days	3 x 40-mL glass with Teflon-lined septa	120 mL (no head space)

[a] Samples will be analyzed according to ASL D requirements but the minimum detection level may cause some analyses to be considered ASL E.

[b] Sample container types may be changed at the direction of the Field Sampling Lead, as long as the volume requirements, container compatibility requirements, and SCQ requirements are met.

[c] At the direction of the Field Sampling Lead, triple the specified volume must be collected for all samples at one location in the CU in order for the contract laboratory to perform the required quality control analysis. The samples shall be identified on the Chain of Custody/Request for Analysis forms as "designated for laboratory QC".

[d] If "push tubes" are used for sampling, the off-site laboratories will be sent container blanks. If an alternative sample method is used, a rinsate will be collected by the Field Technicians.

GC-MS - gas chromatography/mass spectroscopy
GPC - gas proportional counting.
ICP-AES - inductively coupled plasma - atomic emission spectroscopy
ICP-MS - inductively coupled plasma - mass spectroscopy
LSC - liquid scintillation counting

TABLE 4-1
SAMPLING AND ANALYTICAL REQUIREMENTS
(Continued)

ADDITIONAL INFORMATION

Historical information will be used for shipping. The highest predesign total uranium result is 23.5 mg/kg from boring A6-SA3-8.

All data will be validated. The following CUs will be validated to VSL D: A6P2-C05 and A7SAR-C05.

Approximately 18 rinsates or 2 container blanks for radiological and metals analysis will be submitted under this project.

TABLE 4-2
TARGET ANALYTE LISTS

20600-PSP-0014-A
(Radiological - ASL D/E*)
(234 soil analyses specified)

Analyte	FRL	MDL	MDL (water)
Total Uranium	82 mg/kg	8.2 mg/kg	350 µg/L
Total Uranium (hi-leachability)	20 mg/kg	2.0 mg/kg	350 µg/L
Radium-226	1.7 pCi/g	0.17 pCi/g	25 pCi/L
Radium-228	1.8 pCi/g	0.18 pCi/g	12 pCi/L
Thorium-228	1.7 pCi/g	0.17 pCi/g	83.0 pCi/L
Thorium-232	1.5 pCi/g	0.15 pCi/g	27.0 pCi/L

20600-PSP-0014-B
(Radiological - ASL D/E*)
(39 soil analyses specified)

Analyte	FRL	MDL	MDL (water)
Thorium-230	280 pCi/g	28.0 pCi/g	50 pCi/L

20600-PSP-0014-C
(Radiological - ASL D/E*)
(13 soil analyses specified)

Analyte	FRL	MDL	MDL (water)
Technetium-99	29.1 mg/kg[2]	2.91 mg/kg[2]	45,000 pCi/L

20600-PSP-0014-D
(Metals - ASL D/E*)
(39 soil analyses specified)

Analyte	FRL	MDL	MDL (water)
Beryllium	1.5 mg/kg	0.15 mg/kg	0.225 mg/L

20600-PSP-0014-E
(PCBs - ASL D/E*)
(39 soil analyses specified)

Analyte	FRL/*BTV*[ϕ]	MDL
Aroclor-1254	0.13 mg/kg	0.013 mg/kg

20600-PSP-0014-F
(PCBs - ASL D/E*)
(26 soil analyses specified)

Analyte	FRL/*BTV*[ϕ]	MDL
Aroclor-1254	0.13 mg/kg	0.013 mg/kg
Aroclor-1260	0.13 mg/kg	0.013 mg/kg

TABLE 4-2
TARGET ANALYTE LISTS
(Continued)

20600-PSP-0014-G
(Pesticides - ASL D/E*)
(13 soil analyses specified)

Analyte	FRL/*BTV*[b]	MDL
Dieldrin	0.015 mg/kg	0.0015 mg/kg

20600-PSP-0014-H
(VOAs - ASL D/E*)
(13 soil analyses specified)

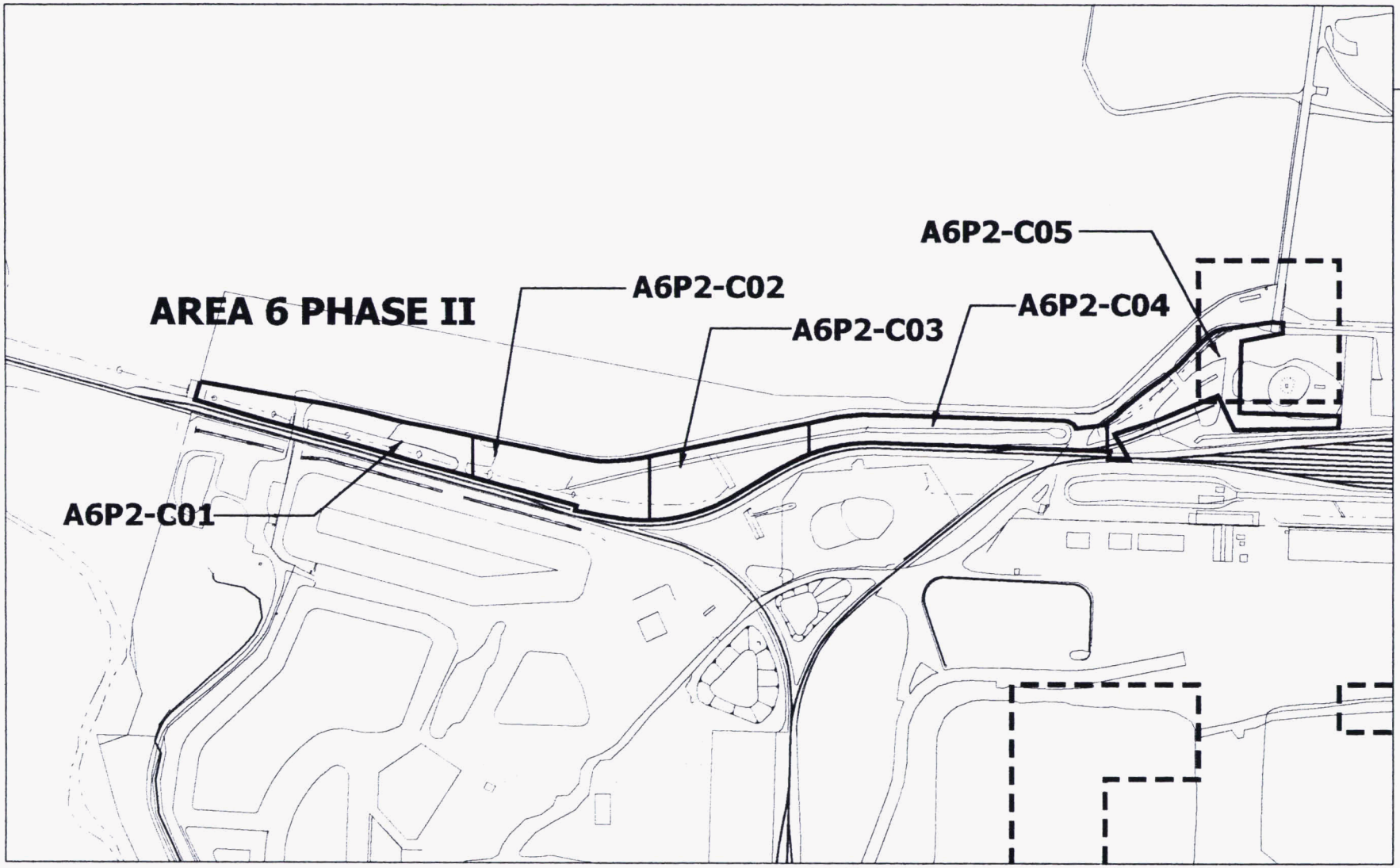
Analyte	FRL	MDL	MDL (water)
1,1-Dichloroethene	0.41 mg/kg	0.041 mg/kg	10 µg/L
Tetrachloroethene	3.6 mg/kg	0.36 mg/kg	10 µg/L

20600-PSP-0014-I
(PAHs - ASL D/E*)
(13 soil analyses specified)

Analyte	FRL/*BTV*[b]	MDL
Benzo(a)anthracene	*1.0 mg/kg*	*0.1 mg/kg*
Benzo(a)pyrene	*1.0 mg/kg*	*0.1 mg/kg*
Benzo(b)fluoranthene	*1.0 mg/kg*	*0.1 mg/kg*
Benzo(g,h,i)perylene	*1.0 mg/kg*	*0.1 mg/kg*
Benzo(k)fluoranthene	*1.0 mg/kg*	*0.1 mg/kg*
Chrysene	*1.0 mg/kg*	*0.1 mg/kg*
Dibenzo(a,h)anthracene	*0.088 mg/kg*	*0.0088 mg/kg*
Fluoranthene	*10.0 mg/kg*	*1.0 mg/kg*
Indeno(1,2,3-cd)pyrene	*1.0 mg/kg*	*0.10 mg/kg*
Phenanthrene	*5.0 mg/kg*	*0.5 mg/kg*
Pyrene	*10.0 mg/kg*	*1.0 mg/kg*

[a] The MDL for technetium-99 is 10 percent of the WAC limit, which is lower than the FRL.
[b] BTV applies to Ecological COCs.
*Analytical requirements will meet ASL D but the MDL may cause some analyses to be considered ASL E.

µg/L - micrograms per liter
mg/L - milligrams per liter
pCi/L - picoCuries per liter
VOAs - volatile organic analysis



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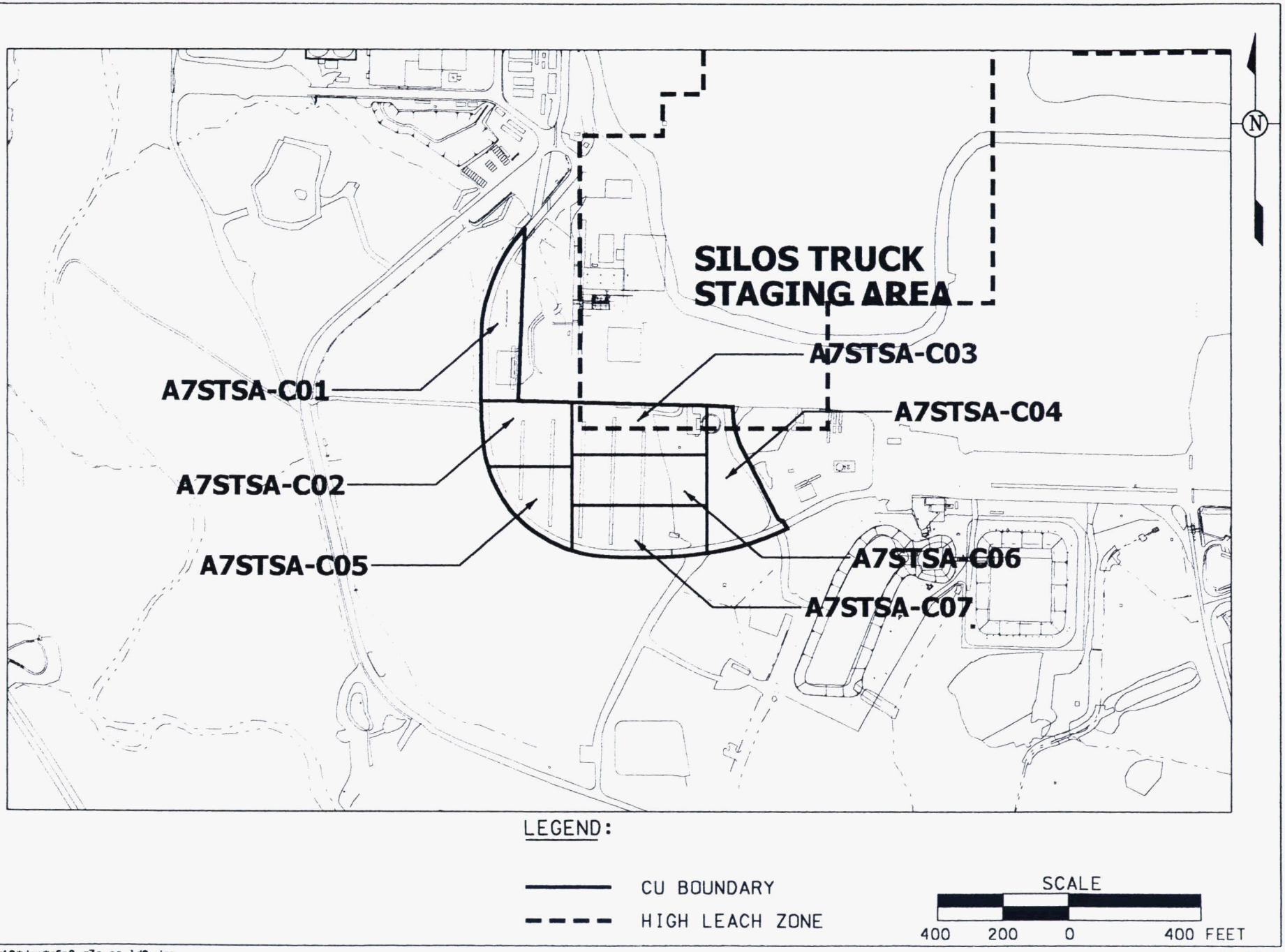
STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 4-1. AREA 6, PHASE II CU LOCATION MAP

23-MAY-2006



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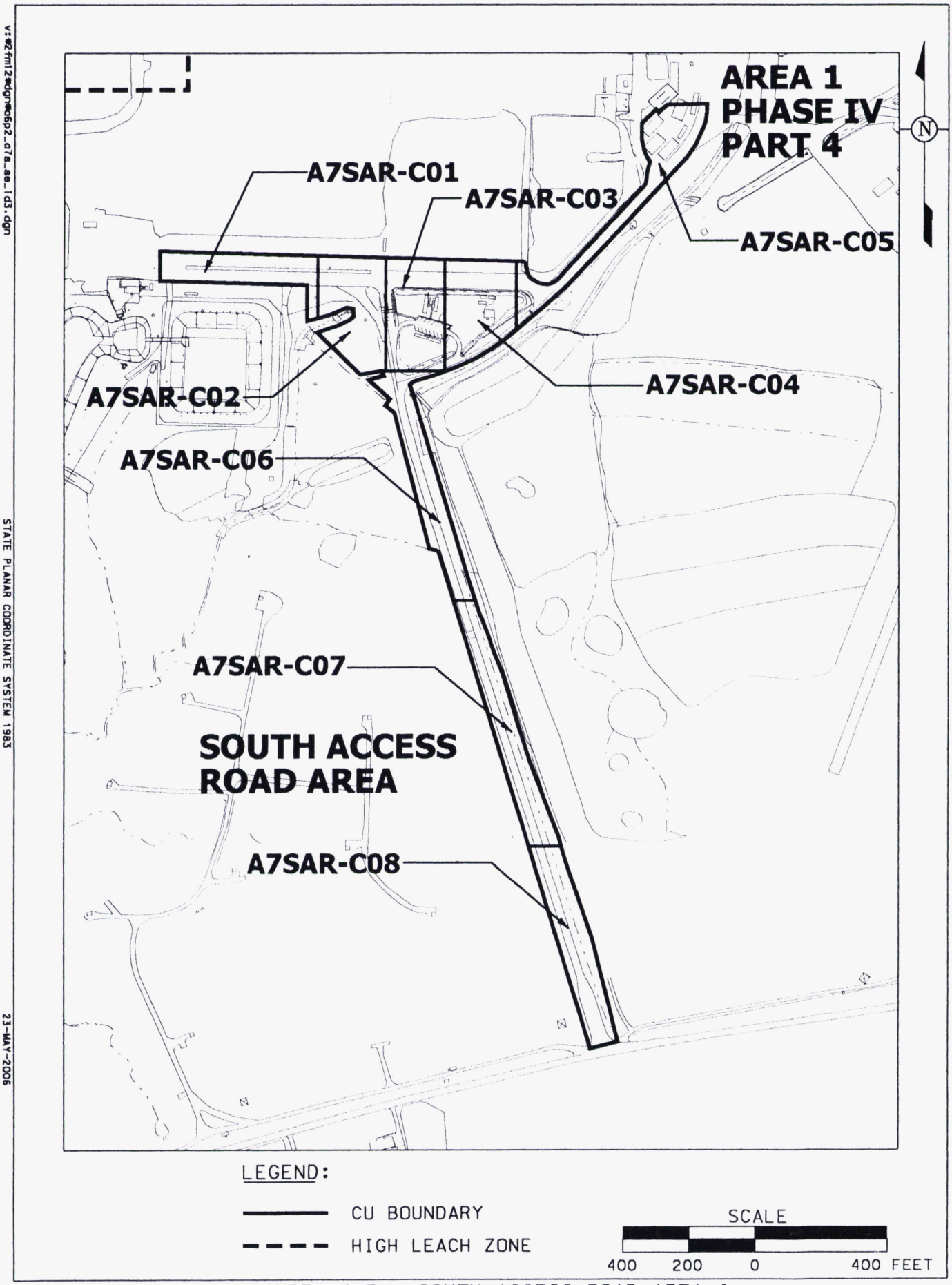
STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 4-2. SILOS TRUCK STAGING AREA CU LOCATION MAP

23-MAY-2006



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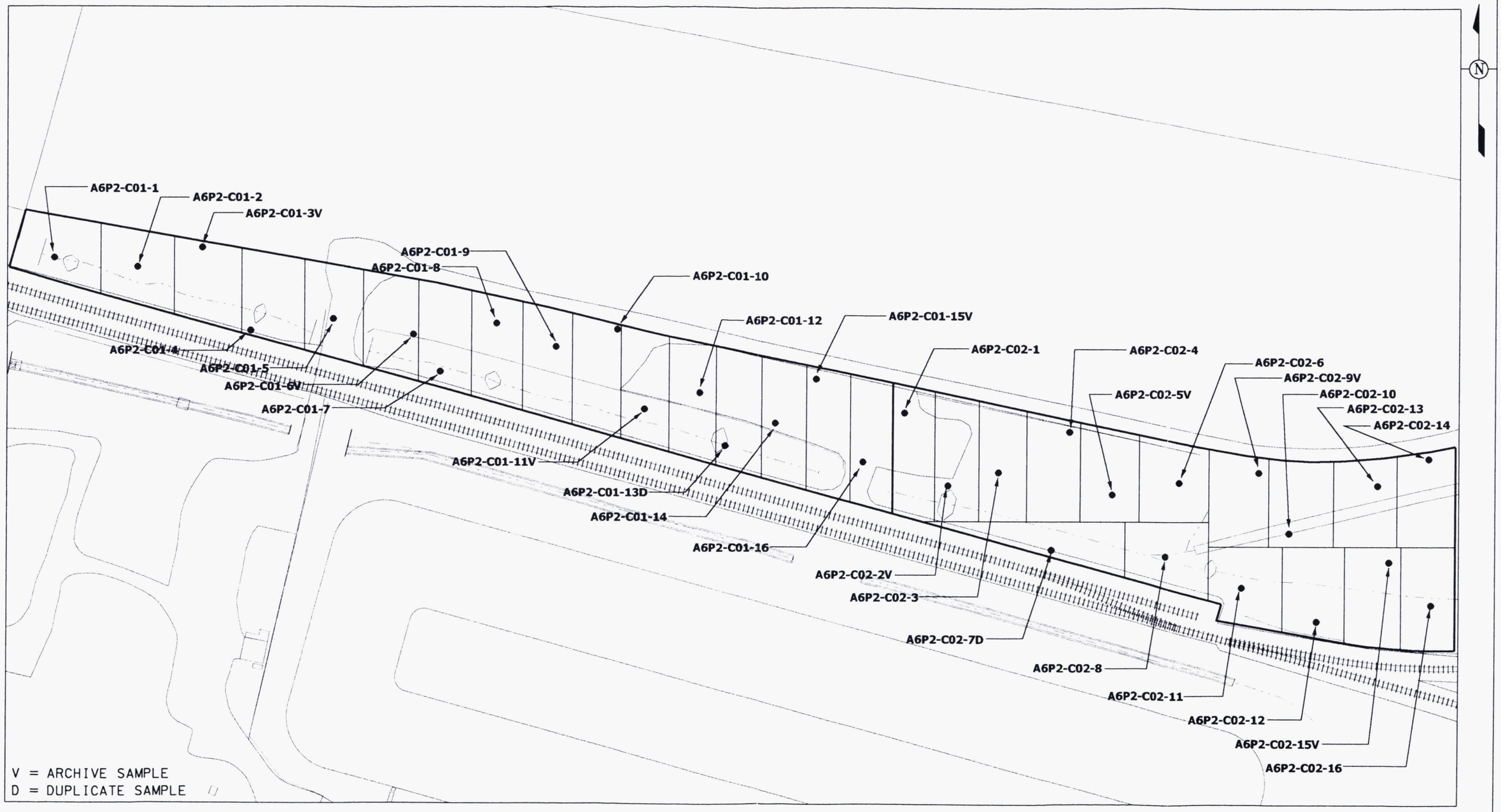
STATE PLANAR COORDINATE SYSTEM 1983

23-MAY-2006

FIGURE 4-3. SOUTH ACCESS ROAD AREA &
AREA 1, PHASE IV - PART 4 CU LOCATION MAP



LEGEND:

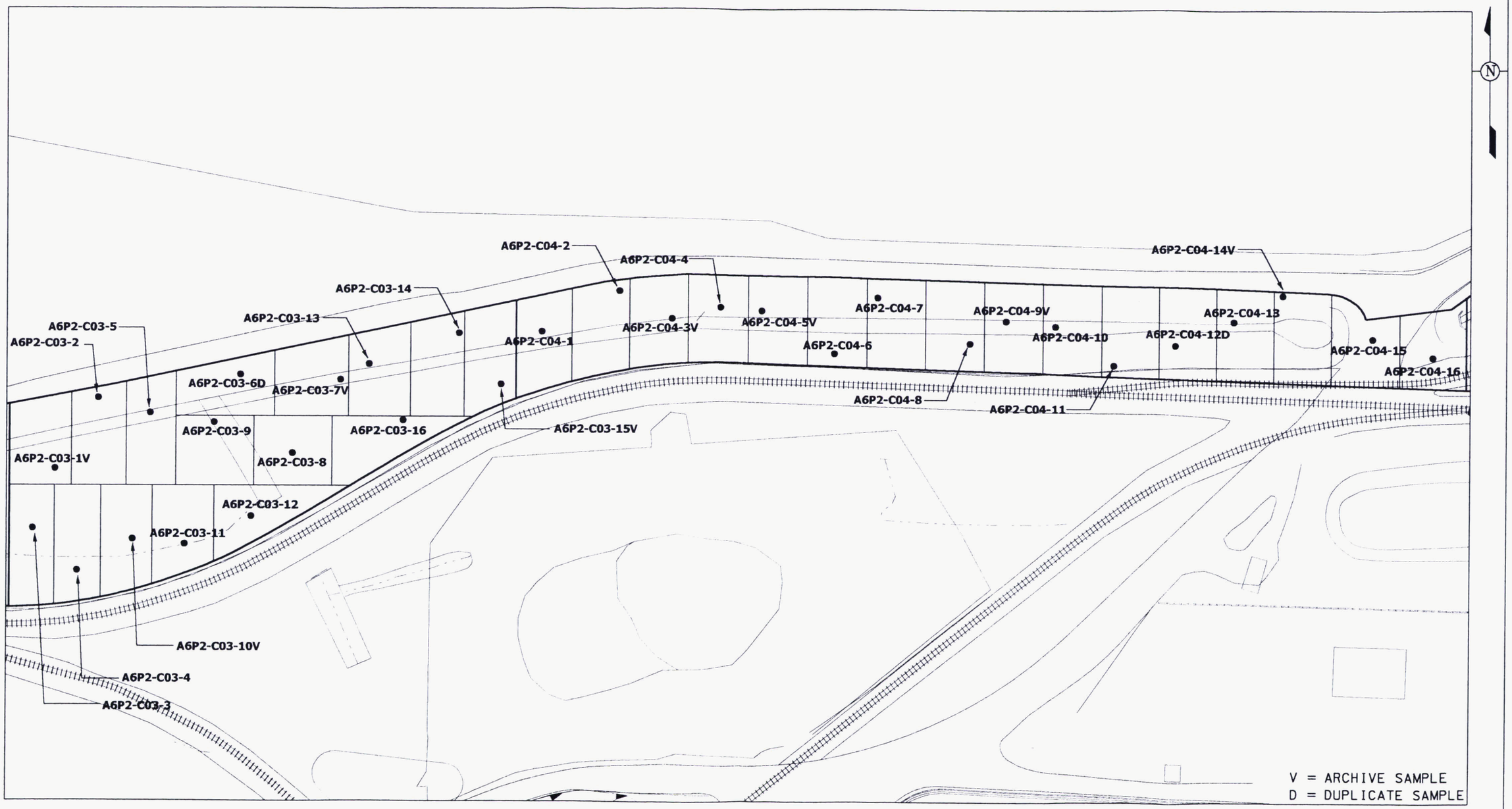
• SAMPLE LOCATION

SCALE

80 40 0 80 FEET

v:\2fm12\dgn\a6p2_001.dgn STATE PLANAR COORDINATE SYSTEM 1983 10-MAY-2006

FIGURE 4-4. AREA 6, PHASE II SUB CU & SAMPLE LOCATION MAP - CU's C01 & C02



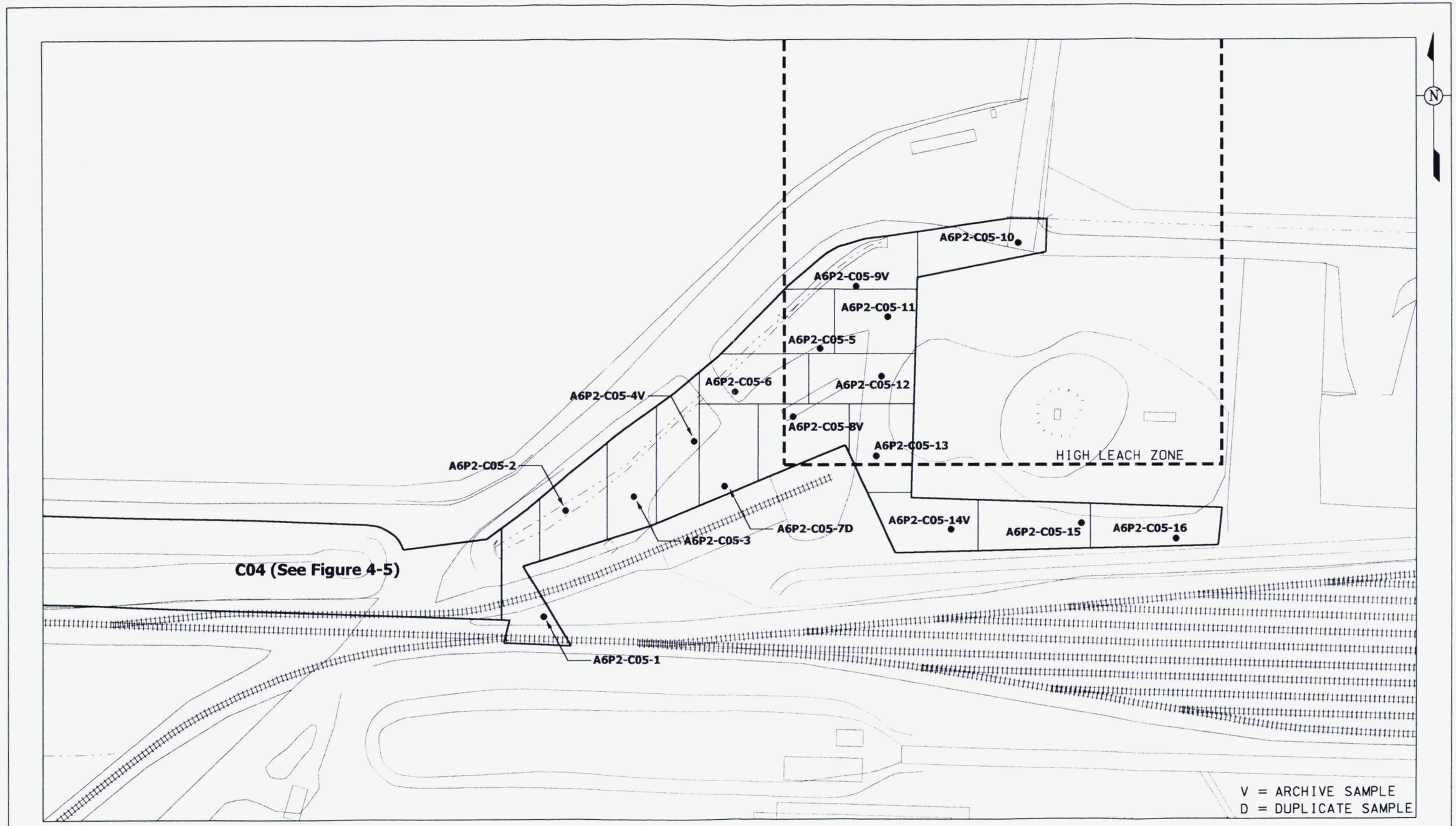
LEGEND:

• SAMPLE LOCATION

SCALE
80 40 0 80 FEET

v:\e2fm12\dgn\a6p2_002.dgn STATE PLANAR COORDINATE SYSTEM 1983 10-MAY-2006

FIGURE 4-5. AREA 6, PHASE II SUB CU & SAMPLE LOCATION MAP - CU's C03 & C04

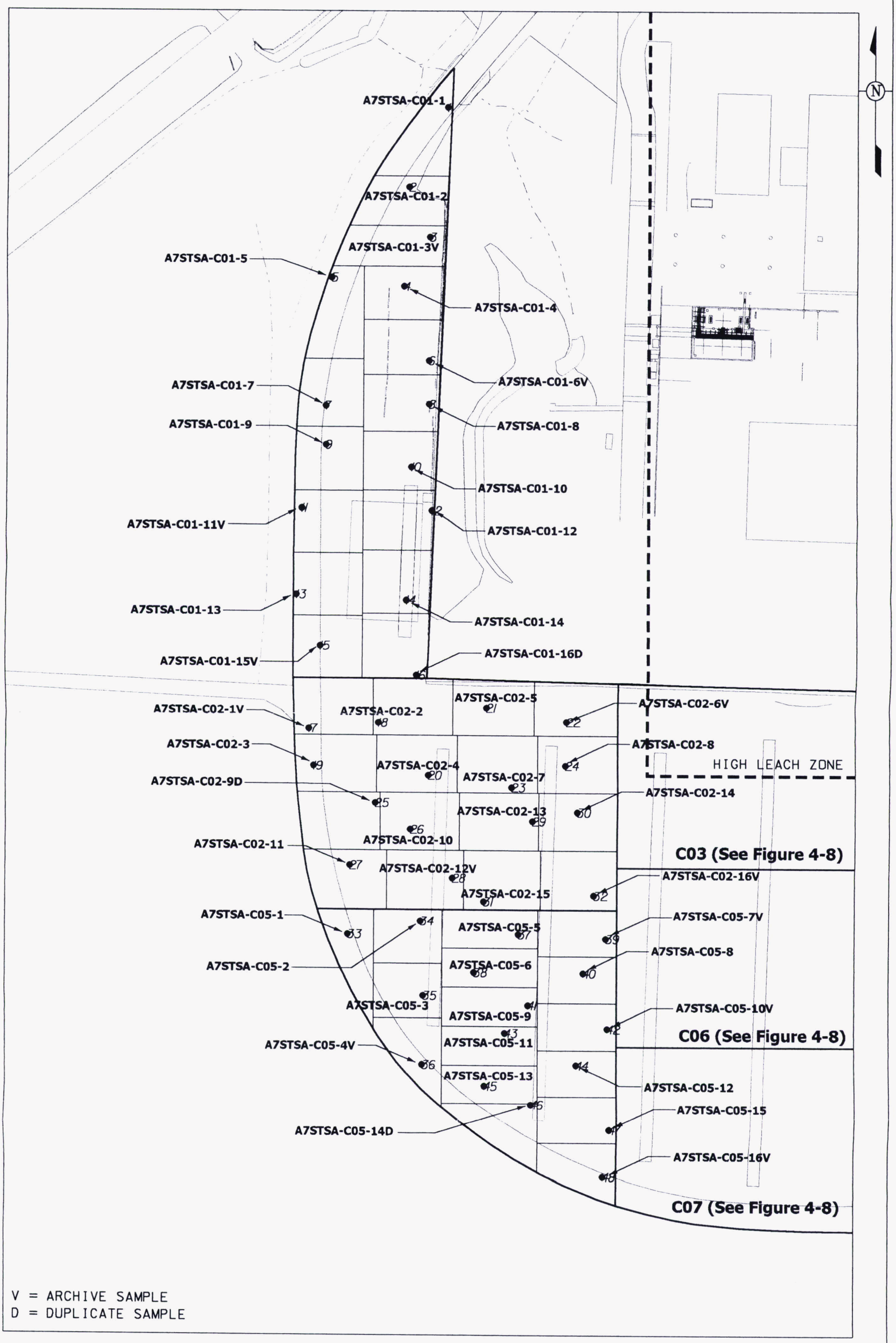


v:#2fm12#dgn#a6p2_003.dgn STATE PLANAR COORDINATE SYSTEM 1983 23-MAY-2006

FIGURE 4-6. AREA 6, PHASE II SUB CU & SAMPLE LOCATION MAP FOR CU C05

v:\e2fm12\dgn\e07_south_001.dgn

STATE PLANAR COORDINATE SYSTEM 1983



V = ARCHIVE SAMPLE
D = DUPLICATE SAMPLE

LEGEND:

• SAMPLE LOCATION

SCALE
80 40 0 80 FEET

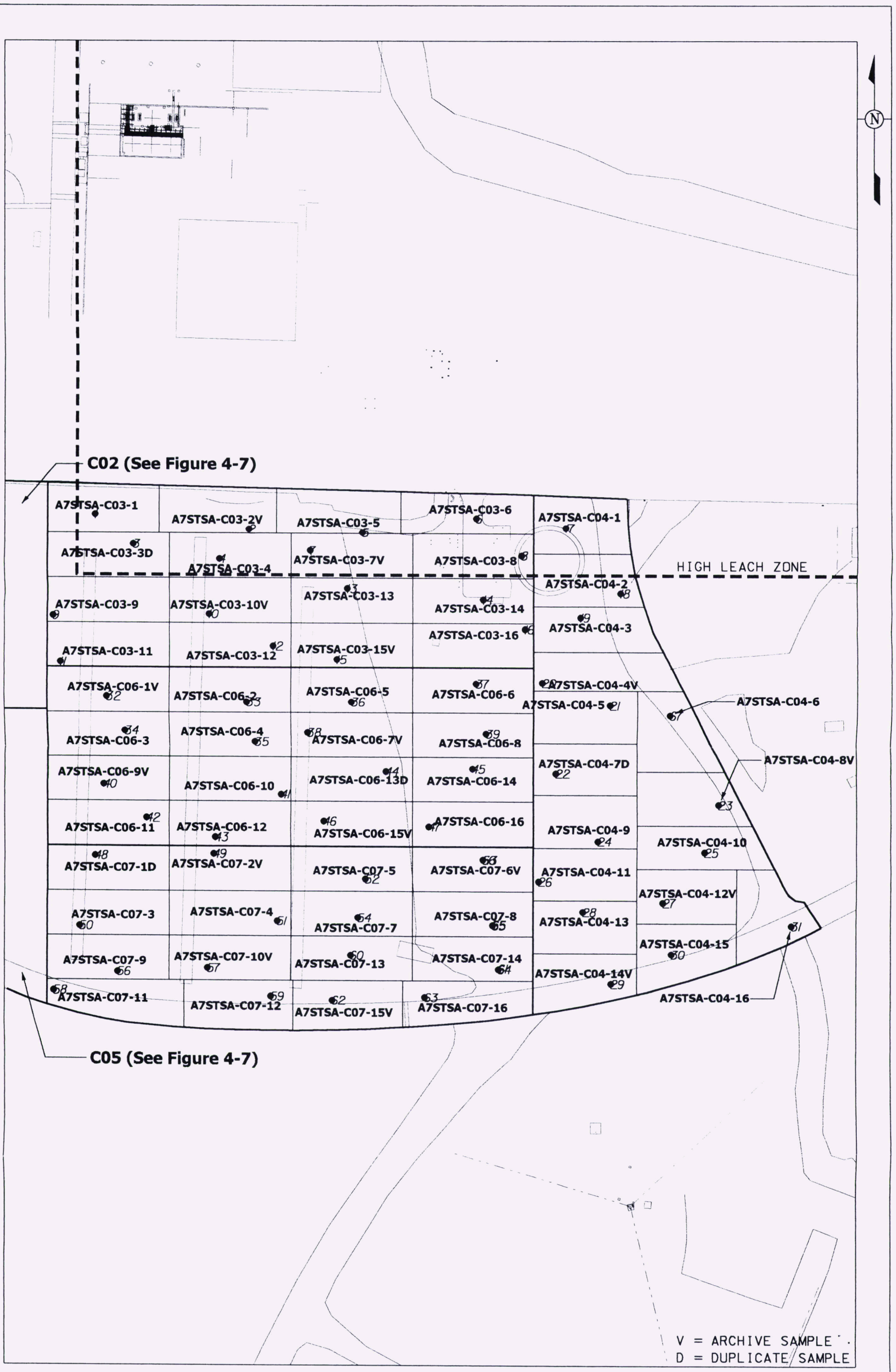
23-MAY-2006

0061998

FIGURE 4-7. SILOS TRUCK STAGING AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C01, C02, & C05

v:\2fml2\dgn\a7_south_002.dgn

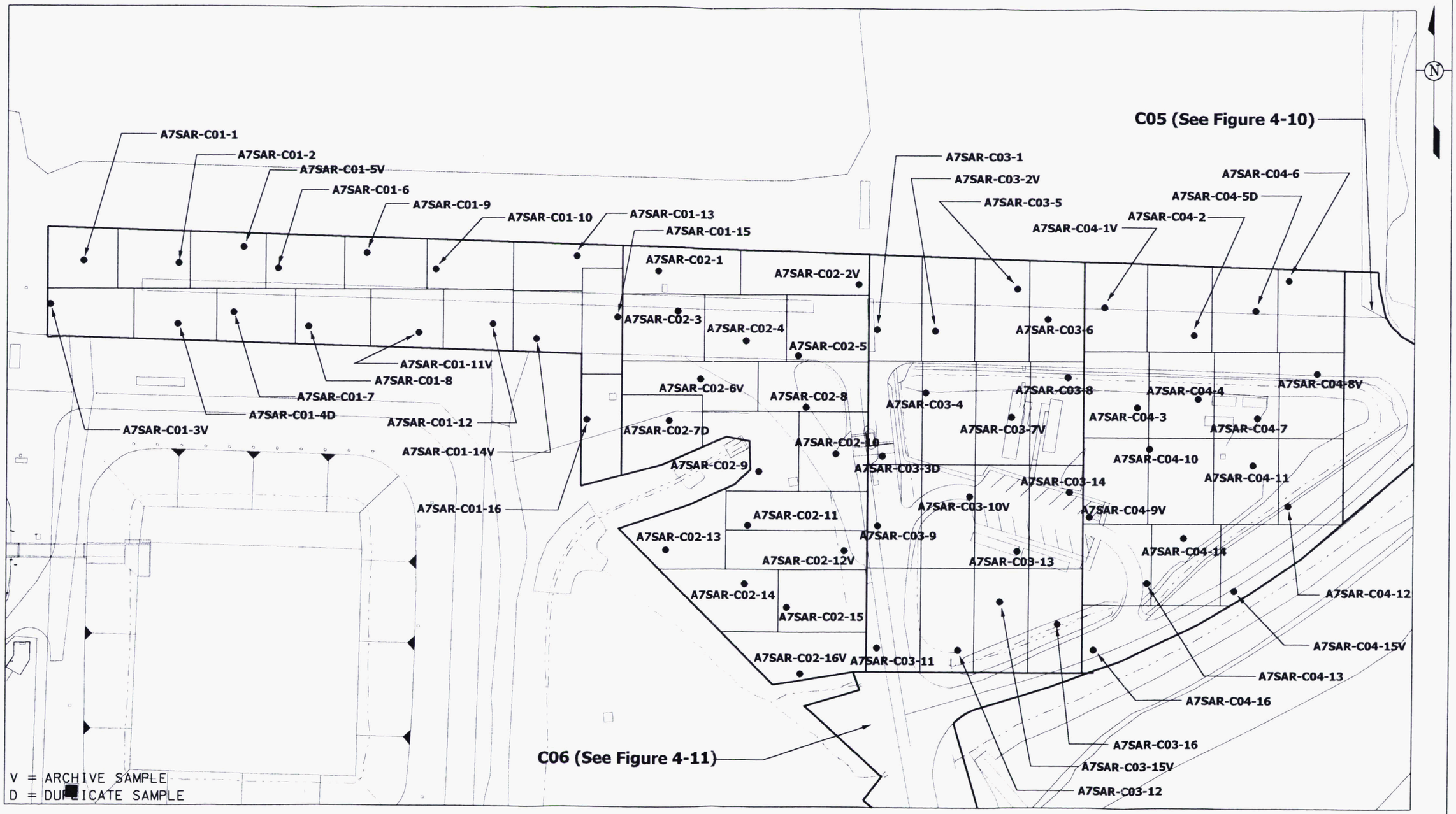
STATE PLANAR COORDINATE SYSTEM 1983



23-MAY-2006

FIGURE 4-8. SILOS TRUCK STAGING AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C03, C04, C06, & C07

006198



v:\e2fm12\dgn\a7_se_001.dgn STATE PLANAR COORDINATE SYSTEM 1983 23-MAY-2006

FIGURE 4-9. SOUTH ACCESS ROAD AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C01 THROUGH C04

v:\e2fm12\edgn\e7_ea_002.dgn

STATE PLANAR COORDINATE SYSTEM 1983

10-MAY-2006

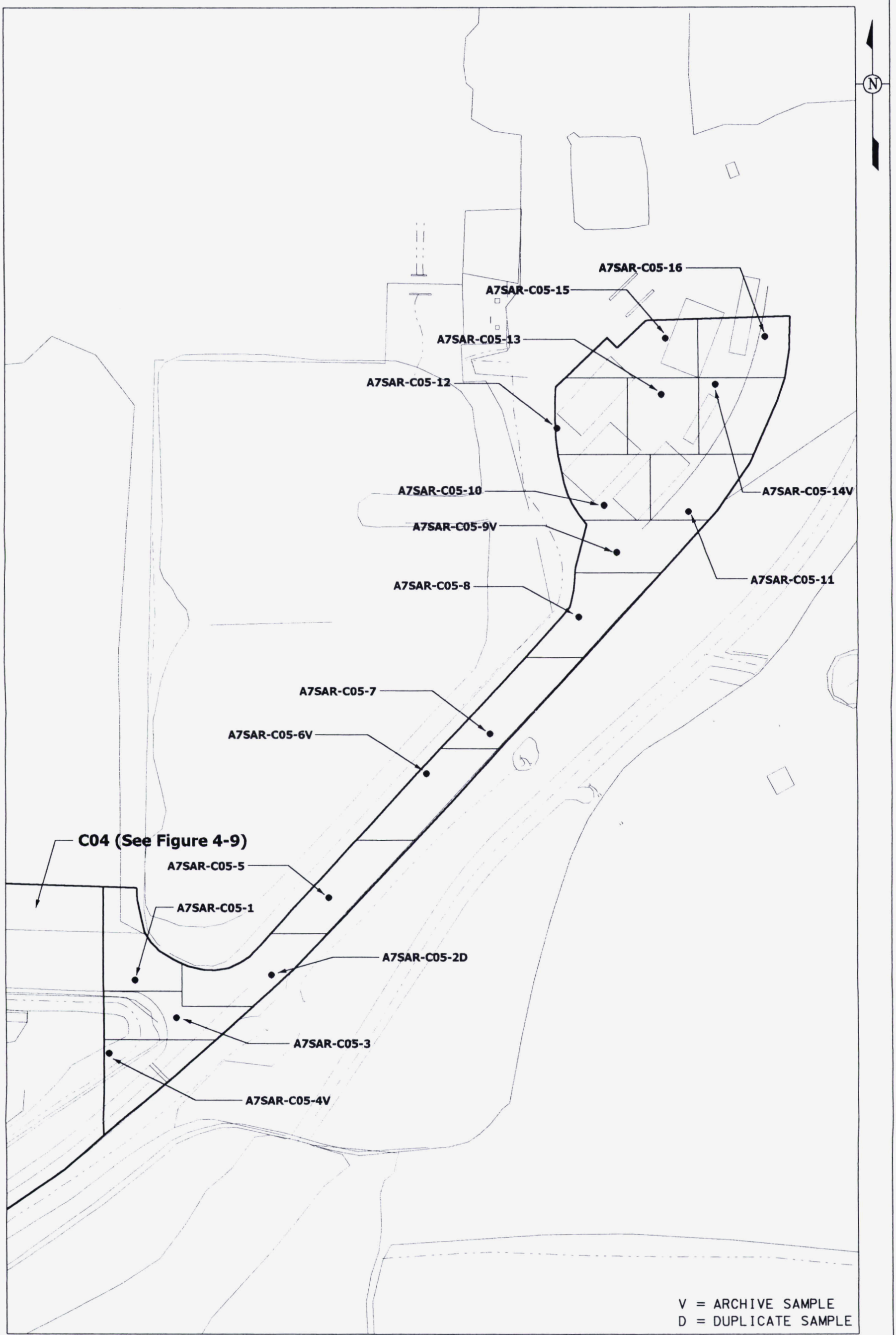


FIGURE 4-10. AREA 1, PHASE IV, PART 4 & SOUTH ROAD ACCESS AREA
SUB CU & SAMPLE LOCATION MAP FOR CU C05

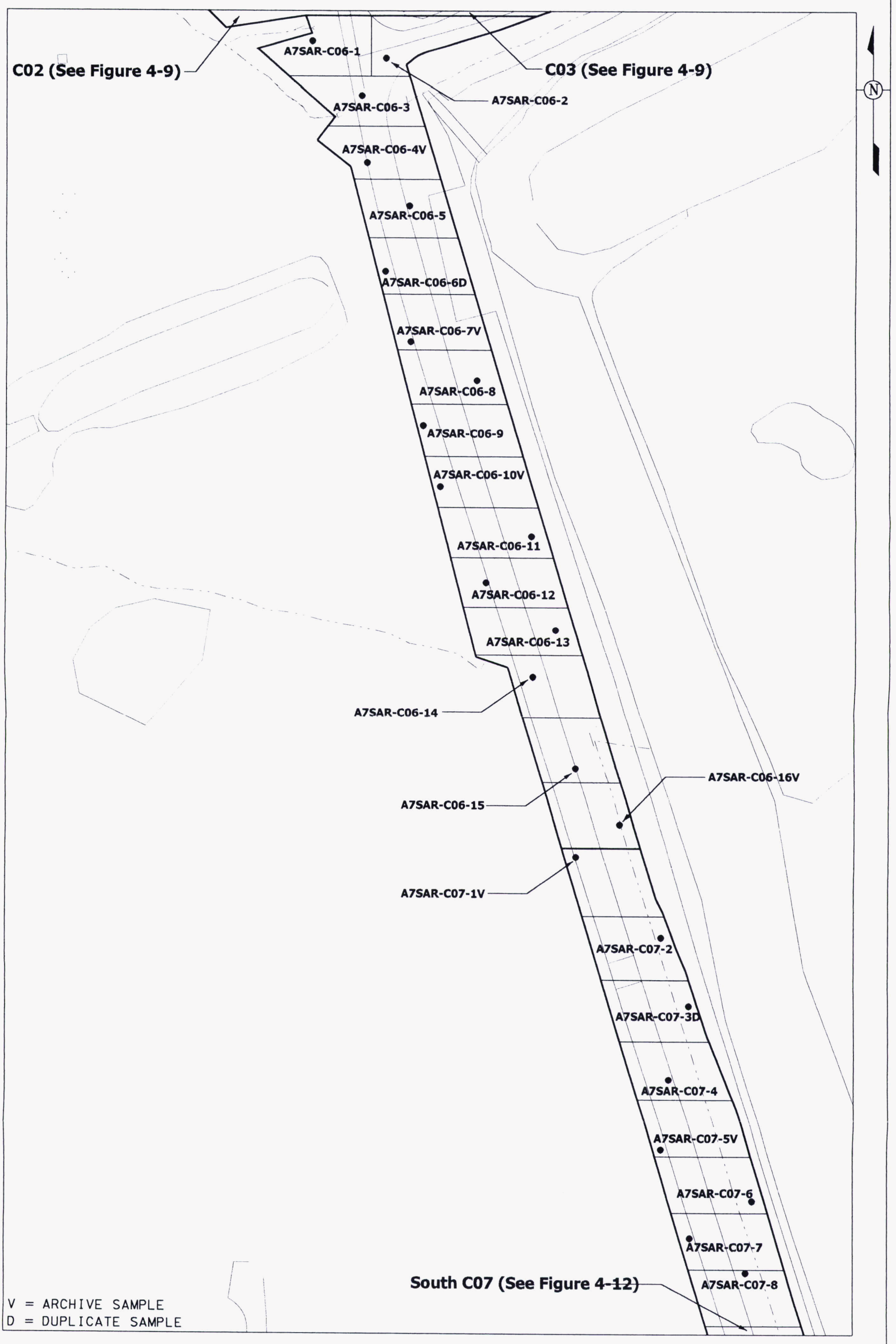


FIGURE 4-11. SOUTH ACCESS ROAD AREA SUB CU & SAMPLE LOCATION MAP FOR CU's CO6 & CO7

v:\a7fm12\dgn\a07_se_004.dgn

STATE PLANAR COORDINATE SYSTEM 1983

10-MAY-2006

North C07
(See Figure 11)

A7SAR-C07-9
A7SAR-C07-10
A7SAR-C07-11V
A7SAR-C07-12
A7SAR-C07-13
A7SAR-C07-14V
A7SAR-C07-15
A7SAR-C07-16
A7SAR-C08-1
A7SAR-C08-2V
A7SAR-C08-3
A7SAR-C08-4
A7SAR-C08-5
A7SAR-C08-6
A7SAR-C08-7V
A7SAR-C08-8
A7SAR-C08-9V
A7SAR-C08-10
A7SAR-C08-11
A7SAR-C08-12D
A7SAR-C08-13
A7SAR-C08-14
A7SAR-C08-15
A7SAR-C08-16V

N

V = ARCHIVE SAMPLE
D = DUPLICATE SAMPLE

LEGEND:

• SAMPLE LOCATION

SCALE
80 40 0 80 FEET

FIGURE 4-12. SOUTH ACCESS ROAD AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C07 & C08

006198

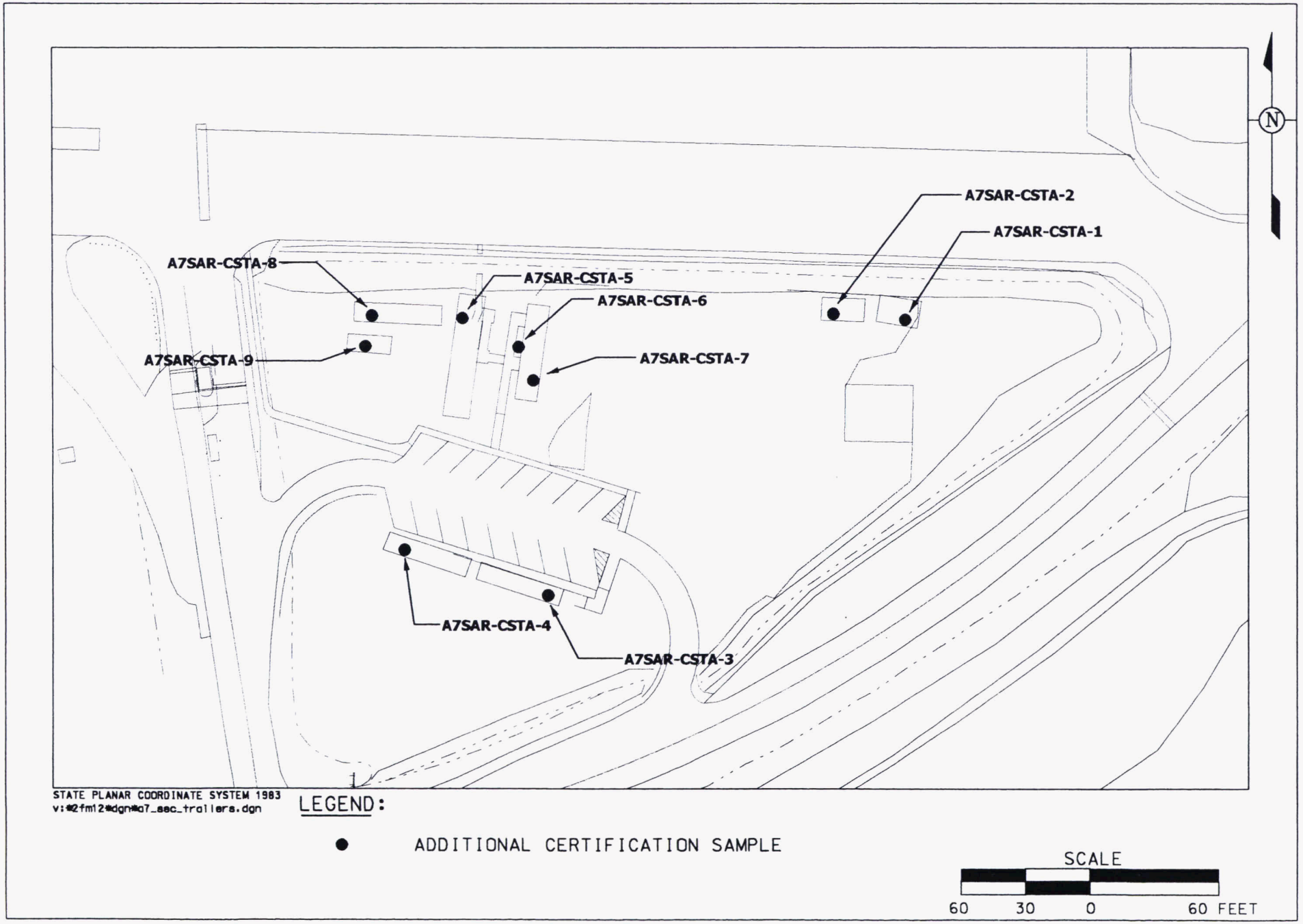


FIGURE 4-13. SECURITY TRAILER AREA ADDITIONAL CERTIFICATION SAMPLING LOCATIONS

5.0 SCHEDULE

The following draft schedule shows key activities for the completion of the work within the scope of this CDL and Certification PSP. Implementation of this schedule is pending funding availability. If necessary, an extension will be requested.

Activity	Target Date
Submittal of Certification Design Letter	April 17, 2006
Start of Certification Sampling	May 17, 2006
Complete Field Work	July 29, 2005
Complete Analytical Work	August 15, 2006
Complete Data Validation and Statistical Analysis	August 25, 2006
Submit Certification Report	September 10, 2006[a]

[a] The date for submittal of the Certification Report is a commitment to EPA and OEPA. Other dates are internal target completion dates.

6.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

6.1 FIELD QUALITY CONTROL SAMPLES, ANALYTICAL REQUIREMENTS AND DATA VALIDATION

Per requirements of the SEP and DQO SL-052, Revision 3 (Appendix B), the field quality control, analytical and data validation requirements are as follows:

- Field QC requirements include one field duplicate for the CU, as noted in Section 4.3 and identified in Appendix C. The field duplicate sample will be analyzed for the same COCs as the other samples in the CU from which the field duplicate has been collected.

  If "push tubes" are used for sample collection, one container blank will be collected before sample collection begins and one will be collected at the conclusion of sample collection for the areas to be certified under this project. The container blank sample will be analyzed for the same radiological and metal COCs from the CU in which it is collected. If an alternate sample collection method is used, one rinsate will be collected and analyzed for the same radiological and metal COCs from the CU in which it is collected at a minimum frequency of one per 20 pieces of equipment reused in the field.

  A trip blank is 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.

- All analyses will be performed at ASL D or E, where E meets the MDL of 10 percent of the FRL and is above the SCQ ASL D detection level, but the analyses meet all other SCQ ASL D criteria. An ASL D data package will be provided for all of the data.

- All field data will be validated. A minimum of 10 percent of the laboratory data will be validated to VSL D with the remainder validated to VSL B. The following CUs will be validated to VSL D: A6P2-C05 AND A7SAR-C05. If any result is rejected during validation, the sample will be re-analyzed or an archive location will be sampled and analyzed in its place. If necessary, this change will be documented in a V/FCN.

Once all data are validated as required, results will be entered into the SED and a statistical analysis will be performed to evaluate the pass/fail criteria for each CU. The statistical approach is discussed in Section 3.4.3 and Appendix G of the SEP.

If any sample collection or analytical methods are used that are not in accordance with the SCQ, the Project Manager and Characterization Manager must determine if the qualitative data from the samples will be beneficial to certification decision making. If the data will be beneficial, the Project Manager and Characterization Manager will ensure that:

- A variance will be written to document references confirming that the new method supports data needs,

- variations from the SCQ methodology are documented in a variance, or

- data validation of the affected samples is requested or qualifier codes of J (estimated) and R (rejected) be attached to detected and non-detected results, respectively.

6.2 PROJECT SPECIFIC PROCEDURES, MANUALS AND DOCUMENTS

Programs supporting this work are responsible for ensuring team members work to and are trained to applicable documents. Additionally, programs supporting this work are responsible for ensuring team members in their organizations are qualified and maintain qualification for site access requirements. The Project Manager will be responsible for ensuring any project-specific training required to perform work per this CDL and Certification PSP is conducted.

To ensure consistency and data integrity, field activities in support of the PSP will follow the requirements and responsibilities outlined in the procedures and guidance documents referenced below.

- 20100-HS-0002, Soil and Disposal Facility Project Integrated Health and Safety Plan
- Sitewide Excavation Plan (SEP)
- Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- SH-1006, Event Investigation and Reporting
- ADM-02, Field Project Prerequisites
- EQT-06, Geoprobe® Model 5400 and Model 6600
- DRL-01, Plugging and Abandonment
- SMPL-01, Solids Sampling
- SMPL-21, Collection of Field Quality Control Samples
- 9501, Shipping Samples to Off-site Laboratories
- Trimble Pathfinder Pro-XL GPS Operation Manual

6.3 INDEPENDENT ASSESSMENT

An independent assessment may be performed by the Fernald Closure Project (FCP) QA/QC organization by conducting a surveillance, consisting of monitoring/observing on-going project activities and work areas to verify conformance to specified requirements. The surveillance will be planned and documented in accordance with Section 12.3 of the SCQ.

6.4 IMPLEMENTATION OF CHANGES

Before the implementation of changes, the Field Sampling Lead will be informed of the proposed changes. Once the Field Sampling Lead has obtained written or verbal approval (electronic mail is acceptable) from the Characterization Manager, or designee, and QA/QC for the changes to the PSP, the changes may be implemented. Changes to the PSP will be noted in the applicable FALs and on a V/FCN. QA/QC must receive the completed V/FCN, which includes the signatures of the Characterization and Sampling Managers, Project Manager, and QA/QC within seven days of implementation of the change. The EPA and OEPA will be given a 15-day review period prior to implementing the change(s) for any V/FCNs identified as "significant" per project guidelines.

7.0 HEALTH AND SAFETY

Coordinate with representatives of the Health and Safety and Industrial Hygiene and Construction for requirements to enter this area. Any hazards identified during the project walkdown must be corrected/controlled prior to the start of work. Weekly walkdowns will be conducted throughout the course of the project in accordance with SPR 1-10, Safety Walk-Throughs. All work performed on this project will be performed in accordance with applicable Environmental Services procedures, RM-0020 (Radiological Control Requirements Manual), RM-0021 (Safety Performance Requirements Manual), Flour Fernald work permits, Radiological Work Permit (RWP), penetration permits, Construction Traveler, and other applicable permits. The radiological work requirements for activities will be detailed in activity-specific RWPs. Concurrence with applicable safety permits is required by each technician in the performance of their assigned duties.

A safety briefing will be conducted prior to the initiation of field activities. Fluor Fernald managers and supervisors are responsible for ensuring that all field activities comply with the Safety and Health requirements and ensuring compliance with the Work Plan. These briefings will be documented. Personnel who are not documented as having completed these briefings will not participate in the execution of field activities.

Personnel will also be briefed on any health and safety documents (such as Travelers) that may apply to the project work scope. During the course of this project, operators shall maintain a 50-foot buffer zone between equipment and sampling personnel where field conditions and working space permit. When this buffer zone cannot be maintained, sampling personnel must communicate their intentions to move around or near the equipment with the operators through eye contact and verbal communication or hand signals. At no time shall the sampling activities be within 25 feet of operating heavy equipment without approval of both the project health and safety representative and construction management. Additionally, the sampling team will utilize traffic cones or other equipment to designate a safe buffer zone for their needs when the 50-foot boundary is not practical. Additional safety information can be found in 20100-HS-0002, Soil and Disposal Facility Project Integrated Health and Safety Plan. All personnel have stop-work authority for imminent safety hazards or other hazards resulting from noncompliance with the applicable safety and health practices.

All personnel entering the Construction Area will obtain a pre-entry briefing on current activities or hazards that may affect their work from Construction management. Additionally, prior to entry into an excavation area, the Competent Person for Excavation shall be contacted to assure that the daily inspection has been completed and the excavation is safe to enter.

Sampling Leads will be provided with cellular phones for all sampling activities, and **all emergencies will be reported by dialing 911 and 648-6511**. Announcements for severe weather will be provided to select company issued cell phones. Cellular phones are provided to the Technicians by FCP, as needed. As soon as possible, field personnel are to contact their supervisor and Health and Safety Representative after any unplanned event or injury.

8.0 DISPOSITION OF WASTE

During sampling activities, field personnel may generate small amounts of soil, water, and contact waste. Excess soil generated during sample collection will be replaced in the borehole. Contact waste generation will be minimized by limiting contact with sample media, and by only using disposable materials that are necessary. Contact waste will be bagged and brought back to site for disposal in an uncontrolled area dumpster. Generation of decontamination waters will be minimized in the field. Decontamination water that is generated will be contained in a plastic bucket with a lid and returned to site for disposal. A wastewater discharge form must be completed for disposal. On-site decontamination of equipment will take place at a facility which discharges to the Converted Advanced Wastewater Treatment Facility, either directly or indirectly, through the storm water collection system.

Following analysis, any remaining soil and/or sample residuals will remain at the off-site laboratories for a specified period of time as defined in their contracts with Fluor Fernald. Prior authorization must be obtained from the Characterization Manager, or designee, to disposition samples collected under this CDL and Certification PSP.

9.0 DATA 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 field activities. As specified in Section 5.1 of the SCQ, sampling teams will describe daily activities on a FAL, which should be sufficiently detailed for accurate reconstruction of the events without reliance on memory. Sample Collection Logs will be completed according to protocols 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.

All field measurements, observations, and sample collection information associated with physical sample collection will be recorded, as applicable, on the Sample Collection Log, the FAL, the Chain of Custody/Request for Analysis form, Lithologic Log, and Borehole Abandonment Record. 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 2.3 and listed in Appendix A. This unique sample identifier will appear on the Sample Collection Log and Chain of Custody/Request for Analysis form and will be used to identify the samples during analysis, data entry, and data management.

Technicians will review all field data for completeness and accuracy then forward the field data package to the Field Data Validation Contact for final QA/QC review. Sample Data Management personnel will enter analytical data into the SED. Analytical data that is designated for data validation will be forwarded to the Data Validation Group. The PSP requirements for analytical data validation are outlined in Section 4.1. The Data Management Lead will review analytical data upon receipt from the off-site laboratories.

Following field and analytical data validation, the Sample Data Management organization will perform data entry into the SED. The original field data packages, original analytical data packages, and original documents generated during the validation process will be maintained as project records by the Sample Data Management organization.

To ensure that correct coordinates and survey information are tied to the final sample locations in the database, the following process will take place. Upon surveying all locations identified in the PSP, the Surveying Manager will provide the Data Management Lead (i.e., Characterization) with an electronic file of all surveyed coordinates and surface elevations. The Sampling Manager will provide the Data Management Lead with a list of any locations that must be moved during penetration permitting or sample collection, and the Data Management Lead will update the electronic file with this information.

After sample collection is complete, the Data Management Lead will provide this electronic file to the Database Contact for uploading to SED.

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U.S. Department of Energy, 1995a, "Remedial Investigation Report for Operable Unit 1," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 1995b, "Remedial Investigation Report for Operable Unit 5," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 1995c, "Feasibility Study Report for Operable Unit 1," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

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U.S. Department of Energy, 2001a, "Addendum to the Sitewide Excavation Plan," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

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U.S. Department of Energy, 2003b, "Project Specific Plan for Area 1, Phase IV Excavation Characterization and Precertification," Revision 0, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2005a, "Project Specific Plan for Excavation Control and Precertification of the Area 6 Waste Pits and General Area (Supplement to 20300-PSP-0011)," Revision 0, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2005b, "Project Specific Plan for Excavation Control and Precertification of the Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011)," Revision 1, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2005c, "Project Specific Plan for Excavation Control and Precertification of the Area 7 Silos and General Area (Supplement to 20300-PSP-0011)," Revision 0, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2005d, "Excavation Plan for Area 6 Waste Pits and General Area," Final, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2005e, "Addendum No. 1 to the Implementation Plan for Area 2, Phase II - Subarea 3 (Infrastructure) Subcontractor Laydown Area and Equipment Wash Facility," Revision B, Addendum 1, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2005f, "Excavation Plan for Area 7 Silos and General Area," Final, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

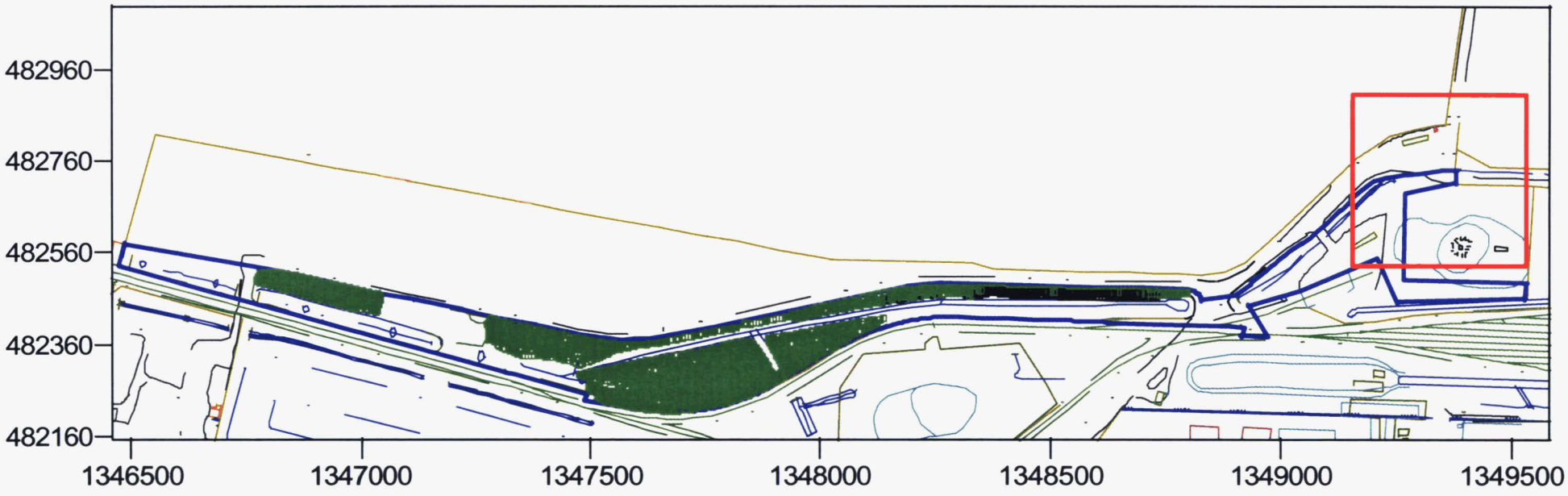
U.S. Department of Energy, 2006, "Excavation Plan for Area 7 Support and Silos Process Area," Final, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

APPENDIX A

PRECERTIFICATION REAL-TIME DATA MAPS FOR THE AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREA

Figure A - 1 Area 6, Phase II - Phase 1 Total Gross Counts per Second

Data Groups: RSS3_0946_07-19-2005,1281_03-01-2006
RSS4_0133_07-19-2005
Measurement Period: 07-19-2005 thru 03-01-2006



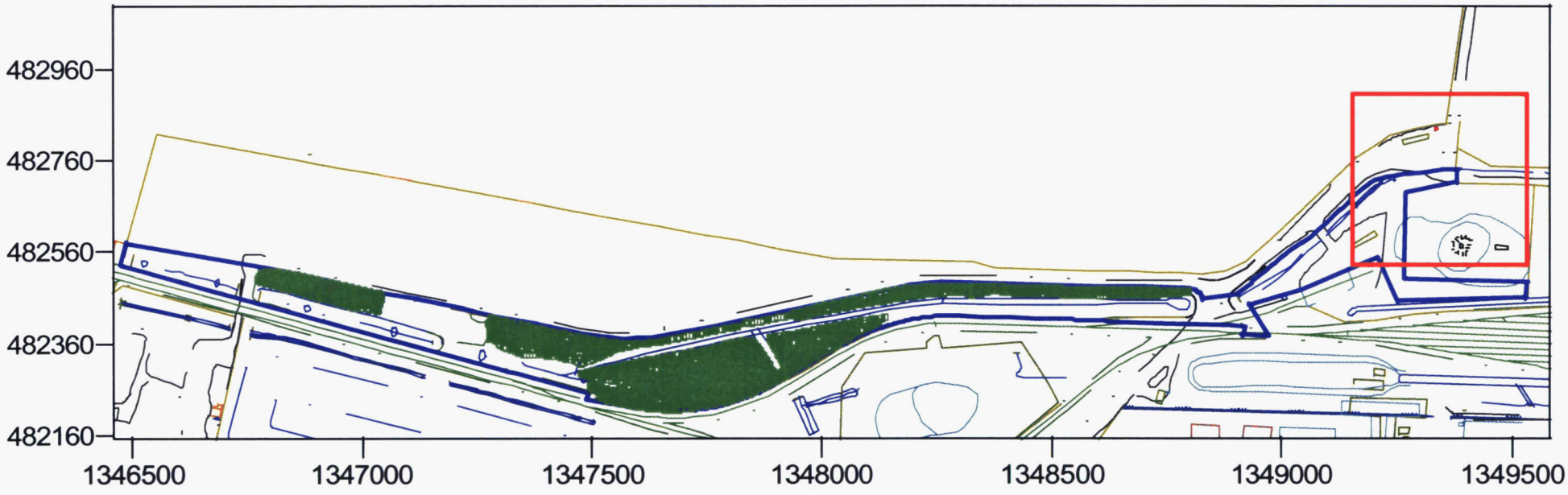
NAI Tcps
0 to 3000
3000 to 5000
5000 to 15000
15000 to 18000
18000 to 99000

RTIMP DWG Title: A6P2_P1_TC.srf
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011
Prepared: D.Seiller 03-10-2006
Support Data: A6P2_P1.xls

Figure A - 2 Area 6, Phase II - Phase 1 Moisture Corrected Radium-226

Data Groups: RSS3_0946_07-19-2005,1281_03-01-2006
RSS4_0133_07-19-2005
Measurement Period: 07-19-2005 thru 03-01-2006

N



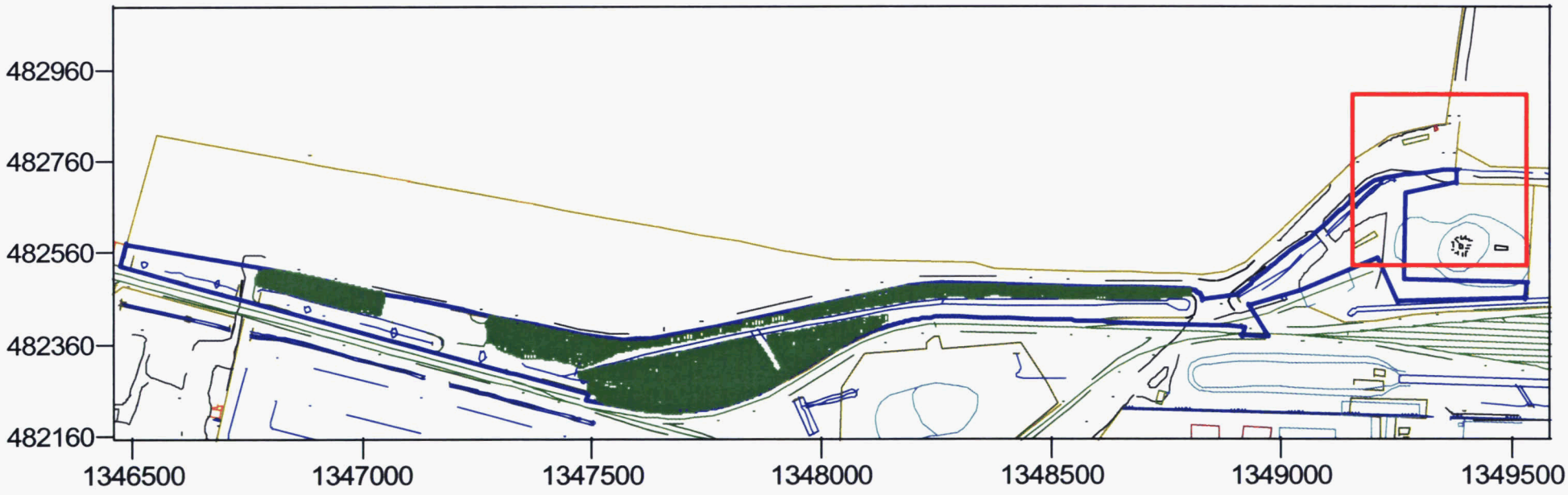
NAI Ra-226 in pCi/g
-9999 to 5.1
5.1 to 9999

RTIMP DWG Title: A6P2_P1_RA.srf
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011
Prepared: D.Seiller 03-10-2006
Support Data: A6P2_P1.xls

Figure A - 3 Area 6, Phase II - Phase 1 Moisture Corrected Thorium-232

Data Groups: RSS3_0946_07-19-2005,1281_03-01-2006
RSS4_0133_07-19-2005
Measurement Period: 07-19-2005 thru 03-01-2006

N



NAI Th-232 in pCi/g
-9999 to 4.5
4.5 to 9999

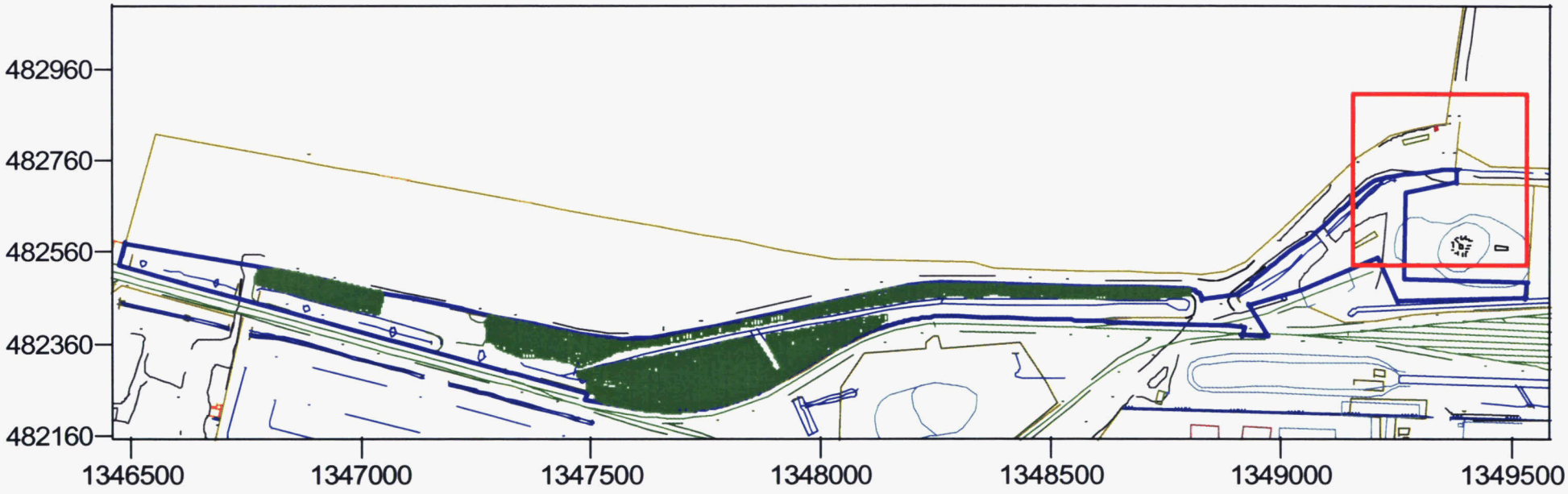
RTIMP DWG Title: A6P2_P1_TH.srf
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011
Prepared: D.Seiller 03-10-2006
Support Data: A6P2_P1.xls

006198

Figure A - 4 Area 6, Phase II - Phase 1 Moisture Corrected Total Uranium

Data Groups: RSS3_0946_07-19-2005,1281_03-01-2006
RSS4_0133_07-19-2005
Measurement Period: 07-19-2005 thru 03-01-2006

N



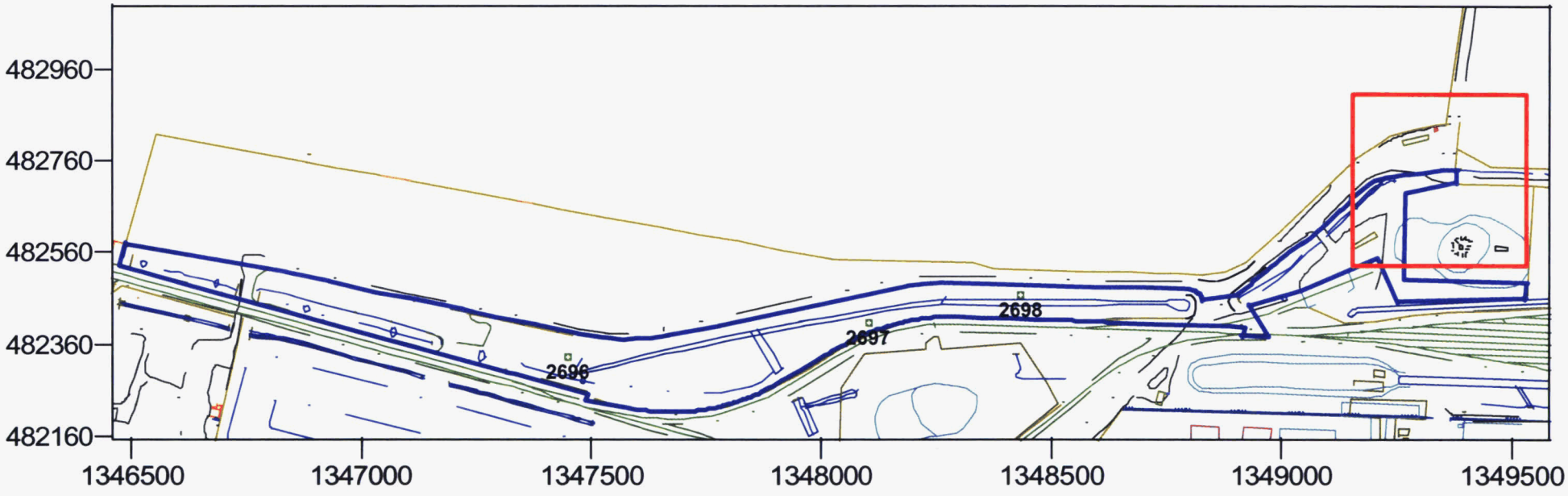
NAI TU in ppm
-9999 to 246
246 to 9999

RTIMP DWG Title: A6P2_P1_TU.srf
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011
Prepared: D.Seiller 03-02-2006
Support Data: A6P2_P1.xls

Figure A - 5 Area 6, Phase II - Phase 2 Moisture Corrected Radium-226

Data Groups: 31265_03-02-2006
Measurement Period: 03-02-2006

N

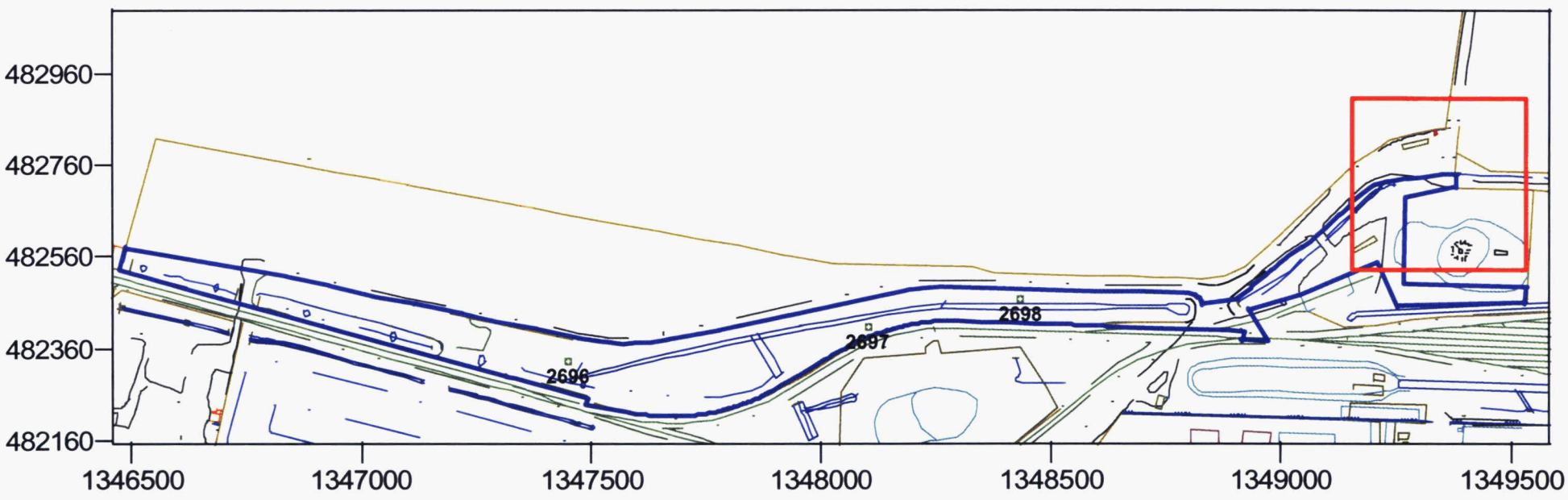


NAI Ra-226 in pCi/g
- -999 to 5.1
- 5.1 to 999

RTIMP DWG Title: A6P2_P2_RA.srf
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011
Prepared: D.Seiller 04-10-2006
Support Data: A6P2_P2_31265_03-02-2006.xls

Figure A - 6 Area 6, Phase II - Phase 2 Moisture Corrected Thorium-232

Data Groups: 31265_03-02-2006
Measurement Period: 03-02-2006

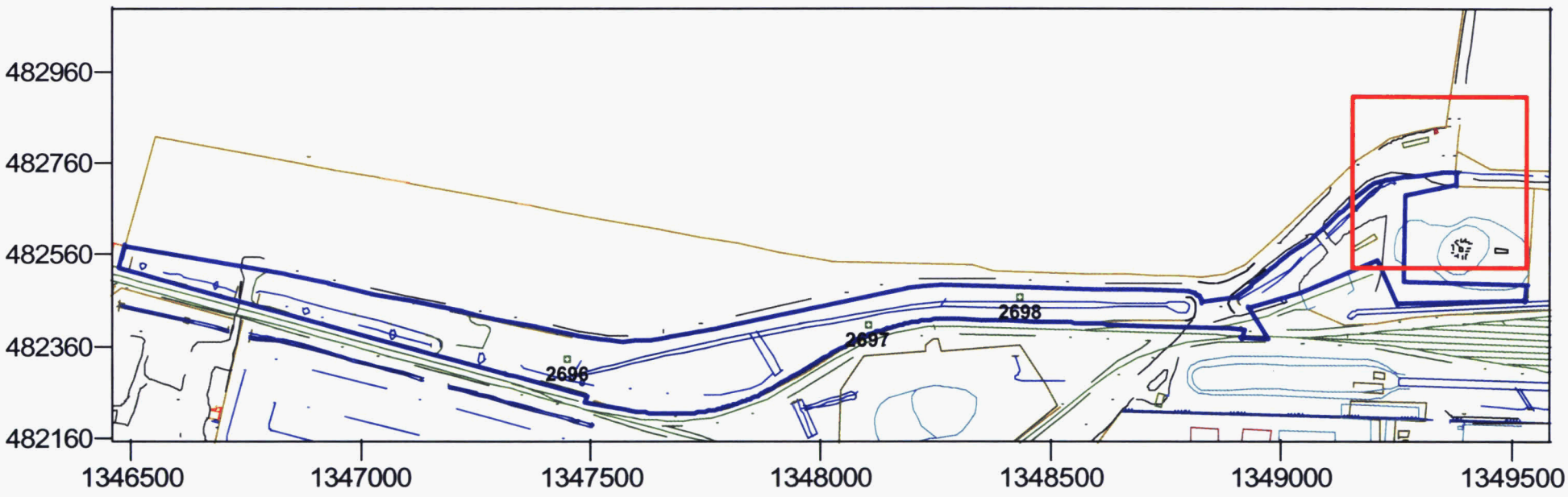


NAI Th-232 in pCi/g
-999 to 4.5
4.5 to 999

RTIMP DWG Title: A6P2_P2_TH.srf
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011
Prepared: D.Seiller 04-10-2006
Support Data: A6P2_P2_31265_03-02-2006.xls

Figure A - 7 Area 6, Phase II - Phase 2 Moisture Corrected Total Uranium

Data Groups: 31265_03-02-2006
Measurement Period: 03-02-2006



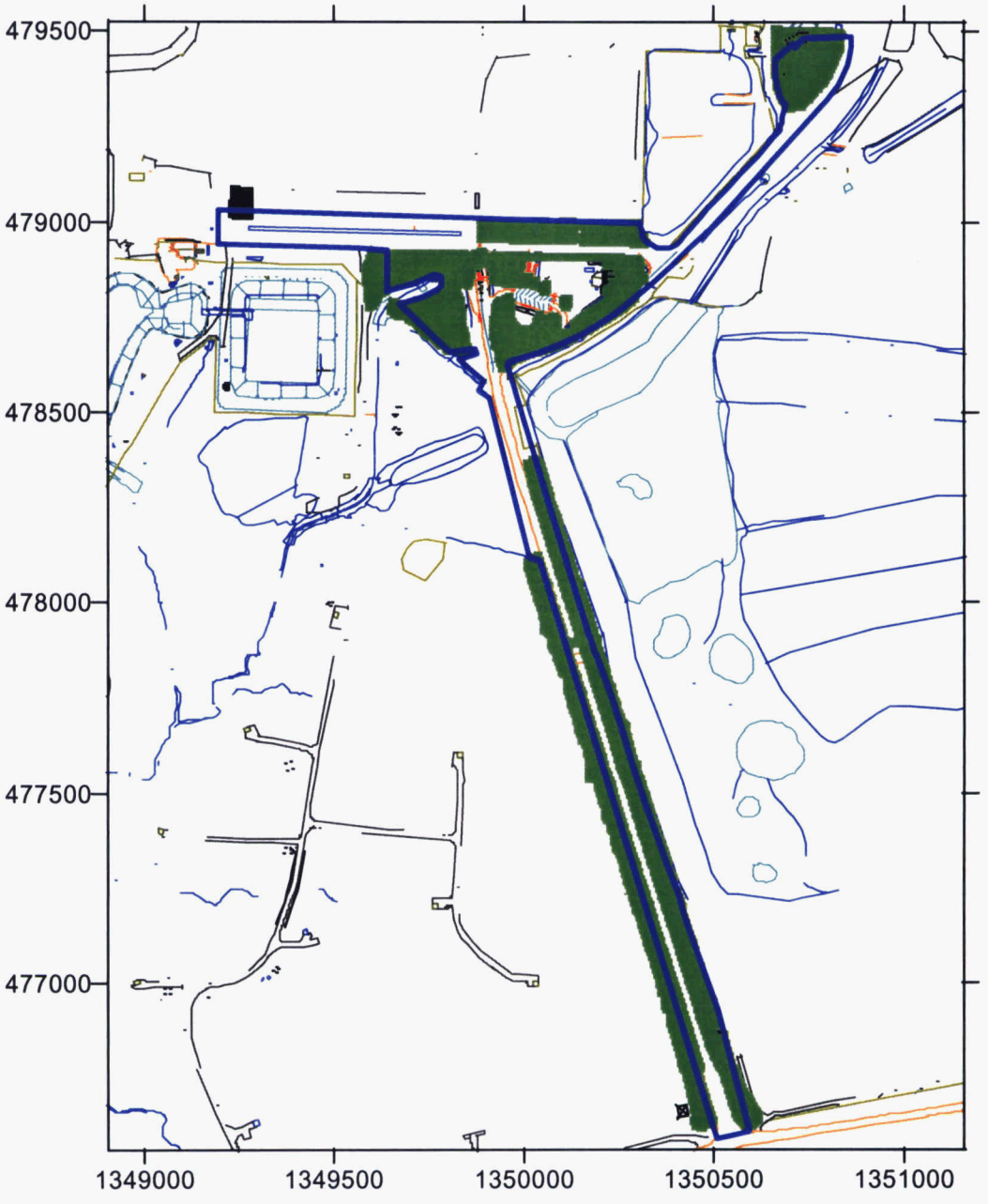
NAI TU in ppm
- -999 to 246
- 246 to 999

RTIMP DWG Title: A6P2_P2_TU.srf
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011
Prepared: D.Seiller 04-10-2006
Support Data: A6P2_P2_31265_03-02-2006.xls

006198

Figure A-8 South Access Road Area (in Area 7) and Area 1, Phase IV-Part 4 - Phase 1 Total Gross Counts per Second

NaI Data: RSS1_918_2/19/04, 919_2/19/04, 931_2/27/04, 937_3/8/04, 1246_8/14/04, 1672_3/3/05, 2359_12/29/05, 2363_12/30/05, 2385_1/23/06; RSS2_829_4/1/05; 832_4/4/05; RSS3_1269_2/25/06; RSS4_741_12/27/05, 743_12/27/05, 748_12/28/05, 754_1/23/06, 860_2/17/06
HPGe Data: 30687_2/20/04, 2/26/04; 40227_2/20/04
Measurement Date: 02/19/2004 - 02/25/2006



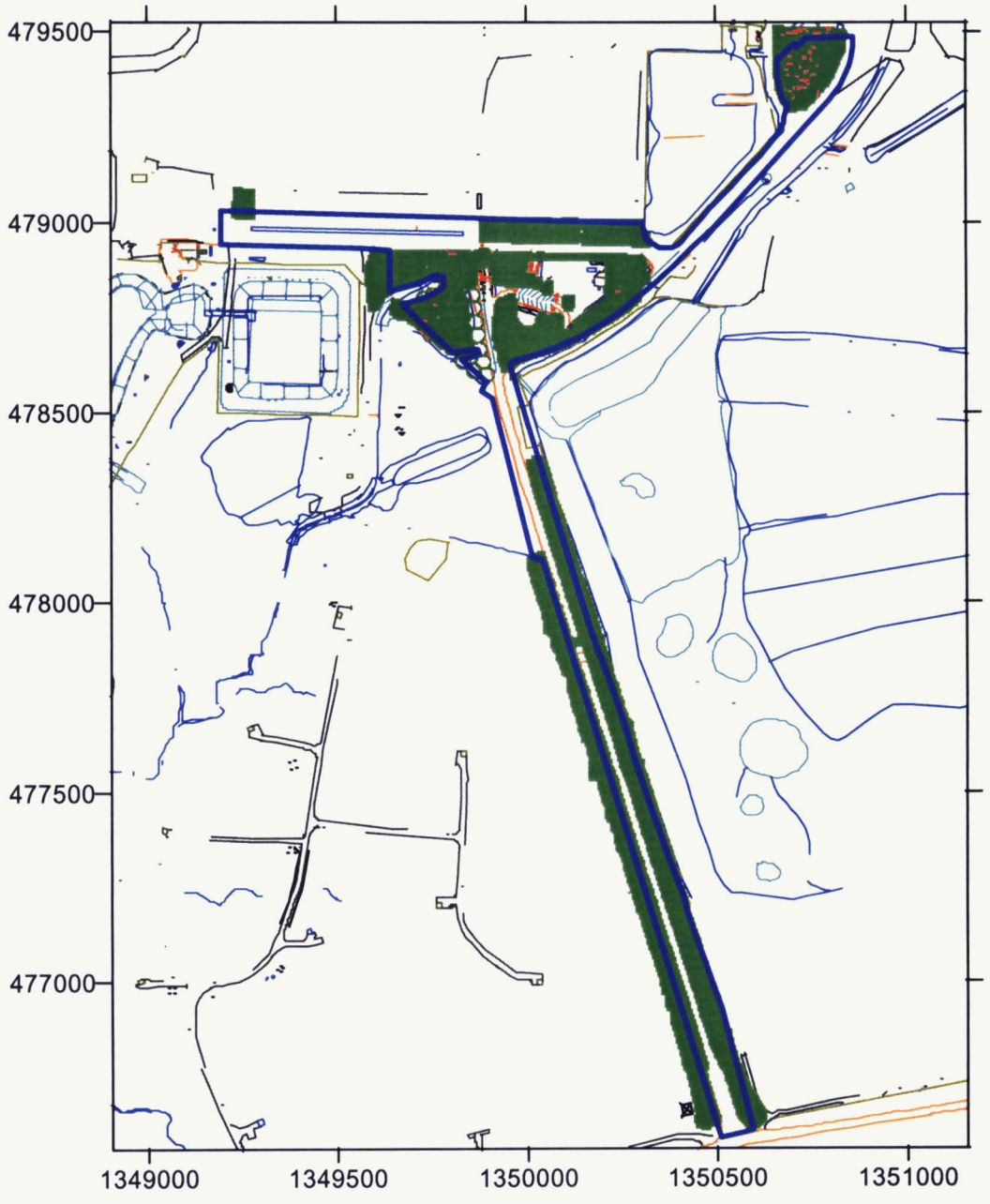
High Leachability boundary
CDL Boundary
Sub Area Boundary

NaI
Total Cts/Sec
0 to 3000
3000 to 5000
5000 to 15000
15000 to 18000
18000 to 99999

RTIMP DWG ID: A7_Southeast_P1_TC.srf
Project ID: Gen. Char. for Site. Soil Rem 20300-PSP-0011
Prepared by: Curt Baumann/78329 4/7/06
Support Data: A1P4_PT4_P1_NaI_v2.xls, A7K_SF_P1_NaI_v3.xls; A7_SAR_P1_NaI_v3.xls; A7_SF_NaI_v3.xls; A7_SF_NaI_v2.xls A7_P1_HPGe_v3.xls; A7_SF_HPGe_v2.xls

Figure A-9 South Access Road Area (in Area 7) and Area 1, Phase IV-Part 4 - Phase 1 Moisture Corrected Radium-226

NaI Data: RSS1_918_2/19/04, 919_2/19/04, 931_2/27/04, 937_3/8/04, 1246_8/14/04, 1672_3/3/05, 2359_12/29/05, 2363_12/30/05, 2385_1/23/06; RSS2_829_4/1/05; 832_4/4/05; RSS3_1269_2/25/06; RSS4_741_12/27/05, 743_12/27/05, 748_12/28/05, 754_1/23/06, 860_2/17/06
HPGe Data: 30687_2/20/04, 2/26/04; 40227_2/20/04
Measurement Date: 02/19/2004 - 02/25/2006



High Leachability boundary

CDL Boundary

Sub Area Boundary

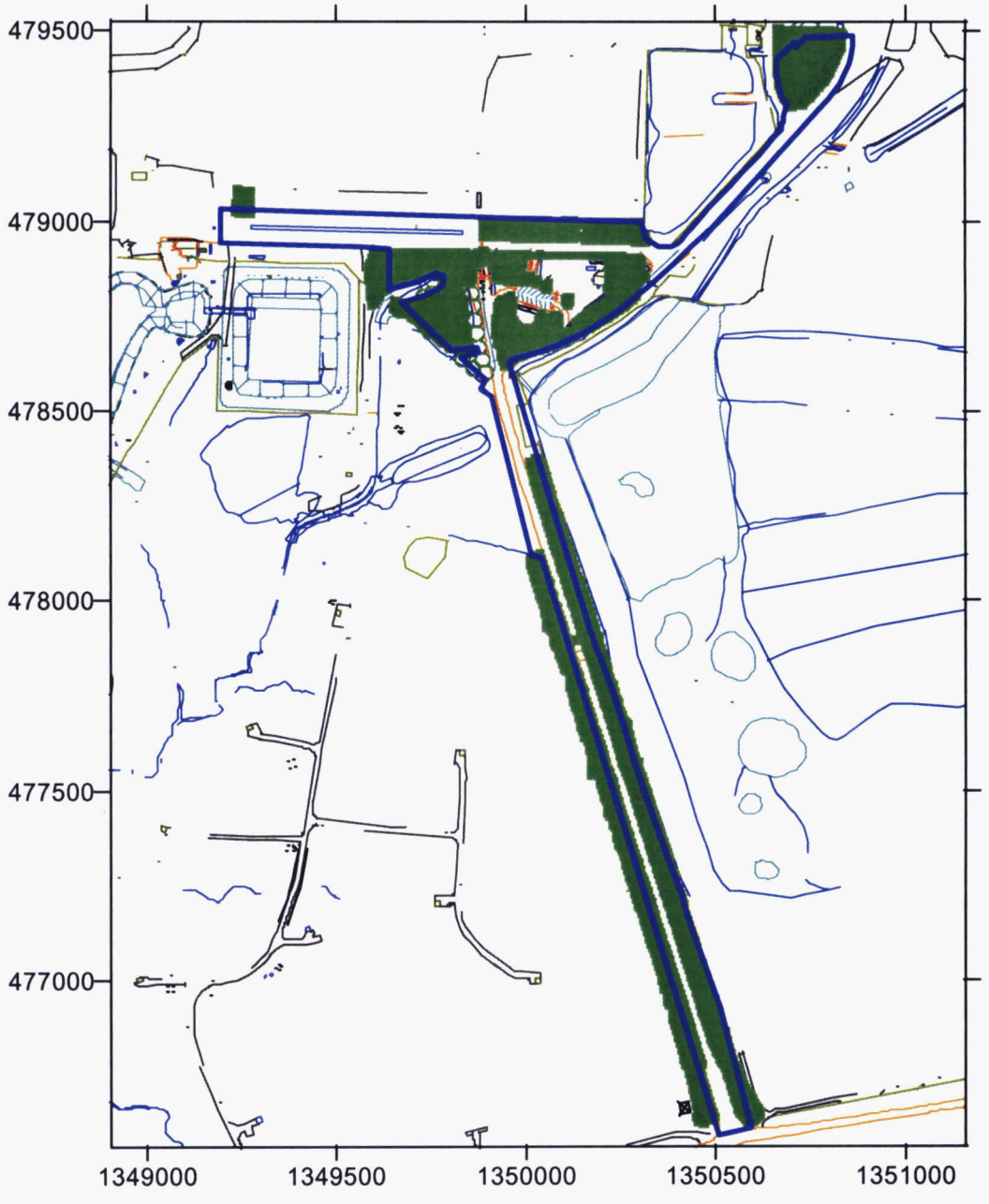
NaI Ra-226 (pCi/g)	
-9999 to 5.1	
5.1 to 875	

HPGe @ 100cm Ra-226 (pCi/g)	
0 to 5.1	
5.1 to 9999	

RTIMP DWG ID: A7_Southeast_P1_RA.srf
Project ID: Gen. Char. for Site. Soil Rem 20300-PSP-0011
Prepared by: Curt Baumann/78329 4/7/06
Support Data: A1P4_PT4_P1_NaI_v2.xls, A7K_SF_P1_NaI_v3.xls; A7_SAR_P1_NaI_v3.xls; A7_SF_NaI_v3.xls; A7_SF_NaI_v2.xls A7_P1_HPGe_v3.xls; A7_SF_HPGe_v2.xls

Figure A-10 South Access Road Area (in Area 7) and Area 1, Phase IV-Part 4 - Phase 1 Moisture Corrected Thorium-232

NaI Data: RSS1_918_2/19/04, 919_2/19/04, 931_2/27/04, 937_3/8/04, 1246_8/14/04, 1672_3/3/05, 2359_12/29/05, 2363_12/30/05, 2385_1/23/06; RSS2_829_4/1/05; 832_4/4/05; RSS3_1269_2/25/06; RSS4_741_12/27/05, 743_12/27/05, 748_12/28/05, 754_1/23/06, 860_2/17/06
HPGe Data: 30687_2/20/04, 2/26/04; 40227_2/20/04
Measurement Date: 02/19/2004 - 02/25/2006



High Leachability boundary
CDL Boundary
Sub Area Boundary

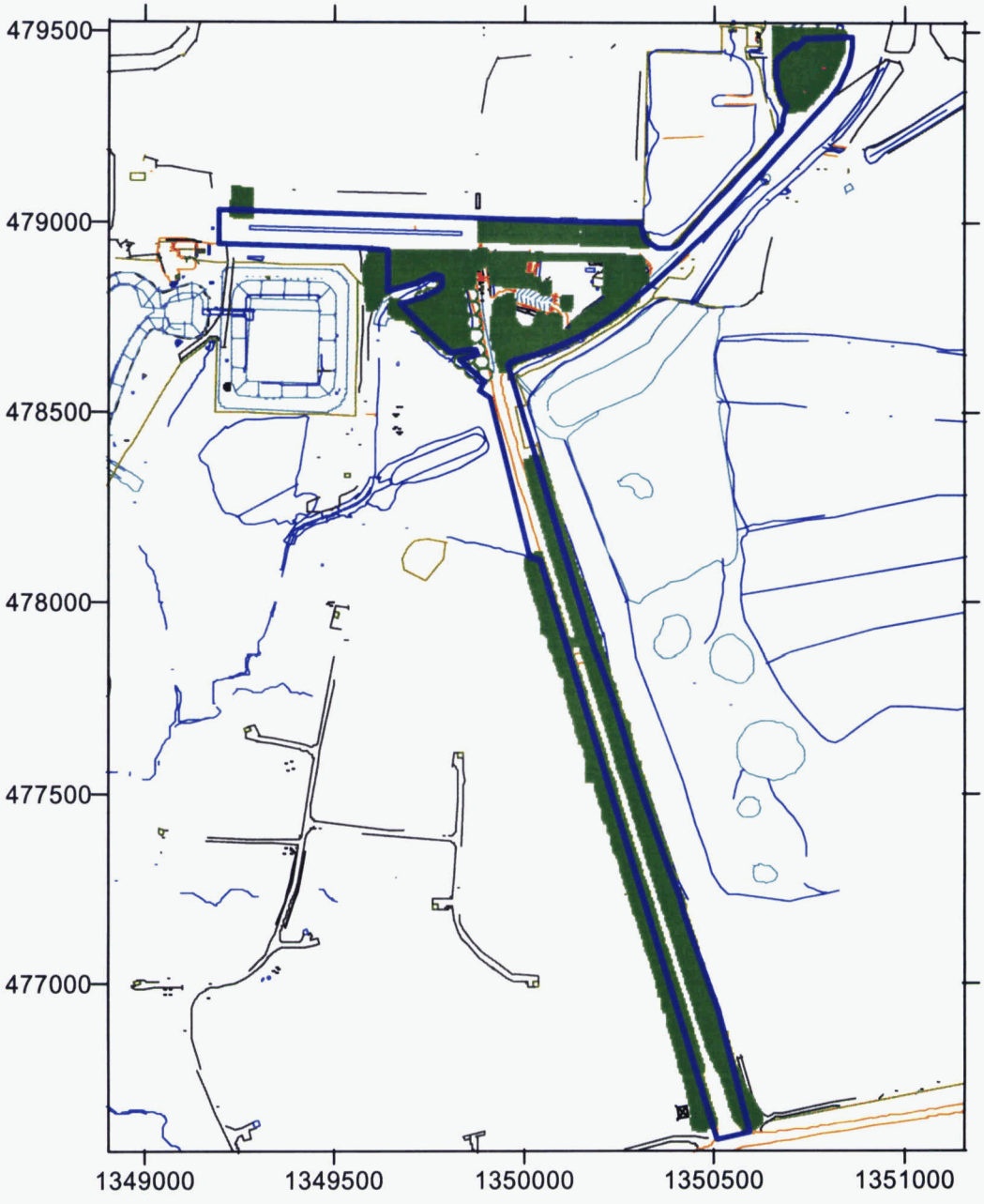
NaI Th-232 (pCi/g)	
-9999 to 4.5	
4.5 to 875	

HPGe @ 100cm Th-232 (pCi/g)	
0 to 4.5	
4.5 to 9999	

RTIMP DWG ID: A7_Southeast_P1_TH.srf
Project ID: Gen. Char. for Site. Soil Rem 20300-PSP-0011
Prepared by: Curt Baumann/78329 4/7/06
Support Data: A1P4_PT4_P1_NaI_v2.xls, A7K_SF_P1_NaI_v3.xls; A7_SAR_P1_NaI_v3.xls; A7_SF_NaI_v3.xls; A7_SF_NaI_v2.xls A7_P1_HPGe_v3.xls; A7_SF_HPGe_v2.xls

Figure A-11 South Access Road Area (in Area 7) and Area 1, Phase IV-Part 4 - Phase 1 Moisture Corrected Total Uranium

NaI Data: RSS1_918_2/19/04, 919_2/19/04, 931_2/27/04, 937_3/8/04, 1246_8/14/04, 1672_3/3/05, 2359_12/29/05, 2363_12/30/05, 2385_1/23/06; RSS2_829_4/1/05; 832_4/4/05; RSS3_1269_2/25/06; RSS4_741_12/27/05, 743_12/27/05, 748_12/28/05, 754_1/23/06, 860_2/17/06
HPGe Data: 30687_2/20/04, 2/26/04; 40227_2/20/04
Measurement Date: 02/19/2004 - 02/25/2006



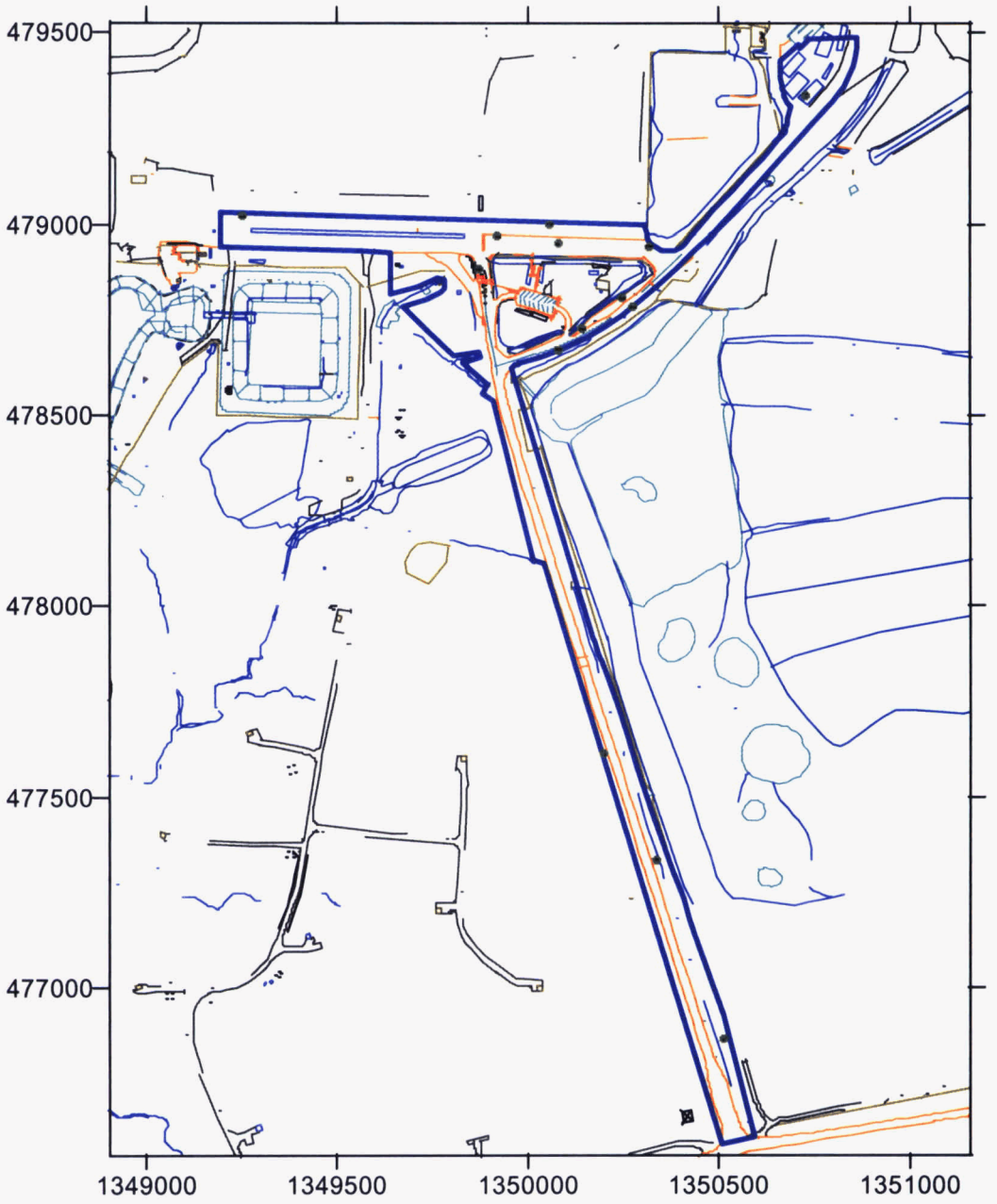
High Leachability boundary
CDL Boundary
Sub Area Boundary

NaI Total U (ppm)	HPGe @ 100cm Total U (ppm)
-9999 to 246	**0 to 246**
246 to 9999	**246 to 9999**

RTIMP DWG ID: A7_Southeast_P1_TU.srf
Project ID: Gen. Char. for Site. Soil Rem 20300-PSP-0011
Prepared by: Curt Baumann/78329 4/7/06
Support Data: A1P4_PT4_P1_NaI_v2.xls, A7K_SF_P1_NaI_v3.xls; A7_SAR_P1_NaI_v3.xls; A7_SF_NaI_v3.xls; A7_SF_NaI_v2.xls A7_P1_HPGe_v3.xls; A7_SF_HPGe_v2.xls

Figure A-12 South Access Road Area (in Area 7) and Area 1, Phase IV-Part 4 - Phase 2 Moisture Corrected Radium-226

HPGe Data: 40227_3/02/04; 31144_12/28/05; 30687_1/23/06, 2/25/06; 30716_12/27/05, 12/29/05, 1/3/06; 30904_2/17/06; 31265_4/4/05, 12/30/05; 40743_3/4/05
Measurement Date: 03/02/2004 - 02/25/2006



High Leachability boundary

CDL Boundary

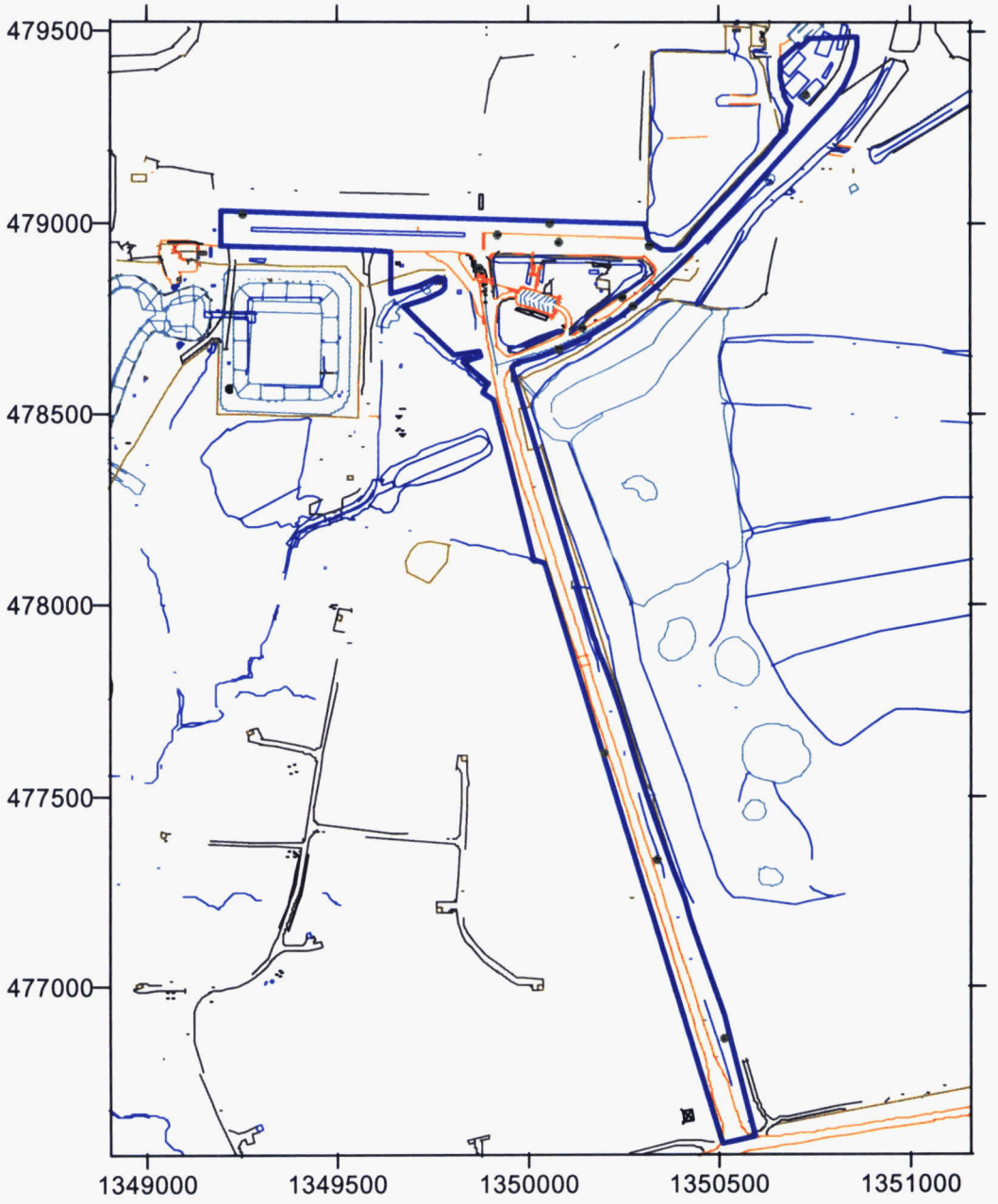
Sub Area Boundary

HPGe @ 31cm
Ra-226 (pCi/g)
0 to 5.1
5.1 to 9999

RTIMP DWG ID: A7_Southeast_P2_RA.srf
Project ID: Gen. Char. for Site. Soil Rem 20300-PSP-0011
Prepared by: Curt Baumann/78329 4/10/06
Support Data: A1P4_PT4_P2_v2.xls, A7K_P2_v3.xls

Figure A-13 South Access Road Area (in Area 7) and Area 1, Phase IV-Part 4 - Phase 2 Moisture Corrected Thorium-232

HPGe Data: 40227_3/02/04; 31144_12/28/05; 30687_1/23/06, 2/25/06; 30716_12/27/05, 12/29/05, 1/3/06; 30904_2/17/06; 31265_4/4/05, 12/30/05; 40743_3/4/05
Measurement Date: 03/02/2004 - 02/25/2006



High Leachability boundary

CDL Boundary

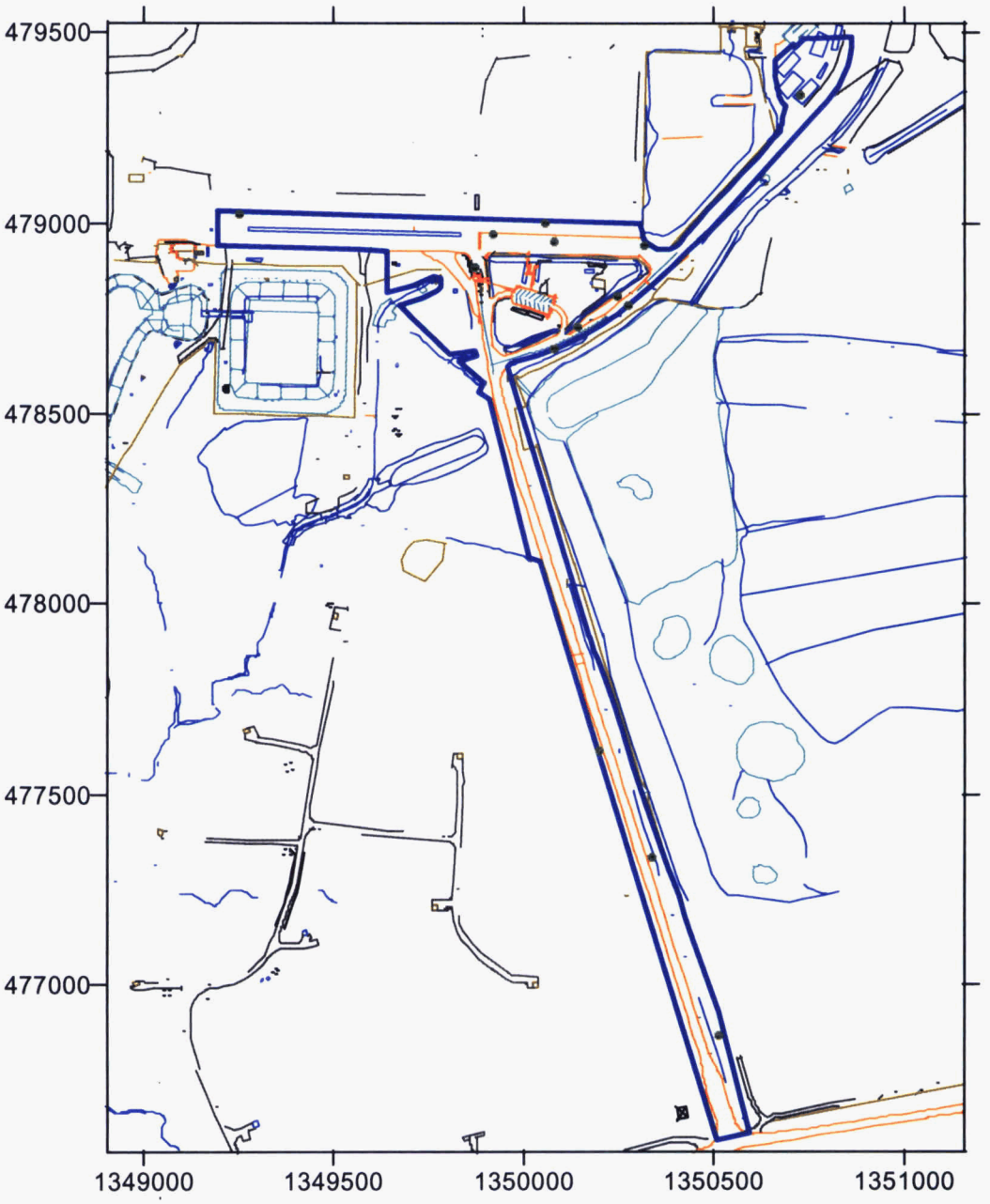
Sub Area Boundary

HPGe @ 31cm
Th-232 (pCi/g)
0 to 4.5
4.5 to 9999

RTIMP DWG ID: A7_Southeast_P2_TH.srf
Project ID: Gen. Char. for Site. Soil Rem 20300-PSP-0011
Prepared by: Curt Baumann/78329 4/10/06
Support Data: A1P4_PT4_P2_v2.xls, A7K_P2_v3.xls

Figure A-14 South Access Road Area (in Area 7) and Area 1, Phase IV-Part 4 - Phase 2 Moisture Corrected Total Uranium

HPGe Data: 40227_3/02/04; 31144_12/28/05; 30687_1/23/06, 2/25/06; 30716_12/27/05, 12/29/05, 1/3/06; 30904_2/17/06; 31265_4/4/05, 12/30/05; 40743_3/4/05
Measurement Date: 03/02/2004 - 02/25/2006



High Leachability boundary

CDL Boundary

Sub Area Boundary

HPGe @ 31cm
Total U (ppm)
0 to 246
246 to 9999

RTIMP DWG ID: A7_Southeast_P2_TU.srf
Project ID: Gen. Char. for Site. Soil Rem 20300-PSP-0011
Prepared by: Curt Baumann/78329 4/10/06
Support Data: A1P4_PT4_P2_v2.xls, A7K_P2_v3.xls

APPENDIX B

DATA QUALITY OBJECTIVES SL-052, REV. 3

Control Number _____

Fernald Environmental Management Project

Data Quality Objectives

Title: Sitewide Certification Sampling and Analysis

Number: SL-052

Revision: 3

Effective Date: March 13, 2000

Contact Name: Mike Rolfes

Approval: _____ Date: 3/13/00
James Chambers
DQO Coordinator

Approval: _____ Date: 3/13/00
J.D. Chiou
SCEP Project Director

Rev. #	0	1	2	3			
Effective Date:	4/28/99	6/10/99	2/3/00	3/13/00			

DATA QUALITY OBJECTIVES
Sitewide Certification Sampling and Analysis

Members of Data Quality Objectives (DQO) Scoping Team

The members of the scoping team included individuals with expertise in QA, analytical methods, field sampling, statistics, laboratory analytical methods and data management.

Conceptual Model of the Site

Soil sampling was conducted at the Fernald Environmental Management Project (FEMP) during the Operable Unit 5 (OU5) Remedial Investigation/Feasibility Study (RI/FS). Final Remediation Levels (FRLs) for constituents of concern (COCs), along with the extent of soil contaminated above the FRLs, were identified in the OU5 Record of Decision (ROD). Actual soil remediation activities now fall under the guidance of the final Sitewide Excavation Plan (SEP).

As outlined in the SEP, the FEMP has been divided into individual Remediation Areas (or phased areas within a Remediation Area) to sequentially carry out soil remedial activities. Under the strategy identified in the SEP, pre-design investigations are first conducted to better define the limits of soil excavation requirements. Following any necessary excavation, pre-certification real-time scanning activities are conducted to evaluate residual patterns of soil contamination. Pre-certification scan data should provide a level of assurance that the FRLs will be achieved. When pre-certification data indicate that remediation goals are likely to be met, they are used to define certification units (CUs) within the Remediation Area of interest. Table 2-9 of the final SEP identifies a list of area-specific COCs (ASCOCs) for each Remediation Area at the FEMP. Based on existing data and production knowledge, a subset of these ASCOCs are conservatively identified within each CU as potentially present in the CU. This suite of CU-specific COCs is the subset of the ASCOCs to be evaluated against the FRLs within that CU. At a minimum, the five primary radiological COCs (total uranium, radium-226, radium-228, thorium-228, thorium-232) will be retained as CU-specific COCs for certification of each CU.

Delineation and justification for the final CU boundaries, along with each corresponding suite of CU-specific ASCOCs is documented in a Certification Design Letter. Upon approval of the Certification Design Letter by the EPA, certification activities can begin. Section 3.4 of the final SEP presents the general certification strategy.

1.0 Statement of Problem

FEMP soil and potentially impacted adjacent off-property soil must be certified on a CU by CU basis for compliance with the FRLs of all CU-specific ASCOCs. The appropriate sampling, analytical and information management criteria must be developed to provide the required qualified data necessary to demonstrate attainment of certification statistical criteria. For every area undergoing certification, a sampling plan must be in place that will direct soil samples to be collected which are representative of the CU-specific COC concentrations within the framework of the certification approach identified in the final SEP. The appropriate analytical methodologies must be selected to provide the required data.

Exposure to Soil

The cleanup standards, or FRLs, were developed for a final site land use as an undeveloped park. Under this exposure scenario, receptors could be directly exposed to contaminated soil through dermal contact, external radiation, incidental ingestion, and/or inhalation of fugitive dust while visiting the park. Exposure to contaminated soil by the modeled receptor is expected to occur at random locations within the boundaries of the FEMP and would not be limited to any single area. Some soil FRLs were developed based on the modeled cross-media impact potential of soil contamination to the underlying aquifer. In these instances, potential exposure to contaminants would be indirect through the groundwater pathway, and not directly linked to soil exposure. Off-site soil FRLs were established at more conservative levels than the on-property soil FRLs, based on an agricultural receptor. Benchmark Toxicity Values (BTVs) are also being considered in the cleanup process by assessing habitat impact of individual BTVs under post-remedial conditions.

Available Resources

Time: Certification sampling will be accomplished by the field sampling team prior to interim or final regrading or release of soil for construction activities. The certification sampling schedule must allow sufficient time, in the event additional remediation is required, to demonstrate certification of FRLs prior to permanent construction or regrading. Certification sampling will have to be completed and analytical results validated and statistical analysis completed prior to submission of a Certification Report to the regulatory agencies.

Project Constraints: Certification sampling and analytical testing must be performed with existing manpower, materials and equipment to support the certification effort. Remediation areas are prioritized for certification sampling and analysis according to the date required for initiation of sequential construction activities in those areas. Fluor Daniel Fernald (FDF) and DOE must demonstrate post-remedial compliance with the CU-specific COC FRLs to release the designated Remediation Area for

planned interim grading, eventual restoration under the Natural Resources Restoration Plan (NRRP), and other final land use activities.

2.0 Identify the Decision

Decision

Demonstrate within each CU if all CU-specific COCs pass the certification criteria. These criteria are as follows: 1) The average concentration of each CU-specific COC is below the FRL and within the agreed upon confidence limits (95% for primary ASCOCs and 90% for secondary ASCOCs); and 2) the hot-spot criteria, that no result for any CU-specific COC is more than two times the associated soil FRL. The certification criteria are discussed in greater detail in Section 3.4.4 of the final SEP.

Possible Results

1. The average concentration of each CU-specific COC is demonstrated to be below the FRLs within the confidence level, with no single result for any CU-specific COC greater than two times the associated FRL. The CU can then be certified as attaining remediation goals.

2. The average concentration of at least one CU-specific COC is demonstrated to be above the FRL at the given confidence level. The CU will fail certification and require additional remedial action, per Section 3.4.5 of the final SEP.

3. If a result(s) of one or more CU-specific COC is demonstrated to be at or above two times the FRL, the CU will fail certification. The CU will fail certification and require additional remedial action per Section 3.4.5 of the final SEP. A combination of results 2 and 3 also constitutes certification failure.

3.0 Inputs That Affect the Decision

Required Information

Certification data will be obtained through physical soil sampling. Based on the certification analytical results, the average concentrations of each CU-specific COC with specified confidence levels will be calculated using the statistical methods identified in Appendix G of the final SEP.

Source of Information

Per the SEP, analysis of certification samples for each CU-specific COC will be conducted at analytical support level (ASL) D in accordance with methods and QA/QC standards in the FEMP Sitewide CERCLA Quality Assurance Project Plan [SCQ].

Contaminant-Specific Action Levels
The cleanup levels are the soil FRLs published in the OU5 and OU2 RODs. BTVs being considered in the remediation process are discussed for consideration during certification in Appendix C of the NRRP.

Methods of Sampling and Analysis
Physical soil samples will be collected in accordance with the applicable site sampling procedures. Per the SEP, laboratory analysis will be conducted at ASL D using QA/QC protocols specified in the SCQ. Full raw data deliverables will be required from the laboratory to allow for appropriate data validation. For FEMP-approved on- and off-site laboratories, the analytical method used will meet the required precision, accuracy and detection capabilities necessary to achieve FRL analyte ranges.

4.0 The Boundaries of the Situation

Spatial Boundaries
Domain of the Decision: The boundaries of this certification DQO extend to all surface, stockpile and fill soil in areas that are undergoing certification as part of FEMP remediation.

Population of Soil: Soil includes all excavated surfaces, undisturbed relatively unimpacted native soil, and sub-surface intervals (stockpile or fill areas only) in areas undergoing certification sampling and analysis.

Scale of Decision Making
Based on considerations of the final certification units and the COC evaluation process, the CU-specific COCs are determined. The area undergoing certification will be evaluated on a CU basis, based on physical sample results, as to whether it has passed or failed the criteria for attainment of certification (final SEP Section 3.4.4).

Temporal Boundaries
Time frame: Certification sampling must be performed in time to sequentially release certified areas for scheduled interim grading, restoration, and other final land use activities. Certification sampling data received from the laboratory will be validated and statistically evaluated. Certification results and findings will be documented in Certification Reports, which must be submitted to and approved by the regulatory agencies prior to release of the areas for scheduled interim grading, restoration, and other final land use activities.

Practical Considerations: Some areas undergoing remediation will not be accessible for certification sampling until decontamination/demolition and remedial excavation activities are complete. Other areas, such as wood lots, that are relatively uncontaminated and not planned for excavation, may require preparation, such as cutting of grass or removal of undergrowth prior to certification sampling, thus requiring coordination with FEMP Maintenance personnel.

5.0 Decision Rule

Successful certification of soil within the boundaries of a certification unit (CU) demonstrates that the certified soil (surface or subsurface) has concentrations of CU-specific COC(s) that meet the established criteria for attainment of Certification.

Parameters of Interest
The parameters of interest are the individual and average surface soil concentrations of CU-specific COCs and confidence limits on the calculated average within a CU. OU2 and OU5 ROD identify all applicable soil FRLs. The SEP identifies the ASCOCs, a subset of which will be used to establish CU-specific COCs within each Remediation Area undergoing certification sampling and analysis.

Action Levels
The applicable action levels are the on- and off-property soil FRLs published in the OU5 or OU2 ROD for each ASCOC.

Decision Rules
If the average concentration for each CU-specific COC is demonstrated to be below the FRLs within the agreed upon confidence level (95% for primary COCs; 90% for secondary COCs), and no analytical result exceeds two times the soil FRL, then the CU can be certified as complying with the cleanup criteria. If a CU does not meet the FRLs within the agreed upon confidence level for one or more CU-specific COCs, or one or more analytical results for one or more CU-specific COCs is greater than two times the associated soil FRL, then the CU fails certification and requires further assessment as per the SEP.

6.0 Limits on Decision Errors

Types of Decision Errors and Consequences

Definition

Decision Error 1: This decision error occurs when the decision maker decides that a CU has met the certification criteria, when in reality, the certification criteria have not been met. This situation could result in an increased risk to human health and the environment. In addition, this type of error could result in regulatory fees and penalties.

Decision Error 2: This decision error occurs when the decision maker decides a CU does not met the certification criteria, when actually, the certification criteria have been met. This error would result in unnecessary added costs due to the excavation of soil containing COC concentrations below their FRLs, and an increased volume of soil assigned to the OSDF. In addition, unnecessary delays in the remediation schedule may result.

True State of Nature for the Decision Errors

The true state of nature for Decision Error 1 is that the certification criteria are not met (average CU-specific COC concentrations not below the FRL within the specified confidence limits; or a single sample result above two times the FRL). The true state of nature for Decision Error 2 is that certification criteria are met (average CU-specific COC concentrations are below the FRL within the specified confidence limits, and no result is above two times the FRL). Decision Error 1 is the more severe error due to the potential threat this poses to human health and the environment.

Null Hypothesis

H_o: The average concentration of at least one CU-specific COC within a CU is equal to or greater than the associated FRL.

H_1: The average concentration of all CU-specific COCs within a CU is less than the action levels.

False Positive and False Negative Errors

A false positive is Decision Error 1: less than or equal to five percent ($p = .05$) is considered the acceptable decision error in determination of compliance with FRLs for primary ASCOCs, while ten percent ($p = .10$) is acceptable for secondary ASCOCs.

A false negative is Decision Error 2: less than or equal to 20 percent is considered the acceptable decision error. This decision error is controlled through the determination of sample sizes (see Section G.1.4.1 of the final SEP).

7.0 Design for Obtaining Quality Data

Section 3.4.2 of the final SEP presents the specifics of the certification sampling design. The following text describes the general certification sampling design.

Soil Sample Locations

In order to select certification sampling locations, each CU is divided into 16 approximately equal sub-CUs. Certification sample locations are then generated by randomly selecting an easting and northing coordinate within the boundaries of each cell. Additional alternative sample locations are also generated in case the original random sample location fails the minimum distance criterion. The minimum distance criterion is defined as the minimum distance allowed between random sample locations in order to eliminate the chance of random sample points clustering within a small area. This clustering would tend to over emphasize a small area and, conversely, under represent a large area in certification determination. By not allowing sample locations to be too closely arranged, the sample locations are spread out and provide a more uniform coverage, thus reducing the possibility of large unsampled areas. The equation for determining minimum distance criterion is presented in Section 3.4.2.1 of the SEP.

In the event that the original random sample location failed the minimum distance criterion, the first alternate location was selected and all the locations were retested. This process continued until all 16 random locations passed the minimum distance criteria.

Each CU is also divided into four quadrants, each of which contains 4 sub-CUs and 4 sample locations. Three of the four locations per quadrant (12 per CU) are then selected for sample collection and analysis. The other one per quadrant (4 per CU) are designated as "archives", and samples will not be collected and analyzed unless need arises due to analytical or validation problems warrant. Per Section 3.4.2 of the SEP, as few as 8 samples may be collected from Group 2 CUs for analysis of secondary COCs.

Physical Samples

Physical soil certification samples will be collected from the surface according to SMPL-01 at locations identified in the PSP (generally 12 of the 16 locations per CU).

If stockpiled soil is to be certified, two CUs will be established, on for the stockpile and one for the underlying soil (i.e., the "footprint"). To certify the stockpile, samples will be collected from predetermined random intervals from within the stockpiled soil at each certification sampling location identified in the PSP. To certify the footprint, the first 6-inches of native soil present at each sampling location will also be collected for certification. If fill soil is to be certified, the strategy (surface or sampling at depth) will be based on results from the precertification scan of the fill area(s), as discussed in the Certification Design Letter and the certification PSP.

Laboratory Analysis

As defined in the PSP, a minimum of 8 to 12 samples per CU will be submitted to the on-site laboratory or a FDF approved off-site laboratory for analysis. All certification analyses will meet ASL D requirements per the SCQ except for the HAMDC. Samples will be analyzed for all CU-specific ASCOCs, with minimum detection levels set according to the SCQ and applicable project guidelines.

Validation

All field data will be validated. Also, a minimum of 10 percent of the analytical data from each laboratory will be subject to analytical validation to ASL D requirements in the SCQ, and will require an ASL D package. The remaining analytical data will be validated to a minimum of ASL B, and will require an ASL B package.

8.0 Use of Data to Test Null Hypothesis

Appendix G of the final SEP discusses in detail, the statistical evaluations of certification data used to determine attainment of certification criteria.

Data Quality Objectives
Sitewide Certification Sampling and Analysis

1A. Task Description:

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

RI☐ FS☐ RD☐ RA☒ RvA☐ Other (specify) _____

1C. DQO No.: SL-052, Rev. 2 DQO Reference No.: _____

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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 Ananlytical 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☐ B☐ 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	Other
A☐ B☐ C☐ D☐ E☐	A☐ B☐ C☐ D☒ E☐

4A. Drivers: Remediation Area Remedial Action Work Plans, Applicable or Relevant and Appropriate Requirements (ARARs) and Operable Unit 2 and Operable Unit 5 Records of Decision (ROD), Sitewide Excavation Plan (SEP).

4B. Objective: Confirmation that remediation areas at the FEMP, or adjacent off-property areas, have met certification criteria on a CU by CU basis.

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5. Site Information (Description):

The OU2 and OU5 RODs have identified areas at the FEMP that require soil remediation activities. The RODs specify that the soil in these areas will be demonstrated to be below the FRLs. Certification is necessary for all FEMP soil and some adjacent off-property soil to demonstrate that the residual soil does not contain COC contamination exceeding the FRL at a specified confidence level.

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

* As identified in the area certification PSP

6.B. Equipment Selection and SCQ Reference:

Equipment Selection		Refer to SCQ Section	
ASL A		SCQ Section	
ASL B		SCQ Section	
ASL C		SCQ Section	
ASL D	Per SCQ and PSP	SCQ Section	Appendix G, Tbls. 1&3
ASL E	Per PSP	SCQ Section	Appendix H (final)

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

Biased☐ Composite☐ Grab☒ Environmental☐ Grid☐
Intrusive☒ Non-Intrusive☐ Phased☐ Source☐ Random☒*
*Systematic random samples, selected one per cell and meeting the minimum distance criterion

7B. Sample Work Plan Reference: Project Specific Plan for the associated Remediation area Remedial Action Work Plan

Background samples: OU5 RI

7C. Sample Collection Reference: Associated PSP(s), SMPL-01

8. Quality Control Samples: (Put an X in the appropriate selection.)

8A. Field Quality Control Samples:

Trip Blanks	☒[1]	Container Blanks	☒
Field Blanks	☒[2]	Duplicate Samples	☒
Equipment Rinsate Blanks	☒	Split Samples	☒[3]
Preservative Blanks	☐	Performance Evaluation Samples	☐

Other (specify) _____

1) Collected for volatile organic sampling
2) As noted in the PSP
3) Split samples will be taken where required by the EPA

8B. Laboratory Quality Control Samples:

Method Blank	☒	Matrix Duplicate/Replicate	☒
Matrix Spike	☒	Surrogate Spikes	☒
Tracer Spike	☒	Other (specify) _____	

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

Sample density will be dependent upon the CU size (Group 1 [250'x250'] or Group 2 [500'x500']), as determined by historical and pre-certification scan data.

APPENDIX C

AREAS OUTSIDE OF THE HISTORICALY RADIOLOGICALLY CONTROLLED AREA SAMPLE LOCATIONS AND IDENTIFIERS

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A6P2-C03	A6P2-C03-1V	0.0 - 0.5'	A6P2-C03-1^V	archive	482329.24	1347724.97
	A6P2-C03-2	0.0 - 0.5'	A6P2-C03-2^R	AB	482388.58	1347761.45
	A6P2-C03-3	0.0 - 0.5'	A6P2-C03-3^R	AB	482279.32	1347706.29
	A6P2-C03-4	0.0 - 0.5'	A6P2-C03-4^R	AB	482243.94	1347743.91
	A6P2-C03-5	0.0 - 0.5'	A6P2-C03-5^R	AB	482375.95	1347805.2
	A6P2-C03-6D	0.0 - 0.5'	A6P2-C03-6^R	AB	482408.13	1347880.79
			A6P2-C03-6^R-D			
	A6P2-C03-7V	0.0 - 0.5'	A6P2-C03-7^V	archive	482404.33	1347964.73
	A6P2-C03-8	0.0 - 0.5'	A6P2-C03-8^R	AB	482342.24	1347924.81
	A6P2-C03-9	0.0 - 0.5'	A6P2-C03-9^R	AB	482368.2	1347865.08
	A6P2-C03-10V	0.0 - 0.5'	A6P2-C03-10^V	archive	482270.34	1347790.36
	A6P2-C03-11	0.0 - 0.5'	A6P2-C03-11^R	AB	482266.04	1347834.28
	A6P2-C03-12	0.0 - 0.5'	A6P2-C03-12^R	AB	482289.46	1347890.16
	A6P2-C03-13	0.0 - 0.5'	A6P2-C03-13^R	AB	482417.57	1347988.89
	A6P2-C03-14	0.0 - 0.5'	A6P2-C03-14^R	AB	482443.67	1348064.48
	A6P2-C03-15V	0.0 - 0.5'	A6P2-C03-15^V	archive	482400.73	1348100.49
	A6P2-C03-16	0.0 - 0.5'	A6P2-C03-16^R	AB	482370.2	1348017.41
A6P2-C04	A6P2-C04-1	0.0 - 0.5'	A6P2-C04-1^R	AB	482445.22	1348134.44
	A6P2-C04-2	0.0 - 0.5'	A6P2-C04-2^R	AB	482479.53	1348199.48
	A6P2-C04-3V	0.0 - 0.5'	A6P2-C04-3^V	archive	482456.25	1348244.08
	A6P2-C04-4	0.0 - 0.5'	A6P2-C04-4^R	AB	482465.84	1348284.68
	A6P2-C04-5V	0.0 - 0.5'	A6P2-C04-5^V	archive	482462.91	1348319.98
	A6P2-C04-6	0.0 - 0.5'	A6P2-C04-6^R	AB	482427.1	1348381.2
	A6P2-C04-7	0.0 - 0.5'	A6P2-C04-7^R	AB	482474.49	1348417.72
	A6P2-C04-8	0.0 - 0.5'	A6P2-C04-8^R	AB	482435.82	1348495.51
	A6P2-C04-9V	0.0 - 0.5'	A6P2-C04-9^V	archive	482454.71	1348525.64
	A6P2-C04-10	0.0 - 0.5'	A6P2-C04-10^R	AB	482450.45	1348566.96
	A6P2-C04-11	0.0 - 0.5'	A6P2-C04-11^R	AB	482417.7	1348616.35
	A6P2-C04-12D	0.0 - 0.5'	A6P2-C04-12^R	AB	482434.49	1348668.42
			A6P2-C04-12^R-D			
	A6P2-C04-13	0.0 - 0.5'	A6P2-C04-13^R	AB	482454.66	1348717.47
	A6P2-C04-14V	0.0 - 0.5'	A6P2-C04-14^V	archive	482476.77	1348758.39
	A6P2-C04-15	0.0 - 0.5'	A6P2-C04-15^R	AB	482440.42	1348834.38
	A6P2-C04-16	0.0 - 0.5'	A6P2-C04-16^R	AB	482424.92	1348884.73

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A6P2-C05 (HL)	A6P2-C05-1	0.0 - 0.5'	A6P2-C05-1^RMPS	ABCDFGI	482400.48	1348949.1
			A6P2-C05-1^L	H		
	A6P2-C05-2	0.0 - 0.5'	A6P2-C05-2^RMPS	ABCDFGI	482490.97	1348967.46
			A6P2-C05-2^L	H		
	A6P2-C05-3	0.0 - 0.5'	A6P2-C05-3^RMPS	ABCDFGI	482502.43	1349025.56
			A6P2-C05-3^L	H		
	A6P2-C05-4V	0.0 - 0.5'	A6P2-C05-4^V	archive	482549.53	1349077.74
	A6P2-C05-5	0.0 - 0.5'	A6P2-C05-5^RMPS	ABCDFGI	482628.72	1349186.29
			A6P2-C05-5^L	H		
	A6P2-C05-6	0.0 - 0.5'	A6P2-C05-6^RMPS	ABCDFGI	482591.98	1349112.83
			A6P2-C05-6^L	H		
	A6P2-C05-7D	0.0 - 0.5'	A6P2-C05-7^RMPS	ABCDFGI	482511.25	1349103.56
			A6P2-C05-7^L	H		
			A6P2-C05-7^RMPS-D	ABCDFGI		
			A6P2-C05-7^L-D	H		
	A6P2-C05-8V	0.0 - 0.5'	A6P2-C05-8^V	archive	482570.59	1349163.15
	A6P2-C05-9V	0.0 - 0.5'	A6P2-C05-9^V	archive	482682.13	1349216.83
	A6P2-C05-10	0.0 - 0.5'	A6P2-C05-10^RMPS	ABCDFGI	482719.43	1349355.75
			A6P2-C05-10^L	H		
	A6P2-C05-11	0.0 - 0.5'	A6P2-C05-11^RMPS	ABCDFGI	482656.08	1349243.96
			A6P2-C05-11^L	H		
	A6P2-C05-12	0.0 - 0.5'	A6P2-C05-12^RMPS	ABCDFGI	482605	1349238.56
			A6P2-C05-12^L	H		
	A6P2-C05-13	0.0 - 0.5'	A6P2-C05-13^RMPS	ABCDFGI	482536.63	1349234.09
			A6P2-C05-13^L	H		
	A6P2-C05-14V	0.0 - 0.5'	A6P2-C05-14^V	archive	482474.07	1349298.63
	A6P2-C05-15	0.0 - 0.5'	A6P2-C05-15^RMPS	ABCDFGI	482479.34	1349409.87
			A6P2-C05-15^L	H		
	A6P2-C05-16	0.0 - 0.5'	A6P2-C05-16^RMPS	ABCDFGI	482466.26	1349491.48
			A6P2-C05-16^L	H		

* HL denotes a high leachability zone (20 ppm FRL, 2 ppm MDC).

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7STSA-C01	A7STSA-C01-1	0.0 - 0.5'	A7STSA-C01-1^R	A	479742.93	479742.93
	A7STSA-C01-2	0.0 - 0.5'	A7STSA-C01-2^R	A	479653.12	479653.12
	A7STSA-C01-3V	0.0 - 0.5'	A7STSA-C01-3^V	archive	479610.69	479610.69
	A7STSA-C01-4	0.0 - 0.5'	A7STSA-C01-4^R	A	479568.7	479568.7
	A7STSA-C01-5	0.0 - 0.5'	A7STSA-C01-5^R	A	479576.21	479576.21
	A7STSA-C01-6V	0.0 - 0.5'	A7STSA-C01-6^V	archive	479505.55	479505.55
	A7STSA-C01-7	0.0 - 0.5'	A7STSA-C01-7^R	A	479467.3	479467.3
	A7STSA-C01-8	0.0 - 0.5'	A7STSA-C01-8^R	A	479468.66	479468.66
	A7STSA-C01-9	0.0 - 0.5'	A7STSA-C01-9^R	A	479433.86	479433.86
	A7STSA-C01-10	0.0 - 0.5'	A7STSA-C01-10^R	A	479415.57	479415.57
	A7STSA-C01-11V	0.0 - 0.5'	A7STSA-C01-11^V	archive	479380.23	479380.23
	A7STSA-C01-12	0.0 - 0.5'	A7STSA-C01-12^R	A	479378.33	479378.33
	A7STSA-C01-13	0.0 - 0.5'	A7STSA-C01-13^R	A	479307.75	479307.75
	A7STSA-C01-14	0.0 - 0.5'	A7STSA-C01-14^R	A	479302.78	479302.78
	A7STSA-C01-15V	0.0 - 0.5'	A7STSA-C01-15^V	archive	479263.78	479263.78
	A7STSA-C01-16D	0.0 - 0.5'	A7STSA-C01-16^R	A	479239.13	479239.13
			A7STSA-C01-16^R-D			
A7STSA-C02	A7STSA-C02-1V	0.0 - 0.5'	A7STSA-C02-1^V	archive	479192.89	479192.89
	A7STSA-C02-2	0.0 - 0.5'	A7STSA-C02-2^R	A	479198.06	479198.06
	A7STSA-C02-3	0.0 - 0.5'	A7STSA-C02-3^R	A	479160.71	479160.71
	A7STSA-C02-4	0.0 - 0.5'	A7STSA-C02-4^R	A	479153.69	479153.69
	A7STSA-C02-5	0.0 - 0.5'	A7STSA-C02-5^R	A	479210.69	479210.69
	A7STSA-C02-6V	0.0 - 0.5'	A7STSA-C02-6^V	archive	479198.59	479198.59
	A7STSA-C02-7	0.0 - 0.5'	A7STSA-C02-7^R	A	479143.84	479143.84
	A7STSA-C02-8	0.0 - 0.5'	A7STSA-C02-8^R	A	479162.92	479162.92
	A7STSA-C02-9D	0.0 - 0.5'	A7STSA-C02-9^R	A	479130.34	479130.34
			A7STSA-C02-9^R-D			
	A7STSA-C02-10	0.0 - 0.5'	A7STSA-C02-10^R	A	479108.1	479108.1
	A7STSA-C02-11	0.0 - 0.5'	A7STSA-C02-11^R	A	479077.52	479077.52
	A7STSA-C02-12V	0.0 - 0.5'	A7STSA-C02-12^V	archive	479066.96	479066.96
	A7STSA-C02-13	0.0 - 0.5'	A7STSA-C02-13^R	A	479115.43	479115.43
	A7STSA-C02-14	0.0 - 0.5'	A7STSA-C02-14^R	A	479122.79	479122.79
	A7STSA-C02-15	0.0 - 0.5'	A7STSA-C02-15^R	A	479047.11	479047.11
	A7STSA-C02-16V	0.0 - 0.5'	A7STSA-C02-16^V	archive	479052.35	479052.35

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7STSA-C03 (HL)	A7STSA-C03-1	0.0 - 0.5'	A7STSA-C03-1^R	A	479206.64	479206.64
	A7STSA-C03-2V	0.0 - 0.5'	A7STSA-C03-2^V	archive	479194.05	479194.05
	A7STSA-C03-3D	0.0 - 0.5'	A7STSA-C03-3^R	A	479179.83	479179.83
			A7STSA-C03-3^R-D			
	A7STSA-C03-4	0.0 - 0.5'	A7STSA-C03-4^R	A	479167.93	479167.93
	A7STSA-C03-5	0.0 - 0.5'	A7STSA-C03-5^R	A	479191.53	479191.53
	A7STSA-C03-6	0.0 - 0.5'	A7STSA-C03-6^R	A	479221.62	479221.62
	A7STSA-C03-7V	0.0 - 0.5'	A7STSA-C03-7^V	archive	479167.67	479167.67
	A7STSA-C03-8	0.0 - 0.5'	A7STSA-C03-8^R	A	479161.19	479161.19
	A7STSA-C03-9	0.0 - 0.5'	A7STSA-C03-9^R	A	479120.12	479120.12
	A7STSA-C03-10V	0.0 - 0.5'	A7STSA-C03-10^V	archive	479139.44	479139.44
	A7STSA-C03-11	0.0 - 0.5'	A7STSA-C03-11^R	A	479080.99	479080.99
	A7STSA-C03-12	0.0 - 0.5'	A7STSA-C03-12^R	A	479095.14	479095.14
	A7STSA-C03-13	0.0 - 0.5'	A7STSA-C03-13^R	A	479128.75	479128.75
	A7STSA-C03-14	0.0 - 0.5'	A7STSA-C03-14^R	A	479135.08	479135.08
	A7STSA-C03-15V	0.0 - 0.5'	A7STSA-C03-15^V	archive	479088.48	479088.48
	A7STSA-C03-16	0.0 - 0.5'	A7STSA-C03-16^R	A	479098.85	479098.85
A7STSA-C04 (HL)	A7STSA-C04-1	0.0 - 0.5'	A7STSA-C04-1^R	A	479195.1	479195.1
	A7STSA-C04-2	0.0 - 0.5'	A7STSA-C04-2^R	A	479139.72	479139.72
	A7STSA-C04-3	0.0 - 0.5'	A7STSA-C04-3^R	A	479100.41	479100.41
	A7STSA-C04-4V	0.0 - 0.5'	A7STSA-C04-4^V	archive	479079.46	479079.46
	A7STSA-C04-5	0.0 - 0.5'	A7STSA-C04-5^R	A	479017.43	479017.43
	A7STSA-C04-6	0.0 - 0.5'	A7STSA-C04-6^R	A	479011.94	479011.94
	A7STSA-C04-7D	0.0 - 0.5'	A7STSA-C04-7^R	A	478986.5	478986.5
			A7STSA-C04-7^R-D			
	A7STSA-C04-8V	0.0 - 0.5'	A7STSA-C04-8^V	archive	478960.56	478960.56
	A7STSA-C04-9	0.0 - 0.5'	A7STSA-C04-9^R	A	478929.67	478929.67
	A7STSA-C04-10	0.0 - 0.5'	A7STSA-C04-10^R	A	478920.52	478920.52
	A7STSA-C04-11	0.0 - 0.5'	A7STSA-C04-11^R	A	478895.28	478895.28
	A7STSA-C04-12V	0.0 - 0.5'	A7STSA-C04-12^V	archive	478877.39	478877.39
	A7STSA-C04-13	0.0 - 0.5'	A7STSA-C04-13^R	A	478869.75	478869.75
	A7STSA-C04-14V	0.0 - 0.5'	A7STSA-C04-14^V	archive	478808.99	478808.99
	A7STSA-C04-15	0.0 - 0.5'	A7STSA-C04-15^R	A	478833.75	478833.75
	A7STSA-C04-16	0.0 - 0.5'	A7STSA-C04-16^R	A	478858.09	478858.09

* HL denotes a high leachability zone (20 ppm FRL, 2 ppm MDC).

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7STSA-C05	A7STSA-C05-1	0.0 - 0.5'	A7STSA-C05-1^R	A	479018.9	479018.9
	A7STSA-C05-2	0.0 - 0.5'	A7STSA-C05-2^R	A	479030.4	479030.4
	A7STSA-C05-3	0.0 - 0.5'	A7STSA-C05-3^R	A	478966.27	478966.27
	A7STSA-C05-4V	0.0 - 0.5'	A7STSA-C05-4^V	archive	478908.92	478908.92
	A7STSA-C05-5	0.0 - 0.5'	A7STSA-C05-5^R	A	479019.01	479019.01
	A7STSA-C05-6	0.0 - 0.5'	A7STSA-C05-6^R	A	478986.68	478986.68
	A7STSA-C05-7V	0.0 - 0.5'	A7STSA-C05-7^V	archive	479015.55	479015.55
	A7STSA-C05-8	0.0 - 0.5'	A7STSA-C05-8^R	A	478986.2	478986.2
	A7STSA-C05-9	0.0 - 0.5'	A7STSA-C05-9^R	A	478958.96	478958.96
	A7STSA-C05-10V	0.0 - 0.5'	A7STSA-C05-10^V	archive	478939.33	478939.33
	A7STSA-C05-11	0.0 - 0.5'	A7STSA-C05-11^R	A	478935.73	478935.73
	A7STSA-C05-12	0.0 - 0.5'	A7STSA-C05-12^R	A	478908.68	478908.68
	A7STSA-C05-13	0.0 - 0.5'	A7STSA-C05-13^R	A	478890.62	478890.62
	A7STSA-C05-14D	0.0 - 0.5'	A7STSA-C05-14^R	A	478874.62	478874.62
			A7STSA-C05-14^R-D			
	A7STSA-C05-15	0.0 - 0.5'	A7STSA-C05-15^R	A	478853.28	478853.28
	A7STSA-C05-16V	0.0 - 0.5'	A7STSA-C05-16^V	archive	478813.63	478813.63
A7STSA-C06	A7STSA-C06-1V	0.0 - 0.5'	A7STSA-C06-1^V	archive	479051.17	479051.17
	A7STSA-C06-2	0.0 - 0.5'	A7STSA-C06-2^R	A	479047.57	479047.57
	A7STSA-C06-3	0.0 - 0.5'	A7STSA-C06-3^R	A	479023.33	479023.33
	A7STSA-C06-4	0.0 - 0.5'	A7STSA-C06-4^R	A	479013.15	479013.15
	A7STSA-C06-5	0.0 - 0.5'	A7STSA-C06-5^R	A	479047.19	479047.19
	A7STSA-C06-6	0.0 - 0.5'	A7STSA-C06-6^R	A	479063.49	479063.49
	A7STSA-C06-7V	0.0 - 0.5'	A7STSA-C06-7^V	archive	479020.9	479020.9
	A7STSA-C06-8	0.0 - 0.5'	A7STSA-C06-8^R	A	479020.19	479020.19
	A7STSA-C06-9V	0.0 - 0.5'	A7STSA-C06-9^V	archive	478976.16	478976.16
	A7STSA-C06-10	0.0 - 0.5'	A7STSA-C06-10^R	A	478968.18	478968.18
	A7STSA-C06-11	0.0 - 0.5'	A7STSA-C06-11^R	A	478947.53	478947.53
	A7STSA-C06-12	0.0 - 0.5'	A7STSA-C06-12^R	A	478931.92	478931.92
	A7STSA-C06-13D	0.0 - 0.5'	A7STSA-C06-13^R	A	478987.91	478987.91
			A7STSA-C06-13^R-D			
	A7STSA-C06-14	0.0 - 0.5'	A7STSA-C06-14^R	A	478990.1	478990.1
	A7STSA-C06-15V	0.0 - 0.5'	A7STSA-C06-15^V	archive	478946.11	478946.11
	A7STSA-C06-16	0.0 - 0.5'	A7STSA-C06-16^R	A	478941.02	478941.02

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7STSA-C07	A7STSA-C07-1D	0.0 - 0.5'	A7STSA-C07-1^R	A	478916.29	478916.29
			A7STSA-C07-1^R-D			
	A7STSA-C07-2V	0.0 - 0.5'	A7STSA-C07-2^V	archive	478918.29	478918.29
	A7STSA-C07-3	0.0 - 0.5'	A7STSA-C07-3^R	A	478857.16	478857.16
	A7STSA-C07-4	0.0 - 0.5'	A7STSA-C07-4^R	A	478862.1	478862.1
	A7STSA-C07-5	0.0 - 0.5'	A7STSA-C07-5^R	A	478897.46	478897.46
	A7STSA-C07-6V	0.0 - 0.5'	A7STSA-C07-6^V	archive	478913.41	478913.41
	A7STSA-C07-7	0.0 - 0.5'	A7STSA-C07-7^R	A	478864.23	478864.23
	A7STSA-C07-8	0.0 - 0.5'	A7STSA-C07-8^R	A	478858.6	478858.6
	A7STSA-C07-9	0.0 - 0.5'	A7STSA-C07-9^R	A	478818.43	478818.43
	A7STSA-C07-10V	0.0 - 0.5'	A7STSA-C07-10^V	archive	478821.23	478821.23
	A7STSA-C07-11	0.0 - 0.5'	A7STSA-C07-11^R	A	478801.27	478801.27
	A7STSA-C07-12	0.0 - 0.5'	A7STSA-C07-12^R	A	478797.92	478797.92
	A7STSA-C07-13	0.0 - 0.5'	A7STSA-C07-13^R	A	478829.1	478829.1
	A7STSA-C07-14	0.0 - 0.5'	A7STSA-C07-14^R	A	478821.49	478821.49
	A7STSA-C07-15V	0.0 - 0.5'	A7STSA-C07-15^V	archive	478793.99	478793.99
	A7STSA-C07-16	0.0 - 0.5'	A7STSA-C07-16^R	A	478796.2	478796.2
A7SAR-C01	A7SAR-C01-1	0.0 - 0.5'	A7SAR-C01-1^RP	AE	479006.03	1349226
	A7SAR-C01-2	0.0 - 0.5'	A7SAR-C01-2^RP	AE	478989.25	1349305.62
	A7SAR-C01-3V	0.0 - 0.5'	A7SAR-C01-3^V	archive	478969.49	1349198.4
	A7SAR-C01-4D	0.0 - 0.5'	A7SAR-C01-4^RP	AE	478953.11	1349304.99
			A7SAR-C01-4^RP-D			
	A7SAR-C01-5V	0.0 - 0.5'	A7SAR-C01-5^V	archive	479017.67	1349359.73
	A7SAR-C01-6	0.0 - 0.5'	A7SAR-C01-6^RP	AE	478984.83	1349378.75
	A7SAR-C01-7	0.0 - 0.5'	A7SAR-C01-7^RP	AE	478962.99	1349351.51
	A7SAR-C01-8	0.0 - 0.5'	A7SAR-C01-8^RP	AE	478951.33	1349414.08
	A7SAR-C01-9	0.0 - 0.5'	A7SAR-C01-9^RP	AE	479012.95	1349462.82
	A7SAR-C01-10	0.0 - 0.5'	A7SAR-C01-10^RP	AE	478993.53	1349540.44
	A7SAR-C01-11V	0.0 - 0.5'	A7SAR-C01-11^V	archive	478946.52	1349506.61
	A7SAR-C01-12	0.0 - 0.5'	A7SAR-C01-12^RP	AE	478953.84	1349568.4
	A7SAR-C01-13	0.0 - 0.5'	A7SAR-C01-13^RP	AE	479010.89	1349638.77
	A7SAR-C01-14V	0.0 - 0.5'	A7SAR-C01-14^V	archive	478934.57	1349600.45
	A7SAR-C01-15	0.0 - 0.5'	A7SAR-C01-15^RP	AE	478981.59	1349665.01
	A7SAR-C01-16	0.0 - 0.5'	A7SAR-C01-16^RP	AE	478892.71	1349672.03

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7SAR-C02	A7SAR-C02-1	0.0 - 0.5'	A7SAR-C02-1^RP	AE	478998.47	1349707
	A7SAR-C02-2V	0.0 - 0.5'	A7SAR-C02-2^V	archive	478988.2	1349874.61
	A7SAR-C02-3	0.0 - 0.5'	A7SAR-C02-3^RP	AE	478965.1	1349723.57
	A7SAR-C02-4	0.0 - 0.5'	A7SAR-C02-4^RP	AE	478940.58	1349780.78
	A7SAR-C02-5	0.0 - 0.5'	A7SAR-C02-5^RP	AE	478928.33	1349824.36
	A7SAR-C02-6V	0.0 - 0.5'	A7SAR-C02-6^V	archive	478908.57	1349742.85
	A7SAR-C02-7D	0.0 - 0.5'	A7SAR-C02-7^RP	AE	478873.63	1349716.69
			A7SAR-C02-7^RP-D			
	A7SAR-C02-8	0.0 - 0.5'	A7SAR-C02-8^RP	AE	478885.26	1349831.26
	A7SAR-C02-9	0.0 - 0.5'	A7SAR-C02-9^RP	AE	478831.69	1349792.32
	A7SAR-C02-10	0.0 - 0.5'	A7SAR-C02-10^RP	AE	478846.61	1349856.51
	A7SAR-C02-11	0.0 - 0.5'	A7SAR-C02-11^RP	AE	478786.85	1349783.34
	A7SAR-C02-12V	0.0 - 0.5'	A7SAR-C02-12^V	archive	478766	1349864.09
	A7SAR-C02-13	0.0 - 0.5'	A7SAR-C02-13^RP	AE	478766.2	1349714.61
	A7SAR-C02-14	0.0 - 0.5'	A7SAR-C02-14^RP	AE	478738.4	1349780.98
	A7SAR-C02-15	0.0 - 0.5'	A7SAR-C02-15^RP	AE	478718.97	1349816.33
	A7SAR-C02-16V	0.0 - 0.5'	A7SAR-C02-16^V	archive	478663.99	1349827.95
A7SAR-C03	A7SAR-C03-1	0.0 - 0.5'	A7SAR-C03-1^RP	AE	478950.38	1349890.26
	A7SAR-C03-2V	0.0 - 0.5'	A7SAR-C03-2^V	archive	478949.58	1349939.29
	A7SAR-C03-3D	0.0 - 0.5'	A7SAR-C03-3^RP	AE	478844.89	1349895.39
			A7SAR-C03-3^RP-D			
	A7SAR-C03-4	0.0 - 0.5'	A7SAR-C03-4^RP	AE	478897.84	1349931.59
	A7SAR-C03-5	0.0 - 0.5'	A7SAR-C03-5^RP	AE	478985.24	1350007.65
	A7SAR-C03-6	0.0 - 0.5'	A7SAR-C03-6^RP	AE	478959.77	1350032.99
	A7SAR-C03-7V	0.0 - 0.5'	A7SAR-C03-7^V	archive	478877.86	1350003.54
	A7SAR-C03-8	0.0 - 0.5'	A7SAR-C03-8^RP	AE	478911.37	1350050.26
	A7SAR-C03-9	0.0 - 0.5'	A7SAR-C03-9^RP	AE	478786.87	1349891.85
	A7SAR-C03-10V	0.0 - 0.5'	A7SAR-C03-10^V	archive	478811.41	1349969.11
	A7SAR-C03-11	0.0 - 0.5'	A7SAR-C03-11^RP	AE	478685.45	1349892.04
	A7SAR-C03-12	0.0 - 0.5'	A7SAR-C03-12^RP	AE	478684	1349960.26
	A7SAR-C03-13	0.0 - 0.5'	A7SAR-C03-13^RP	AE	478766.26	1350008.78
	A7SAR-C03-14	0.0 - 0.5'	A7SAR-C03-14^RP	AE	478815.58	1350051.98
	A7SAR-C03-15V	0.0 - 0.5'	A7SAR-C03-15^V	archive	478724.22	1349994.95
	A7SAR-C03-16	0.0 - 0.5'	A7SAR-C03-16^RP	AE	478706.19	1350042.8

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7SAR-C04	A7SAR-C04-1V	0.0 - 0.5'	A7SAR-C04-1^V	archive	478969.7	1350080.46
	A7SAR-C04-2	0.0 - 0.5'	A7SAR-C04-2^R	A	478946.98	1350155.68
	A7SAR-C04-3	0.0 - 0.5'	A7SAR-C04-3^R	A	478886.21	1350108.9
	A7SAR-C04-4	0.0 - 0.5'	A7SAR-C04-4^R	A	478893.74	1350159.42
	A7SAR-C04-5D	0.0 - 0.5'	A7SAR-C04-5^R	A	478967.58	1350206.85
			A7SAR-C04-5^R-D			
	A7SAR-C04-6	0.0 - 0.5'	A7SAR-C04-6^R	A	478992.75	1350234.39
	A7SAR-C04-7	0.0 - 0.5'	A7SAR-C04-7^R	A	478877.85	1350208.92
	A7SAR-C04-8V	0.0 - 0.5'	A7SAR-C04-8^V	archive	478915	1350258.56
	A7SAR-C04-9V	0.0 - 0.5'	A7SAR-C04-9^V	archive	478794.98	1350068.98
	A7SAR-C04-10	0.0 - 0.5'	A7SAR-C04-10^R	A	478851.86	1350119.19
	A7SAR-C04-11	0.0 - 0.5'	A7SAR-C04-11^R	See 4.1.1	NA	NA
	A7SAR-C04-12	0.0 - 0.5'	A7SAR-C04-12^R	A	478804.63	1350234.96
	A7SAR-C04-13	0.0 - 0.5'	A7SAR-C04-13^R	A	478740.25	1350117.8
	A7SAR-C04-14	0.0 - 0.5'	A7SAR-C04-14^R	A	478777.65	1350148.03
	A7SAR-C04-15V	0.0 - 0.5'	A7SAR-C04-15^V	archive	478733.74	1350190.55
	A7SAR-C04-16	0.0 - 0.5'	A7SAR-C04-16^R	A	478684.62	1350073.26
A7SAR-C05	A7SAR-C05-1	0.0 - 0.5'	A7SAR-C05-1^RMP	ADF	478922.13	1350307.41
	A7SAR-C05-2D	0.0 - 0.5'	A7SAR-C05-2^RMP	ADF	478927.84	1350422.04
			A7SAR-C05-2^RMP-D			
	A7SAR-C05-3	0.0 - 0.5'	A7SAR-C05-3^RMP	ADF	478891.33	1350342.54
	A7SAR-C05-4V	0.0 - 0.5'	A7SAR-C05-4^V	archive	478860.57	1350286.05
	A7SAR-C05-5	0.0 - 0.5'	A7SAR-C05-5^RMP	ADF	478992.45	1350471.14
	A7SAR-C05-6V	0.0 - 0.5'	A7SAR-C05-6^V	archive	479097.19	1350553.4
	A7SAR-C05-7	0.0 - 0.5'	A7SAR-C05-7^RMP	ADF	479131	1350607.01
	A7SAR-C05-8	0.0 - 0.5'	A7SAR-C05-8^RMP	ADF	479231.45	1350682.33
	A7SAR-C05-9V	0.0 - 0.5'	A7SAR-C05-9^V	archive	479285.89	1350714.37
	A7SAR-C05-10	0.0 - 0.5'	A7SAR-C05-10^RMP	ADF	479362.46	1350723.51
	A7SAR-C05-11	0.0 - 0.5'	A7SAR-C05-11^RMP	ADF	479319.75	1350774.71
	A7SAR-C05-12	0.0 - 0.5'	A7SAR-C05-12^RMP	ADF	479390.27	1350665.3
	A7SAR-C05-13	0.0 - 0.5'	A7SAR-C05-13^RMP	ADF	479419.17	1350751.31
	A7SAR-C05-14V	0.0 - 0.5'	A7SAR-C05-14^V	archive	479427.97	1350797.91
	A7SAR-C05-15	0.0 - 0.5'	A7SAR-C05-15^RMP	ADF	479466.85	1350755.84
	A7SAR-C05-16	0.0 - 0.5'	A7SAR-C05-16^RMP	ADF	479468.2	1350839.96

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7SAR-C06	A7SAR-C06-1	0.0-0.5'	A7SAR-C06-1^R	A	478643.66	1349878.74
	A7SAR-C06-2	0.0-0.5'	A7SAR-C06-2^R	A	478628.36	1349940.26
	A7SAR-C06-3	0.0-0.5'	A7SAR-C06-3^R	A	478597.31	1349919.96
	A7SAR-C06-4V	0.0-0.5'	A7SAR-C06-4^V	archive	478540.43	1349924.58
	A7SAR-C06-5	0.0-0.5'	A7SAR-C06-5^R	A	478504	1349960.26
	A7SAR-C06-6D	0.0-0.5'	A7SAR-C06-6^R	A	478448.36	1349940.26
			A7SAR-C06-6^R-D			
	A7SAR-C06-7V	0.0-0.5'	A7SAR-C06-7^V	archive	478389.1	1349961.73
	A7SAR-C06-8	0.0-0.5'	A7SAR-C06-8^R	A	478356.26	1350017.76
	A7SAR-C06-9	0.0-0.5'	A7SAR-C06-9^R	A	478317.92	1349972.33
	A7SAR-C06-10V	0.0-0.5'	A7SAR-C06-10^V	archive	478266.18	1349986.95
	A7SAR-C06-11	0.0-0.5'	A7SAR-C06-11^R	A	478223.56	1350064.35
	A7SAR-C06-12	0.0-0.5'	A7SAR-C06-12^R	A	478184.54	1350025.9
	A7SAR-C06-13	0.0-0.5'	A7SAR-C06-13^R	A	478144.47	1350084.88
	A7SAR-C06-14	0.0-0.5'	A7SAR-C06-14^R	A	478104.44	1350065.65
	A7SAR-C06-15	0.0-0.5'	A7SAR-C06-15^R	A	478026.33	1350102.45
	A7SAR-C06-16V	0.0-0.5'	A7SAR-C06-16^V	archive	477979.43	1350140.1
A7SAR-C07	A7SAR-C07-1V	0.0-0.5'	A7SAR-C07-1^V	archive	477951.91	1350103.17
	A7SAR-C07-2	0.0-0.5'	A7SAR-C07-2^R	A	477883.38	1350175.56
	A7SAR-C07-3D	0.0-0.5'	A7SAR-C07-3^R	A	477825.66	1350199.38
			A7SAR-C07-3^R-D			
	A7SAR-C07-4	0.0-0.5'	A7SAR-C07-4^R	A	477762.85	1350182.37
	A7SAR-C07-5V	0.0-0.5'	A7SAR-C07-5^V	archive	477703.38	1350175.56
	A7SAR-C07-6	0.0-0.5'	A7SAR-C07-6^R	A	477660.36	1350253.48
	A7SAR-C07-7	0.0-0.5'	A7SAR-C07-7^R	A	477628.67	1350200.56
	A7SAR-C07-8	0.0-0.5'	A7SAR-C07-8^R	A	477599.31	1350247.88
	A7SAR-C07-9	0.0-0.5'	A7SAR-C07-9^R	A	477533.16	1350252.81
	A7SAR-C07-10	0.0-0.5'	A7SAR-C07-10^R	A	477470.61	1350308.95
	A7SAR-C07-11V	0.0-0.5'	A7SAR-C07-11^V	archive	477440.75	1350256.56
	A7SAR-C07-12	0.0-0.5'	A7SAR-C07-12^R	A	477379.41	1350295.04
	A7SAR-C07-13	0.0-0.5'	A7SAR-C07-13^R	A	477352.23	1350337.13
	A7SAR-C07-14V	0.0-0.5'	A7SAR-C07-14^V	archive	477299.04	1350334.44
	A7SAR-C07-15	0.0-0.5'	A7SAR-C07-15^R	A	477248.5	1350343.1
	A7SAR-C07-16	0.0-0.5'	A7SAR-C07-16^R	A	477211.42	1350387.73

APPENDIX C
AREAS OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLED AREAS
CU SAMPLE LOCATIONS AND IDENTIFIERS

CU	Location	Depth (feet)	Sample ID	TAL	Northing	Easting
A7SAR-C08	A7SAR-C08-1	0.0-0.5'	A7SAR-C08-1^RM	AD	477172.23	1350337.13
	A7SAR-C08-2V	0.0-0.5'	A7SAR-C08-2^V	archive	477138.74	1350395.55
	A7SAR-C08-3	0.0-0.5'	A7SAR-C08-3^RM	AD	477092.93	1350390.22
	A7SAR-C08-4	0.0-0.5'	A7SAR-C08-4^RM	AD	477061.29	1350462.11
	A7SAR-C08-5	0.0-0.5'	A7SAR-C08-5^RM	AD	477021.16	1350453.26
	A7SAR-C08-6	0.0-0.5'	A7SAR-C08-6^RM	AD	476994.24	1350401.28
	A7SAR-C08-7V	0.0-0.5'	A7SAR-C08-7^V	archive	476944	1350483.05
	A7SAR-C08-8	0.0-0.5'	A7SAR-C08-8^RM	AD	476909.36	1350468.12
	A7SAR-C08-9V	0.0-0.5'	A7SAR-C08-9^V	archive	476894.99	1350428.62
	A7SAR-C08-10	0.0-0.5'	A7SAR-C08-10^RM	AD	476841.16	1350453.26
	A7SAR-C08-11	0.0-0.5'	A7SAR-C08-11^RM	AD	476807.97	1350461.95
	A7SAR-C08-12D	0.0-0.5'	A7SAR-C08-12^RM	AD	476764	1350483.05
			A7SAR-C08-12^RM-D			
	A7SAR-C08-13	0.0-0.5'	A7SAR-C08-13^RM	AD	476755.04	1350548.37
	A7SAR-C08-14	0.0-0.5'	A7SAR-C08-14^RM	AD	476694.88	1350539.65
	A7SAR-C08-15	0.0-0.5'	A7SAR-C08-15^RM	AD	476665.01	1350507.44
	A7SAR-C08-16V	0.0-0.5'	A7SAR-C08-16^V	archive	476610.53	1350517.16
A7SAR-CSTA	A7SAR-CSTA-1	0.0-0.5'	A7SAR-CSTA-1	AE	478885.98	1350211.13
	A7SAR-CSTA-2	0.0-0.5'	A7SAR-CSTA-2	AE	478888.67	1350177.56
	A7SAR-CSTA-3	0.0-0.5'	A7SAR-CSTA-3	AE	478758.93	1350044.88
	A7SAR-CSTA-4	0.0-0.5'	A7SAR-CSTA-4	AE	478779.9	1349978.35
	A7SAR-CSTA1-5	0.0-0.5'	A7SAR-CSTA1-5	AE	478886.68	1350005.31
	A7SAR-CSTA-6	0.0-0.5'	A7SAR-CSTA-6	AE	478873.4	1350031.48
	A7SAR-CSTA-7	0.0-0.5'	A7SAR-CSTA-7	AE	478857.94	1350038.12
	A7SAR-CSTA-8	0.0-0.5'	A7SAR-CSTA-8	AE	478887.89	1349963.5
	A7SAR-CSTA-9	0.0-0.5'	A7SAR-CSTA-9	AE	478873.76	1349960.41

APPENDIX D

INFORMATION RELATING TO SAMPLING OF CUs 1 AND 2 IN AREA 6, PHASE II

VARIANCE / FIELD CHANGE NOTICE	Significant? (Yes or No): NO	V/F: 20600-PSP-0016-76
WBS NO.: PROJECT/DOCUMENT/ECDC # 20600-PSP-0016 Rev. 0		Page: 1 of 5
PROJECT TITLE: Project Specific Plan For Excavation Control And Precertification Of The Area 6 Waste Pits And General Area		Date: 03/01/06

VARIANCE / FIELD CHANGE NOTICE (Include justification):
DRAFT

EXCAVATION CONTROL SAMPLING

The V/FCN documents the collection of physical surface grab soil samples for precertification from 24 sampling locations in the area on the north side of Pit 5, north of the rail line. See Figure 1.

The Sampling and Analytical Requirements are on Attachment 1; TALs are on Attachment 2; and Sample Locations and Identifiers are on Attachment 3.

Field sketch required: No
Surveying required: Yes, Surveyors will survey these sample points prior to sampling.
Field QC samples required: Yes, see Attachment 1
Field data validation: Yes
Analytical data validation: Yes, VSL B/D
Data package requirements: See Attachment 1

The highest total uranium result for this area is 22 mg/kg from boring A6P1-C-07-16.

Justification:
Sampling in this area is necessary so that Restoration can use this area to stockpile compost. Per Section 1.3 of the PSP, the collection of physical samples will be documented with a V/FCN.

REQUESTED BY: Greg Lupton Date: 03/01/06

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE R Friske	3/7/06	X	PROJECT MANAGER J D Chiou	3/6/06
	DATA QUALITY MANAGEMENT		X	CHARACTERIZATION MANAGER F Miller	3/1/06
X	ANALYTICAL CUSTOMER SUPPORT Paul McSwigan	3/10/06		RTIMP Manager	
X	WAO Patrick Shambo	3/2/06	X	SAMPLING MANAGER T Buhrlage	3/14/06

VARIANCE/FCN APPROVED [X]YES [ ]NO REVISION REQUIRED: [ ]YES [x]NO

DISTRIBUTION

PROJECT MANAGER:	DOCUMENT CONTROL: Jeannie Rosser	OTHER:
QUALITY ASSURANCE:	CHARACTERIZATION MANAGER: Frank Miller	OTHER:
FIELD MANAGER:	OTHER:	OTHER:

Attachment 1
Sampling and Analytical Requirements

TAL(s)	Method[a]	Matrix	Preservative	ASL	TAT	Container[b]	Minimum Mass/Volume
Any combination of Rads (TALs M and S)	Gamma Spec, Alpha Spec, and LSC or GPC	Solid	Cool, 4° C	D/E	10 days PEDD 30 days final	Glass with Teflon-lined lid	500 g (1500 g) [c]
	ICP or ICP/MS				10 days		
	GC				10 days		
Radiological (TAL M and S)	Gamma Spec and LSC or GPC	Water	HNO3 pH<2	D/E	30 days final	Polyethylene	4 liters

[a] Samples will be analyzed according to ASL D requirements but the minimum detection level may cause some analyses to be considered ASL E.

[b] Sample container types may be changed at the direction of the Field Sampling Lead, as long as the volume requirements, container compatibility requirements, and SCQ requirements are met.

[c] At the direction of the Field Sampling Lead, triple the specified volume must be collected for all samples at one location in the CU in order for the contract laboratory to perform the required quality control analysis. The samples shall be identified on the Chain of Custody/Request for Analysis forms as "designated for laboratory QC".

[d] If "push tubes" are used for sampling, the off-site laboratories will be sent container blanks. If an alternative sample method is used, the Field Technicians will collect a rinsate.

Attachment 2
Target Analyte Lists

20600-PSP-0016-M
(Radiological - ASL D/E*)

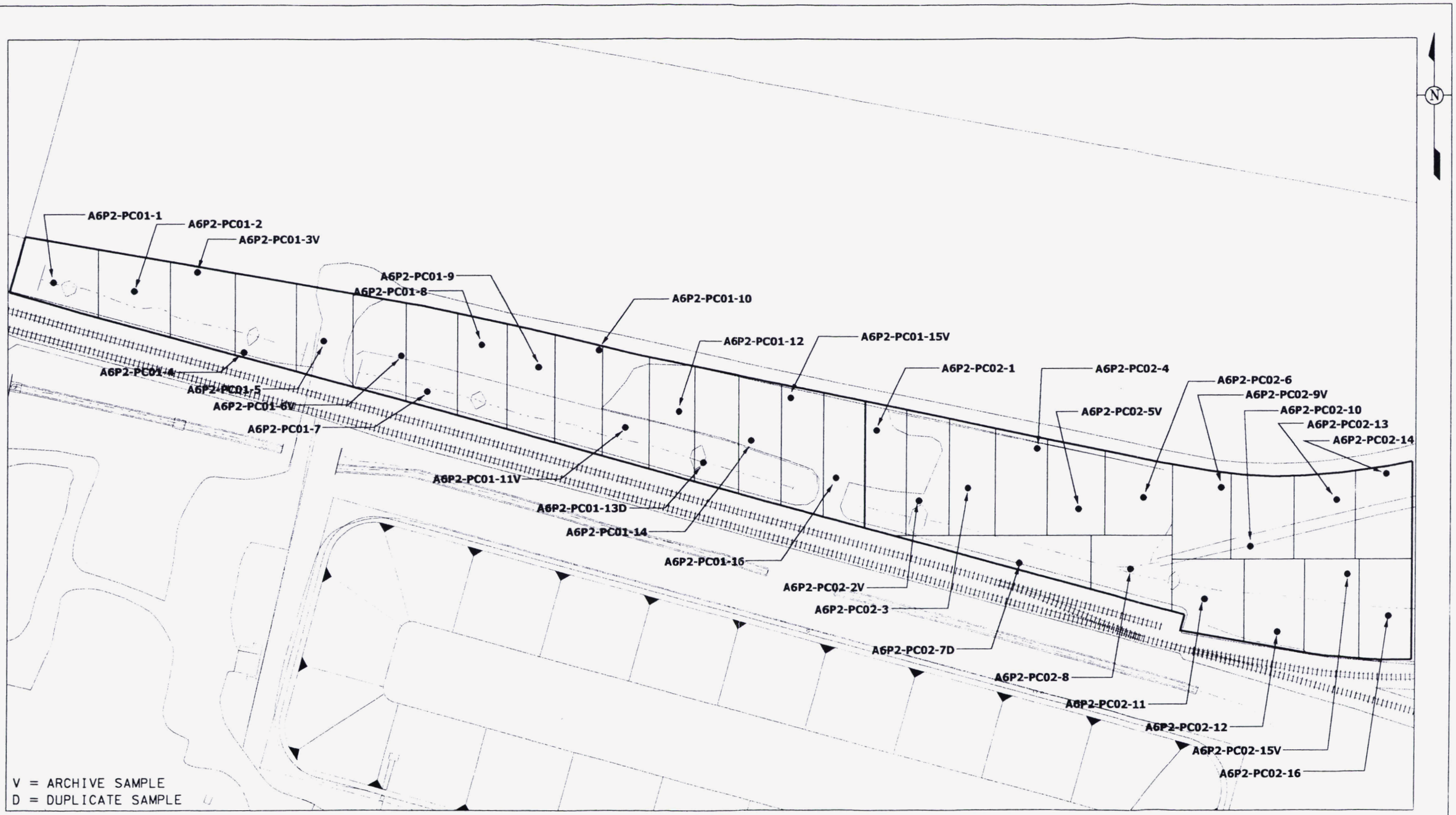
Analyte	On-Property FRL	MDL (soil)	MDL (water)
Total Uranium	20 mg/kg	2.0 mg/kg	3000 µg/L
Radium-226	1.7 pCi/g	0.17 pCi/g	255 pCi/L
Radium-228	1.8 pCi/g	0.18 pCi/g	270 pCi/L
Thorium-228	1.7 pCi/g	0.17 pCi/g	255 pCi/L
Thorium-232	1.5 pCi/g	0.15 pCi/g	225 pCi/L

20600-PSP-0016-S
(Radiological - ASL D/E*)

Analyte	On-Property FRL	MDL (soil)	MDL (water)
Thorium-230	280 pCi/g	28 pCi/g	50 pCi/L

Attachment 3
Sample Locations and Identifiers

CU	Location	Depth	Sample ID	TAL	North-83	East-83
1	1-1	0-6"	A6P2-PC01-1^R	M,S	482539.33	1346511.48
	1-2	0-6"	A6P2-PC01-2^R	M,S	482531.73	1346581.28
	1-3V	0-6"	A6P2-PC01-3^V	Archive	482548.04	1346635.76
	1-4	0-6"	A6P2-PC01-4^R	M,S	482478.3	1346676.33
	1-5	0-6"	A6P2-PC01-5^R	M,S	482488.18	1346745.43
	1-6V	0-6"	A6P2-PC01-6^V	Archive	482475.53	1346812.52
	1-7	0-6"	A6P2-PC01-7^R	M,S	482444.34	1346835.25
	1-8	0-6"	A6P2-PC01-8^R	M,S	482484.77	1346882.28
	1-9	0-6"	A6P2-PC01-9^R	M,S	482465.36	1346932.23
	1-10	0-6"	A6P2-PC01-10^R	M,S	482479.99	1346984.22
	1-11V	0-6"	A6P2-PC01-11^V	Archive	482413.34	1347007.05
	1-12	0-6"	A6P2-PC01-12^R	M,S	482426.92	1347053.32
	1-13D	0-6"	A6P2-PC01-13^R	M,S	482382.74	1347074.92
			A6P2-PC01-13^R-D			
	1-14	0-6"	A6P2-PC01-14^R	M,S	482401.78	1347116.95
	1-15V	0-6"	A6P2-PC01-15^V	Archive	482438.64	1347150.96
	1-16	0-6"	A6P2-PC01-16^R	M,S	482369.61	1347190.14
2	2-1	0-6"	A6P2-PC02-1^R	M,S	482410.64	1347225.09
	2-2V	0-6"	A6P2-PC02-2^V	Archive	482349.84	1347261.8
	2-3	0-6"	A6P2-PC02-3^R	M,S	482360.95	1347304.37
	2-4	0-6"	A6P2-PC02-4^R	M,S	482394.9	1347363.91
	2-5V	0-6"	A6P2-PC02-5^V	Archive	482342.74	1347399.55
	2-6	0-6"	A6P2-PC02-6^R	M,S	482352.62	1347456.31
	2-7D	0-6"	A6P2-PC02-7^R	M,S	482296.46	1347348.95
			A6P2-PC02-7^R-D			
	2-8	0-6"	A6P2-PC02-8^R	M,S	482291.17	1347445.02
	2-9V	0-6"	A6P2-PC02-9^V	Archive	482361.03	1347522.49
	2-10	0-6"	A6P2-PC02-10^R	M,S	482310.42	1347548.09
	2-11	0-6"	A6P2-PC02-11^R	M,S	482265.36	1347508.6
	2-12	0-6"	A6P2-PC02-12^R	M,S	482237.15	1347571.35
	2-13	0-6"	A6P2-PC02-13^R	M,S	482350.25	1347621.7
	2-14	0-6"	A6P2-PC02-14^R	M,S	482372.75	1347664.39
	2-15V	0-6"	A6P2-PC02-15^V	Archive	482286.66	1347631.38
	2-16	0-6"	A6P2-PC02-16^R	M,S	482250.86	1347666.55



LEGEND:

• SAMPLE LOCATION

SCALE

80 40 0 80 FEET

DRAFT

v:\2fm12\dgn\a6_north_001.dgn STATE PLANAR COORDINATE SYSTEM 1983 28-FEB-2006

FIGURE 1. PRECERTIFICATION SAMPLING LOCATIONS

APPENDIX D
DATA ASSOCIATED WITH CUs 1 AND 2 OF AREA 6, PHASE II

Release Number	Boring ID	Sample ID	FACTS ID	Parameter	Result	LQ	Units	VQ	FRL	FRL Units	>FRL?
1000034861	A6P2-PC01-1	A6P2-PC01-1^R	200518084	Radium-226	1.08		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-1	A6P2-PC01-1^R	200518084	Radium-228	0.706		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-1	A6P2-PC01-1^R	200518084	Thorium-228	0.677		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-1	A6P2-PC01-1^R	200518084	Thorium-230	1.5		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-1	A6P2-PC01-1^R	200518084	Thorium-232	0.706		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-1	A6P2-PC01-1^R	200518084	Uranium, Total	7.31		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-10	A6P2-PC01-10^R	200518091	Radium-226	0.873		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-10	A6P2-PC01-10^R	200518091	Radium-228	0.701		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-10	A6P2-PC01-10^R	200518091	Thorium-228	0.741		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-10	A6P2-PC01-10^R	200518091	Thorium-230	2.22		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-10	A6P2-PC01-10^R	200518091	Thorium-232	0.701		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-10	A6P2-PC01-10^R	200518091	Uranium, Total	2.71		mg/kg	J	82	mg/kg	No
1000034861	A6P2-PC01-12	A6P2-PC01-12^R	200518092	Radium-226	1		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-12	A6P2-PC01-12^R	200518092	Radium-228	0.701		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-12	A6P2-PC01-12^R	200518092	Thorium-228	0.696		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-12	A6P2-PC01-12^R	200518092	Thorium-230	2.02		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-12	A6P2-PC01-12^R	200518092	Thorium-232	0.701		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-12	A6P2-PC01-12^R	200518092	Uranium, Total	5.82		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-14	A6P2-PC01-14^R	200518095	Radium-226	1.14		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-14	A6P2-PC01-14^R	200518095	Radium-228	0.795		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-14	A6P2-PC01-14^R	200518095	Thorium-228	0.792		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-14	A6P2-PC01-14^R	200518095	Thorium-230	1.51		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-14	A6P2-PC01-14^R	200518095	Thorium-232	0.795		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-14	A6P2-PC01-14^R	200518095	Uranium, Total	5.73		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-16	A6P2-PC01-16^R	200518096	Radium-226	1.14		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-16	A6P2-PC01-16^R	200518096	Radium-228	0.793		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-16	A6P2-PC01-16^R	200518096	Thorium-228	0.771		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-16	A6P2-PC01-16^R	200518096	Thorium-230	1.85		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-16	A6P2-PC01-16^R	200518096	Thorium-232	0.793		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-16	A6P2-PC01-16^R	200518096	Uranium, Total	8.49		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-2	A6P2-PC01-2^R	200518085	Radium-226	0.982		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-2	A6P2-PC01-2^R	200518085	Radium-228	0.636		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-2	A6P2-PC01-2^R	200518085	Thorium-228	0.629		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-2	A6P2-PC01-2^R	200518085	Thorium-230	1.82		pCi/g	J	280	pCi/g	No

APPENDIX D
DATA ASSOCIATED WITH CUs 1 AND 2 OF AREA 6, PHASE II

Release Number	Boring ID	Sample ID	FACTS ID	Parameter	Result	LQ	Units	VQ	FRL	FRL Units	>FRL?
1000034861	A6P2-PC01-2	A6P2-PC01-2^R	200518085	Thorium-232	0.636		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-2	A6P2-PC01-2^R	200518085	Uranium, Total	5.83		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-4	A6P2-PC01-4^R	200518086	Radium-226	1.12		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-4	A6P2-PC01-4^R	200518086	Radium-228	0.742		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-4	A6P2-PC01-4^R	200518086	Thorium-228	0.744		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-4	A6P2-PC01-4^R	200518086	Thorium-230	1.9		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-4	A6P2-PC01-4^R	200518086	Thorium-232	0.742		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-4	A6P2-PC01-4^R	200518086	Uranium, Total	4.24		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-5	A6P2-PC01-5^R	200518087	Radium-226	1.1		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-5	A6P2-PC01-5^R	200518087	Radium-228	0.789		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-5	A6P2-PC01-5^R	200518087	Thorium-228	0.806		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-5	A6P2-PC01-5^R	200518087	Thorium-230	1.61		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-5	A6P2-PC01-5^R	200518087	Thorium-232	0.789		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-5	A6P2-PC01-5^R	200518087	Uranium, Total	15.3		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-8	A6P2-PC01-8^R	200518089	Radium-226	1.08		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-8	A6P2-PC01-8^R	200518089	Radium-228	0.88		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-8	A6P2-PC01-8^R	200518089	Thorium-228	0.953		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-8	A6P2-PC01-8^R	200518089	Thorium-230	1.99		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-8	A6P2-PC01-8^R	200518089	Thorium-232	0.88		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-8	A6P2-PC01-8^R	200518089	Uranium, Total	5.83		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC01-9	A6P2-PC01-9^R	200518090	Radium-226	1.23		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-9	A6P2-PC01-9^R	200518090	Radium-228	0.914		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC01-9	A6P2-PC01-9^R	200518090	Thorium-228	0.892		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC01-9	A6P2-PC01-9^R	200518090	Thorium-230	2		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC01-9	A6P2-PC01-9^R	200518090	Thorium-232	0.914		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC01-9	A6P2-PC01-9^R	200518090	Uranium, Total	8.4		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC02-1	A6P2-PC02-1^R	200518097	Radium-226	0.926		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-1	A6P2-PC02-1^R	200518097	Radium-228	0.562		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-1	A6P2-PC02-1^R	200518097	Thorium-228	0.556		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-1	A6P2-PC02-1^R	200518097	Thorium-230	1.57		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-1	A6P2-PC02-1^R	200518097	Thorium-232	0.562		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-1	A6P2-PC02-1^R	200518097	Uranium, Total	4.24		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC02-10	A6P2-PC02-10^R	200518104	Radium-226	1.24		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-10	A6P2-PC02-10^R	200518104	Radium-228	0.843		pCi/g	-	1.8	pCi/g	No

APPENDIX D
DATA ASSOCIATED WITH CUs 1 AND 2 OF AREA 6, PHASE II

Release Number	Boring ID	Sample ID	FACTS ID	Parameter	Result	LQ	Units	VQ	FRL	FRL Units	>FRL?
1000034861	A6P2-PC02-10	A6P2-PC02-10^R	200518104	Thorium-228	0.846		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-10	A6P2-PC02-10^R	200518104	Thorium-230	1.9		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-10	A6P2-PC02-10^R	200518104	Thorium-232	0.843		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-10	A6P2-PC02-10^R	200518104	Uranium, Total	2.7		mg/kg	J	82	mg/kg	No
1000034861	A6P2-PC02-11	A6P2-PC02-11^R	200518105	Radium-226	1.32		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-11	A6P2-PC02-11^R	200518105	Radium-228	0.96		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-11	A6P2-PC02-11^R	200518105	Thorium-228	0.979		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-11	A6P2-PC02-11^R	200518105	Thorium-230	1.45		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-11	A6P2-PC02-11^R	200518105	Thorium-232	0.96		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-11	A6P2-PC02-11^R	200518105	Uranium, Total	7.98		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC02-12	A6P2-PC02-12^R	200518106	Radium-226	1.21		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-12	A6P2-PC02-12^R	200518106	Radium-228	1.01		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-12	A6P2-PC02-12^R	200518106	Thorium-228	1.04		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-12	A6P2-PC02-12^R	200518106	Thorium-230	1.79		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-12	A6P2-PC02-12^R	200518106	Thorium-232	1.01		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-12	A6P2-PC02-12^R	200518106	Uranium, Total	12.1		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC02-13	A6P2-PC02-13^R	200518107	Radium-226	0.968		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-13	A6P2-PC02-13^R	200518107	Radium-228	0.689		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-13	A6P2-PC02-13^R	200518107	Thorium-228	0.661		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-13	A6P2-PC02-13^R	200518107	Thorium-230	1.27		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-13	A6P2-PC02-13^R	200518107	Thorium-232	0.689		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-13	A6P2-PC02-13^R	200518107	Uranium, Total	4.72		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC02-14	A6P2-PC02-14^R	200518108	Radium-226	0.631		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-14	A6P2-PC02-14^R	200518108	Radium-228	0.546		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-14	A6P2-PC02-14^R	200518108	Thorium-228	0.571		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-14	A6P2-PC02-14^R	200518108	Thorium-230	1.18		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-14	A6P2-PC02-14^R	200518108	Thorium-232	0.546		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-14	A6P2-PC02-14^R	200518108	Uranium, Total	2.34		mg/kg	J	82	mg/kg	No
1000034861	A6P2-PC02-16	A6P2-PC02-16^R	200518109	Radium-226	1.31		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-16	A6P2-PC02-16^R	200518109	Radium-228	0.877		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-16	A6P2-PC02-16^R	200518109	Thorium-228	0.909		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-16	A6P2-PC02-16^R	200518109	Thorium-230	2.16		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-16	A6P2-PC02-16^R	200518109	Thorium-232	0.877		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-16	A6P2-PC02-16^R	200518109	Uranium, Total	11.7		mg/kg	-	82	mg/kg	No

APPENDIX D
DATA ASSOCIATED WITH CUs 1 AND 2 OF AREA 6, PHASE II

Release Number	Boring ID	Sample ID	FACTS ID	Parameter	Result	LQ	Units	VQ	FRL	FRL Units	>FRL?
1000034861	A6P2-PC02-3	A6P2-PC02-3^R	200518098	Radium-226	1.09		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-3	A6P2-PC02-3^R	200518098	Radium-228	0.742		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-3	A6P2-PC02-3^R	200518098	Thorium-228	0.736		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-3	A6P2-PC02-3^R	200518098	Thorium-230	1.94		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-3	A6P2-PC02-3^R	200518098	Thorium-232	0.742		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-3	A6P2-PC02-3^R	200518098	Uranium, Total	9.58		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC02-4	A6P2-PC02-4^R	200518099	Radium-226	1.1		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-4	A6P2-PC02-4^R	200518099	Radium-228	0.795		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-4	A6P2-PC02-4^R	200518099	Thorium-228	0.739		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-4	A6P2-PC02-4^R	200518099	Thorium-230	2.01		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-4	A6P2-PC02-4^R	200518099	Thorium-232	0.795		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-4	A6P2-PC02-4^R	200518099	Uranium, Total	7.87		mg/kg	-	82	mg/kg	No
1000034861	A6P2-PC02-6	A6P2-PC02-6^R	200518100	Radium-226	1.32		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-6	A6P2-PC02-6^R	200518100	Radium-228	0.997		pCi/g	-	1.8	pCi/g	No
1000034861	A6P2-PC02-6	A6P2-PC02-6^R	200518100	Thorium-228	1.01		pCi/g	-	1.7	pCi/g	No
1000034861	A6P2-PC02-6	A6P2-PC02-6^R	200518100	Thorium-230	1.46		pCi/g	J	280	pCi/g	No
1000034861	A6P2-PC02-6	A6P2-PC02-6^R	200518100	Thorium-232	0.997		pCi/g	-	1.5	pCi/g	No
1000034861	A6P2-PC02-6	A6P2-PC02-6^R	200518100	Uranium, Total	11.4		mg/kg	-	82	mg/kg	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R	200518093	Radium-226	1.03		pCi/g	-	1.7	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R	200518093	Radium-228	0.673		pCi/g	J	1.8	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R	200518093	Thorium-228	0.681		pCi/g	J	1.7	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R	200518093	Thorium-230	1.69		pCi/g	J	280	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R	200518093	Thorium-232	0.673		pCi/g	J	1.5	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R	200518093	Uranium, Total	6.38		mg/kg	-	82	mg/kg	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R-D	200518094	Radium-226	1.13		pCi/g	-	1.7	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R-D	200518094	Radium-228	0.762		pCi/g	J	1.8	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R-D	200518094	Thorium-228	0.781		pCi/g	J	1.7	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R-D	200518094	Thorium-230	1.66		pCi/g	J	280	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R-D	200518094	Thorium-232	0.762		pCi/g	J	1.5	pCi/g	No
1000034862	A6P2-PC01-13	A6P2-PC01-13^R-D	200518094	Uranium, Total	5.43		mg/kg	J	82	mg/kg	No
1000034862	A6P2-PC01-7	A6P2-PC01-7^R	200518088	Radium-226	1.38		pCi/g	-	1.7	pCi/g	No
1000034862	A6P2-PC01-7	A6P2-PC01-7^R	200518088	Radium-228	1.09		pCi/g	J	1.8	pCi/g	No
1000034862	A6P2-PC01-7	A6P2-PC01-7^R	200518088	Thorium-228	1.11		pCi/g	J	1.7	pCi/g	No
1000034862	A6P2-PC01-7	A6P2-PC01-7^R	200518088	Thorium-230	1.49		pCi/g	J	280	pCi/g	No

APPENDIX D
DATA ASSOCIATED WITH CUs 1 AND 2 OF AREA 6, PHASE II

Release Number	Boring ID	Sample ID	FACTS ID	Parameter	Result	LQ	Units	VQ	FRL	FRL Units	>FRL?
1000034862	A6P2-PC01-7	A6P2-PC01-7^R	200518088	Thorium-232	1.09		pCi/g	J	1.5	pCi/g	No
1000034862	A6P2-PC01-7	A6P2-PC01-7^R	200518088	Uranium, Total	7.85		mg/kg	-	82	mg/kg	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R	200518101	Radium-226	1.43		pCi/g	-	1.7	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R	200518101	Radium-228	1.06		pCi/g	J	1.8	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R	200518101	Thorium-228	1.05		pCi/g	J	1.7	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R	200518101	Thorium-230	1.81		pCi/g	-	280	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R	200518101	Thorium-232	1.06		pCi/g	J	1.5	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R	200518101	Uranium, Total	15.5		mg/kg	-	82	mg/kg	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R-D	200518102	Radium-226	1.36		pCi/g	-	1.7	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R-D	200518102	Radium-228	1.04		pCi/g	J	1.8	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R-D	200518102	Thorium-228	1.03		pCi/g	J	1.7	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R-D	200518102	Thorium-230	2.05		pCi/g	-	280	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R-D	200518102	Thorium-232	1.04		pCi/g	J	1.5	pCi/g	No
1000034862	A6P2-PC02-7	A6P2-PC02-7^R-D	200518102	Uranium, Total	17.5		mg/kg	-	82	mg/kg	No
1000034862	A6P2-PC02-8	A6P2-PC02-8^R	200518103	Radium-226	1.38		pCi/g	-	1.7	pCi/g	No
1000034862	A6P2-PC02-8	A6P2-PC02-8^R	200518103	Radium-228	1.01		pCi/g	J	1.8	pCi/g	No
1000034862	A6P2-PC02-8	A6P2-PC02-8^R	200518103	Thorium-228	1.04		pCi/g	J	1.7	pCi/g	No
1000034862	A6P2-PC02-8	A6P2-PC02-8^R	200518103	Thorium-230	1.99		pCi/g	-	280	pCi/g	No
1000034862	A6P2-PC02-8	A6P2-PC02-8^R	200518103	Thorium-232	1.01		pCi/g	J	1.5	pCi/g	No
1000034862	A6P2-PC02-8	A6P2-PC02-8^R	200518103	Uranium, Total	10.3		mg/kg	-	82	mg/kg	No

APPENDIX E

INFORMATION RELATING TO COMMUNICATIONS HUT SAMPLING

APPENDIX E
DATA ASSOCIATED WITH THE COMMUNICATIONS HUT SAMPLING

Boring	Sample ID	Sample Date	Sample Depth (feet)		Parameter	Result	Units	Qualifier
A5-CH-1	A5-CH-1-5-P	26-Sep-2001	2.0	2.5	Aroclor-1254	42	ug/kg	U
A5-CH-1	A5-CH-1-9-P	26-Sep-2001	4.0	4.5	Aroclor-1254	41	ug/kg	U
A5-CH-1	A5-CH-1-1-P	26-Sep-2001	0.0	0.5	Aroclor-1254	39	ug/kg	U
A5-CH-1	A5-CH-1-5-P	26-Sep-2001	2.0	2.5	Aroclor-1260	42	ug/kg	U
A5-CH-1	A5-CH-1-9-P	26-Sep-2001	4.0	4.5	Aroclor-1260	41	ug/kg	U
A5-CH-1	A5-CH-1-1-P	26-Sep-2001	0.0	0.5	Aroclor-1260	39	ug/kg	U
A5-CH-1	A5-CH-1-9-RM	6-Sep-2001	4.0	4.5	Arsenic	9.34	mg/kg	J
A5-CH-1	A5-CH-1-5-RM	6-Sep-2001	2.0	2.5	Arsenic	6.13	mg/kg	-
A5-CH-1	A5-CH-1-1-RM	6-Sep-2001	0.0	0.5	Arsenic	5.39	mg/kg	-
A5-CH-1	A5-CH-1-5-RM	6-Sep-2001	2.0	2.5	Beryllium	0.88	mg/kg	-
A5-CH-1	A5-CH-1-1-RM	6-Sep-2001	0.0	0.5	Beryllium	0.57	mg/kg	-
A5-CH-1	A5-CH-1-9-RM	6-Sep-2001	4.0	4.5	Beryllium	0.2	mg/kg	-
A5-CH-1	A5-CH-1-5-RM	6-Sep-2001	2.0	2.5	Radium-226	1.388	pCi/g	J
A5-CH-1	A5-CH-1-1-RM	6-Sep-2001	0.0	0.5	Radium-226	1.164	pCi/g	J
A5-CH-1	A5-CH-1-9-RM	6-Sep-2001	4.0	4.5	Radium-226	1.071	pCi/g	J
A5-CH-1	A5-CH-1-5-RM	6-Sep-2001	2.0	2.5	Radium-228	1.181	pCi/g	J
A5-CH-1	A5-CH-1-1-RM	6-Sep-2001	0.0	0.5	Radium-228	0.946	pCi/g	J
A5-CH-1	A5-CH-1-9-RM	6-Sep-2001	4.0	4.5	Radium-228	0.785	pCi/g	J
A5-CH-1	A5-CH-1-5-RM	6-Sep-2001	2.0	2.5	Thorium-228	1.165	pCi/g	J
A5-CH-1	A5-CH-1-1-RM	6-Sep-2001	0.0	0.5	Thorium-228	0.928	pCi/g	J
A5-CH-1	A5-CH-1-9-RM	6-Sep-2001	4.0	4.5	Thorium-228	0.785	pCi/g	J
A5-CH-1	A5-CH-1-5-RM	6-Sep-2001	2.0	2.5	Thorium-232	1.181	pCi/g	J
A5-CH-1	A5-CH-1-1-RM	6-Sep-2001	0.0	0.5	Thorium-232	0.946	pCi/g	J
A5-CH-1	A5-CH-1-9-RM	6-Sep-2001	4.0	4.5	Thorium-232	0.785	pCi/g	J
A5-CH-1	A5-CH-1-1-RM	6-Sep-2001	0.0	0.5	Uranium, Total	5.438	mg/kg	J
A5-CH-1	A5-CH-1-5-RM	6-Sep-2001	2.0	2.5	Uranium, Total	4.819	mg/kg	J
A5-CH-1	A5-CH-1-9-RM	6-Sep-2001	4.0	4.5	Uranium, Total	3.177	mg/kg	J
A5-CH-2	A5-CH-2-1-P	26-Sep-2001	0.0	0.5	Aroclor-1254	41	ug/kg	U
A5-CH-2	A5-CH-2-9-P	26-Sep-2001	4.0	4.5	Aroclor-1254	41	ug/kg	U
A5-CH-2	A5-CH-2-5-P	26-Sep-2001	2.0	2.5	Aroclor-1254	39	ug/kg	U
A5-CH-2	A5-CH-2-1-P	26-Sep-2001	0.0	0.5	Aroclor-1260	41	ug/kg	U
A5-CH-2	A5-CH-2-9-P	26-Sep-2001	4.0	4.5	Aroclor-1260	41	ug/kg	U
A5-CH-2	A5-CH-2-5-P	26-Sep-2001	2.0	2.5	Aroclor-1260	39	ug/kg	U
A5-CH-2	A5-CH-2-9-RM	6-Sep-2001	4.0	4.5	Arsenic	9.73	mg/kg	J
A5-CH-2	A5-CH-2-1-RM	6-Sep-2001	0.0	0.5	Arsenic	6.19	mg/kg	-
A5-CH-2	A5-CH-2-5-RM	6-Sep-2001	2.0	2.5	Arsenic	5.19	mg/kg	-
A5-CH-2	A5-CH-2-5-RM	6-Sep-2001	2.0	2.5	Beryllium	0.57	mg/kg	-
A5-CH-2	A5-CH-2-9-RM	6-Sep-2001	4.0	4.5	Beryllium	0.55	mg/kg	-
A5-CH-2	A5-CH-2-1-RM	6-Sep-2001	0.0	0.5	Beryllium	0.46	mg/kg	-
A5-CH-2	A5-CH-2-5-RM	6-Sep-2001	2.0	2.5	Radium-226	1.277	pCi/g	J
A5-CH-2	A5-CH-2-1-RM	6-Sep-2001	0.0	0.5	Radium-226	1.137	pCi/g	J
A5-CH-2	A5-CH-2-9-RM	6-Sep-2001	4.0	4.5	Radium-226	0.845	pCi/g	J
A5-CH-2	A5-CH-2-5-RM	6-Sep-2001	2.0	2.5	Radium-228	1.067	pCi/g	J
A5-CH-2	A5-CH-2-1-RM	6-Sep-2001	0.0	0.5	Radium-228	0.901	pCi/g	J

APPENDIX E
DATA ASSOCIATED WITH THE COMMUNICATIONS HUT SAMPLING

Boring	Sample ID	Sample Date	Sample Depth (feet)		Parameter	Result	Units	Qualifier
A5-CH-2	A5-CH-2-9-RM	6-Sep-2001	4.0	4.5	Radium-228	0.622	pCi/g	J
A5-CH-2	A5-CH-2-5-RM	6-Sep-2001	2.0	2.5	Thorium-228	1.023	pCi/g	J
A5-CH-2	A5-CH-2-1-RM	6-Sep-2001	0.0	0.5	Thorium-228	0.891	pCi/g	J
A5-CH-2	A5-CH-2-9-RM	6-Sep-2001	4.0	4.5	Thorium-228	0.599	pCi/g	J
A5-CH-2	A5-CH-2-5-RM	6-Sep-2001	2.0	2.5	Thorium-232	1.067	pCi/g	J
A5-CH-2	A5-CH-2-1-RM	6-Sep-2001	0.0	0.5	Thorium-232	0.901	pCi/g	J
A5-CH-2	A5-CH-2-9-RM	6-Sep-2001	4.0	4.5	Thorium-232	0.622	pCi/g	J
A5-CH-2	A5-CH-2-1-RM	6-Sep-2001	0.0	0.5	Uranium, Total	5.206	mg/kg	J
A5-CH-2	A5-CH-2-5-RM	6-Sep-2001	2.0	2.5	Uranium, Total	3.085	mg/kg	J
A5-CH-2	A5-CH-2-9-RM	6-Sep-2001	4.0	4.5	Uranium, Total	2.82	mg/kg	UJ
A5-CH-3	A5-CH-3-9-P	26-Sep-2001	4.0	4.5	Aroclor-1254	42	ug/kg	U
A5-CH-3	A5-CH-3-5-P	26-Sep-2001	2.0	2.5	Aroclor-1254	41	ug/kg	U
A5-CH-3	A5-CH-3-1-P	26-Sep-2001	0.0	0.5	Aroclor-1254	39	ug/kg	U
A5-CH-3	A5-CH-3-9-P	26-Sep-2001	4.0	4.5	Aroclor-1260	42	ug/kg	U
A5-CH-3	A5-CH-3-5-P	26-Sep-2001	2.0	2.5	Aroclor-1260	41	ug/kg	U
A5-CH-3	A5-CH-3-1-P	26-Sep-2001	0.0	0.5	Aroclor-1260	39	ug/kg	U
A5-CH-3	A5-CH-3-9-RM	6-Sep-2001	4.0	4.5	Arsenic	12.3	mg/kg	-
A5-CH-3	A5-CH-3-5-RM	6-Sep-2001	2.0	2.5	Arsenic	8.65	mg/kg	J
A5-CH-3	A5-CH-3-1-RM	6-Sep-2001	0.0	0.5	Arsenic	5.69	mg/kg	-
A5-CH-3	A5-CH-3-5-RM	6-Sep-2001	2.0	2.5	Beryllium	0.9	mg/kg	-
A5-CH-3	A5-CH-3-9-RM	6-Sep-2001	4.0	4.5	Beryllium	0.49	mg/kg	-
A5-CH-3	A5-CH-3-1-RM	6-Sep-2001	0.0	0.5	Beryllium	0.4	mg/kg	-
A5-CH-3	A5-CH-3-5-RM	6-Sep-2001	2.0	2.5	Radium-226	1.42	pCi/g	J
A5-CH-3	A5-CH-3-9-RM	6-Sep-2001	4.0	4.5	Radium-226	1.35	pCi/g	J
A5-CH-3	A5-CH-3-1-RM	6-Sep-2001	0.0	0.5	Radium-226	1.103	pCi/g	J
A5-CH-3	A5-CH-3-5-RM	6-Sep-2001	2.0	2.5	Radium-228	1.124	pCi/g	J
A5-CH-3	A5-CH-3-9-RM	6-Sep-2001	4.0	4.5	Radium-228	1.034	pCi/g	J
A5-CH-3	A5-CH-3-1-RM	6-Sep-2001	0.0	0.5	Radium-228	0.903	pCi/g	J
A5-CH-3	A5-CH-3-5-RM	6-Sep-2001	2.0	2.5	Thorium-228	1.111	pCi/g	J
A5-CH-3	A5-CH-3-9-RM	6-Sep-2001	4.0	4.5	Thorium-228	1.002	pCi/g	J
A5-CH-3	A5-CH-3-1-RM	6-Sep-2001	0.0	0.5	Thorium-228	0.869	pCi/g	J
A5-CH-3	A5-CH-3-5-RM	6-Sep-2001	2.0	2.5	Thorium-232	1.124	pCi/g	J
A5-CH-3	A5-CH-3-9-RM	6-Sep-2001	4.0	4.5	Thorium-232	1.034	pCi/g	J
A5-CH-3	A5-CH-3-1-RM	6-Sep-2001	0.0	0.5	Thorium-232	0.903	pCi/g	J
A5-CH-3	A5-CH-3-1-RM	6-Sep-2001	0.0	0.5	Uranium, Total	9.772	mg/kg	J
A5-CH-3	A5-CH-3-9-RM	6-Sep-2001	4.0	4.5	Uranium, Total	3.289	mg/kg	UJ
A5-CH-3	A5-CH-3-5-RM	6-Sep-2001	2.0	2.5	Uranium, Total	2.974	mg/kg	J
A5-CH-4	A5-CH-4-9-P	26-Sep-2001	4.0	4.5	Aroclor-1254	42	ug/kg	U
A5-CH-4	A5-CH-4-5-P	26-Sep-2001	2.0	2.5	Aroclor-1254	41	ug/kg	U
A5-CH-4	A5-CH-4-1-P	26-Sep-2001	0.0	0.5	Aroclor-1254	40	ug/kg	U
A5-CH-4	A5-CH-4-9-P	26-Sep-2001	4.0	4.5	Aroclor-1260	42	ug/kg	U
A5-CH-4	A5-CH-4-5-P	26-Sep-2001	2.0	2.5	Aroclor-1260	41	ug/kg	U
A5-CH-4	A5-CH-4-1-P	26-Sep-2001	0.0	0.5	Aroclor-1260	40	ug/kg	U
A5-CH-4	A5-CH-4-9-RM	6-Sep-2001	4.0	4.5	Arsenic	10.7	mg/kg	J

APPENDIX E
DATA ASSOCIATED WITH THE COMMUNICATIONS HUT SAMPLING

Boring	Sample ID	Sample Date	Sample Depth (feet)		Parameter	Result	Units	Qualifier
A5-CH-4	A5-CH-4-5-RM	6-Sep-2001	2.0	2.5	Arsenic	10.1	mg/kg	J
A5-CH-4	A5-CH-4-1-RM	6-Sep-2001	0.0	0.5	Arsenic	6.05	mg/kg	J
A5-CH-4	A5-CH-4-5-RM	6-Sep-2001	2.0	2.5	Beryllium	0.91	mg/kg	-
A5-CH-4	A5-CH-4-1-RM	6-Sep-2001	0.0	0.5	Beryllium	0.58	mg/kg	-
A5-CH-4	A5-CH-4-9-RM	6-Sep-2001	4.0	4.5	Beryllium	0.57	mg/kg	-
A5-CH-4	A5-CH-4-5-RM	6-Sep-2001	2.0	2.5	Radium-226	1.436	pCi/g	J
A5-CH-4	A5-CH-4-1-RM	6-Sep-2001	0.0	0.5	Radium-226	1.133	pCi/g	J
A5-CH-4	A5-CH-4-9-RM	6-Sep-2001	4.0	4.5	Radium-226	1.121	pCi/g	J
A5-CH-4	A5-CH-4-5-RM	6-Sep-2001	2.0	2.5	Radium-228	1.288	pCi/g	J
A5-CH-4	A5-CH-4-1-RM	6-Sep-2001	0.0	0.5	Radium-228	1.054	pCi/g	J
A5-CH-4	A5-CH-4-9-RM	6-Sep-2001	4.0	4.5	Radium-228	0.897	pCi/g	J
A5-CH-4	A5-CH-4-5-RM	6-Sep-2001	2.0	2.5	Thorium-228	1.275	pCi/g	J
A5-CH-4	A5-CH-4-1-RM	6-Sep-2001	0.0	0.5	Thorium-228	1.045	pCi/g	J
A5-CH-4	A5-CH-4-9-RM	6-Sep-2001	4.0	4.5	Thorium-228	0.862	pCi/g	J
A5-CH-4	A5-CH-4-5-RM	6-Sep-2001	2.0	2.5	Thorium-232	1.288	pCi/g	J
A5-CH-4	A5-CH-4-1-RM	6-Sep-2001	0.0	0.5	Thorium-232	1.054	pCi/g	J
A5-CH-4	A5-CH-4-9-RM	6-Sep-2001	4.0	4.5	Thorium-232	0.897	pCi/g	J
A5-CH-4	A5-CH-4-1-RM	6-Sep-2001	0.0	0.5	Uranium, Total	13.512	mg/kg	J
A5-CH-4	A5-CH-4-9-RM	6-Sep-2001	4.0	4.5	Uranium, Total	3.26	mg/kg	UJ
A5-CH-4	A5-CH-4-5-RM	6-Sep-2001	2.0	2.5	Uranium, Total	2.499	mg/kg	UJ

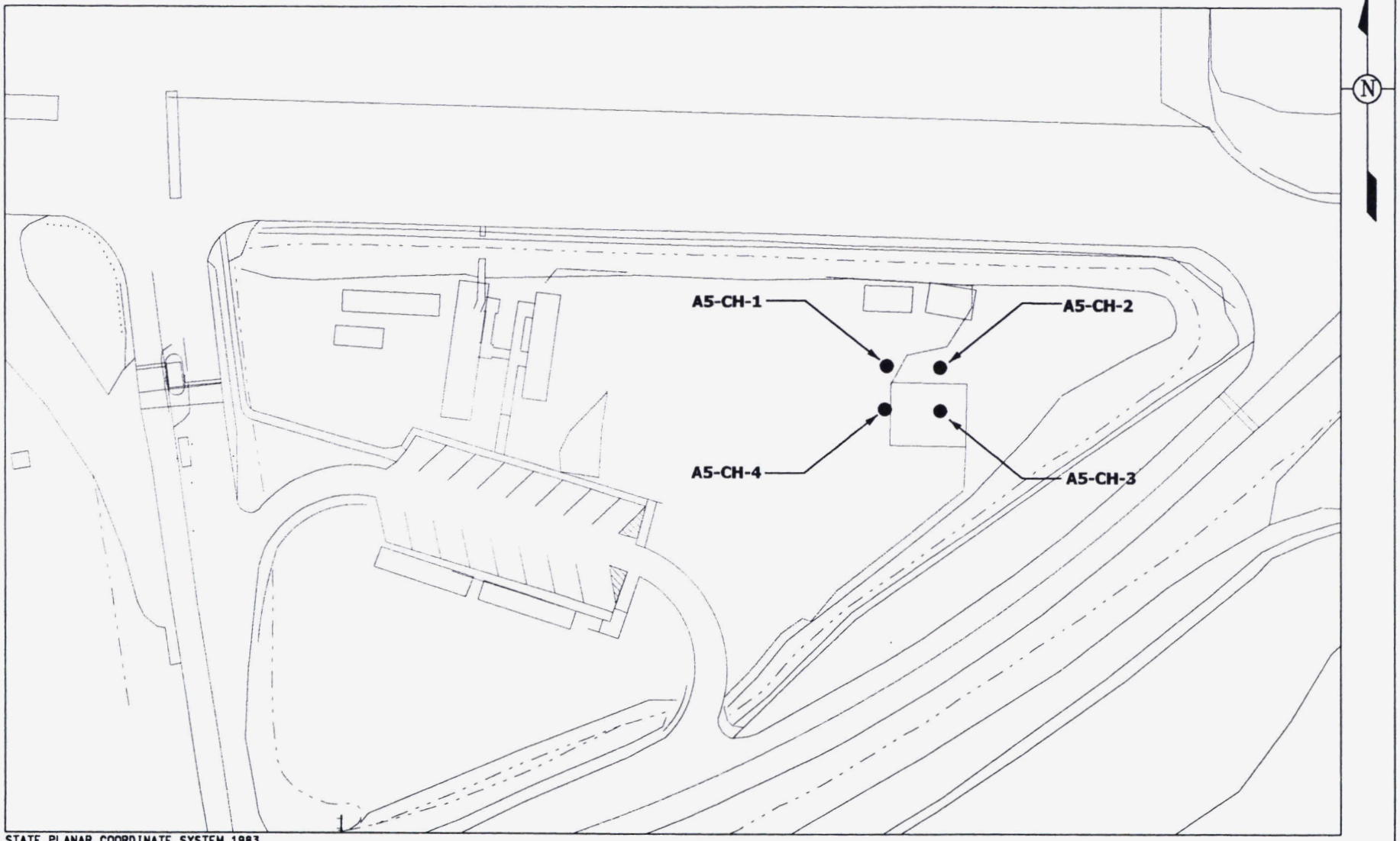


FIGURE E-1. SECURITY TRAILER AREA COMMUNICATION'S HUT SAMPLING LOCATIONS