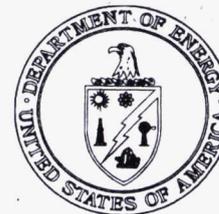


**Department of Energy**

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

OCT 24 2006



Mr. James A. Saric, Remedial Project Manager  
United States Environmental Protection Agency  
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DOE-0026-07

Mr. Thomas Schneider, Project Manager  
Ohio Environmental Protection Agency  
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Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF THE DRAFT CERTIFICATION REPORT FOR VARIOUS AREAS  
OUTSIDE OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREA**

Enclosed for your review is the draft Certification Report for Various Areas Outside of the Historically Radiologically Controlled Area.

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

Sincerely,

Johnny W. Reising  
Director

Enclosure

Mr. James Saric  
Mr. Thomas Schneider

-2-

DOE-0026-07

cc w/enclosure:

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T. Schneider, OEPA-Dayton (three copies of enclosure)  
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**CERTIFICATION REPORT FOR VARIOUS AREAS  
OUTSIDE OF THE HISTORICALLY  
RADIOLOGICALLY CONTROLLED AREA**

**FERNALD CLOSURE PROJECT  
FERNALD, OHIO**



**OCTOBER 2006**

**U.S. DEPARTMENT OF ENERGY**

**20500-RP-0006  
REVISION A  
DRAFT**

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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
ECOC	ecological constituent of concern
FCP	Fernald Closure Project
FRL	final remediation level
FTF	Fire Training Facility
HAMDC	highest allowable minimum detectable concentration
keV	kiloelectron volt
µg/g	micrograms per gram
µg/kg	micrograms per kilogram
MDL	minimum detection level
mg/kg	milligrams per kilogram
OSDF	On-Site Disposal Facility
OU	Operable Unit
PCB	polychlorinated biphenyl
pCi/g	picoCuries per gram
PSP	Project Specific Plan
RAWP	Remedial Action Work Plan
ROD	Record of Decision
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SED	Sitewide Environmental Database
SEP	Sitewide Excavation Plan
SVOC	semi-volatile organic compound
SWL	Solid Waste Landfill
SWRB	Storm Water Retention Basin
TPU	total propagated uncertainty
UCL	upper confidence limit
V/FCN	Variance/Field Change Notice
V&V	verification and validation
VOC	volatile organic compound
WAC	waste acceptance criteria

**EXECUTIVE SUMMARY**

1  
2  
3 This certification report presents the information and data used by the U.S. Department of Energy (DOE)  
4 to determine that the soils in the Various Areas Outside of the Historically Radiologically Controlled Area  
5 (hereafter called the Outside Areas) meet the certification requirements at the Fernald Closure Project. The  
6 Outside Areas encompass portions of areas originally identified as Area 1, Phase IV - Part Four, Area 6,  
7 Phase II and Area 7. Figure 1-1 depicts the layout of the Outside Areas.

8  
9 Consistent with the Sitewide Excavation Plan (DOE 1998), these areas underwent predesign, excavation,  
10 and precertification activities, including the use of real-time instrumentation as well as physical sampling  
11 and analysis. As a result of these activities, it was determined that no further remediation was necessary  
12 prior to certification.

13  
14 The Outside Areas were made up of twenty (20) Group 1 certification units (CUs). Several of the CUs  
15 from Area 6, Phase II and the Silos Truck Staging Area are located either within or contain part of high  
16 leachability zones where the final remediation level (FRL) for total uranium is 20 milligrams per  
17 kilograms. CU delineation is described in the Certification Design Letter and Certification Project Specific  
18 Plan for the Various Areas Outside of the Historically Radiologically Controlled Area (DOE 2006a).  
19 Certification sampling was conducted to verify that the certification criteria were achieved. These criteria  
20 state that: 1) the mean concentration or activities of the primary area-specific constituents of concern  
21 (ASCOCs) within a CU are less than the FRLs at the 95 percent upper confidence level (UCL) or the  
22 90 percent UCL for the secondary ASCOCs; and 2) no certification result can exceed two times the FRL  
23 (i.e., the hotspot criterion). If either of these criteria is not met, then further investigation and possible  
24 excavation is required.

25  
26 Additionally, samples were collected from within the footprints of the trailers that were located on the  
27 Security Trailer Area. This was done to demonstrate that contamination was not present under the trailers  
28 and is documented in Variance 20500-PSP-0015-1. The data from this sampling effort will be evaluated  
29 herein.

30  
31 The soil beneath the road bordering the Area 7 Silos Truck Staging Area was sampled under Variance  
32 20500-PSP-0005-12. This was done to demonstrate that contamination was not present beneath the  
33 roadbed. This represents an additional CU that will be reviewed and evaluated for its ability to meet the  
34 certification criteria.

35  
36 In 2005, I-beams used to support a billboard adjacent to the Area 7 Site Access Road were removed. One  
37 of these I-beams were found to have radiological contamination. The analytical data generated after the

1 removal and remediation were complete are evaluated as part of the overall certification in the area  
2 adjacent to where they were located.

3  
4 In order to demonstrate that no above-FRL conditions existed in trenches created by utility removal,  
5 samples were collected from the trench bottoms. These utilities were removed after precertification had  
6 been completed. The data from this sampling effort along with a statistical evaluation (where necessary)  
7 are presented in this document.

8  
9 Upon completion of final certification statistics, all of the Outside Areas CUs pass the certification criteria.  
10 On the basis of this reported information and supporting project files, DOE that determined that no  
11 additional remedial actions are required in this portion of the site. The area will be considered certified  
12 when the U.S. Environmental Protection Agency and Ohio Environmental Protection Agency concur that  
13 certification criteria have been met. DOE intends to proceed with final land use activities as outlined in the  
14 Natural Resource Restoration Plan (DOE 2002).

## 1.0 INTRODUCTION

### 1.1 PURPOSE

This Certification Report presents the information and data used by the U.S. Department of Energy (DOE) to determine that soils in the Various Areas Outside of the Historically Radiologically Controlled Area (hereafter called the Outside Areas) meet established final remediation levels (FRLs). This report presents final certification results for the certification units (CUs) identified in the Certification Design Letter (CDL) and Certification Project Specific Plan (PSP) for the Various Areas Outside of the Historically Radiologically Controlled Area (DOE 2006a) as well as additional information either presented in the CDL/Certification PSP or otherwise committed to be presented in this document.

On the basis of this reported information and supporting project files, DOE has determined that no additional remedial actions are required in this portion of the site.

### 1.2 BACKGROUND

In the Operable Unit (OU) 5 Record of Decision (ROD, DOE 1996a), DOE committed to excavating contaminated soil that exceeds health-based FRLs, with final disposition of the excavated material in the On-Site Disposal Facility (OSDF) or an off-site disposal facility if the waste acceptance criteria (WAC) are exceeded. The OU5 Remedial Investigation Report (DOE 1995a) defined the potential extent of soil contamination exceeding the FRLs and, in general, indicated widespread contamination in approximately 430 acres of the 1,050-acre Fernald Closure Project (FCP).

In the OU5 Remedial Action Work Plan (RAWP, DOE 1996b), DOE agreed to prepare a Sitewide Excavation Plan (SEP, DOE 1998) that defined the overall approach to cleaning up soil and at- and below-grade debris in accordance with the OU2 ROD (DOE 1995b), OU3 ROD (DOE 1996c), and OU5 ROD.

In the SEP, the FCP was divided into distinct remedial areas and phases for soil remediation, based on the operable units' remediation schedule. After all necessary remediation is completed within each area/phase, the soil is certified as having attained all clean up goals (i.e., FRLs). The general approach for the removal of contaminated soil and debris in the Outside Areas followed "Excavation Approach A - Shallow Excavation of Impacted On-Property Area Outside the Former Production Area," as described in Section 4.1 of the SEP. The remediation of this area is discussed in the CDL and Certification PSP for the Various Areas Outside of the Historically Radiologically Controlled Area.

1 1.3 AREA DESCRIPTION

2 The focus of this certification report is the Outside Areas. The Outside Areas consist of three separate  
3 areas totaling approximately 27 acres that includes portions of areas originally identified as Area 1,  
4 Phase IV - Part Four, Area 6, Phase II and Area 7. The boundary for the Outside Areas is shown on  
5 Figure 1-1. Other portions of Area 1, Area 6, and Area 7 will be discussed within separate documentation.

7 1.4 SCOPE

8 The scope of this Certification Report includes details of certification sampling, analysis and validation  
9 that took place in the Outside Areas. Figure 1-1 depicts the layout of the areas to be certified under this  
10 Certification Report.

12 1.5 OBJECTIVES

13 The objectives of this Certification Report are:

- 15 • Summarize the precertification and remedial activities,
- 16
- 17 • Describe the analytical methods, data validation processes, data reduction and statistical processes  
18 used to support the certification process,
- 19
- 20 • Present certification sampling results for all CUs,
- 21
- 22 • Present the statistical analysis showing that all CUs have passed the certification criteria, including  
23 FRL attainment and hotspot criteria, and
- 24
- 25 • Describe access controls implemented to prevent recontamination.
- 26

27 1.6 REPORT FORMAT

28 This Certification Report is presented in six sections with supporting documentation and data in the  
29 appendices. These sections are as follows:

- 31 Section 1.0 Introduction: Purpose, background, area description, scope, and objectives of the report
- 32
- 33 Section 2.0 Certification Approach: The approach for certification sampling and analysis
- 34
- 35 Section 3.0 Overview of Field Activities: Historical data evaluation, precertification, area  
36 preparation, excavation and changes to work scope
- 37
- 38 Section 4.0 Analytical Methodologies, Data Validation Processes and Data Reduction
- 39
- 40 Section 5.0 Certification Evaluation and Conclusions
- 41
- 42 Appendix A Certification Samples, Analytical Results and Final Statistics Tables
- 43

- 1 Appendix B Real-Time Figures for Area 7 Silo Truck Staging Area  
2  
3 Appendix C Information Associated with the Contaminated Billboard Removal Adjacent to the South  
4 Access Road  
5  
6 Appendix D Information Associated with the Road Adjacent to the Silos Truck Staging Area  
7  
8 Appendix E Information Associated with the Additional Sampling in the Security Trailer Area  
9

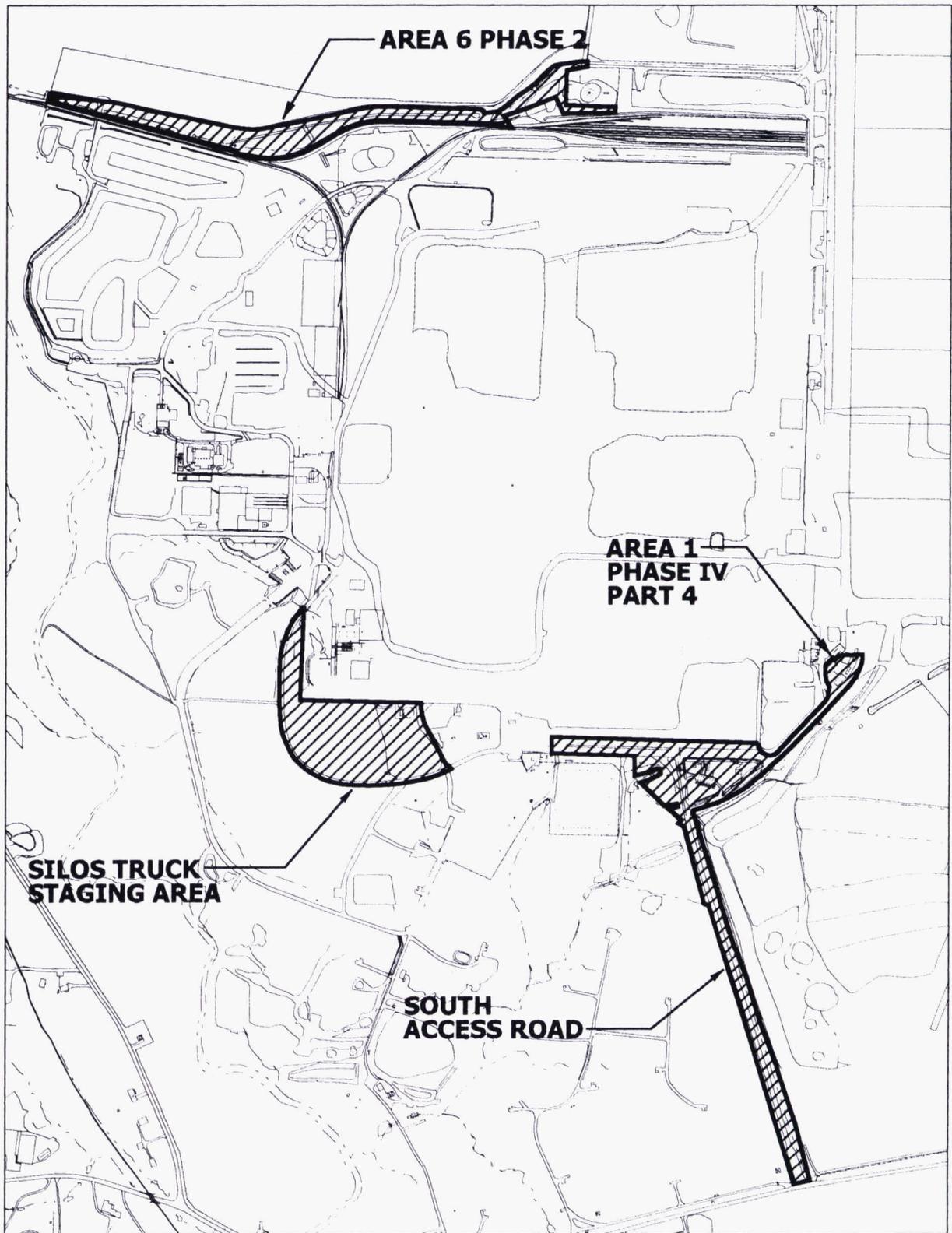
10 1.6 FCP MASTER CERTIFICATION MAP

11 In order to track certification areas at the FCP, DOE updates a controlled map (Figure 1-2) showing the  
12 status of the soil remediation areas and phased areas with all Certification Reports. This map has been  
13 updated to include certification of Outside Areas.

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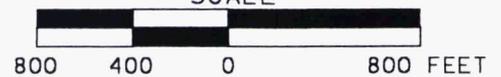


**LEGEND:**



A6, A7, & A1  
CERTIFICATION AREAS

**SCALE**



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



## 2.0 CERTIFICATION APPROACH

### 2.1 CERTIFICATION STRATEGY

This section summarizes the area-specific constituent of concern (ASCOC) selection process and the certification approach, including CU establishment, sampling design, and statistical analysis. The general purpose of certification sampling is to verify that the mean concentrations or activities of primary ASCOCs remaining in the soil of a CU following remedial activities are less than the FRLs at the 95 percent upper confidence level (UCL), and at the 90 percent UCL for secondary ASCOCs. This certification process also includes the hotspot criterion, which states that if any of the certification results exceed two times the FRL, further action is required, as discussed in Section 3.4.5 of the SEP. If the mean residual ASCOC concentrations or activities are below the FRLs within the respective confidence bounds, and the hotspot criterion is met, then the remedial objectives have been achieved for the CU. It can then be released for regrading, reseeding and development of a final land use. The general certification strategy is described in Section 3.4 of the SEP, and more specifically in the CDL and Certification PSP for the Outside Areas.

#### 2.1.1 Area-Specific Constituents of Concern

Total uranium, radium-226, radium-228, thorium-228 and thorium-232 are sitewide primary constituents of concern (COCs) and were retained as ASCOCs for this effort. As a result of the area investigations, some secondary ASCOCs were retained as shown in Table 2-2.

#### 2.1.2 ASCOC Selection Criteria

The selection process for retaining ASCOCs for a remediation area is driven by applying a set of decision criteria. A soil contaminant is retained as an 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 or underground storage tank 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 indicated that a contaminant is present above its FRL, and the above-FRL concentrations are not attributed to false positives or elevated Contract Required Detection Limits (CRDLs);
- Physical characteristics of the contaminant, such as degradation rate or volatility, indicated it is likely to persist in the soil between time of release and remediation; or

- The contaminant is one of the sitewide primary COCs (total uranium, radium-226, radium-228, thorium-238, and thorium-232).

Table 2-1 lists the secondary ASCOCs identified in Table 2-7 of the SEP. Using the above process, the ASCOCs were refined to those listed in Table 2-2, which presents all of the ASCOCs listed in Table 2-1 of the SEP. Additionally, Table 2-2 lists the justification for retaining or not retaining the ASCOCs and the ecological COCs for each CU in the Outside Areas.

### 2.1.3 ASCOC Selection Process

Each COC listed in Table 2-1 was evaluated for their relevance to each of the applicable areas that make up the Outside Areas. Table 2-2 presents the reasoning for either retaining or eliminating the ASCOCs listed in Table 2-1.

## 2.2 CERTIFICATION APPROACH

The intent of this effort was to certify the soil in the Outside Areas. The certification design for the Outside Areas followed the general approach outlined in Section 3.4 of the SEP and is described in the CDL and Certification PSP for the Outside Areas. The five primary ASCOCs (total uranium, radium-226, radium-228, thorium-228, and thorium-232) were retained in each CU. Additional COCs are identified for specific CUs within the certification area. The design for the Outside Areas is depicted on Figures 2-1 through 2-3 and the sample locations are depicted in Figures 2-4 through 2-14.

Several factors were taken into consideration when determining the boundaries for each CU within the Outside Areas. These factors included: areas defined as high leachability zones, historical land use, proximity to other areas of the site, and residual COC data.

### 2.2.1 Certification Unit Design

Twenty Group 1 CUs were designed to encompass the Outside Areas in the CDL/Certification PSP. Additionally, the road adjacent to the Area 7 Silos Truck Staging Area was treated as a Group 1 CU as presented in Variance 20500-PSP-0005-12. The design for the Outside Areas is depicted on Figures 2-1 through 2-3 and the sample locations are depicted in Figures 2-4 through 2-14. The 21 CUs associated with this document are as follows:

- Area 6, Phase II - CUs A6P2-PC1, A6P2-PC2, A6P2-C03, and A6P2-C04
- Fire Training Facility Adjacent - CUs A6P2-C05
- Area 7 Silos Truck Staging Area - CUs A7STSA-C01 through A7STSA-C07
- Road Adjacent to the Area 7 Silos Truck Staging Area - CUs A7-C-AR
- West Parking Lot and Access Road - CUs A7SAR-C01 and A7-SAR-C02
- Security Trailer Area - CUs A7SAR-C03 and A7-SAR-C04

- 1 • Area 1, Phase IV - Part Four - CUs A7SAR-C05
- 2 • South Access Road - CUs A7SAR-C06 through A7SAR-C08

3  
4 In 2001, a Communications Facility was erected in the Area 7 South Access Road Area. Samples were  
5 collected from the footprint of the proposed facility prior to construction since the facility was anticipated  
6 to remain intact beyond certification of the area. These samples were collected under 20600-PSP-0001,  
7 PSP for Sampling of Miscellaneous Areas for WAC Attainment (DOE 2001) and is being used to  
8 represent the certification sample (A7SAR-C04-11) located at the Communications Hut.

9  
10 Also, in Area 6, Phase II and the Silos Truck Staging Area, three CUs (A6P2-C05, A7STSA-C03, and  
11 A7STSA-C04) contain high leachability zones. The minimum detectable level (MDL) for total uranium in  
12 these CUs reflect the more restrictive criteria imposed for these areas.

13  
14 Additional samples were collected in the security area of the South Access Road. These samples represent  
15 the area within the footprint of the trailers present at the time of the certification effort (see Figure 4-13).

16  
17 Adjacent to the South Access Road, samples were collected from the footprint of I-beams discovered to be  
18 contaminated. Variance 20500-PSP-0005-4 represents the post-excavation sampling to confirm that all  
19 contamination had been removed. These samples and the area around it will be used as a sub-CU to  
20 A7SAR-C07.

### 21 22 2.2.2 Sample Selection Process

23 For all 21 of the Group 1 CUs, the selection of certification sampling locations was conducted according to  
24 Section 3.4.2 of the SEP. Each CU was first divided into 16 approximately equal sub-CUs. Sample  
25 locations were then generated by randomly selecting an easting and northing coordinate within the  
26 boundaries of each sub-CU, then testing those locations against the minimum distance criteria for the CU.  
27 If the minimum distance criteria were not met, an alternative random location was selected for that  
28 sub-CU, and all the locations were re-tested. This process continued, until all 16 random locations met the  
29 minimum distance criteria.

30  
31 Four of the 16 sample locations (one location from each quadrant of the CU) were designated with a "V,"  
32 indicating archive sample locations. One sample location in the CU was designated with a "D," indicating  
33 a field duplicate sample collection location. Samples were collected for analysis from the 0 to 6-inch  
34 interval at 12 of the 16 locations in each CU. The four samples designated as "archive" were not collected  
35 in any CU with the exception of CU 31.

1 Additionally, several bias samples were designated. In the Security Trailer Area, several locations were  
2 sampled from within the footprint of the trailers present during the certification process. The two samples  
3 collected in association with the Billboard I-beam removal will be included as well.  
4

5 All sub-CUs and certification sampling locations are shown on Figures 2-4 through 2-14.  
6

7 Prior to commencement of certification sampling field activities, all certification sample locations were  
8 surveyed and field verified to make sure no surface obstacles would prevent collection at the planned location.  
9 It was not necessary to move any planned certification sample locations.  
10

### 11 2.2.3 Certification Sampling

12 Each sample was collected from the 0 to 6-inch surface soil interval at the designated and surveyed  
13 location as described in Section 2.2.2 of this document. The certification locations that were designated as  
14 archive locations were identified in the field but not collected, and the other identified locations were  
15 submitted for analysis. Also, prior to beginning and throughout the certification process, several issues  
16 arose which impacted certification the certification effort in the Outside Areas. These are described in  
17 more detail in Section 3.2 of this document.  
18

### 19 2.2.4 Statistical Analysis

20 Once data are entered into the Sitewide Environmental Database (SED), a statistical analysis was  
21 performed to evaluate the pass/fail criteria for the CUs. The statistical approach is discussed in  
22 Section 3.4.3, Appendix G of the SEP.  
23

24 Two criteria must be met for the CU to pass certification. If the data distribution is normal or lognormal,  
25 the first criterion compares the 95 percent UCL on the mean of each primary COC to its FRL, or the  
26 90 percent UCL on the mean of each secondary ASCOC. On an individual CU basis, any ASCOC with  
27 the 95 percent UCL (for primary ASCOCs) or 90 percent UCL (for secondary ASCOCs) above the FRL  
28 results in that CU failing certification. If the data distribution is not normal or lognormal, the appropriate  
29 nonparametric approach discussed in Appendix G of the SEP will be used to evaluate the first criterion; the  
30 *a posteriori* test will be performed to determine whether the sample size is sufficient for a meaningful  
31 conclusion of this comparison. The second criterion is the hotspot criterion, which states that primary or  
32 secondary ASCOC results must not exceed two times the FRL. When the given UCL on the mean for each  
33 COC is less than its FRL and the hotspot criterion is met, the CU will be considered certified.  
34

35 In the event that a CU passes the *a posteriori* test but fails certification, the following two scenarios will be  
36 evaluated: 1) localized contamination, and 2) widespread contamination. Details on the evaluation and  
37 responses to these possible outcomes are provided in Section 3.4.5 of the SEP.

**TABLE 2-1**  
**ASCOC LIST FOR REMEDIATION AREAS 1, 6, AND 7**

ASCOC	FRL/(BTV) <sup>a</sup>
<b>Radionuclides</b>	
Total Uranium	82 mg/kg
Total Uranium (high 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
Cesium-137	1.4 pCi/g
Lead-210	38.0 pCi/g
Neptunium-237	3.2 pCi/g
Technetium-99	30.0 pCi/g
Thorium-230	280 pCi/g
<b>Organic</b>	
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)
Bromodichloromethane	4.0 mg/kg
Dibenzo(a,h)anthracene	2.0 mg/kg /(0.088 mg/kg)
Dieldrin	0.015 mg/kg
Fluoride	78,000 mg/kg
Heptachlorodibenzo-p-dioxins	0.00108 mg/kg
Octachlorodibenzo-p-dioxin	0.0088 mg/kg
Tetrachloroethene	3.6 mg/kg
<b>Metals</b>	
Arsenic	12.0 mg/kg
Beryllium	1.5 mg/kg
Cadmium	82 mg/kg /(5.0 mg/kg)
Lead	400 mg/kg
<b>Ecological</b>	
Antimony	96 mg/kg /(10 mg/kg)
Molybdenum	2900 mg/kg /(10 mg/kg)
Silver	29,000 mg/kg /(10 mg/kg)
Benzo(a)anthracene	20 mg/kg /(1.0 mg/kg)
Benzo(b)fluoranthene	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)

**TABLE 2-1**  
**ASCOC LIST FOR REMEDIATION AREAS 1, 6, AND 7**

<b>ASCOC</b>	<b>FRL/(BTV)<sup>a</sup></b>
<b>Ecological (Continued)</b>	
Indeno(1,2,3-cd)pyrene	20 mg/kg / (1.0 mg/kg)
Phenanthrene	(5 mg/kg)
Pyrene	(10 mg/kg)

<sup>a</sup> Benchmark toxicity value (BTV) applies to Ecological COCs.

mg/kg - micrograms per kilogram

pCi/g - picoCuries per gram

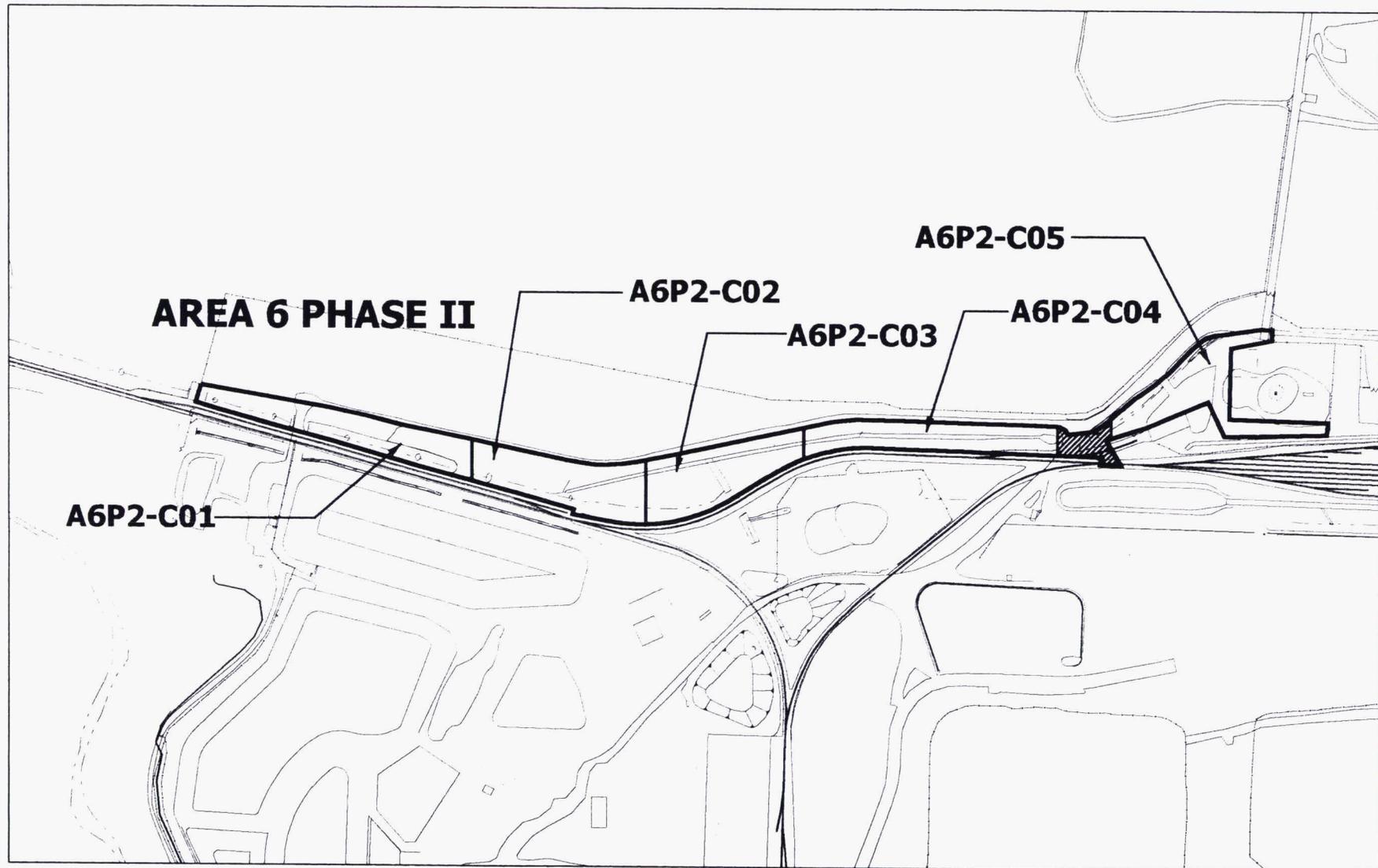
**TABLE 2-2**  
**ASCOC LIST FOR THE OUTSIDE AREAS**

ASCOCs	Retained As ASCOC?	Justification	CUs
<b>PRIMARY ASCOCs</b>			
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
<b>SECONDARY ASCOCs</b>			
Aroclor-1254	Yes	ASCOC in Areas 1, 6, and 7 FTF and Area 1 adjacent area	A7SAR-C01, C02, C03, C05 and A6P2-C05
Aroclor-1260	Yes	ASCOC in Areas 1, 6, and 7 FTF and Area 1 adjacent area	A7SAR-C05 and 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 2-2  
 ASCOC LIST FOR THE OUTSIDE AREAS**

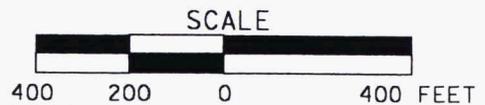
ASCOCs	Retained As ASCOC?	Justification	CUs
<b>SECONDARY ASCOCs (Continued)</b>			
Neptunium-237	No	ASCOC in Area 1 No above-FRL results present	None
Technetium-99	Yes	ASCOC in Areas 1, 6, and 7 - SWRB adjacent area - above-FRL in FTF	A6P2-C05
Tetrachloroethene	Yes	ASCOC in Areas 6 and 7 - FTF Buffer 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
<b>ECOLOGICAL ASCOCs</b>			
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

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

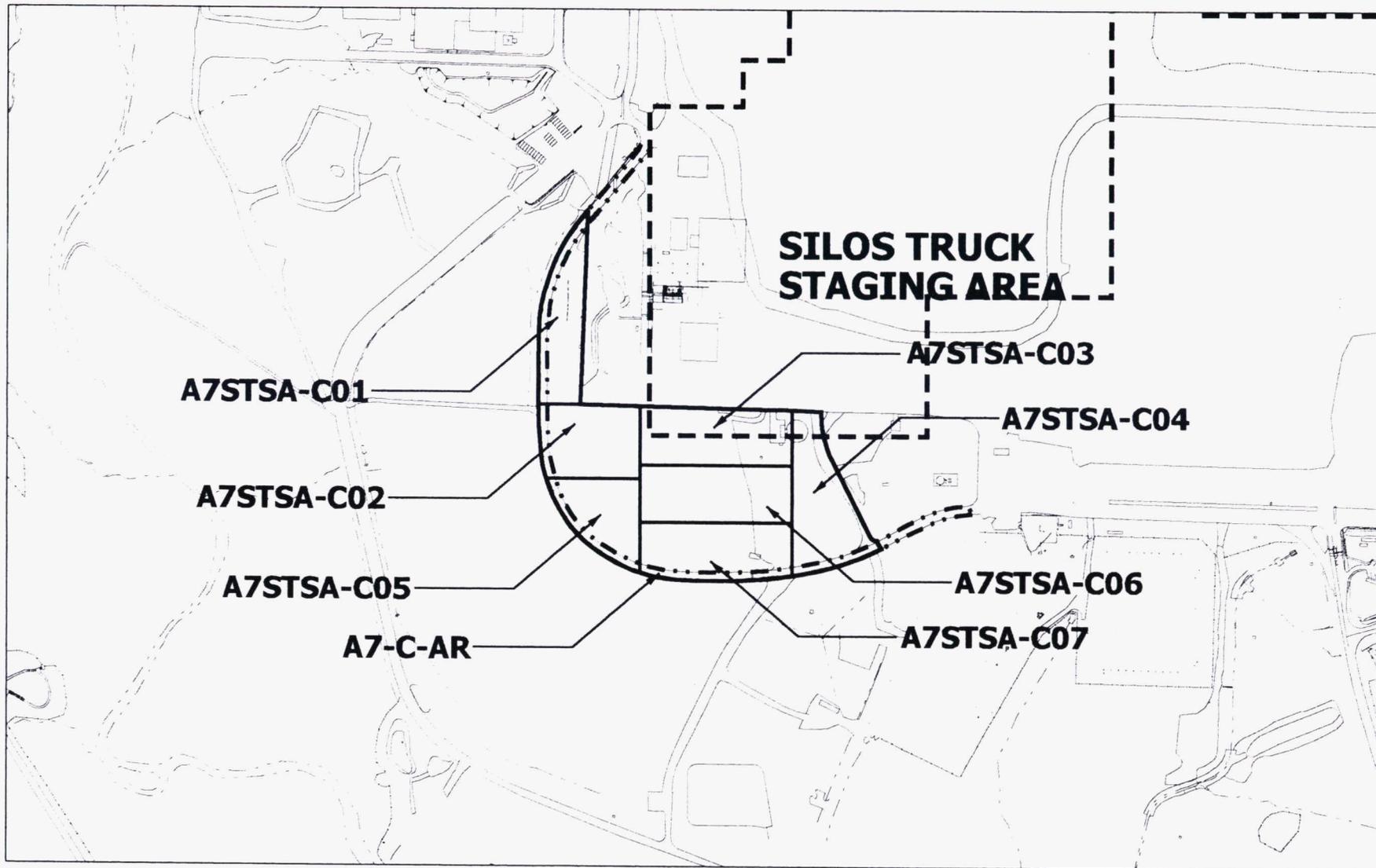


**LEGEND:**

-  CU BOUNDARY
-  AREA INCLUDED IN RAILYARD DRAINAGE BASIN CU
-  HIGH LEACH ZONE

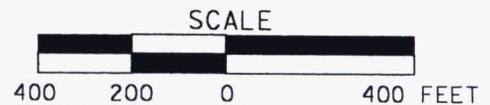


**FIGURE 2-1. AREA 6, PHASE II CU LOCATION MAP**



**LEGEND:**

- A7STSA CU BOUNDARY
- · - · - A7-C-AR CU BOUNDARY
- - - - HIGH LEACH ZONE

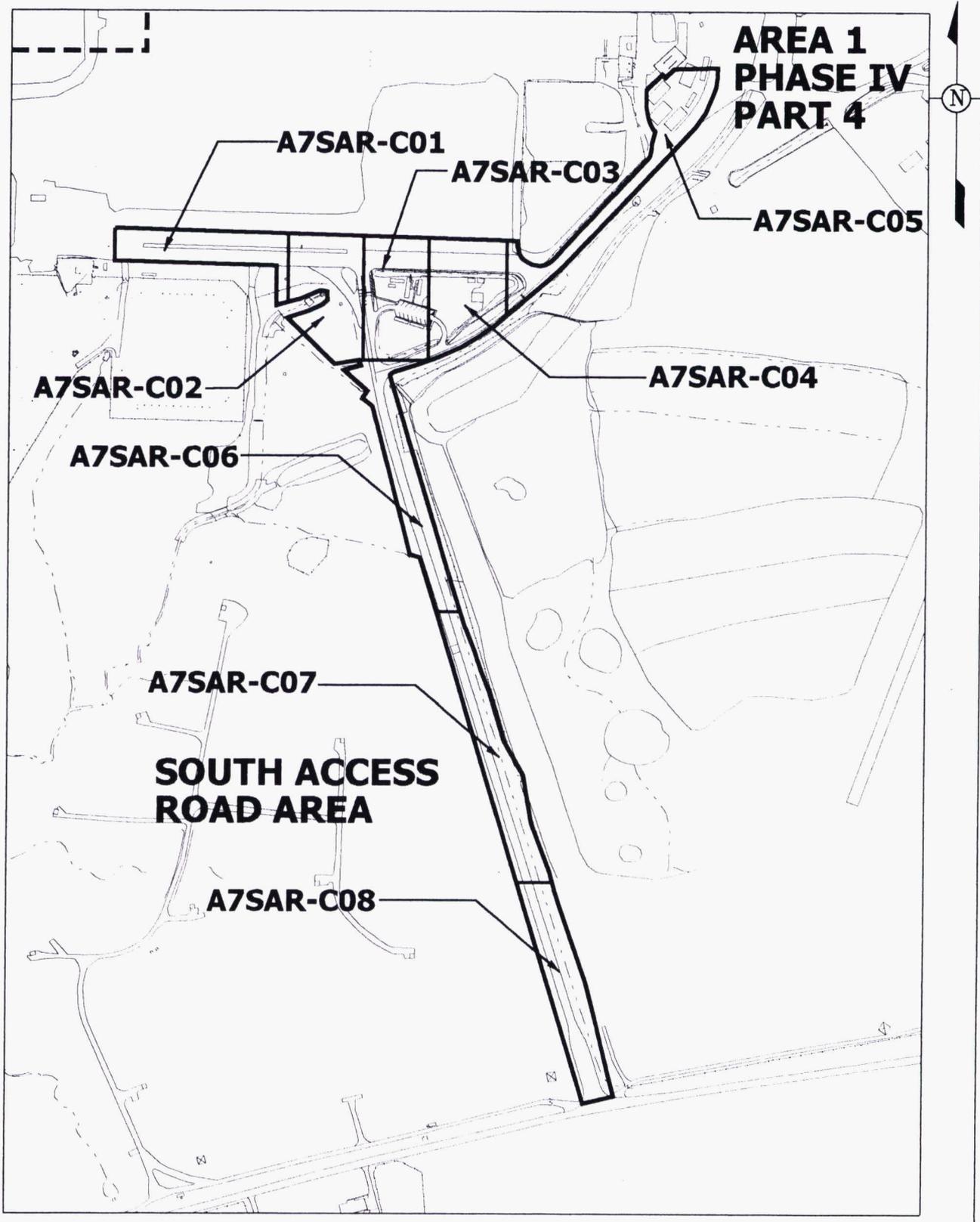


**FIGURE 2-2. SILOS TRUCK STAGING AREA CU LOCATION MAP**

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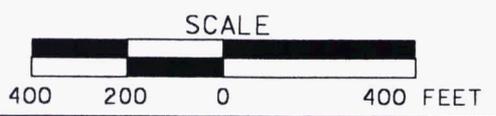
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**LEGEND:**

- CU BOUNDARY
- - - -** HIGH LEACH ZONE



**FIGURE 2-3. SOUTH ACCESS ROAD AREA & AREA 1, PHASE IV - PART 4 CU LOCATION MAP**

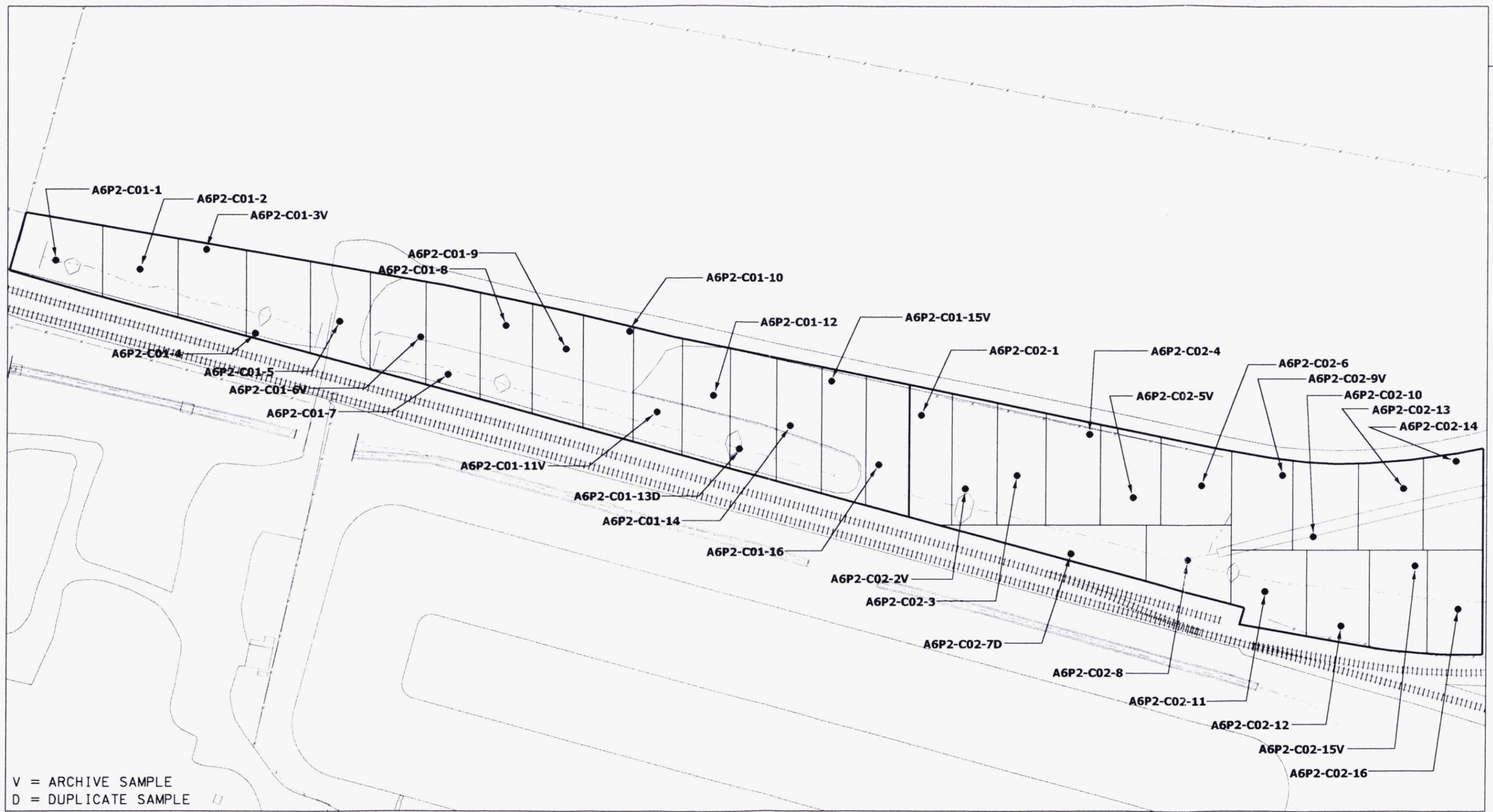


FIGURE 2-4. AREA 6, PHASE II SUB CU & SAMPLE LOCATION MAP - CU's C01 & C02



V = ARCHIVE SAMPLE  
 D = DUPLICATE SAMPLE

**LEGEND:**

-  AREA INCLUDED IN RAILYARD DRAINAGE BASIN CU
-  SAMPLE LOCATION

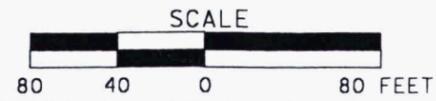
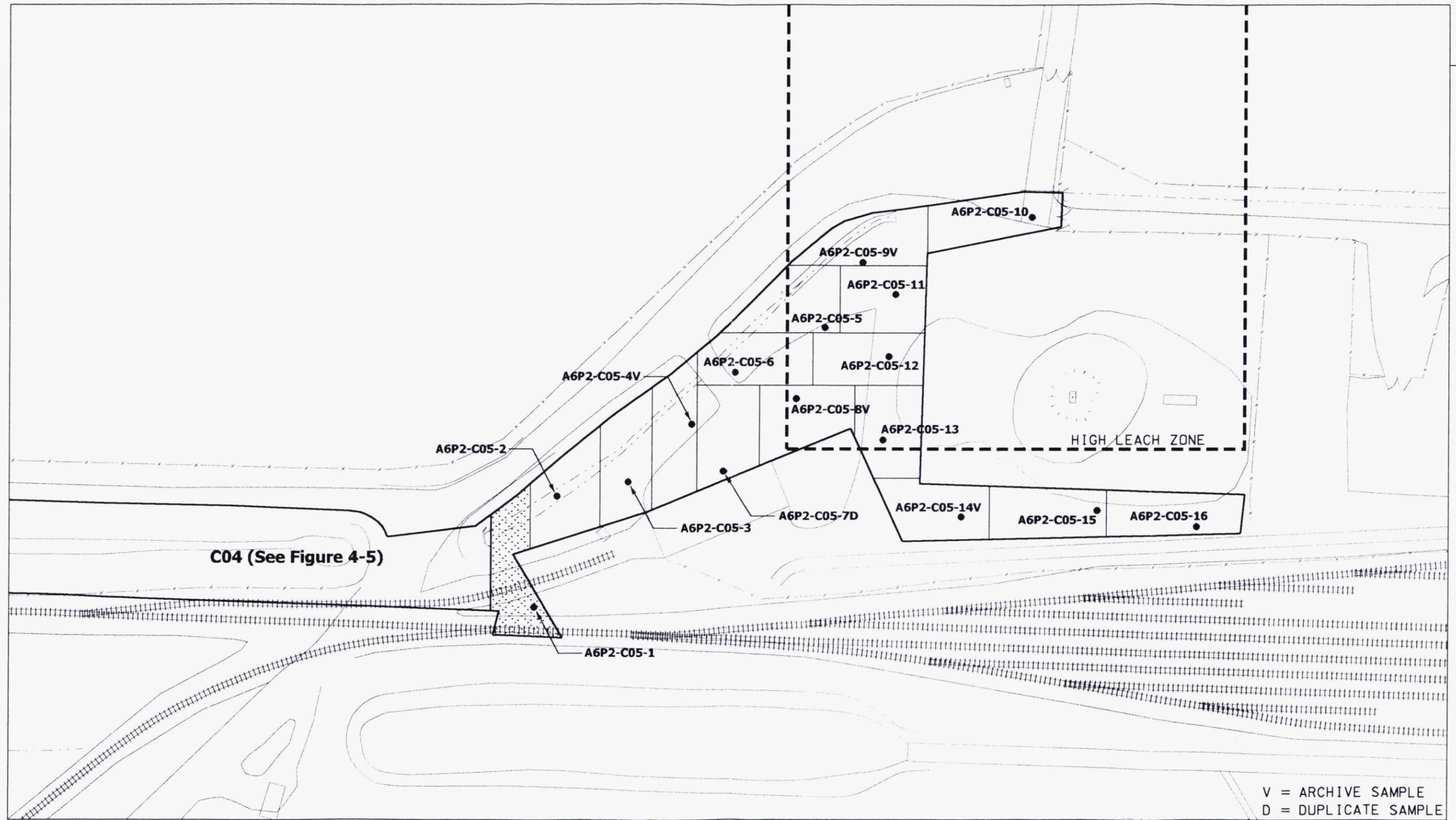


FIGURE 2-5. AREA 6. PHASE II SUB CU & SAMPLE LOCATION MAP - CU's C03 & C04



V = ARCHIVE SAMPLE  
 D = DUPLICATE SAMPLE

**LEGEND:**

 AREA INCLUDED IN RAILYARD DRAINAGE BASIN CU

 SAMPLE LOCATION

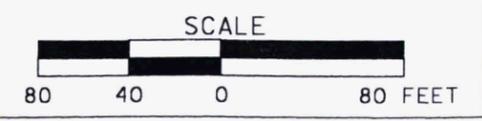


FIGURE 2-6. AREA 6, PHASE II SUB CU & SAMPLE LOCATION MAP FOR CU C05

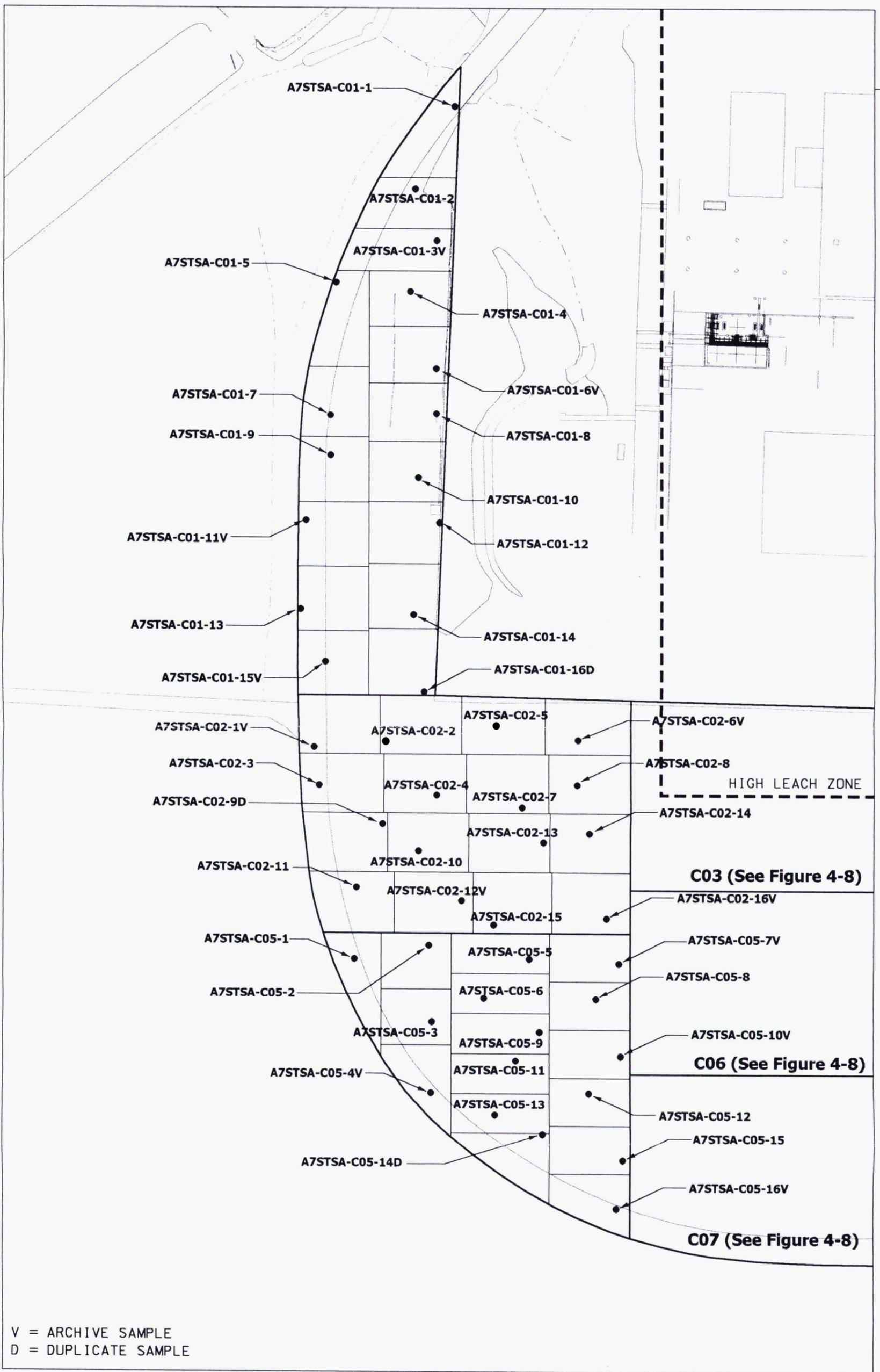
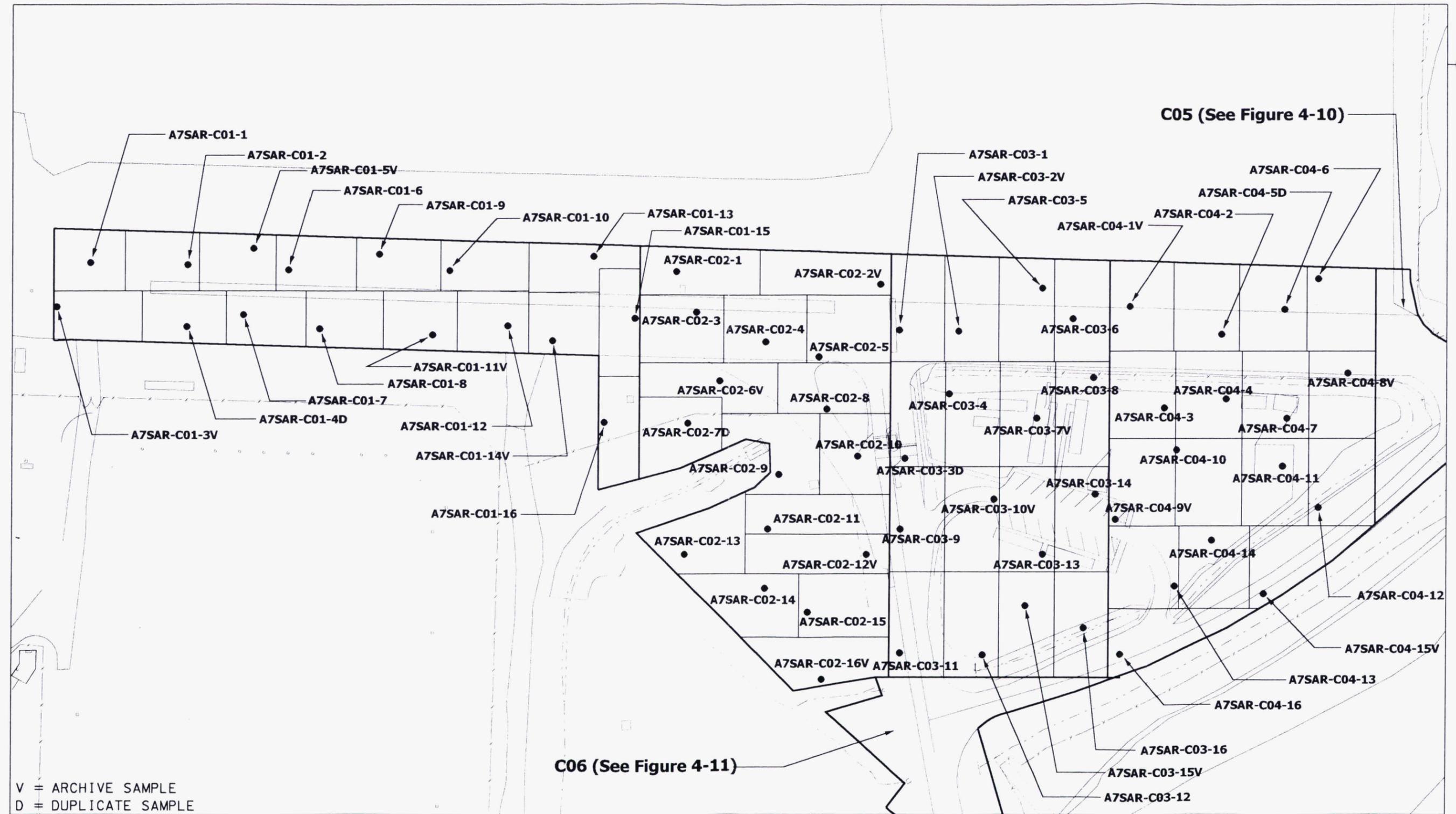


FIGURE 2-7. SILOS TRUCK STAGING AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C01, C02, & C05



V = ARCHIVE SAMPLE  
 D = DUPLICATE SAMPLE

**LEGEND:**

● SAMPLE LOCATION

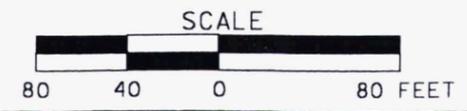


FIGURE 2-9. SOUTH ACCESS ROAD AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C01 THROUGH C04

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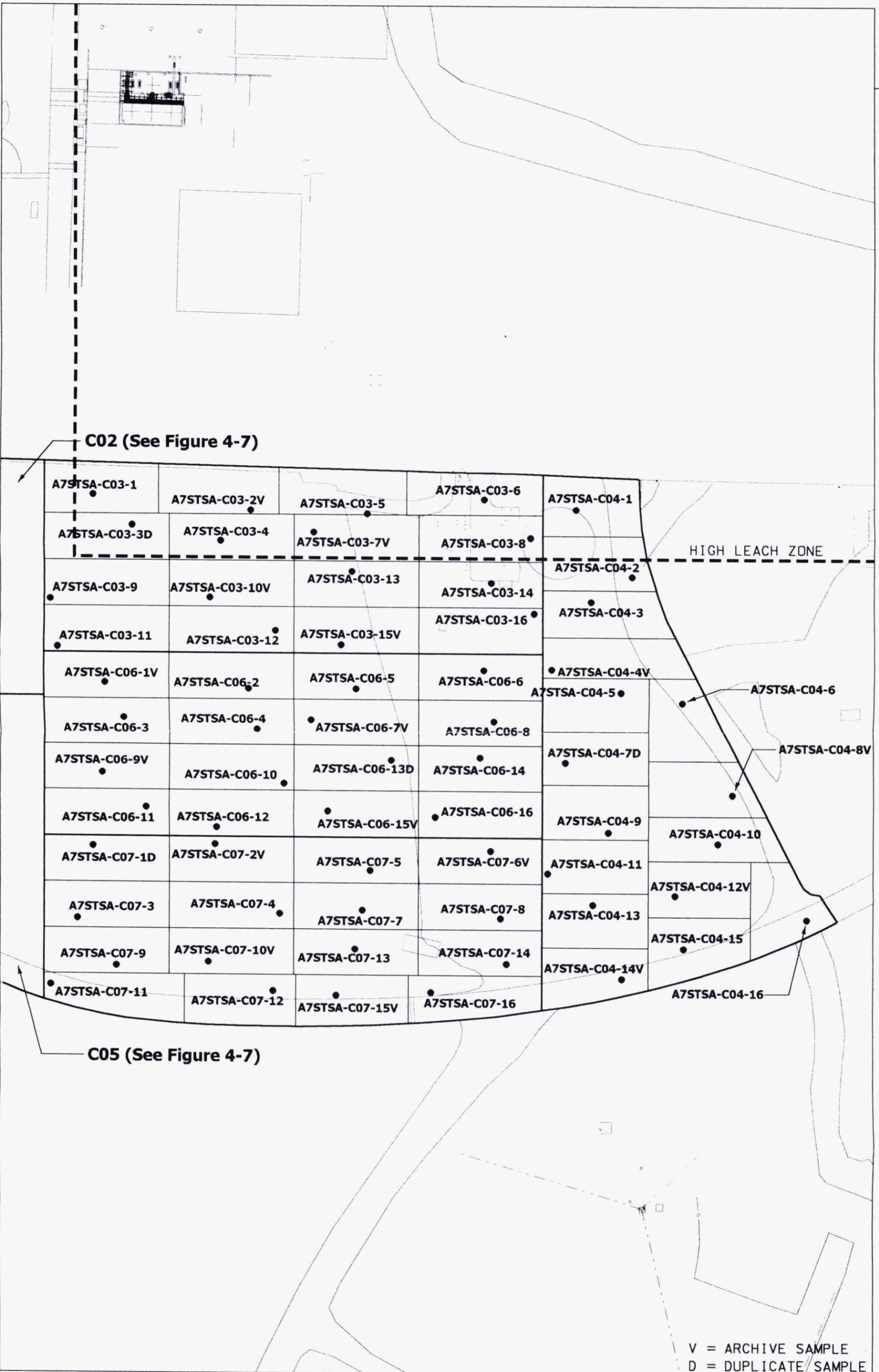
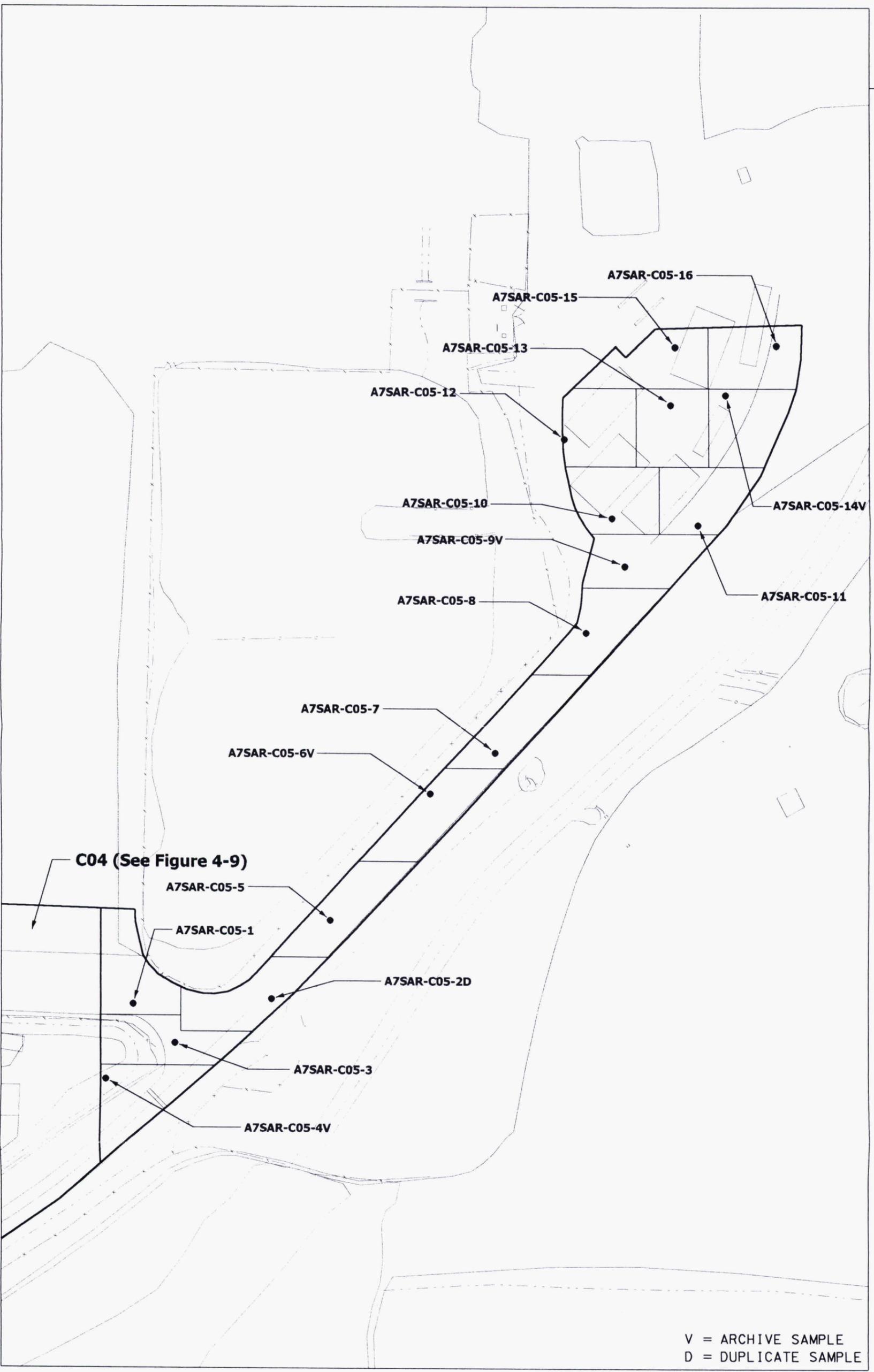


FIGURE 2-8. SILOS TRUCK STAGING AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C03, C04, C06, & C07

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V = ARCHIVE SAMPLE  
 D = DUPLICATE SAMPLE

**LEGEND:**

● SAMPLE LOCATION

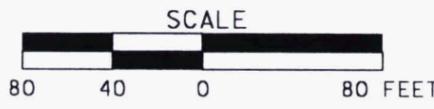


FIGURE 2-10. AREA 1, PHASE IV, PART 4 & SOUTH ROAD ACCESS AREA  
 SUB CU & SAMPLE LOCATION MAP FOR CU C05

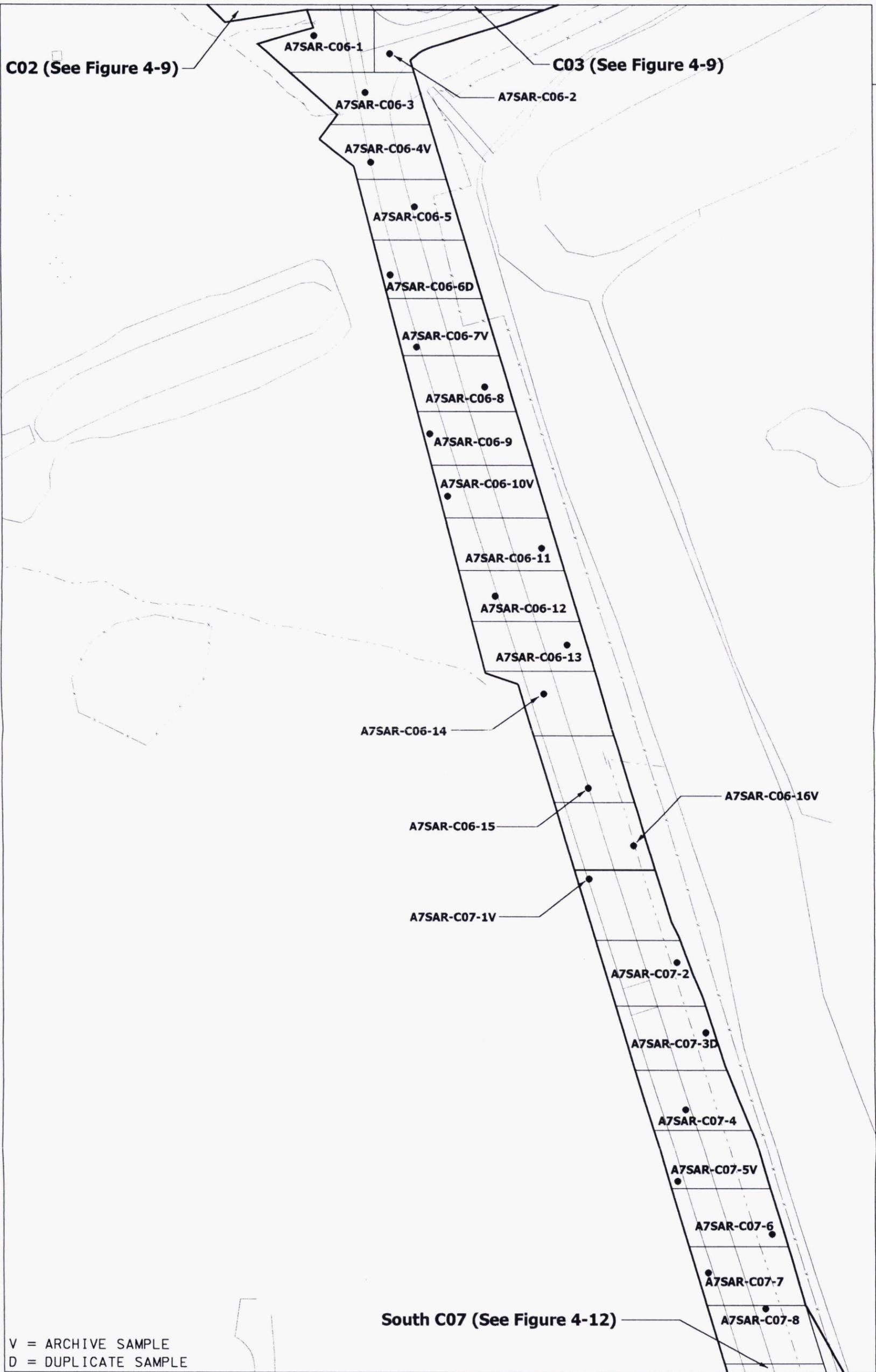


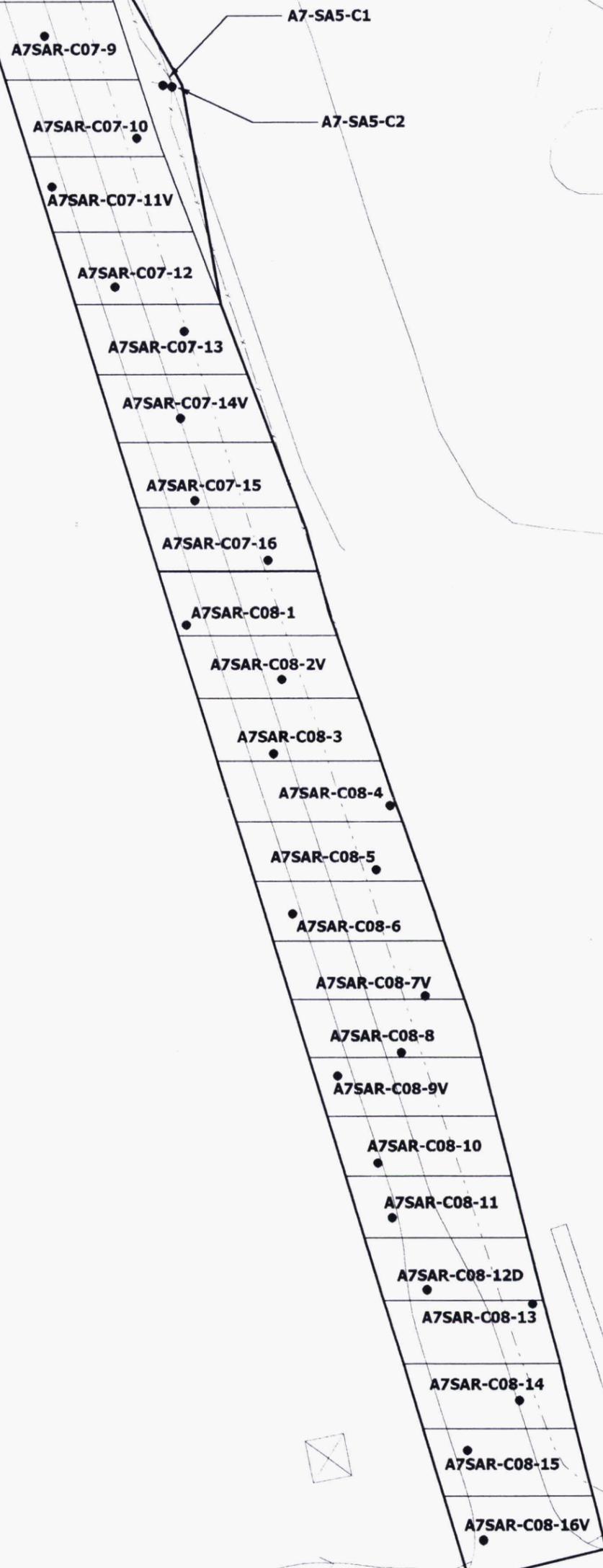
FIGURE 2-11. SOUTH ACCESS ROAD AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C06 & C07

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North C07  
(See Figure 11)



V = ARCHIVE SAMPLE  
D = DUPLICATE SAMPLE

LEGEND:

● SAMPLE LOCATION

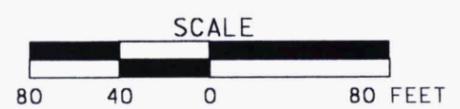


FIGURE 2-12. SOUTH ACCESS ROAD AREA SUB CU & SAMPLE LOCATION MAP FOR CU's C07 & C08

006224

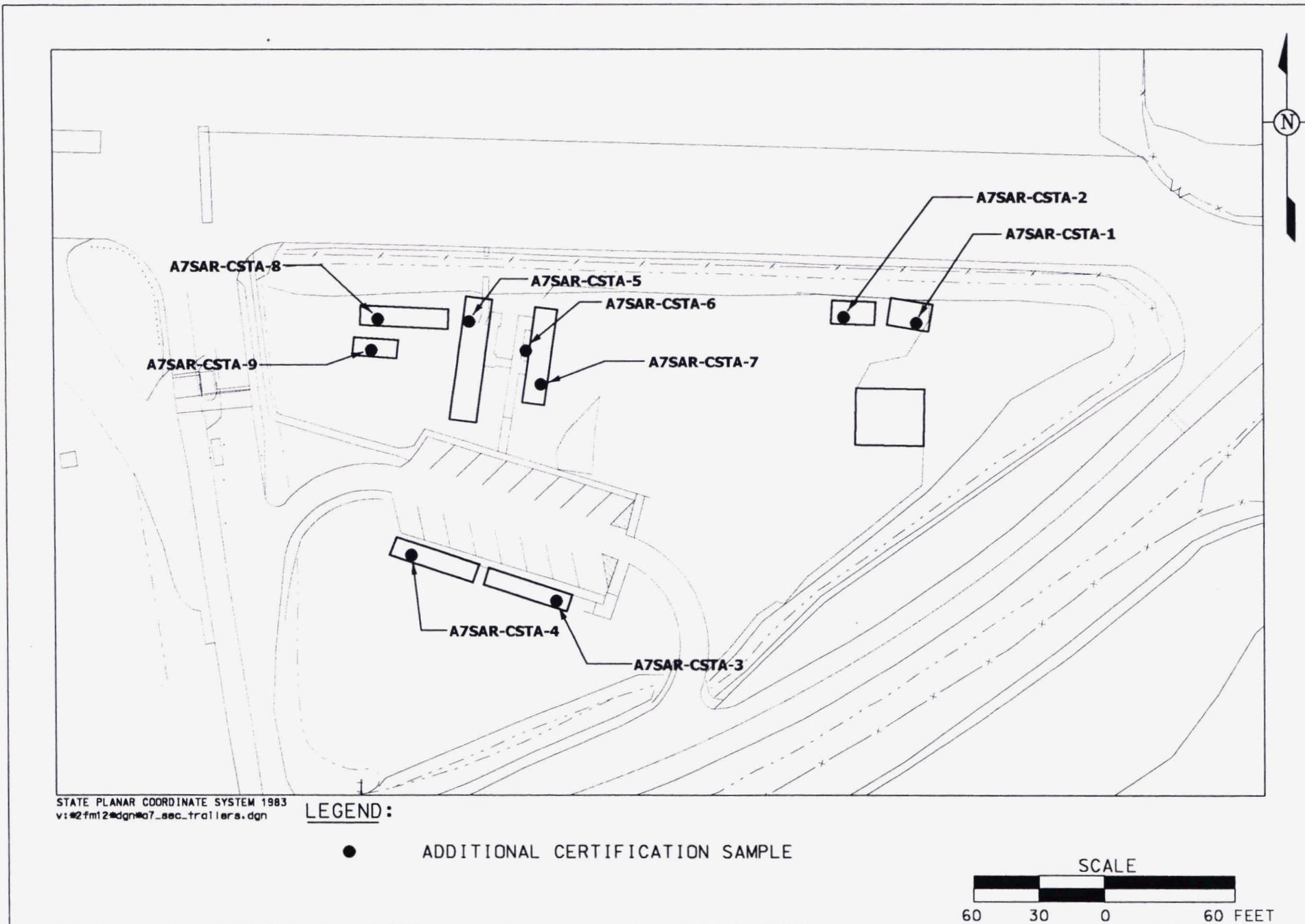
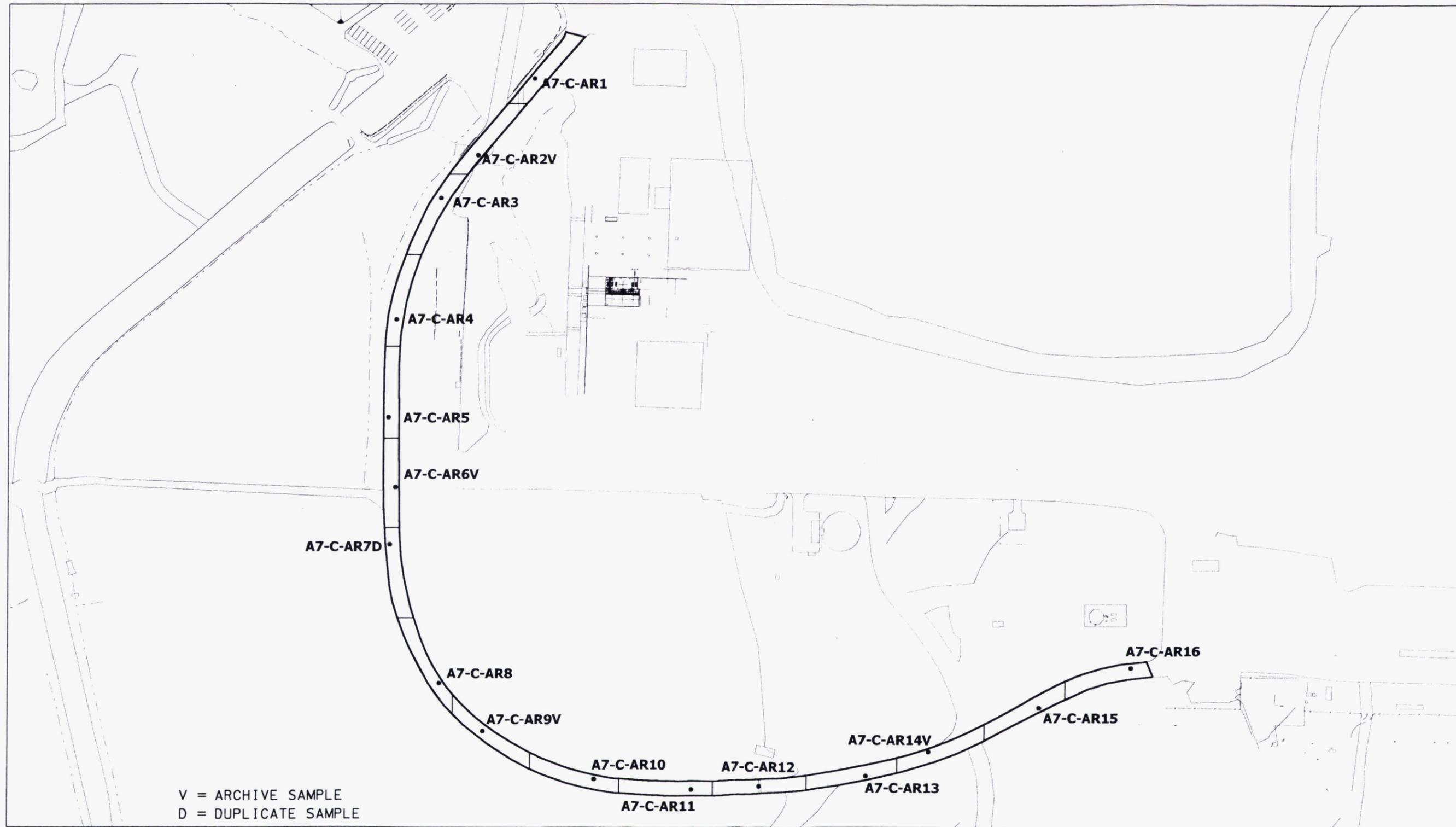


FIGURE 2-13. SECURITY TRAILER AREA ADDITIONAL CERTIFICATION SAMPLING LOCATIONS

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V = ARCHIVE SAMPLE  
 D = DUPLICATE SAMPLE

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LEGEND:

• PROPOSED SAMPLE LOCATION

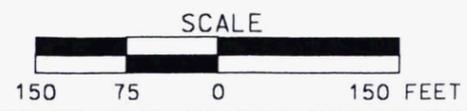


FIGURE 2-14. ACCESS ROAD ADJACENT TO AREA 7 SILOS TRUCK STAGING AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7-C-AR

### 3.0 OVERVIEW OF FIELD ACTIVITIES

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 were evaluated for remedial actions.

Before initiating the certification process, all historical soil data within the Outside Areas certification area was pulled from the SED. Based on the results of sampling and scanning activities summarized in Sections 3.1 and 3.2, it was determined that no further remedial actions were necessary to remove above-FRL or above-WAC soil.

#### 3.1 AREA PREPARATION AND PRECERTIFICATION

All historical data for the Outside Areas are presented in the Excavation Plan for Area 6 Waste Pits and General Area (DOE 2005a), the Excavation Plan for Area 7 Support and Silos Process Areas (DOE 2006b), the Excavation Plan for Area 1, Phase IV (DOE 2003), and the Excavation Plan for Area 7 Silos and General Area (DOE 2005b).

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 Variance/Field Change Notice (V/FCN) 20600-PSP-0016-76 for the ASCOC list presented in the variance utilizing the appropriate certification protocols. The variance and the data associated with this sampling event are documented and presented in the CDL/Certification PSP for this area.

In anticipation of its 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 documented and presented in the CDL/Certification PSP for this area.

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 as documented in the letter "Discovery and Removal of a Contaminated Billboard Structure Along the South Access Road (see Appendix C). 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 (see Appendix C). After this was completed, real-time as well as physical sampling data confirmed that the removal of contaminated material was complete. The data collected from this effort will be presented and evaluated

1 with the certification data collected in association with the CDL/Certification PSP for this area. The  
2 variance as well as the data associated with this removal action are presented in Appendix C.

3  
4 In April of 2005, Variance 20500-PSP-0005-12 was written to the PSP for Predesign in Area 7  
5 (DOE 2005c). The variance documents the sampling and analysis of soil beneath the access road located in  
6 Area 7 adjacent to the Silos Truck Staging Area (see Figure 2-14). These samples were collected and  
7 analyzed for the ASCOC list presented in the variance utilizing the appropriate certification protocols. The  
8 variance and the data associated with this sampling event are presented in this document (see Appendix D).

9 It should be noted that the CU represented by this sampling event in large part overlies portions of CUs  
10 documented in the CDL/Certification PSP for the Outside Areas. The information gathered as a result of  
11 this sampling action provides a more concentrated/directed depiction of the soil beneath the roadbed.

12  
13 Following remediation activities in the Outside Areas, precertification activities were conducted according  
14 to the guidelines established in Section 3.3.3 of the SEP as well as the PSP for Area 1, Phase IV Excavation  
15 Characterization and Precertification (DOE 2004), the PSP for Excavation Control and Precertification of  
16 the Area 6 Waste Pits and General Area (Supplement to 20300-PSP-0011), the PSP for Excavation Control  
17 and Precertification of the Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011), and  
18 the PSP for Excavation Control and Precertification of the Area 7 Silos and General Area (Supplement to  
19 20300-PSP-0011) to evaluate residual radiological contamination patterns. All areas in the Outside Areas  
20 passed the requirements of precertification, and it was determined that certification of the soil in the Outside  
21 Areas could be completed. It was noted that the real-time figures for the Area 7 Silos Truck Staging Area  
22 were inadvertently not included with the CDL/Certification PSP for this area. As a result, the appropriate  
23 precertification figures were included with this document in Appendix B.

24  
25 Because no additional remedial excavation for above-WAC or above-FRL was needed in any of the areas  
26 covered under this document, utilities were taken out after precertification had been completed. Once the  
27 utility had been removed as required by the technical specification, precertification was performed on the  
28 trench bottom created by the removal of these utilities and then backfilled with the precertified overburden  
29 soil. These sampling events are described in V/FCNs 20600-PSP-0016-47, 20500-PSP-0010-10, and  
30 20500-PSP-0009-35 written to the PSP for Excavation Control and Precertification of the Area 6 Waste  
31 Pits and General Area (Supplement to 20300-PSP-0011) (DOE 2005d), the PSP for Excavation Control  
32 and Precertification of Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011)  
33 (DOE 2005e), and the PSP for Excavation Control and Precertification of Area 7 Silos and General Area  
34 (Supplement to 20300-PSP-0011) (DOE 2005f) respectively. The sample locations are shown on  
35 Figures 3-1 through 3-3 and the data as well as any necessary statistical evaluation is included in  
36 Appendix A.

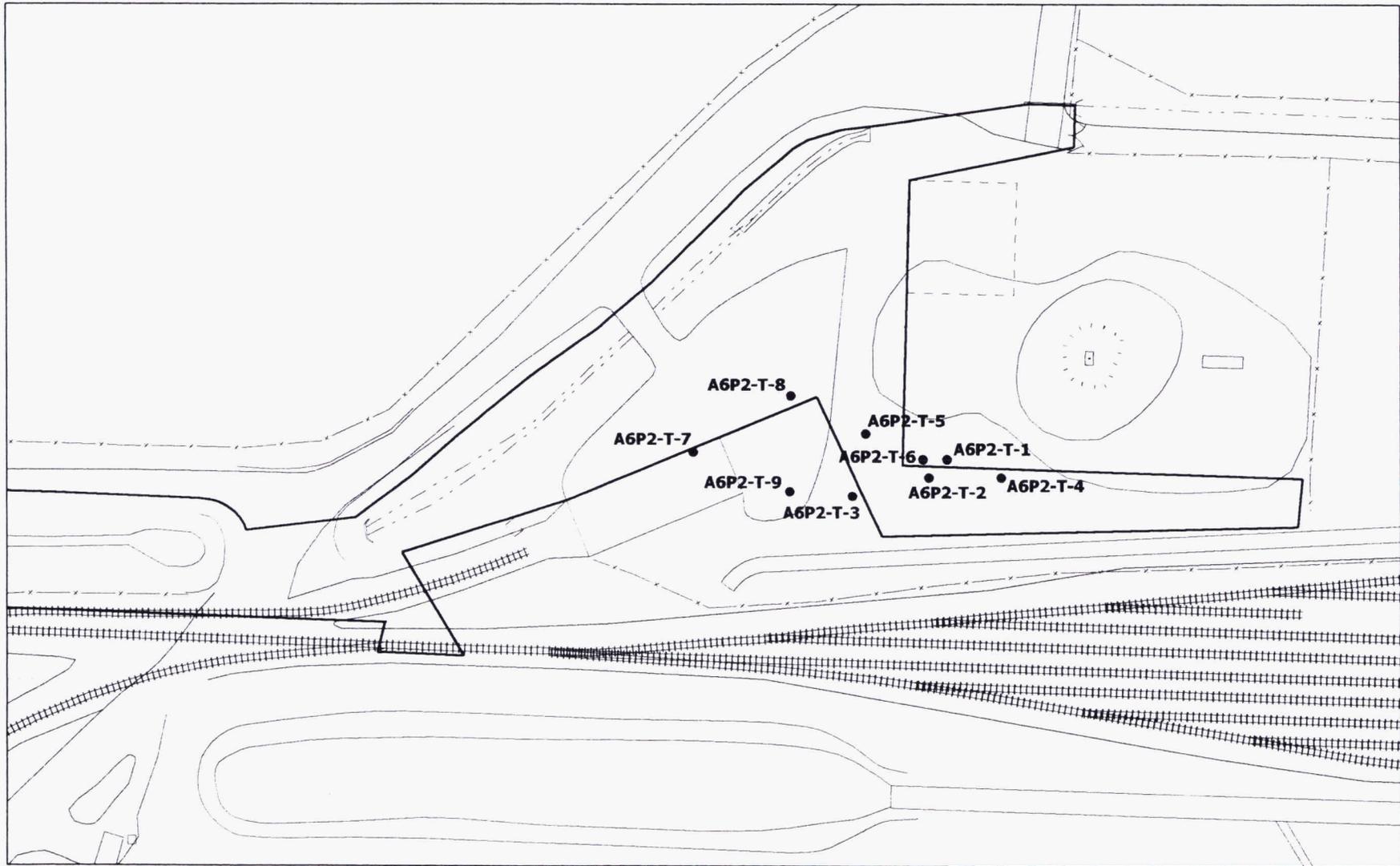
1 3.2 CHANGES TO SCOPE OF WORK

2 The scope of work for the Outside Areas was documented in the final CDL/Certification PSP. The  
3 changes required for this area are outlined in the following paragraphs.

4  
5 Variance 20500-PSP-0014-1 (see Appendix E) documents the collection of additional samples from the  
6 Security Trailer Area by the South Access Road. These samples were collected from within the footprint  
7 of trailers present in this area at the time of certification. This was done to demonstrate that contamination  
8 was not present under the trailers and in response to agency comments generated during review and  
9 approval of the CDL/Certification PSP for this area. The data associated with this sampling effort is  
10 presented in Appendix E and the results were incorporated into the appropriate CU for statistical  
11 evaluation.

12  
13 During sample for the Outside Areas CDL/Certification PSP, it became apparent that three of the sub-CU  
14 locations in Area 6, Phase II (see Figures 2-1, 2-5, and 2-6) would not be available, until after the sampling  
15 for the rest of the Outside Areas had been completed. It was decided to remove these three sub-CUs from  
16 this certification effort and include them with that of the Rail Yard and Rail Lines, which was both  
17 adjacent to the sub-CUs concerned and available for sampling within the same time frame.

18  
19 Although the activities associated with Variance 20500-PSP-0005-12 took place in April of 2005 and in  
20 large part overlies CUs identified in the CDL/Certification PSP for the Outside Areas, it was decided to  
21 include this data in this certification effort. This is being done to provide a more concentrated/specific  
22 information on the soil under the roadbed as well as to answer issues raised during verbal communication  
23 with the agencies related to arsenic levels in this area.



LEGEND:

• SAMPLE LOCATION (CU5)

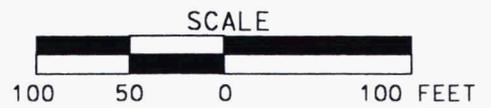
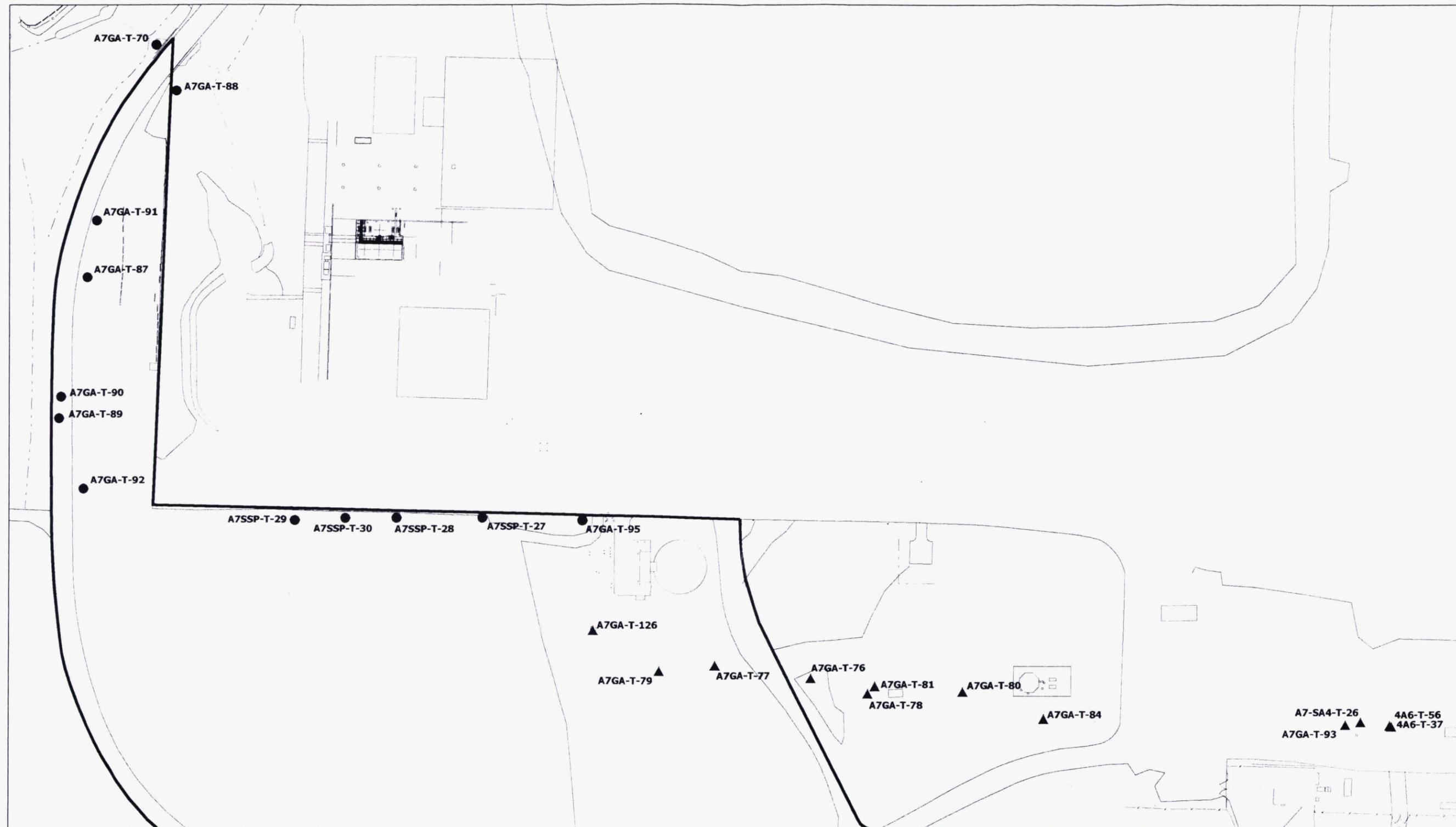


FIGURE 3-1. UTILITY TRENCH SAMPLE LOCATIONS FOR A6P2



**LEGEND:**

- SAMPLE LOCATION (CU4)
- ▲ SAMPLE LOCATION (CU3)

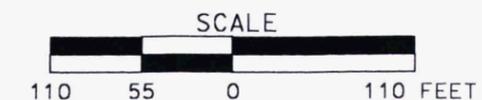
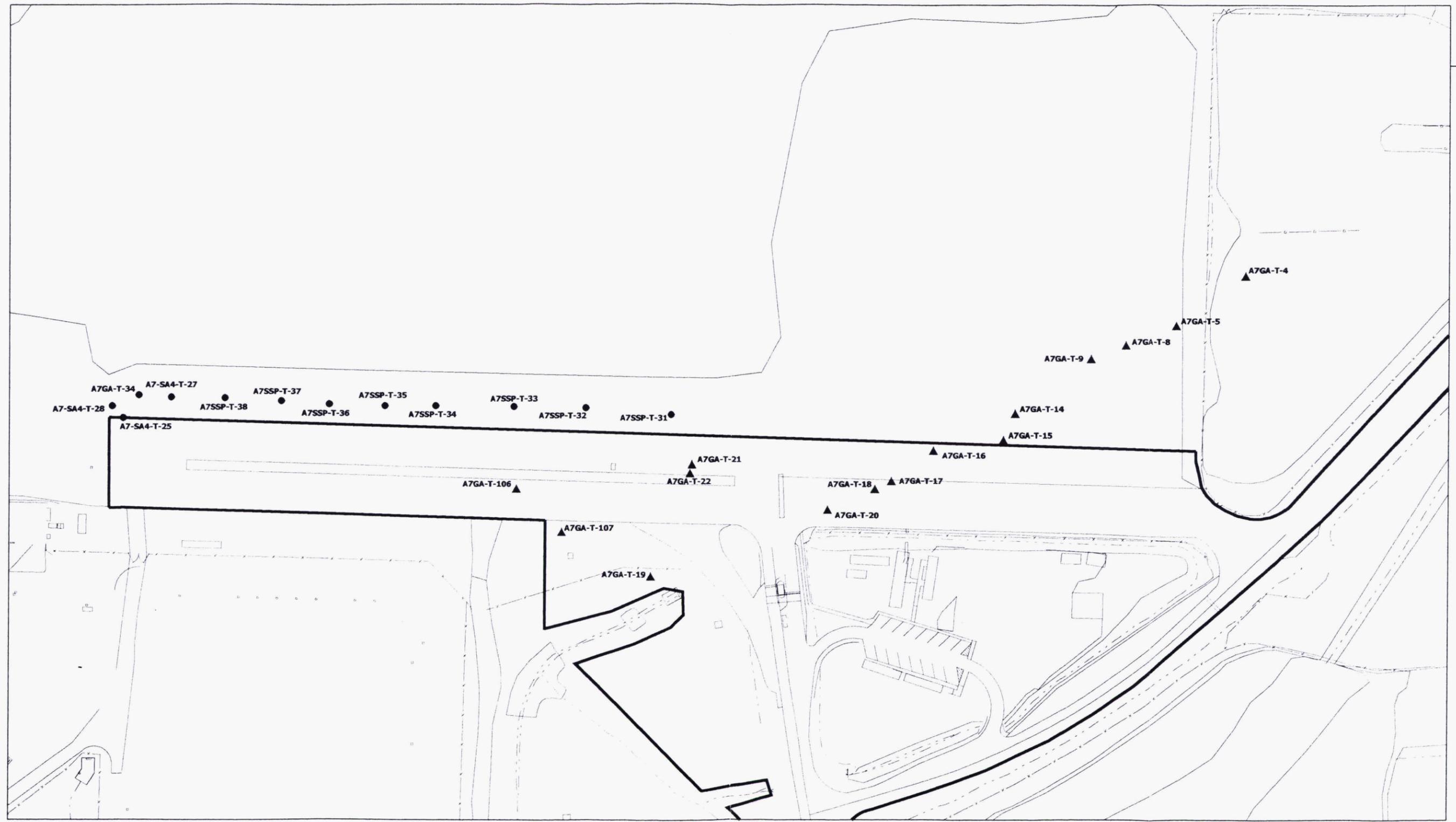


FIGURE 3-2. UTILITY TRENCH SAMPLE LOCATIONS FOR SILOS TRUCK STAGING AREA



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**LEGEND:**

- SAMPLE LOCATION (CU2)
- ▲ SAMPLE LOCATION (CU1)

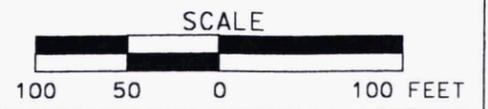


FIGURE 3-3. UTILITY TRENCH SAMPLE LOCATIONS FOR THE SOUTH ACCESS ROAD AREA

## 4.0 ANALYTICAL METHODOLOGIES, DATA VALIDATION PROCESSES, AND DATA REDUCTION

### 4.1 ANALYTICAL METHODOLOGIES

All samples collected were sent for off-site analysis. The laboratories complied with Sitewide Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ, DOE 2003c) requirements. The SCQ is the source for analytical methodologies (Appendix G), data verification and validation, and analytical quality assurance/quality control requirements.

Laboratory analysis of certification samples was conducted using approved analytical methods, as discussed in Appendix H of the SEP. The MDL was set at 10 percent of the FRL and analyses were conducted to Analytical Support Level (ASL) D or E, where the MDL of 10 percent of the FRL is above the SCQ ASL detection level, but the analyses meet all other SCQ ASL D criteria. ASL D data packages were provided for all of the analytical data. All data were validated. Once data were validated as required, results were entered into the FCP SED. Final certification results are provided in Appendix A. A summary of the analytical methods follows:

#### 4.1.1 Chemical Methods

##### Metals

Samples submitted for beryllium and arsenic were analyzed by inductively coupled plasma-atomic emission spectroscopy.

##### Polychlorinated Biphenyl (PCBs) and Pesticides

Samples submitted for PCB and Pesticide analyses were analyzed by gas chromatography.

##### Semi-Volatile Organic Compounds (SVOCs)

Samples submitted for SVOC analyses were analyzed by gas chromatography/mass spectrometry.

##### Volatile Organic Compounds (VOCs)

Samples submitted for VOC analyses were analyzed by gas chromatography/mass spectrometry.

#### 4.1.2 Radiochemical Methods

The radiochemical analytical methods depended on the specific nuclides of interest. Performance-based specification criteria included highest allowable minimum detectable concentration (HAMDC) percent overall tracer/chemical recovery, percent matrix spike recovery, method blank concentration, percent recovery of laboratory control sample, and relative error ratio for duplicate samples for each analyte. The on-site laboratory was required to meet these specifications using the methodologies described below.

1 Total Uranium

2 Samples were analyzed for uranium-238 using gamma spectrometry, and the results were used to calculate  
3 the total uranium value. The calculation used was as follows:

4  
5 
$$\text{Total Uranium (mg/kg)} = (2.998544) \times \text{Uranium-238 gamma spectrometry result (pCi/g)}$$
  
6

7 The validation qualifier assigned to the total uranium value was the same as the uranium-238 qualifier.  
8

9 Radium-226

10 Samples were analyzed by gamma spectrometry, and radium-226 was quantified by measuring gamma rays  
11 emitted by members of its decay chain. This method does not require chemical separation but the samples  
12 must be allowed a 7-day progeny in-growth period before counting (Appendix A). The off-site laboratory  
13 used the same gamma ray emission lines and error weighted average methodology to calculate all of the  
14 former SWRB Area certification results.  
15

16 Radium-228

17 Following gamma spectrometry analysis, radium-228 was also quantified by measuring gamma rays  
18 emitted by members of its decay chain. The off-site laboratory used the same gamma ray emission lines  
19 and error weighted average methodology to calculate the certification results.  
20

21 Isotopic Thorium

22 Isotopic thorium (thorium-228 and thorium-232) was quantified by measuring gamma rays emitted by  
23 members of its decay chain. The off-site laboratory used the same gamma ray emission lines and error  
24 weighted average methodology to calculate the certification results.  
25

26 Technetium-99

27 Technetium-99 was quantified by using a liquid Scintillation counter.  
28

29 Thorium-230

30 Samples were analyzed by alpha spectrometry and the isotope was quantified by measuring its  
31 characteristic alpha rays at 4631-kiloelectron volt (keV) and 4687 keV. The off-site laboratory used the  
32 combination of these two alpha lines with the help of a yield indicator, thorium-229, to quantify the  
33 thorium-230 results.  
34

#### 1 4.2 DATA VERIFICATION AND VALIDATION

2 This section discusses the data verification and validation (V&V) process used to examine the quality of  
3 field and laboratory results. Data were qualified to indicate the level of data usability, or level of confidence  
4 in the reported analytical results following Section 11.2 and Appendix D of the SCQ.

5  
6 Specific parameters associated with the data were evaluated during V&V to determine whether or not the  
7 data quality objectives were met. Five principal quality assurance parameters (i.e., precision, accuracy,  
8 completeness, comparability, and representativeness) were addressed during V&V. Field sampling and  
9 handling, laboratory analysis and reporting, and non-conformances and discrepancies in the data were  
10 examined to ensure compliance with appropriate and applicable procedures.

11  
12 The V&V process evaluated the following parameters:

- 13
- 14 • Specific field forms for sample collection and handling
- 15 • Chain of Custody forms
- 16 • Completeness of laboratory data deliverable.
- 17

18 The data validation process examined the analytical data to determine the validation qualifier of the results.  
19 General areas examined that apply to all the chemical data include the following:

- 20
- 21 • Holding Times
- 22 • Instrument calibrations
- 23 • Calculation of results
- 24 • Matrix spike/matrix spike duplicate recoveries
- 25 • Laboratory/field duplicate precision
- 26 • Field/Laboratory Blank contamination
- 27 • Dry weight correction for solid samples
- 28 • Correct detection limits reported
- 29 • Laboratory control sample recoveries and compliance with established limits.
- 30

31 Parameters unique to the evaluation of radiochemical analyses include:

- 32
- 33 • Calibration data for specific energies
- 34 • Background checks
- 35 • Relative Error ratios
- 36 • Detector efficiencies
- 37 • Background count correction.
- 38

39 For this project, all the radiological data were reviewed and validated for all criteria noted above. Per  
40 project requirements, a minimum of 10 percent of the certification data were validated to Level D. This  
41 validation included the same review process as for Level B, but included a systematic review of the raw data  
42 and recalculations.

1 Following V&V, qualifier codes were applied to specific data points, reflecting the level of confidence  
2 assigned to the particular datum. These codes included:

- 3
- 4 - No qualification; the positive result or detection limit is confident as reported
- 5
- 6 J Positive result is estimated or imprecise; data point is usable for decision-making purposes.  
7 Positive results less than the contract required reporting limits are also qualified in this manner
- 8
- 9 R Positive result or detection limit is considered unreliable; data point should not be used for  
10 decision-making purposes
- 11
- 12 U Undetected result at the stated limit of detection
- 13
- 14 UJ Undetected result; detection limit is considered estimated or imprecise; the data point is usable  
15 for decision-making purposes
- 16
- 17 N Positive result is tentatively identified - that is, there is some question regarding the actual  
18 identification and quantification of the result. Compound reported is best professional  
19 judgement of the interpretation of the supporting data, such as mass spectra. Caution must be  
20 exercised with the use of these data
- 21
- 22 NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the  
23 associated numerical value represents its approximate concentration. This qualifier indicates the  
24 presumptive presence of the analyte, but the result can only be considered estimated. This  
25 qualifier is not used in typical inorganic analyses, but could be used to qualify organic or  
26 radiochemistry data due to spectral interpretation problems.
- 27
- 28 NV Not Validated. The results for this sample were not validated
- 29
- 30 Z This result, or detection limit in this analysis is not the best one to use; another analysis (e.g., the  
31 dilution or re-analysis) contains a more confident and usable result.
- 32

33 4.3 DATA REDUCTION

34 Each sample used to support the Outside Areas certification decision was entered in the SED with the  
35 following information:

36

37 Field Information

- 38 • Sample Identification Number - A unique number assigned to each discrete sample point
- 39 • Coordinate Information - Northing and Easting locations.
- 40

41 Using the information as summarized above, the following actions were taken for data reduction of each  
42 CU data set.

- 43
- 44 1. All of the data for each CU were queried from SED. All of the data were used even if the CU had  
45 more than the minimum required data points.
- 46

- 1 2. The data from the validation fields were used for statistical calculations.
- 2
- 3 3. Data with a qualifier of R or Z were not used in the statistical calculations.
- 4
- 5 4. The higher of the two duplicate results was used in the statistical calculations.
- 6
- 7 5. One half on the non-detect (U or UJ) values were used in the statistical calculations.
- 8

#### 9 Laboratory Information

10 For each sample result the following information is entered:

- 11
- 12 • Laboratory Result - The reported analytical value from the laboratory
- 13
- 14 • Laboratory Qualifier - The qualifier reported from the lab. For radiological parameters non-detect
- 15 values are assigned a U qualifier
- 16
- 17 • Total Propagated Uncertainty (TPU) - The TPU is an estimate of the overall uncertainty associated
- 18 with a measured or calculated result that has been derived from an evaluation of all factors that can
- 19 influence a result, including both systematic and random sources of uncertainty. For both *in situ*
- 20 and laboratory-based radioactivity measurements, factors such as the random nature of the
- 21 radioactive decay process (i.e., counting uncertainty), the mass or volume of the "sample" being
- 22 analyzed, the variation in radiation detection efficiency with the energy of the emitted radiation
- 23 and the density and chemical composition of the sample, uncertainty in nuclear decay parameters
- 24 used to convert counts to activity, and attenuation of the radiation must be considered to properly
- 25 assess the overall uncertainty of the measured result.
- 26
- 27 • Units - The units in which the Laboratory Result is reported.
- 28

#### 29 Validation Information

- 30
- 31 • Validation Result - The result based on the validation process. During the validation process,
- 32 sample results may be adjusted. If the laboratory result is less than the associated minimum
- 33 detectable concentration, the validation result becomes the minimum detectable concentration
- 34 value.
- 35
- 36 • Validation TPU - The TPU based on the validation process (applicable to radiological parameters
- 37 only). The data Validation Section evaluates the reported TPU as described in the SCQ in
- 38 Section 11.2 and Appendix D to assess the impact on the data quality and will qualify the data as
- 39 estimated if the uncertainty is excessive.
- 40
- 41 • Validation Qualifier - The qualifier assigned as a result of the data validation process.
- 42
- 43 • Validation Units - The units in which the Validation Result is reported.

## 5.0 CERTIFICATION EVALUATION AND CONCLUSIONS

Certification success or failure was based on sample data from each CU against criteria discussed in Section 2.2.4. Subsequent to any evaluation of preliminary data, full statistical analysis and evaluation was performed on all validated data. Final certification data are presented in Appendix A.

### 5.1 CERTIFICATION RESULTS AND EVALUATION

Below is a summary of the analytical results and statistical analyses of the data for each CU in the Outside Areas.

#### Area 6, Phase II - CUs A6P2-PC01 and A6P2-PC02

These two CUs were collected in March of 2006 as directed by Variance 20600-PSP-0016-76. All of the parameters passed the certification criteria as outlined in Section 2.2.4 of this document. Final Certification data are presented in Appendix A.

#### Area 6, Phase II - CUs A6P2-C03 and A6P2-C04

During the certification process, it became necessary to remove two sub-CUs from A6P2-C03 and one from A6P2-C04. This was done because the areas represented by these sub-CUs were not available for sampling. No above-FRL conditions were present in the remaining data set. However, because removing the sub-CUs decreased the number of samples per CU to 10 and 11 respectively, a statistical evaluation was done on the primary radiological COCs for both CUs. Both passed the certification criteria with an *a posteriori* sample size of 2 or 3. Final certification data are presented in Appendix A.

#### Area 6, Phase II - CU A6P2-C05

This CU contains a high leachability zone in which the total uranium FRL is lower than that in other areas (20 mg/kg). This CU passed all of the certification criteria as outlined in Section 2.2.4. Final certification data are presented in Appendix A.

#### Area 7 Silos Truck Staging Area - CUs A7STSA-C01, A7STSA-C02, A7STSA-C05, A7STSA-C06 and A7STSA-C07

All of the above-listed CUs passed the certification criteria as outlined in Section 2.2.4. Final certification data are presented in Appendix A.

#### Area 7 Silos Truck Staging Area - CUs A7STSA-C01 and A7STSA-C02

These CUs contain a high leachability zone in which the total uranium FRL is lower than that in other areas (20 mg/kg). These CUs passed all of the certification criteria as outlined in Section 2.2.4. Final certification data are presented in Appendix A.

1 Area 7 Silos Truck Staging Area - A7-C-AR

2 This CU overlies portions of CUs A7STSA-C01, A7STSA-C02, A7STSA-C05, and A7STSA-C07 and  
3 represents the soil under the access road adjacent to the Silos Truck Staging Area. This CU passed the  
4 certification criteria as outlined in Section 2.2.4. Final certification data are presented in Appendix A. In  
5 two locations fill material was present above the native soil and was sampled. None of the results for this  
6 fill material were above the FRL.

7  
8 Area 7 South Access Road Area - A7SAR-C01 Through A7SAR-C08

9 All of the CUs in this area passed the certification criteria as outlined in Section 2.2.4. Additional samples  
10 were added to several of the CUs as noted below. Final certification data are presented in Appendix A.

11  
12 Area 7 South Access Road Area - Security Trailer Area

13 In response to agency comments, samples were added to the security trailer area representing the footprint  
14 of the trailers still present during certification. These samples were spread across A7SAR-C03 and  
15 A7SAR-C04.

16  
17 Also, as noted in the CDL/Certification PSP, samples were collected from within the projected footprint of  
18 the Communication Hut prior to beginning construction on that structure. For the purposes of this  
19 certification effort, the highest of the results from the samples will be used in place of the certification  
20 sample located at the Communications Hut (A7-C04-11).

21  
22 The two locations representing the billboard-sampling event did not readily fit into any existing CU  
23 (i.e., both were located outside the designated certification area in the previously certified borrow area).  
24 Therefore, CU A7SAR-C07's boundary was amended to include these locations. The highest result of the  
25 two was used to represent the sub-CU created by this modification (A7SAR-C07-17).

26  
27 Utility Trenches

28 Data as well as any statistical evaluation associated with the utility trenches are presented in Appendix A.  
29 Statistical evaluation was only done for this data if any of the analytical results exceeded the FRL. When  
30 this occurred, this information was included in Appendix A as well. Upon review, the utility trenches as a  
31 whole pass certification.

32  
33 5.2 OUTSIDE AREAS CERTIFICATION CONCLUSIONS

34 Based on the certification analytical results, precertification data, and statistical analysis, DOE has  
35 determined that the remedial objectives in the OU5 ROD have been achieved for the Outside Areas. No  
36 further remedial actions are required. This portion of the FCP will be released for restoration and final  
37 land use upon U.S. Environmental Protection Agency and Ohio Environmental Protection Agency  
38 concurrence.

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**APPENDIX A**

**CERTIFICATION SAMPLES, ANALYTICAL RESULTS  
AND FINAL STATISTICS TABLES**



1  
2 **APPENDIX A**  
3 **STATISTICAL ABBREVIATIONS, SYMBOLS, AND RADIUM-226 ANALYTICAL RESULTS**  
4 **(Continued)**  
5

6 **Number of NDs** - number of non-detects.

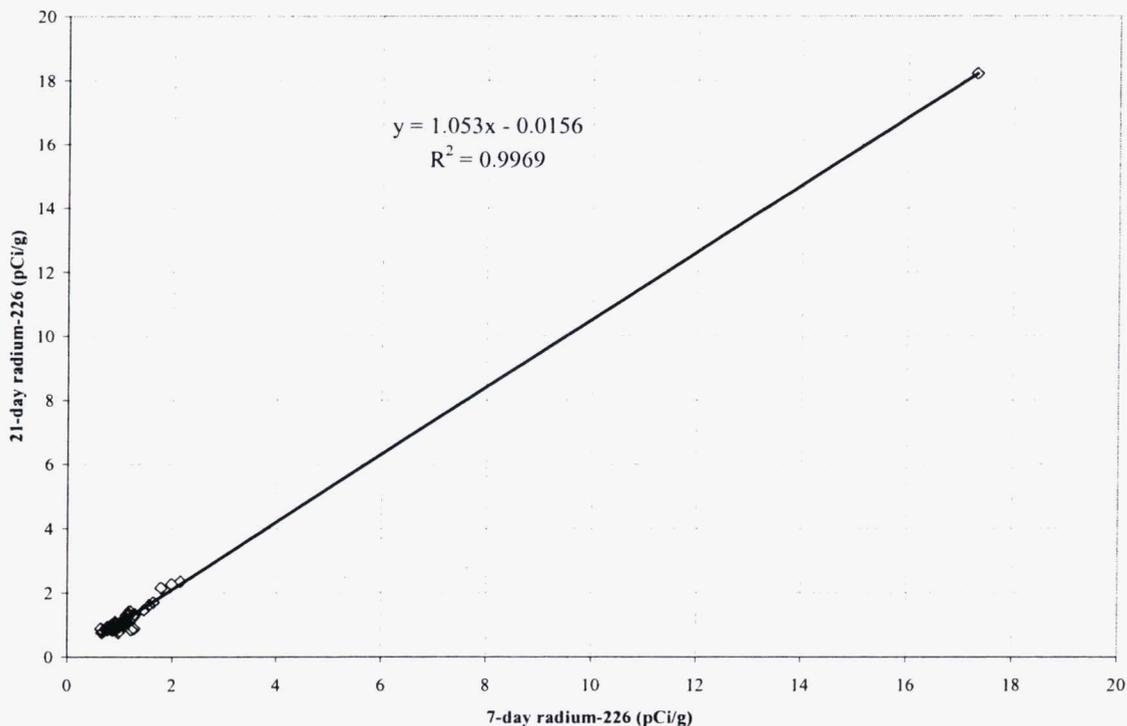
7  
8 **Correction of 7-Day Radium-226 Results**  
9

10 On July 10, 2006, OEPA approved DOE's July 6, 2006 request to reduce the in-growth period for radon,  
11 with the stipulation that additional soil samples would be collected from non-certified areas to verify initial  
12 assumptions and finalize the documentation of the process. This attachment to the certification report  
13 presents the analytical results for 7- and 21-day in-growth periods for samples collected from non-certified  
14 areas, as described in Variance 20810-PSP-0004-36.

15  
16 Figure 1 summarizes the results for 48 samples collected from non-certified areas. A regression of the data  
17 ( $R^2 = 0.9969$ ) yields the following equation for the estimate of the 21-day value:

18  
19  $21\text{-day value} = 1.053 \times 7\text{-day value} - 0.0156$   
20

21 This correction will be applied to 7-day analytical results to yield an estimate of the 21-day result. If  
22 statistical calculations are performed in the certification report, the estimate for 21-day results will be used  
23 to determine the pass/fail criteria for the certification units.  
24



25  
26  
27 **FIGURE 1. Regression analysis of radium-226 data based on 7- and 21-day in-growth period for radon-222**

**APPENDIX A.1**

**CERTIFICATION SAMPLES, ANALYTICAL RESULTS  
AND FINAL STATISTICS TABLES**

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Thorium-230
A6P2-PC01-1	1.08 -	0.706 -	0.677 -	0.706 -	7.31 -	1.5 J
A6P2-PC01-10	0.873 -	0.701 -	0.741 -	0.701 -	2.71 J	2.22 J
A6P2-PC01-12	1 -	0.701 -	0.696 -	0.701 -	5.82 -	2.02 J
A6P2-PC01-13	1.13 -	0.762 J	0.781 J	0.762 J	6.38 -	1.69 J
A6P2-PC01-13D	1.03 -	0.673 J	0.681 J	0.673 J	5.43 J	1.66 J
A6P2-PC01-14	1.14 -	0.795 -	0.792 -	0.795 -	5.73 -	1.51 J
A6P2-PC01-16	1.14 -	0.793 -	0.771 -	0.793 -	8.49 -	1.85 J
A6P2-PC01-2	0.982 -	0.636 -	0.629 -	0.636 -	5.83 -	1.82 J
A6P2-PC01-4	1.12 -	0.742 -	0.744 -	0.742 -	4.24 -	1.9 J
A6P2-PC01-5	1.1 -	0.789 -	0.806 -	0.789 -	15.3 -	1.61 J
A6P2-PC01-7	1.38 -	1.09 J	1.11 J	1.09 J	7.85 -	1.49 J
A6P2-PC01-8	1.08 -	0.88 -	0.953 -	0.88 -	5.83 -	1.99 J
A6P2-PC01-9	1.23 -	0.914 -	0.892 -	0.914 -	8.4 -	2 J
Limit	1.7	1.8	1.7	1.5	82	280
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.38	1.09	1.11	1.09	15.3	2.22
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--
Sample Size	12	12	12	12	12	12
Nondetects	0	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%	0%
Est. Mean*	--	--	--	--	--	--
UCL	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Thorium-230
A6P2-PC02-1	0.926 -	0.562 -	0.556 -	0.562 -	4.24 -	1.57 J
A6P2-PC02-10	1.24 -	0.843 -	0.846 -	0.843 -	2.7 J	1.9 J
A6P2-PC02-11	1.32 -	0.96 -	0.979 -	0.96 -	7.98 -	1.45 J
A6P2-PC02-12	1.21 -	1.01 -	1.04 -	1.01 -	12.1 -	1.79 J
A6P2-PC02-13	0.968 -	0.689 -	0.661 -	0.689 -	4.72 -	1.27 J
A6P2-PC02-14	0.631 -	0.546 -	0.571 -	0.546 -	2.34 J	1.18 J
A6P2-PC02-16	1.31 -	0.877 -	0.909 -	0.877 -	11.7 -	2.16 J
A6P2-PC02-3	1.09 -	0.742 -	0.736 -	0.742 -	9.58 -	1.94 J
A6P2-PC02-4	1.1 -	0.795 -	0.739 -	0.795 -	7.87 -	2.01 J
A6P2-PC02-6	1.32 -	0.997 -	1.01 -	0.997 -	11.4 -	1.46 J
A6P2-PC02-7	1.43 -	1.06 J	1.05 J	1.06 J	17.5 -	2.05 -
A6P2-PC02-7D	1.36 -	1.04 J	1.03 J	1.04 J	15.5 -	1.81 -
A6P2-PC02-8	1.38 -	1.01 J	1.04 J	1.01 J	10.3 -	1.99 -
Limit	1.7	1.8	1.7	1.5	82	280
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.43	1.06	1.05	1.06	17.5	2.16
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--
Sample Size	11	11	11	11	11	11
Nondetects	0	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%	0%
Est. Mean*	--	--	--	--	--	--
UCL	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Thorium-230
A6P2-C03-2	0.68 J	0.523 -	0.542 -	0.523 -	3.97 J	0.928 J
A6P2-C03-3	0.817 J	0.82 -	0.8 -	0.82 -	22.6 -	2.07 J
A6P2-C03-4	0.93 J	0.882 -	0.909 -	0.882 -	13.2 -	1.56 J
A6P2-C03-5	0.768 J	0.497 -	0.459 -	0.497 -	4.69 J	1.4 J
A6P2-C03-6	0.611 J	0.591 -	0.611 -	0.591 -	5.04 J	0.644 J
A6P2-C03-6-D	0.756 J	0.58 -	0.587 -	0.58 -	6.78 J	1.17 J
A6P2-C03-8	0.793 J	0.675 -	0.684 -	0.675 -	5.42 J	1.01 J
A6P2-C03-9	0.632 J	0.447 -	0.437 -	0.447 -	3.12 J	1.44 -
A6P2-C03-11	0.903 J	0.908 -	0.908 -	0.908 -	2.88 U	1.43 -
A6P2-C03-12	0.827 J	0.737 -	0.761 -	0.737 -	6.58 J	0.941 J
A6P2-C03-13	0.622 J	0.534 -	0.537 -	0.534 -	2 U	1.27 -
A6P2-C03-14	0.944 J	0.85 -	0.858 -	0.85 -	3.04 J	1.57 J
A6P2-C03-16	0.765 J	1 -	1.01 -	1 -	6.27 J	1.2 J
Limit	1.7	1.8	1.7	1.5	82	280
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	0.944	1	1.01	1	22.6	2.07
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--
Sample Size	12	12	12	12	12	12
Nondetects	0	0	0	0	2	0
% Nondetects	0%	0%	0%	0%	17%	0%
Est. Mean*	--	--	--	--	--	--
UCL	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Thorium-230
A6P2-C04-1	0.945 J	0.846 -	0.867 -	0.846 -	5.33 -	1.27 -
A6P2-C04-2	1.18 J	1.09 -	1.11 -	1.09 -	7.91 -	1.38 -
A6P2-C04-4	1.2 J	1.12 -	1.2 -	1.12 -	8.45 -	1.72 -
A6P2-C04-6	1.07 J	1.17 -	1.17 -	1.17 -	8.18 -	2.72 -
A6P2-C04-7	0.946 J	1.11 -	1.13 -	1.11 -	3.75 -	1.69 -
A6P2-C04-8	1.08 J	1.23 -	1.22 -	1.23 -	5.24 -	1.39 -
A6P2-C04-10	1.1 J	1.29 -	1.26 -	1.29 -	5.79 -	1.54 -
A6P2-C04-11	0.775 J	0.796 -	0.807 -	0.796 -	5.14 -	1.54 -
A6P2-C04-12	0.828 J	0.738 -	0.715 -	0.738 -	5.83 -	1.18 -
A6P2-C04-12-D	0.83 J	0.807 -	0.807 -	0.807 -	6.15 -	1.33 -
A6P2-C04-13	0.984 J	1.12 -	1.14 -	1.12 -	5.2 -	1.28 -
Limit	1.7	1.8	1.7	1.5	82	280
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.2	1.29	1.26	1.29	8.45	2.72
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	67.6% (N)	9.6% (N)	3.2% (N)	9.6% (N)	34.2% (LN)	--
Test Procedure	Normal	Normal	Wilcoxon	Normal	Lognormal	--
Sample Size	10	10	10	10	10	10
Nondetects	0	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%	0%
Est. Mean*	1.011	1.058	1.135	1.058	6.135	--
UCL	1.093	1.161	1.22	1.161	7.235	--
Prob. > Limit	--	--	0.10%	--	--	--
Pass / Fail	Pass	Pass	Pass	Pass	Pas	--
a posteriori Sample Size calculation	2 Pass	2 Pass	3 Pass	3 Pass	2 Pass	-- --

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs			
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Technetium-99	Thorium-230	Beryllium	Benzo(a)anthracene
A6P2-C05-2	0.862 -	0.942 J	0.95 J	0.942 J	5.49 -	1.74 U	0.925 -	0.75 J	42.1 U
A6P2-C05-3	0.691 -	0.708 J	0.737 J	0.708 J	5.48 -	1.82 U	1.02 J	0.56 J	39.7 U
A6P2-C05-5	0.866 -	0.845 J	0.847 J	0.845 J	5.78 -	1.76 U	1.4 -	0.71 J	39.2 U
A6P2-C05-6	0.977 -	1.02 J	1.05 J	1.02 J	10.4 -	1.75 U	0.883 -	0.63 J	39.1 U
A6P2-C05-7	0.913 -	0.776 J	0.775 J	0.776 J	2.92 J	1.75 U	1.5 -	0.6 J	39.3 U
A6P2-C05-7-D	0.833 -	0.587 J	0.591 J	0.587 J	2 UJ	1.78 U	1.55 -	0.41 J	37.4 U
A6P2-C05-10	0.767 -	0.866 J	0.882 J	0.866 J	4.15 -	1.93 U	1.35 -	0.74 J	37.8 U
A6P2-C05-11	0.901 -	1.03 J	1.04 J	1.03 J	5.06 -	1.87 U	1.95 -	0.86 J	41.4 U
A6P2-C05-12	0.82 -	0.772 J	0.764 J	0.772 J	8.57 -	1.7 U	1.14 -	0.36 J	39.7 U
A6P2-C05-13	0.922 -	1.05 J	1.1 J	1.05 J	4.55 J	1.77 U	1.36 -	0.82 J	38.1 U
A6P2-C05-15	0.552 -	0.498 J	0.501 J	0.498 J	4.36 -	1.75 U	0.804 -	0.51 J	404 -
A6P2-C05-16	1.06 -	1.01 J	1.02 J	1.01 J	5.35 -	1.87 U	1.62 -	0.86 J	40.8 U
Limit	1.7	1.8	1.7	1.5	20	30	280	1.5	20000
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g	pCi/g	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%	90%
Max. Result	1.06	1.05	1.1	1.05	10.4	1.93 U	1.95	0.86	404
Max. >= Limit	No	No	No	No	No	No	No	No	No
W-statistic Prob. #	66.5% (N)	30.3% (N)	45.5% (N)	30.3% (N)	47.4 (LN)	--	--	--	--
Test Procedure	Normal	Normal	Normal	Normal	Lognormal	--	--	--	--
Sample Size	11	11	11	11	11	--	--	--	--
Nondetects	0	0	0	0	0	--	--	--	--
% Nondetects	0%	0%	0%	0%	0%	--	--	--	--
Est. Mean*	0.848	0.865	0.879	0.865	5.664	--	--	--	--
UCL	0.924	0.958	0.976	0.958	7.029	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--	--	--
Pass / Fail	Pass	Pass	Pass	Pass	Pass	--	--	--	--
a posteriori Sample Size calculation	2 Pass	2 Pass	2 Pass	2 Pass	2 Pass	-- --	-- --	-- --	-- --

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Secondary COCs						
	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene
A6P2-C05-2	42.1 U	42.1 U	42.1 U	42.1 U	42.1 U	42.1 U	42.1 U
A6P2-C05-3	39.7 U	39.7 U	39.7 U	39.7 U	39.7 U	39.7 U	39.7 U
A6P2-C05-5	46.1 J	39.2 U	39.2 U	39.2 U	39.2 U	39.2 U	39.2 U
A6P2-C05-6	56.7 J	45.7 J	39.1 U	39.1 U	39.1 U	39.1 U	45.8 J
A6P2-C05-7	39.3 U	39.3 U	39.3 U	39.3 U	39.3 U	39.3 U	39.3 U
A6P2-C05-7-D	37.4 U	37.4 U	37.4 U	37.4 U	37.4 U	37.4 U	37.4 U
A6P2-C05-10	37.8 U	37.8 U	37.8 U	37.8 U	37.8 U	37.8 U	37.8 U
A6P2-C05-11	41.4 U	41.4 U	41.4 U	41.4 U	41.4 U	41.4 U	41.4 U
A6P2-C05-12	39.7 U	39.7 U	39.7 U	39.7 U	39.7 U	39.7 U	39.7 U
A6P2-C05-13	38.1 U	38.1 U	38.1 U	38.1 U	38.1 U	38.1 U	38.1 U
A6P2-C05-15	443 -	35.3 U	229 -	35.3 U	411 -	35.3 U	762 J
A6P2-C05-16	40.8 U	40.8 U	40.8 U	40.8 U	40.8 U	40.8 U	40.8 U
Limit	2000	20000	1000	200000	2000000	2000	10000
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%	90%	90%	90%	90%
Max. Result	443	45.7	229	42.1 U	411	42.1 U	762
Max. >= Limit	No	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--	--
Sample Size	--	--	--	--	--	--	--
Nondetects	--	--	--	--	--	--	--
% Nondetects	--	--	--	--	--	--	--
Est. Mean*	--	--	--	--	--	--	--
UCL	--	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Secondary COCs							
	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Aroclor-1254	Aroclor-1260	Dieldrin	1,1-Dichloroethene	Tetrachloroethene
A6P2-C05-2	42.1 U	42.1 U	42.1 U	4.2 U	4.2 U	1.7 U	1.5 U	1.5 U
A6P2-C05-3	39.7 U	39.7 U	39.7 U	4 U	4 U	1.6 U	1.3 U	1.3 U
A6P2-C05-5	39.2 U	39.2 U	39.2 U	3.9 U	3.9 U	1.6 U	1.6 J	0.9 U
A6P2-C05-6	39.1 U	39.1 U	42.1 J	3.9 U	3.9 U	1.6 U	0.8 U	0.8 U
A6P2-C05-7	39.3 U	39.3 U	39.3 U	3.9 U	3.9 U	1.6 U	0.8 U	0.8 U
A6P2-C05-7-D	37.4 U	37.4 U	37.4 U	3.7 U	3.7 U	1.5 U	0.9 U	0.9 U
A6P2-C05-10	37.8 U	37.8 U	37.8 U	3.8 U	3.8 U	1.5 U	1 U	1 U
A6P2-C05-11	41.4 U	41.4 U	41.4 U	4.1 U	4.1 U	1.7 U	1.4 U	1.4 U
A6P2-C05-12	39.7 U	39.7 U	39.7 U	4 U	4 U	1.6 U	1.2 U	1.2 U
A6P2-C05-13	38.1 U	38.1 U	38.1 U	3.8 U	3.8 U	1.5 U	0.8 U	0.8 U
A6P2-C05-15	226 -	318 J	638 J	3.5 U	3.5 U	1.4 U	1.4 U	1.4 U
A6P2-C05-16	40.8 U	40.8 U	40.8 U	4.1 U	4.1 U	1.6 U	1.2 U	1.2 U
Limit	20000	5000	10000	130	130	15	410	3600
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%	90%	90%	90%	90%	90%
Max. Result	226	318	638	4.2 U	4.2 U	1.7 U	1.6	1.5 U
Max. >= Limit	No	No	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--	--	--
Sample Size	--	--	--	--	--	--	--	--
Nondetects	--	--	--	--	--	--	--	--
% Nondetects	--	--	--	--	--	--	--	--
Est. Mean*	--	--	--	--	--	--	--	--
UCL	--	--	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7STSA-C01-1	0.85 -	0.776 J	0.782 J	0.776 J	3.17 U
A7STSA-C01-2	1.12 -	1.21 J	1.25 J	1.21 J	5.77 J
A7STSA-C01-4	0.879 -	1.02 J	0.98 J	1.02 J	19.9 J
A7STSA-C01-5	0.953 -	0.985 J	0.973 J	0.985 J	5.07 J
A7STSA-C01-7	1.16 -	1.13 J	1.12 J	1.13 J	8.02 J
A7STSA-C01-8	1.19 -	1.14 J	1.17 J	1.14 J	12.5 J
A7STSA-C01-9	0.962 -	0.911 J	0.937 J	0.911 J	5.55 J
A7STSA-C01-10	1.23 -	1.19 J	1.19 J	1.19 J	14 J
A7STSA-C01-12	0.96 -	1.12 J	1.15 J	1.12 J	14.1 J
A7STSA-C01-13	1.08 -	1.07 J	1.04 J	1.07 J	4.96 J
A7STSA-C01-14	1.14 -	1.25 J	1.26 J	1.25 J	13.8 J
A7STSA-C01-16	1.01 -	0.962 J	0.969 J	0.962 J	11.4 J
A7STSA-C01-16-D	0.979 -	1.23 J	1.21 J	1.23 J	15.2 J
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.23	1.25	1.26	1.25	19.9
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--
Test Procedure	--	--	--	--	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	1
% Nondetects	0%	0%	0%	0%	8%
Est. Mean*	--	--	--	--	--
UCL	--	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7STSA-C02-2	1.51 J	1.42 J	1.53 -	1.42 J	4.31 J
A7STSA-C02-3	0.896 J	0.635 J	0.624 -	0.635 J	2.78 U
A7STSA-C02-4	1.17 J	1.13 J	1.12 -	1.13 J	5.98 J
A7STSA-C02-5	1.48 J	1.33 J	1.34 -	1.33 J	3.96 U
A7STSA-C02-7	1.42 J	1.41 J	1.41 -	1.41 J	4.46 J
A7STSA-C02-8	0.85 J	0.704 J	0.733 -	0.704 J	3.36 U
A7STSA-C02-9	1.63 J	1.3 J	1.28 -	1.3 J	3.82 U
A7STSA-C02-9-D	1.8 J	1.29 J	1.27 -	1.29 J	7.77 J
A7STSA-C02-10	1.21 J	1.14 J	1.15 -	1.14 J	3.6 J
A7STSA-C02-11	1.79 J	1.37 J	1.37 -	1.37 J	4.97 J
A7STSA-C02-13	1.72 J	1.35 J	1.35 -	1.35 J	4.16 U
A7STSA-C02-14	1.16 J	1 J	1.06 -	1 J	4.11 U
A7STSA-C02-15	1.56 J	1.29 J	1.21 -	1.29 J	5.55 J
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.8	1.42	1.53	1.42	7.77
Max. >= Limit	Yes	No	No	No	No
W-statistic Prob. #	44.4% (N)	--	--	--	--
Test Procedure	Normal	--	--	--	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	6
% Nondetects	0%	0%	0%	0%	50%
Est. Mean*	1.38	--	--	--	--
UCL	1.55	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	pass	--	--	--	--
a posteriori Sample Size calculation	8 Pass	-- --	-- --	-- --	-- --

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7STSA-C03-1	0.811 -	0.867 -	0.846 -	0.867 -	11.7 -
A7STSA-C03-3	1.06 -	0.802 -	0.756 -	0.802 -	7.6 -
A7STSA-C03-3-D	1 -	0.885 -	0.883 -	0.885 -	8.9 -
A7STSA-C03-4	1.14 -	0.856 -	0.812 -	0.856 -	6.89 -
A7STSA-C03-5	0.695 -	0.662 -	0.626 -	0.662 -	7.82 -
A7STSA-C03-6	0.786 -	0.677 -	0.67 -	0.677 -	7.48 -
A7STSA-C03-8	0.795 -	0.781 -	0.811 -	0.781 -	4.26 -
A7STSA-C03-9	1.15 -	1.2 -	1.33 -	1.2 -	7.63 -
A7STSA-C03-11	1.43 -	1.17 -	1.17 -	1.17 -	7.98 -
A7STSA-C03-12	0.946 -	0.831 -	0.847 -	0.831 -	6.78 -
A7STSA-C03-13	0.834 -	0.714 -	0.654 -	0.714 -	3.11 U
A7STSA-C03-14	1.05 -	0.903 -	0.903 -	0.903 -	5.65 -
A7STSA-C03-16	1.11 -	0.803 -	0.772 -	0.803 -	3.65 J
Limit	1.7	1.8	1.7	1.5	20
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.43	1.2	1.33	1.2	11.7
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--
Test Procedure	--	--	--	--	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	1
% Nondetects	0%	0%	0%	0%	8%
Est. Mean*	--	--	--	--	--
UCL	--	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7STSA-C04-1	1.05 -	0.792 J	0.754 -	0.792 J	6.9 -
A7STSA-C04-2	1.1 -	0.794 J	0.74 -	0.794 J	14.3 -
A7STSA-C04-3	1.05 -	0.932 J	0.931 -	0.932 J	2.59 J
A7STSA-C04-5	0.933 -	0.61 J	0.578 -	0.61 J	7.7 -
A7STSA-C04-6	1.08 -	0.673 J	0.701 -	0.673 J	7.43 -
A7STSA-C04-7	1.15 -	0.785 J	0.81 -	0.785 J	8.48 -
A7STSA-C04-7-D	1.26 -	0.942 J	0.906 -	0.942 J	6.39 -
A7STSA-C04-9	1.49 -	0.768 J	0.801 -	0.768 J	12.9 -
A7STSA-C04-10	1.17 -	0.793 J	0.758 -	0.793 J	6.73 -
A7STSA-C04-11	1.26 -	0.859 J	0.871 -	0.859 J	8.86 -
A7STSA-C04-13	0.974 -	0.977 J	0.982 -	0.977 J	11.6 -
A7STSA-C04-15	1.22 -	0.827 J	0.742 -	0.827 J	12 -
A7STSA-C04-16	1.44 -	1.12 J	1.16 -	1.12 J	9.59 -
Limit	1.7	1.8	1.7	1.5	20
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.49	1.12	1.16	1.12	14.3
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--
Test Procedure	--	--	--	--	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%
Est. Mean*	--	--	--	--	--
UCL	--	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7STSA-C05-1	0.961 J	0.706 J	0.685 -	0.706 J	4.51 -
A7STSA-C05-2	1.72 J	1.22 J	1.17 -	1.22 J	7.48 -
A7STSA-C05-3	1.4 J	1.35 J	1.39 -	1.35 J	7.53 -
A7STSA-C05-5	1.32 J	1.05 J	1.04 -	1.05 J	7.39 -
A7STSA-C05-6	1.7 J	1.26 J	1.2 -	1.26 J	4.5 -
A7STSA-C05-8	1.22 J	1.04 J	0.979 -	1.04 J	8.34 -
A7STSA-C05-9	1.68 J	1.45 J	1.56 -	1.45 J	7.08 -
A7STSA-C05-11	1.45 J	1.37 J	1.52 -	1.37 J	9.68 -
A7STSA-C05-12	1.56 J	1.15 J	1.14 -	1.15 J	7.07 -
A7STSA-C05-13	1.58 J	1.13 J	1.12 -	1.13 J	10.1 -
A7STSA-C05-14	1.57 J	1.27 J	1.25 -	1.27 J	5.81 -
A7STSA-C05-14-D	1.29 J	1.51 J	1.45 -	1.51 J	6.74 -
A7STSA-C05-15	1.26 J	1.06 J	1.12 -	1.06 J	14.3 -
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.72	1.51	1.56	1.51	14.3
Max. >= Limit	Yes	No	No	Yes	No
W-statistic Prob. #	41.4% (N)	--	--	61.6% (N)	--
Test Procedure	Normal	--	--	Normal	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%
Est. Mean*	1.45	--	--	1.19	--
UCL	1.57	--	--	1.31	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	pass	--	--	pass	--
a posteriori Sample Size calculation	7 Pass	-- --	-- --	5 Pass	-- --

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7STSA-C06-2	1.17 -	0.89 J	0.836 -	0.89 J	5.09 -
A7STSA-C06-3	1.13 -	1.09 J	1.23 -	1.09 J	6.5 -
A7STSA-C06-4	0.635 -	0.518 J	0.56 -	0.518 J	5.72 -
A7STSA-C06-5	1.09 -	0.942 J	0.949 -	0.942 J	9.12 -
A7STSA-C06-6	0.968 -	0.795 -	0.752 -	0.795 -	17.8 -
A7STSA-C06-8	1.23 -	0.951 -	0.917 -	0.951 -	8.96 -
A7STSA-C06-10	0.908 -	0.655 J	0.664 -	0.655 J	9.56 -
A7STSA-C06-11	1.11 -	0.851 J	0.828 -	0.851 J	5.63 J
A7STSA-C06-12	0.962 -	0.865 J	0.854 -	0.865 J	3.71 U
A7STSA-C06-13	0.981 -	1.08 J	1.03 -	1.08 J	7.64 -
A7STSA-C06-13-D	0.922 -	0.862 J	0.881 -	0.862 J	9.41 -
A7STSA-C06-14	1.23 -	1.14 -	1.19 -	1.14 -	9.73 -
A7STSA-C06-16	0.94 -	0.913 -	0.913 -	0.913 -	16.6 -
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.23	1.14	1.23	1.14	17.8
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--
Test Procedure	--	--	--	--	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	1
% Nondetects	0%	0%	0%	0%	8%
Est. Mean*	--	--	--	--	--
UCL	--	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7STSA-C07-1	0.905 -	0.886 J	0.894 -	0.886 J	8.96 -
A7STSA-C07-1-D	1.02 -	0.953 J	0.963 -	0.953 J	9.09 -
A7STSA-C07-3	1 -	0.841 J	0.774 J	0.841 J	12.4 -
A7STSA-C07-4	1.92 -	0.857 J	0.838 -	0.857 J	5.07 -
A7STSA-C07-5	0.883 -	0.854 J	0.865 -	0.854 J	10.7 -
A7STSA-C07-7	0.932 -	0.747 J	0.756 -	0.747 J	7.33 -
A7STSA-C07-8	1.32 -	0.921 -	0.907 -	0.921 -	11.1 -
A7STSA-C07-9	1.5 -	1.29 J	1.35 J	1.29 J	7.81 -
A7STSA-C07-11	0.895 -	0.815 J	0.802 J	0.815 J	3.45 J
A7STSA-C07-12	1.02 -	0.928 J	0.937 J	0.928 J	9.03 -
A7STSA-C07-13	0.797 -	0.816 J	0.827 -	0.816 J	11.6 -
A7STSA-C07-14	1.09 -	0.707 -	0.768 -	0.707 -	12.2 -
A7STSA-C07-16	1.33 -	0.838 J	0.863 -	0.838 J	10.4 -
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.92	1.29	1.35	1.29	12.4
Max. >= Limit	Yes	No	No	No	No
W-statistic Prob. #	36.1% (LN)	--	--	--	--
Test Procedure	Lognormal	--	--	--	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%
Est. Mean*	1.14	--	--	--	--
UCL	1.32	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	pass	--	--	--	--
a posteriori Sample Size calculation	4 Pass	-- --	-- --	-- --	-- --

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS, AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs			
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Cesium-137	Lead-210	Technetium-99	Thorium-230
A7-C-AR1	1.27 -	1.19 -	1.23 -	1.19 -	2.9 J	0.0478 U	1.3 J	0.814 U	1.36 J
A7-C-AR10	0.894 -	0.848 -	0.907 -	0.848 -	2.75 J	0.0539 U	0.828 J	0.809 U	0.922 J
A7-C-AR11	0.922 -	0.823 -	0.856 -	0.823 -	5.05 J	0.0552 U	0.86 U	0.758 U	0.957 J
A7-C-AR12	0.846 -	0.92 -	0.921 -	0.92 -	3.72 J	0.0522 U	0.762 U	0.769 U	0.974 J
A7-C-AR13	0.846 -	0.754 -	0.795 -	0.754 -	5.51 J	0.0477 U	1.36 J	0.831 U	1.16 J
A7-C-AR15	0.952 -	0.731 -	0.746 -	0.731 -	2.92 J	0.0537 U	0.877 U	0.844 U	0.867 J
A7-C-AR16	1.23 -	1.23 -	1.37 -	1.23 -	12.1 -	0.0605 U	0.976 U	0.784 U	1.13 J
A7-C-AR3	1.38 -	1.31 -	1.36 -	1.31 -	4.51 J	0.0515 U	0.836 U	0.809 U	1.24 J
A7-C-AR4	1.32 -	1.27 -	1.36 -	1.27 -	9.15 J	0.056 U	0.967 J	0.795 U	1.09 J
A7-C-AR5	1.29 -	1.18 -	1.26 -	1.18 -	5.22 J	0.0523 U	1.13 J	0.792 U	1.73 J
A7-C-AR7	0.851 -	0.812 -	0.892 -	0.812 -	3.29 J	0.0482 U	0.762 U	0.784 U	0.65 J
A7-C-AR7D	0.8 -	0.76 -	0.813 -	0.76 -	6.04 J	0.0497 U	1.03 -	0.797 U	1.11 J
A7-C-AR8	0.899 -	0.817 -	0.854 -	0.817 -	2.96 J	0.0475 U	1.49 -	0.766 U	1.05 J
Limit	1.7	1.8	1.7	1.5	82	1.4	38	30	280
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g	pCi/g	pCi/g	pCi/g
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%	90%
Max. Result	1.38	1.31	1.37	1.31	12.1	0.0605	1.49	0.844	1.73
Max. >= Limit	No	No	No	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--	--	--	--
Sample Size	12	12	12	12	12	12	12	12	12
Nondetects	0	0	0	0	0	12	6	12	0
% Nondetects	0%	0%	0%	0%	0%	100%	50%	100%	0%
Est. Mean*	--	--	--	--	--	--	--	--	--
UCL	--	--	--	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--	--	--	--

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS, AND FINAL STATISTICS TABLES**

Sample ID	Secondary COCs						
	Aroclor-1254	Aroclor-1260	Arsenic	Beryllium	Dieldrin	Lead	Manganese
A7-C-AR1	3.8 U	3.8 U	15.8 J	0.838 -	1.5 U	15.6 J	248 J
A7-C-AR10	4.7 -	3.1 J	6.13 J	0.7 -	1.6 U	10.8 J	449 J
A7-C-AR11	2.8 J	3.7 U	7.02 J	0.491 -	1.5 U	9.91 J	503 -
A7-C-AR12	0.6 J	3.6 U	6.42 J	0.615 -	1.5 U	11.6 J	389 J
A7-C-AR13	3.7 U	3.7 U	4.6 J	0.6 -	1.5 U	10.4 J	511 -
A7-C-AR15	3.7 U	3.7 U	12.3 J	0.568 -	1.5 U	9.19 J	458 J
A7-C-AR16	1.2 J	3.8 U	5.49 J	0.578 -	1.5 U	20.7 J	410 J
A7-C-AR3	3.9 U	3.9 U	8.46 J	1.07 -	1.6 U	18.3 J	856 -
A7-C-AR4	2.6 J	3.7 U	5.34 J	0.601 -	1.5 U	18.3 J	306 J
A7-C-AR5	1.5 J	4 U	6.04 J	0.66 -	1.6 U	10.6 J	558 -
A7-C-AR7	3.6 U	3.6 U	4.27 J	0.553 -	1.5 U	8.14 J	494 -
A7-C-AR7D	0.6 J	3.6 U	6.09 J	0.583 -	1.4 U	10.3 J	440 J
A7-C-AR8	1.3 J	3.4 U	3.43 J	0.407 -	1.4 U	7.18 J	424 J
Limit	130	130	12	1.5	15	400	4600
Units	ug/kg	ug/kg	mg/kg	mg/kg	ug/kg	mg/kg	mg/kg
Conf. Level	90%	90%	90%	90%	90%	90%	90%
Max. Result	4.7	3.1	15.8	1.07	1.6	18.3	856
Max. >= Limit	No	No	Yes	No	No	No	No
W-statistic Prob. #	--	--	38.8% (LN)	--	--	--	--
Test Procedure	--	--	Lognormal	--	--	--	--
Sample Size	12	12	12	12	12	12	12
Nondetects	5	11	0	0	12	0	0
% Nondetects	42%	92%	0%	0%	100%	0%	0%
Est. Mean*	--	--	7.02	--	--	--	--
UCL	--	--	8.39	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--
Pass / Fail	--	--	pass	--	--	--	--
a posteriori Sample Size calculation	--	--	3 Pass	--	--	--	--

**APPENDIX A.1  
CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Aroclor-1254
A7SAR-C01-1	1.08 -	0.865 -	0.864 -	0.865 -	2.88 J	7.7 J
A7SAR-C01-2	1.7 J	1.38 -	1.39 -	1.38 -	7.45 -	4.2 U
A7SAR-C01-4	1.38 J	1.11 -	1.11 -	1.11 -	4.33 -	4 U
A7SAR-C01-4-D	1.03 J	0.979 -	0.98 -	0.979 -	3.7 U	4 U
A7SAR-C01-6	1.17 -	1.06 -	1.03 -	1.06 -	4.77 -	4 U
A7SAR-C01-7	1.24 -	1.1 -	1.08 -	1.1 -	6.72 -	3.8 U
A7SAR-C01-8	1 -	0.867 -	0.854 -	0.867 -	7.84 -	3.8 U
A7SAR-C01-9	0.996 -	0.834 -	0.856 -	0.834 -	7.1 -	3.9 U
A7SAR-C01-10	1.05 -	0.941 -	0.91 -	0.941 -	4.98 -	4 U
A7SAR-C01-12	1.16 -	0.862 -	0.862 -	0.862 -	8.54 -	3.8 U
A7SAR-C01-13	1.19 -	1.04 -	1.02 -	1.04 -	4.3 -	20 -
Limit	1.7	1.8	1.7	1.5	82	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.7	1.38	1.39	1.38	8.54	20
Max. >= Limit	Yes	No	No	No	No	No
W-statistic Prob. #	47.3% (LN)	--	--	--	--	--
Test Procedure	Lognormal	--	--	--	--	--
Sample Size	13	10	10	10	10	10
Nondetects	0	0	0	0	1	8
% Nondetects	0%	0%	0%	0%	10%	80%
Est. Mean*	1.14	--	--	--	--	--
UCL	1.26	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	pass	--	--	--	--	--
a posteriori Sample Size calculation	3 Pass	-- --	-- --	-- --	-- --	-- --

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Aroclor-1254
A7SAR-C02-1	1.68 -	1.21 -	1.24 -	1.21 -	6.19 -	4.1 U
A7SAR-C02-3	1 -	0.991 -	0.989 -	0.991 -	4.8 -	3.9 U
A7SAR-C02-4	1.03 -	1.19 -	1.17 -	1.19 -	5.06 -	4 U
A7SAR-C02-5	1.12 -	1.16 -	1.16 -	1.16 -	6.91 -	4 U
A7SAR-C02-7	0.993 -	0.979 -	0.958 -	0.979 -	13.1 -	22.6 J
A7SAR-C02-7-D	1 -	1.01 -	0.987 -	1.01 -	15.1 -	13.8 J
A7SAR-C02-8	0.839 -	0.859 -	0.856 -	0.859 -	4.63 -	3.8 U
A7SAR-C02-9	1.22 -	0.948 -	0.921 -	0.948 -	10.9 -	9.9 J
A7SAR-C02-10	0.331 -	0.202 -	0.201 -	0.202 -	2.72 J	3.6 U
A7SAR-C02-11	1.03 -	0.937 -	0.95 -	0.937 -	12.3 -	7.6 J
A7SAR-C02-13	1.17 -	1.23 -	1.22 -	1.23 -	12.1 -	4.1 U
Limit	1.7	1.8	1.7	1.5	82	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.68	1.23	1.24	1.23	15.1	22.6
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--
Sample Size	10	10	10	10	10	10
Nondetects	0	0	0	0	0	7
% Nondetects	0%	0%	0%	0%	0%	70%
Est. Mean*	--	--	--	--	--	--
UCL	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Aroclor-1254
A7SAR-C03-1	1.27 -	1.11 J	1.13 J	1.11 J	7.11 J	11.3 J
A7SAR-C03-3	1.2 -	1.21 J	1.23 J	1.21 J	6.88 J	4 U
A7SAR-C03-3-D	1.29 -	1.03 J	1.1 J	1.03 J	10.1 J	4.2 U
A7SAR-C03-4	1.57 -	1.07 J	1.11 J	1.07 J	20.8 J	4.4 U
A7SAR-C03-5	1.02 -	0.947 J	0.939 J	0.947 J	5.3 J	3.9 U
A7SAR-C03-6	0.731 -	0.723 J	0.743 J	0.723 J	3.19 J	3.8 U
A7SAR-C03-7	1.1427 -	0.915 -	0.927 -	0.915 -	14.2 -	4 U
A7SAR-C03-8	0.814 -	0.907 J	0.923 J	0.907 J	7.25 J	5.3 U
A7SAR-C03-9	1.52 -	1.13 J	1.13 J	1.13 J	3.87 J	4.5 U
A7SAR-C03-11	0.576 -	0.777 J	0.894 J	0.777 J	24.9 J	16 J
A7SAR-C03-12	1.03 -	0.994 J	1.02 J	0.994 J	23.2 J	3.8 U
A7SAR-C03-13	1.15 -	1.11 J	1.12 J	1.11 J	4.12 J	4.1 U
A7SAR-C03-14	0.974 -	0.869 J	0.911 J	0.869 J	8.27 J	3.8 U
A7SAR-C03-16	0.746 -	0.611 J	0.626 J	0.611 J	4.92 J	4 U
A7SAR-CSTA-3	1.28 -	1.12 -	1.12 -	1.12 -	7.34 -	4.1 U
A7SAR-CSTA-4	1.31 -	1.17 -	1.17 -	1.17 -	8.22 -	4.1 U
A7SAR-CSTA-5	0.994 -	0.81 -	0.753 -	0.81 -	15.6 -	5.6 J
A7SAR-CSTA-6	1.23 -	1.13 -	1.15 -	1.13 -	9.47 -	4.2 U
A7SAR-CSTA-7	1.21 -	1.04 -	1.04 -	1.04 -	7.97 -	4 U
A7SAR-CSTA-8	1.20 -	0.954 -	0.95 -	0.954 -	10.8 -	4 U
A7SAR-CSTA-9	1.11 -	0.925 -	0.912 -	0.925 -	11.5 -	3.8 U
Limit	1.7	1.8	1.7	1.5	82	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.57	1.21	1.23	1.21	24.9	16
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--
Sample Size	20	20	20	20	20	20
Nondetects	--	--	--	--	--	--
% Nondetects	--	--	--	--	--	--
Est. Mean*	--	--	--	--	--	--
UCL	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7SAR-C04-2	0.817 J	0.86 J	0.865 J	0.86 J	4.39 J
A7SAR-C04-3	0.932 J	0.959 J	0.939 J	0.959 J	17.5 J
A7SAR-C04-4	1.21 J	1.1 J	1.08 J	1.1 J	7.12 J
A7SAR-C04-5	0.795 J	0.682 J	0.692 J	0.682 J	2.1 U
A7SAR-C04-5-D	1.08 J	0.86 J	0.859 J	0.86 J	6.21 J
A7SAR-C04-6	0.974 J	0.812 J	0.847 J	0.812 J	5.64 J
A7SAR-C04-7	1.06 J	1.11 J	1.1 J	1.11 J	9.41 J
A7SAR-C04-10	1.03 J	1.17 J	1.15 J	1.17 J	9.75 J
A7SAR-C04-12	1.27 J	1.42 J	1.41 J	1.42 J	5.84 J
A7SAR-C04-13	0.864 J	1.23 J	1.22 J	1.23 J	8.07 J
A7SAR-C04-14	0.836 J	0.976 J	0.949 J	0.976 J	15.9 J
A7SAR-C04-16	1.03 J	1.06 J	1.07 J	1.06 J	4.07 J
A7SAR-CSTA-1	1.31 -	1.15 -	1.17 -	1.15 -	9.03 -
A7SAR-CSTA-2	1.20 -	0.954 -	0.962 -	0.954 -	6.66 -
A5-CH-4	1.44 J	1.29 J	1.28 J	1.29 J	13.5 J
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.31	1.42	1.41	1.42	17.5
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--
Test Procedure	--	--	--	--	--
Sample Size	14	14	14	14	14
Nondetects	0	0	0	0	1
% Nondetects	0%	0%	0%	0%	7%
Est. Mean*	--	--	--	--	--
UCL	--	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs		
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Beryllium	Aroclor-1254	Aroclor-1260
A7SAR-C05-1	1.07 -	0.889 -	0.885 -	0.889 -	5.95 -	0.75 -	4 U	4 U
A7SAR-C05-2	1.14 -	1.05 -	1.07 -	1.05 -	7.81 -	0.87 -	4 U	4 U
A7SAR-C05-2-D	1.09 -	1.11 -	1.13 -	1.11 -	6.51 -	0.79 -	4 U	4 U
A7SAR-C05-3	0.851 -	0.877 -	0.866 -	0.877 -	4.45 -	0.9 -	3.9 U	3.9 U
A7SAR-C05-5	0.735 -	0.745 -	0.731 -	0.745 -	2.5 U	0.66 -	3.8 U	3.8 U
A7SAR-C05-7	0.986 -	0.873 -	0.869 -	0.873 -	4.48 -	1.4 -	3.9 U	3.9 U
A7SAR-C05-8	1.25 -	1.11 -	1.12 -	1.11 -	4.26 -	1.7 -	4 U	4 U
A7SAR-C05-10	1.03 -	1.32 -	1.3 -	1.32 -	6.71 -	1.8 -	4.3 U	4.3 U
A7SAR-C05-11	1.03 -	0.939 -	0.916 -	0.939 -	10.4 -	0.77 -	3.9 U	3.9 U
A7SAR-C05-12	1.47 -	1.27 -	1.28 -	1.27 -	9.89 -	0.64 -	4.1 U	4.1 U
A7SAR-C05-13	0.925 -	1.08 -	1.07 -	1.08 -	7.15 -	0.78 -	4.1 U	4.1 U
A7SAR-C05-15	0.73 -	0.503 -	0.478 -	0.503 -	3.84 J	0.44 -	3.6 U	3.6 U
A7SAR-C05-16	1.09 -	1.1 -	1.08 -	1.1 -	7.03 -	0.81 -	3.9 U	3.9 U
Limit	1.7	1.8	1.7	1.5	82	1.5	130	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	ug/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%
Max. Result	1.47	1.32	1.3	1.32	10.4	1.8	4.3 U	4.3 U
Max. >= Limit	No	No	No	No	No	Yes	No	No
W-statistic Prob. #	--	--	--	--	--	17.0% (LN)	--	--
Test Procedure	--	--	--	--	--	Lognormal	--	--
Sample Size	12	12	12	12	12	12	12	12
Nondetects	0	0	0	0	1	0	12	12
% Nondetects	0%	0%	0%	0%	8%	0%	100%	100%
Est. Mean*	--	--	--	--	--	0.95	--	--
UCL	--	--	--	--	--	1.12	--	--
Prob. > Limit	--	--	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	pass	--	--
a posteriori Sample Size calculation	--	--	--	--	--	4	--	--
	--	--	--	--	--	Pass	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7SAR-C06-1	1.2 J	1.01 -	1.03 -	1.01 -	26.1 -
A7SAR-C06-2	1.57 J	1.18 -	1.19 -	1.18 -	4.3 U
A7SAR-C06-3	1.3 J	1.14 -	1.19 -	1.14 -	10.3 -
A7SAR-C06-5	0.414 J	0.429 -	0.418 -	0.429 -	2.53 U
A7SAR-C06-6	1.19 J	0.797 -	0.79 -	0.797 -	3.5 U
A7SAR-C06-6-D	0.925 J	0.718 -	0.693 -	0.718 -	5.56 J
A7SAR-C06-8	1.36 J	1.06 -	1.1 -	1.06 -	15.9 -
A7SAR-C06-9	1.17 J	0.981 -	0.973 -	0.981 -	28.2 -
A7SAR-C06-11	1.26 J	1.06 -	1 -	1.06 -	19.2 -
A7SAR-C06-12	1.2 J	0.966 -	1.01 -	0.966 -	25.3 -
A7SAR-C06-13	1.22 J	1.16 -	1.23 -	1.16 -	12.3 -
A7SAR-C06-14	1.09 J	0.842 -	0.849 -	0.842 -	4.39 -
A7SAR-C06-15	1.08 J	0.748 -	0.799 -	0.748 -	14.5 -
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.57	1.18	1.23	1.18	28.2
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--
Test Procedure	--	--	--	--	--
Sample Size	12	12	12	12	12
Nondetects	0	0	0	0	2
% Nondetects	0%	0%	0%	0%	17%
Est. Mean*	--	--	--	--	--
UCL	--	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--

**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs				
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A7SAR-C07-2	0.786 -	0.55 -	0.559 -	0.55 -	5.31 -
A7SAR-C07-3	0.851 -	0.694 -	0.68 -	0.694 -	7 -
A7SAR-C07-3-D	0.769 -	0.685 -	0.716 -	0.685 -	7.35 -
A7SAR-C07-4	1.01 -	0.955 -	0.952 -	0.955 -	4.7 J
A7SAR-C07-6	1.47 -	1.31 -	1.35 -	1.31 -	13.1 -
A7SAR-C07-7	0.565 -	0.454 -	0.448 -	0.454 -	9.73 -
A7SAR-C07-8	1.21 -	1.1 -	1.09 -	1.1 -	8.67 -
A7SAR-C07-9	0.784 -	0.63 -	0.604 -	0.63 -	2.69 U
A7SAR-C07-10	1.01 -	0.887 -	0.867 -	0.887 -	22 -
A7SAR-C07-12	1.32 -	1.21 -	1.25 -	1.21 -	8.59 -
A7SAR-C07-13	1.49 -	1.2 -	1.19 -	1.2 -	6.82 -
A7SAR-C07-15	1.48 -	1.29 -	1.26 -	1.29 -	6.95 J
A7SAR-C07-16	1.23 -	1.12 -	1.1 -	1.12 -	10.6 -
A7-SA5-C1	0.747 -	0.627 -	0.722 -	0.627 -	3.23 U
A7-SA5-C2	0.878 -	0.689 -	0.687 -	0.689 -	3.62 U
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.49	1.31	1.35	1.31	22
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--
Test Procedure	--	--	--	--	--
Sample Size	13	13	13	13	13
Nondetects	0	0	0	0	2
% Nondetects	0%	0%	0%	0%	15%
Est. Mean*	--	--	--	--	--
UCL	--	--	--	--	--
Prob. > Limit	--	--	--	--	--
Pass / Fail	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--

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**APPENDIX A.1**  
**CERTIFICATION SAMPLES, ANALYTICAL RESULTS AND FINAL STATISTICS TABLES**

Sample ID	Primary COCs					Secondary COCs
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Beryllium
A7SAR-C08-1	0.819 J	1.09 J	1.13 J	1.09 J	13.9 -	0.71 -
A7SAR-C08-3	1.4 -	1.12 -	1.08 -	1.12 -	6.48 -	1.31 -
A7SAR-C08-4	0.838 J	0.942 J	0.959 J	0.942 J	9.19 -	0.39 -
A7SAR-C08-5	0.774 J	0.957 J	0.968 J	0.957 J	9.79 -	0.42 -
A7SAR-C08-6	1.01 J	1.05 J	1.06 J	1.05 J	20.2 -	0.49 -
A7SAR-C08-8	1.21 J	1.06 J	1.03 J	1.06 J	8.25 -	0.85 -
A7SAR-C08-10	1.4 J	0.84 J	0.821 J	0.84 J	30.4 -	0.35 -
A7SAR-C08-11	1.07 J	1.21 J	1.23 J	1.21 J	23.1 -	0.69 -
A7SAR-C08-12	0.911 J	0.776 J	0.774 J	0.776 J	4.04 -	0.6 -
A7SAR-C08-12-D	1.22 J	1.01 J	1.01 J	1.01 J	4.82 -	0.53 -
A7SAR-C08-13	0.87 J	0.908 J	0.919 J	0.908 J	9.65 -	0.49 -
A7SAR-C08-14	0.552 J	0.508 J	0.491 J	0.508 J	11.1 -	0.38 -
A7SAR-C08-15	1.21 -	1.05 -	1.06 -	1.05 -	6.1 -	0.525 -
Limit	1.7	1.8	1.7	1.5	82	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.4	1.21	1.23	1.21	30.4	1.31
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--
Sample Size	12	12	12	12	12	12
Nondetects	0	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%	0%
Est. Mean*	--	--	--	--	--	--
UCL	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--
a posteriori Sample Size calculation	--	--	--	--	--	--

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**APPENDIX A.2**

**PRESENTATION OF UTILITY TRENCH DATA**

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-106	A7GA-T-106^RMP	1	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Aroclor-1254	3.9	U	ug/kg	130	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Aroclor-1254	4.2	U	ug/kg	130	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Aroclor-1254	4.2	U	ug/kg	130	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Aroclor-1254	11.6	U	ug/kg	130	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Aroclor-1254	28.3	UJ	ug/kg	130	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Aroclor-1254	3.9	J	ug/kg	130	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Aroclor-1254	3.5	U	ug/kg	130	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Aroclor-1254	12.3	U	ug/kg	130	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Aroclor-1254	11	U	ug/kg	130	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Aroclor-1254	12	U	ug/kg	130	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Aroclor-1254	12	U	ug/kg	130	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Aroclor-1260	3.9	U	ug/kg	130	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Aroclor-1260	4.2	U	ug/kg	130	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Aroclor-1260	4.2	U	ug/kg	130	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Aroclor-1260	11.6	U	ug/kg	130	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Aroclor-1260	28.3	UJ	ug/kg	130	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Aroclor-1260	3.5	U	ug/kg	130	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Aroclor-1260	3.5	U	ug/kg	130	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Aroclor-1260	12.3	U	ug/kg	130	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Aroclor-1260	11	U	ug/kg	130	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Aroclor-1260	12	U	ug/kg	130	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Aroclor-1260	12	U	ug/kg	130	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Beryllium	0.594	U	mg/kg	1.5	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Beryllium	1.02	-	mg/kg	1.5	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Beryllium	0.72	-	mg/kg	1.5	no	no

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**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-15	A7GA-T-15^RMP	1	Beryllium	0.71	-	mg/kg	1.5	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Beryllium	0.73	-	mg/kg	1.5	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Beryllium	0.72	-	mg/kg	1.5	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Beryllium	0.66	-	mg/kg	1.5	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Beryllium	0.29	U	mg/kg	1.5	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Beryllium	0.379	U	mg/kg	1.5	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Beryllium	0.46	-	mg/kg	1.5	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Beryllium	0.295	U	mg/kg	1.5	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Beryllium	0.527	-	mg/kg	1.5	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Beryllium	0.78	-	mg/kg	1.5	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Beryllium	0.232	U	mg/kg	1.5	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Beryllium	0.453	-	mg/kg	1.5	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Dieldrin	1.5	UJ	ug/kg	15	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Dieldrin	1.6	UJ	ug/kg	15	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Dieldrin	5.1	U	ug/kg	15	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Dieldrin	5	U	ug/kg	15	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Dieldrin	4.6	U	ug/kg	15	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Dieldrin	22.6	UJ	ug/kg	15	YES	no
A7GA-T-20	A7GA-T-20^RMP	1	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Dieldrin	1.4	U	ug/kg	15	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Dieldrin	1.4	U	ug/kg	15	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Dieldrin	4.9	U	ug/kg	15	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Dieldrin	4.4	U	ug/kg	15	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Dieldrin	1.6	U	ug/kg	15	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Dieldrin	1.6	U	ug/kg	15	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Radium-226	0.826	-	pCi/g	1.7	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Radium-226	0.895	-	pCi/g	1.7	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Radium-226	1.13	-	pCi/g	1.7	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Radium-226	0.944	-	pCi/g	1.7	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Radium-226	0.952	-	pCi/g	1.7	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Radium-226	1.52	-	pCi/g	1.7	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-18	A7GA-T-18^RMP	1	Radium-226	0.901	-	pCi/g	1.7	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Radium-226	0.56	-	pCi/g	1.7	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Radium-226	0.946	-	pCi/g	1.7	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Radium-226	0.544	J	pCi/g	1.7	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Radium-226	0.391	J	pCi/g	1.7	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Radium-226	1.02	-	pCi/g	1.7	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Radium-226	1.05	-	pCi/g	1.7	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Radium-226	0.828	-	pCi/g	1.7	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Radium-226	0.793	-	pCi/g	1.7	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Radium-228	0.593	-	pCi/g	1.8	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Radium-228	0.69	-	pCi/g	1.8	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Radium-228	0.775	-	pCi/g	1.8	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Radium-228	0.69	-	pCi/g	1.8	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Radium-228	0.737	-	pCi/g	1.8	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Radium-228	1.07	-	pCi/g	1.8	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Radium-228	0.719	-	pCi/g	1.8	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Radium-228	0.526	-	pCi/g	1.8	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Radium-228	0.612	-	pCi/g	1.8	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Radium-228	0.332	-	pCi/g	1.8	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Radium-228	0.262	-	pCi/g	1.8	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Radium-228	0.97	-	pCi/g	1.8	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Radium-228	0.995	-	pCi/g	1.8	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Radium-228	0.657	-	pCi/g	1.8	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Radium-228	0.635	-	pCi/g	1.8	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Thorium-228	0.573	-	pCi/g	1.7	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Thorium-228	0.693	-	pCi/g	1.7	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Thorium-228	0.784	-	pCi/g	1.7	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Thorium-228	0.675	-	pCi/g	1.7	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Thorium-228	0.757	-	pCi/g	1.7	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Thorium-228	1.09	-	pCi/g	1.7	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Thorium-228	0.746	-	pCi/g	1.7	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Thorium-228	0.545	-	pCi/g	1.7	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Thorium-228	0.605	-	pCi/g	1.7	no	no

**APPENDIX A.2**  
**ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-21	A7GA-T-21^RMP	1	Thorium-228	0.332	-	pCi/g	1.7	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Thorium-228	0.253	-	pCi/g	1.7	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Thorium-228	1.01	-	pCi/g	1.7	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Thorium-228	1.03	-	pCi/g	1.7	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Thorium-228	0.649	-	pCi/g	1.7	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Thorium-228	0.632	-	pCi/g	1.7	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Thorium-232	0.593	-	pCi/g	1.5	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Thorium-232	0.69	-	pCi/g	1.5	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Thorium-232	0.775	-	pCi/g	1.5	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Thorium-232	0.69	-	pCi/g	1.5	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Thorium-232	0.737	-	pCi/g	1.5	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Thorium-232	1.07	-	pCi/g	1.5	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Thorium-232	0.719	-	pCi/g	1.5	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Thorium-232	0.526	-	pCi/g	1.5	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Thorium-232	0.612	-	pCi/g	1.5	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Thorium-232	0.332	-	pCi/g	1.5	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Thorium-232	0.262	-	pCi/g	1.5	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Thorium-232	0.97	-	pCi/g	1.5	no	no
A7GA-T-5	A7GA-T-5^RMP	1	Thorium-232	0.995	-	pCi/g	1.5	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Thorium-232	0.657	-	pCi/g	1.5	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Thorium-232	0.635	-	pCi/g	1.5	no	no
A7GA-T-106	A7GA-T-106^RMP	1	Uranium, Total	4.82	-	mg/kg	82	no	no
A7GA-T-107	A7GA-T-107^RMP	1	Uranium, Total	6.08	-	mg/kg	82	no	no
A7GA-T-14	A7GA-T-14^RMP	1	Uranium, Total	4.92	-	mg/kg	82	no	no
A7GA-T-15	A7GA-T-15^RMP	1	Uranium, Total	1.89	J	mg/kg	82	no	no
A7GA-T-16	A7GA-T-16^RMP	1	Uranium, Total	4.63	-	mg/kg	82	no	no
A7GA-T-17	A7GA-T-17^RMP	1	Uranium, Total	5.04	-	mg/kg	82	no	no
A7GA-T-18	A7GA-T-18^RMP	1	Uranium, Total	3.77	-	mg/kg	82	no	no
A7GA-T-19	A7GA-T-19^RMP	1	Uranium, Total	5.52	-	mg/kg	82	no	no
A7GA-T-20	A7GA-T-20^RMP	1	Uranium, Total	3.08	J	mg/kg	82	no	no
A7GA-T-21	A7GA-T-21^RMP	1	Uranium, Total	1.97	J	mg/kg	82	no	no
A7GA-T-22	A7GA-T-22^RMP	1	Uranium, Total	2.31	J	mg/kg	82	no	no
A7GA-T-4	A7GA-T-4^RMP	1	Uranium, Total	5.12	-	mg/kg	82	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-5	A7GA-T-5^RMP	1	Uranium, Total	6.68	J	mg/kg	82	no	no
A7GA-T-8	A7GA-T-8^RMP	1	Uranium, Total	2.27	J	mg/kg	82	no	no
A7GA-T-9	A7GA-T-9^RMP	1	Uranium, Total	3.44	-	mg/kg	82	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Aroclor-1254	3.9	U	ug/kg	130	no	no
A7-SA4-T-27	A7-SA4-T-27^RP	2	Aroclor-1254	4	U	ug/kg	130	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Aroclor-1254	3.6	U	ug/kg	130	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Aroclor-1254	4	U	ug/kg	130	no	no
A7SSP-T-32	A7SSP-T-32^RMP	2	Aroclor-1254	4.5	J	ug/kg	130	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Aroclor-1254	4.2	U	ug/kg	130	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Aroclor-1254	4.3	U	ug/kg	130	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Aroclor-1254	3.9	U	ug/kg	130	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Aroclor-1254	3.6	U	ug/kg	130	no	no
A7SSP-T-37	A7SSP-T-37^RMP	2	Aroclor-1254	3.9	U	ug/kg	130	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Aroclor-1260	3.9	U	ug/kg	130	no	no
A7-SA4-T-27	A7-SA4-T-27^RP	2	Aroclor-1260	4	U	ug/kg	130	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Aroclor-1260	3.6	U	ug/kg	130	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Beryllium	0.54	-	mg/kg	1.5	no	no
A7SSP-T-32	A7SSP-T-32^RMP	2	Beryllium	0.623	-	mg/kg	1.5	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Beryllium	0.548	-	mg/kg	1.5	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Beryllium	0.72	-	mg/kg	1.5	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Beryllium	0.382	U	mg/kg	1.5	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Beryllium	0.39	U	mg/kg	1.5	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Beryllium	0.35	U	mg/kg	1.5	no	no
A7SSP-T-37	A7SSP-T-37^RMP	2	Beryllium	0.401	-	mg/kg	1.5	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Beryllium	0.12	J	mg/kg	1.5	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Radium-226	0.895	-	pCi/g	1.7	no	no
A7-SA4-T-27	A7-SA4-T-27^RP	2	Radium-226	0.992	-	pCi/g	1.7	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Radium-226	0.756	-	pCi/g	1.7	no	no
A7SSP-T-31	A7SSP-T-B-31^R	2	Radium-226	0.996	J	pCi/g	1.7	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Radium-226	0.941577	-	pCi/g	1.7	no	no
A7SSP-T-32	A7SSP-T-B-32^R	2	Radium-226	1.11	J	pCi/g	1.7	no	no

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**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7SSP-T-32	A7SSP-T-32^RMP	2	Radium-226	1.15323	-	pCi/g	1.7	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Radium-226	1.023711	-	pCi/g	1.7	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Radium-226	0.988	J	pCi/g	1.7	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Radium-226	0.789945	-	pCi/g	1.7	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Radium-226	1.07952	-	pCi/g	1.7	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Radium-226	0.770991	-	pCi/g	1.7	no	no
A7SSP-T-37	A7SSP-T-37^RMP	2	Radium-226	0.817323	-	pCi/g	1.7	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Radium-226	0.829959	-	pCi/g	1.7	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Radium-228	0.737	-	pCi/g	1.8	no	no
A7-SA4-T-27	A7-SA4-T-27^RP	2	Radium-228	0.778	-	pCi/g	1.8	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Radium-228	0.57	-	pCi/g	1.8	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Radium-228	0.585	-	pCi/g	1.8	no	no
A7SSP-T-32	A7SSP-T-32^RMP	2	Radium-228	0.877	-	pCi/g	1.8	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Radium-228	0.869	-	pCi/g	1.8	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Radium-228	0.882	-	pCi/g	1.8	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Radium-228	0.761	-	pCi/g	1.8	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Radium-228	0.75	-	pCi/g	1.8	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Radium-228	0.614	-	pCi/g	1.8	no	no
A7SSP-T-37	A7SSP-T-37^RMP	2	Radium-228	0.582	-	pCi/g	1.8	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Radium-228	0.772	-	pCi/g	1.8	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Technetium-99	0.952	U	pCi/g	30	no	no
A7-SA4-T-27	A7-SA4-T-27^RP	2	Technetium-99	0.81	U	pCi/g	30	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Technetium-99	0.897	U	pCi/g	30	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Technetium-99	0.889	U	pCi/g	30	no	no
A7SSP-T-32	A7SSP-T-32^RMP	2	Technetium-99	1.01	U	pCi/g	30	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Technetium-99	0.934	U	pCi/g	30	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Technetium-99	2.24	U	pCi/g	30	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Technetium-99	0.877	U	pCi/g	30	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Technetium-99	0.93	U	pCi/g	30	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Technetium-99	0.969	U	pCi/g	30	no	no
A7SSP-T-37	A7SSP-T-37^RMP	2	Technetium-99	0.891	U	pCi/g	30	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Technetium-99	0.924	U	pCi/g	30	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Thorium-228	0.758	-	pCi/g	1.7	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7-SA4-T-27	A7-SA4-T-27^RP	2	Thorium-228	0.773	-	pCi/g	1.7	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Thorium-228	0.559	-	pCi/g	1.7	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Thorium-228	0.587	-	pCi/g	1.7	no	no
A7SSP-T-32	A7SSP-T-32^RMP	2	Thorium-228	0.818	-	pCi/g	1.7	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Thorium-228	0.783	-	pCi/g	1.7	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Thorium-228	0.854	-	pCi/g	1.7	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Thorium-228	0.714	-	pCi/g	1.7	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Thorium-228	0.765	-	pCi/g	1.7	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Thorium-228	0.601	-	pCi/g	1.7	no	no
A7SSP-T-37	A7SSP-T-37^RMP	2	Thorium-228	0.551	-	pCi/g	1.7	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Thorium-228	0.827	-	pCi/g	1.7	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Thorium-232	0.737	-	pCi/g	1.5	no	no
A7-SA4-T-27	A7-SA4-T-27^RP	2	Thorium-232	0.778	-	pCi/g	1.5	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Thorium-232	0.57	-	pCi/g	1.5	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Thorium-232	0.585	-	pCi/g	1.5	no	no
A7SSP-T-32	A7SSP-T-32^RMP	2	Thorium-232	0.877	-	pCi/g	1.5	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Thorium-232	0.869	-	pCi/g	1.5	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Thorium-232	0.882	-	pCi/g	1.5	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Thorium-232	0.761	-	pCi/g	1.5	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Thorium-232	0.75	-	pCi/g	1.5	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Thorium-232	0.614	-	pCi/g	1.5	no	no
A7SSP-T-37	A7SSP-T-37^RMP	2	Thorium-232	0.582	-	pCi/g	1.5	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Thorium-232	0.772	-	pCi/g	1.5	no	no
A7-SA4-T-25	A7-SA4-T-25^RP	2	Uranium, Total	3.45	U	mg/kg	82	no	no
A7-SA4-T-27	A7-SA4-T-27^RP	2	Uranium, Total	3.37	U	mg/kg	82	no	no
A7-SA4-T-28	A7-SA4-T-28^RP	2	Uranium, Total	2.53	U	mg/kg	82	no	no
A7SSP-T-31	A7SSP-T-31^RMP	2	Uranium, Total	5.32	-	mg/kg	82	no	no
A7SSP-T-32	A7SSP-T-32^RMP	2	Uranium, Total	7.64	-	mg/kg	82	no	no
A7SSP-T-33	A7SSP-T-33^RMP	2	Uranium, Total	6.24	-	mg/kg	82	no	no
A7SSP-T-33	A7SSP-T-B-33^RMP	2	Uranium, Total	7.45	-	mg/kg	82	no	no
A7SSP-T-34	A7SSP-T-34^RMP	2	Uranium, Total	4.44	-	mg/kg	82	no	no
A7SSP-T-35	A7SSP-T-35^RMP	2	Uranium, Total	8.46	-	mg/kg	82	no	no
A7SSP-T-36	A7SSP-T-36^RMP	2	Uranium, Total	2.12	U	mg/kg	82	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7SSP-T-37	A7SSP-T-37^RMP	2	Uranium, Total	2.32	J	mg/kg	82	no	no
A7SSP-T-38	A7SSP-T-38^RMP	2	Uranium, Total	6.41	-	mg/kg	82	no	no
4A6-T-37	4A6-T-37^RMP	3	Aroclor-1254	3.8	U	ug/kg	130	no	no
4A6-T-56	4A6-T-56^RMP	3	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Aroclor-1254	3.7	U	ug/kg	130	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Aroclor-1254	3.6	U	ug/kg	130	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Aroclor-1254	3.6	U	ug/kg	130	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Aroclor-1254	3.6	U	ug/kg	130	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Aroclor-1254	3.5	J	ug/kg	130	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Aroclor-1254	3.9	U	ug/kg	130	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Aroclor-1254	3.7	U	ug/kg	130	no	no
4A6-T-37	4A6-T-37^RMP	3	Aroclor-1260	3.8	U	ug/kg	130	no	no
4A6-T-56	4A6-T-56^RMP	3	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Aroclor-1260	3.7	U	ug/kg	130	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Aroclor-1260	3.6	U	ug/kg	130	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Aroclor-1260	3.6	U	ug/kg	130	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Aroclor-1260	3.6	U	ug/kg	130	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Aroclor-1260	3.5	U	ug/kg	130	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Aroclor-1260	3.9	U	ug/kg	130	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Aroclor-1260	3.7	U	ug/kg	130	no	no
4A6-T-37	4A6-T-37^RMP	3	Beryllium	0.598	U	mg/kg	1.5	no	no
4A6-T-56	4A6-T-56^RMP	3	Beryllium	0.48	-	mg/kg	1.5	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Beryllium	0.657	U	mg/kg	1.5	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Beryllium	0.46	-	mg/kg	1.5	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Beryllium	0.37	-	mg/kg	1.5	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Beryllium	0.67	-	mg/kg	1.5	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Beryllium	0.41	-	mg/kg	1.5	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-80	A7GA-T-80^RMP	3	Beryllium	0.65	-	mg/kg	1.5	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Beryllium	0.51	-	mg/kg	1.5	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Beryllium	0.57	-	mg/kg	1.5	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Beryllium	0.56	-	mg/kg	1.5	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Dieldrin	1.4	U	ug/kg	15	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Dieldrin	1.6	U	ug/kg	15	no	no
4A6-T-37	4A6-T-37^RMP	3	Radium-226	1.11	-	pCi/g	1.7	no	no
4A6-T-56	4A6-T-56^RMP	3	Radium-226	0.753	-	pCi/g	1.7	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Radium-226	1.01	-	pCi/g	1.7	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Radium-226	0.916	-	pCi/g	1.7	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Radium-226	0.793	-	pCi/g	1.7	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Radium-226	0.913	-	pCi/g	1.7	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Radium-226	0.797	-	pCi/g	1.7	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Radium-226	0.944	-	pCi/g	1.7	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Radium-226	0.935	-	pCi/g	1.7	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Radium-226	0.849	-	pCi/g	1.7	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Radium-226	1.01	-	pCi/g	1.7	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Radium-226	0.824	-	pCi/g	1.7	no	no
4A6-T-37	4A6-T-37^RMP	3	Radium-228	0.803	-	pCi/g	1.8	no	no
4A6-T-56	4A6-T-56^RMP	3	Radium-228	0.762	J	pCi/g	1.8	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Radium-228	0.956	-	pCi/g	1.8	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Radium-228	1	-	pCi/g	1.8	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Radium-228	0.671	-	pCi/g	1.8	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Radium-228	0.915	-	pCi/g	1.8	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Radium-228	0.783	-	pCi/g	1.8	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Radium-228	1.01	-	pCi/g	1.8	no	no

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**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-81	A7GA-T-81^RMP	3	Radium-228	0.815	-	pCi/g	1.8	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Radium-228	0.798	-	pCi/g	1.8	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Radium-228	0.928	-	pCi/g	1.8	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Radium-228	0.688	-	pCi/g	1.8	no	no
4A6-T-37	4A6-T-37^RMP	3	Technetium-99	0.838	U	pCi/g	30	no	no
4A6-T-56	4A6-T-56^RMP	3	Technetium-99	1.76	U	pCi/g	30	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Technetium-99	0.827	U	pCi/g	30	no	no
4A6-T-37	4A6-T-37^RMP	3	Thorium-228	0.813	-	pCi/g	1.7	no	no
4A6-T-56	4A6-T-56^RMP	3	Thorium-228	0.758	J	pCi/g	1.7	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Thorium-228	0.981	-	pCi/g	1.7	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Thorium-228	0.99	-	pCi/g	1.7	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Thorium-228	0.639	-	pCi/g	1.7	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Thorium-228	0.889	-	pCi/g	1.7	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Thorium-228	0.801	-	pCi/g	1.7	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Thorium-228	1.01	-	pCi/g	1.7	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Thorium-228	0.8	-	pCi/g	1.7	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Thorium-228	0.821	-	pCi/g	1.7	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Thorium-228	0.95	-	pCi/g	1.7	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Thorium-228	0.681	-	pCi/g	1.7	no	no
4A6-T-37	4A6-T-37^RMP	3	Thorium-232	0.803	-	pCi/g	1.5	no	no
4A6-T-56	4A6-T-56^RMP	3	Thorium-232	0.762	J	pCi/g	1.5	no	no
A7GA-T-126	A7GA-T-126^RMP	3	Thorium-232	0.956	-	pCi/g	1.5	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Thorium-232	1	-	pCi/g	1.5	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Thorium-232	0.671	-	pCi/g	1.5	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Thorium-232	0.915	-	pCi/g	1.5	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Thorium-232	0.783	-	pCi/g	1.5	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Thorium-232	1.01	-	pCi/g	1.5	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Thorium-232	0.815	-	pCi/g	1.5	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Thorium-232	0.798	-	pCi/g	1.5	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Thorium-232	0.928	-	pCi/g	1.5	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Thorium-232	0.688	-	pCi/g	1.5	no	no
4A6-T-37	4A6-T-37^RMP	3	Uranium, Total	15.3	-	mg/kg	82	no	no
4A6-T-56	4A6-T-56^RMP	3	Uranium, Total	8.6	-	mg/kg	82	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-126	A7GA-T-126^RMP	3	Uranium, Total	8.92	-	mg/kg	82	no	no
A7GA-T-76	A7GA-T-76^RMP	3	Uranium, Total	10.1	-	mg/kg	82	no	no
A7GA-T-77	A7GA-T-77^RMP	3	Uranium, Total	6.62	-	mg/kg	82	no	no
A7GA-T-78	A7GA-T-78^RMP	3	Uranium, Total	11.6	-	mg/kg	82	no	no
A7GA-T-79	A7GA-T-79^RMP	3	Uranium, Total	6.25	-	mg/kg	82	no	no
A7GA-T-80	A7GA-T-80^RMP	3	Uranium, Total	2.93	-	mg/kg	82	no	no
A7GA-T-81	A7GA-T-81^RMP	3	Uranium, Total	10.8	-	mg/kg	82	no	no
A7GA-T-84	A7GA-T-84^RMP	3	Uranium, Total	3.34	J	mg/kg	82	no	no
A7GA-T-93	A7GA-T-93^RMP	3	Uranium, Total	3.62	J	mg/kg	82	no	no
A7-SA4-T-26	A7-SA4-T-26^RP	3	Uranium, Total	2.57	U	mg/kg	82	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Aroclor-1254	14.3	J	ug/kg	130	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Aroclor-1254	4.1	U	ug/kg	130	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Aroclor-1254	3.5	U	ug/kg	130	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Aroclor-1254	4	U	ug/kg	130	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Aroclor-1254	3.7	U	ug/kg	130	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Aroclor-1254	3.9	U	ug/kg	130	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Aroclor-1254	3.8	U	ug/kg	130	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Aroclor-1254	18	-	ug/kg	130	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Aroclor-1254	4.1	U	ug/kg	130	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Aroclor-1254	4.2	U	ug/kg	130	no	no
A7SSP-T-29	A7SSP-T-29^RMP	4	Aroclor-1254	4.1	U	ug/kg	130	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Aroclor-1254	4.1	U	ug/kg	130	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Aroclor-1260	6.6	J	ug/kg	130	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Aroclor-1260	4.1	U	ug/kg	130	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Aroclor-1260	3.5	U	ug/kg	130	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Aroclor-1260	4	U	ug/kg	130	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Aroclor-1260	3.7	U	ug/kg	130	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Aroclor-1260	3.9	U	ug/kg	130	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Aroclor-1260	3.8	U	ug/kg	130	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Beryllium	0.61	-	mg/kg	1.5	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Beryllium	1.4	-	mg/kg	1.5	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Beryllium	0.52	-	mg/kg	1.5	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Beryllium	0.44	-	mg/kg	1.5	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-90	A7GA-T-90^RMP	4	Beryllium	0.82	-	mg/kg	1.5	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Beryllium	0.53	-	mg/kg	1.5	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Beryllium	0.43	-	mg/kg	1.5	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Beryllium	0.556	-	mg/kg	1.5	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Beryllium	0.685	-	mg/kg	1.5	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Beryllium	0.818	-	mg/kg	1.5	no	no
A7SSP-T-29	A7SSP-T-29^RMP	4	Beryllium	0.646	-	mg/kg	1.5	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Beryllium	0.44	-	mg/kg	1.5	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Dieldrin	1.7	U	ug/kg	15	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Dieldrin	1.4	U	ug/kg	15	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Dieldrin	1.6	U	ug/kg	15	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Dieldrin	1.5	U	ug/kg	15	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Radium-226	0.817	-	pCi/g	1.7	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Radium-226	1.11	-	pCi/g	1.7	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Radium-226	1	-	pCi/g	1.7	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Radium-226	0.714	-	pCi/g	1.7	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Radium-226	0.843	-	pCi/g	1.7	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Radium-226	0.91	-	pCi/g	1.7	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Radium-226	0.855	-	pCi/g	1.7	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Radium-226	1.07	-	pCi/g	1.7	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Radium-226	1.31	-	pCi/g	1.7	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Radium-226	1.59	-	pCi/g	1.7	no	no
A7SSP-T-29	A7SSP-T-29^RMP	4	Radium-226	1.01	-	pCi/g	1.7	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Radium-226	0.815	J	pCi/g	1.7	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Radium-228	0.832	-	pCi/g	1.8	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Radium-228	1.03	-	pCi/g	1.8	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Radium-228	0.987	-	pCi/g	1.8	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Radium-228	0.625	-	pCi/g	1.8	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Radium-228	0.81	-	pCi/g	1.8	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Radium-228	0.817	-	pCi/g	1.8	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A7GA-T-92	A7GA-T-92^RMP	4	Radium-228	0.791	-	pCi/g	1.8	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Radium-228	0.703	-	pCi/g	1.8	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Radium-228	0.911	-	pCi/g	1.8	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Radium-228	1.18	-	pCi/g	1.8	no	no
A7SSP-T-29	A7SSP-T-29^RMP	4	Radium-228	0.741	-	pCi/g	1.8	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Radium-228	0.72	-	pCi/g	1.8	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Technetium-99	0.797	U	pCi/g	30	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Technetium-99	1.01	U	pCi/g	30	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Technetium-99	0.97	U	pCi/g	30	no	no
A7SSP-T-29	A7SSP-T-29^RMP	4	Technetium-99	0.807	U	pCi/g	30	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Technetium-99	1.92	U	pCi/g	30	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Thorium-228	0.82	-	pCi/g	1.7	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Thorium-228	0.978	-	pCi/g	1.7	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Thorium-228	0.992	-	pCi/g	1.7	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Thorium-228	0.62	-	pCi/g	1.7	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Thorium-228	0.756	-	pCi/g	1.7	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Thorium-228	0.794	-	pCi/g	1.7	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Thorium-228	0.79	-	pCi/g	1.7	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Thorium-228	0.697	-	pCi/g	1.7	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Thorium-228	0.915	-	pCi/g	1.7	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Thorium-228	1.08	-	pCi/g	1.7	no	no
A7SSP-T-29	A7SSP-T-29^RMP	4	Thorium-228	0.77	-	pCi/g	1.7	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Thorium-228	0.72	-	pCi/g	1.7	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Thorium-232	0.832	-	pCi/g	1.5	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Thorium-232	1.03	-	pCi/g	1.5	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Thorium-232	0.987	-	pCi/g	1.5	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Thorium-232	0.625	-	pCi/g	1.5	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Thorium-232	0.81	-	pCi/g	1.5	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Thorium-232	0.817	-	pCi/g	1.5	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Thorium-232	0.791	-	pCi/g	1.5	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Thorium-232	0.703	-	pCi/g	1.5	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Thorium-232	0.911	-	pCi/g	1.5	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Thorium-232	1.18	-	pCi/g	1.5	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

<b>Boring ID</b>	<b>Sample ID</b>	<b>Trench CU</b>	<b>Parameter</b>	<b>Val Res</b>	<b>VQ</b>	<b>Units</b>	<b>FRL</b>	<b>&gt;FRL</b>	<b>HotSpot</b>
A7SSP-T-29	A7SSP-T-29^RMP	4	Thorium-232	0.741	-	pCi/g	1.5	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Thorium-232	0.72	-	pCi/g	1.5	no	no
A7GA-T-70	A7GA-T-70^RMP	4	Uranium, Total	11.4	-	mg/kg	82	no	no
A7GA-T-87	A7GA-T-87^RMP	4	Uranium, Total	4.99	-	mg/kg	82	no	no
A7GA-T-88	A7GA-T-88^RMP	4	Uranium, Total	14.9	-	mg/kg	82	no	no
A7GA-T-89	A7GA-T-89^RMP	4	Uranium, Total	4.57	-	mg/kg	82	no	no
A7GA-T-90	A7GA-T-90^RMP	4	Uranium, Total	5.58	-	mg/kg	82	no	no
A7GA-T-91	A7GA-T-91^RMP	4	Uranium, Total	7.6	-	mg/kg	82	no	no
A7GA-T-92	A7GA-T-92^RMP	4	Uranium, Total	4.05	-	mg/kg	82	no	no
A7SSP-T-26	A7SSP-T-26^RMP	4	Uranium, Total	4.15	-	mg/kg	82	no	no
A7SSP-T-27	A7SSP-T-27^RMP	4	Uranium, Total	5.8	-	mg/kg	82	no	no
A7SSP-T-28	A7SSP-T-28^RMP	4	Uranium, Total	10.6	-	mg/kg	82	no	no
A7SSP-T-29	A7SSP-T-29^RMP	4	Uranium, Total	4.21	-	mg/kg	82	no	no
A7SSP-T-30	A7SSP-T-B-30^RMP	4	Uranium, Total	3.37	J	mg/kg	82	no	no
A6P2-T-1	A6P2-T-1^L	5	1,1-Dichloroethene	1	U	ug/kg	410	no	no
A6P2-T-2	A6P2-T-2^L	5	1,1-Dichloroethene	1	U	ug/kg	410	no	no
A6P2-T-3	A6P2-T-3^L	5	1,1-Dichloroethene	1.3	U	ug/kg	410	no	no
A6P2-T-4	A6P2-T-4^L	5	1,1-Dichloroethene	0.9	U	ug/kg	410	no	no
A6P2-T-5	A6P2-T-5^L	5	1,1-Dichloroethene	1	U	ug/kg	410	no	no
A6P2-T-6	A6P2-T-6^L	5	1,1-Dichloroethene	1.3	U	ug/kg	410	no	no
A6P2-T-7	A6P2-T-7^L	5	1,1-Dichloroethene	2.2	J	ug/kg	410	no	no
A6P2-T-8	A6P2-T-8^L	5	1,1-Dichloroethene	4.3	J	ug/kg	410	no	no
A6P2-T-9	A6P2-T-9^L	5	1,1-Dichloroethene	4.6	J	ug/kg	410	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Aroclor-1254	4.05	U	ug/kg	130	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Aroclor-1254	3.6	U	ug/kg	130	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Aroclor-1254	3.8	U	ug/kg	130	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Aroclor-1254	3.6	U	ug/kg	130	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Aroclor-1254	3.9	U	ug/kg	130	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Aroclor-1254	4	U	ug/kg	130	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Aroclor-1254	4.2	U	ug/kg	130	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Aroclor-1254	4.2	U	ug/kg	130	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Aroclor-1254	4.2	U	ug/kg	130	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Aroclor-1260	4.05	U	ug/kg	130	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A6P2-T-2	A6P2-T-2^RMPS	5	Aroclor-1260	3.6	U	ug/kg	130	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Aroclor-1260	3.8	U	ug/kg	130	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Aroclor-1260	3.6	U	ug/kg	130	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Aroclor-1260	3.9	U	ug/kg	130	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Aroclor-1260	4	U	ug/kg	130	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Aroclor-1260	4.2	U	ug/kg	130	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Aroclor-1260	4.2	U	ug/kg	130	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Aroclor-1260	4.2	U	ug/kg	130	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Arsenic	7.3	J	mg/kg	12	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Arsenic	5.1	J	mg/kg	12	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Arsenic	9.8	J	mg/kg	12	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Arsenic	2.84	J	mg/kg	12	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Arsenic	12	-	mg/kg	12	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Arsenic	10.5	-	mg/kg	12	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Arsenic	6.4	J	mg/kg	12	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Arsenic	12.4	J	mg/kg	12	YES	no
A6P2-T-9	A6P2-T-9^RMPS	5	Arsenic	8.8	J	mg/kg	12	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Benzo(a)anthracene	40.5	U	ug/kg	20000	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Benzo(a)anthracene	36.2	U	ug/kg	20000	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Benzo(a)anthracene	37.5	U	ug/kg	20000	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Benzo(a)anthracene	36.1	U	ug/kg	20000	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Benzo(a)anthracene	38.9	U	ug/kg	20000	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Benzo(a)anthracene	40.3	U	ug/kg	20000	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Benzo(a)anthracene	41.7	U	ug/kg	20000	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Benzo(a)anthracene	41.7	U	ug/kg	20000	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Benzo(a)anthracene	42.4	U	ug/kg	20000	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Benzo(a)pyrene	40.5	U	ug/kg	2000	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Benzo(a)pyrene	36.2	U	ug/kg	2000	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Benzo(a)pyrene	37.5	U	ug/kg	2000	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Benzo(a)pyrene	36.1	U	ug/kg	2000	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Benzo(a)pyrene	38.9	U	ug/kg	2000	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Benzo(a)pyrene	40.3	U	ug/kg	2000	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Benzo(a)pyrene	41.7	U	ug/kg	2000	no	no

**APPENDIX A.2**  
**ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A6P2-T-8	A6P2-T-8^RMPS	5	Benzo(a)pyrene	41.7	U	ug/kg	2000	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Benzo(a)pyrene	42.4	U	ug/kg	2000	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Benzo(b)fluoranthene	40.5	U	ug/kg	20000	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Benzo(b)fluoranthene	36.2	U	ug/kg	20000	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Benzo(b)fluoranthene	37.5	U	ug/kg	20000	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Benzo(b)fluoranthene	36.1	U	ug/kg	20000	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Benzo(b)fluoranthene	38.9	U	ug/kg	20000	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Benzo(b)fluoranthene	40.3	U	ug/kg	20000	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Benzo(b)fluoranthene	41.7	U	ug/kg	20000	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Benzo(b)fluoranthene	41.7	U	ug/kg	20000	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Benzo(b)fluoranthene	42.4	U	ug/kg	20000	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Benzo(g,h,i)perylene	40.5	U	ug/kg		no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Benzo(g,h,i)perylene	36.2	U	ug/kg		no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Benzo(g,h,i)perylene	37.5	U	ug/kg		no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Benzo(g,h,i)perylene	36.1	U	ug/kg		no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Benzo(g,h,i)perylene	38.9	U	ug/kg		no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Benzo(g,h,i)perylene	40.3	U	ug/kg		no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Benzo(g,h,i)perylene	41.7	U	ug/kg		no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Benzo(g,h,i)perylene	41.7	U	ug/kg		no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Benzo(g,h,i)perylene	42.4	U	ug/kg		no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Benzo(k)fluoranthene	40.5	U	ug/kg	200000	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Benzo(k)fluoranthene	36.2	U	ug/kg	200000	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Benzo(k)fluoranthene	37.5	U	ug/kg	200000	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Benzo(k)fluoranthene	36.1	U	ug/kg	200000	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Benzo(k)fluoranthene	38.9	U	ug/kg	200000	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Benzo(k)fluoranthene	40.3	U	ug/kg	200000	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Benzo(k)fluoranthene	41.7	U	ug/kg	200000	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Benzo(k)fluoranthene	41.7	U	ug/kg	200000	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Benzo(k)fluoranthene	42.4	U	ug/kg	200000	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Beryllium	0.9	-	mg/kg	1.5	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Beryllium	0.56	-	mg/kg	1.5	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Beryllium	0.71	-	mg/kg	1.5	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Beryllium	0.351	J	mg/kg	1.5	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A6P2-T-5	A6P2-T-5^RMPS	5	Beryllium	0.814	-	mg/kg	1.5	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Beryllium	0.725	-	mg/kg	1.5	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Beryllium	0.78	-	mg/kg	1.5	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Beryllium	1	-	mg/kg	1.5	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Beryllium	0.9		mg/kg	1.5	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Chrysene	40.5	U	ug/kg	2000000	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Chrysene	36.2	U	ug/kg	2000000	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Chrysene	37.5	U	ug/kg	2000000	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Chrysene	36.1	U	ug/kg	2000000	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Chrysene	38.9	U	ug/kg	2000000	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Chrysene	40.3	U	ug/kg	2000000	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Chrysene	41.7	U	ug/kg	2000000	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Chrysene	41.7	U	ug/kg	2000000	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Chrysene	42.4	U	ug/kg	2000000	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Dibenzo(a,h)anthracene	40.5	U	ug/kg	2000	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Dibenzo(a,h)anthracene	36.2	U	ug/kg	2000	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Dibenzo(a,h)anthracene	37.5	U	ug/kg	2000	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Dibenzo(a,h)anthracene	36.1	U	ug/kg	2000	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Dibenzo(a,h)anthracene	38.9	U	ug/kg	2000	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Dibenzo(a,h)anthracene	40.3	U	ug/kg	2000	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Dibenzo(a,h)anthracene	41.7	U	ug/kg	2000	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Dibenzo(a,h)anthracene	41.7	U	ug/kg	2000	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Dibenzo(a,h)anthracene	42.4	U	ug/kg	2000	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Fluoranthene	40.5	U	ug/kg		no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Fluoranthene	36.2	U	ug/kg		no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Fluoranthene	37.5	U	ug/kg		no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Fluoranthene	36.1	U	ug/kg		no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Fluoranthene	38.9	U	ug/kg		no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Fluoranthene	40.3	U	ug/kg		no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Fluoranthene	41.7	U	ug/kg		no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Fluoranthene	41.7	U	ug/kg		no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Fluoranthene	42.4	U	ug/kg		no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Indeno(1,2,3-cd)pyrene	40.5	U	ug/kg	20000	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A6P2-T-2	A6P2-T-2^RMPS	5	Indeno(1,2,3-cd)pyrene	36.2	U	ug/kg	20000	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Indeno(1,2,3-cd)pyrene	37.5	U	ug/kg	20000	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Indeno(1,2,3-cd)pyrene	36.1	U	ug/kg	20000	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Indeno(1,2,3-cd)pyrene	38.9	U	ug/kg	20000	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Indeno(1,2,3-cd)pyrene	40.3	U	ug/kg	20000	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Indeno(1,2,3-cd)pyrene	41.7	U	ug/kg	20000	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Indeno(1,2,3-cd)pyrene	41.7	U	ug/kg	20000	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Indeno(1,2,3-cd)pyrene	42.4	U	ug/kg	20000	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Phenanthrene	40.5	U	ug/kg		no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Phenanthrene	36.2	U	ug/kg		no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Phenanthrene	37.5	U	ug/kg		no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Phenanthrene	36.1	U	ug/kg		no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Phenanthrene	38.9	U	ug/kg		no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Phenanthrene	40.3	U	ug/kg		no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Phenanthrene	41.7	U	ug/kg		no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Phenanthrene	41.7	U	ug/kg		no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Phenanthrene	42.4	U	ug/kg		no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Pyrene	40.5	U	ug/kg		no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Pyrene	36.2	U	ug/kg		no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Pyrene	37.5	U	ug/kg		no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Pyrene	36.1	U	ug/kg		no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Pyrene	38.9	U	ug/kg		no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Pyrene	40.3	U	ug/kg		no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Pyrene	41.7	U	ug/kg		no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Pyrene	41.7	U	ug/kg		no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Pyrene	42.4	U	ug/kg		no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Radium-226	1.12	-	pCi/g	1.7	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Radium-226	0.807	-	pCi/g	1.7	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Radium-226	1.11	-	pCi/g	1.7	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Radium-226	1.03	-	pCi/g	1.7	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Radium-226	1.28	-	pCi/g	1.7	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Radium-226	1.55	-	pCi/g	1.7	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Radium-226	0.856	-	pCi/g	1.7	no	no

**APPENDIX A.2  
ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A6P2-T-8	A6P2-T-8^RMPS	5	Radium-226	1.09	-	pCi/g	1.7	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Radium-226	1	-	pCi/g	1.7	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Radium-228	1.16	-	pCi/g	1.8	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Radium-228	0.874	-	pCi/g	1.8	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Radium-228	1.14	-	pCi/g	1.8	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Radium-228	0.919	-	pCi/g	1.8	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Radium-228	1.02	-	pCi/g	1.8	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Radium-228	1.34	-	pCi/g	1.8	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Radium-228	0.936	-	pCi/g	1.8	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Radium-228	1.01	-	pCi/g	1.8	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Radium-228	1	-	pCi/g	1.8	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Technetium-99	1.59	U	pCi/g	30	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Technetium-99	1.76	U	pCi/g	30	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Technetium-99	1.89	U	pCi/g	30	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Technetium-99	0.816	U	pCi/g	30	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Technetium-99	0.876	U	pCi/g	30	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Technetium-99	0.867	U	pCi/g	30	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Technetium-99	1.92	U	pCi/g	30	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Technetium-99	1.88	U	pCi/g	30	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Technetium-99	1.79	U	pCi/g	30	no	no
A6P2-T-1	A6P2-T-1^L	5	Tetrachloroethene	1	U	ug/kg	3600	no	no
A6P2-T-2	A6P2-T-2^L	5	Tetrachloroethene	1	U	ug/kg	3600	no	no
A6P2-T-3	A6P2-T-3^L	5	Tetrachloroethene	1.3	U	ug/kg	3600	no	no
A6P2-T-4	A6P2-T-4^L	5	Tetrachloroethene	0.9	U	ug/kg	3600	no	no
A6P2-T-5	A6P2-T-5^L	5	Tetrachloroethene	1	U	ug/kg	3600	no	no
A6P2-T-6	A6P2-T-6^L	5	Tetrachloroethene	1.3	U	ug/kg	3600	no	no
A6P2-T-7	A6P2-T-7^L	5	Tetrachloroethene	1.1	U	ug/kg	3600	no	no
A6P2-T-8	A6P2-T-8^L	5	Tetrachloroethene	1.1	U	ug/kg	3600	no	no
A6P2-T-9	A6P2-T-9^L	5	Tetrachloroethene	1.1	U	ug/kg	3600	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Thorium-228	1.2	J	pCi/g	1.7	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Thorium-228	0.841	-	pCi/g	1.7	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Thorium-228	1.15	-	pCi/g	1.7	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Thorium-228	0.843	-	pCi/g	1.7	no	no

**APPENDIX A.2**  
**ANALYTICAL DATA FOR UTILITY TRENCHES**

Boring ID	Sample ID	Trench CU	Parameter	Val Res	VQ	Units	FRL	>FRL	HotSpot
A6P2-T-5	A6P2-T-5^RMPS	5	Thorium-228	1	-	pCi/g	1.7	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Thorium-228	1.5	-	pCi/g	1.7	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Thorium-228	0.938	-	pCi/g	1.7	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Thorium-228	1	-	pCi/g	1.7	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Thorium-228	1	-	pCi/g	1.7	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Thorium-230	1.13	J	pCi/g	280	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Thorium-230	0.612	J	pCi/g	280	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Thorium-230	0.984	J	pCi/g	280	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Thorium-230	1.65	J	pCi/g	280	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Thorium-230	1.69	J	pCi/g	280	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Thorium-230	2.11	J	pCi/g	280	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Thorium-230	1.8	J	pCi/g	280	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Thorium-230	1.87	J	pCi/g	280	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Thorium-230	1.7	J	pCi/g	280	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Thorium-232	1.16	-	pCi/g	1.5	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Thorium-232	0.874	-	pCi/g	1.5	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Thorium-232	1.14	-	pCi/g	1.5	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Thorium-232	0.919	-	pCi/g	1.5	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Thorium-232	1.02	-	pCi/g	1.5	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Thorium-232	1.34	-	pCi/g	1.5	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Thorium-232	0.936	-	pCi/g	1.5	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Thorium-232	1.01	-	pCi/g	1.5	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Thorium-232	1	-	pCi/g	1.5	no	no
A6P2-T-1	A6P2-T-1^RMPS	5	Uranium, Total	6.73	-	mg/kg	82	no	no
A6P2-T-2	A6P2-T-2^RMPS	5	Uranium, Total	5.15	-	mg/kg	82	no	no
A6P2-T-3	A6P2-T-3^RMPS	5	Uranium, Total	4.11	-	mg/kg	82	no	no
A6P2-T-4	A6P2-T-4^RMPS	5	Uranium, Total	3.14	U	mg/kg	82	no	no
A6P2-T-5	A6P2-T-5^RMPS	5	Uranium, Total	5.05	-	mg/kg	82	no	no
A6P2-T-6	A6P2-T-6^RMPS	5	Uranium, Total	3.78	J	mg/kg	82	no	no
A6P2-T-7	A6P2-T-7^RMPS	5	Uranium, Total	4.46	-	mg/kg	82	no	no
A6P2-T-8	A6P2-T-8^RMPS	5	Uranium, Total	4.21	-	mg/kg	82	no	no
A6P2-T-9	A6P2-T-9^RMPS	5	Uranium, Total	6	-	mg/kg	82	no	no

**APPENDIX A.2**  
**STATISTICAL EVALUATION OF ABOVE-FRL CONDITIONS**  
**ASSOCIATED WITH UTILITY TRENCH DATA**

Secondary COCs			
SAMPLE ID CU01	Dieldrin CU01*	SAMPLE ID CU05	Arsenic CU05
A7GA-T-106	1.5 UJ	A6P2-T-1	7.3 J
A7GA-T-107	1.6 UJ	A6P2-T-2	5.1 J
A7GA-T-14	5.1 U	A6P2-T-3	9.8 J
A7GA-T-15	5 U	A6P2-T-4	2.84 J
A7GA-T-16	1.5 U	A6P2-T-5	12 -
A7GA-T-17	4.6 U	A6P2-T-6	10.5 -
A7GA-T-18	1.5 U	A6P2-T-7	6.4 J
A7GA-T-19	22.6 J*	A6P2-T-8	12.4 J
A7GA-T-20	1.5 U	A6P2-T-9	8.8 J
A7GA-T-21	1.4 U		
A7GA-T-22	1.4 U		
A7GA-T-4	4.9 U		
A7GA-T-5	4.4 U		
A7GA-T-8	1.6 U		
A7GA-T-9	1.6 U		
Limit	15	Limit	12
Units	ug/kg	Units	mg/kg
Conf. Level	90%	Conf. Level	90%
Max. Result	22.6	Max. Result	12.4
Max. > Limit	Yes	Max. > Limit	Yes
W-statistic Prob. #	< 0.01% (LN)	W-statistic Prob. #	80.7% (N)
Test Procedure	Proportions (Sign)	Test Procedure	Normal
Sample Size	15	Sample Size	9
Nondetects	14	Nondetects	0
% Nondetects	93%	% Nondetects	0%
Est. Mean*	0.8	Est. Mean*	8.3
UCL	--	UCL	9.84
Prob. > Limit	0.00	Prob. > Limit	--
Pass / Fail	pass	Pass / Fail	pass
<i>a posteriori</i> Sample Size calculation	4 Pass	<i>a posteriori</i> Sample Size calculation	5 Pass

\*NOTE: Although the highest Dieldrin result was a non-detect, it was treated as a detectable result for the purposes of statistical evaluation.

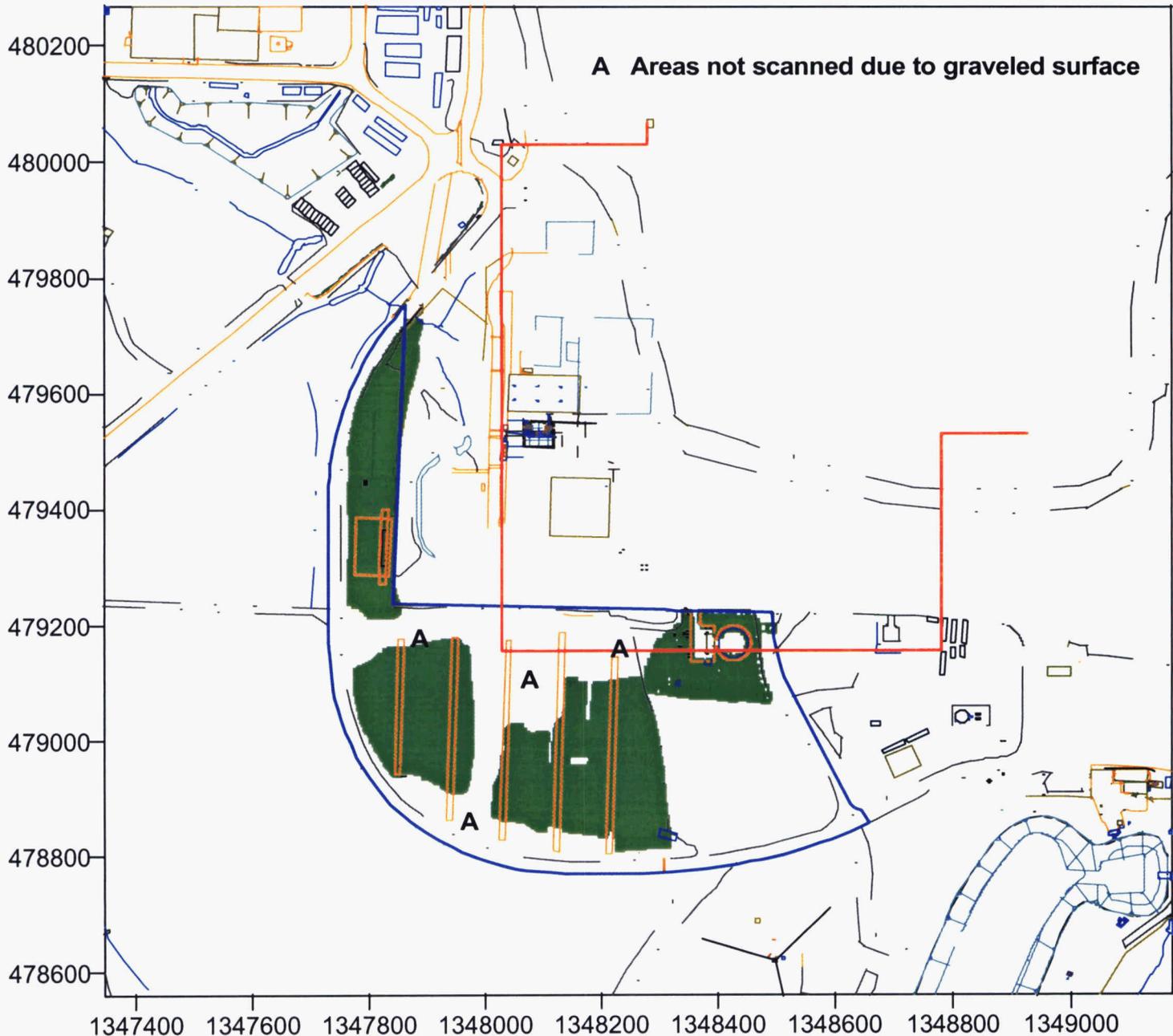
**APPENDIX B**

**REAL-TIME FIGURES FOR THE  
AREA 7 SILOS TRUCK STAGING AREA**

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# Figure B-1 Area 7 Silos Truck Staging Area Phase 1 Total Gross Counts per Second

Data Groups: RSS1\_2752\_08-07-2006,2753\_08-07-2006  
RSS2\_1350\_06-08-2006,1383\_07-10-2006  
RSS3\_1505\_06-22-2006,1584\_07-31-2006  
GATOR\_1046\_08-07-2006 ,1059\_08-14-2006,1062\_08-15-2006  
Surface Data no Phase 2 measurements: RSS2\_0665\_08-12-2004  
Measurement Period: 08-12-2004 thru 08-15-2006



**A** Areas not scanned due to graveled surface

High Leachability boundary      CDL Boundary      Sub Area Boundary

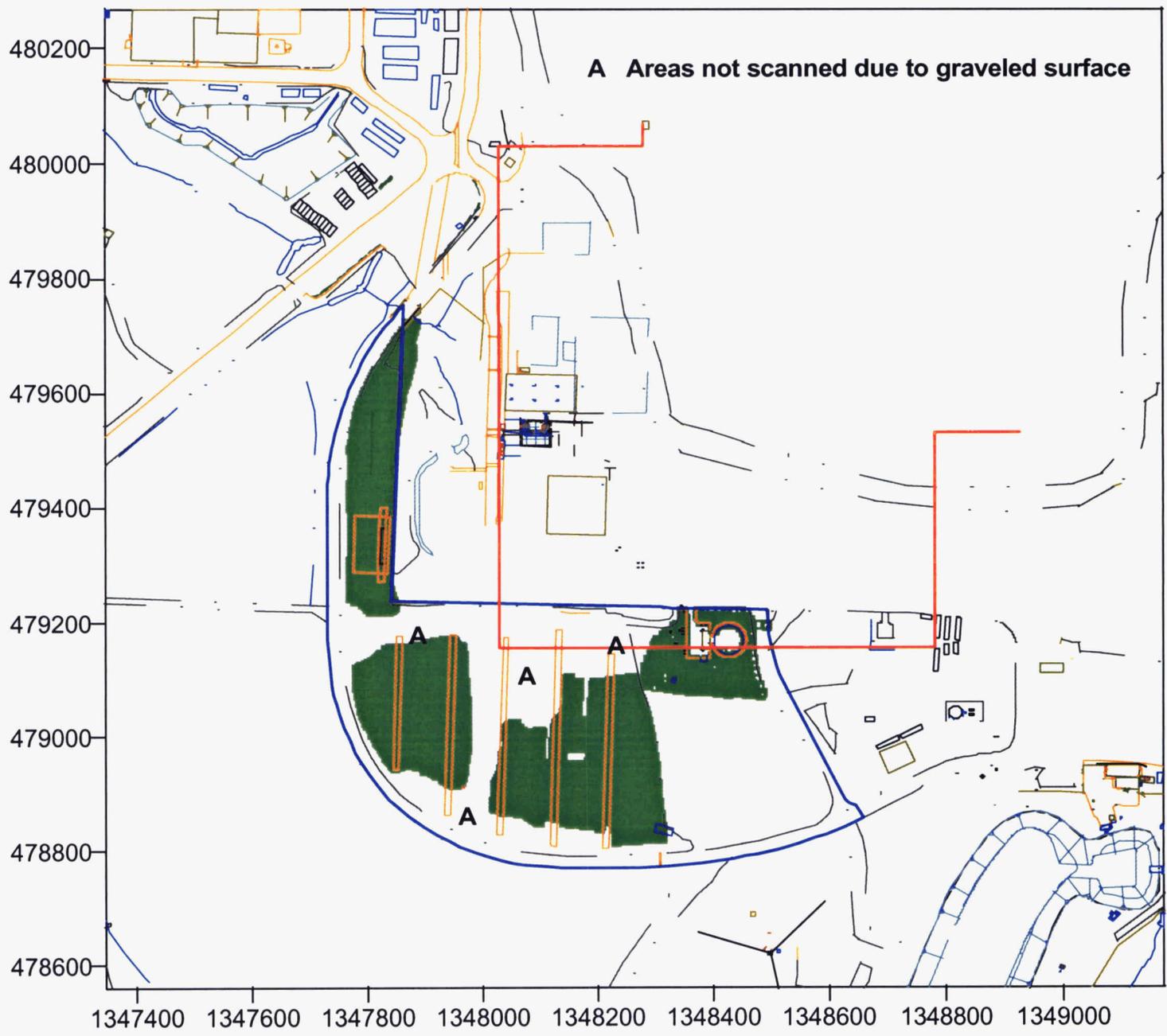
NaI Tcps	
<span style="display:inline-block; width:10px; height:10px; background-color:green; border:1px solid black;"></span>	0 to 3000
<span style="display:inline-block; width:10px; height:10px; background-color:white; border:1px solid black;"></span>	3000 to 5000
<span style="display:inline-block; width:10px; height:10px; background-color:blue; border:1px solid black;"></span>	5000 to 15000
<span style="display:inline-block; width:10px; height:10px; background-color:red; border:1px solid black;"></span>	15000 to 18000
<span style="display:inline-block; width:10px; height:10px; background-color:orange; border:1px solid black;"></span>	18000 to 99999

RTIMP DWG Title: A7KC\_P1\_TC.srf  
Project ID: Gen Char for Site Soil Remed 20300-PSP-0011  
Prepared: D. Seiller 10-18-2006  
Support Data: A7KC\_P1.xls

006224

# Figure B-2 Area 7 Silos Truck Staging Area Phase 1 Moisture Corrected Radium-226

Data Groups: RSS1\_2752\_08-07-2006,2753\_08-07-2006  
RSS2\_1350\_06-08-2006,1383\_07-10-2006  
RSS3\_1505\_06-22-2006,1584\_07-31-2006  
GATOR\_1046\_08-07-2006 ,1059\_08-14-2006,1062\_08-15-2006  
Surface Data no Phase 2 measurements: RSS2\_0665\_08-12-2004  
Measurement Period: 08-12-2004 thru 08-15-2006



**A** Areas not scanned due to graveled surface

High Leachability boundary      CDL Boundary      Sub Area Boundary

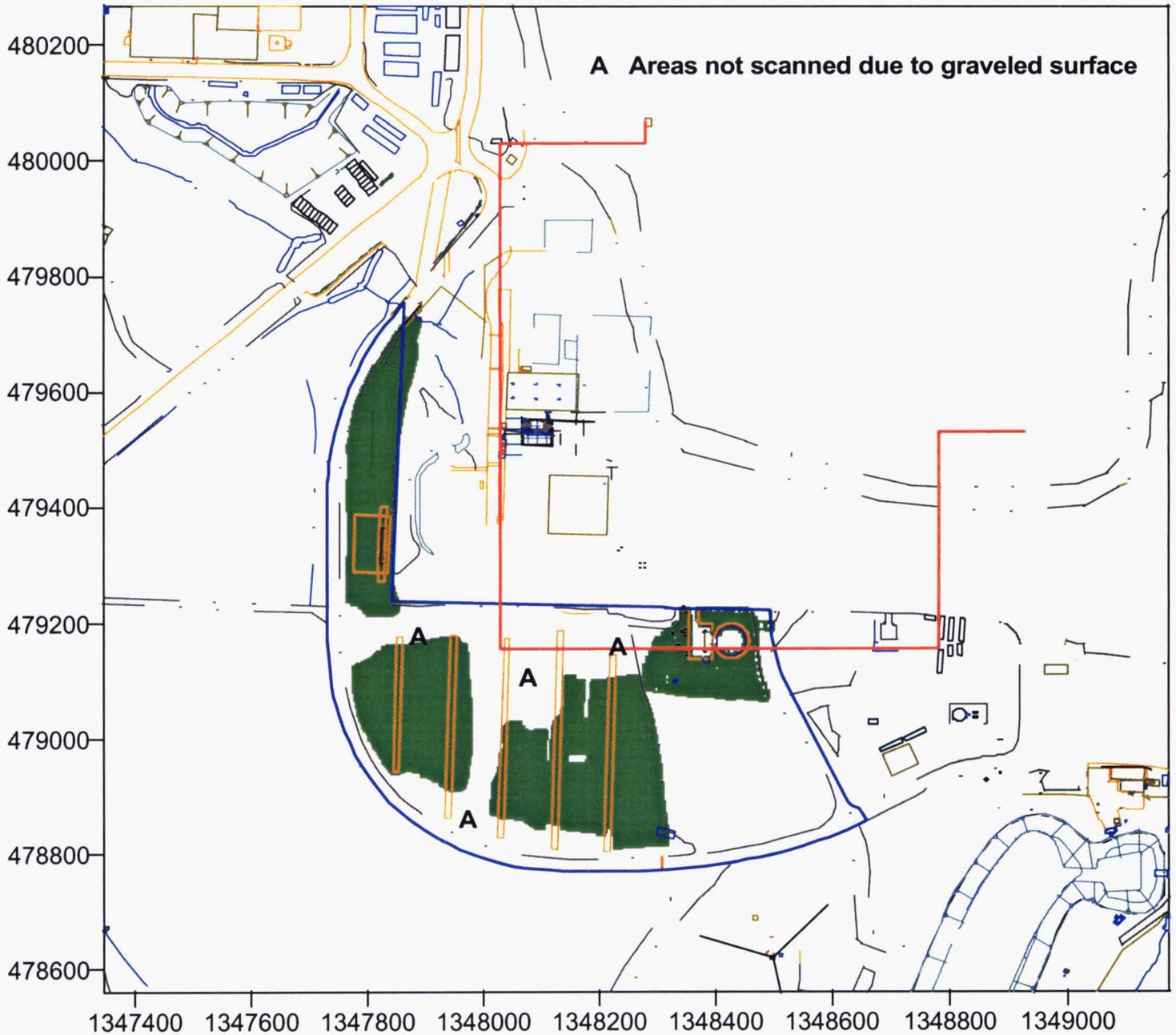
Nal Ra-226 pCi/g	
	-9999 to 5.1
	5.1 to 9999

RTIMP DWG Title: A7KC\_P1\_RA.srf  
Project ID: Gen Char for Site Soil Remed 20300-PSP-0011  
Prepared: D. Seiller 10-18-2006  
Support Data: A7KC\_P1.xls

006224

# Figure B-3 Area 7 Silos Truck Staging Area Phase 1 Moisture Corrected Thorium-232

Data Groups: RSS1\_2752\_08-07-2006,2753\_08-07-2006  
RSS2\_1350\_06-08-2006,1383\_07-10-2006  
RSS3\_1505\_06-22-2006,1584\_07-31-2006  
GATOR\_1046\_08-07-2006 ,1059\_08-14-2006,1062\_08-15-2006  
Surface Data no Phase 2 measurements: RSS2\_0665\_08-12-2004  
Measurement Period: 08-12-2004 thru 08-15-2006



A Areas not scanned due to graveled surface

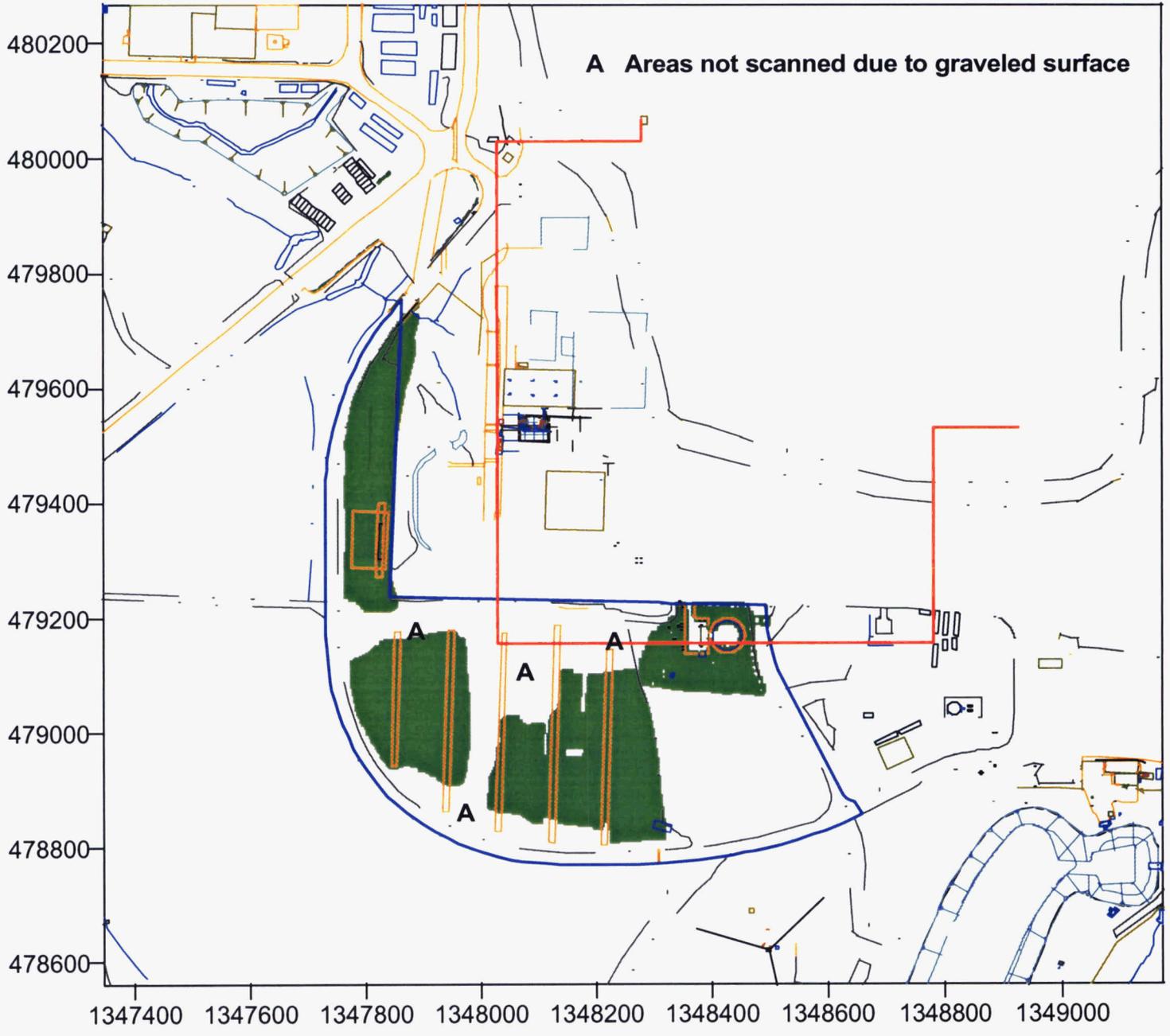
High Leachability boundary      CDL Boundary      Sub Area Boundary

Nal Th-232 pCi/g  
-9999 to 4.5  
4.5 to 9999

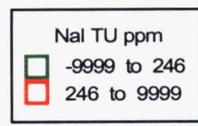
RTIMP DWG Title: A7KC\_P1\_TH.srf  
Project ID: Gen Char for Site Soil Remed 20300-PSP-0011  
Prepared: D. Seiller 10-18-2006  
Support Data: A7KC\_P1.xls

# Figure B-4 Area 7 Silos Truck Staging Area Phase 1 Moisture Corrected Total Uranium

Data Groups: RSS1\_2752\_08-07-2006,2753\_08-07-2006  
 RSS2\_1350\_06-08-2006,1383\_07-10-2006  
 RSS3\_1505\_06-22-2006,1584\_07-31-2006  
 GATOR\_1046\_08-07-2006 ,1059\_08-14-2006,1062\_08-15-2006  
 Surface Data no Phase 2 measurements: RSS2\_0665\_08-12-2004  
 Measurement Period: 08-12-2004 thru 08-15-2006



High Leachability boundary      CDL Boundary      Sub Area Boundary

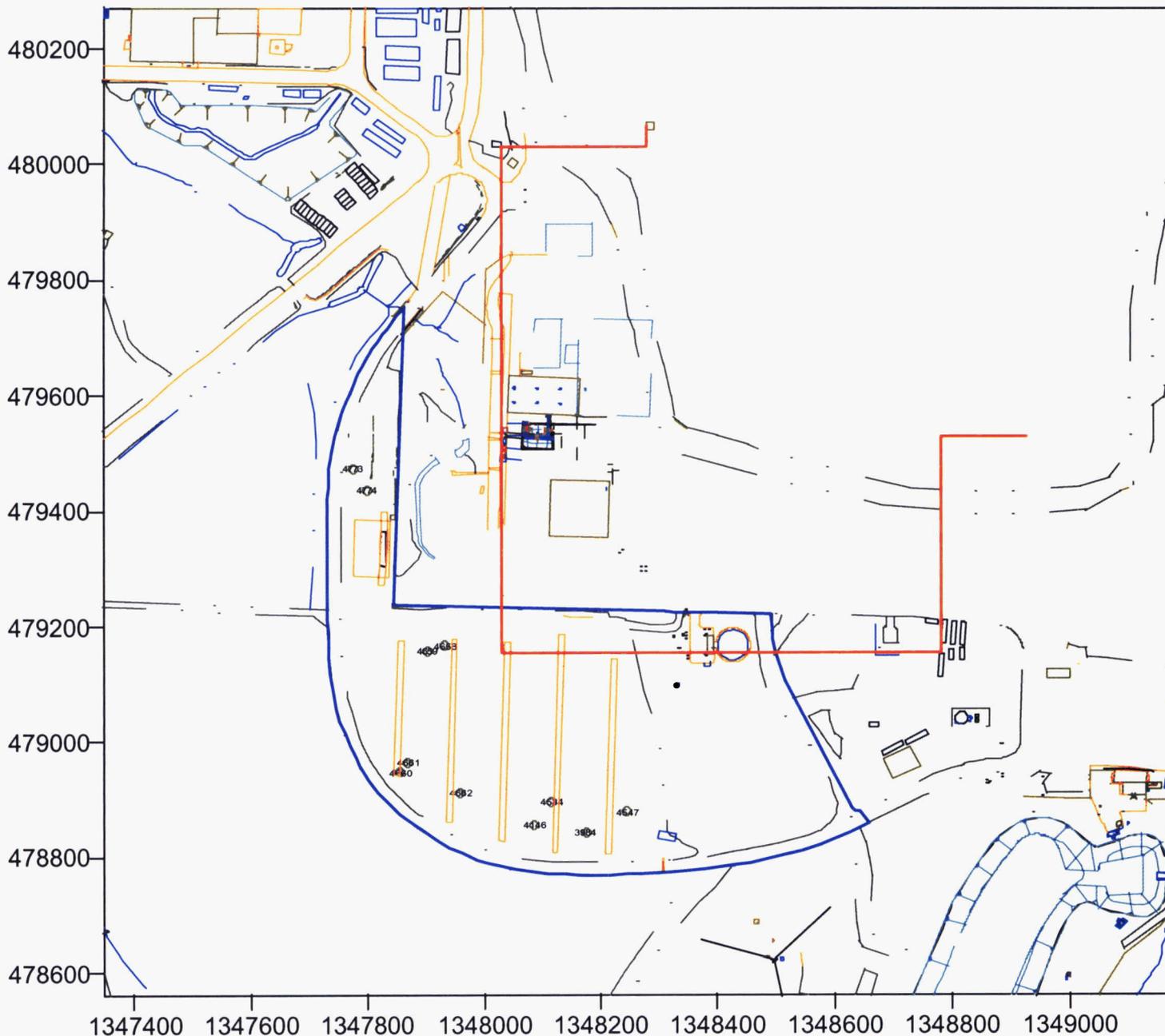


RTIMP DWG Title: A7KC\_P1\_TU.srf  
 Project ID: Gen Char for Site Soil Remed 20300-PSP-0011  
 Prepared: D. Seiller 10-18-2006  
 Support Data: A7KC\_P1.xls

006224

# Figure B-5 - Area 7 Silos Truck Staging Area Phase 2 Moisture Corrected Radium-226

Data Groups: 30687\_06-08-2006  
31265\_06-22-2006  
40227\_07-31-2006,08-02-2006,08-07-2006,08-15-2006  
Measurement Period: 06-08-2006 thru 08-15-2006



— High Leachability boundary      — CDL Boundary      — Sub Area Boundary

HPGe Ra-226 pCi/g  
○ -9999 to 5.1  
○ 5.1 to 9999

RTIMP DWG Title: A7KC\_P2\_RA.srf  
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011  
Prepared: D. Seiller 10-18-2006  
Support Data: A7KC\_P2.xls

006224

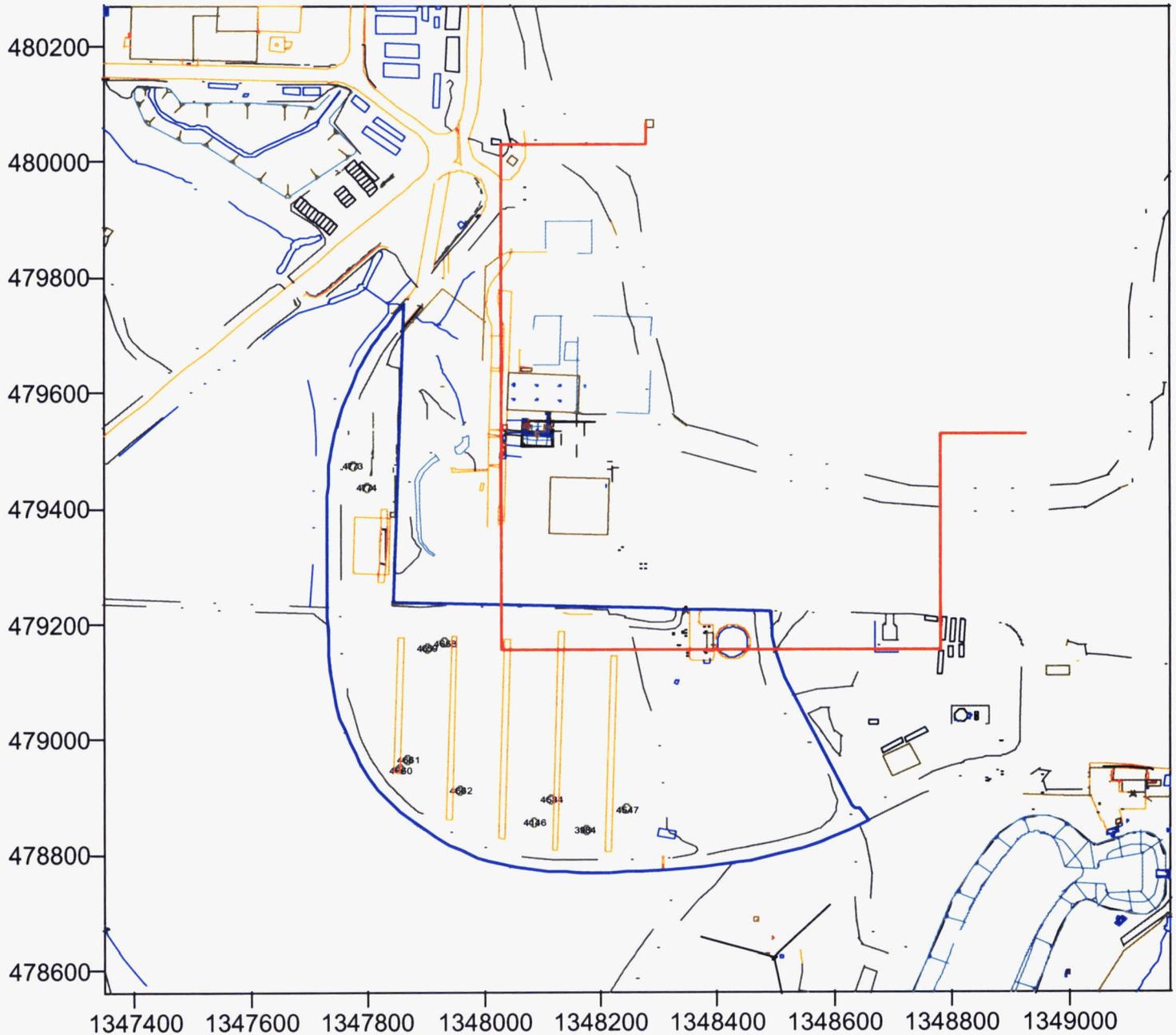
# Figure B-6 - Area 7 Silos Truck Staging Area Phase 2 Moisture Corrected Thorium-232

Data Groups: 30687\_06-08-2006

31265\_06-22-2006

40227\_07-31-2006,08-02-2006,08-07-2006,08-15-2006

Measurement Period: 06-08-2006 thru 08-15-2006



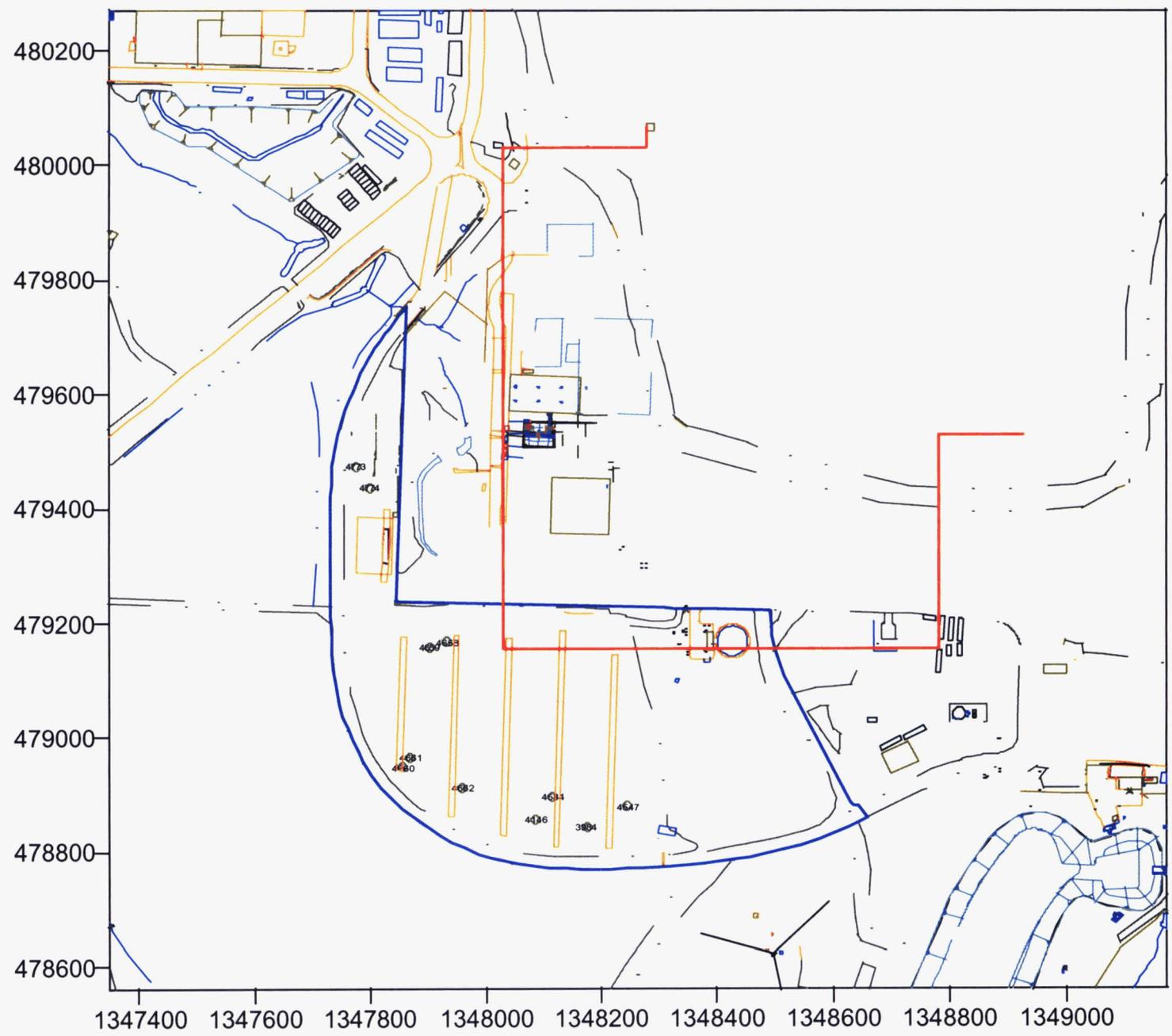
High Leachability boundary      CDL Boundary      Sub Area Boundary

HPGe Th-232 pCi/g  
○ -9999 to 4.5  
○ 4.5 to 9999

RTIMP DWG Title: A7KC\_P2\_TH.srf  
Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011  
Prepared: D. Seiller 10-18-2006  
Support Data: A7KC\_P2.xls

# Figure B-7 - Area 7 Silos Truck Staging Area Phase 2 Moisture Corrected Total Uranium

Data Groups: 30687\_06-08-2006  
31265\_06-22-2006  
40227\_07-31-2006,08-02-2006,08-07-2006,08-15-2006  
Measurement Period: 06-08-2006 thru 08-15-2006



— High Leachability boundary     
 — CDL Boundary     
 — Sub Area Boundary

HPGe TU ppm	
○	-9999 to 246
○	246 to 9999

RTIMP DWG Title: A7KC\_P2\_TU.srf  
 Project ID: Gen Char for Site Soil Remediation 20300-PSP-0011  
 Prepared: D. Seiller 10-18-2006  
 Support Data: A7KC\_P2.xls

006224

**APPENDIX C**

**INFORMATION ASSOCIATED WITH THE CONTAMINATED  
BILLBOARD REMOVAL ADJACENT TO THE SOUTH ACCESS ROAD**

006224



**Department of Energy**

**Ohio Field Office  
Fernald Closure Project  
175 Tri-County Parkway  
Springdale, Ohio 45246  
(513) 648-3155**



FEB 23 2005

Mr. James A. Saric, Remedial Project Director  
U.S. Environmental Protection Agency  
Region V-SR-6J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

DOE-0165-05

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 E. 5<sup>th</sup> Street  
Dayton, OH 45402-2911

Dear Mr. Saric and Mr. Schneider:

**DISCOVERY AND REMOVAL OF A CONTAMINATED BILLBOARD STRUCTURE  
ALONG THE SOUTH ACCESS ROAD**

Per your request, this letter is to document the recent discovery of a contaminated sign structure along the South Access Road in an uncontrolled area. This information will also be included in the Area 7 Support Areas Integrated Remedial Design Package and associated Certification Design Letter, as well as the Area 7 Certification Report.

On February 8, 2005 a Radiological Control Technician (RCT), who was providing radiological contamination monitoring support for a Demolition Crew that were removing the fence along the eastern side of the South Access Road, discovered significant radiological contamination on one of the three steel I-beams that were used to support a billboard adjacent to the South Access Road. Contamination levels were up to 180,000 dpm/100 cm<sup>2</sup> (beta-gamma) fixed. No removable contamination was discovered by the RCT on the I-beams or anywhere near the I-beams.

The steel I-beams were covered with multiple layers of paint with paint chips in the area (on the ground) exhibited no signs of contamination. The RCT also surveyed the soil, the concrete anchors, and the wood that he could reach on the sign and found no other indications of contamination. A removable contamination survey (smear) on the I-beams was also conducted with negative results.

Mr. James Saric  
Mr. Tom Schneider

-2-

DOE-0165-05

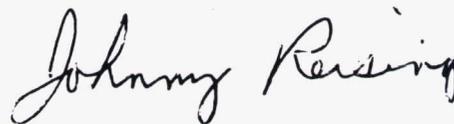
In order to prevent spread of contamination in an uncontrolled area, the sign has been dismantled and the I-beams along with their associated concrete anchors pulled from the ground on February 15, 2005. The entire structure was then placed in a roll-off box and transported to a staging area within the Former Production Area where the I-beams were sized reduced to meet On-Site Disposal Facility (OSDF) size criteria. This material will be sent to the OSDF for disposition along with other Category 2 materials.

As part of the Soil Characterization Program, real-time measurements using high-purity germanium detectors were collected over each of the three holes where the posts stood. The center posthole exhibited an elevated level of thorium-232 only, which was at a concentration of 3.92 picoCuries per gram (pCi/g). This value was confirmed with a physical sample taken from the bottom of the same hole with a result of 3.78 pCi/g of thorium-232. This is a level above two times the final remediation level and therefore needs to be excavated per the Sitewide Excavation Plan.

With your concurrence, DOE will excavate this contaminated soil immediately, controlling the excavation with the use of real-time measurement systems. Once the real-time data demonstrates that the contamination has been removed, physical samples will be collected to confirm the removal is complete. The data from the physical samples will be used in conjunction with the future certification data for that area. As this excavation is adjacent to the South Access Road, it will be backfilled with clean material from the OSDF Borrow Area based on the real-time results.

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

Sincerely,



*for* William J. Taylor  
Director

Mr. James Saric  
Mr. Tom Schneider

cc:

- D. Pfister, OH/FCP
- J. Reising, OH/FCP
- G. Jablonowski, USEPA-V, SR-6J
- F. Bell, ATSDR
- M. Cullerton, Tetra Tech
- M. Shupe, HSI GeoTrans
- R. Vandegrift, ODH
- K. Alkema, Fluor Fernald, Inc./MS01
- J. Chiou, Fluor Fernald, Inc./MS64
- C. Murphy, Fluor Fernald, Inc./MS77
- D. Powell, Fluor Fernald, Inc./MS64
- AR Coordinator, Fluor Fernald, Inc./MS78
- ECDC, Fluor Fernald, Inc./MS52-7

<b>VARIANCE / FIELD CHANGE NOTICE</b>	Significant? (Yes or No): <b>NO</b>	<b>V/F: 20500-PSP-0005-04</b>
<b>WBS NO.: PROJECT/DOCUMENT/ECDC # 20500-PSP-0005 Rev. 1</b>		<b>Page: 1 of 2</b>
<b>PROJECT TITLE: PSP for Predesign Investigation in Area 7</b>		<b>Date: 2/23/05</b>

**VARIANCE / FIELD CHANGE NOTICE (Include justification):**

This V/FCN documents the collection of two samples from the footprint of an area being excavated following removal of recently discovered "legacy" fixed contaminated I-beam supports for a sign near the south access road. Following removal of the I-beam supports, real-time monitoring and physical sampling of the postholes indicated elevated thorium-232 from the center posthole. The area will be excavated and real-time monitoring will be completed to confirm removal of the contaminated soil. Physical sampling will be completed following real-time confirmation that the area is below the thorium-232 FRL of 1.5 pCi/g. Real-time monitoring is covered under PSP 20300-PSP-0011.

Two locations are to be sampled, and each location should be of representative spacing for the area being sampled. Each location will have one 6-inch surface sample collected. The two samples will be shipped to an offsite lab and will be analyzed for total uranium, radium-226, radium-228, thorium-228, and thorium-232 (TAL A). The TAL and Sampling and Analytical Requirements are listed in Attachment 1.

The samples collected should be identified as A7-SA5-C1^1-R and A7-SA5-C2^1-R:

- A7 = Area 7
- SA5 = Subarea 5
- C1, C2 = Consecutive confirmation removal sample locations
- 1 = sample depth of 0-0.5 inches (1 = 2 times the bottom depth of 0.5)
- R = radiological analysis

Historical data for shipping is 3.78 pCi/g thorium-232 from sample A7-SA5-16^R.

Surveying required: Yes; samples will be field located and the surveying group will survey the sample locations.  
 Field QC samples required: Yes, VSL B  
 Field data validation required: Yes  
 Offsite Data package requirement (if applicable): Full data package  
 Analytical data validation required: No

**Justification:**

Physical samples are being collected from the footprint of the area being excavated following removal of "legacy" fixed contaminated I-beam supports for the south access road sign. As stated in a letter to the EPA and OEPA, the physical samples are being collected in addition to a real-time scan that will be completed in the area to confirm the removal is complete. The physical sample data will also be used in conjunction with future certification data for the area.

REQUESTED BY: Denise Arico Date: 2/23/05

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE: <i>[Signature]</i>	3/2/05	X	PROJECT MANAGER: J.D. Chou <i>[Signature]</i>	2/24/05
	DATA QUALITY MANAGEMENT		X	CHARACTERIZATION MANAGER: F. Miller <i>[Signature]</i>	2/24/05
X	ANALYTICAL CUSTOMER SUPPORT: <i>[Signature]</i>			RTMP Manager	
X	WAO: <i>[Signature]</i>	3/9/05	X	Sampling Manager: T. Buhlage <i>[Signature]</i>	2/24/05
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:

**ORIGINAL**

**ATTACHMENT 1**

**SAMPLING AND ANALYTICAL REQUIREMENTS**

Analyte	Lab	Sample Matrix	ASL	TAT	Preservative	Holding Time	Container	Minimum Sample Mass
TAL A	Offsite	Soil	D	30 days	None	12 months	Plastic or Glass	300 g *

\* One location should be triple the specified mass and designated as "designated lab QC" sample on the COC.

**TAL 20500-PSP-0005-A**

**Soil Analysis (ASL D)**

Analyte	FRL	MDL - Soil
Total Uranium	82 mg/kg	8.2 mg/kg
Radium-226	1.7 pCi/g	0.17 pCi/g
Radium-228	1.8 pCi/g	0.18 pCi/g
Thorium-228	1.7 pCi/g	0.17 pCi/g
Thorium-232	1.5 pCi/g	0.15 pCi/g

**APPENDIX C**  
**DATA ASSOCIATED WITH THE CONTAMINATED BILLBOARD REMOVAL**

<b>Boring</b>	<b>Sample ID</b>	<b>Parameter</b>	<b>Val Res</b>	<b>VQ</b>	<b>Units</b>	<b>Val MDC</b>	<b>FRL</b>	<b>FRL Unit</b>	<b>FRL?</b>
A7-SA5-C1	A7-SA5-C1^1-R	Radium-226	0.747	-	pCi/g	0.131	1.7	pCi/g	No
A7-SA5-C1	A7-SA5-C1^1-R	Radium-228	0.627	-	pCi/g	0.104	1.8	pCi/g	No
A7-SA5-C1	A7-SA5-C1^1-R	Thorium-228	0.722	-	pCi/g	0.104	1.7	pCi/g	No
A7-SA5-C1	A7-SA5-C1^1-R	Thorium-232	0.627	-	pCi/g	0.104	1.5	pCi/g	No
A7-SA5-C1	A7-SA5-C1^1-R	Uranium, Total	3.23	U	mg/kg	3.23	82	mg/kg	No
A7-SA5-C2	A7-SA5-C2^1-R	Radium-226	0.878	-	pCi/g	0.144	1.7	pCi/g	No
A7-SA5-C2	A7-SA5-C2^1-R	Radium-228	0.689	-	pCi/g	0.119	1.8	pCi/g	No
A7-SA5-C2	A7-SA5-C2^1-R	Thorium-228	0.687	-	pCi/g	0.119	1.7	pCi/g	No
A7-SA5-C2	A7-SA5-C2^1-R	Thorium-232	0.689	-	pCi/g	0.119	1.5	pCi/g	No
A7-SA5-C2	A7-SA5-C2^1-R	Uranium, Total	3.62	U	mg/kg	3.62	82	mg/kg	No

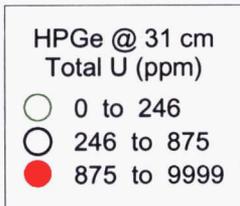
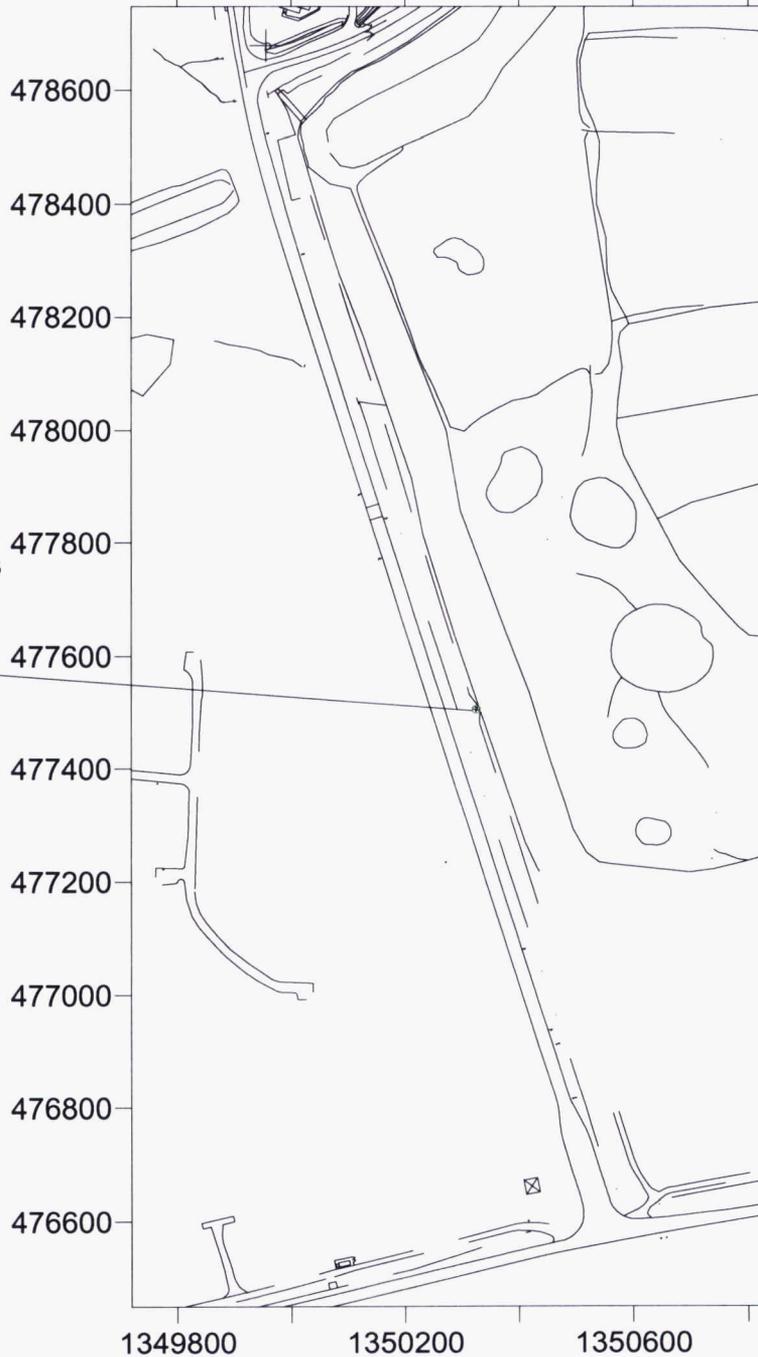
606224

# A7, Phase 2 Scan, Footprint of Sign Excavation

Moisture Corrected Total Uranium  
Field of View to Scale  
HPGe DET #: 40293  
Measurement Date: 02/23/05



**Location #7 Results**  
Total U: <82 ppm  
Th-232: <1.5 pCi/g  
Ra-226: 1.7 pCi/g



RTIMP DWG Title: A7\_P2\_TU\_40293\_31cm\_02-23-2005.srf  
Project Name: Gen Char for Site Soil Rem  
Project #: 20300-PSP-0011  
Prepared By: Brian McDaniel/11058  
Date Prepared: 02/24/05  
Support Data: A7\_P2\_40293\_31cm\_02-23-2005\_Summary.xls

006224

**APPENDIX D**

**INFORMATION ASSOCIATED WITH THE  
ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

**APPENDIX D-1**  
**SOIL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR1	A7-C-AR1^6-RMP	Aroclor-1254	3.8	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR10	A7-C-AR10^1-RMP	Aroclor-1254	4.7	-	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Aroclor-1254	2.8	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Aroclor-1254	0.6	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Aroclor-1254	3.7	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Aroclor-1254	3.7	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR16	A7-C-AR16^1-RMP	Aroclor-1254	1.2	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Aroclor-1254	3.9	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Aroclor-1254	2.6	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Aroclor-1254	1.5	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Aroclor-1254	3.6	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Aroclor-1254	0.6	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Aroclor-1254	1.3	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR1	A7-C-AR1^6-RMP	Aroclor-1260	3.8	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR10	A7-C-AR10^1-RMP	Aroclor-1260	3.1	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Aroclor-1260	3.7	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Aroclor-1260	3.6	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Aroclor-1260	3.7	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Aroclor-1260	3.7	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR16	A7-C-AR16^1-RMP	Aroclor-1260	3.8	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Aroclor-1260	3.9	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Aroclor-1260	3.7	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Aroclor-1260	4	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Aroclor-1260	3.6	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Aroclor-1260	3.6	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Aroclor-1260	3.4	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR1	A7-C-AR1^6-RMP	Arsenic	15.8	J	mg/kg			4/17/2005	12	mg/kg	Yes
A7-C-AR10	A7-C-AR10^1-RMP	Arsenic	6.13	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Arsenic	7.02	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Arsenic	6.42	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Arsenic	4.6	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Arsenic	12.3	J	mg/kg			4/17/2005	12	mg/kg	Yes

**APPENDIX D-1**  
**SOIL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR16	A7-C-AR16^1-RMP	Arsenic	5.49	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Arsenic	8.46	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Arsenic	5.34	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Arsenic	6.04	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Arsenic	4.27	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Arsenic	6.09	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Arsenic	3.43	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR1	A7-C-AR1^6-RMP	Beryllium	0.838	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR10	A7-C-AR10^1-RMP	Beryllium	0.7	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Beryllium	0.491	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Beryllium	0.615	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Beryllium	0.6	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Beryllium	0.568	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR16	A7-C-AR16^1-RMP	Beryllium	0.578	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Beryllium	1.07	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Beryllium	0.601	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Beryllium	0.66	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Beryllium	0.553	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Beryllium	0.583	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Beryllium	0.407	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR1	A7-C-AR1^6-RMP	Cesium-137	0.0478	U	pCi/g	0.0478	0.0478	4/17/2005	1.4	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Cesium-137	0.0539	U	pCi/g	0.0539	0.0539	4/17/2005	1.4	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Cesium-137	0.0552	U	pCi/g	0.0552	0.0552	4/17/2005	1.4	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Cesium-137	0.0522	U	pCi/g	0.0522	0.0522	4/17/2005	1.4	pCi/g	No
A7-C-AR13	A7-C-AR13^1-RMP	Cesium-137	0.0477	U	pCi/g	0.0477	0.0477	4/17/2005	1.4	pCi/g	No
A7-C-AR15	A7-C-AR15^1-RMP	Cesium-137	0.0537	U	pCi/g	0.0537	0.0537	4/17/2005	1.4	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Cesium-137	0.0605	U	pCi/g	0.0605	0.0605	4/17/2005	1.4	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Cesium-137	0.0515	U	pCi/g	0.0515	0.0515	4/17/2005	1.4	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Cesium-137	0.056	U	pCi/g	0.056	0.056	4/17/2005	1.4	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Cesium-137	0.0523	U	pCi/g	0.0523	0.0523	4/17/2005	1.4	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP	Cesium-137	0.0482	U	pCi/g	0.0482	0.0482	4/17/2005	1.4	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Cesium-137	0.0497	U	pCi/g	0.0497	0.0497	4/17/2005	1.4	pCi/g	No

**APPENDIX D-1**  
**SOIL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR8	A7-C-AR8^1-RMP	Cesium-137	0.0475	U	pCi/g	0.0475	0.0475	4/17/2005	1.4	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR10	A7-C-AR10^1-RMP	Dieldrin	1.6	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR16	A7-C-AR16^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Dieldrin	1.6	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Dieldrin	1.6	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Dieldrin	1.4	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Dieldrin	1.4	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR1	A7-C-AR1^6-RMP	Lead	15.6	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR10	A7-C-AR10^1-RMP	Lead	10.8	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Lead	9.91	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Lead	11.6	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Lead	10.4	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Lead	9.19	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR16	A7-C-AR16^1-RMP	Lead	20.7	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Lead	18.3	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Lead	18.3	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Lead	10.6	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Lead	8.14	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Lead	10.3	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Lead	7.18	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR1	A7-C-AR1^6-RMP	Lead-210	1.3	J	pCi/g	0.761	0.761	4/17/2005	38	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Lead-210	0.828	J	pCi/g	0.812	0.812	4/17/2005	38	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Lead-210	0.86	U	pCi/g	0.86	0.86	4/17/2005	38	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Lead-210	0.762	U	pCi/g	0.762	0.762	4/17/2005	38	pCi/g	No
A7-C-AR13	A7-C-AR13^1-RMP	Lead-210	1.36	J	pCi/g	0.748	0.748	4/17/2005	38	pCi/g	No

**APPENDIX D-1**  
**SOIL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR15	A7-C-AR15^1-RMP	Lead-210	0.877	U	pCi/g	0.877	0.877	4/17/2005	38	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Lead-210	0.976	U	pCi/g	0.976	0.976	4/17/2005	38	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Lead-210	0.836	U	pCi/g	0.836	0.836	4/17/2005	38	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Lead-210	0.967	J	pCi/g	0.862	0.862	4/17/2005	38	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Lead-210	1.13	J	pCi/g	0.796	0.796	4/17/2005	38	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP	Lead-210	0.762	U	pCi/g	0.762	0.762	4/17/2005	38	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Lead-210	1.03	-	pCi/g	0.812	0.812	4/17/2005	38	pCi/g	No
A7-C-AR8	A7-C-AR8^1-RMP	Lead-210	1.49	-	pCi/g	0.709	0.709	4/17/2005	38	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Manganese	248	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR10	A7-C-AR10^1-RMP	Manganese	449	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Manganese	503	-	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Manganese	389	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Manganese	511	-	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Manganese	458	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR16	A7-C-AR16^1-RMP	Manganese	410	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Manganese	856	-	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Manganese	306	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Manganese	558	-	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Manganese	494	-	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Manganese	440	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Manganese	424	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR1	A7-C-AR1^6-RMP	Radium-226	1.27	-	pCi/g	0.148	0.148	4/17/2005	1.7	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Radium-226	0.894	-	pCi/g	0.193	0.193	4/17/2005	1.7	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Radium-226	0.922	-	pCi/g	0.172	0.172	4/17/2005	1.7	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Radium-226	0.846	-	pCi/g	0.172	0.172	4/17/2005	1.7	pCi/g	No
A7-C-AR13	A7-C-AR13^1-RMP	Radium-226	0.846	-	pCi/g	0.172	0.172	4/17/2005	1.7	pCi/g	No
A7-C-AR15	A7-C-AR15^1-RMP	Radium-226	0.952	-	pCi/g	0.193	0.193	4/17/2005	1.7	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Radium-226	1.23	-	pCi/g	0.188	0.188	4/17/2005	1.7	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Radium-226	1.38	-	pCi/g	0.163	0.163	4/17/2005	1.7	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Radium-226	1.32	-	pCi/g	0.179	0.179	4/17/2005	1.7	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Radium-226	1.29	-	pCi/g	0.16	0.16	4/17/2005	1.7	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP	Radium-226	0.851	-	pCi/g	0.149	0.149	4/17/2005	1.7	pCi/g	No

**APPENDIX D-1**  
**SOIL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR7	A7-C-AR7^1-RMP-D	Radium-226	0.8	-	pCi/g	0.178	0.178	4/17/2005	1.7	pCi/g	No
A7-C-AR8	A7-C-AR8^1-RMP	Radium-226	0.899	-	pCi/g	0.16	0.16	4/17/2005	1.7	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Radium-228	1.19	-	pCi/g	0.0697	0.0697	4/17/2005	1.8	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Radium-228	0.848	-	pCi/g	0.0714	0.0714	4/17/2005	1.8	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Radium-228	0.823	-	pCi/g	0.071	0.071	4/17/2005	1.8	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Radium-228	0.92	-	pCi/g	0.0696	0.0696	4/17/2005	1.8	pCi/g	No
A7-C-AR13	A7-C-AR13^1-RMP	Radium-228	0.754	-	pCi/g	0.0688	0.0688	4/17/2005	1.8	pCi/g	No
A7-C-AR15	A7-C-AR15^1-RMP	Radium-228	0.731	-	pCi/g	0.0725	0.0725	4/17/2005	1.8	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Radium-228	1.23	-	pCi/g	0.0783	0.0783	4/17/2005	1.8	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Radium-228	1.31	-	pCi/g	0.0724	0.0724	4/17/2005	1.8	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Radium-228	1.27	-	pCi/g	0.0769	0.0769	4/17/2005	1.8	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Radium-228	1.18	-	pCi/g	0.0727	0.0727	4/17/2005	1.8	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP	Radium-228	0.812	-	pCi/g	0.063	0.063	4/17/2005	1.8	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Radium-228	0.76	-	pCi/g	0.0696	0.0696	4/17/2005	1.8	pCi/g	No
A7-C-AR8	A7-C-AR8^1-RMP	Radium-228	0.817	-	pCi/g	0.0638	0.0638	4/17/2005	1.8	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Technetium-99	0.814	U	pCi/g	0.814	0.814	4/17/2005	30	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Technetium-99	0.809	U	pCi/g	0.809	0.809	4/17/2005	30	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Technetium-99	0.758	U	pCi/g	0.758	0.758	4/17/2005	30	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Technetium-99	0.769	U	pCi/g	0.769	0.769	4/17/2005	30	pCi/g	No
A7-C-AR13	A7-C-AR13^1-RMP	Technetium-99	0.831	U	pCi/g	0.831	0.831	4/17/2005	30	pCi/g	No
A7-C-AR15	A7-C-AR15^1-RMP	Technetium-99	0.844	U	pCi/g	0.844	0.844	4/17/2005	30	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Technetium-99	0.784	U	pCi/g	0.784	0.784	4/17/2005	30	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Technetium-99	0.809	U	pCi/g	0.809	0.809	4/17/2005	30	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Technetium-99	0.795	U	pCi/g	0.795	0.795	4/17/2005	30	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Technetium-99	0.792	U	pCi/g	0.792	0.792	4/17/2005	30	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP	Technetium-99	0.784	U	pCi/g	0.784	0.784	4/17/2005	30	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Technetium-99	0.797	U	pCi/g	0.797	0.797	4/17/2005	30	pCi/g	No
A7-C-AR8	A7-C-AR8^1-RMP	Technetium-99	0.766	U	pCi/g	0.766	0.766	4/17/2005	30	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Thorium-228	1.23	-	pCi/g	0.0697	0.0697	4/17/2005	1.7	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Thorium-228	0.907	-	pCi/g	0.0714	0.0714	4/17/2005	1.7	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Thorium-228	0.856	-	pCi/g	0.071	0.071	4/17/2005	1.7	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Thorium-228	0.921	-	pCi/g	0.0696	0.0696	4/17/2005	1.7	pCi/g	No

**APPENDIX D-1**  
**SOIL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR13	A7-C-AR13^1-RMP	Thorium-228	0.795	-	pCi/g	0.0688	0.0688	4/17/2005	1.7	pCi/g	No
A7-C-AR15	A7-C-AR15^1-RMP	Thorium-228	0.746	-	pCi/g	0.0725	0.0725	4/17/2005	1.7	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Thorium-228	1.37	-	pCi/g	0.0783	0.0783	4/17/2005	1.7	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Thorium-228	1.36	-	pCi/g	0.0724	0.0724	4/17/2005	1.7	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Thorium-228	1.36	-	pCi/g	0.0769	0.0769	4/17/2005	1.7	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Thorium-228	1.26	-	pCi/g	0.0727	0.0727	4/17/2005	1.7	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP	Thorium-228	0.892	-	pCi/g	0.063	0.063	4/17/2005	1.7	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Thorium-228	0.813	-	pCi/g	0.0696	0.0696	4/17/2005	1.7	pCi/g	No
A7-C-AR8	A7-C-AR8^1-RMP	Thorium-228	0.854	-	pCi/g	0.0638	0.0638	4/17/2005	1.7	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Thorium-230	1.36	J	pCi/g	0.0308	0.0308	4/17/2005	280	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Thorium-230	0.922	J	pCi/g	0.0848	0.0848	4/17/2005	280	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Thorium-230	0.957	J	pCi/g	0.0892	0.0892	4/17/2005	280	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Thorium-230	0.974	J	pCi/g	0.0314	0.0314	4/17/2005	280	pCi/g	No
A7-C-AR13	A7-C-AR13^1-RMP	Thorium-230	1.16	J	pCi/g	0.154	0.154	4/17/2005	280	pCi/g	No
A7-C-AR15	A7-C-AR15^1-RMP	Thorium-230	0.867	J	pCi/g	0.0351	0.0351	4/17/2005	280	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Thorium-230	1.13	J	pCi/g	0.0768	0.0768	4/17/2005	280	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Thorium-230	1.24	J	pCi/g	0.0673	0.0673	4/17/2005	280	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Thorium-230	1.09	J	pCi/g	0.0272	0.0272	4/17/2005	280	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Thorium-230	1.73	J	pCi/g	0.148	0.148	4/17/2005	280	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP	Thorium-230	0.65	J	pCi/g	0.0921	0.0921	4/17/2005	280	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Thorium-230	1.11	J	pCi/g	0.107	0.107	4/17/2005	280	pCi/g	No
A7-C-AR8	A7-C-AR8^1-RMP	Thorium-230	1.05	J	pCi/g	0.129	0.129	4/17/2005	280	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Thorium-232	1.19	-	pCi/g	0.0697	0.0697	4/17/2005	1.5	pCi/g	No
A7-C-AR10	A7-C-AR10^1-RMP	Thorium-232	0.848	-	pCi/g	0.0714	0.0714	4/17/2005	1.5	pCi/g	No
A7-C-AR11	A7-C-AR11^1-RMP	Thorium-232	0.823	-	pCi/g	0.071	0.071	4/17/2005	1.5	pCi/g	No
A7-C-AR12	A7-C-AR12^1-RMP	Thorium-232	0.92	-	pCi/g	0.0696	0.0696	4/17/2005	1.5	pCi/g	No
A7-C-AR13	A7-C-AR13^1-RMP	Thorium-232	0.754	-	pCi/g	0.0688	0.0688	4/17/2005	1.5	pCi/g	No
A7-C-AR15	A7-C-AR15^1-RMP	Thorium-232	0.731	-	pCi/g	0.0725	0.0725	4/17/2005	1.5	pCi/g	No
A7-C-AR16	A7-C-AR16^1-RMP	Thorium-232	1.23	-	pCi/g	0.0783	0.0783	4/17/2005	1.5	pCi/g	No
A7-C-AR3	A7-C-AR3^4-RMP	Thorium-232	1.31	-	pCi/g	0.0724	0.0724	4/17/2005	1.5	pCi/g	No
A7-C-AR4	A7-C-AR4^1-RMP	Thorium-232	1.27	-	pCi/g	0.0769	0.0769	4/17/2005	1.5	pCi/g	No
A7-C-AR5	A7-C-AR5^1-RMP	Thorium-232	1.18	-	pCi/g	0.0727	0.0727	4/17/2005	1.5	pCi/g	No

**APPENDIX D-1**  
**SOIL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR7	A7-C-AR7^1-RMP	Thorium-232	0.812	-	pCi/g	0.063	0.063	4/17/2005	1.5	pCi/g	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Thorium-232	0.76	-	pCi/g	0.0696	0.0696	4/17/2005	1.5	pCi/g	No
A7-C-AR8	A7-C-AR8^1-RMP	Thorium-232	0.817	-	pCi/g	0.0638	0.0638	4/17/2005	1.5	pCi/g	No
A7-C-AR1	A7-C-AR1^6-RMP	Uranium, Total	2.9	J	mg/kg	1.7	1.7	4/17/2005	82	mg/kg	No
A7-C-AR10	A7-C-AR10^1-RMP	Uranium, Total	2.75	J	mg/kg	1.78	1.78	4/17/2005	82	mg/kg	No
A7-C-AR11	A7-C-AR11^1-RMP	Uranium, Total	5.05	J	mg/kg	1.59	1.59	4/17/2005	82	mg/kg	No
A7-C-AR12	A7-C-AR12^1-RMP	Uranium, Total	3.72	J	mg/kg	1.72	1.72	4/17/2005	82	mg/kg	No
A7-C-AR13	A7-C-AR13^1-RMP	Uranium, Total	5.51	J	mg/kg	1.4	1.4	4/17/2005	82	mg/kg	No
A7-C-AR15	A7-C-AR15^1-RMP	Uranium, Total	2.92	J	mg/kg	1.75	1.75	4/17/2005	82	mg/kg	No
A7-C-AR16	A7-C-AR16^1-RMP	Uranium, Total	12.1	-	mg/kg	1.84	1.84	4/17/2005	82	mg/kg	No
A7-C-AR3	A7-C-AR3^4-RMP	Uranium, Total	4.51	J	mg/kg	1.53	1.53	4/17/2005	82	mg/kg	No
A7-C-AR4	A7-C-AR4^1-RMP	Uranium, Total	9.15	J	mg/kg	1.67	1.67	4/17/2005	82	mg/kg	No
A7-C-AR5	A7-C-AR5^1-RMP	Uranium, Total	5.22	J	mg/kg	1.77	1.77	4/17/2005	82	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP	Uranium, Total	3.29	J	mg/kg	1.54	1.54	4/17/2005	82	mg/kg	No
A7-C-AR7	A7-C-AR7^1-RMP-D	Uranium, Total	6.04	J	mg/kg	1.45	1.45	4/17/2005	82	mg/kg	No
A7-C-AR8	A7-C-AR8^1-RMP	Uranium, Total	2.96	J	mg/kg	1.53	1.53	4/17/2005	82	mg/kg	No

**APPENDIX D-2**  
**FILL DATA ASSOCIATED WITH THE ROAD ADJACENT TO THE SILOS TRUCK STAGING AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	Sample Date	FRL	FRL Unit	FRL?
A7-C-AR1F	A7-C-AR1F^1-RMP	Aroclor-1254	3.9	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Aroclor-1260	3.9	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Arsenic	6.36	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Beryllium	0.771	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Cesium-137	0.0574	U	pCi/g	0.0574	0.0574	4/17/2005	1.4	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Dieldrin	1.6	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Lead	15.6	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Lead-210	0.816	U	pCi/g	0.816	0.816	4/17/2005	38	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Manganese	562	-	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Radium-226	1.35	-	pCi/g	0.157	0.157	4/17/2005	1.7	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Radium-228	1.04	-	pCi/g	0.0696	0.0696	4/17/2005	1.8	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Technetium-99	0.765	U	pCi/g	0.765	0.765	4/17/2005	30	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Thorium-228	1.03	-	pCi/g	0.0696	0.0696	4/17/2005	1.7	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Thorium-230	1.42	J	pCi/g	0.0323	0.0323	4/17/2005	280	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Thorium-232	1.04	-	pCi/g	0.0696	0.0696	4/17/2005	1.5	pCi/g	No
A7-C-AR1F	A7-C-AR1F^1-RMP	Uranium, Total	3.81	J	mg/kg	1.79	1.79	4/17/2005	82	mg/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Aroclor-1254	1.1	J	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Aroclor-1260	3.7	U	ug/kg			4/17/2005	130	ug/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Arsenic	5.7	J	mg/kg			4/17/2005	12	mg/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Beryllium	0.625	-	mg/kg			4/17/2005	1.5	mg/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Cesium-137	0.0476	U	pCi/g	0.0476	0.0476	4/17/2005	1.4	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Dieldrin	1.5	U	ug/kg			4/17/2005	15	ug/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Lead	11.1	J	mg/kg			4/17/2005	400	mg/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Lead-210	0.741	U	pCi/g	0.741	0.741	4/17/2005	38	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Manganese	418	J	mg/kg			4/17/2005	4600	mg/kg	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Radium-226	1.04	-	pCi/g	0.144	0.144	4/17/2005	1.7	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Radium-228	0.898	-	pCi/g	0.0606	0.0606	4/17/2005	1.8	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Technetium-99	0.762	U	pCi/g	0.762	0.762	4/17/2005	30	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Thorium-228	0.97	-	pCi/g	0.0606	0.0606	4/17/2005	1.7	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Thorium-230	1.48	J	pCi/g	0.0327	0.0327	4/17/2005	280	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Thorium-232	0.898	-	pCi/g	0.0606	0.0606	4/17/2005	1.5	pCi/g	No
A7-C-AR3F	A7-C-AR3F^1-RMP	Uranium, Total	5.89	J	mg/kg	1.38	1.38	4/17/2005	82	mg/kg	No

<b>VARIANCE / FIELD CHANGE NOTICE</b>	Significant? (Yes or No): <b>NO</b>	<b>V/F: 20500-PSP-0005-12</b>
<b>WBS NO.:</b> PROJECT/DOCUMENT/ECDC # 20500-PSP-0005 Rev. 1		<b>Page:</b> 1 of 4
<b>PROJECT TITLE:</b> PSP for Predesign Investigation in Area 7		<b>Date:</b> 4/12/05

**VARIANCE / FIELD CHANGE NOTICE (Include justification):**

This V/FCN documents the collection of physical soil samples to be collected from beneath the access road located in Area 7 that runs west from the west parking lot to the 30/45 parking lot. This road, sometimes referred to as the west access road, is shown on Figure 1.

There are twelve borings planned for sampling. One sample should be collected from each boring. Each sample should be collected from the top 6 inches of soil beneath the road. If the top 6 inches of soil is fill material, a 6-inch sample should be collected from the fill material. The boring should then be advanced to native soil and another sample should be collected from the top 6 inches of native soil. Attachment 2 provides direction for identifying any fill material samples. One boring will be designated for the collection of a field duplicate sample. Each soil sample will be submitted to an offsite laboratory for the following analyses: primary rads (TAL A); cesium-137, lead-210, technetium-99, thorium-230 (TAL C); arsenic, beryllium (TAL D); aroclor-1254, aroclor-1260 (TAL E); dieldrin (TAL F); lead and manganese (TAL G).

One rinsate sample should also be collected. The rinsate sample will be submitted for the following analyses: primary rads (TAL A); cesium-137, lead-210, technetium-99, thorium-230 (TAL C); arsenic, beryllium (TAL D); lead and manganese (TAL G).

The proposed boring locations are shown on Figure 1. The TAL and Sampling and Analytical Requirements are provided on Attachment 1 and the Boring Table and Sample Identifiers are provided on Attachment 2.

Historical data for shipping is 26.2 mg/kg total uranium from boring A7-SA2-6.

Surveying required: Yes

Field QC samples required: Yes, one field duplicate sample and one rinsate sample

Field data validation: Yes

Analytical data validation: Yes

Offsite data package requirements (if applicable): Full data package

**Justification:**

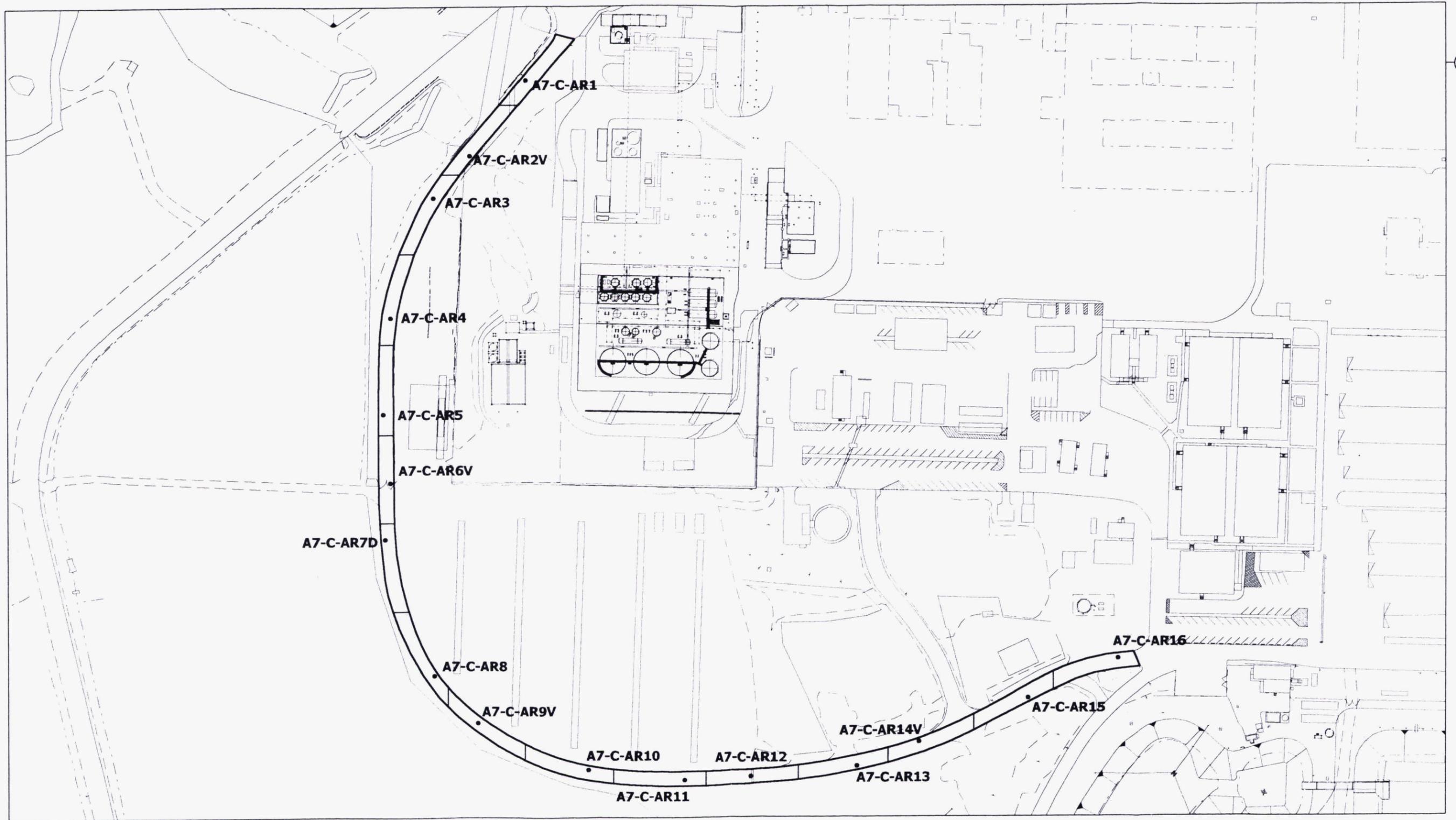
To provide additional characterization of soil beneath the west access road in Area 7, additional borings have been planned and documented in a V/FCN.

REQUESTED BY: Denise Arico

Date: 4/12/05

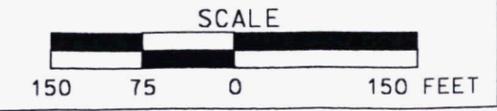
X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE R. Friske <i>Denise Arico</i>	4-14-05	X	PROJECT MANAGER: J. O'Neil <i>J. O'Neil</i>	4/14/05
	DATA QUALITY MANAGEMENT		X	CHARACTERIZATION MANAGER: Frank Miller <i>Frank Miller</i>	4/14/05
X	ANALYTICAL CUSTOMER SUPPORT WAO <i>Amy Meyer</i>	4-15-05		RTIMP Manager	
X	<i>Lynda Barton</i>	4/14/05	X	Sampling Manager: T. Bahrhag <i>T. Bahrhag</i>	4/15/05
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	

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LEGEND:

• PROPOSED SAMPLE LOCATION



DRAFT

FIGURE 1.

## ATTACHMENT 1

## SAMPLING AND ANALYTICAL REQUIREMENTS

Analyte	Sample Matrix	TAT	Preservative	Holding Time	Container	Minimum Sample Mass
Rads/Metals/ Pest & PCB TAL ACDEFG	Soil	7 days except for Ra 226 which is 30 days	Cool 4 deg C	12 months ----- 6 months ----- 14 days	Appropriate size glass with Teflon lined lid	500 g <sup>a</sup> (1500 g)
Rads TAL AC	liquid (rinsate)	30 days	HNO3 pH<2	6 months	Polyethylene	4 liters
Metals TAL DG	liquid (rinsate)	30 days	HNO3 pH<2	6 months	Polyethylene	500 mL

<sup>a</sup> At the direction of the Field Sampling Lead, one sample shall be identified as "designated for lab QC" on the Chain of Custody/Request for Analysis. This sample shall have triple the sample mass collected.

## TAL 20500-PSP-0005-A

## Soil Analysis (ASL D/E\*)

Analyte	FRL	MDL - Soil	MDL - Water
Total Uranium	82 mg/kg	8.2 mg/kg	1230 mg/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

## TAL 20500-PSP-0005-C

## Soil Analysis (ASL D/E\*)

Analyte	FRL	MDL - Soil	MDL - Water
Cesium-137	1.4 pCi/g	0.14 pCi/g	210 pCi/L
Lead-210	38 pCi/g	3.8 pCi/g	5700 pCi/L
Technetium-99	29.1 pCi/g	2.91 pCi/g	4500 pCi/L
Thorium-230	280 pCi/g	28 pCi/g	42000 pCi/L

## TAL 20500-PSP-0005-D

## Soil Analysis (ASL D/E\*)

Analyte	FRL	MDL - Soil	MDL - Water
Arsenic	12 mg/kg	1.2 mg/kg	180 mg/L
Beryllium	1.5 mg/kg	0.15 mg/kg	22.5 mg/L

## TAL 20500-PSP-0005-E

## Soil Analysis (ASL D/E\*)

Analyte	FRL	MDL - Soil
Aroclor-1254	0.13 mg/kg	0.013 mg/kg
Aroclor-1260	0.13 mg/kg	0.013 mg/kg

## TAL 20500-PSP-0005-F

## Soil Analysis (ASL D/E\*)

Analyte	FRL	MDL - Soil
Dieldrin	0.015 mg/kg	0.0015 mg/kg

## TAL 20500-PSP-0005-G

## Soil Analysis (ASL D/E\*)

Analyte	FRL	MDL - Soil	MDL - Water
Lead	400 mg/kg	40 mg/kg	600 mg/L
Managanese	4600 mg/kg	460 mg/kg	6900 mg/L

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

**ATTACHMENT 2**  
**BORING TABLE AND SAMPLE IDENTIFIERS**

Location	Northing	Easting	Depth (feet)*	Depth Identifier*	Sample ID*	Analysis
A7-C-AR1	479853.94	1347957.91	0-0.5	1	A7-C-AR1^1-RMP	TAL ACDEFG
A7-C-AR2V	479737.84	1347871.8	not to be collected		A7-C-AR2V	Archive
A7-C-AR3	479672.8	1347815.91	0-0.5	1	A7-C-AR3^1-RMP	TAL ACDEFG
A7-C-AR4	479488.38	1347749.76	0-0.5	1	A7-C-AR4^1-RMP	TAL ACDEFG
A7-C-AR5	479339.76	1347738.36	0-0.5	1	A7-C-AR5^1-RMP	TAL ACDEFG
A7-C-AR6V	479233.93	1347749.19	not to be collected		A7-C-AR6V	Archive
A7-C-AR7D	479147.78	1347741.21	0-0.5	1	A7-C-AR7^1-RMP	TAL ACDEFG
			0-0.5	1	A7-C-AR7^1-RMP-D	TAL ACDEFG
A7-C-AR8	478938.82	1347817.05	0-0.5	1	A7-C-AR8^1-RMP	TAL ACDEFG
A7-C-AR9V	478866.37	1347883.77	not to be collected		A7-C-AR9V	Archive
A7-C-AR10	478794.48	1348053.71	0-0.5	1	A7-C-AR10^1-RMP	TAL ACDEFG
A7-C-AR11	478778.5	1348201.7	0-0.5	1	A7-C-AR11^1-RMP	TAL ACDEFG
A7-C-AR12	478783.07	1348305.49	0-0.5	1	A7-C-AR12^1-RMP	TAL ACDEFG
A7-C-AR13	478799.04	1348467.73	0-0.5	1	A7-C-AR13^1-RMP	TAL ACDEFG
A7-C-AR14V	478835.56	1348562.97	not to be collected		A7-C-AR14V	Archive
A7-C-AR15	478901.74	1348730.34	0-0.5	1	A7-C-AR15^1-RMP	TAL ACDEFG
A7-C-AR16	478962.22	1348869.49	0-0.5	1	A7-C-AR16^1-RMP	TAL ACDEFG

Note: The rinsate samples shall be identified as follows: rads - A7-C-AR-R-X and metals - A7-C-AR-M-X.

\*If fill material is sampled, an "F" shall be added to the sample ID. For example, a fill material sample collected at location A7-C-AR5 would be identified as follows: A7-C-AR5F^1-RMP. The native soil sample would be identified as A7-C-AR5^x-RMP, with x being replaced with the depth identifier that is 2 times the bottom depth of the native soil sample interval.

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**APPENDIX E**

**INFORMATION ASSOCIATED WITH THE  
ADDITIONAL SAMPLING IN THE SECURITY TRAILER AREA**

**APPENDIX E**  
**DATA ASSOCIATED WITH THE ADDITIONAL SAMPLING IN THE SECURITY TRAILER AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	FRL	FRL Unit	FRL?
A7SAR-CSTA-1	A7SAR-CSTA-1^RP	Aroclor-1254	4.1	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-2	A7SAR-CSTA-2^RP	Aroclor-1254	4	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-3	A7SAR-CSTA-3^RP	Aroclor-1254	4.1	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-4	A7SAR-CSTA-4^RP	Aroclor-1254	4.1	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-5	A7SAR-CSTA-5^RP	Aroclor-1254	5.6	J	ug/kg			130	ug/kg	No
A7SAR-CSTA-6	A7SAR-CSTA-6^RP	Aroclor-1254	4.2	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-7	A7SAR-CSTA-7^RP	Aroclor-1254	4	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-8	A7SAR-CSTA-8^RP	Aroclor-1254	4	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-9	A7SAR-CSTA-9^RP	Aroclor-1254	3.8	U	ug/kg			130	ug/kg	No
A7SAR-CSTA-1	A7SAR-CSTA-1^RP	Radium-226	1.31118	-	pCi/g	0.105	0.105	1.7	pCi/g	No
A7SAR-CSTA-2	A7SAR-CSTA-2^RP	Radium-226	1.19535	-	pCi/g	0.133	0.133	1.7	pCi/g	No
A7SAR-CSTA-3	A7SAR-CSTA-3^RP	Radium-226	1.27959	-	pCi/g	0.087	0.087	1.7	pCi/g	No
A7SAR-CSTA-4	A7SAR-CSTA-4^RP	Radium-226	1.31118	-	pCi/g	0.127	0.127	1.7	pCi/g	No
A7SAR-CSTA-5	A7SAR-CSTA-5^RP	Radium-226	0.994227	-	pCi/g	0.12	0.12	1.7	pCi/g	No
A7SAR-CSTA-6	A7SAR-CSTA-6^RP	Radium-226	1.22694	-	pCi/g	0.079	0.079	1.7	pCi/g	No
A7SAR-CSTA-7	A7SAR-CSTA-7^RP	Radium-226	1.20588	-	pCi/g	0.148	0.148	1.7	pCi/g	No
A7SAR-CSTA-8	A7SAR-CSTA-8^RP	Radium-226	1.19535	-	pCi/g	0.0784	0.078	1.7	pCi/g	No
A7SAR-CSTA-9	A7SAR-CSTA-9^RP	Radium-226	1.11111	-	pCi/g	0.124	0.124	1.7	pCi/g	No
A7SAR-CSTA-1	A7SAR-CSTA-1^RP	Radium-228	1.15	-	pCi/g	0.08	0.08	1.8	pCi/g	No
A7SAR-CSTA-2	A7SAR-CSTA-2^RP	Radium-228	0.954	-	pCi/g	0.0996	0.1	1.8	pCi/g	No
A7SAR-CSTA-3	A7SAR-CSTA-3^RP	Radium-228	1.12	-	pCi/g	0.0736	0.074	1.8	pCi/g	No
A7SAR-CSTA-4	A7SAR-CSTA-4^RP	Radium-228	1.17	-	pCi/g	0.0812	0.081	1.8	pCi/g	No
A7SAR-CSTA-5	A7SAR-CSTA-5^RP	Radium-228	0.81	-	pCi/g	0.107	0.107	1.8	pCi/g	No
A7SAR-CSTA-6	A7SAR-CSTA-6^RP	Radium-228	1.13	-	pCi/g	0.0655	0.066	1.8	pCi/g	No
A7SAR-CSTA-7	A7SAR-CSTA-7^RP	Radium-228	1.04	-	pCi/g	0.0958	0.096	1.8	pCi/g	No
A7SAR-CSTA-8	A7SAR-CSTA-8^RP	Radium-228	0.954	-	pCi/g	0.063	0.063	1.8	pCi/g	No
A7SAR-CSTA-9	A7SAR-CSTA-9^RP	Radium-228	0.925	-	pCi/g	0.0949	0.095	1.8	pCi/g	No
A7SAR-CSTA-1	A7SAR-CSTA-1^RP	Thorium-228	1.17	-	pCi/g	0.08	0.08	1.7	pCi/g	No

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**APPENDIX E**  
**DATA ASSOCIATED WITH THE ADDITIONAL SAMPLING IN THE SECURITY TRAILER AREA**

Boring	Sample ID	Parameter	Val Res	VQ	Units	MDC	Val MDC	FRL	FRL Unit	FRL?
A7SAR-CSTA-2	A7SAR-CSTA-2^RP	Thorium-228	0.962	-	pCi/g	0.0996	0.1	1.7	pCi/g	No
A7SAR-CSTA-3	A7SAR-CSTA-3^RP	Thorium-228	1.12	-	pCi/g	0.0736	0.074	1.7	pCi/g	No
A7SAR-CSTA-4	A7SAR-CSTA-4^RP	Thorium-228	1.17	-	pCi/g	0.0812	0.081	1.7	pCi/g	No
A7SAR-CSTA-5	A7SAR-CSTA-5^RP	Thorium-228	0.753	-	pCi/g	0.107	0.107	1.7	pCi/g	No
A7SAR-CSTA-6	A7SAR-CSTA-6^RP	Thorium-228	1.15	-	pCi/g	0.0655	0.066	1.7	pCi/g	No
A7SAR-CSTA-7	A7SAR-CSTA-7^RP	Thorium-228	1.04	-	pCi/g	0.0958	0.096	1.7	pCi/g	No
A7SAR-CSTA-8	A7SAR-CSTA-8^RP	Thorium-228	0.95	-	pCi/g	0.063	0.063	1.7	pCi/g	No
A7SAR-CSTA-9	A7SAR-CSTA-9^RP	Thorium-228	0.912	-	pCi/g	0.0949	0.095	1.7	pCi/g	No
A7SAR-CSTA-1	A7SAR-CSTA-1^RP	Thorium-232	1.15	-	pCi/g	0.08	0.08	1.5	pCi/g	No
A7SAR-CSTA-2	A7SAR-CSTA-2^RP	Thorium-232	0.954	-	pCi/g	0.0996	0.1	1.5	pCi/g	No
A7SAR-CSTA-3	A7SAR-CSTA-3^RP	Thorium-232	1.12	-	pCi/g	0.0736	0.074	1.5	pCi/g	No
A7SAR-CSTA-4	A7SAR-CSTA-4^RP	Thorium-232	1.17	-	pCi/g	0.0812	0.081	1.5	pCi/g	No
A7SAR-CSTA-5	A7SAR-CSTA-5^RP	Thorium-232	0.81	-	pCi/g	0.107	0.107	1.5	pCi/g	No
A7SAR-CSTA-6	A7SAR-CSTA-6^RP	Thorium-232	1.13	-	pCi/g	0.0655	0.066	1.5	pCi/g	No
A7SAR-CSTA-7	A7SAR-CSTA-7^RP	Thorium-232	1.04	-	pCi/g	0.0958	0.096	1.5	pCi/g	No
A7SAR-CSTA-8	A7SAR-CSTA-8^RP	Thorium-232	0.954	-	pCi/g	0.063	0.063	1.5	pCi/g	No
A7SAR-CSTA-9	A7SAR-CSTA-9^RP	Thorium-232	0.925	-	pCi/g	0.0949	0.095	1.5	pCi/g	No
A7SAR-CSTA-1	A7SAR-CSTA-1^RP	Uranium, Total	9.03	-	mg/kg	2.21	2.21	82	mg/kg	No
A7SAR-CSTA-2	A7SAR-CSTA-2^RP	Uranium, Total	6.66	-	mg/kg	2.75	2.75	82	mg/kg	No
A7SAR-CSTA-3	A7SAR-CSTA-3^RP	Uranium, Total	7.34	-	mg/kg	2.05	2.05	82	mg/kg	No
A7SAR-CSTA-4	A7SAR-CSTA-4^RP	Uranium, Total	8.22	-	mg/kg	1.72	1.72	82	mg/kg	No
A7SAR-CSTA-5	A7SAR-CSTA-5^RP	Uranium, Total	15.6	-	mg/kg	1.86	1.86	82	mg/kg	No
A7SAR-CSTA-6	A7SAR-CSTA-6^RP	Uranium, Total	9.47	-	mg/kg	2.1	2.1	82	mg/kg	No
A7SAR-CSTA-7	A7SAR-CSTA-7^RP	Uranium, Total	7.97	-	mg/kg	2.54	2.54	82	mg/kg	No
A7SAR-CSTA-8	A7SAR-CSTA-8^RP	Uranium, Total	10.8	-	mg/kg	1.97	1.97	82	mg/kg	No
A7SAR-CSTA-9	A7SAR-CSTA-9^RP	Uranium, Total	11.5	-	mg/kg	1.93	1.93	82	mg/kg	No

**VARIANCE/FIELD CHANGE NOTICE LOG THE CERTIFICATION DESIGN LETTER  
AND CERTIFICATION PROJECT SPECIFIC PLAN FOR VARIOUS AREAS OUTSIDE  
OF THE HISTORICALLY RADIOLOGICALLY CONTROLLED AREA**

Variance No.	Variance Date	Variance Description	Significant? (Y or N)	Date Signed	Date Distributed	EPA/OEPA Approval
<b>Revision A</b>						
20500-PSP-0014-1	7/17/06	Documents additional sampling within the footprint of trailers in the security trailer area	N	8/2/06	8/2/06	NA

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**VARIANCE / FIELD CHANGE NOTICE**

Significant?  
(Yes or No): **NO**

V/F: 20500-PSP-0014-1

WBS NO.: PROJECT/DOCUMENT/ECDC # 20500-PSP-0014 Rev. A

Page: 1 of 3

PROJECT TITLE: Certification Design Letter and Certification Project Specific Plan For Various Areas Outside of the Historically Radiologically Controlled Area

Date: 7/17/06

**VARIANCE / FIELD CHANGE NOTICE (Include justification):**

This Variance/Field Change Notice (V/FCN) documents the collection of additional certification soil samples in the security trailer area. Samples will be collected from within the footprint of all trailers present within this area as shown on Figure 1.

Additionally, this V/FCN documents the change in status of boring location A7SAR-C03-7 from archive to actual sample. This sample will be collected with the other samples presented in this V/FCN.

Samples will be analyzed from the first 6 inches of native soil for the ASCOCs identified for the area in the CDL/Certification PSP for CUs A7SAR-C03 and A7SAR-C04 - total uranium, radium-226, radium-228, thorium-228, and thorium-232 (TAL A) and aroclor-1254 (TAL E).

NOTE: Sampling activities associated with this V/FCN are designed to be within the footprint of trailers in the security trailer area. If samples designated in Figure 1 do not fall within the footprint of a trailer do not collect the sample. Additionally, if more trailers are present in the security trailer area than are shown in Figure 1, sample within the footprint of each additional trailer using a consecutive sample location.

See Attachment 1 for the TAL and the Sampling and Analytical Requirements. The Sample Ids and their associated locations are as listed on Attachment 1. The first sample location will be A7SAR-CSTA-1^RP. All other samples will be numbered consecutively.

Where:

- A7SAR = Area 7 South Access Road Area
- CSTA = Certification in the Security Trailer Area
- 1, 2, 3, =- Consecutive Sample Locations
- R = Radiological Sample, P = PCB Sample

Surveying Required: Yes – If more samples are collected than initially identified, survey after field location by samplers.

Field data validation: Yes

**Justification:**

Additional samples are being collected from within the footprint of the trailers located in the security trailer area to demonstrate that contamination was not present under the trailers. Per Section 4.3 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan

Date: 7/17/06

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE: R. Frank Miller	8-2-06	X	PROJECT MANAGER: J.D. Chiou	7/20/06
	DATA QUALITY MANAGEMENT		X	CHARACTERIZATION MANAGER: R. Miller	18 JUL 06
X	ANALYTICAL CUSTOMER SUPPORT: Paul S. McGurgen	7/21/06		RTIMP Manager	
X	YAO: Carter Bell	8-1-06	X	SAMPLING MANAGER: T. Buhrlage	7/26/06

VARIANCE/FCN APPROVED  YES  NO REVISION REQUIRED:  YES  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

Analyte	Method	Sample Matrix	ASL	Preservation	Hold Time	TAT	Container <sup>b</sup>	Minimum Mass/Volume
<b>Radiological and PCBs</b> (TALs A and E)	Gamma Spec	Solid	D/E <sup>a</sup>	Cool to 4°C	12 months	10 days for the EDD, 14 days for the full data package <sup>c</sup> (7-day in-growth for gamma analyses)	Glass with Teflon-lined lid	500 g (1500 g) <sup>c</sup>
	GC				14 days			
<b>Radiological</b> (TALs A)	Gamma Spec	Liquid <sup>d</sup>	D/E <sup>a</sup>	HNO <sub>3</sub> to pH<2	6 months	14 days	Polyethylene	4 Liters

**Special Instructions (samplers):**

<sup>a</sup> Samples will be analyzed according to ASL D requirements but the minimum detection level may cause some analyses to be considered ASL E.

<sup>b</sup> 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.

<sup>c</sup> 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".

<sup>d</sup> 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.

<sup>e</sup> One sample per CU will be selected for radium-226 analysis utilizing a 21-day in-growth with a 30-day TAT. Samples with a 7-day in-growth will be denoted by a "7DAY" suffix while the sample chosen as a 21-day in-growth will be denoted by a "21DAY" suffix attached to the laboratory data.

**Special Instructions (SPL/Lab):**

Analytical Data Validation is required - VSL D

Data Package Requirement - Full data package within 14 days.

Historical Data for shipping: Total Uranium = 13.52 mg/kg from boring A5-CH-4.

**TARGET ANALYTE LISTS (TALs)****20600-PSP-0018-A  
(ASL D/E\*)  
(Estimated 10 analyses)**

Analyte	FRL	MDL	MDL (water)
Total Uranium	82 mg/kg	8.2 mg/kg	650 µg/L
Radium-226	1.7 pCi/g	0.17 pCi/g	30 pCi/L
Radium-228	1.8 pCi/g	0.18 pCi/g	30 pCi/L
Thorium-228	1.7 pCi/g	0.17 pCi/g	30 pCi/L
Thorium-232	1.5 pCi/g	0.15 pCi/g	10 pCi/L

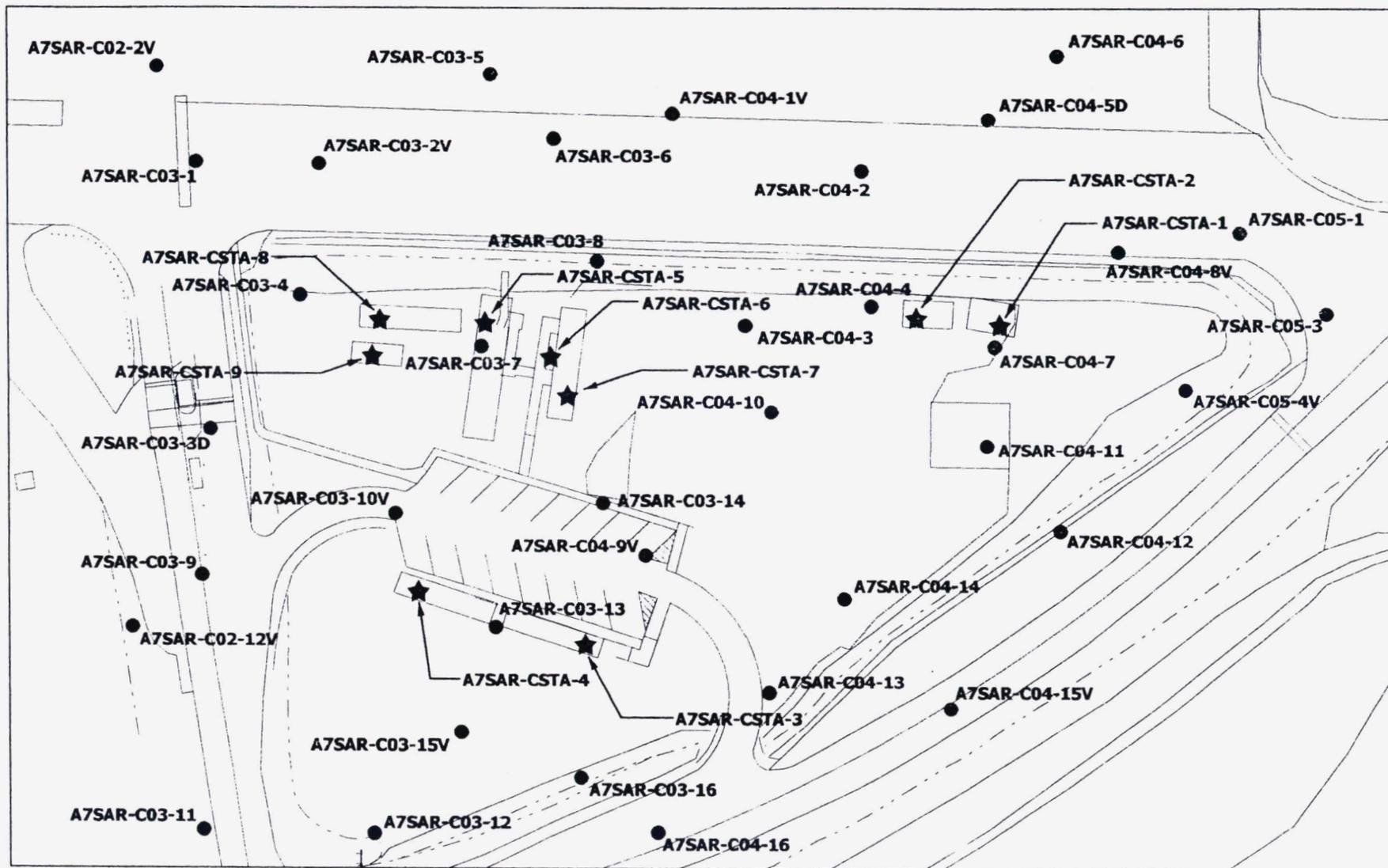
**20600-PSP-0014-E  
(PCBs - ASL D/E\*)  
(Estimated 10 analyses)**

Analyte	FRL	MDL
Aroclor-1254	0.13 mg/kg	0.013 mg/kg

\*Analytical requirements will meet ASL D but the MDL may cause some analyses to be considered ASL E.

**SAMPLE LOCATIONS AND IDENTIFICATION**

Location ID	Northing	Easting	Sample Interval	TAL	Sample ID
A7SAR-CSTA-1	478886	1350211.13	0.0-0.5'	AE	A7SAR-CSTA-1^RP
A7SAR-CSTA-2	478888.7	1350177.56	0.0-0.5'	AE	A7SAR-CSTA-2^RP
A7SAR-CSTA-3	478758.9	1350044.88	0.0-0.5'	AE	A7SAR-CSTA-3^RP
A7SAR-CSTA-4	478779.9	1349978.35	0.0-0.5'	AE	A7SAR-CSTA-4^RP
A7SAR-CSTA-5	478886.7	1350005.31	0.0-0.5'	AE	A7SAR-CSTA-5^RP
A7SAR-CSTA-6	478873.4	1350031.48	0.0-0.5'	AE	A7SAR-CSTA-6^RP
A7SAR-CSTA-7	478857.9	1350038.12	0.0-0.5'	AE	A7SAR-CSTA-7^RP
A7SAR-CSTA-8	478887.9	1349963.5	0.0-0.5'	AE	A7SAR-CSTA-8^RP
A7SAR-CSTA-9	478873.8	1349960.41	0.0-0.5'	AE	A7SAR-CSTA-9^RP
A7SAR-C03-7	478877.86	1350003.54	0.0-0.5'	AE	A7SAR-C03-7^RP



**LEGEND:**

- CERTIFICATION SAMPLE
- ★ ADDITIONAL CERTIFICATION SAMPLE

DRAFT

