**Department of Energy**

**Ohio Field Office**
**Fernald Closure Project**
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NOV 3 2006

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DOE-0046-07

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Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF THE DRAFT CERTIFICATION REPORT FOR THE AREA 7 SILOS AND SUPPORT AREA**

Enclosed for your review is the draft Certification Report for the Area 7 Silos and Support Area.

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

Sincerely,

Johnny W. Reising
Director

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# CERTIFICATION REPORT FOR THE AREA 7 SILOS AND SUPPORT AREA

**FERNALD CLOSURE PROJECT**
**FERNALD, OHIO**

**OCTOBER 2006**

**U.S. DEPARTMENT OF ENERGY**

**20500-RP-0009**
**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 |
| EPA | U.S. Environmental Protection Agency |
| FCP | Fernald Closure Project |
| FRL | final remediation level |
| HAMDC | highest allowable minimum detectable concentration |
| MDC | minimum detectable concentration |
| µg/kg | micrograms per kilogram |
| MDL | minimum detectable level |
| mg/kg | milligrams per kilogram |
| OEPA | Ohio Environmental Protection Agency |
| OSDF | On-Site Disposal Facility |
| OU | Operable Unit |
| PAH | polyaromatic hydrocarbon |
| 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 |
| TTA | Transfer Tank Area |
| TPU | Total Propagated Uncertainty |
| UCL | upper confidence limit |
| V&V | verification and validation process |
| V/FCN | Variance/Field Change Notice |
| VSL | Validation Support Level |
| WAC | waste acceptance criteria |

# EXECUTIVE SUMMARY

This certification report presents the information and data used by the U.S. Department of Energy (DOE) to determine that the soil in Area 7 Silos and Support Area meets the certification requirements at the Fernald Closure Project (FCP).

This Certification Report includes details of the certification sampling, analysis, validation, and statistical analysis that took place in the areas covered by this document. With the exception of access roads, parking lots, and trailer footprints, the areas identified and presented in this Certification Report required extensive remedial actions. Consistent with the Sitewide Excavation Plan (DOE 1998), these areas underwent predesign, excavation, and precertification activities, including the use of real-time measurement systems as well as physical sampling and analysis. As a result of these activities, it was determined that no further remediation was necessary prior to certification.

Area 7 Silos and Support Area was made up of sixteen (16) CUs - 14 Group 1 certification units (CUs) and two Group 2 CUs. CU delineation for these areas is described in the Certification Design Letter and Certification Project Specific Plan for Area 7 Silos and Support Area (DOE 2006). Additionally, five CUs were constructed from samples obtained from the bottom of utility trenches to demonstrate that contamination had been removed from below the excavated utility. One CU was constructed from sampling activities associated with K-65 trench area excavation. Certification sample results presented in this report demonstrate that the certification criteria were achieved for every CU. These criteria state that: 1) the mean concentration or activities of the primary area-specific constituents of concern (ASCOCs) within a CU must be less than the final remediation levels (FRLs) at the 95 percent upper confidence level (UCL) or the 90 percent UCL for the secondary ASCOCs; and 2) no certification result can exceed two times the FRL (i.e., the hotspot criterion). If either of these criteria is not met, then further investigation and possible excavation is required. If both of these criteria are met for a CU, then it can be released to restoration for development of the final land use.

Area 7 Silos and Support Area underwent the certification process in the fall of 2006. All samples related to this effort were collected in 2006 and analyzed at an off-site laboratory that is on the FCP Approved Laboratories List, per the Sitewide Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ, DOE 2003). The data were subjected to the required validation and verification process.

After the initial certification samples were collected, analyzed and validated, CUs 11, 12, 13, and 15 failed the statistical and/or hotspot criteria for radium-226. CU 2 failed for arsenic. Additional

excavation and sampling were required to remove the contamination and pass the certification criteria. The certification details are provided in Section 3.2 of 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. The area will be considered certified when the U.S. Environmental Protection Agency and Ohio Environmental Protection Agency concur that certification criteria have been met. At that time, DOE intends to proceed with final land use activities as outlined in the Natural Resource Restoration Plan (DOE 2002).

DOE has restricted access to certified areas in order to maintain their integrity prior to final land use development. FCP procedure EP-0008 has been developed to implement the process that protects certified areas from becoming recontaminated.

# 1.0 INTRODUCTION

## 1.1 PURPOSE

This report presents the soil certification process and analytical data used by the U.S. Department of Energy (DOE) to demonstrate that the existing area-specific constituents of concern (ASCOCs) in Area 7 Silos and Support Area (Figure 1-1) meet the certification requirements of the Sitewide Excavation Plan (SEP, DOE 1998). Analytical results and statistical tests for the certification units (CUs) identified in the Certification Design Letter (CDL) and Certification Project Specific Plan (PSP) for Area 7 Silos and Support Area (DOE 2006), except where specified in this document (Section 3.2), indicate that this area does not require any additional soil remediation. Also presented are the certification results for samples collected from utility trench footprints and the K-65 trench area within the Area 7 Silos and Support Area. Based on the information presented in this document, the DOE considers remedial goals achieved in the portion of the site addressed by this document.

## 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 final remediation levels (FRLs), with final disposition of the excavated material in the On-Site Disposal Facility (OSDF) or an off-site disposal facility if the OSDF 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 committed to preparing the SEP to define the overall approach to implementing the soil and at- and below-grade debris cleanup obligations identified in the OU2 (DOE 1995b), OU3 (DOE 1996c), and OU5 RODs. In the SEP, the FCP was divided into ten remedial areas. This document addresses a portion of Remediation Area 7 identified as Area 7 Silos and Support Area (Figure 1-1).

After all necessary remediation was completed within each area or its associated phase, the soil was sampled, analyzed and certified as attaining all clean up goals (i.e., FRLs). The SEP describes the general soil remediation and certification process at the FCP. As discussed in Section 4.1 of the SEP, Excavation Approach D is the appropriate remedial approach for contaminated material in Area 7 Silos and Support Area. For areas such as the parking lots, access roads, and trailer areas, Excavation Approach E would have been the chosen remediation approach. The remediation of this area is discussed in the CDL and Certification PSP for Area 7 Silos and Support Area.

## 1.3 AREA DESCRIPTION

The focus of this certification report is the 11.1-acre Area 7 Silos and Support Area, which consist of the Silos 3 and 4 footprints, the area formerly used as the Silos Process Area and its adjacent support areas. The boundary for this area is shown on Figure 1-1. As with other parts of Area 7, certification of Area 7 Silos and Support Area has been performed in several phases based on the required remedial actions in each of the different subareas.

## 1.4 SCOPE

The scope of this Certification Report includes the details of certification sampling, analysis, validation and statistical evaluation for soil samples collected from Area 7 Silos and Support Area. This area was divided into 16 CUs - 14 Group 1 CUs and two Groups 2 CUs. The certification design for these 16 CUs follows the general approach outlined in Section 3.4 of the SEP. Additionally, five utility trench CUs were created to account for samples collected from the bottom of utility trenches. Also, one CU was created to include the samples collected from the bottom of the trench created in association with K-65 trench excavation activities.

## 1.5 OBJECTIVES

The objectives of this Certification Report are:

- Provide an overview of the precertification and remedial activities conducted in the Area 7 Silos and Support Area
- Describe the analytical methods, data validation processes, data reduction and statistical processes used to support the certification process
- Present the certification sampling results for the 18 CUs that make up the Area 7 Silos and Support Area, the five CUs that comprise samples collected from the bottom of utility trenches, and the CU that comprises the K-65 trench area samples
- Present the statistical analysis showing that all 24 CUs have passed the certification criteria (i.e., FRL attainment and hotspot criteria)
- Describe access controls implemented to prevent recontamination.

## 1.6 REPORT FORMAT

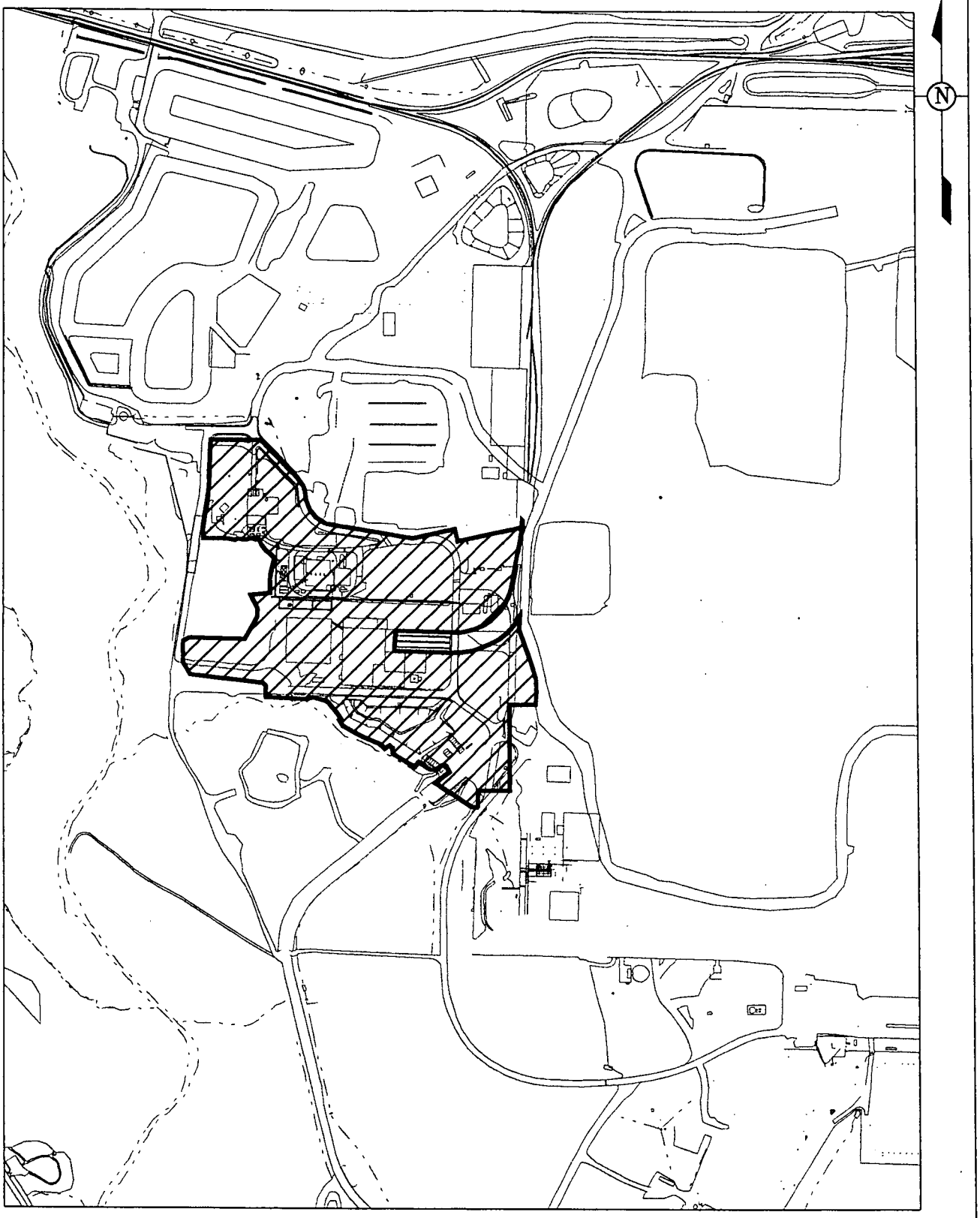
This certification report is presented in five sections with supporting data and documentation in Appendices A through E. The sections of this report are as follows:

Section 1.0 Introduction: Purpose, background, area description, scope, and objectives of the report

| | |
|---|---|
| Section 2.0 | Certification Approach: The CU design and approach to sampling and analysis used for certification |
| Section 3.0 | Overview of Field Activities: Area preparation/survey, sampling and changes to work scope |
| Section 4.0 | Analytical Methodologies, Data Validation Processes and Data Reduction |
| Section 5.0 | Certification Evaluation and Conclusions |
| Appendix A | Statistical Analysis of Sample Data and Analytical Results |
| Appendix B | Variance/Field Change Notices (V/FCNs) for the CDL and Certification PSP for Area 7 Silos and Support Area |
| Appendix C | Statistical Analysis of Utility Trench Data |
| Appendix D | Correction of 7-Day Radium-226 Results |
| Appendix E | Statistical Analysis of K-65 Trench Data |

## 1.7 FCP CONTROLLED CERTIFICATION MAP

In order to track the status of certification at the FCP, DOE includes a site map showing the status of the soil remediation areas with all Certification Reports. This map is included as Figure 1-2, and it has been updated to reflect the status of the areas included in this document.




LEGEND:

AREA 7 SILOS
& SUPPORT AREA

SCALE

500 250 0 500 FEET

FIGURE 1-1. AREA 7 SILOS & SUPPORT AREA CERTIFICATION AREA LOCATION MAP

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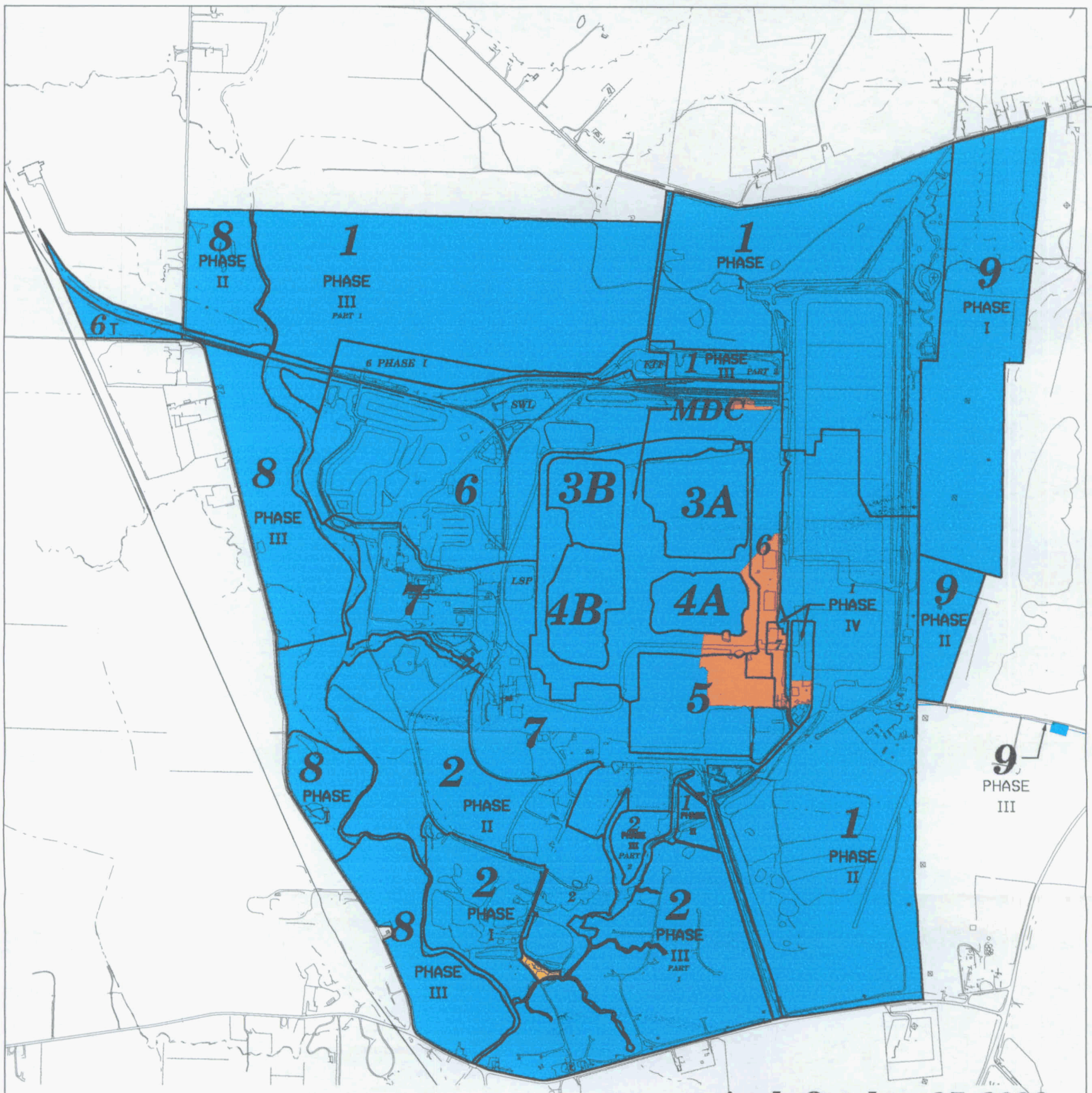
STATE PLANAR COORDINATE SYSTEM 1983

23-OCT-2006




*revised October 27, 2006*

| AREAS | TOTAL ACRES | APPROVED CERT. ACRES | CERT. ACRES IN PROGRESS | REMEDIATION ACRES IN PROGRESS | PREDESIGN ACRES IN PROGRESS | REMAINING ACRES |
|---|---|---|---|---|---|---|
| AREA 1 | 395.1 | 394.0 | 1.0 | 0 | 0 | 0 |
| AREA 2 | 173.9 | 173.9 | 0 | 0 | 0 | 0 |
| AREA 3A/4A | 29.3 | 29.3 | 0 | 0 | 0 | 0 |
| AREA 3B/4B | 25.4 | 25.4 | 0 | 0 | 0 | 0 |
| AREA 5 | 26.9 | 21.4 | 5.6 | 0 | 0 | 0 |
| AREA 6 | 149.5 | 143.7 | 5.9 | 0 | 0 | 0 |
| AREA 7 | 77.0 | 74.6 | 2.4 | 0 | 0 | 0 |
| AREA 8 | 98.9 | 98.9 | 0 | 0 | 0 | 0 |
| MDC | 39.8 | 36.0 | 3.9 | 0 | 0 | 0 |
| PR/SSOD/PPDD | 33.3 | 33.3 | 0 | 0 | 0 | 0 |
| TOTAL ON SITE | 1049.2 | 1030.5 | 18.7 | 0 | 0 | 0 |
| AREA 9 | 85.6 | 85.6 | 0 | 0 | 0 | 0 |
| TOTAL OFF SITE | 85.6 | 85.6 | 0 | 0 | 0 | 0 |

AREA 10 INCLUDES PIPELINES RELATED TO GROUNDWATER REMEDIATION AND OTHER UTILITIES NOT SPECIFICALLY LISTED.

SCALE

1100 550 0 1100 FEET

FIGURE 1-2. FCP CONTROLLED CERTIFICATION MAP

v:\5cj31\dgn\bmp\cert\map5.dgn

STATE PLANAR COORDINATE SYSTEM 1983

27-OCT-2006

# 2.0 CERTIFICATION APPROACH

## 2.1 CERTIFICATION STRATEGY

This section summarizes the 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 post-remediation mean concentration or activity of each ASCOC in the soil is less than its FRL at the 95 percent upper confidence level (UCL) (primary ASCOC) or the 90 percent UCL (secondary ASCOCs). This certification process also includes the hotspot criterion, which states that if any ASCOC concentration exceeds two times its FRL, additional soil remediation and sampling are necessary to remove the hotspot and verify that the COC is below the hotspot limit. Details on these actions are discussed in Section 3.4.5 of the SEP. If the mean residual concentration or activity of all ASCOCs 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 and it can then be released for regrading, reseeding and development of a final land use. Additional discussion of the certification strategy is described in Section 3.4 of the SEP and in the CDL and Certification PSP for Area 7 Silos and Support Area.

### 2.1.1 Area-Specific Constituents of Concern

ASCOCs are selected based on screening criteria and requirements in the SEP.

### 2.1.2 ASCOC Selection Criteria

The selection process for retaining secondary ASCOCs for a remediation area is driven by applying the following set of decision criteria:

- It was retained as an ASCOC in adjacent FCP soil remediation areas;
- It is listed as a soil constituent of concern (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;
- Analytical results show that a contaminant is present above its FRL, and the above-FRL concentrations are not attributable to false positives or elevated contract-required detection limits (CRDLs);
- It can be traced to site use, either through process knowledge or known release of the constituent to the environment; and
- Physical characteristics of the contaminant, such as degradation rate and volatility, indicate it is likely to persist in the soil between time of release and remediation.

### 2.1.3 ASCOC Selection Process

As committed to in the SEP, total uranium, radium-226, radium-228, thorium-228, and thorium-232 (the sitewide primary ASCOCs) must be retained as ASCOCs. Several COCs were retained as secondary ASCOCs, per the selection criteria noted above. Table 2-1 lists the ASCOCs identified in Table 2-7 of the SEP. Table 2-2 lists all of the ASCOCs from Table 2-1 as well as the reason for their retention or exclusion and the applicable FRL/BTV values.

## 2.2 CERTIFICATION APPROACH

### 2.2.1 Certification Design

The intent of the certification effort is to certify that ASCOC concentrations in the Area 7 Silos and Support Area soil meet the certification criteria in Section 3.4 of the SEP. A total of 16 CUs (14 Group 1 CUs and two Group 2 CUs) were designed to cover all of the areas within the scope of this document. The CU design is depicted on Figure 2-1 and the sample locations are shown on Figures 2-2 through 2-8. Additionally, trench CUs were added after the utility pipes were excavated and removed from the area, and these are discussed under Section 3.1. Also, one CU was included to encompass sampling associated with the K-65 trench removal, and is discussed in Section 3.1.

Several factors were taken into consideration when determining the boundaries for each CU within Area 7 Silos and Support Area: historical land use, proximity to other areas of the site, residual COC data, previously existing hazardous waste management unit(s), and the presence of high-leachability areas. Additionally, those areas considered to be impacted areas, were comprised of Group 1 CUs to increase sample density and to ensure the excavation fully remediated this area. The 16 CUs associated with this document are as follows:

Group 1 CUs

- Transfer Tank Area (TTA) Basin (surface and subsurface) - CUs A7SSA-C01 and A7SSA-C02*
- TTA Pad (soil beneath) - CU A7SSA-C03**
- Remediation Facility Pad (soil beneath) - CUs A7SSA-C04 and A7SSA-C05**
- Silos 3 and 4 Footprints and Surrounding Area - CUs A7SSA-C06 and A7SSA-C07
- Southern Retention Basin - CU A7SSA-C09
- Silos Processing Area - CUs A7SSA-C10 and A7SSA-C11
- Silos Support Area - CU A7SSA-C12
- K-65 Trench Area - CU A7SSA-C13
- Area around the TTA and Remediation Facility Pad - CUs A7SSA-C15 and A7SSA-C16

* Surface samples represent the clay layer (where it is remaining) from the liner of the former TTA Basin. Subsurface samples are the underlying native soil in this area.

** The certification of the concrete pads overlying these three CUs is being covered under separate documentation.

Group 2 CUs

- Parking Lots, Access Roads, and Former Trailer Footprints - CUs A7SSA-C8 and A7SSA-C14

### 2.2.2 Sample Selection Process

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

All sub-CUs and planned certification sampling locations are shown on Figures 2-2 through 2-8. No archive samples were designated for this area. One sample location in the CU was designated with a "D", indicating a field duplicate sample collection location. Additionally, three bias samples (A7SSA-C04-17, A7SSA-C04-18, and A7SSA-C04-19) associated with sump locations were included in CU 4 on the Remediation Facility Pad.

Prior to commencement of sampling activities, all locations were surveyed and field verified to make sure no surface obstacles would prevent sample collection at the planned location.

### 2.2.3 Certification Sampling

Each sample was collected from the 0 to 6-inch surface soil interval at the designated and surveyed location, as described in Section 2.2.2 of this document with the exception of the TTA Basin Area. Each boring located in the former TTA Basin Area (CUs 1 and 2) had the potential to have two samples collected from each location - one from the 0 to 6-inch interval of the clay layer (where remaining) and one from the top 6-inch interval of the native soil. All collected samples were analyzed at an off-site laboratory for the five primary ASCOCs using the gamma spectrometry method. Additional information regarding the certification sampling and analysis, including the secondary ASCOCs for individual areas, may be obtained from the CDL/Certification PSP for Area 7 Silos and Support Area. Also, prior to and during the certification process, several issues arose which impacted certification sampling in Area 7 Silos and Support Area. These are described in more detail in Section 3.2 of this document.

### 2.2.4 Statistical Analysis

After data are entered into the Sitewide Environmental Database (SED) and validated, a statistical analysis is performed to evaluate the pass/fail criteria for the CUs. The SEP (Section 3.4.3 and

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

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

**TABLE 2-1**
**ASCOC LIST FOR REMEDIATION AREA 7 FROM THE SEP**

| Primary COCs | Secondary COCs for Area 7 |
|---|---|
| Radium-226 | Aroclor-1254 |
| Radium-228 | Aroclor-1260 |
| Thorium-228 | Arsenic |
| Thorium-232 | Beryllium |
| Total Uranium | Cesium-137 |
| | Dieldrin |
| | Lead |
| | Lead-210 |
| | Manganese |
| | Technetium-99 |
| | Thorium-230 |
| | **Ecological COCs for Area 7** |
| | Antimony |
| | Cadmium |
| | Molybdenum |
| | Silver |
| | PAHs |

PAHs - polyaromatic hydrocarbons

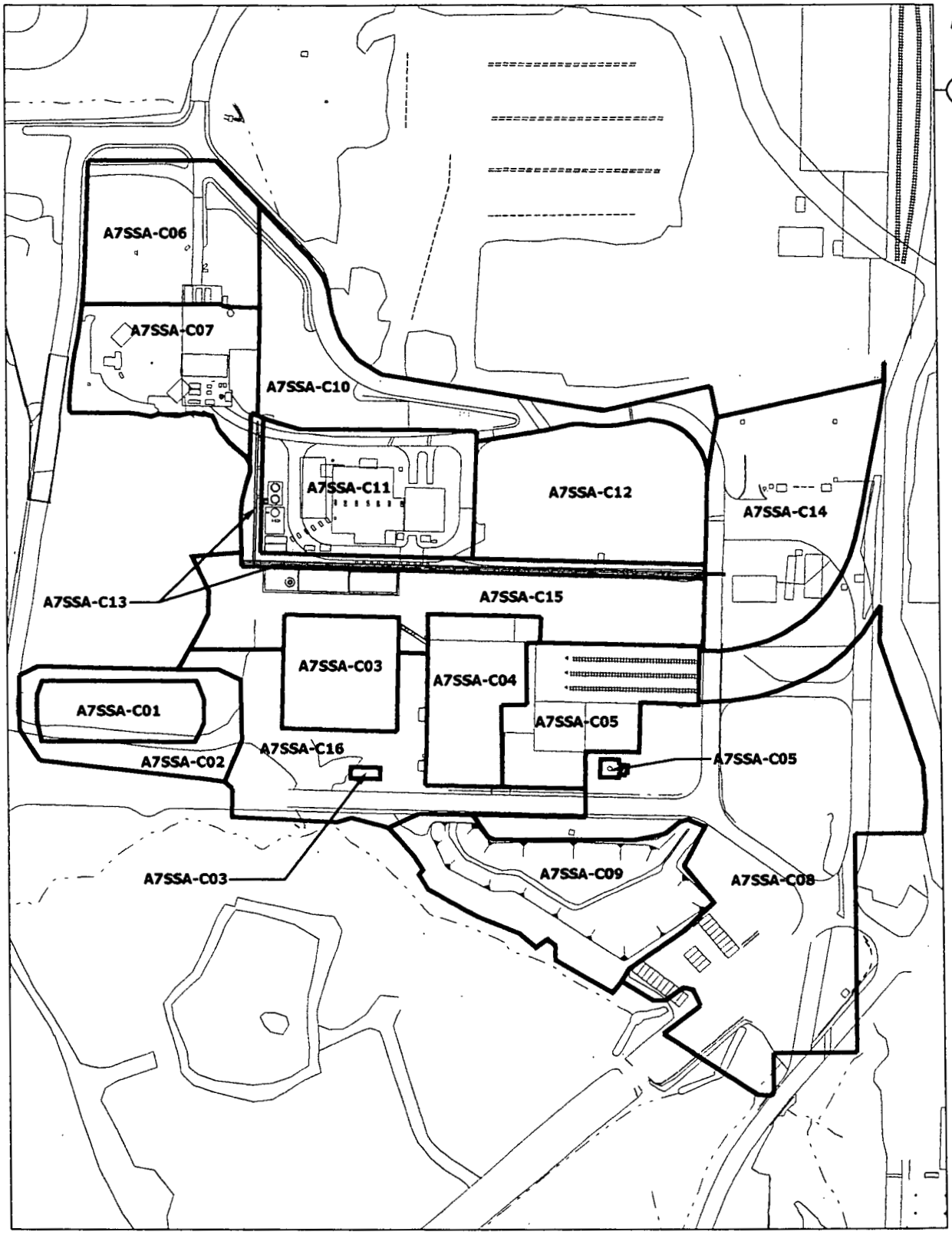
**TABLE 2-2**
**ASCOC LIST FOR AREA 7 SILOS AND SUPPORT AREA**

| Area 7 ASCOCs | Retained As ASCOC? | Justification | FRL/*BTV*** |
|---|---|---|---|
| **PRIMARY ASCOCs** | | | |
| Radium-226 | Yes | Retained as primary ASCOC | 82.0 mg/kg |
| Radium-228 | Yes | Retained as primary ASCOC | 1.7 pCi/g |
| Thorium-228 | Yes | Retained as primary ASCOC | 1.8 pCi/g |
| Thorium-232 | Yes | Retained as primary ASCOC | 1.7 pCi/g |
| Total Uranium | Yes | Retained as primary ASCOC | 1.5 pCi/g |
| **SECONDARY ASCOCs** | | | |
| Aroclor-1254 | Yes | COC for 7A, 7B, 7D, 7E, 7E-Clean | 0.13 mg/kg |
| Aroclor-1260 | Yes | COC for 7B | 0.13 mg/kg |
| Arsenic | Yes | COC for 7A, 7B, 7D, 7E, 7E-Clean | 12 mg/kg |
| Beryllium | Yes | COC for 7A, 7B, 7D, 7E, 7E-Clean | 1.5 mg/kg |
| Cesium-137 | Yes | COC for 7A and 7B | 1.4 pCi/g |
| Chromium | Yes | COC for 7A | 300 mg/kg |
| Dieldrin | No | No above-FRLs present | 0.015 mg/kg |
| Lead | No | No above-FRLs present | 400 mg/kg |
| Lead-210 | Yes | COC for 7A and 7B | 38 pCi/g |
| Manganese | No | No above-FRLs present | 4600 mg/kg |
| Technetium-99 | Yes | COC for 7A, 7B, 7D, 7E, 7E-Clean | 29.1 pCi/g* |
| Thorium-230 | Yes | COC for 7A and 7B | 280 pCi/g |
| **ECOLOGICAL ASCOCs** | | | |
| Antimony | Yes | COC for 7B, 7D, 7E, and 7E-Clean | *10.0 mg/kg* |
| Cadmium | Yes | COC for 7B and 7E | *5.0 mg/kg* |
| Molybdenum | Yes | COC for 7B and 7E | *10.0 mg/kg* |
| Silver | Yes | COC for 7B and 7E | *10.0 mg/kg* |
| Benzo(a)anthracene | Yes | COC for 7B and 7E | *1.0 mg/kg* |
| Benzo(a)pyrene | Yes | COC for 7B and 7E | *1.0 mg/kg* |
| Benzo(b)fluoranthene | Yes | COC for 7B and 7E | *1.0 mg/kg* |
| Benzo(g,h,i)perylene | Yes | COC for 7B and 7E | *1.0 mg/kg* |
| Benzo(k)fluoranthene | Yes | COC for 7B and 7E | *1.0 mg/kg* |
| Chrysene | Yes | COC for 7B and 7E | *1.0 mg/kg* |
| Dibenzo(a,h)anthracene | Yes | COC for 7B and 7E | *0.088 mg/kg* |
| Fluoranthene | Yes | COC for 7B and 7E | *10.0 mg/kg* |
| Indeno(1,2,3-cd)pyrene | Yes | COC for 7B and 7E | *1.0 mg/kg* |
| Phenanthrene | Yes | COC for 7B and 7E | *5.0 mg/kg* |
| Pyrene | Yes | COC for 7B and 7E | *10.0 mg/kg* |

* Where the WAC is less than the FRL (as with technetium-99), the WAC value will be used when evaluating data.

** Benchmark toxicity values (BTVs) apply to ecological COCs.

mg/kg - milligrams per kilogram
pCi/g - picoCuries per gram




LEGEND:

AREA BOUNDARY

SCALE

200 100 0 200 FEET

FIGURE 2-1. AREA 7 SILOS & SUPPORT AREA CU LOCATION MAP

v:\02fm12\dgn\ao7eo_015.dgn
STATE PLANAR COORDINATE SYSTEM 1983
23-OCT-2006

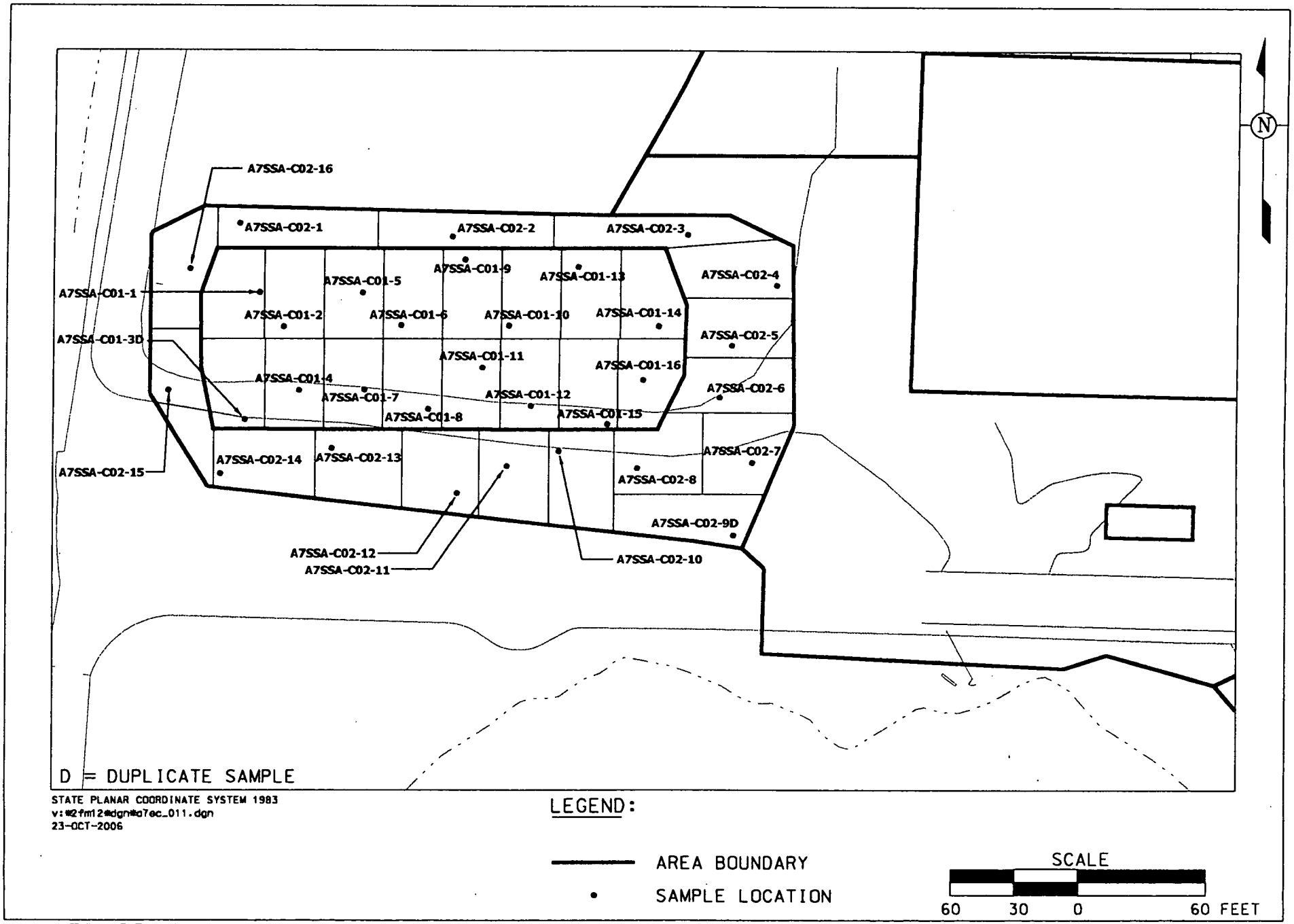
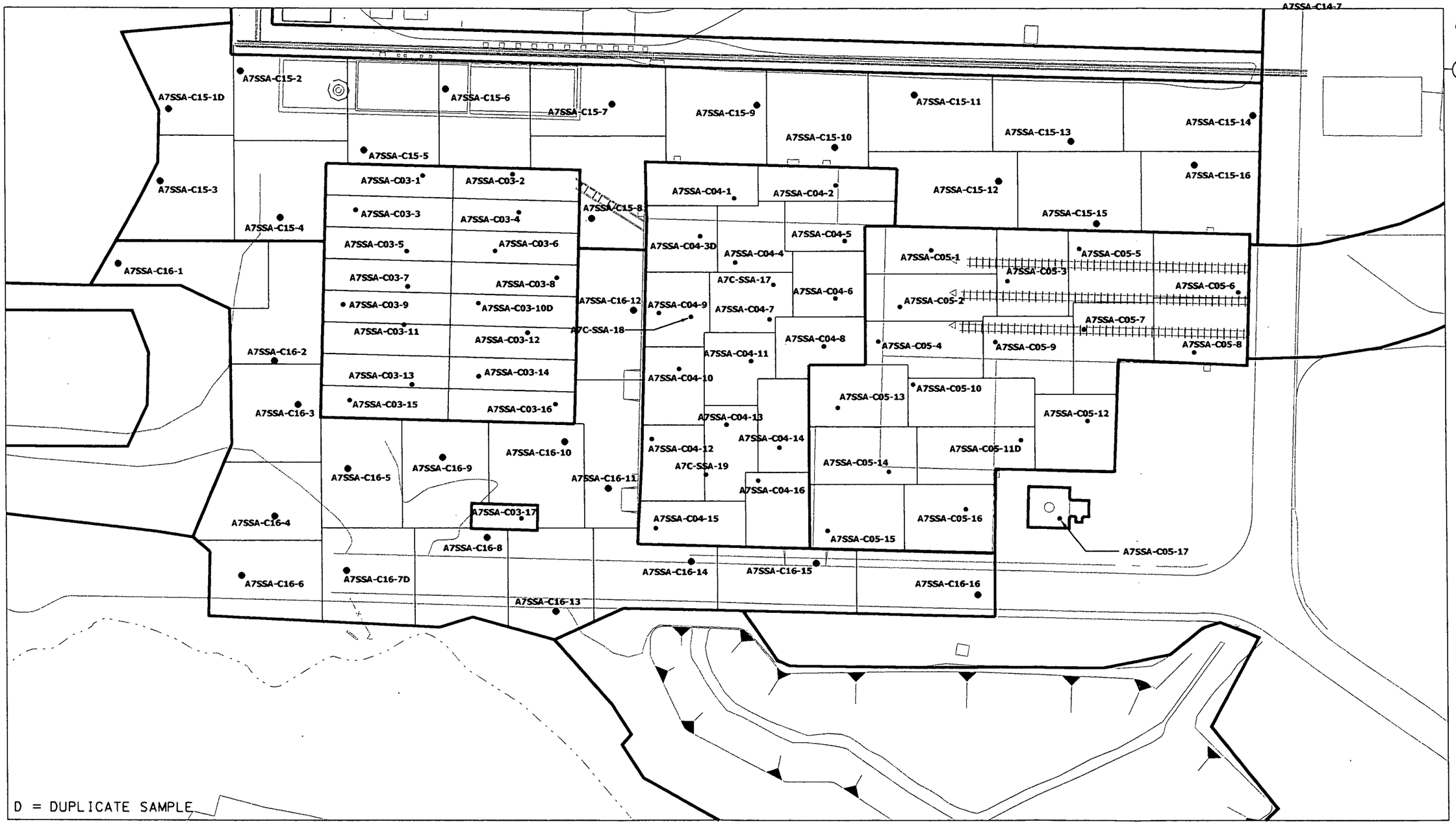



FIGURE 2-2. AREA 7 SILOS & SUPPORT AREA SUB-CU & SAMPLE LOCATION MAP FOR A7SSA-C01 & A7SSA-C02




STATE PLANAR COORDINATE SYSTEM 1983
v:\2fm12\dgn\a7ec_010.dgn
23-OCT-2006

LEGEND:

AREA BOUNDARY

SAMPLE LOCATION

SCALE

60 30 0 60 FEET

FIGURE 2-3. AREA 7 SILOS & SUPPORT AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7SSA-C03, A7SSA-C04, A7SSA-C05, A7SSA-C15 & A7SSA-C16

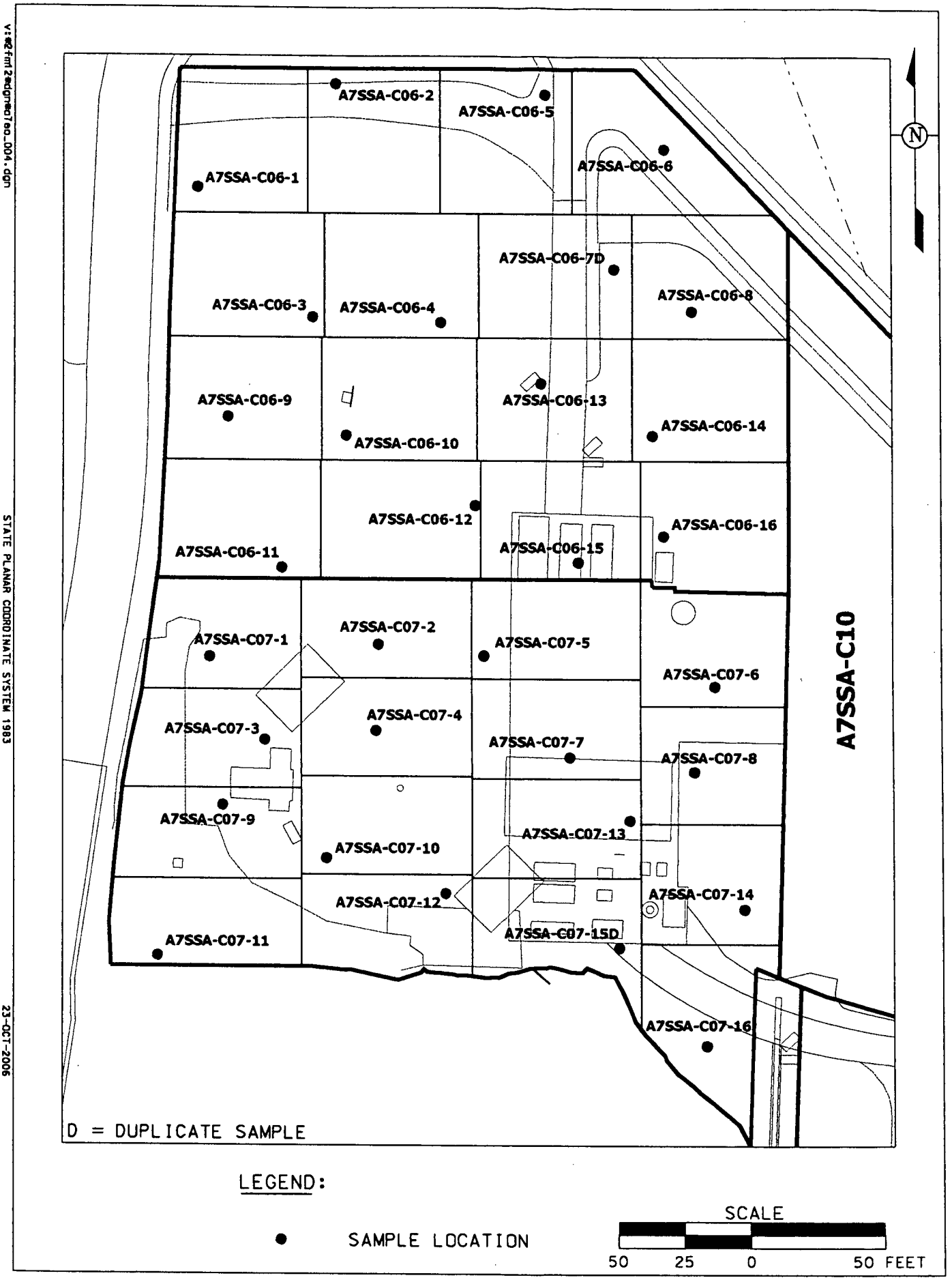
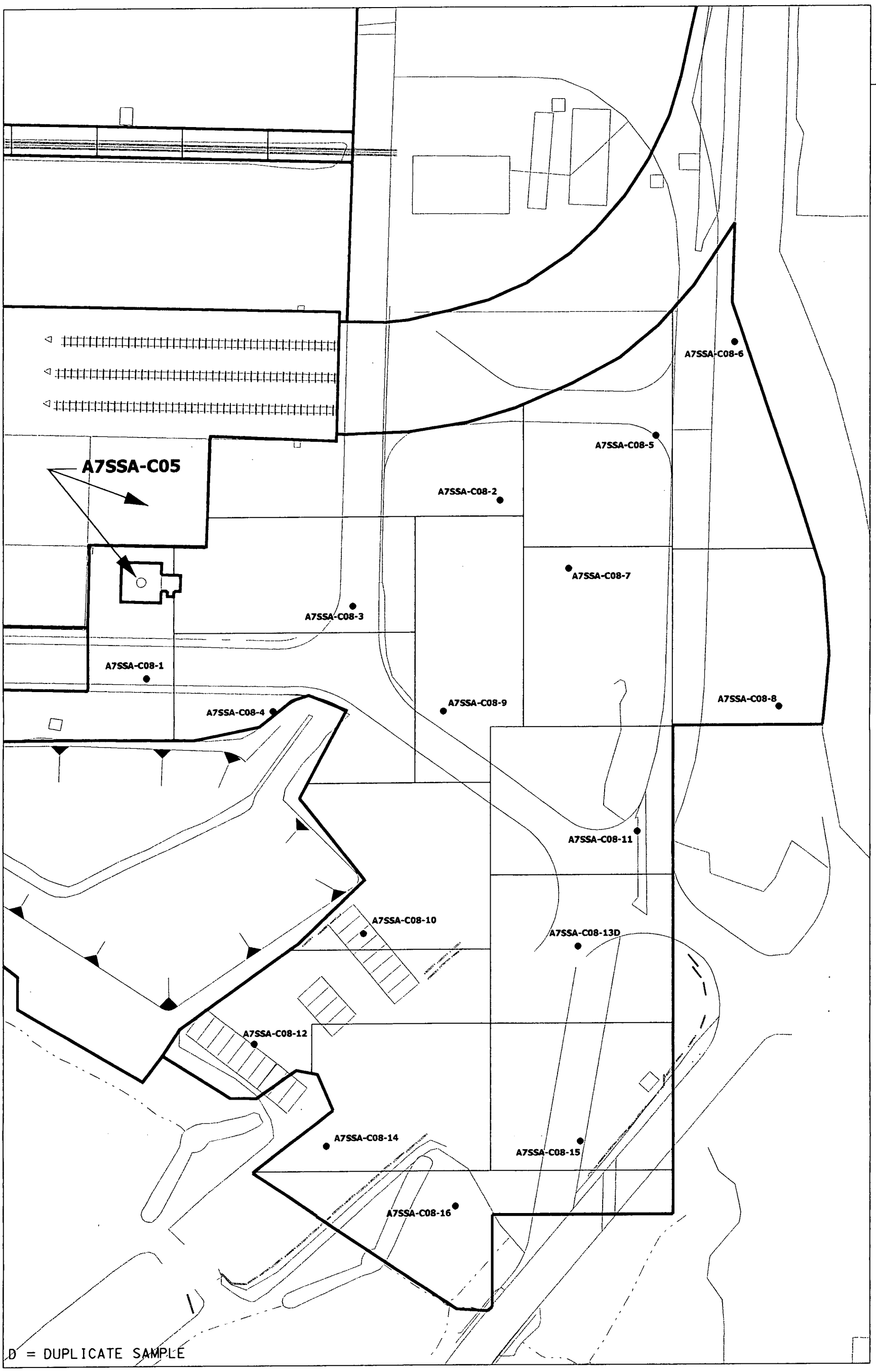



FIGURE 2-4. AREA 7 SILOS & SUPPORT AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7SSA-C06 & A7SSA-C07

v:\ez-fml2\dgn\ac07eo_004.dgn
STATE PLANAR COORDINATE SYSTEM 1983
23-OCT-2006




LEGEND:

AREA BOUNDARY

SAMPLE LOCATION

SCALE

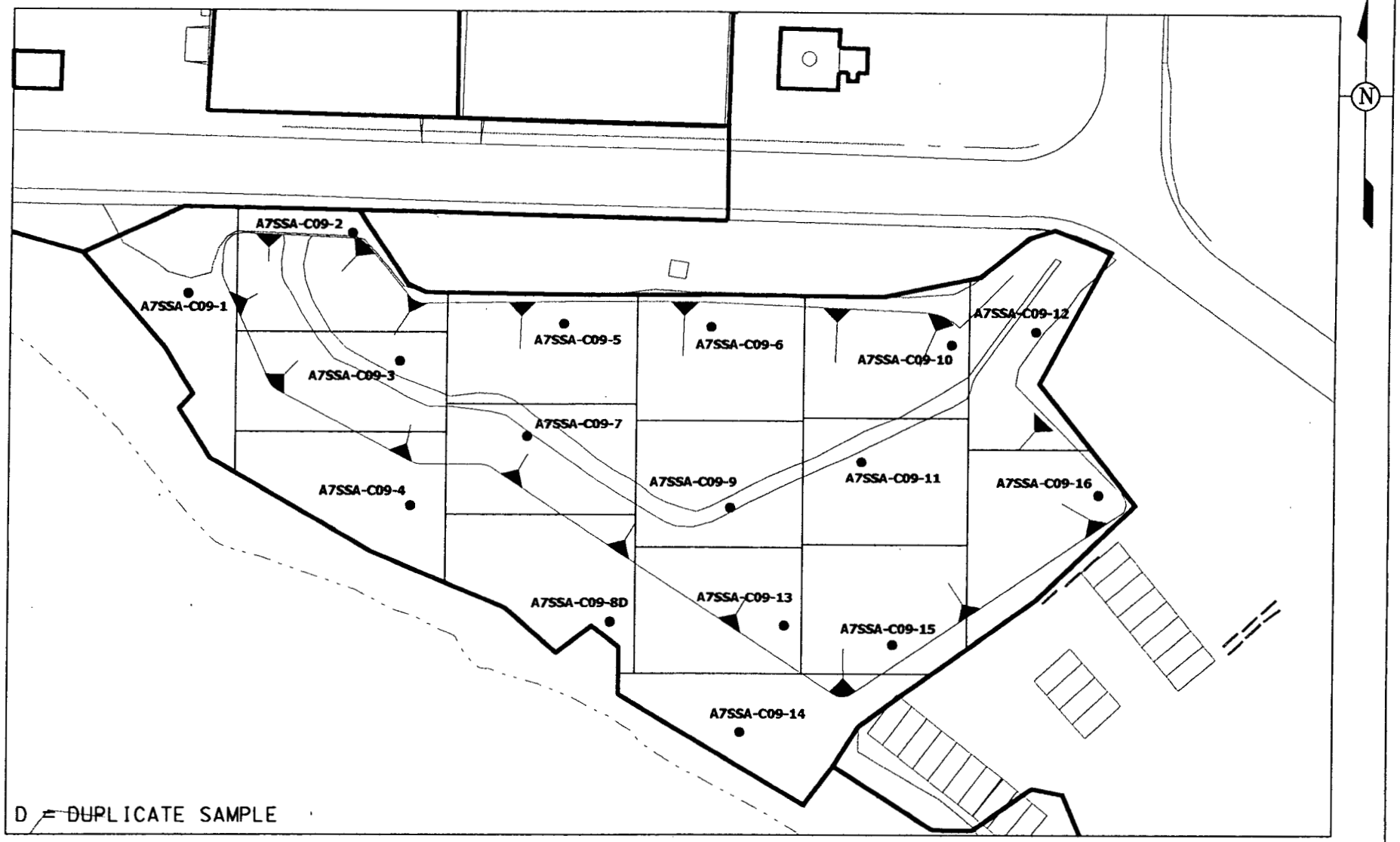
60 30 0 60 FEET

FIGURE 2-5. AREA 7 SILOS & SUPPORT AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7SSA-C08

STATE PLANAR COORDINATE SYSTEM 1983

23-OCT-2006

v:\2fmi2\dgn\a7ec_013.dgn




STATE PLANAR COORDINATE SYSTEM 1983
v:\2fm12\dgn\a7ea_012.dgn
23-OCT-2006

LEGEND:

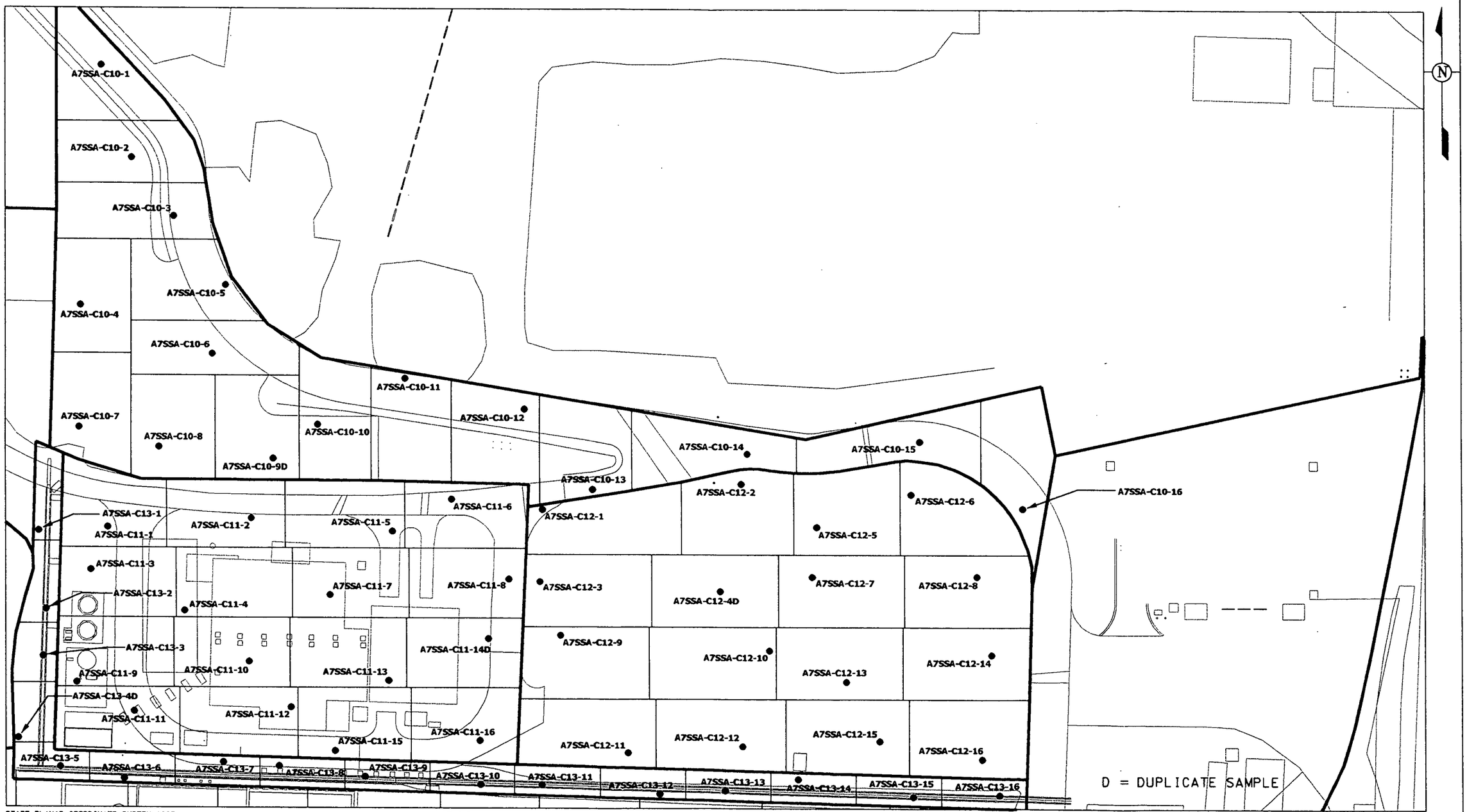
AREA BOUNDARY

SAMPLE LOCATION

SCALE

60 30 0 60 FEET

FIGURE 2-6. AREA 7 SILOS & SUPPORT AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7SSA-C09




STATE PLANAR COORDINATE SYSTEM 1983
v:\2fm12\dgn\a7sa_009.dgn
23-OCT-2006

LEGEND:

AREA BOUNDARY

SAMPLE LOCATION

SCALE

60 30 0 60 FEET

FIGURE 2-7. AREA 7 SILOS & SUPPORT AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7SSA-C10 THROUGH A7SSA-C13

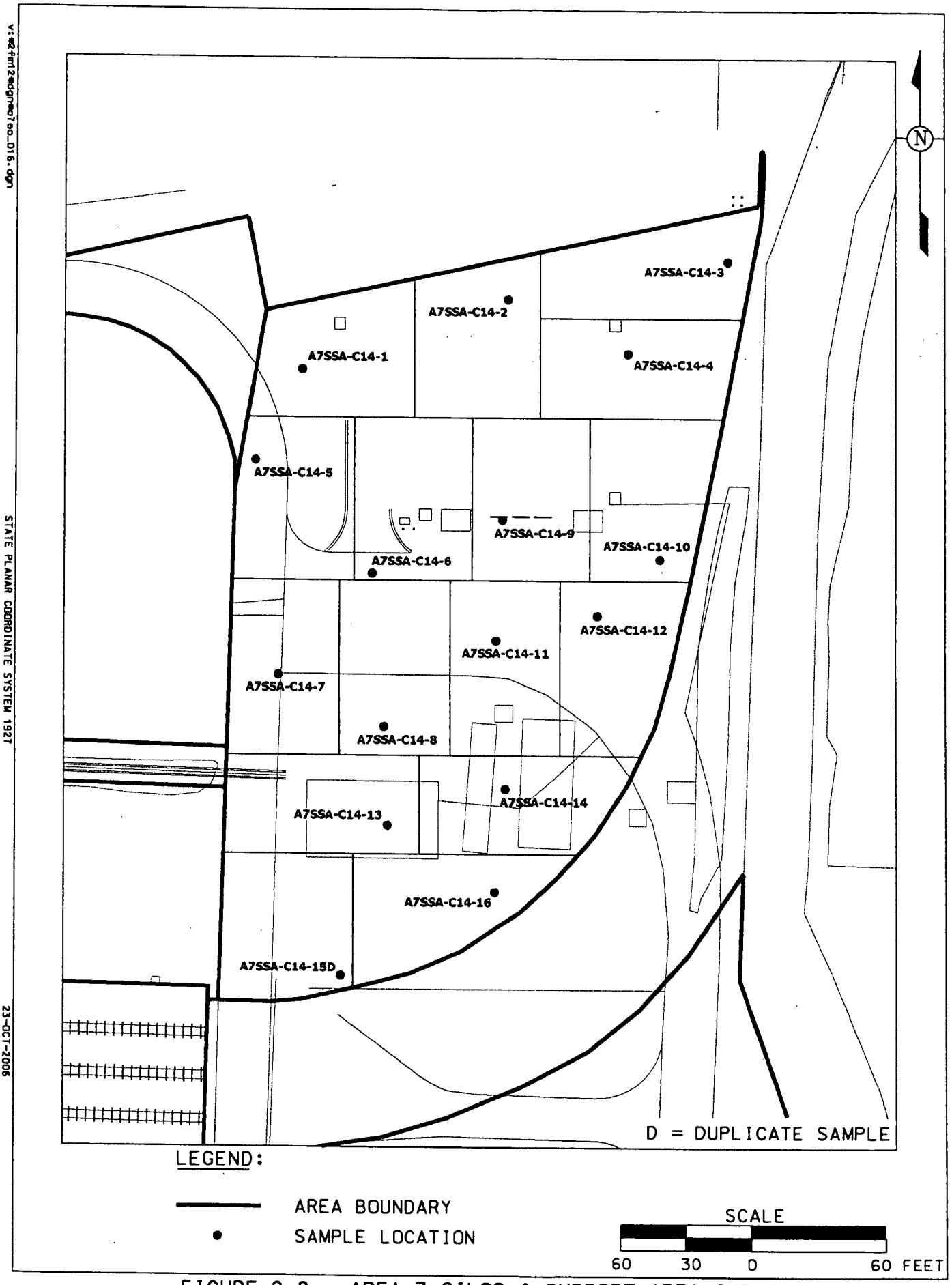



FIGURE 2-8. AREA 7 SILOS & SUPPORT AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7SSA-C14

# 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 is removed by excavation. Based on the initial remedial action and results from sampling and real-time scanning activities, summarized in Sections 3.1 and 3.2, it has been determined that no further remedial actions are necessary.

## 3.1 AREA PREPARATION AND PRECERTIFICATION

All historical data for the Silos and Support Area are presented in the Excavation Plan for Silos and General Area (DOE 2005a) and the Excavation Plan for Area 7 Support and Silos Process Area (DOE 2005b).

Those utilities, which needed to be removed, were taken out after precertification had been completed. Once the utility had been removed as required by the technical specification, precertification was performed on the trench bottom created by the removal of these utilities and then backfilled with the precertified overburden soil. These sampling events are described in V/FCN 20500-PSP-0010-10 written to the PSP for Excavation Control and Precertification of Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011) (DOE 2005c) and V/FCN 20500-PSP-0009-35 written to the PSP for Excavation Control and Precertification of Area 7 Silos and General Area (Supplement to 20300-PSP-0011) (DOE 2005d).

The bottom of the trench created as a result of K-65 trench related excavation activities was sampled utilizing V/FCNs 20500-PSP-0010-10 and 20500-PSP-0010-33 written to the PSP for Excavation Control and Precertification of Area 7 Support and Silos Process Area (Supplement to 20300-PSP-0011).

Precertification surveys were performed from July 2006 through October 2006 per the PSP Guidelines for General Characterization for Sitewide Soil Remediation, Sections 3.0 and 6.0 (DOE 2005e). Real-time survey results are presented in Appendix A of the CDL and Certification PSP. Data used to support the conclusion that the area is ready for certification consisted of the real-time surveys, predesign sample results for areas requiring no remedial action and precertification sample results from the excavated/remediated footprints.

## 3.2 CHANGES TO SCOPE OF WORK

The scope of work was documented in the final CDL and Certification PSP.

In general, the certification process proceeded as follows.

Soil samples were split between and on-site gamma spectrometry and the Sitewide Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ, DOE 2003) approved off-site laboratory. The on-site laboratory was used as an early indication of the anticipated concentration of radium in a given sample utilizing a scaling factor to account for the *in situ* moisture (on-site samples were not dried) and the in-growth of the radon daughters (on-site samples were counted immediately upon receipt). On the basis of the on-site gamma spectrometry results decisions were made as to whether or not to remobilize to the field to excavate any above-FRL locations. The decision was made to excavate at a number of locations based upon the on-site initial scanning level data. Sample locations grouped closely together that were expected to exceed the FRLs based on the on-site lab data were combined into general area excavations to chase and remove the residual contamination across these areas. Discrete points expected to exceed the FRL for radium-226 were individually excavated. In both circumstances the hand-held sodium iodide detectors were used to guide the depth of excavation where useful information could be acquired. In all cases the depth of excavation exceeded 12 inches. At these excavated locations new certification samples were collected along with random samples within the subcertification unit boundaries. Excavation proceeded until all certification units were demonstrated to have fulfilled FCP certification requirements.

At three discrete locations on the western footprint of the Radon Control System north of the K-65 trench, certification sampling results identified areas of elevated polychlorinated biphenyl (PCB) concentrations exceeding two times the FRL. These locations were isolated from each other such that individual hot spot excavations were conducted. In all three locations a 10-foot by 10-foot area was excavated 1 foot deep to remove the contamination. Each location was resampled following hotspot excavation and a new random sample collected within the subcertification unit boundary. One of these new random samples was found to have failed this same two times the FRL test a second time. A second hotspot excavation was conducted in this area and a second new random sample collected. This second sample demonstrated attainment against the certification requirements for PCBs.

The specific changes in the scope of work were documented by ten V/FCNs (Appendix B), as required by Section 6.4 of the CDL and Certification PSP. These changes are as follows.

Variance 20500-PSP-0017-1 documents the collection of samples in CU 9 after excavation in the southern retention basin made resampling necessary. Real-time precertification scans indicated elevated levels of radium-226 in the retention basin. The resulting excavation impacted sample locations A7SSA-C09-9, A7SSA-C09-10, A7SSA-C09-11, A7SSA-C09-12, A7SSA-C09-15, and A7SSA-C09-16. Since the previously collected samples no longer represented the CU, all of these locations were resampled and the data from the resampled locations is used for certification purposes.

CU 2 consists of the area at the southern-most boundary of the Silo 1 footprint - within the footprint of the former TTA Basin. The arsenic results in two sub-CUs [A7SSA-C02-1 (surface sample) and A7SSA-C02-3 (subsurface sample)] failed certification under the hotspot criteria. Following the excavation, two samples were collected for arsenic from each of the sub-CUs; one from each of the original locations and one from another random location within each of the same sub-CUs to verify the removal of contamination and to ensure that each sub-CU was adequately represented. This is documented with Variance 20500-PSP-0017-2.

Results of the initial certification sampling for CU 11 indicated that while none of the results failed certification under the hotspot criteria, several were very close to two times the FRL for radium-226 and overall the CU failed for radium-226. The original sample locations for the three highest results (A7SSA-C11-2, A7SSA-C11-3, and A7SSA-C11-13) were excavated. Following the excavation, two samples were collected for radium-226 from each sub-CU; one from the original location and one from another random location within the same sub-CU to ensure that the contamination was removed and that each sub-CU was adequately represented. For each sub-CU, both results from the newly collected samples replaced the previously collected sample and were used in the statistical analysis of CU 11. This sampling event is documented with Variance 20500-PSP-0017-3.

Variances 20500-PSP-0017-4 and 20500-PSP-0017-8 document sampling efforts associated with CU 12. Results of the initial certification sampling for CU 12 indicated that sub-CU A7SSA-C12-13 failed certification under the hotspot criteria for radium-226 and several other sub-CUs significantly exceeded the FRL for radium-226. The original sample locations for the four highest results were excavated (A7SSA-C12-10, A7SSA-C12-13, A7SSA-C12-15 and A7SSA-C12-16). Following excavation, two samples were collected for radium-226 from each sub-CU, one from the original location and one from another random location within the same sub-CU to ensure that the contamination was removed and that each sub-CU is adequately represented. For each sub-CU, the highest result from the newly collected samples replaced the previously collected sample and were used in the statistical analysis of CU 12. Once again, the CU failed. The locations with the highest result from the previous round of sampling for A7SSA-C12-15 and A7SSA-C12-16 were excavated. Following excavation, two samples were collected for radium-226 from each sub-CU, one from the excavated location and one from another random location within the same sub-CU to ensure that the contamination was removed and that each sub-CU is adequately represented. For each sub-CU, the highest result from the newly collected samples replaced the previously collected sample and were used in the statistical analysis of CU 12. The CU still failed. The location with the highest result for sub-CU A7SSA-C12-16 was excavated. Then, the highest result from the remaining samples collected during the previous rounds of sampling were used in the statistical analysis of CU 12.

Results of the initial certification sampling for CU 15 indicated that CU A7SSA-C15-7 failed certification under the hotspot criteria for radium-226. The original sample location was excavated. Following the excavation, two samples were collected for radium-226 from the sub-CU; one from the original location and one from another random location within the same sub-CU to ensure that the contamination was removed and that the sub-CU was adequately represented. For sub-CU A7SSA-C15-7, the highest result from the newly collected samples replaced the previously collected sample and were used in the statistical analysis of CU 15. This sampling event is documented with Variance 20500-PSP-0017-5.

Variances 20500-PSP-0017-6, 20500-PSP-0017-7 and 20500-PSP-0017-9 document sampling efforts associated with CU 13. Results of the initial certification sampling for CU 13 indicated that sub-CU A7SSA-C13-1 failed certification under the hotspot criteria for aroclor-1254 and several sub-CUs significantly exceeded the FRL for radium-226. The original sample location for A7SSA-C13-1 was excavated. Following excavation, two samples were collected for aroclor-1254 and radium-226 from the sub-CU, one from the original location and one from another random location within the same sub-CU to ensure that the contamination was removed and that the sub-CU is adequately represented. The results of this sampling event indicated that the random sample exceeded the FRL for both aroclor-1254 and radium-226. The location with the elevated result was excavated. Following excavation, two samples were collected for aroclor-1254 and radium-226, one from the excavated location and one from another random location within the sub-CU to ensure that the contamination was removed and that the sub-CU was adequately represented. The highest result from the newly collected samples replaces the previously collected sample and were used in the statistical analysis of CU13. Sub-CUs A7SSA-C13-2 through A7SSA-C13-6 were excavated since those five sub-CUs all had above-FRL radium-226 results. Following excavation, the original locations for each sub-CU were resampled and used in the statistical analysis of CU 13.

Results of the initial certification sampling for CU 10 indicated that CUs A7SSA-C10-7 and A7SSA-C10-8 failed certification under the hotspot criteria for aroclor-1254. The original sample locations were excavated. Following the excavation, four samples were collected for aroclor-1254; one from each of the original locations and one from a random location within each of the same sub-CUs to ensure that the contamination was removed and that the sub-CU was adequately represented. For sub-CUs A7SSA-C10-7 and A7SSA-C10-8, the highest result from the newly collected samples replaced the previously collected samples and were used in the statistical analysis of CU 10. This sampling event is documented with Variance 20500-PSP-0017-10.

# 4.0 ANALYTICAL METHODOLOGIES, DATA VALIDATION PROCESSES AND DATA REDUCTION

## 4.1 ANALYTICAL METHODOLOGIES

All samples collected for the certification effort were sent for off-site analysis. The laboratories complied with SCQ requirements. The SCQ is the source for analytical methodologies (Appendix G), data verification and validation, and analytical quality assurance/quality control requirements.

Laboratory analyses were conducted using approved analytical methods, as discussed in Appendix H of the SEP. The minimum detection level (MDL) was set at 10 percent of the FRL and analyses were conducted to Analytical Support Level (ASL) D or E. ASL E is assigned when 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. An ASL D data package was provided and all of the analytical results were validated and 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

Polychlorinated Biphenyl (PCBs)/Pesticides

Samples submitted for PCB and pesticide analysis were analyzed by gas chromatography.

Metals

Samples submitted for metals analyses were either analyzed by inductively coupled plasma-atomic emission spectrometry or inductively coupled plasma-mass spectrometry.

Semi-Volatile Organic Compounds (SVOCs)

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

### 4.1.2 Radiochemical Methods

The radiochemical analytical methods use performance-based specification criteria, including highest allowable minimum detectable concentration (HAMDC), matrix spike, ASCOC concentrations in method blank, percent recovery of tracer, matrix spike and laboratory control sample, and percent recovery for duplicate samples were specified for each analyte. Laboratories were required to meet these specifications for the following radionuclides:

Uranium-238

Samples are analyzed for uranium-238 progeny using multiple gamma rays, and the error-weighted average of the emission lines is used to report uranium-238 activity. The uranium-238 activity is used to calculate the total uranium value as follows:

Total Uranium (mg/kg) = 2.998544 (mg/pCi * g/kg) x Uranium-238 (pCi/g)

The validation qualifier assigned to the total uranium value is the same as the uranium-238 qualifier.

Radium-226

Following a 7-day in-growth for radon-222 (Appendix D), radium-226 progeny are measured using multiple gamma rays, and the error-weighted average of the emission lines is used to report radium-226 activity.

Radium-228 and Thorium-232

Samples are analyzed for radium-228 and thorium-232 progeny using multiple gamma rays, and the error-weighted average of the emission lines is used to report radium-228 and thorium-232 activities. The identical activity is reported for radium-228 and thorium-232, as they are assumed to be in secular equilibrium with the measured daughter.

Thorium-228

Thorium-228 is quantified by direct measurement of its gamma emission lines, and the error-weighted average of the emission lines is used to report the activity.

Cesium-137

Cesium-137 is quantified by direct measurement of its gamma emission lines, and the error-weighted average of the emission lines is used to report the activity.

Technetium-99

Following a chemical separation, technetium-99 is quantified using a liquid Scintillation counter.

Thorium-230

Thorium-230 is quantified by measuring its characteristic alpha emission energies and correcting the activity based on the yield of a thorium-229 tracer.

Lead-210

Lead-210 progeny are measured using multiple gamma rays, and the error-weighted average of the emission lines is used to report lead-210 activity.

## 4.2 DATA VERIFICATION AND VALIDATION

Data verification and validation (V&V) processes are used to examine the quality of field sampling and handling procedures, laboratory analysis and reporting, and non-conformance and discrepancy resolution.

Analytical data are qualified to the appropriate data decision level by assessing the precision, accuracy, completeness, comparability, and representativeness of the measurements. The U.S. Environmental Protection Agency (EPA) National Functional Guidelines for Data Review (Inorganic Data) (EPA 1994), as adapted and approved by EPA Region V, as well as the Section 11.2 and Appendix D of the SCQ, are the appropriate V&V reference documents.

The V&V process evaluated the following parameters:

- Specific field forms for sample collection and handling
- Chain of Custody Forms
- Completeness of laboratory data package
- Holding times
- Instrument calibrations
- Calculation of results
- Laboratory/field duplicate precision
- Field/Laboratory Blank contamination
- Dry weight correction for solid samples
- Correct detection limits reported
- Recovery of laboratory control samples and compliance with established limits.

Parameters unique to the evaluation of radiochemical analyses include:

- Calibration data for specific gamma and alpha energies
- Background checks
- Relative error ratios
- Detector efficiencies
- Background count correction.

For this project, all sample data were reviewed and validated for the criteria noted above. Per project requirements specified in the SEP and Data Quality Objectives SL-052, a minimum 10 percent of the certification data were validated to Validation Support Level (VSL) D, and the remaining data were validated to VSL B. VSL D is a rigorous data review that includes the review process for VSL B plus a systematic review of the raw data and recalculation of all results.

Following V&V, qualifier codes are applied to the results to reflect the level of confidence assigned to a particular datum. These codes can include the following:

- No qualification; the positive result or detection limit is confident as reported

J Positive result is estimated or imprecise; data point is usable for decision-making purposes. Positive results less than the contract required reporting limit are also qualified in this manner

R Positive result or detection limit is considered unreliable; data point should not be used for decision-making purposes

U Undetected result at the stated limit of detection

UJ Undetected result; detection limit is considered estimated or imprecise; the data point is usable for decision-making purposes

N Positive result is tentatively identified - that is, there is some question regarding the actual identification and quantification of the result. Compound reported is best professional judgment of the interpretation of the supporting data, such as mass spectra. Caution must be exercised with the use of this data

NJ Positive result is tentatively estimated; detection limit is considered estimated or imprecise

NV Not validated. The results for this sample were not validated

Z This result, or detection limit in this analysis is not the best one to use; another analysis (e.g., the dilution or re-analysis) contains a more confident and usable result.

The V&V of the data set in this certification report did not identify any analytical problems. All the results are qualified as acceptable (-), estimated (J) and/or non-detects (U). No results were rejected.

## 4.3 DATA REDUCTION

Each sample used to support the certification decision was entered in the FCP SED with the following information:

Field Information

- Sample Identification Number - A unique number assigned to each discrete sample point
- Coordinate Information - Northing and Easting locations
- Certification Unit - Each sample is assigned to a CU.

Laboratory Information

For each sample result the following information is entered:

- Laboratory Result - The laboratory reported analytical value.
- Laboratory Qualifier - The qualifier reported from the lab. (Note: radiological non-detect values are assigned a U qualifier by Fluor, because the lab does not).
- Total Propagated Uncertainty (TPU) - This value represents the uncertainty associated with the reported radiological result. TPU includes the counting error, as well as uncertainty from other laboratory measurements and data reduction.
- Units - The units for the reported laboratory result.

Validation Information

- Validation Result - The result based on the validation process. During the validation process, sample results may be adjusted. If the laboratory result is less than the requested minimum detectable concentration (MDC), the validation result becomes the MDC.

- Validation TPU - The TPU based on the validation process.

- Validation Qualifier - The qualifier assigned as a result of the data validation process.

- Validation Units - The units reported by the laboratory, unless corrected by the validation process.

Using the information above, the following actions are taken for data reduction of each CU data set.

1. All the data for each CU are queried from SED
2. The data from the validation fields are used in the statistical calculations
3. Data with a qualifier of R or Z are not used in the statistical calculations
4. The higher of the two duplicate results is used in the statistical calculations
5. One half of the non-detect (U or UJ) value is used in the statistical calculations.

# 5.0 CERTIFICATION EVALUATION AND CONCLUSIONS

Certification success or failure is based on comparing sample data from the CU against criteria discussed in Section 2.2.4. Subsequent to the evaluation of preliminary data, full statistical analysis and evaluation are 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 Area 7 Silos and Support Area.

A7SSA-C01 (Surface and Subsurface), A7SSA-C03 through A7SSA-C08, A7SSA-C14 and A7SSA-C16

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.1.

A7SSA-C02 (Surface and Subsurface)

Certification results for arsenic failed certification under the hotspot criterion. Additional remedial actions were implemented to remove the contamination and new certification samples were collected (Section 3.2). Using the new arsenic results, both the surface and the subsurface portions of this CU passed the certification process (Appendix A.2).

A7SSA-C09

Precertification real-time scans indicated that this CU contained radium-226 contamination. Additional remedial actions were implemented to remove the contamination and new certification samples were collected to better reflect the area to be certified (Section 3.2). Using the new analytical results, all the CUs passed the certification process (Appendix A.1).

A7SSA-C10

Several of the PAHs at sub-CU A7SSA-C10-2 were above-FRL and the benzo(a)pyrene, benzo(g,h,i)perylene, fluoranthene, phenanthrene, and pyrene exceeded two times the FRL. However, no action was taken based on these results since there is no risk-based action to be taken for these ecological COCs.

Certification results for aroclor-1254 failed certification under the hotspot criterion. Additional remedial actions were implemented to remove the contamination and new certification samples were collected (Section 3.2). Using the new aroclor-1254 results, this CU passed the certification process (Appendix A.2).

A7SSA-C11, A7SSA-C12 and A7SSA-C15

Certification results for radium-226 failed the 95 percent UCL criterion for these three CUs, and the hotspot criterion was also exceeded for A7SSA-C12. Additional remedial actions were implemented to remove the contamination and new certification samples were collected (Section 3.2). Using the new radium-226 results, all the CUs passed the certification process (Appendices A.2, A.3 and A-4).

A7SSA-C13

Certification results for radium-226 and aroclor-1254 failed certification in this CU and the hotspot criterion was also exceeded for aroclor-1254. Additional remedial actions were implemented to remove the contamination and new certification samples were collected (Section 3.2). Using the new radium-226 and aroclor-1254 results, this CU passed the certification process (Appendix A.2 and Appendix A.3).

Utilities

During utility removal, samples were collected from the bottom of the trenches to certify the soil footprint under the utilities. The data were partitioned into five CUs, and the results and statistical evaluation (if needed) are presented in Appendix C.

K-65 Trench

During the K-65 trench removal activities, samples were collected from the bottom of the trench created by excavation activities in this area to certify the soil. The data was grouped into one CU and the results and statistical evaluations are presented in Appendix E.

## 5.2 CERTIFICATION CONCLUSIONS

Based on the sampling results and statistical analyses presented in this report, DOE has determined that the remedial objectives in the OU5 ROD have been achieved in the Area 7 Silos and Support Area. Therefore, upon EPA and Ohio Environmental Protection Agency (OEPA) concurrence, DOE has determined that no further soil remedial actions are required in these areas and that the certification activities are complete. The subject areas will be released for final land use.

# REFERENCES

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

U.S. Department of Energy, 1995b, "Record of Decision for Remedial Actions at Operable Unit 2," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, OH.

U.S. Department of Energy, 1996a, "Record of Decision for Remedial Actions at Operable Unit 5," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, OH.

U.S. Department of Energy, 1996b, "Remedial Design Work Plan for Remedial Actions at Operable Unit 5," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, OH.

U.S. Department of Energy, 1996c, "Record of Decision for Remedial Actions at Operable Unit 3," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, OH.

U.S. Department of Energy, 1998, "Sitewide Excavation Plan," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2002, "Natural Resource Restoration Plan," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2003, "Sitewide CERCLA Quality Assurance Project Plan (SCQ)," Revision 3, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, OH.

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

U.S. Department of Energy, 2005b, "Excavation Plan for Area 7 Support and Silos Process Area," Final, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, OH.

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

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

U.S. Department of Energy, 2005e, "Project Specific Plan for General Characterization for Sitewide Soil Remediation," Revision 2, PCN 1, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, OH.

U.S. Department of Energy, 2006, "Certification Design Letter and Certification Project Specific Plan for Area 7 Silos and Support Area," Revision 0, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, OH.

U.S. Environmental Protection Agency, 1994, "National Functional Guidelines for Data Review," U.S. EPA, Office of Solid Waste and Emergency Response, Washington, DC.

# APPENDIX A

# STATISTICAL ANALYSIS OF SAMPLE DATA AND ANALYTICAL RESULTS

# APPENDIX A
# STATISTICAL ABBREVIATIONS AND SYMBOLS

The procedure used to determine if the data are to be assumed to be either normally distributed or lognormally distributed is outlined in Section G.2.3 of Appendix G to the SEP. The second paragraph under "Step 3: Perform the Shapiro-Wilk Test to evaluate if the data are normally or lognormally distributed" states that "If the Shapiro-Wilk Test indicates both normal and lognormal distributions fit the data, the distribution with the highest p-value will be used in the Student's t-Test (Section G.2.2.2) to make the certification decision." Therefore, the distribution testing procedure is not a matter of transforming the data and then testing for lognormality only when the normality assumption fails as the comment seems to imply. The method is to test both normality and lognormality and select the distribution that "best" fits the data as defined by the test yielding the higher p-value above a minimum acceptable value. The minimum acceptable p-value for acceptance of a distribution was set at 0.05.

If the maximum result for each analyte is below the FRL, no statistical result needs to be reported. For all statistical evaluations, the maximum value of the two duplicates was used.

**Abbreviations:**

**Est. Mean*** - Estimated measure of central tendency (Normal: Mean; LogNorrmal: Est Mean; Non-Parametric: Median)

**W-Statistic Probability** - Shapiro-Wilk probability of the "better" fit - either normal or lognormal (note: a value less than 0.05 indicates that neither normality nor lognormality could be accepted, but the highest p-value is still shown). The test is performed on the raw untransformed data (N) and the log-transformed data (LN) to test for lognormality.

**t-Test (N)** - indicates that the normal distribution is best fit to data with a p-value greater than or equal to 0.05.

**t-Test (LN)** - indicates that the lognormal distribution is best fit to data with a p-value greater than or equal to 0.05.

**Sign Test** - the Sign test was used because one of the following situations occurred:

1. there were greater than 50 percent non-detects,
2. between 15 and 50 percent non-detects and data not symmetrically distributed,
3. less than 15 percent non-detects, but fails Shapiro-Wilk test for both normality and lognormality and data not symmetrically distributed.

**Wilcoxon SR** - the Wilcoxon Signed Rank procedure was used because of one of the following situations:

1. between 15 and 50 percent non-detects and data symmetrically distributed,
2. less than 15 percent non-detects, but fails Shapiro-Wilk test for both normality and lognormality and data symmetrically distributed.

Note: Data was considered to be "symmetrically distributed" if the Standardized Skewness had an Absolute Value of less than or equal to 2.00 (i.e., between -2.00 and 2.00).

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

# APPENDIX A.1

# SAMPLING RESULTS AND STATISTICS INITIAL SAMPLING

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

### SURFACE DATA

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C01-1^1-RMP | 0.603564 J | 0.703 J | 0.725 J | 0.703 J | 3.45 J | 0.06 U | 0.892 U |
| A7SSA-C01-10^1-RMP | 0.804687 J | 0.578 J | 0.587 J | 0.578 J | 2.51 J | 0.0342 U | 8.53 U |
| A7SSA-C01-11^1-RMP | 0.852072 J | 0.617 J | 0.613 J | 0.617 J | 2.37 U | 0.0385 U | 7.87 U |
| A7SSA-C01-12^1-RMP | 0.783627 J | 0.862 J | 0.904 J | 0.862 J | 3.46 J | 0.0582 U | 0.869 U |
| A7SSA-C01-13^1-RMP | 1.001598 J | 0.616 J | 0.621 J | 0.616 J | 3.43 J | 0.0364 U | 9.17 U |
| A7SSA-C01-14^1-RMP | 0.881556 J | 0.647 J | 0.644 J | 0.647 J | 7.48 - | 0.059 U | 6.84 U |
| A7SSA-C01-15^1-RMP | 0.81627 - | 0.627 - | 0.598 - | 0.627 - | 2.29 U | 0.0342 U | 7.99 U |
| A7SSA-C01-16^1-RMP | 0.934206 J | 0.661 J | 0.624 J | 0.661 J | 2.39 U | 0.036 U | 7.86 U |
| A7SSA-C01-2^1-RMP | 0.76362 J | 0.594 J | 0.581 J | 0.594 J | 3 J | 0.0378 U | 7.39 U |
| A7SSA-C01-3^1-RMP | 1.37436 J | 0.638 J | 0.627 J | 0.638 J | 12.1 - | 0.0436 U | 9.84 U |
| A7SSA-C01-3^1-RMP-D | 1.019499 J | 1.01 J | 1.05 J | 1.01 J | 12.1 J | 0.073 U | 1.09 J |
| A7SSA-C01-4^1-RMP | 1.42701 J | 0.517 J | 0.53 J | 0.517 J | 3.56 - | 0.0592 U | 6.94 U |
| A7SSA-C01-5^1-RMP | 0.886821 J | 0.606 J | 0.647 J | 0.606 J | 2.37 U | 0.0411 U | 7.47 U |
| A7SSA-C01-6^1-RMP | 0.801528 J | 0.597 J | 0.594 J | 0.597 J | 4.76 - | 0.0352 U | 9.12 U |
| A7SSA-C01-7^1-RMP | 1.014234 J | 0.77 J | 0.665 J | 0.77 J | 2.29 U | 0.0639 U | 0.848 U |
| A7SSA-C01-8^1-RMP | 0.806793 J | 0.475 J | 0.482 J | 0.475 J | 2.89 U | 0.0476 U | 5.38 U |
| A7SSA-C01-9^1-RMP | 1.09005 J | 0.762 J | 0.769 J | 0.762 J | 2.68 J | 0.0614 U | 1.36 J |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.43 | 1.01 | 1.05 | 1.01 | 12.1 | 0.073 U | 1.36 |
| Max. > Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 6 | 16 | 14 |
| % Nondetects | 0% | 0% | 0% | 0% | 38% | 100% | 88% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a posteriori Sample | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

APPENDIX A.1
STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

## SURFACE DATA

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Aroclor-1254 |
|---|---|---|---|---|---|---|
| A7SSA-C01-1^1-RMP | 0.751 U | 0.849 J | 0.422 U | 21.1 J | 0.311 J | 3.6 U |
| A7SSA-C01-10^1-RMP | 0.811 U | 1.09 - | 0.372 U | 6.59 J | 0.413 J | 26.3 - |
| A7SSA-C01-11^1-RMP | 0.776 U | 0.816 J | 0.423 U | 3.31 J | 0.453 J | 3.6 U |
| A7SSA-C01-12^1-RMP | 0.764 U | 0.944 J | 0.437 U | 3.92 J | 0.404 J | 3.6 U |
| A7SSA-C01-13^1-RMP | 0.707 U | 1.13 - | 0.463 U | 3.68 J | 0.375 J | 3.8 U |
| A7SSA-C01-14^1-RMP | 0.822 U | 1.15 - | 0.509 U | 6.21 J | 0.303 J | 3.5 U |
| A7SSA-C01-15^1-RMP | 0.742 U | 1.06 J | 0.468 U | 4.18 J | 0.497 J | 3.6 U |
| A7SSA-C01-16^1-RMP | 0.774 U | 0.918 J | 0.459 U | 4.46 J | 0.495 J | 3.7 U |
| A7SSA-C01-2^1-RMP | 0.795 U | 0.754 J | 0.445 U | 3.6 J | 0.4 J | 3.6 U |
| A7SSA-C01-3^1-RMP | 0.762 U | 1.13 - | 0.441 U | 4 J | 0.35 J | 3.6 U |
| A7SSA-C01-3^1-RMP-D | 0.794 U | 1.45 - | 0.477 U | 10.1 J | 0.808 J | 4 U |
| A7SSA-C01-4^1-RMP | 0.787 U | 0.89 J | 0.6 U | 4.52 J | 0.371 J | 3.6 U |
| A7SSA-C01-5^1-RMP | 3.02 - | 0.996 J | 0.45 U | 5.34 J | 0.53 J | 3.5 U |
| A7SSA-C01-6^1-RMP | 0.794 U | 1.39 - | 0.352 U | 3.25 J | 0.445 J | 3.6 U |
| A7SSA-C01-7^1-RMP | 0.783 U | 0.914 J | 0.407 U | 2.34 J | 0.463 J | 3.5 U |
| A7SSA-C01-8^1-RMP | 0.792 U | 1.08 J | 0.365 U | 5.46 J | 0.381 J | 3.7 U |
| A7SSA-C01-9^1-RMP | 0.829 U | 1.08 - | 0.487 U | 4.69 J | 0.392 J | 3.6 U |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 130 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 3.02 | 1.45 | 0.6 U | **21.1** | 0.808 | 26.3 |
| Max. > Limit | No | No | No | **Yes** | No | No |
| W-statistic Prob. # | - - | - - | - - | 1.6% (LN) | - - | - - |
| Test Procedure | - - | - - | - - | Median (Sign) | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 15 | 0 | 16 | 0 | 0 | 15 |
| % Nondetects | 94% | 0% | 100% | 0% | 0% | 94% |
| Est. Mean* | - - | - - | - - | 4.46 | - - | - - |
| UCL | - - | - - | - - | 5.34 | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | Pass | - - | - - |

| | | | | | | |
|---|---|---|---|---|---|---|
| a posteriori Sample | - - | - - | - - | 4 | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

### SUBSURFACE DATA

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C01-1^3-RMP | 0.706758 - | 0.512 J | 0.479 - | 0.512 J | 3.07 J | 0.049 U | 0.731 U |
| A7SSA-C01-10^4-RMP | 0.741507 - | 0.451 J | 0.457 - | 0.451 J | 2.78 U | 0.047 U | 5.56 U |
| A7SSA-C01-11^4-RMP | 0.618306 - | 0.498 J | 0.498 - | 0.498 J | 2.73 U | 0.05 U | 5.62 U |
| A7SSA-C01-12^3-RMP | 0.767832 - | 0.73 J | 0.766 - | 0.73 J | 2.14 U | 0.055 U | 0.816 U |
| A7SSA-C01-13^2-RMP | 1.01634 - | 0.658 J | 0.631 - | 0.658 J | 2.77 U | 0.04 U | 10.7 UJ |
| A7SSA-C01-14^3-RMP | 0.872079 - | 0.71 J | 0.731 - | 0.71 J | 3 J | 0.059 U | 0.873 U |
| A7SSA-C01-15^3-RMP | 0.725712 - | 0.57 J | 0.537 - | 0.57 J | 2.17 U | 0.0838 J | 7.56 U |
| A7SSA-C01-16^3-RMP | 0.78468 - | 0.651 J | 0.596 - | 0.651 J | 2.69 U | 0.043 U | 9.53 U |
| A7SSA-C01-2^4-RMP | 0.666744 - | 0.432 J | 0.484 - | 0.432 J | 3.5 J | 0.047 U | 0.688 U |
| A7SSA-C01-3^2-RMP | 0.964743 - | 0.556 J | 0.566 - | 0.556 J | 6.82 - | 0.04 U | 9.55 U |
| A7SSA-C01-3^2-RMP-D | 0.883662 - | 0.694 J | 0.725 - | 0.694 J | 2.5 U | 0.039 U | 8.2 U |
| A7SSA-C01-4^4-RMP | 0.684645 - | 0.507 J | 0.499 - | 0.507 J | 2.05 J | 0.036 U | 8.55 U |
| A7SSA-C01-5^2-RMP | 0.741507 - | 0.621 J | 0.619 - | 0.621 J | 4.38 - | 0.042 U | 7.89 U |
| A7SSA-C01-6^5-RMP | 0.776256 - | 0.548 J | 0.545 - | 0.548 J | 2.84 U | 0.05 U | 5.75 U |
| A7SSA-C01-7^4-RMP | 0.727818 - | 0.52 J | 0.524 - | 0.52 J | 3.71 J | 0.049 U | 5.55 U |
| A7SSA-C01-8^3-RMP | 0.699387 - | 0.577 J | 0.603 - | 0.577 J | 2.82 U | 0.051 U | 5.71 U |
| A7SSA-C01-9^2-RMP | 0.729924 - | 0.585 J | 0.649 - | 0.585 J | 2.89 U | 0.052 U | 6.36 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/L | pCi/L | pCi/L | pCi/L | mg/kg | pCi/L | pCi/L |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.01634 | 0.73 | 0.766 | 0.73 | 6.82 | 0.838 | 10.7 UJ |
| Max. > Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 10 | 15 | 16 |
| % Nondetects | 0% | 0% | 0% | 0% | 63% | 94% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |
| a posteriori Sample | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

### SUBSURFACE DATA

| SAMPLE ID | Technetium-99 | Thorium-230 | Arsenic | Beryllium | Chromium | Aroclor-1254 |
|---|---|---|---|---|---|---|
| A7SSA-C01-1^3-RMP | 0.815 U | 0.927 - | 4.1 J | 0.196 - | 6.93 J | 3.6 U |
| A7SSA-C01-10^4-RMP | 0.9 U | 0.822 J | 2.82 J | 0.223 - | 7.96 J | 3.7 U |
| A7SSA-C01-11^4-RMP | 0.937 U | 0.785 J | 2.35 J | 0.158 - | 6.06 J | 3.8 U |
| A7SSA-C01-12^3-RMP | 2.5 - | 0.928 - | 3.61 J | 0.393 - | 12.8 J | 3.8 U |
| A7SSA-C01-13^2-RMP | 0.779 U | 1.16 - | 4.05 J | 0.29 - | 10.7 J | 3.7 U |
| A7SSA-C01-14^3-RMP | 0.723 U | 1.18 - | 4.46 J | 0.216 - | 8.22 J | 3.7 U |
| A7SSA-C01-15^3-RMP | 0.856 U | 0.959 - | 14.4 J | 0.314 - | 9.96 J | 3.6 U |
| A7SSA-C01-16^3-RMP | 0.804 U | 0.734 J | 4.4 J | 0.355 - | 13.6 J | 4 U |
| A7SSA-C01-2^4-RMP | 0.734 U | 0.809 J | 3.8 J | 0.229 - | 7.47 J | 3.6 U |
| A7SSA-C01-3^2-RMP | 0.726 U | 1.16 - | 3.3 J | 0.283 - | 10.4 J | 4 U |
| A7SSA-C01-3^2-RMP-D | 0.767 U | 1.18 - | 5.89 J | 0.335 - | 13 J | 4 U |
| A7SSA-C01-4^4-RMP | 0.805 U | 0.802 J | 7.03 J | 0.559 - | 17.1 J | 3.7 U |
| A7SSA-C01-5^2-RMP | 0.815 U | 1.26 - | 4.38 J | 0.368 - | 12.4 J | 3.8 U |
| A7SSA-C01-6^5-RMP | 0.803 U | 0.79 J | 4.12 J | 0.273 - | 9.22 J | 3.9 U |
| A7SSA-C01-7^4-RMP | 0.736 U | 0.899 J | 6.02 J | 0.392 - | 12 J | 3.7 U |
| A7SSA-C01-8^3-RMP | 2.9 - | 0.986 - | 3.88 J | 0.192 - | 7.21 J | 4 U |
| A7SSA-C01-9^2-RMP | 0.759 U | 1.03 - | 3.47 J | 0.309 - | 10.5 J | 3.6 U |
| Limit | 30 | 280 | 12 | 1.5 | 300 | 130 |
| Units | pCi/L | pCi/L | mg/kg | mg/kg | mg/kg | ug/kg |
| Conf. Level | 90% | 95% | 90% | 90% | 90% | 90% |
| Max. Result | 2.9 | 1.26 | **14.4** | 0.559 | 17.1 | 4 U |
| Max. > Limit | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | 3.4% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | Median (Sign) | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 14 | 0 | 0 | 0 | 0 | 16 |
| % Nondetects | 88% | 0% | 0% | 0% | 0% | 100% |
| Est. Mean* | - - | - - | 4.11 | - - | - - | - - |
| UCL | - - | - - | 4.46 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | Pass | - - | - - | - - |
| a posteriori Sample | - - | - - | 4 | - - | - - | - - |
| Size calculation | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

### SURFACE DATA

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C02-1^1-RMP | 0.877344 - | 0.786 - | 0.778 - | 0.786 - | 3.36 - | 0.0406 U | 0.716 J |
| A7SSA-C02-10^1-RMP | 0.83733 - | 0.728 - | 0.719 - | 0.728 - | 3.68 - | 0.0443 U | 0.541 J |
| A7SSA-C02-11^1-RMP | 0.87945 - | 0.71 - | 0.705 - | 0.71 - | 4.49 - | 0.0658 U | 0.677 U |
| A7SSA-C02-12^1-RMP | 0.727818 - | 0.546 - | 0.558 - | 0.546 - | 3.41 - | 0.0173 U | 1.84 U |
| A7SSA-C02-13^1-RMP | 1.39542 - | 0.877 - | 0.873 - | 0.877 - | 5.93 - | 0.0653 - | 3.98 U |
| A7SSA-C02-14^1-RMP | 1.00581 - | 0.782 - | 0.765 - | 0.782 - | 7.63 - | 0.0669 - | 2.91 U |
| A7SSA-C02-15^1-RMP | 0.839436 - | 0.676 - | 0.718 - | 0.676 - | 3.55 - | 0.0166 U | 3.27 U |
| A7SSA-C02-16^1-RMP | 0.820482 - | 0.668 - | 0.675 - | 0.668 - | 3.26 - | 0.0426 U | 0.948 J |
| A7SSA-C02-2^1-RMP | 0.780468 - | 0.564 - | 0.564 - | 0.564 - | 5.52 - | 0.024 U | 2.87 U |
| A7SSA-C02-3^1-RMP | 1.04793 - | 0.666 - | 0.667 - | 0.666 - | 3.98 - | 0.0211 U | 2.29 U |
| A7SSA-C02-8^1-RMP | 0.882609 - | 0.716 - | 0.713 - | 0.716 - | 4.1 - | 0.0229 U | 2.52 U |
| A7SSA-C02-9^1-RMP | 0.915252 - | 0.726 - | 0.713 J | 0.726 - | 3.31 J | 0.0589 U | 0.683 U |
| A7SSA-C02-9^1-RMP-D | 0.936312 - | 0.723 - | 0.707 J | 0.723 - | 4.91 J | 0.0842 U | 0.766 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | mg/kg |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.395 | 0.877 | 0.873 | 0.877 | 7.63 | 0.0669 | 0.948 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Nondetects | 0 | 0 | 0 | 0 | 0 | 10 | 9 |
| % Nondetects | 0% | 0% | 0% | 0% | 0% | 83% | 75% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a posteriori Sample | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

### SURFACE DATA

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Aroclor-1254 |
|---|---|---|---|---|---|---|
| A7SSA-C02-1^1-RMP | 1.93 U | 0.785 - | 0.94 J | 27.6 J | 0.51 J | 3.6 U |
| A7SSA-C02-10^1-RMP | 2.28 U | 1.12 - | 0.65 J | 4.6 J | 0.54 J | 3.6 U |
| A7SSA-C02-11^1-RMP | 2.27 U | 0.552 U | 0.428 UJ | 4.1 J | 0.41 J | 3.6 U |
| A7SSA-C02-12^1-RMP | 2.13 U | 1.11 U | 0.41 UJ | 3.1 J | 0.36 J | 3.5 U |
| A7SSA-C02-13^1-RMP | 2.23 U | 1.06 J | 0.56 J | 4.4 J | 0.46 J | 3.7 U |
| A7SSA-C02-14^1-RMP | 2.2 U | 1.79 - | 0.434 UJ | 4.4 J | 0.54 J | 4.3 J |
| A7SSA-C02-15^1-RMP | 2.04 U | 0.834 - | 1.1 J | 5.7 J | 0.43 J | 3.8 U |
| A7SSA-C02-16^1-RMP | 1.96 U | 1.11 - | 0.424 UJ | 3.5 J | 0.4 J | 3.5 U |
| A7SSA-C02-2^1-RMP | 2.32 J | 0.801 - | 0.42 UJ | 2.3 J | 0.28 J | 3.6 U |
| A7SSA-C02-3^1-RMP | 1.85 U | 1.48 - | 0.93 J | 4.7 J | 0.6 J | 3.5 U |
| A7SSA-C02-8^1-RMP | 2.02 U | 1.25 - | 0.55 J | 4.8 J | 0.43 J | 3.7 U |
| A7SSA-C02-9^1-RMP | 1.88 U | 1.52 J | 2.06 UJ | 5.1 J | 0.51 - | 3.6 U |
| A7SSA-C02-9^1-RMP-D | 1.76 U | 1.17 J | 2.8 U | 5.3 J | 0.66 - | 3.7 U |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 130 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | ug/kg |
| Conf. Level | 90% | 95% | 90% | 0.9 | 90% | 90% |
| Max. Result | 2.32 | 1.79 | 1.1 | **27.6** | 0.66 | 4.3 |
| Max. >= Limit | No | No | No | **Yes** | No | No |
| W-statistic Prob. # | - - | - - | - - | < 0.01% (LN) | - - | - - |
| Test Procedure | - - | - - | - - | Median (Sign) | - - | - - |
| Sample Size | 12 | 12 | 12 | 12 | 12 | 12 |
| Nondetects | 11 | 2 | 6 | 0 | 0 | 11 |
| % Nondetects | 92% | 17% | 50% | 0% | 0% | 92% |
| Est. Mean* | - - | - - | - - | 4.6 | - - | - - |
| UCL | - - | - - | - - | 5.1 | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | Pass | - - | - - |

| | | | | | | |
|---|---|---|---|---|---|---|
| a posteriori Sample | - - | - - | - - | 5 | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

### SUBSURFACE DATA

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C02-1^2-RMP | 0.716235 - | 0.591 - | 0.597 - | 0.591 - | 3.82 - | 0.0176 U | 1.87 U |
| A7SSA-C02-10^5-RMP | 0.714129 - | 0.632 - | 0.646 J | 0.632 - | 2.6 J | 0.0464 U | 1.43 - |
| A7SSA-C02-11^3-RMP | 1.3533 - | 0.71 - | 0.731 J | 0.71 - | 4.74 J | 0.0238 U | 3.31 U |
| A7SSA-C02-12^8-RMP | 0.76362 - | 0.603 - | 0.621 J | 0.603 - | 0.899 U | 0.0149 U | 1.14 U |
| A7SSA-C02-13^4-RMP | 0.894192 - | 0.721 - | 0.717 J | 0.721 - | 3.63 J | 0.0285 U | 1.14 - |
| A7SSA-C02-14^6-RMP | 1.55337 - | 0.759 - | 0.754 J | 0.759 - | 10.9 J | 0.0681 - | 1.4 - |
| A7SSA-C02-15^4-RMP | 0.685698 - | 0.431 - | 0.421 J | 0.431 - | 2.78 J | 0.0451 U | 0.992 J |
| A7SSA-C02-16^4-RMP | 0.849966 - | 0.589 - | 0.575 J | 0.589 - | 4.42 J | 0.0689 U | 0.721 U |
| A7SSA-C02-2^2-RMP | 0.768885 - | 0.476 - | 0.485 - | 0.476 - | 2.28 J | 0.0502 U | 0.751 J |
| A7SSA-C02-3^6-RMP | 0.460356 - | 0.233 - | 0.226 - | 0.233 - | 2.34 - | 0.026 U | 0.552 J |
| A7SSA-C02-4^1-RMP | 0.873132 - | 0.802 - | 0.803 - | 0.802 - | 3.74 - | 0.0459 U | 6.68 J |
| A7SSA-C02-5^1-RMP | 0.977379 - | 0.806 - | 0.817 - | 0.806 - | 4.3 - | 0.0757 U | 0.751 U |
| A7SSA-C02-6^1-RMP | 1.67973 - | 1.03 - | 1.05 - | 1.03 - | 4.43 - | 0.0357 J | 2.64 U |
| A7SSA-C02-7^1-RMP | 1.05846 - | 0.751 - | 0.761 - | 0.751 - | 3.53 - | 0.0419 U | 4.16 U |
| A7SSA-C02-8^3-RMP | 0.811005 - | 0.705 - | 0.714 - | 0.705 - | 3.68 - | 0.0607 U | 1.39 - |
| A7SSA-C02-9^6-RMP | 1.11111 - | 0.931 - | 0.918 J | 0.931 - | 10.3 J | 0.11 J | 1.04 J |
| A7SSA-C02-9^6-RMP-D | 1.04793 - | 1.01 - | 0.981 J | 1.01 - | 13.5 J | 0.167 - | 1.48 J |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | mg/kg |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.68 | 1.03 | 1.05 | 1.03 | 13.5 | 0.167 | 6.68 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 1 | 13 | 7 |
| % Nondetects | 0% | 0% | 0% | 0% | 6% | 81% | 44% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a posteriori Sample | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

### SUBSURFACE DATA

| SAMPLE ID | Technetium-99 | Thorium-230 | Chromium | Arsenic | Beryllium | Aroclor-1254 |
|---|---|---|---|---|---|---|
| A7SSA-C02-1^2-RMP | 1.92 U | 0.976 - | 11.1 J | 6.1 J | 0.36 J | 3.8 U |
| A7SSA-C02-10^5-RMP | 1.86 U | 1.55 J | 9.1 J | 5.2 J | 0.31 - | 3.8 U |
| A7SSA-C02-11^3-RMP | 1.85 U | 1.22 J | 11.2 J | 3.7 J | 0.34 - | 3.7 U |
| A7SSA-C02-12^8-RMP | 1.82 U | 0.979 J | 9.5 J | 6 J | 0.36 - | 4 U |
| A7SSA-C02-13^4-RMP | 1.94 U | 1.17 J | 14.6 J | 6.6 J | 0.45 - | 3.9 U |
| A7SSA-C02-14^6-RMP | 1.85 U | 1.64 J | 17.6 J | 4.8 J | 0.39 - | 3.7 U |
| A7SSA-C02-15^4-RMP | 3.95 - | 0.957 J | 9 J | 5.5 J | 0.33 - | 3.8 U |
| A7SSA-C02-16^4-RMP | 1.83 U | 1.01 J | 11.8 J | 4.5 J | 0.45 - | 3.7 U |
| A7SSA-C02-2^2-RMP | 2.02 U | 1.09 - | 10.3 J | 2.3 J | 0.35 J | 3.7 U |
| A7SSA-C02-3^6-RMP | 1.67 U | 0.563 - | 6.6 J | 42.4 J | 0.27 J | 3.6 U |
| A7SSA-C02-4^1-RMP | 1.95 U | 2.08 J | -- | 4.9 J | 0.55 - | 3.6 U |
| A7SSA-C02-5^1-RMP | 1.84 U | 1.17 J | -- | 4.4 J | 0.53 - | 3.7 U |
| A7SSA-C02-6^1-RMP | 2.01 U | 1.55 J | -- | 5.9 J | 0.59 - | 4 U |
| A7SSA-C02-7^1-RMP | 1.94 U | 1.2 J | -- | 5.7 J | 0.5 - | 26.8 - |
| A7SSA-C02-8^3-RMP | 2.16 U | 1.22 - | 7.8 J | 3.1 J | 0.29 J | 3.7 U |
| A7SSA-C02-9^6-RMP | 1.76 U | 1.58 J | 15.7 J | 5.5 J | 0.6 - | 3.9 U |
| A7SSA-C02-9^6-RMP-D | 1.79 U | 1.32 J | 15.6 J | 6.2 J | 0.58 - | 3.9 U |
| Limit | 30 | 280 | 300 | 12 | 1.5 | 130 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 95% | 90% | 90% | 90% | 90% |
| Max. Result | 3.95 | 2.08 | 17.6 | **42.4** | 0.6 | 26.8 |
| Max. >= Limit | No | No | No | **Yes** | No | No |
| W-statistic Prob. # | - - | - - | - - | < 0.01% (LN) | - - | - - |
| Test Procedure | - - | - - | - - | Median (Sign) | - - | - - |
| Sample Size | 16 | 16 | 12 | 16 | 16 | 16 |
| Nondetects | 15 | 0 | 0 | 0 | 0 | 15 |
| % Nondetects | 94% | 0% | 0% | 0% | 0% | 94% |
| Est. Mean* | - - | - - | - - | 5.5 | - - | - - |
| UCL | - - | - - | - - | 5.9 | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | Pass | - - | - - |

| | | | | | | |
|---|---|---|---|---|---|---|
| a posteriori Sample | - - | - - | - - | 4 | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C03-1 | 1.22 - | 1.03 J | 1.03 J | 1.03 J | 4.57 - | 0.0317 U | 7.89 U |
| A7SSA-C03-2 | 1.35 - | 1.1 J | 1.11 J | 1.1 J | 6.66 - | 0.0369 U | 6.97 U |
| A7SSA-C03-3 | 1.3 - | 0.923 J | 0.882 J | 0.923 J | 10.5 - | 0.131 - | 7.63 U |
| A7SSA-C03-4 | 1.55 - | 1.45 J | 1.55 J | 1.45 J | 4.41 - | 0.0589 U | 0.896 U |
| A7SSA-C03-5 | 1.1 - | 0.851 J | 0.868 J | 0.851 J | 5.45 - | 0.0359 U | 8.07 U |
| A7SSA-C03-6 | 1.09 - | 1.15 J | 1.21 J | 1.15 J | 5.12 - | 0.0544 U | 0.784 U |
| A7SSA-C03-7 | 1.01 - | 1.03 J | 1.06 J | 1.03 J | 7.93 - | 0.0675 U | 0.928 U |
| A7SSA-C03-8 | 1.25 - | 1.08 J | 1.03 J | 1.08 J | 9.93 - | 0.0587 J | 7.12 U |
| A7SSA-C03-9 | 0.986 - | 0.973 J | 1.04 J | 0.973 J | 6.41 - | 0.0672 U | 0.866 U |
| A7SSA-C03-10 | 1.44 - | 1.19 J | 1.09 J | 1.19 J | 4.91 - | 0.04 U | 9.04 U |
| A7SSA-C03-11 | 0.997 - | 0.974 J | 0.987 J | 0.974 J | 5.76 J | 0.0757 U | 6.18 U |
| A7SSA-C03-12 | 1.21 - | 1.06 J | 1.01 J | 1.06 J | 6.06 - | 0.0432 U | 8.08 U |
| A7SSA-C03-13 | 1.01 - | 0.81 J | 0.793 J | 0.81 J | 11.7 - | 0.0632 J | 7.63 U |
| A7SSA-C03-14 | 1.12 - | 0.84 J | 0.789 J | 0.84 J | 5.87 J | 0.0662 U | 6.11 U |
| A7SSA-C03-15 | 1.02 - | 0.928 J | 0.936 J | 0.928 J | 5.16 J | 0.0754 U | 6.24 U |
| A7SSA-C03-16 | 1.09 - | 1.08 J | 1.12 J | 1.08 J | 10.4 - | 0.0701 J | 0.911 U |
| A7SSA-C03-16-D | 1.06 - | 0.808 J | 0.769 J | 0.808 J | 10.7 - | 0.0653 J | 9 U |
| A7SSA-C03-17 | 0.633 - | 0.499 - | 0.477 - | 0.499 - | 1.97 U | 0.0362 U | 3.93 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 0.95 | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.55 | 1.45 | 1.55 | 1.45 | 11.7 | 0.131 | 9.04 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 0 | 0 | 0 | 0 | 1 | 13 | 17 |
| % Nondetects | 0% | 0% | 0% | 0% | 6% | 76% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C03-1 | 0.809 U | 1.36 - | 0.537 U | 11.2 - | 1.04 U | 0.232 J | 1.96 - |
| A7SSA-C03-2 | 0.784 U | 1.71 - | 0.508 U | 15.5 - | 1.28 - | 0.202 J | 2.23 - |
| A7SSA-C03-3 | 0.785 U | 2.61 - | 0.728 U | 7.47 - | 0.775 U | 0.195 J | 1.17 J |
| A7SSA-C03-4 | 0.82 U | 1.82 - | 0.525 U | 8 - | 1.75 - | 0.223 J | 0.854 J |
| A7SSA-C03-5 | 0.782 U | 1.56 - | 0.465 U | 9.76 - | 0.872 U | 0.201 J | 1.96 - |
| A7SSA-C03-6 | 0.753 U | 1.36 - | 0.462 U | 12.7 - | 0.984 U | 0.232 J | 2.41 - |
| A7SSA-C03-7 | 0.759 U | 0.898 - | 0.422 U | 7.28 - | 0.8 U | 0.233 J | 1.67 - |
| A7SSA-C03-8 | 0.853 U | 1.57 - | 0.432 U | 7.11 - | 0.725 U | 0.107 J | 1.11 J |
| A7SSA-C03-9 | 0.736 U | 1.7 - | 0.43 U | 5.68 - | 0.511 U | 0.133 J | 1.07 J |
| A7SSA-C03-10 | 0.827 U | 1.4 - | 0.465 U | 10.9 - | 1.57 - | 0.263 J | 1.58 - |
| A7SSA-C03-11 | 0.766 U | 1.38 - | 0.508 U | 7.87 - | 0.648 U | 0.176 J | 6.26 - |
| A7SSA-C03-12 | 0.837 U | 1.47 - | 0.481 U | 10.4 - | 0.877 U | 0.165 J | 1.61 - |
| A7SSA-C03-13 | 0.819 U | 1.63 - | 0.466 U | 4.96 - | 0.494 U | 0.152 J | 0.87 J |
| A7SSA-C03-14 | 0.755 U | 1.46 - | 0.416 U | 8.1 - | 0.588 U | 0.173 J | 1.42 - |
| A7SSA-C03-15 | 0.787 U | 1.33 - | 0.415 U | 7.95 - | 0.54 U | 0.176 J | 1.26 - |
| A7SSA-C03-16 | 0.784 U | 1.96 - | 0.441 U | 6.17 - | 0.537 U | 0.145 J | 0.993 J |
| A7SSA-C03-16-D | 0.773 U | 2.09 - | 0.521 U | 5.85 - | 0.57 U | 0.154 J | 1.18 J |
| A7SSA-C03-17 | 0.83 U | 0.973 J | 0.341 U | 7.22 - | 0.378 - | 0.12 J | 0.952 J |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.853 U | 2.61 | 0.728 U | **15.5** | **1.75** | 0 .263 | 6.26 |
| Max. >= Limit | No | No | No | **Yes** | **Yes** | No | No |
| W-statistic Prob. # | - - | - - | - - | 80.0% (LN) | <0.01% (LN) | - - | - - |
| Test Procedure | - - | - - | - - | Lognormal | Proportions (Sign) | - - | - - |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 17 | 0 | 17 | 0 | 13 | 0 | 0 |
| % Nondetects | 100% | 0% | 100% | 0% | 76% | 0% | 0% |
| Est. Mean* | - - | - - | - - | 8.73 | 0.3875 | - - | - - |
| UCL | - - | - - | - - | 9.68 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | 0.2% | - - | - - |
| Pass / Fail | - - | - - | - - | pass | pass | - - | - - |
| *a posteriori Sample* | - - | - - | - - | 4 | 6 | - - | - - |
| Size calculation | - - | - - | - - | Pass | Pass | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C03-1 | 0.171 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U |
| A7SSA-C03-2 | 0.161 U | 44.8 U | 44.8 U | 44.8 U | 44.8 U | 44.8 U | 44.8 U |
| A7SSA-C03-3 | 8.21 J | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U |
| A7SSA-C03-4 | 0.167 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U |
| A7SSA-C03-5 | 0.148 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U |
| A7SSA-C03-6 | 0.147 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U |
| A7SSA-C03-7 | 0.134 U | 42.7 U | 42.7 U | 42.7 U | 42.7 U | 42.7 U | 42.7 U |
| A7SSA-C03-8 | 0.137 U | 42.9 U | 42.9 U | 42.9 U | 42.9 U | 42.9 U | 42.9 U |
| A7SSA-C03-9 | 0.136 U | 123 U | 123 U | 123 U | 123 U | 123 U | 123 U |
| A7SSA-C03-10 | 0.148 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U |
| A7SSA-C03-11 | 0.129 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U |
| A7SSA-C03-12 | 0.153 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U |
| A7SSA-C03-13 | 0.148 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U |
| A7SSA-C03-14 | 0.473 J | 40 U | 40 U | 40 U | 40 U | 40 U | 40 U |
| A7SSA-C03-15 | 0.132 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C03-16 | 0.14 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U |
| A7SSA-C03-16-D | 0.165 U | 41 U | 41 U | 41 U | 41 U | 41 U | 41 U |
| A7SSA-C03-17 | 0.108 U | 38.2 U | 38.2 U | 38.2 U | 38.2 U | 38.2 U | 38.2 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 8.21 | 123 U | 123 U | 123 U | 123 U | 123 U | 123 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 15 | 17 | 17 | 17 | 17 | 17 | 17 |
| % Nondetects | 88% | 100% | 100% | 100% | 100% | 100% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 |
|---|---|---|---|---|---|---|
| A7SSA-C03-1 | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 4.2 U |
| A7SSA-C03-2 | 44.8 U | 44.8 U | 44.8 U | 44.8 U | 44.8 U | 4.5 U |
| A7SSA-C03-3 | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 4.1 U |
| A7SSA-C03-4 | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 4.1 U |
| A7SSA-C03-5 | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 4 U |
| A7SSA-C03-6 | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 4.2 U |
| A7SSA-C03-7 | 42.7 U | 42.7 U | 42.7 U | 42.7 U | 42.7 U | 4.3 U |
| A7SSA-C03-8 | 42.9 U | 42.9 U | 42.9 U | 42.9 U | 42.9 U | 4.3 U |
| A7SSA-C03-9 | 123 U | 123 U | 123 U | 123 U | 123 U | 12.3 U |
| A7SSA-C03-10 | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 4.2 U |
| A7SSA-C03-11 | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 4.1 U |
| A7SSA-C03-12 | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 4.1 U |
| A7SSA-C03-13 | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 4 U |
| A7SSA-C03-14 | 40 U | 40 U | 40 U | 40 U | 40 U | 4 U |
| A7SSA-C03-15 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 4 U |
| A7SSA-C03-16 | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 4.1 U |
| A7SSA-C03-16-D | 41 U | 41 U | 41 U | 41 U | 41 U | 4.1 U |
| A7SSA-C03-17 | 38.2 U | 38.2 U | 38.2 U | 38.2 U | 38.2 U | 31.8 - |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 123 U | 123 U | 123 U | 123 U | 123 U | 31.8 |
| Max. >= Limit | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 17 | 17 | 17 | 17 | 17 | 16 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 94% |
| Est. Mean* | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- |

| | | | | | | |
|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Aroclor-1260 |
|---|---|
| A7SSA-C03-1 | 4.2 U |
| A7SSA-C03-2 | 4.5 U |
| A7SSA-C03-3 | 4.1 U |
| A7SSA-C03-4 | 4.1 U |
| A7SSA-C03-5 | 4 U |
| A7SSA-C03-6 | 4.2 U |
| A7SSA-C03-7 | 4.3 U |
| A7SSA-C03-8 | 4.3 U |
| A7SSA-C03-9 | 12.3 U |
| A7SSA-C03-10 | 4.2 U |
| A7SSA-C03-11 | 4.1 U |
| A7SSA-C03-12 | 4.1 U |
| A7SSA-C03-13 | 4 U |
| A7SSA-C03-14 | 4 U |
| A7SSA-C03-15 | 4 U |
| A7SSA-C03-16 | 4.1 U |
| A7SSA-C03-16-D | 4.1 U |
| A7SSA-C03-17 | 9.6 J |
| Limit | 130 |
| Units | ug/kg |
| Conf. Level | 90% |
| Max. Result | 9.6 |
| Max. >= Limit | No |
| W-statistic Prob. # | - - |
| Test Procedure | - - |
| Sample Size | 17 |
| Nondetects | 16 |
| % Nondetects | 94% |
| Est. Mean* | - - |
| UCL | - - |
| Prob. > Limit | - - |
| Pass / Fail | - - |

| | |
|---|---|
| *a posteriori Sample* | - - |
| Size calculation | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C04-1 | 0.809 - | 0.616 - | 0.646 - | 0.616 - | 1.51 U | 0.0418 U | 0.574 U |
| A7SSA-C04-2 | 0.734 - | 0.555 - | 0.544 - | 0.555 - | 2.98 U | 0.0524 U | 5.81 U |
| A7SSA-C04-3 | 0.619 - | 0.544 - | 0.566 - | 0.544 - | 2.78 U | 0.0506 U | 5.55 U |
| A7SSA-C04-4 | 0.723 - | 0.593 - | 0.603 - | 0.593 - | 2.78 U | 0.0512 U | 5.62 U |
| A7SSA-C04-5 | 0.762 - | 0.671 - | 0.669 - | 0.671 - | 2.99 U | 0.0522 U | 5.9 U |
| A7SSA-C04-6 | 0.729 - | 0.471 - | 0.442 - | 0.471 - | 2.22 U | 0.0332 U | 8.09 U |
| A7SSA-C04-7 | 0.792 - | 0.635 - | 0.658 - | 0.635 - | 2.87 U | 0.0478 U | 5.6 U |
| A7SSA-C04-8 | 0.527 - | 0.435 - | 0.441 - | 0.435 - | 2.75 U | 0.0893 J | 5.7 U |
| A7SSA-C04-9 | 0.871 - | 0.72 - | 0.756 - | 0.72 - | 3.09 UJ | 0.0559 U | 6.25 U |
| A7SSA-C04-10 | 0.915 - | 0.675 - | 0.62 - | 0.675 - | 3.4 - | 0.0309 U | 6.09 U |
| A7SSA-C04-11 | 0.858 - | 0.641 - | 0.649 - | 0.641 - | 2.76 U | 0.0501 U | 5.44 U |
| A7SSA-C04-12 | 1.01 - | 1.07 - | 1.1 - | 1.07 - | 4.13 J | 0.0635 U | 0.928 U |
| A7SSA-C04-13 | 0.532 - | 0.496 - | 0.491 - | 0.496 - | 2.74 U | 0.0483 U | 5.56 U |
| A7SSA-C04-14 | 0.636 - | 0.516 - | 0.539 - | 0.516 - | 2.1 J | 0.059 U | 0.772 U |
| A7SSA-C04-15 | 1.17 - | 1.01 - | 1.07 - | 1.01 - | 6.29 - | 0.0966 U | 1.2 U |
| A7SSA-C04-15-D | 1.15 - | 0.855 - | 0.852 - | 0.855 - | 4.37 J | 0.0488 U | 9.57 U |
| A7SSA-C04-16 | 0.753 - | 0.49 - | 0.46 - | 0.49 - | 2.74 U | 0.0461 U | 5.55 U |
| A7SSA-C04-17 | 0.947 - | 0.707 - | 0.755 - | 0.707 - | 2.05 U | 0.0537 U | 0.792 U |
| A7SSA-C04-18 | 0.771 - | 0.592 - | 0.587 - | 0.592 - | 2.03 U | 0.0349 U | 10.6 J |
| A7SSA-C04-19 | 0.825 - | 0.508 - | 0.493 - | 0.508 - | 1.86 J | 0.0361 U | 7.38 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.17 | 1.07 | 1.1 | 1.07 | 6.29 | 0.0893 | 10.6 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Nondetects | 0 | 0 | 0 | 0 | 14 | 18 | 18 |
| % Nondetects | 0% | 0% | 0% | 0% | 0% | 95% | 95% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C04-1 | 0.794 U | 0.901 - | 0.448 U | 6.58 - | 0.262 - | 0.189 J | 1.78 - |
| A7SSA-C04-2 | 0.794 U | 0.904 - | 0.455 U | 4.62 - | 0.213 - | 0.14 J | 1.04 J |
| A7SSA-C04-3 | 0.793 U | 0.906 - | 0.443 U | 2 - | 0.171 J | 0.149 J | 0.995 J |
| A7SSA-C04-4 | 0.774 U | 0.734 - | 0.44 U | 5.81 - | 0.311 - | 0.167 J | 0.775 J |
| A7SSA-C04-5 | 1.08 U | 1.04 - | 0.466 U | 3.92 - | 0.482 - | 0.182 J | 1.24 J |
| A7SSA-C04-6 | 0.808 U | 0.945 - | 0.402 U | 5.87 J | 0.403 - | 0.422 J | 1.61 - |
| A7SSA-C04-7 | 2.23 J | 1.13 - | 0.393 U | 3.82 - | 0.518 - | 0.203 J | 1 J |
| A7SSA-C04-8 | 0.791 U | 0.836 - | 0.501 U | 1.36 - | 0.401 - | 0.161 J | 0.614 J |
| A7SSA-C04-9 | 0.801 U | 1.14 - | 0.439 U | 4.76 - | 0.572 - | 0.401 J | 2.67 - |
| A7SSA-C04-10 | 0.867 U | 1.18 J | 0.496 U | 4.58 - | 0.6 - | 0.174 J | 1.44 - |
| A7SSA-C04-11 | 0.794 U | 1.09 - | 0.494 U | 2.35 - | 0.356 - | 0.185 J | 1.41 - |
| A7SSA-C04-12 | 0.81 U | 1.11 - | 0.515 U | 3.81 - | 0.755 - | 0.263 J | 0.82 J |
| A7SSA-C04-13 | 0.76 U | 0.824 - | 0.472 U | 3.27 - | 0.223 - | 0.157 J | 0.417 U |
| A7SSA-C04-14 | 0.794 U | 0.666 - | 0.497 U | 2.28 J | 0.221 - | 0.193 J | 0.907 J |
| A7SSA-C04-15 | 0.839 U | 1.06 - | 0.406 U | 10.8 J | 0.592 - | 0.255 J | 1.79 - |
| A7SSA-C04-15-D | 0.783 U | 1.34 - | 0.49 U | 5.32 J | 0.677 - | 0.145 J | 0.893 J |
| A7SSA-C04-16 | 0.77 U | 0.873 - | 0.47 U | 9.38 - | 0.254 - | 0.156 J | 0.563 J |
| A7SSA-C04-17 | 0.821 U | 0.99 - | 0.437 U | 0.739 J | 0.345 - | 0.181 J | 0.739 J |
| A7SSA-C04-18 | 0.785 U | 1.11 - | 0.448 U | 2.38 J | 0.279 - | 0.16 J | 2.62 - |
| A7SSA-C04-19 | 0.843 U | 0.995 - | 0.501 U | 12.9 J | 0.529 - | 0.175 J | 3.18 - |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | 0 | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 95% | 90% | 90% | 90% |
| Max. Result | 2.23 | 1.34 | 0.515 U | **12.9** | 0.755 | 0.422 | 3.18 |
| Max. >= Limit | No | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | - - | 84.4% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | - - | Lognormal | - - | - - | - - |
| Sample Size | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Nondetects | 18 | 0 | 19 | 0 | 0 | 0 | 1 |
| % Nondetects | 95% | 0% | 100% | 0% | 0% | 0% | 5% |
| Est. Mean* | - - | - - | - - | 4.97 | - - | - - | - - |
| UCL | - - | - - | - - | 6.56 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | -- | - - | - - | - - |
| Pass / Fail | - - | - - | - - | Pass | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | 3 | - - | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C04-1 | 0.142 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U |
| A7SSA-C04-2 | 0.144 U | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 39.3 U |
| A7SSA-C04-3 | 0.141 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C04-4 | 0.14 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U |
| A7SSA-C04-5 | 0.148 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U |
| A7SSA-C04-6 | 0.128 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U |
| A7SSA-C04-7 | 0.125 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C04-8 | 0.159 U | 39.8 U | 39.8 U | 39.8 U | 39.8 U | 39.8 U | 39.8 U |
| A7SSA-C04-9 | 0.139 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U |
| A7SSA-C04-10 | 0.157 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C04-11 | 0.157 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U |
| A7SSA-C04-12 | 0.164 U | 39 U | 39 U | 39 U | 39 U | 39 U | 39 U |
| A7SSA-C04-13 | 0.15 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C04-14 | 0.158 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U |
| A7SSA-C04-15 | 0.129 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U |
| A7SSA-C04-15-D | 0.156 U | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 40.6 U |
| A7SSA-C04-16 | 0.149 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U |
| A7SSA-C04-17 | 0.139 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U |
| A7SSA-C04-18 | 0.142 U | 40 U | 40 U | 40 U | 40 U | 40 U | 40 U |
| A7SSA-C04-19 | 0.159 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.164 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Nondetects | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | ndeno(1,2,3-cd)pyren | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C04-1 | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 3.87 U | 3.87 U |
| A7SSA-C04-2 | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 50.1 - | 21.9 - |
| A7SSA-C04-3 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 10.2 J | 4.1 J |
| A7SSA-C04-4 | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 4.07 U | 4.07 U |
| A7SSA-C04-5 | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 4.02 U | 4.02 U |
| A7SSA-C04-6 | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 4 U | 4 U |
| A7SSA-C04-7 | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 3.89 U | 3.89 U |
| A7SSA-C04-8 | 39.8 U | 39.8 U | 39.8 U | 39.8 U | 39.8 U | 3.98 U | 3.98 U |
| A7SSA-C04-9 | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 4.6 J | 4.34 U |
| A7SSA-C04-10 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4.04 U | 4.04 U |
| A7SSA-C04-11 | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 4.01 U | 4.01 U |
| A7SSA-C04-12 | 39 U | 39 U | 39 U | 39 U | 39 U | 3.9 U | 3.9 U |
| A7SSA-C04-13 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 3.96 U | 3.96 U |
| A7SSA-C04-14 | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 4.1 U | 4.1 U |
| A7SSA-C04-15 | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 3.7 U | 3.7 U |
| A7SSA-C04-15-D | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 4.1 U | 4.1 U |
| A7SSA-C04-16 | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 4.15 U | 4.15 U |
| A7SSA-C04-17 | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 4 U | 4 U |
| A7SSA-C04-18 | 40 U | 40 U | 40 U | 40 U | 40 U | 4 U | 4 U |
| A7SSA-C04-19 | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 4 U | 4 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 43.4 U | 50.1 | 21.9 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Nondetects | 19 | 19 | 19 | 19 | 19 | 16 | 17 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 84% | 89% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C05-1 | 0.879 - | 0.594 - | 0.599 - | 0.594 - | 2.08 J | 0.0374 U | 7.21 U |
| A7SSA-C05-2 | 0.487 - | 0.394 - | 0.393 - | 0.394 - | 1.74 U | 0.0301 U | 6.46 U |
| A7SSA-C05-3 | 0.929 - | 1.03 - | 1.11 - | 1.03 - | 4.47 J | 0.0814 U | 1.14 U |
| A7SSA-C05-4 | 0.672 - | 0.507 - | 0.474 - | 0.507 - | 1.84 U | 0.0294 U | 7.43 U |
| A7SSA-C05-5 | 1.23 - | 0.785 - | 0.831 - | 0.785 - | 2.95 U | 0.0491 U | 10.2 UJ |
| A7SSA-C05-6 | 0.952 - | 0.794 - | 0.765 - | 0.794 - | 4.03 - | 0.0282 U | 6.5 U |
| A7SSA-C05-7 | 0.932 - | 0.666 - | 0.694 - | 0.666 - | 3.29 J | 0.0266 U | 7.04 U |
| A7SSA-C05-8 | 0.906 - | 0.828 - | 0.845 - | 0.828 - | 4.35 - | 0.0569 U | 5.41 U |
| A7SSA-C05-9 | 0.919 - | 0.873 - | 0.835 - | 0.873 - | 4.95 - | 0.0706 U | 1.04 U |
| A7SSA-C05-10 | 0.93 - | 0.822 - | 0.801 - | 0.822 - | 4.42 - | 0.0648 U | 0.872 U |
| A7SSA-C05-11 | 1.17 - | 0.957 - | 0.939 - | 0.957 - | 2.73 J | 0.0419 U | 9.33 U |
| A7SSA-C05-12 | 1.06 - | 0.83 - | 0.792 - | 0.83 - | 6.41 - | 0.0447 U | 7.9 U |
| A7SSA-C05-12-D | 1.17 - | 0.949 - | 0.858 - | 0.949 - | 2.59 U | 0.041 U | 9.27 U |
| A7SSA-C05-13 | 0.766 - | 0.458 - | 0.408 - | 0.458 - | 1.58 U | 0.0435 U | 0.652 U |
| A7SSA-C05-14 | 0.552 - | 0.413 - | 0.37 - | 0.413 - | 1.93 U | 0.0306 U | 6.73 U |
| A7SSA-C05-15 | 0.891 - | 0.606 - | 0.619 - | 0.606 - | 4.34 - | 0.034 U | 6.9 U |
| A7SSA-C05-16 | 1.14 - | 1.13 - | 1.17 - | 1.13 - | 3.98 - | 0.0641 U | 0.899 U |
| A7SSA-C05-17 | 0.954 - | 0.925 - | 0.907 - | 0.925 - | 3.58 - | 0.0464 U | 0.666 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.23 | 1.13 | 1.17 | 1.13 | 6.41 | 0.0814 U | 10.2 UJ |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 0 | 0 | 0 | 0 | 5 | 17 | 17 |
| % Nondetects | 0% | 0% | 0% | 0% | 29% | 100% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C05-1 | 0.763 U | 1.08 - | 0.456 U | 7.64 J | 0.66 - | 0.235 J | 1.74 - |
| A7SSA-C05-2 | 1.58 - | 0.813 - | 0.416 U | 5.02 J | 0.21 - | 0.153 J | 1.18 - |
| A7SSA-C05-3 | 0.79 U | 1.12 - | 0.441 U | 8.28 J | 0.603 - | 0.203 J | 2.14 - |
| A7SSA-C05-4 | 0.737 U | 0.766 - | 0.474 U | 9.14 J | 0.303 - | 0.181 J | 1.81 - |
| A7SSA-C05-5 | 0.802 U | 1.53 - | 0.471 U | 3.88 J | 0.74 - | 0.172 J | 1.31 - |
| A7SSA-C05-6 | 0.856 U | 1.01 - | 0.502 U | 5.4 J | 0.271 - | 0.156 J | 2.11 - |
| A7SSA-C05-7 | 0.769 U | 0.92 - | 0.491 U | 6.23 J | 0.634 - | 0.131 J | 1.02 J |
| A7SSA-C05-8 | 1.91 U | 1.37 - | 2.3 U | 7 - | 0.6 - | 0.44 J | 1.5 - |
| A7SSA-C05-9 | 0.771 U | 1.36 J | 0.441 U | 7.17 J | 0.585 - | 0.19 J | 1.43 - |
| A7SSA-C05-10 | 0.789 U | 1.03 - | 0.448 U | 5.29 J | 0.575 - | 0.196 J | 1.07 J |
| A7SSA-C05-11 | 0.786 U | 1.01 - | 0.462 U | 6.42 J | 0.603 - | 0.189 J | 1.14 J |
| A7SSA-C05-12 | 0.764 U | 1.29 - | 0.477 U | 7.04 J | 0.626 - | 0.163 J | 1.25 J |
| A7SSA-C05-12-D | 0.867 J | 1.36 - | 0.442 U | 10.9 J | 0.737 - | 0.17 J | 1.55 - |
| A7SSA-C05-13 | 1.62 - | 0.847 - | 0.459 U | 9.01 J | 0.215 - | 0.188 J | 1.49 - |
| A7SSA-C05-14 | 1.09 - | 0.909 - | 0.464 U | 5.81 J | 0.539 - | 0.185 J | 1.19 J |
| A7SSA-C05-15 | 5.31 - | 0.776 - | 0.489 U | 16.2 J | 0.519 - | 0.347 J | 2.79 - |
| A7SSA-C05-16 | 0.787 U | 1.08 - | 0.457 U | 10.2 J | 0.89 - | 0.224 J | 1.41 - |
| A7SSA-C05-17 | 0.792 U | 1.32 - | 0.485 U | 6.2 J | 0.571 - | 0.189 J | 2.39 - |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | 0 | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 5.31 | 1.53 | 2.3 U | **16.2** | 0.89 | 0.44 | 2.79 |
| Max. >= Limit | No | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | - - | 89.0% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | - - | Lognormal | - - | - - | - - |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 12 | 0 | 17 | 0 | 0 | 0 | 0 |
| % Nondetects | 71% | 0% | 100% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | 7.64 | - - | - - | - - |
| UCL | - - | - - | - - | 8.63 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | Pass | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | 3 | - - | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C05-1 | 0.145 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U |
| A7SSA-C05-2 | 0.132 U | 42 U | 42 U | 42 U | 42 U | 42 U | 42 U |
| A7SSA-C05-3 | 0.14 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U |
| A7SSA-C05-4 | 0.151 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U |
| A7SSA-C05-5 | 0.15 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C05-6 | 0.159 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U |
| A7SSA-C05-7 | 0.156 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U |
| A7SSA-C05-8 | 0.11 J | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C05-9 | 0.14 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U |
| A7SSA-C05-10 | 0.142 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U |
| A7SSA-C05-11 | 0.147 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U |
| A7SSA-C05-12 | 0.152 U | 39.2 U | 39.2 U | 39.2 U | 39.2 U | 39.2 U | 39.2 U |
| A7SSA-C05-12-D | 0.14 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U |
| A7SSA-C05-13 | 0.146 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C05-14 | 0.147 U | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 34.4 U |
| A7SSA-C05-15 | 0.155 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U |
| A7SSA-C05-16 | 0.145 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U |
| A7SSA-C05-17 | 0.154 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.11 | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 16 | 17 | 17 | 17 | 17 | 17 | 17 |
| % Nondetects | 94% | 100% | 100% | 100% | 100% | 100% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C05-1 | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 3.9 U | 3.9 U |
| A7SSA-C05-2 | 42 U | 42 U | 42 U | 42 U | 42 U | 4.2 U | 4.2 U |
| A7SSA-C05-3 | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 3.8 U | 3.8 U |
| A7SSA-C05-4 | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 4 U | 4 U |
| A7SSA-C05-5 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 4 U | 4 U |
| A7SSA-C05-6 | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 4.1 U | 4.1 U |
| A7SSA-C05-7 | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 3.9 U | 3.9 U |
| A7SSA-C05-8 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 4 U | 4 U |
| A7SSA-C05-9 | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 38.1 U | 3.8 U | 3.8 U |
| A7SSA-C05-10 | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 3.9 U | 3.9 U |
| A7SSA-C05-11 | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 3.9 U | 3.9 U |
| A7SSA-C05-12 | 39.2 U | 39.2 U | 39.2 U | 39.2 U | 39.2 U | 3.9 U | 3.9 U |
| A7SSA-C05-12-D | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 3.9 U | 3.9 U |
| A7SSA-C05-13 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U | 4 U |
| A7SSA-C05-14 | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 3.4 U | 3.4 U |
| A7SSA-C05-15 | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 40.8 U | 4.1 U | 4.1 U |
| A7SSA-C05-16 | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 40.9 U | 4.1 U | 4.1 U |
| A7SSA-C05-17 | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 4.4 U | 4.4 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 4.4 U | 4.4 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Nondetects | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C06-1 | 0.991 - | 0.846 - | 0.851 - | 0.846 - | 16.9 - | 0.0435 J | 0.992 J |
| A7SSA-C06-2 | 1.2 - | 0.861 - | 0.858 - | 0.861 - | 9.62 - | 0.0456 J | 6.26 U |
| A7SSA-C06-3 | 1.24 - | 0.8 - | 0.797 - | 0.8 - | 8.5 - | 0.0779 J | 5.97 U |
| A7SSA-C06-4 | 2.26 - | 0.698 - | 0.701 - | 0.698 - | 2.82 - | 0.0467 U | 2.03 - |
| A7SSA-C06-5 | 0.912 - | 0.753 - | 0.744 - | 0.753 - | 5.23 - | 0.0578 U | 1.72 J |
| A7SSA-C06-6 | 1.2 - | 0.88 - | 0.871 - | 0.88 - | 18.4 - | 0.0779 U | 0.782 J |
| A7SSA-C06-7 | 0.809 - | 0.673 - | 0.676 - | 0.673 - | 19.4 - | 0.0234 U | 1.79 U |
| A7SSA-C06-7-D | 0.819 - | 0.685 - | 0.696 - | 0.685 - | 18.6 - | 0.0446 U | 1.05 J |
| A7SSA-C06-8 | 0.967 - | 0.822 - | 0.832 - | 0.822 - | 5.58 - | 0.0483 U | 0.86 J |
| A7SSA-C06-9 | 0.846 - | 0.669 - | 0.685 - | 0.669 - | 3.37 - | 0.0447 U | 4.68 U |
| A7SSA-C06-10 | 2.73 - | 0.832 - | 0.817 - | 0.832 - | 13.6 - | 0.153 - | 5.59 U |
| A7SSA-C06-11 | 0.966 - | 0.807 - | 0.812 - | 0.807 - | 3.39 - | 0.0331 U | 6.54 U |
| A7SSA-C06-12 | 1.05 - | 0.87 - | 0.881 - | 0.87 - | 6.74 - | 0.0649 U | 0.694 U |
| A7SSA-C06-13 | 2.21 - | 0.691 - | 0.697 - | 0.691 - | 26.3 - | 0.051 U | 6.89 U |
| A7SSA-C06-14 | 1.03 - | 0.766 - | 0.76 - | 0.766 - | 10.4 - | 0.0472 U | 4.89 U |
| A7SSA-C06-15 | 0.965 - | 0.958 - | 0.942 - | 0.958 - | 4.99 - | 0.0543 U | 5.53 U |
| A7SSA-C06-16 | 1.23 - | 0.644 - | 0.621 - | 0.644 - | 5.61 - | 0.107 U | 1.07 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | 0 | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | **2.73** | 0 .958 | 0 .942 | 0 .958 | 26.3 | 0 .153 | 2.03 |
| Max. >= Limit | **Yes** | No | No | No | No | No | No |
| W-statistic Prob. # | < 0.01% (LN) | - - | - - | - - | - - | - - | - - |
| Test Procedure | Median (Sign) | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 0 | 12 | 11 |
| % Nondetects | 0% | 0% | 0% | 0% | 0% | 75% | 69% |
| Est. Mean* | 1.040 | - - | - - | - - | - - | - - | - - |
| UCL | 1.23 | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | Pass | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 14 | - - | - - | - - | - - | - - | - - |
| Size calculation | Pass | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C06-1 | 1.94 U | 1.72 J | 3.7 U | 5.4 - | 0.41 - | 0.2 J | 1.2 - |
| A7SSA-C06-2 | 1.92 U | 1.27 - | 3 U | 5.5 - | 0.47 - | 0.19 J | 1.2 - |
| A7SSA-C06-3 | 1.85 U | 1.02 - | 3.5 U | 4.9 - | 0.52 - | 0.18 J | 1.1 - |
| A7SSA-C06-4 | 1.85 U | 2.82 - | 3.3 U | 5.4 - | 0.32 - | 0.21 J | 1.6 - |
| A7SSA-C06-5 | 1.97 U | 0.996 - | 3.8 U | 7.2 - | 0.63 - | 0.23 J | 1.3 - |
| A7SSA-C06-6 | 1.99 U | 1.13 - | 3.9 U | 7 - | 0.73 - | 0.28 J | 1.4 - |
| A7SSA-C06-7 | 1.92 U | 2.66 - | 2.5 U | 4.6 - | 0.4 - | 0.2 J | 0.98 J |
| A7SSA-C06-7-D | 1.72 U | 1.66 - | 4.4 U | 4.5 - | 0.32 - | 0.26 J | 0.99 J |
| A7SSA-C06-8 | 1.85 U | 1.43 - | 2.22 U | 5.3 - | 0.5 - | 0.19 J | 1.2 - |
| A7SSA-C06-9 | 1.78 U | 1.38 - | 3.6 U | 4.7 - | 0.35 - | 0.19 J | 1.8 - |
| A7SSA-C06-10 | 1.83 U | 5.32 - | 2.3 U | 5.6 - | 0.49 - | 0.23 J | 1.1 - |
| A7SSA-C06-11 | 1.76 U | 1.14 - | 4.6 U | 6.6 - | 0.51 - | 0.15 J | 0.87 J |
| A7SSA-C06-12 | 1.78 U | 1.49 - | 4.2 U | 6.6 - | 0.55 - | 0.22 J | 1.5 - |
| A7SSA-C06-13 | 1.8 U | 2.48 - | 3.6 U | 3.7 - | 0.37 - | 0.16 J | 1.1 - |
| A7SSA-C06-14 | 1.73 U | 1.45 - | 2.19 UJ | 7.8 - | 0.63 - | 0.28 J | 1.3 - |
| A7SSA-C06-15 | 1.79 U | 1.18 - | 4.2 U | 6.9 - | 0.64 - | 0.23 J | 1.9 - |
| A7SSA-C06-16 | 1.77 U | 2.09 J | 2.4 U | 6.3 - | 0.49 - | 0.25 J | 1.4 - |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 1.99 U | 5.32 | 4.6 U | 7.8 | 0 .73 | 0 .28 | 1.9 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 16 | 0 | 0 | 0 | 0 |
| % Nondetects | 100% | 0% | 100% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C06-1 | 0.0435 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U |
| A7SSA-C06-2 | 0.051 J | 38 U | 38 U | 38 U | 38 U | 38 U | 38 U |
| A7SSA-C06-3 | 0.047 J | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 36.5 U |
| A7SSA-C06-4 | 0.0448 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U |
| A7SSA-C06-5 | 0.071 J | 38 U | 38 U | 38 U | 38 U | 38 U | 38 U |
| A7SSA-C06-6 | 0.058 J | 39 U | 39 U | 39 U | 39 U | 39 U | 39 U |
| A7SSA-C06-7 | 0.0421 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U |
| A7SSA-C06-7-D | 0.0434 U | 36.8 U | 36.8 U | 157 J | 146 J | 36.8 U | 36.8 U |
| A7SSA-C06-8 | 0.046 J | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U |
| A7SSA-C06-9 | 0.0447 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U |
| A7SSA-C06-10 | 0.056 J | 37.6 U | 37.6 U | 152 J | 37.6 U | 37.6 U | 37.6 U |
| A7SSA-C06-11 | 0.0445 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U |
| A7SSA-C06-12 | 0.062 J | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U |
| A7SSA-C06-13 | 0.0442 U | 224 - | 302 - | 399 J | 218 J | 37.7 U | 248 - |
| A7SSA-C06-14 | 0.056 J | 37.7 U | 37.7 U | 37.7 U | 37.7 U | 37.7 U | 37.7 U |
| A7SSA-C06-15 | 0.057 J | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U |
| A7SSA-C06-16 | 0.051 J | 39.5 U | 39.5 U | 151 J | 39.5 U | 39.5 U | 39.5 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0 .071 | 224 | 302 | 399 | 218 | 41.1 U | 248 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 6 | 15 | 15 | 12 | 14 | 16 | 15 |
| % Nondetects | 38% | 94% | 94% | 75% | 88% | 100% | 94% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 |
|---|---|---|---|---|---|---|
| A7SSA-C06-1 | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 13.6 - |
| A7SSA-C06-2 | 38 U | 38 U | 38 U | 38 U | 38 U | 3.8 U |
| A7SSA-C06-3 | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 3.7 U |
| A7SSA-C06-4 | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 3.9 U |
| A7SSA-C06-5 | 38 U | 38 U | 38 U | 38 U | 38 U | 3.8 U |
| A7SSA-C06-6 | 39 U | 39 U | 39 U | 39 U | 39 U | 3.9 U |
| A7SSA-C06-7 | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 47.1 J | 3.6 U |
| A7SSA-C06-7-D | 36.8 U | 57.2 J | 117 J | 38 J | 40.6 J | 3.7 U |
| A7SSA-C06-8 | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 4 J |
| A7SSA-C06-9 | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 3.8 U |
| A7SSA-C06-10 | 37.6 U | 37.6 U | 37.6 U | 37.6 U | 37.6 U | 3.8 U |
| A7SSA-C06-11 | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 3.8 U |
| A7SSA-C06-12 | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 4 U |
| A7SSA-C06-13 | 37.7 U | 439 J | 186 J | 254 J | 388 J | 3.8 U |
| A7SSA-C06-14 | 37.7 U | 37.7 U | 37.7 U | 37.7 U | 67 J | 3.8 U |
| A7SSA-C06-15 | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 4.1 U |
| A7SSA-C06-16 | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 4 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 41.1 U | 439 | 186 | 254 | 388 | 13.6 |
| Max. >= Limit | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 14 | 14 | 14 | 13 | 14 |
| % Nondetects | 100% | 88% | 88% | 88% | 81% | 88% |
| Est. Mean* | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- |

| | | | | | | |
|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Aroclor-1260 |
|---|---|
| A7SSA-C06-1 | 6.7 J |
| A7SSA-C06-2 | 3.8 U |
| A7SSA-C06-3 | 3.7 U |
| A7SSA-C06-4 | 3.9 U |
| A7SSA-C06-5 | 3.8 U |
| A7SSA-C06-6 | 3.9 U |
| A7SSA-C06-7 | 3.6 U |
| A7SSA-C06-7-D | 3.7 U |
| A7SSA-C06-8 | 3.7 U |
| A7SSA-C06-9 | 3.8 U |
| A7SSA-C06-10 | 3.8 U |
| A7SSA-C06-11 | 3.8 U |
| A7SSA-C06-12 | 4 U |
| A7SSA-C06-13 | 3.8 U |
| A7SSA-C06-14 | 3.8 U |
| A7SSA-C06-15 | 4.1 U |
| A7SSA-C06-16 | 4 U |
| Limit | 130 |
| Units | ug/kg |
| Conf. Level | 90% |
| Max. Result | 6.7 |
| Max. >= Limit | No |
| W-statistic Prob. # | - - |
| Test Procedure | - - |
| Sample Size | 16 |
| Nondetects | 15 |
| % Nondetects | 94% |
| Est. Mean* | - - |
| UCL | - - |
| Prob. > Limit | - - |
| Pass / Fail | - - |

| | |
|---|---|
| *a posteriori Sample* | - - |
| Size calculation | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C07-1 | 0.705 - | 0.433 - | 0.419 J | 0.433 - | 4.76 - | 0.0404 U | 4.44 U |
| A7SSA-C07-2 | 0.705 - | 0.488 - | 0.491 J | 0.488 - | 4.83 J | 0.0422 U | 4.73 U |
| A7SSA-C07-3 | 0.953 - | 0.621 - | 0.673 J | 0.621 - | 5.75 - | 0.0383 U | 6.9 U |
| A7SSA-C07-4 | 1.06 - | 0.677 - | 0.657 J | 0.677 - | 3.49 J | 0.0354 U | 9.05 U |
| A7SSA-C07-5 | 0.97 - | 0.849 - | 0.949 J | 0.849 - | 4.29 J | 0.0611 U | 0.835 U |
| A7SSA-C07-6 | 0.807 - | 0.636 - | 0.711 J | 0.636 - | 3.61 J | 0.0607 U | 0.768 U |
| A7SSA-C07-7 | 0.937 - | 0.624 - | 0.632 J | 0.624 - | 4.67 - | 0.0364 U | 7.41 U |
| A7SSA-C07-8 | 0.876 - | 0.534 - | 0.504 J | 0.534 - | 4 J | 0.0317 U | 7.52 U |
| A7SSA-C07-9 | 1.13 - | 0.855 - | 0.845 J | 0.855 - | 4.51 - | 0.0358 U | 6.53 U |
| A7SSA-C07-10 | 1.07 - | 0.869 - | 0.9 J | 0.869 - | 5.5 - | 0.0564 U | 0.813 U |
| A7SSA-C07-11 | 0.855 - | 0.665 - | 0.716 J | 0.665 - | 2.77 U | 0.0558 U | 4.86 U |
| A7SSA-C07-12 | 0.992 - | 0.675 - | 0.703 J | 0.675 - | 5.01 - | 0.0382 U | 7.88 U |
| A7SSA-C07-13 | 0.891 - | 0.571 - | 0.591 J | 0.571 - | 6.15 - | 0.0409 U | 4.53 U |
| A7SSA-C07-14 | 1.09 - | 0.8 - | 0.848 J | 0.8 - | 12.8 - | 0.0652 U | 0.927 U |
| A7SSA-C07-15 | 1.21 - | 0.388 - | 0.338 J | 0.388 - | 8.47 - | 0.049 U | 4.37 U |
| A7SSA-C07-15-D | 1.24 - | 0.452 - | 0.477 J | 0.452 - | 7.27 - | 0.0514 U | 5.02 U |
| A7SSA-C07-16 | 1.72 - | 1.12 - | 1.08 J | 1.12 - | 6.71 - | 0.0421 U | 9.92 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | 0 | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | **1.72** | 1.12 | 1.08 | 1.12 | 12.8 | 0.0652 U | 9.92 U |
| Max. >= Limit | **Yes** | No | No | No | No | No | No |
| W-statistic Prob. # | 37.4% (LN) | -- | -- | -- | -- | -- | -- |
| Test Procedure | Lognormal | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 1 | 16 | 16 |
| % Nondetects | 0% | 0% | 0% | 0% | 6% | 100% | 100% |
| Est. Mean* | 1.000 | -- | -- | -- | -- | -- | -- |
| UCL | 1.11 | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | pass | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 3 | -- | -- | -- | -- | -- | -- |
| Size calculation | Pass | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C07-1 | 0.781 U | 1.7 J | 0.383 U | 3.89 J | 0.284 J | 0.118 J | 0.99 J |
| A7SSA-C07-2 | 0.782 U | 1.83 J | 0.456 U | 6.79 J | 0.422 J | 0.146 J | 0.926 J |
| A7SSA-C07-3 | 0.8 U | 2.05 J | 0.478 U | 6.16 J | 0.643 J | 0.174 J | 1.79 - |
| A7SSA-C07-4 | 0.77 U | 3.13 J | 0.457 U | 5.96 J | 0.677 J | 0.218 J | 1.43 - |
| A7SSA-C07-5 | 0.77 U | 1.06 J | 0.507 U | 6.6 J | 0.738 J | 0.2 J | 1.41 - |
| A7SSA-C07-6 | 0.764 U | 1.31 J | 0.403 U | 5.83 J | 0.579 J | 0.167 J | 1.61 - |
| A7SSA-C07-7 | 0.793 U | 1.81 J | 0.521 U | 5.74 J | 0.656 J | 0.225 J | 1.53 - |
| A7SSA-C07-8 | 0.759 U | 1.43 J | 0.435 U | 5.71 J | 0.66 J | 0.305 J | 1.14 J |
| A7SSA-C07-9 | 0.804 U | 1.35 J | 0.464 U | 8.84 J | 0.865 J | 0.323 J | 1.62 - |
| A7SSA-C07-10 | 0.773 U | 1.39 J | 0.43 U | 6.74 J | 0.805 J | 0.209 J | 1.96 - |
| A7SSA-C07-11 | 0.778 U | 0.866 J | 0.392 U | 5.8 J | 0.526 J | 0.173 J | 1.96 - |
| A7SSA-C07-12 | 0.799 U | 1.13 J | 0.374 U | 7.01 J | 0.84 J | 0.133 J | 2.35 - |
| A7SSA-C07-13 | 0.786 U | 1.19 J | 0.431 U | 7.85 J | 0.574 J | 0.216 J | 1.94 - |
| A7SSA-C07-14 | 0.765 U | 1.08 J | 0.435 U | 8.5 J | 0.829 J | 0.251 J | 1.33 - |
| A7SSA-C07-15 | 0.766 U | 1.16 J | 0.442 U | 4.67 J | 0.399 J | 0.127 J | 1.17 J |
| A7SSA-C07-15-D | 0.829 U | 2.06 J | 0.371 U | 7.17 J | 0.908 J | 0.233 J | 0.974 J |
| A7SSA-C07-16 | 0.976 U | 1.65 J | 0.421 U | 4.27 J | 0.332 J | 0.112 J | 0.706 J |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.976 U | 3.13 | 0.521 U | 8.84 | 0 .908 | 0 .323 | 2.35 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 16 | 0 | 0 | 0 | 0 |
| % Nondetects | 100% | 0% | 100% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C07-1 | 0.122 U | 37.7 U | 37.7 U | 37.7 U | 37.7 U | 37.7 U | 37.7 U |
| A7SSA-C07-2 | 0.145 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U |
| A7SSA-C07-3 | 0.152 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U |
| A7SSA-C07-4 | 0.145 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U |
| A7SSA-C07-5 | 0.161 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C07-6 | 0.128 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U |
| A7SSA-C07-7 | 0.165 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U |
| A7SSA-C07-8 | 0.138 U | 181 J | 239 J | 300 J | 177 J | 40.9 U | 127 J |
| A7SSA-C07-9 | 0.147 U | 41.4 U | 41.4 U | 41.4 U | 41.4 U | 41.4 U | 41.4 U |
| A7SSA-C07-10 | 0.137 U | 42.1 U | 42.1 U | 42.1 U | 42.1 U | 42.1 U | 42.1 U |
| A7SSA-C07-11 | 0.125 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U |
| A7SSA-C07-12 | 0.119 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U |
| A7SSA-C07-13 | 0.137 U | 39 U | 39 U | 39 U | 39 U | 39 U | 39 U |
| A7SSA-C07-14 | 0.138 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C07-15 | 0.14 U | 153 J | 240 J | 300 J | 205 J | 37.9 U | 119 J |
| A7SSA-C07-15-D | 0.118 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U |
| A7SSA-C07-16 | 0.134 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.165 U | 181 | 240 | 300 | 205 | 42.1 U | 127 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 14 | 14 | 14 | 14 | 16 | 14 |
| % Nondetects | 100% | 88% | 88% | 88% | 88% | 100% | 88% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C07-1 | 37.7 U | 37.7 U | 37.7 U | 37.7 U | 37.7 U | 3.8 U | 3.8 U |
| A7SSA-C07-2 | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 3.6 U | 3.6 U |
| A7SSA-C07-3 | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 41.5 U | 4.2 U | 4.2 U |
| A7SSA-C07-4 | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 3.8 U | 3.8 U |
| A7SSA-C07-5 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U | 4 U |
| A7SSA-C07-6 | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 4.1 U | 4.1 U |
| A7SSA-C07-7 | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 4.1 U | 4.1 U |
| A7SSA-C07-8 | 40.9 U | 366 J | 147 J | 356 J | 308 J | 9.1 J | 4.1 U |
| A7SSA-C07-9 | 41.4 U | 41.4 U | 41.4 U | 41.4 U | 41.4 U | 4.1 U | 4.1 U |
| A7SSA-C07-10 | 42.1 U | 42.1 U | 42.1 U | 42.1 U | 42.1 U | 4.2 U | 4.2 U |
| A7SSA-C07-11 | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 3.9 U | 3.9 U |
| A7SSA-C07-12 | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 8.5 J | 4 U |
| A7SSA-C07-13 | 39 U | 39 U | 39 U | 39 U | 39 U | 6.3 J | 3.9 U |
| A7SSA-C07-14 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U | 4 U |
| A7SSA-C07-15 | 37.9 U | 303 J | 165 J | 243 J | 257 J | 6.2 J | 3.8 U |
| A7SSA-C07-15-D | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 56.6 NJ | 6.7 J |
| A7SSA-C07-16 | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 4.1 U | 4.1 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | 42.1 U | 366 | 165 | 356 | 308 | 56.6 | 6.7 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 14 | 14 | 14 | 14 | 12 | 15 |
| % Nondetects | 100% | 88% | 88% | 88% | 88% | 75% | 94% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Technetium-99 | Antimony |
|---|---|---|---|---|---|---|---|
| A7SSA-C08-1 | 0.659 - | 0.46 J | 0.41 - | 0.46 J | 5.19 - | 0.757 U | 0.434 U |
| A7SSA-C08-2 | 0.472 - | 0.385 J | 0.38 - | 0.385 J | 1.91 U | 0.734 U | 0.324 U |
| A7SSA-C08-3 | 0.521 - | 0.36 J | 0.372 - | 0.36 J | 2 U | 0.837 U | 0.353 U |
| A7SSA-C08-4 | 0.948 - | 0.816 J | 0.828 - | 0.816 J | 6.75 - | 0.749 U | 0.437 U |
| A7SSA-C08-5 | 0.516 - | 0.39 J | 0.369 - | 0.39 J | 2.24 U | 0.721 U | 0.403 U |
| A7SSA-C08-6 | 0.997 - | 0.956 J | 1.03 - | 0.956 J | 6.25 - | 0.755 U | 0.417 U |
| A7SSA-C08-7 | 0.747 - | 0.556 J | 0.568 - | 0.556 J | 2.35 U | 0.754 U | 0.381 U |
| A7SSA-C08-8 | 0.953 - | 1.04 J | 1.06 - | 1.04 J | 10.3 - | 0.769 U | 0.486 U |
| A7SSA-C08-9 | 1.15 - | 1.01 J | 1.01 - | 1.01 J | 7.89 - | 0.818 U | 0.405 U |
| A7SSA-C08-10 | 1.13 - | 0.659 J | 0.707 - | 0.659 J | 5.07 - | 0.778 U | 0.525 U |
| A7SSA-C08-11 | 0.93 - | 0.628 J | 0.615 - | 0.628 J | 4.48 - | 0.8 U | 0.44 U |
| A7SSA-C08-12 | 0.989 - | 0.922 J | 0.982 - | 0.922 J | 5.6 - | 0.849 U | 0.451 U |
| A7SSA-C08-13 | 1.26 - | 0.793 J | 0.81 - | 0.793 J | 9.44 - | 0.838 - | 0.402 U |
| A7SSA-C08-13-D | 1.22 - | 0.843 J | 0.836 - | 0.843 J | 7.96 - | 0.796 U | 0.417 U |
| A7SSA-C08-14 | 0.407 - | 0.37 J | 0.35 - | 0.37 J | 4.51 - | 0.738 U | 0.39 U |
| A7SSA-C08-15 | 0.581 - | 0.325 J | 0.318 - | 0.325 J | 3.72 - | 0.754 U | 0.435 U |
| A7SSA-C08-16 | 1.02 - | 0.768 J | 0.748 - | 0.768 J | 21.2 - | 0.766 U | 0.433 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 30 | 96 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | mg/kg |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.26 | 1.04 | 1.06 | 1.04 | 21.2 | 0 .838 | 0.525 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | - - | - - | - - | - - | - - | - - |
| Test Procedure | -- | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 4 | 15 | 16 |
| % Nondetects | 0% | 0% | 0% | 0% | 25% | 94% | 100% |
| Est. Mean* | -- | - - | - - | - - | - - | - - | - - |
| UCL | -- | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | -- | - - | - - | - - | - - | - - | - - |
| *a posteriori Sample* | -- | - - | - - | - - | - - | - - | - - |
| Size calculation | -- | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Arsenic | Beryllium | Aroclor-1254 |
|---|---|---|---|
| A7SSA-C08-1 | 4.03 - | 0.308 J | 3.4 U |
| A7SSA-C08-2 | 4.56 - | 0.257 J | 35.3 U |
| A7SSA-C08-3 | 5.31 - | 0.537 - | 3.7 U |
| A7SSA-C08-4 | 6.89 - | 0.521 J | 3.9 U |
| A7SSA-C08-5 | 13.5 - | 0.293 J | 17.3 U |
| A7SSA-C08-6 | 6.19 - | 0.661 J | 4.1 U |
| A7SSA-C08-7 | 8.28 - | 0.653 J | 3.5 U |
| A7SSA-C08-8 | 4.99 - | 0.525 J | 16.2 - |
| A7SSA-C08-9 | 8.56 - | 0.622 J | 3.9 U |
| A7SSA-C08-10 | 7.73 - | 0.794 J | 3.6 U |
| A7SSA-C08-11 | 8.1 - | 0.823 J | 3.8 U |
| A7SSA-C08-12 | 7.71 - | 0.497 J | 5.2 J |
| A7SSA-C08-13 | 5.4 - | 2.00 J | 3.7 U |
| A7SSA-C08-13-D | 6.61 - | 1.29 J | 4.1 J |
| A7SSA-C08-14 | 4.88 - | 0.204 J | 3.5 U |
| A7SSA-C08-15 | 2.98 - | 0.171 J | 3.5 U |
| A7SSA-C08-16 | 5.31 - | 0.567 J | 5.4 J |
| Limit | 12 | 1.5 | 130 |
| Units | mg/kg | mg/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% |
| Max. Result | **13.5** | **2** | 16.2 |
| Max. >= Limit | **Yes** | **Yes** | No |
| W-statistic Prob. # | 90.0% (LN) | 41.9% (LN) | - - |
| Test Procedure | Lognormal | Lognormal | - - |
| Sample Size | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 12 |
| % Nondetects | 0% | 0% | 75% |
| Est. Mean* | 6.63 | 0.591 | - - |
| UCL | 7.57 | 0.760 | - - |
| Prob. > Limit | - - | - - | - - |
| Pass / Fail | pass | pass | - - |

| | | | |
|---|---|---|---|
| *a posteriori Sample* | 3 | 3 | - - |
| Size calculation | Pass | Pass | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C09-1 | 1.28 - | 0.873 J | 0.887 J | 0.873 J | 8.25 - | 0.0677 J | 1.38 J |
| A7SSA-C09-2 | 0.905 - | 0.627 J | 0.6 J | 0.627 J | 2.83 U | 0.0654 U | 5.68 U |
| A7SSA-C09-3 | 1.1 - | 0.735 J | 0.756 J | 0.735 J | 4.55 J | 0.0814 U | 6.49 U |
| A7SSA-C09-4 | 1.06 - | 0.712 J | 0.722 J | 0.712 J | 4.74 J | 0.0754 U | 5.97 U |
| A7SSA-C09-5 | 0.941 - | 0.687 J | 0.713 J | 0.687 J | 2.99 U | 0.0669 U | 5.49 U |
| A7SSA-C09-6 | 0.925 - | 0.752 J | 0.796 J | 0.752 J | 7.03 - | 0.0563 U | 1.15 J |
| A7SSA-C09-7 | 1.16 - | 0.618 J | 0.61 J | 0.618 J | 6.74 - | 0.0395 U | 8.53 U |
| A7SSA-C09-8 | 1.4 - | 0.912 J | 0.905 J | 0.912 J | 12.1 - | 0.185 - | 7.5 U |
| A7SSA-C09-8-D | 1.43 - | 1.1 J | 1.19 J | 1.1 J | 12.1 - | 0.149 - | 0.892 U |
| A7SSA-C09-9A | 0.51 - | 0.403 - | 0.406 - | 0.403 - | 2.1 J | 0.0449 U | 0.623 U |
| A7SSA-C09-10A | 1.07 - | 0.852 - | 0.908 - | 0.852 - | 8.73 - | 0.0551 U | 1.34 J |
| A7SSA-C09-11A | 0.869 - | 0.659 - | 0.667 - | 0.659 - | 2.15 U | 0.0364 U | 8.26 U |
| A7SSA-C09-12A | 1.21 - | 0.963 - | 0.929 - | 0.963 - | 6.39 - | 0.0418 U | 8.09 U |
| A7SSA-C09-13 | 0.979 - | 0.876 J | 0.918 J | 0.876 J | 5.66 J | 0.0547 U | 6.13 U |
| A7SSA-C09-14 | 0.931 - | 0.886 J | 0.889 J | 0.886 J | 10.6 - | 0.121 - | 6.02 U |
| A7SSA-C09-15A | 1.09 - | 0.969 - | 1.04 - | 0.969 - | 5.3 - | 0.0503 U | 0.65 U |
| A7SSA-C09-16A | 1.06 - | 0.728 - | 0.692 - | 0.728 - | 7.24 - | 0.0601 J | 6.77 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.43 | 1.1 | 1.19 | 1.1 | 12.1 | 0.185 | 1.38 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 3 | 12 | 13 |
| % Nondetects | 0% | 0% | 0% | 0% | 0% | 75% | 81% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C09-1 | 0.86 U | 3.59 - | 0.505 U | 6.93 - | 0.646 - | 0.16 J | 1.06 J |
| A7SSA-C09-2 | 0.835 U | 0.939 - | 0.438 U | 4.96 - | 0.535 - | 0.166 J | 1.49 - |
| A7SSA-C09-3 | 0.777 U | 1.43 - | 0.57 U | 3.25 - | 0.268 - | 0.12 J | 0.703 J |
| A7SSA-C09-4 | 0.843 U | 1.27 - | 0.486 U | 7.75 - | 0.472 - | 0.162 J | 1.28 J |
| A7SSA-C09-5 | 0.804 U | 1.14 - | 0.436 U | 5.43 - | 0.475 - | 0.141 J | 1.29 - |
| A7SSA-C09-6 | 0.792 U | 1.29 - | 0.439 U | 4.59 - | 0.442 - | 0.138 J | 0.995 J |
| A7SSA-C09-7 | 0.849 U | 1.63 - | 0.663 U | 7.52 - | 0.928 - | 0.287 J | 1.31 J |
| A7SSA-C09-8 | 0.853 U | 3.2 - | 0.517 U | 5.63 - | 0.579 - | 0.138 J | 1.04 J |
| A7SSA-C09-8-D | 0.825 U | 2.96 - | 0.507 U | 5.18 - | 0.621 - | 0.166 J | 0.975 J |
| A7SSA-C09-9A | 0.816 U | 0.67 J | 0.528 U | 1.61 J | 0.19 J | 0.131 J | 0.466 U |
| A7SSA-C09-10A | 0.837 U | 1.43 - | 0.477 U | 6.84 J | 0.617 J | 0.204 J | 1.34 - |
| A7SSA-C09-11A | 0.761 U | 1.19 J | 0.433 U | 2.83 J | 0.354 J | 0.184 J | 1.22 - |
| A7SSA-C09-12A | 0.984 U | 1.39 J | 0.45 U | 7.28 J | 0.669 J | 0.223 J | 1.08 J |
| A7SSA-C09-13 | 0.823 U | 1.31 - | 0.475 U | 3.49 - | 0.295 - | 0.18 J | 0.544 J |
| A7SSA-C09-14 | 0.783 U | 1.31 - | 0.444 U | 4.33 - | 0.507 - | 0.179 J | 0.844 J |
| A7SSA-C09-15A | 0.953 U | 1.89 - | 0.477 U | 6.7 J | 0.63 J | 0.151 J | 1.02 J |
| A7SSA-C09-16A | 0.813 U | 1.52 - | 0.454 U | 12.7 J | 0.792 J | 0.211 J | 1.12 J |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.984 U | 3.59 | 0.663 U | **12.7** | 0.928 | 0.287 | 1.49 |
| Max. >= Limit | No | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | - - | 53.7% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | - - | Lognormal | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 16 | 0 | 0 | 0 | 1 |
| % Nondetects | 0% | 0% | 100% | 0% | 0% | 0% | 6% |
| Est. Mean* | - - | - - | - - | 5.84 | - - | - - | - - |
| UCL | - - | - - | - - | 7.08 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | Pass | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | 3 | - - | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C09-1 | 0.16 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U |
| A7SSA-C09-2 | 0.139 U | 36.3 U | 36.3 U | 36.3 U | 36.3 U | 36.3 U | 36.3 U |
| A7SSA-C09-3 | 0.181 U | 46.2 U | 46.2 U | 46.2 U | 46.2 U | 46.2 U | 46.2 U |
| A7SSA-C09-4 | 0.154 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U |
| A7SSA-C09-5 | 0.138 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C09-6 | 0.14 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U |
| A7SSA-C09-7 | 0.211 U | 44.3 U | 44.3 U | 44.3 U | 44.3 U | 44.3 U | 44.3 U |
| A7SSA-C09-8 | 0.164 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U |
| A7SSA-C09-8-D | 0.161 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U |
| A7SSA-C09-9A | 0.168 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U |
| A7SSA-C09-10A | 0.151 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C09-11A | 0.138 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U |
| A7SSA-C09-12A | 0.143 U | 43.6 U | 43.6 U | 43.6 U | 43.6 U | 43.6 U | 43.6 U |
| A7SSA-C09-13 | 0.151 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U |
| A7SSA-C09-14 | 0.141 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U |
| A7SSA-C09-15A | 0.152 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U |
| A7SSA-C09-16A | 0.144 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.211 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C09-1 | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 6.9 J | 4.2 U |
| A7SSA-C09-2 | 36.3 U | 36.3 U | 36.3 U | 36.3 U | 36.3 U | 3.6 U | 3.6 U |
| A7SSA-C09-3 | 46.2 U | 46.2 U | 46.2 U | 46.2 U | 46.2 U | 4.6 U | 4.6 U |
| A7SSA-C09-4 | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 4.1 U | 4.1 U |
| A7SSA-C09-5 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U | 4 U |
| A7SSA-C09-6 | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 4 U | 4 U |
| A7SSA-C09-7 | 44.3 U | 44.3 U | 44.3 U | 44.3 U | 44.3 U | 4.4 U | 4.4 U |
| A7SSA-C09-8 | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 41.2 U | 4.5 J | 4.1 U |
| A7SSA-C09-8-D | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 39.1 U | 5.3 J | 3.9 U |
| A7SSA-C09-9A | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 43.8 U | 4.4 U | 4.4 U |
| A7SSA-C09-10A | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 3.9 U | 3.9 U |
| A7SSA-C09-11A | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 3.9 U | 3.9 U |
| A7SSA-C09-12A | 43.6 U | 43.6 U | 43.6 U | 43.6 U | 43.6 U | 4.4 U | 4.4 U |
| A7SSA-C09-13 | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 5.4 U | 5.4 U |
| A7SSA-C09-14 | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 4.2 U | 4.2 U |
| A7SSA-C09-15A | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 4 U | 4 U |
| A7SSA-C09-16A | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 3.9 U | 3.9 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 53.5 U | 6.9 | 5.4 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 16 | 16 | 16 | 16 | 14 | 16 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 88% | 100% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C10-1 | 1.29 - | 1.25 J | 1.23 J | 1.25 J | 6.07 J | 0.0546 U | 6.5 U |
| A7SSA-C10-2 | 1.08 J | 0.652 - | 0.676 - | 0.652 - | 7 - | 0.0439 U | 6.1 U |
| A7SSA-C10-3 | 1.51 J | 0.858 - | 0.856 - | 0.858 - | 7.55 - | 0.0397 U | 8.71 U |
| A7SSA-C10-4 | 1.31 J | 0.788 - | 0.791 - | 0.788 - | 6.83 - | 0.0451 U | 6.47 J |
| A7SSA-C10-5 | 1.61 J | 0.864 - | 0.866 - | 0.864 - | 27 - | 0.0571 U | 1.45 - |
| A7SSA-C10-6 | 1.15 - | 0.591 J | 0.576 J | 0.591 J | 4.76 J | 0.0301 U | 6.58 U |
| A7SSA-C10-7 | 1.29 J | 0.754 - | 0.757 - | 0.754 - | 8.83 - | 0.0654 U | 6.7 U |
| A7SSA-C10-8 | 1.52 J | 0.786 - | 0.77 - | 0.786 - | 6.06 - | 0.0475 U | 1.7 - |
| A7SSA-C10-9 | 2.09 J | 0.7 - | 0.682 - | 0.7 - | 10.9 - | 0.0467 U | 4.76 U |
| A7SSA-C10-9-D | 1.35 J | 0.751 - | 0.747 - | 0.751 - | 9.16 - | 0.0345 U | 6.27 J |
| A7SSA-C10-10 | 1.34 - | 1.19 J | 1.18 J | 1.19 J | 4.55 J | 0.0371 U | 7.48 U |
| A7SSA-C10-11 | 1.17 J | 0.782 - | 0.785 - | 0.782 - | 12.7 - | 0.0517 J | 4.44 U |
| A7SSA-C10-12 | 1.15 J | 1.07 - | 1.06 - | 1.07 - | 8.87 - | 0.0556 U | 1.42 - |
| A7SSA-C10-13 | 1.2 - | 1.26 J | 1.31 J | 1.26 J | 6.8 J | 0.053 U | 0.846 J |
| A7SSA-C10-14 | 0.971 - | 0.619 J | 0.597 J | 0.619 J | 2.68 J | 0.0396 U | 4.98 U |
| A7SSA-C10-15 | 1.24 - | 1.02 - | 1.01 - | 1.02 - | 95.2 - | 0.049 U | 5.99 U |
| A7SSA-C10-16 | 1.44 - | 1.06 J | 1.08 J | 1.06 J | 9.3 J | 0.244 - | 7 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | **2.09** | 1.26 | 1.31 | 1.26 | **95.2** | 0 .244 | 6.47 |
| Max. >= Limit | **Yes** | No | No | No | **Yes** | No | No |
| W-statistic Prob. # | 46.3% (LN) | - - | - - | - - | < 0.01% (LN) | - - | - - |
| Test Procedure | Lognormal | - - | - - | - - | Median (Sign) | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 0 | 14 | 10 |
| % Nondetects | 0% | 0% | 0% | 0% | 0% | 88% | 63% |
| Est. Mean* | 1.335 | - - | - - | - - | 7.3 | - - | - - |
| UCL | 1.45 | - - | - - | - - | 9.3 | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | pass | - - | - - | - - | Pass | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 5 | - - | - - | - - | 6 | - - | - - |
| Size calculation | Pass | - - | - - | - - | Pass | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C10-1 | 0.917 U | 1.69 J | 0.5 U | 10.7 - | 1.28 - | 0.188 J | 1.5 - |
| A7SSA-C10-2 | 1.47 U | 1.54 J | 0.43 J | 5 - | 0.35 - | 0.15 J | 1.1 - |
| A7SSA-C10-3 | 1.48 U | 1.66 J | 0.458 UJ | 5.8 - | 0.48 - | 0.18 J | 1.1 - |
| A7SSA-C10-4 | 1.45 U | 1.08 J | 2.3 UJ | 5.6 - | 0.62 - | 0.18 J | 0.85 J |
| A7SSA-C10-5 | 1.37 U | 3.48 J | 0.433 UJ | 5 - | 0.7 - | 0.2 J | 0.88 J |
| A7SSA-C10-6 | 0.83 U | 2.36 J | 0.461 U | 5.63 - | 0.657 - | 0.154 J | 1.58 - |
| A7SSA-C10-7 | 1.45 U | 3.06 J | 0.448 UJ | 5 - | 0.44 - | 0.16 J | 1.1 - |
| A7SSA-C10-8 | 1.48 U | 2.25 J | 2.3 UJ | 6 - | 0.45 - | 0.24 J | 1.1 - |
| A7SSA-C10-9 | 1.44 U | 2.94 J | 2.18 UJ | 7.5 - | 0.47 - | 0.23 J | 0.96 J |
| A7SSA-C10-9-D | 1.46 U | 1.75 J | 0.429 UJ | 6.2 - | 0.58 - | 0.2 J | 1 - |
| A7SSA-C10-10 | 0.816 U | 1.77 J | 0.765 U | 13.8 - | 1.08 - | 0.129 J | 1.71 - |
| A7SSA-C10-11 | 1.58 U | 1.98 J | 0.72 J | 7.9 - | 0.45 - | 0.17 J | 0.99 J |
| A7SSA-C10-12 | 1.53 U | 1.13 J | 0.465 UJ | 7.5 - | 0.58 - | 0.11 J | 0.63 J |
| A7SSA-C10-13 | 0.902 U | 1.48 J | 0.729 U | 12 - | 0.53 - | 0.0818 J | 1.55 - |
| A7SSA-C10-14 | 1.01 U | 1.45 J | 0.517 U | 11.5 - | 1.33 - | 0.216 J | 1.24 J |
| A7SSA-C10-15 | 1.92 U | 5.85 J | 2.22 UJ | 5.6 J | 0.51 - | 0.23 J | 1.4 J |
| A7SSA-C10-16 | 0.886 U | 3.08 J | 0.453 U | 5.4 - | 0.778 - | 0.205 J | 0.995 J |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 1.58 U | 5.85 | 0 .72 | **13.8** | 1.33 | 0 .24 | 1.71 |
| Max. >= Limit | No | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | - - | 1.2% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | - - | Wilcoxon | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 14 | 0 | 0 | 0 | 0 |
| % Nondetects | 0% | 0% | 88% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | 5.9 | - - | - - | - - |
| UCL | - - | - - | - - | 7.9 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | 0.02% | - - | - - | - - |
| Pass / Fail | - - | - - | - - | pass | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | 4 | - - | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C10-1 | 0.159 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U |
| A7SSA-C10-2 | 0.046 J | 20600 - | 13000 - | 24100 - | 3620 - | 730 - | 17300 - |
| A7SSA-C10-3 | 0.057 J | 38.9 U | 159 - | 171 - | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C10-4 | 0.065 J | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U |
| A7SSA-C10-5 | 0.052 J | 123 - | 166 - | 293 - | 87.7 J | 37 U | 151 - |
| A7SSA-C10-6 | 0.146 U | 35.8 U | 35.8 U | 152 - | 35.8 U | 35.8 U | 35.8 U |
| A7SSA-C10-7 | 0.0428 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U |
| A7SSA-C10-8 | 0.052 J | 40 U | 40 U | 40 U | 40 U | 40 U | 40 U |
| A7SSA-C10-9 | 0.057 J | 51.4 J | 45.9 J | 80.5 J | 37.1 U | 37.1 U | 42 J |
| A7SSA-C10-9-D | 0.052 J | 51.9 J | 44.5 J | 86.5 J | 36.1 U | 36.1 U | 59.7 J |
| A7SSA-C10-10 | 0.141 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U |
| A7SSA-C10-11 | 0.053 J | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U |
| A7SSA-C10-12 | 0.057 J | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C10-13 | 0.119 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C10-14 | 0.15 U | 35 U | 35 U | 139 - | 35 U | 35 U | 35 U |
| A7SSA-C10-15 | 0.049 J | 70 J | 200 - | 235 - | 38.4 U | 38.4 U | 89 J |
| A7SSA-C10-16 | 0.125 U | 40.7 U | 40.7 U | 154 - | 40.7 U | 40.7 U | 40.7 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0 .065 | **20600** | **13000** | **24100** | **3620** | 730 | 17300 |
| Max. >= Limit | No | **Yes** | **Yes** | **Yes** | **Yes** | No | No |
| W-statistic Prob. # | - - | < 0.01% (LN) | < 0.01% (LN) | < 0.01% (LN) | < 0.01% (LN) | - - | - - |
| Test Procedure | - - | Proportions (Sign) | Proportions (Sign) | Median (Sign) | Proportions (Sign) | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 7 | 12 | 11 | 8 | 14 | 15 | 12 |
| % Nondetects | 44% | 75% | 69% | 50% | 88% | 94% | 75% |
| Est. Mean* | - - | 19.925 | 20.1 | 53.425 | 19.45 | - - | - - |
| UCL | - - | - - | - - | 154 | - - | - - | - - |
| Prob. > Limit | - - | 0.06% | 0.06% | - - | 0.06% | - - | - - |
| Pass / Fail | - - | pass | pass | Pass | pass | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | 4 | 4 | 4 | 4 | - - | - - |
| Size calculation | - - | Pass | Pass | Pass | Pass | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C10-1 | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 39.7 U | 118 - | 18.1 - |
| A7SSA-C10-2 | 2030 - | 46800 - | 3870 - | 49000 - | 47400 - | 3.7 U | 3.7 U |
| A7SSA-C10-3 | 38.9 U | 76 J | 119 - | 61.9 J | 69.7 J | 95.1 - | 14.6 - |
| A7SSA-C10-4 | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 3.9 U | 3.9 U |
| A7SSA-C10-5 | 58 - | 275 J | 94.4 J | 162 J | 284 J | 3.7 U | 3.7 U |
| A7SSA-C10-6 | 35.8 U | 70.9 J | 35.8 U | 57.6 J | 57 J | 15 - | 3.6 U |
| A7SSA-C10-7 | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 767 - | 132 - |
| A7SSA-C10-8 | 40 U | 40 U | 40 U | 40 U | 40 U | 762 - | 130 - |
| A7SSA-C10-9 | 37.1 U | 91.6 J | 37.1 U | 48.9 J | 98.6 J | 7.4 J | 3.7 U |
| A7SSA-C10-9-D | 36.1 U | 111 J | 36.1 U | 60.9 J | 135 J | 4.8 J | 3.6 U |
| A7SSA-C10-10 | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 4.1 U | 4.1 U |
| A7SSA-C10-11 | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 3.8 U | 3.8 U |
| A7SSA-C10-12 | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 3.9 U | 3.9 U |
| A7SSA-C10-13 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U | 4 U |
| A7SSA-C10-14 | 35 U | 35 U | 35 U | 35 U | 35 U | 3.5 U | 3.5 U |
| A7SSA-C10-15 | 38.4 U | 142 J | 38.4 U | 79 J | 140 J | 6.4 J | 4.5 J |
| A7SSA-C10-16 | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 4.1 U | 4.1 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | **2030** | **46800** | 3870 | **49000** | **47400** | **767** | **132** |
| Max. >= Limit | **Yes** | **Yes** | No | **Yes** | **Yes** | **Yes** | **Yes** |
| W-statistic Prob. # | < 0.01% (LN) | < 0.01% (LN) | - - | < 0.01% (LN) | < 0.01% (LN) | < 0.01% (LN) | < 0.01% (LN) |
| Test Procedure | Proportions (Sign) | Proportions (Sign) | - - | Proportions (Sign) | Proportions (Sign) | Proportions (Sign) | Proportions (Sign) |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 14 | 10 | 13 | 10 | 10 | 9 | 11 |
| % Nondetects | 88% | 63% | 81% | 60% | 60% | 56% | 69% |
| Est. Mean* | 19.45 | 20.275 | - - | 20.35 | 20.35 | 2.05 | 1.975 |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | 0.1% | 0.1% | - - | 0.1% | 0.1% | 0.3% | 0.3% |
| Pass / Fail | pass | pass | - - | pass | pass | pass | pass |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 4 | 4 | - - | 4 | 4 | 7 | 7 |
| Size calculation | Pass | Pass | - - | Pass | Pass | Pass | Pass |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C11-1 | 1.52 J | 1.47 - | 1.48 - | 1.47 - | 4.09 - | 0.0678 U | 1.19 J |
| A7SSA-C11-2 | 1.93 J | 0.498 - | 0.476 - | 0.498 - | 10.2 - | 0.0296 U | 9.97 J |
| A7SSA-C11-3 | 3.22 J | 0.619 - | 0.664 - | 0.619 - | 7.15 - | 0.0326 U | 6.84 U |
| A7SSA-C11-4A | 1.29 - | 1.07 - | 0.995 - | 1.07 - | 3.92 - | 0.037 U | 9.11 U |
| A7SSA-C11-5 | 1.75 J | 0.66 - | 0.627 - | 0.66 - | 9.56 - | 0.0406 U | 8.34 U |
| A7SSA-C11-6 | 1.8 J | 0.646 - | 0.672 - | 0.646 - | 8.88 - | 0.0344 U | 7.49 U |
| A7SSA-C11-7 | 1.17 J | 0.533 - | 0.519 - | 0.533 - | 5.7 - | 0.0287 U | 6.29 U |
| A7SSA-C11-8 | 1.67 J | 1.09 - | 1.23 - | 1.09 - | 11.4 - | 0.0754 U | 3.01 - |
| A7SSA-C11-9 | 1.01 J | 0.767 - | 0.768 - | 0.767 - | 2.95 J | 0.0663 U | 1.01 U |
| A7SSA-C11-10 | 1.55 J | 0.541 - | 0.535 - | 0.541 - | 2.95 U | 0.0531 U | 13.8 J |
| A7SSA-C11-11 | 1.79 - | 0.653 J | 0.652 J | 0.653 J | 5.81 J | 0.0782 - | 5.47 U |
| A7SSA-C11-12 | 1.52 J | 0.814 - | 0.862 - | 0.814 - | 8.38 - | 0.0538 U | 18.2 - |
| A7SSA-C11-13 | 3.01 J | 0.457 - | 0.431 - | 0.457 - | 4.5 J | 0.0433 U | 10.2 UJ |
| A7SSA-C11-14 | 1.41 J | 1.19 - | 1.09 - | 1.19 - | 4.72 - | 0.0476 U | 9.19 U |
| A7SSA-C11-14-D | 1.56 J | 1.25 - | 1.29 - | 1.25 - | 6.08 - | 0.0818 U | 1.16 U |
| A7SSA-C11-15 | 1.29 J | 0.858 - | 0.824 - | 0.858 - | 5.18 J | 0.0449 U | 12.5 J |
| A7SSA-C11-16 | 1.36 J | 1.31 - | 1.4 - | 1.31 - | 3.47 J | 0.0774 U | 1.13 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | ug/kg | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | **3.22** | 1.47 | 1.48 | 1.47 | 11.4 | 0 .0782 | 18.2 |
| Max. >= Limit | **Yes** | No | No | No | No | No | No |
| W-statistic Prob. # | 12.2% (LN) | - - | - - | - - | -- | -- | - - |
| Test Procedure | Lognormal | - - | - - | - - | -- | -- | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 1 | 15 | 10 |
| % Nondetects | 0% | 0% | 0% | 0% | 6% | 94% | 63% |
| Est. Mean* | 1.713 | - - | - - | - - | -- | -- | - - |
| UCL | 1.99 | - - | - - | - - | -- | -- | - - |
| Prob. > Limit | - - | - - | - - | - - | -- | -- | - - |
| Pass / Fail | FAIL | - - | - - | - - | -- | -- | - - |
| *a posteriori Sample* | 389 | - - | - - | - - | -- | -- | - - |
| Size calculation | Fail | - - | - - | - - | -- | -- | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C11-1 | 0.887 U | 1.71 - | 0.739 J | 14.6 - | 1.08 - | 0.509 - | 1.66 - |
| A7SSA-C11-2 | 0.842 U | 2.99 - | 0.461 U | 6.86 - | 0.512 - | 0.164 J | 1.28 - |
| A7SSA-C11-3 | 0.817 U | 3.11 - | 0.432 U | 7.67 - | 0.644 - | 0.168 J | 1.37 - |
| A7SSA-C11-4A | 0.886 U | 1.62 - | 0.479 U | 10.5 - | 0.828 - | 0.308 J | 1.44 - |
| A7SSA-C11-5 | 0.838 U | 2.59 - | 0.557 J | 7.46 - | 0.517 - | 0.148 J | 1.26 J |
| A7SSA-C11-6 | 0.854 U | 1.84 - | 0.564 J | 11 - | 0.953 - | 0.367 J | 1.53 - |
| A7SSA-C11-7 | 0.827 U | 1.68 - | 1.83 J | 6.28 - | 0.462 - | 0.127 J | 1.21 J |
| A7SSA-C11-8 | 0.827 U | 1.68 - | 0.463 J | 9.3 - | 0.562 - | 0.0661 J | 1.16 J |
| A7SSA-C11-9 | 0.823 U | 1.03 - | 0.494 U | 7.57 - | 0.641 - | 0.181 J | 1.64 - |
| A7SSA-C11-10 | 0.769 U | 1.67 - | 0.951 J | 5.91 - | 0.453 - | 0.15 J | 1.44 - |
| A7SSA-C11-11 | 0.876 U | 2.64 J | 0.389 U | 7.6 - | 0.72 - | 0.191 J | 1.76 - |
| A7SSA-C11-12 | 0.811 U | 1.88 - | 0.493 J | 9.6 - | 0.486 - | 0.117 J | 1.46 - |
| A7SSA-C11-13 | 0.809 U | 1.64 - | 0.661 J | 6.46 - | 0.418 - | 0.112 J | 1.18 - |
| A7SSA-C11-14 | 1.07 U | 1.39 - | 0.522 J | 11.6 - | 0.515 - | 0.065 U | 1.36 - |
| A7SSA-C11-14-D | 0.835 U | 1.39 - | 0.558 J | 12.1 - | 0.528 - | 0.0793 J | 1.56 - |
| A7SSA-C11-15 | 0.802 U | 1.36 - | 0.482 U | 10.6 - | 0.823 - | 0.11 J | 0.829 J |
| A7SSA-C11-16 | 0.923 U | 1.71 - | 0.431 J | 12 - | 1.33 - | 0.175 J | 1.25 - |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | ug/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0 .921 | 3.11 | 1.83 | **14.6** | 1.33 | 0 .509 | 1.76 |
| Max. >= Limit | No | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | - - | 47.7% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | - - | Lognormal | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 6 | 0 | 0 | 0 | 0 |
| % Nondetects | 100% | 0% | 38% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | 9.11 | - - | - - | - - |
| UCL | - - | - - | - - | 10.04 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | pass | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | 5 | - - | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C11-1 | 0.159 U | 42.5 U | 42.5 U | 42.5 U | 42.5 U | 42.5 U | 42.5 U |
| A7SSA-C11-2 | 0.146 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U |
| A7SSA-C11-3 | 0.137 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U |
| A7SSA-C11-4A | 0.135 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U |
| A7SSA-C11-5 | 0.156 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C11-6 | 0.139 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U |
| A7SSA-C11-7 | 0.154 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U |
| A7SSA-C11-8 | 0.143 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U |
| A7SSA-C11-9 | 0.157 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U |
| A7SSA-C11-10 | 0.145 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U |
| A7SSA-C11-11 | 0.124 U | 39.2 U | 39.2 U | 160 - | 39.2 U | 39.2 U | 39.2 U |
| A7SSA-C11-12 | 0.135 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C11-13 | 0.117 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U |
| A7SSA-C11-14 | 0.146 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U |
| A7SSA-C11-14-D | 0.141 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U |
| A7SSA-C11-15 | 0.153 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U |
| A7SSA-C11-16 | 0.128 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0.159 U | 42.5 U | 42.5 U | 160 | 42.5 U | 42.5 U | 42.5 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 16 | 16 | 15 | 16 | 16 | 16 |
| % Nondetects | 100% | 100% | 100% | 94% | 100% | 100% | 100% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C11-1 | 42.5 U | 42.5 U | 42.5 U | 42.5 U | 42.5 U | 4.25 U | 4.25 U |
| A7SSA-C11-2 | 37.8 U | 44.5 J | 37.8 U | 37.8 U | 54.9 J | 31.2 - | 3.78 U |
| A7SSA-C11-3 | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 41.8 U | 4.18 U | 4.18 U |
| A7SSA-C11-4A | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 42.3 U | 4.2 U | 4.2 U |
| A7SSA-C11-5 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 7.1 J | 3.96 U |
| A7SSA-C11-6 | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 3.87 U | 3.87 U |
| A7SSA-C11-7 | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 38.6 U | 5.4 J | 3.86 U |
| A7SSA-C11-8 | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 3.88 U | 3.88 U |
| A7SSA-C11-9 | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 4.3 J | 4.11 U |
| A7SSA-C11-10 | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 69.7 J | 4.9 J | 3.74 U |
| A7SSA-C11-11 | 39.2 U | 39.2 U | 39.2 U | 39.2 U | 39.2 U | 3.9 U | 3.9 U |
| A7SSA-C11-12 | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 3.89 U | 3.89 U |
| A7SSA-C11-13 | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 3.79 U | 3.79 U |
| A7SSA-C11-14 | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 3.95 U | 3.95 U |
| A7SSA-C11-14-D | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 4.11 U | 4.11 U |
| A7SSA-C11-15 | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 40.2 U | 4.02 U | 4.02 U |
| A7SSA-C11-16 | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 40.5 U | 4.05 U | 4.05 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | 42.5 U | 44.5 | 42.5 U | 42.5 U | 69.7 | 31.2 | 4.25 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 15 | 16 | 16 | 14 | 11 | 16 |
| % Nondetects | 100% | 94% | 100% | 100% | 88% | 69% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C12-1 | 1.92 - | 0.845 - | 0.851 - | 0.845 - | 9.52 - | 0.0426 U | 4.51 U |
| A7SSA-C12-2 | 1.63 - | 0.944 J | 0.92 J | 0.944 J | 49.5 J | 0.055 J | 6.48 U |
| A7SSA-C12-3 | 1.94 - | 0.881 - | 0.868 - | 0.881 - | 10.7 - | 0.0456 U | 5.46 U |
| A7SSA-C12-4 | 1.31 - | 1.34 J | 1.37 J | 1.34 J | 6.43 J | 0.0678 U | 0.895 U |
| A7SSA-C12-4-D | 1.35 - | 1.08 J | 1.09 J | 1.08 J | 18.9 J | 0.144 - | 8.11 U |
| A7SSA-C12-5 | 0.786 - | 0.64 - | 0.641 - | 0.64 - | 3.61 - | 0.0428 U | 3.92 U |
| A7SSA-C12-6 | 1.18 - | 1.25 J | 1.27 J | 1.25 J | 7.2 J | 0.0548 U | 6.63 U |
| A7SSA-C12-7 | 0.991 - | 0.776 - | 0.777 - | 0.776 - | 4.01 - | 0.0488 U | 0.831 J |
| A7SSA-C12-8 | 1.21 - | 1.06 - | 1.05 - | 1.06 - | 9.42 - | 0.0628 J | 5.5 U |
| A7SSA-C12-9 | 1.5 - | 1.08 - | 1.09 - | 1.08 - | 6.52 - | 0.063 U | 2.14 - |
| A7SSA-C12-10 | 2.67 - | 0.753 - | 0.783 - | 0.753 - | 6.76 - | 0.0561 J | 5.17 U |
| A7SSA-C12-11 | 1.02 - | 0.734 - | 0.73 - | 0.734 - | 8 - | 0.0586 - | 3.55 U |
| A7SSA-C12-12 | 1.31 - | 1.13 - | 1.13 - | 1.13 - | 6.22 - | 0.0532 U | 4.82 U |
| A7SSA-C12-13 | 6.76 - | 0.716 - | 0.717 - | 0.716 - | 6.03 - | 0.0572 U | 7.05 - |
| A7SSA-C12-14 | 1.41 - | 0.928 - | 0.932 - | 0.928 - | 7.34 - | 0.0676 U | 1.95 - |
| A7SSA-C12-15 | 2.19 - | 0.808 - | 0.813 - | 0.808 - | 7.85 - | 0.0508 U | 4.56 U |
| A7SSA-C12-16 | 2.19 - | 1.12 - | 1.14 - | 1.12 - | 19.4 - | 0.0846 J | 2.01 - |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | **6.76** | 1.34 | 1.37 | 1.34 | 49.5 | 0 .144 | 7.05 |
| Max. >= Limit | **Yes** | No | No | No | No | No | No |
| W-statistic Prob. # | 7.4% (LN) | - - | - - | - - | - - | - - | - - |
| Test Procedure | Lognormal | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 0 | 10 | 11 |
| % Nondetects | 0% | 0% | 0% | 0% | 0% | 63% | 69% |
| Est. Mean* | 1.838 | - - | - - | - - | - - | - - | - - |
| UCL | 2.40 | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | FAIL | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 661 | - - | - - | - - | - - | - - | - - |
| Size calculation | Fail | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C12-1 | 2 U | 2.1 - | 3.4 U | 9.5 J | 0.39 - | 0.17 J | 1 - |
| A7SSA-C12-2 | 0.905 U | 4.4 J | 0.477 U | 5.73 J | 0.615 - | 0.176 J | 1.47 - |
| A7SSA-C12-3 | 2.03 U | 1.88 - | 4.4 U | 7 J | 0.47 - | 0.17 J | 0.93 J |
| A7SSA-C12-4 | 0.951 U | 2.08 J | 0.684 U | 12 J | 0.654 - | 0.0942 J | 1.6 - |
| A7SSA-C12-4-D | 0.922 U | 2.93 J | 0.481 U | 7.72 J | 0.602 - | 0.0679 U | 1.32 - |
| A7SSA-C12-5 | 2.08 U | 1.08 J | 2.9 U | 5.1 J | 0.23 - | 0.089 J | 0.79 J |
| A7SSA-C12-6 | 0.939 U | 1.63 J | 0.507 U | 5.53 J | 1.08 - | 0.241 J | 0.705 J |
| A7SSA-C12-7 | 2.02 U | 1.73 - | 4.4 U | 5.7 J | 0.62 - | 0.18 J | 0.71 J |
| A7SSA-C12-8 | 2.02 U | 3.21 J | 2.33 UJ | 12.6 J | 1.2 - | 0.38 J | 1.2 J |
| A7SSA-C12-9 | 2.12 U | 1.42 - | 0.486 UJ | 11.1 J | 0.63 - | 0.13 J | 0.97 J |
| A7SSA-C12-10 | 2.07 U | 2.65 - | 4.4 U | 6.4 J | 0.2 - | 0.096 J | 0.44 J |
| A7SSA-C12-11 | 2.08 U | 1.44 - | 3.7 U | 4.3 J | 0.29 - | 0.12 J | 1.2 - |
| A7SSA-C12-12 | 2.15 U | 2.71 - | 2.45 UJ | 8.7 J | 0.25 - | 0.25 J | 0.83 J |
| A7SSA-C12-13 | 1.96 U | 3.2 - | 3.8 U | 7.4 J | 0.32 - | 0.15 J | 0.9 J |
| A7SSA-C12-14 | 1.98 U | 4.97 - | 3.8 U | 7.4 J | 0.85 - | 0.18 J | 0.78 J |
| A7SSA-C12-15 | 2.03 U | 3.07 - | 3.8 U | 13.7 J | 0.48 - | 0.16 J | 2.7 - |
| A7SSA-C12-16 | 2.09 U | 11.5 - | 2.15 UJ | 5.4 J | 0.67 - | 0.22 J | 0.76 J |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | 0 | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 2.15 U | 11.5 | 4.4 U | **13.7** | 1.2 | 0 .38 | 2.7 |
| Max. >= Limit | No | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | - - | 41.3% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | - - | Lognormal | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 16 | 0 | 0 | 0 | 0 |
| % Nondetects | 100% | 0% | 100% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | 7.993589434 | - - | - - | - - |
| UCL | - - | - - | - - | 9.129307366 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | pass | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | 4 | - - | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C12-1 | 0.052 J | 39 U | 39 U | 39 U | 39 U | 39 U | 39 U |
| A7SSA-C12-2 | 0.151 U | 38.7 U | 38.7 U | 147 - | 38.7 U | 38.7 U | 38.7 U |
| A7SSA-C12-3 | 0.053 J | 39 U | 39 U | 39 U | 39 U | 39 U | 39 U |
| A7SSA-C12-4 | 0.164 U | 40.1 U | 40.1 U | 147 - | 40.1 U | 93 J | 40.1 U |
| A7SSA-C12-4-D | 0.153 U | 41.1 U | 41.1 U | 154 - | 41.1 U | 41.1 U | 41.1 U |
| A7SSA-C12-5 | 0.0435 U | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 36.5 U |
| A7SSA-C12-6 | 0.161 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U |
| A7SSA-C12-7 | 0.059 J | 37.8 U | 37.8 U | 144 - | 37.8 U | 37.8 U | 37.8 U |
| A7SSA-C12-8 | 0.086 J | 38.9 U | 38.9 U | 146 - | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C12-9 | 0.063 J | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 40.6 U |
| A7SSA-C12-10 | 0.0439 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U |
| A7SSA-C12-11 | 0.0474 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U |
| A7SSA-C12-12 | 0.073 J | 41 U | 41 U | 41 U | 41 U | 41 U | 41 U |
| A7SSA-C12-13 | 0.049 J | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U |
| A7SSA-C12-14 | 0.052 J | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C12-15 | 0.067 J | 37.9 U | 37.9 U | 147 - | 37.9 U | 37.9 U | 37.9 U |
| A7SSA-C12-16 | 0.069 J | 198 - | 297 - | 404 - | 243 - | 37.4 U | 195 - |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0 .086 | 198 | 297 | 404 | 243 | 93 | 195 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 6 | 15 | 15 | 10 | 15 | 15 | 15 |
| % Nondetects | 38% | 94% | 94% | 63% | 94% | 94% | 94% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C12-1 | 39 U | 39 U | 39 U | 39 U | 39 U | 3.9 U | 3.9 U |
| A7SSA-C12-2 | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 3.9 U | 3.9 U |
| A7SSA-C12-3 | 39 U | 39 U | 39 U | 39 U | 39 U | 13.7 - | 3.9 U |
| A7SSA-C12-4 | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 40.1 U | 4 U | 4 U |
| A7SSA-C12-4-D | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 41.1 U | 4.1 U | 4.1 U |
| A7SSA-C12-5 | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 36.5 U | 3.7 U | 3.7 U |
| A7SSA-C12-6 | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 41.6 U | 4.2 U | 4.2 U |
| A7SSA-C12-7 | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 3.8 U | 3.8 U |
| A7SSA-C12-8 | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 3.9 U | 3.9 U |
| A7SSA-C12-9 | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 40.6 U | 4.1 U | 4.1 U |
| A7SSA-C12-10 | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 3.8 U | 3.8 U |
| A7SSA-C12-11 | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 4 U | 4 U |
| A7SSA-C12-12 | 41 U | 41 U | 41 U | 41 U | 41 U | 4.1 U | 4.1 U |
| A7SSA-C12-13 | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 38.3 U | 3.8 U | 3.8 U |
| A7SSA-C12-14 | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 3.9 U | 3.9 U |
| A7SSA-C12-15 | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 7.9 J | 3.8 U |
| A7SSA-C12-16 | 37.4 U | 404 J | 211 - | 287 J | 362 J | 11 J | 6.2 NJ |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | 41.6 U | 404 | 211 | 287 | 362 | 13.7 | 6.2 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 15 | 15 | 15 | 15 | 13 | 15 |
| % Nondetects | 100% | 94% | 94% | 94% | 94% | 81% | 94% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C13-1 | 3.4 J | 0.832 J | 0.815 J | 0.832 J | 8.27 - | 0.072 U | 7.14 U |
| A7SSA-C13-2 | 2.64 - | 0.554 J | 0.556 J | 0.554 J | 6.62 - | 0.0468 J | 7.57 J |
| A7SSA-C13-3 | 2.09 J | 0.678 J | 0.677 J | 0.678 J | 9.41 - | 0.0796 J | 7.88 J |
| A7SSA-C13-4 | 1.83 J | 0.684 J | 0.687 J | 0.684 J | 6.52 - | 0.0433 U | 9.51 U |
| A7SSA-C13-4-D | 2.33 J | 0.855 J | 0.836 J | 0.855 J | 7.41 - | 0.0688 U | 3.81 - |
| A7SSA-C13-5 | 2.32 J | 0.729 J | 0.75 J | 0.729 J | 4.6 J | 0.0626 U | 7.38 U |
| A7SSA-C13-6 | 2.56 J | 0.765 J | 0.774 J | 0.765 J | 7.74 - | 0.0554 U | 5.09 U |
| A7SSA-C13-7 | 1.17 J | 0.941 J | 0.938 J | 0.941 J | 2.97 U | 0.0558 U | 5.62 U |
| A7SSA-C13-8 | 1.33 J | 0.786 J | 0.776 J | 0.786 J | 6.01 - | 0.0506 U | 1.88 - |
| A7SSA-C13-9 | 1.66 J | 0.88 J | 0.864 J | 0.88 J | 6.64 - | 0.0565 U | 3.21 - |
| A7SSA-C13-10 | 2.06 J | 0.763 J | 0.763 J | 0.763 J | 7.67 - | 0.0858 U | 2.82 - |
| A7SSA-C13-11 | 1.41 J | 0.68 J | 0.703 J | 0.68 J | 5.49 - | 0.0376 U | 6.23 U |
| A7SSA-C13-12 | 1.53 J | 0.844 J | 0.815 J | 0.844 J | 6.23 - | 0.0438 J | 4.3 J |
| A7SSA-C13-13 | 1.21 J | 1.14 J | 1.14 J | 1.14 J | 6.5 - | 0.0536 U | 5.92 U |
| A7SSA-C13-14 | 2.04 J | 0.967 J | 0.963 J | 0.967 J | 7.29 - | 0.0565 U | 8.12 U |
| A7SSA-C13-15 | 1.06 J | 0.801 J | 0.78 J | 0.801 J | 5.31 - | 0.0596 U | 5.37 U |
| A7SSA-C13-16 | 0.928 J | 0.792 J | 0.791 J | 0.792 J | 3.82 - | 0.0466 U | 9.25 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95.00% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | **3.4** | 1.14 | 1.14 | 1.14 | 9.41 | 0 .0796 | 7.88 |
| Max. >= Limit | **Yes** | No | No | No | No | No | No |
| W-statistic Prob. # | 89.4% (LN) | - - | - - | - - | - - | - - | - - |
| Test Procedure | Lognormal | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 1 | 13 | 9 |
| % Nondetects | 0% | 0% | 0% | 0% | 6% | 81% | 56% |
| Est. Mean* | 1.866 | - - | - - | - - | - - | - - | - - |
| UCL | 2.22 | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | FAIL | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 1059 | - - | - - | - - | - - | - - | - - |
| Size calculation | Fail | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C13-1 | 2.31 U | 2.66 - | 5.3 U | 5.5 J | 0.5 J | 0.21 J | 0.9 J |
| A7SSA-C13-2 | 2.15 U | 1.96 - | 4.7 U | 3.8 J | 0.33 J | 0.13 J | 0.83 J |
| A7SSA-C13-3 | 2.3 U | 1.58 - | 2.8 U | 5.7 J | 0.45 J | 0.19 J | 0.87 J |
| A7SSA-C13-4 | 2.09 U | 1.63 - | 5.6 U | 5.6 J | 0.6 J | 0.17 J | 1.2 - |
| A7SSA-C13-4-D | 2.25 U | 2.06 - | 2.8 U | 3.3 J | 0.28 J | 0.1 J | 0.48 J |
| A7SSA-C13-5 | 2.22 U | 1.54 - | 2.7 U | 6.1 J | 0.54 J | 0.18 J | 1.1 - |
| A7SSA-C13-6 | 2.16 U | 1.44 - | 5 U | 5.5 J | 0.51 J | 0.16 J | 0.98 J |
| A7SSA-C13-7 | 2.13 U | 1.37 - | 2.29 UJ | 6 J | 0.78 J | 0.31 J | 1.3 - |
| A7SSA-C13-8 | 2.16 U | 1.02 - | 4 U | 6.4 J | 0.56 J | 0.21 J | 1.4 - |
| A7SSA-C13-9 | 2.2 U | 1.22 - | 4.8 U | 5.8 J | 0.55 J | 0.2 J | 0.91 J |
| A7SSA-C13-10 | 2.23 U | 1.61 - | 2.9 U | 5.3 J | 0.46 J | 0.14 J | 0.72 J |
| A7SSA-C13-11 | 2.15 U | 1.07 - | 4.9 U | 4.2 J | 0.39 J | 0.14 J | 0.81 J |
| A7SSA-C13-12 | 2.23 U | 2.47 - | 4.5 U | 10.6 J | 0.43 J | 0.16 J | 0.89 J |
| A7SSA-C13-13 | 2.27 U | 1.15 - | 2.26 UJ | 7.7 J | 0.69 J | 0.17 J | 1 - |
| A7SSA-C13-14 | 2.28 U | 5.77 - | 3.7 U | 7 J | 0.46 J | 0.28 J | 0.84 J |
| A7SSA-C13-15 | 2.18 U | 1.63 - | 3.4 U | 8.4 J | 0.47 J | 0.16 J | 0.78 J |
| A7SSA-C13-16 | 2.48 U | 1.23 - | 2.9 U | 3.1 J | 0.42 J | 0.12 J | 0.9 J |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 2.48 U | 5.77 | 5.6 U | 10.6 | 0 .78 | 0 .31 | 1.4 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 16 | 0 | 0 | 0 | 0 |
| % Nondetects | 100% | 0% | 100% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | | - - | - - | - - |
| UCL | - - | - - | - - | | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | | - - | - - | - - |
| Pass / Fail | - - | - - | - - | | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | | - - | - - | - - |
| Size calculation | - - | - - | - - | | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene |
|---|---|---|---|---|---|---|
| A7SSA-C13-1 | 0.051 J | 38.5 U | 38.5 U | 38.5 U | 38.5 U | 38.5 U |
| A7SSA-C13-2 | 0.0429 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U |
| A7SSA-C13-3 | 0.052 J | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U |
| A7SSA-C13-4 | 0.049 J | 38.5 U | 38.5 U | 38.5 U | 38.5 U | 38.5 U |
| A7SSA-C13-4-D | 0.0438 U | 69.4 J | 89.6 J | 142 J | 71.9 J | 38.1 U |
| A7SSA-C13-5 | 0.061 J | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U |
| A7SSA-C13-6 | 0.068 J | 37 U | 37 U | 37 U | 37 U | 37 U |
| A7SSA-C13-7 | 0.087 J | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U |
| A7SSA-C13-8 | 0.059 J | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U |
| A7SSA-C13-9 | 0.0454 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U |
| A7SSA-C13-10 | 0.0451 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U | 37.8 U |
| A7SSA-C13-11 | 0.0452 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U |
| A7SSA-C13-12 | 0.0443 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U |
| A7SSA-C13-13 | 0.057 J | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C13-14 | 0.045 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U |
| A7SSA-C13-15 | 0.0464 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U |
| A7SSA-C13-16 | 0.0431 U | 37 U | 37 U | 37 U | 37 U | 37 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0 .087 | 69.4 | 89.6 | 142 | 71.9 | 39.6 U |
| Max. >= Limit | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 8 | 15 | 15 | 15 | 15 | 16 |
| % Nondetects | 50% | 94% | 94% | 94% | 94% | 100% |
| Est. Mean* | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - |

| | | | | | | |
|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Chrysene | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 |
|---|---|---|---|---|---|---|---|
| A7SSA-C13-1 | 38.5 U | 38.5 U | 38.5 U | 38.5 U | 38.5 U | 38.5 U | 630 J |
| A7SSA-C13-2 | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 3.6 U |
| A7SSA-C13-3 | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 37.4 U | 3.7 U |
| A7SSA-C13-4 | 38.5 U | 38.5 U | 60.2 J | 38.5 U | 55 J | 41.1 J | 3.9 U |
| A7SSA-C13-4-D | 85.8 J | 38.1 U | 167 J | 59.6 J | 71.5 J | 124 J | 3.8 U |
| A7SSA-C13-5 | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 37.5 U | 3.8 U |
| A7SSA-C13-6 | 37 U | 37 U | 37 U | 37 U | 37 U | 37 U | 3.7 U |
| A7SSA-C13-7 | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 38.9 U | 3.9 U |
| A7SSA-C13-8 | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 39.5 U | 4 U |
| A7SSA-C13-9 | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 3.8 U |
| A7SSA-C13-10 | 37.8 U | 37.8 U | 78 J | 37.8 U | 52.2 J | 58.7 J | 4.7 J |
| A7SSA-C13-11 | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 3.8 U |
| A7SSA-C13-12 | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 38.7 U | 3.9 U |
| A7SSA-C13-13 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 4 U |
| A7SSA-C13-14 | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 3.9 U |
| A7SSA-C13-15 | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 39.4 U | 3.9 U |
| A7SSA-C13-16 | 37 U | 37 U | 37 U | 37 U | 37 U | 37 U | 3.7 U |
| Limit | 2000000 | 2000 | 10000 | 20000 | 5000 | 10000 | 130 |
| 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 | 85.8 | 39.6 U | 167 | 59.6 | 71.5 | 124 | **630** |
| Max. >= Limit | No | No | No | No | No | No | **Yes** |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | < 0.01% (LN) |
| Test Procedure | - - | - - | - - | - - | - - | - - | Proportions (Sign) |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 15 | 16 | 14 | 15 | 14 | 14 | 14 |
| % Nondetects | 94% | 100% | 88% | 94% | 88% | 88% | 88% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | 1.95 |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | 0.06% |
| Pass / Fail | - - | - - | - - | - - | - - | - - | pass |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | 4 |
| Size calculation | - - | - - | - - | - - | - - | - - | Pass |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Aroclor-1260 |
|---|---|
| A7SSA-C13-1 | 127 J |
| A7SSA-C13-2 | 3.6 U |
| A7SSA-C13-3 | 3.7 U |
| A7SSA-C13-4 | 3.9 U |
| A7SSA-C13-4-D | 3.8 U |
| A7SSA-C13-5 | 3.8 U |
| A7SSA-C13-6 | 3.7 U |
| A7SSA-C13-7 | 3.9 U |
| A7SSA-C13-8 | 4 U |
| A7SSA-C13-9 | 3.8 U |
| A7SSA-C13-10 | 3.8 U |
| A7SSA-C13-11 | 3.8 U |
| A7SSA-C13-12 | 3.9 U |
| A7SSA-C13-13 | 4 U |
| A7SSA-C13-14 | 3.9 U |
| A7SSA-C13-15 | 3.9 U |
| A7SSA-C13-16 | 3.7 U |
| Limit | 130 |
| Units | ug/kg |
| Conf. Level | 90% |
| Max. Result | 127 |
| Max. >= Limit | No |
| W-statistic Prob. # | - - |
| Test Procedure | - - |
| Sample Size | 16 |
| Nondetects | 15 |
| % Nondetects | 94% |
| Est. Mean* | - - |
| UCL | - - |
| Prob. > Limit | - - |
| Pass / Fail | - - |

| | |
|---|---|
| *a posteriori Sample* | - - |
| Size calculation | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Technetium-99 | Antimony |
|---|---|---|---|---|---|---|---|
| A7SSA-C14-1 | 1.18 - | 1.02 - | 1.02 - | 1.02 - | 5.92 - | 2.11 - | 2.3 UJ |
| A7SSA-C14-2 | 0.872 - | 0.795 - | 0.789 - | 0.795 - | 5.97 - | 1.07 U | 2.15 UJ |
| A7SSA-C14-3 | 0.928 - | 0.809 - | 0.814 - | 0.809 - | 7.31 - | 1.12 U | 0.67 J |
| A7SSA-C14-4 | 1.03 - | 0.745 - | 0.715 - | 0.745 - | 3.52 J | 0.867 U | 0.774 U |
| A7SSA-C14-5 | 1.05 - | 1.04 - | 1.02 - | 1.04 - | 5.72 - | 2.22 U | 0.68 J |
| A7SSA-C14-6 | 0.972 - | 0.762 - | 0.726 - | 0.762 - | 6.12 - | 0.863 U | 0.447 U |
| A7SSA-C14-7 | 1.2 - | 1.02 - | 1.02 - | 1.02 - | 4.66 - | 1.13 J | 0.9 J |
| A7SSA-C14-8 | 0.913 - | 0.881 - | 0.874 - | 0.881 - | 4.7 - | 1.07 U | 2.22 UJ |
| A7SSA-C14-9 | 0.507 - | 0.319 - | 0.291 - | 0.319 - | 2.29 J | 0.861 U | 0.461 U |
| A7SSA-C14-10 | 1.23 - | 1.09 - | 1.05 - | 1.09 - | 2.95 U | 0.871 U | 0.535 U |
| A7SSA-C14-11 | 1.06 - | 0.751 - | 0.715 - | 0.751 - | 3.51 J | 1.3 - | 0.432 U |
| A7SSA-C14-12 | 0.926 - | 0.829 - | 0.816 - | 0.829 - | 7.24 - | 0.938 U | 0.425 U |
| A7SSA-C14-13 | 1.23 - | 0.945 - | 0.933 - | 0.945 - | 5.99 - | 1.19 U | 2.37 UJ |
| A7SSA-C14-14 | 1.05 - | 1.12 - | 1.14 - | 1.12 - | 5.1 - | 1.15 U | 0.49 UJ |
| A7SSA-C14-15 | 1.07 - | 1.19 - | 1.2 - | 1.19 - | 4.66 - | 2.09 U | 2.33 UJ |
| A7SSA-C14-15-D | 1.07 - | 1.12 - | 1.11 - | 1.12 - | 6.34 - | 2.12 U | 2.35 UJ |
| A7SSA-C14-16 | 0.909 - | 0.89 - | 0.901 - | 0.89 - | 3.96 - | 1.08 U | 0.44 J |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 30 | 96 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | mg/kg |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | 1.23 | 1.19 | 1.2 | 1.19 | 7.31 | 2.11 | 0 .9 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 1 | 13 | 12 |
| % Nondetects | 0% | 0% | 0% | 0% | 6% | 81% | 75% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Arsenic | Beryllium | Aroclor-1254 |
|---|---|---|---|
| A7SSA-C14-1 | 5.4 J | 0.67 - | 3.9 U |
| A7SSA-C14-2 | 4.9 J | 0.48 - | 16.5 - |
| A7SSA-C14-3 | 6.3 J | 0.59 - | 10.3 J |
| A7SSA-C14-4 | 17.9 - | 1.14 - | 3.9 U |
| A7SSA-C14-5 | 7.1 J | 0.54 J | 4 U |
| A7SSA-C14-6 | 7.09 - | 0.756 - | 3.8 U |
| A7SSA-C14-7 | 4.1 J | 0.39 - | 4 U |
| A7SSA-C14-8 | 7.1 J | 0.4 - | 3.7 U |
| A7SSA-C14-9 | 2.58 - | 0.193 - | 3.7 U |
| A7SSA-C14-10 | 11.5 - | 0.953 - | 4 U |
| A7SSA-C14-11 | 8.85 - | 0.752 - | 3.9 U |
| A7SSA-C14-12 | 9.69 - | 0.685 - | 3.8 U |
| A7SSA-C14-13 | 7.5 J | 0.8 - | 4.1 U |
| A7SSA-C14-14 | 10.3 J | 0.96 - | 4.1 U |
| A7SSA-C14-15 | 6.1 J | 0.63 J | 4.1 U |
| A7SSA-C14-15-D | 17.1 J | 1.1 J | 4.1 U |
| A7SSA-C14-16 | 5 J | 0.14 J | 3.8 U |
| Limit | 12 | 1.5 | 130 |
| Units | mg/kg | mg/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% |
| Max. Result | **17.9** | 1.14 | 16.5 |
| Max. >= Limit | **Yes** | No | No |
| W-statistic Prob. # | 89.9% (LN) | - - | - - |
| Test Procedure | Lognormal | - - | - - |
| Sample Size | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 14 |
| % Nondetects | 0% | 0% | 88% |
| Est. Mean* | 8.35 | - - | - - |
| UCL | 10.18 | - - | - - |
| Prob. > Limit | - - | - - | - - |
| Pass / Fail | pass | - - | - - |

| | | | |
|---|---|---|---|
| *a posteriori Sample* | 6 | - - | - - |
| Size calculation | Pass | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C15-1 | 0.849 - | 0.815 J | 0.823 J | 0.815 J | 3.14 - | 0.0464 U | 0.781 J |
| A7SSA-C15-1-D | 0.757 - | 0.69 J | 0.698 J | 0.69 J | 2.95 - | 0.0241 U | 1.99 U |
| A7SSA-C15-2 | 1.24 - | 0.87 J | 0.898 J | 0.87 J | 5.46 - | 0.051 U | 1.62 - |
| A7SSA-C15-3 | 0.82 - | 0.693 J | 0.692 J | 0.693 J | 2.85 - | 0.0468 U | 2.87 U |
| A7SSA-C15-4 | 1.25 - | 1.32 J | 1.33 J | 1.32 J | 5.85 - | 0.0508 U | 7.39 U |
| A7SSA-C15-5 | 1.27 - | 0.852 J | 0.861 J | 0.852 J | 4.91 - | 0.0501 U | 4.97 U |
| A7SSA-C15-6 | 1.53 - | 0.689 J | 0.692 J | 0.689 J | 1.95 U | 0.0413 U | 5.01 U |
| A7SSA-C15-7 | 4.98 - | 0.758 J | 0.754 J | 0.758 J | 4.81 - | 0.0581 U | 13.3 J |
| A7SSA-C15-8 | 1.2 - | 0.988 J | 0.964 J | 0.988 J | 6.03 - | 0.0619 U | 1.6 J |
| A7SSA-C15-9 | 1.53 - | 0.745 J | 0.75 J | 0.745 J | 5.82 - | 0.0627 U | 2.41 - |
| A7SSA-C15-10 | 1.2 - | 0.624 J | 0.627 J | 0.624 J | 4.98 - | 0.0339 U | 3.58 U |
| A7SSA-C15-11 | 3.1 - | 0.808 J | 0.819 J | 0.808 J | 4.81 - | 0.05 U | 4.06 - |
| A7SSA-C15-12 | 1.55 - | 0.806 J | 0.822 J | 0.806 J | 4.03 - | 0.0424 U | 4.75 U |
| A7SSA-C15-13 | 1.13 - | 0.536 J | 0.523 J | 0.536 J | 2.83 J | 0.0453 U | 5.08 U |
| A7SSA-C15-14 | 1.61 - | 1.27 J | 1.24 J | 1.27 J | 7.59 - | 0.0422 U | 8.92 U |
| A7SSA-C15-15 | 0.894 - | 0.801 J | 0.798 J | 0.801 J | 3.85 - | 0.0516 U | 0.816 J |
| A7SSA-C15-16 | 0.81 - | 0.85 J | 0.844 J | 0.85 J | 5.67 - | 0.0255 U | 4.81 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 95% | 95% | 95% | 95% | 95% | 90% | 90% |
| Max. Result | **4.98** | 1.32 | 1.33 | 1.32 | 7.59 | 0.0627 U | 13.3 |
| Max. >= Limit | **Yes** | No | No | No | No | No | No |
| W-statistic Prob. # | <0.01% (LN) | - - | - - | - - | - - | - - | - - |
| Test Procedure | Median (Sign) | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 1 | 16 | 9 |
| % Nondetects | 0% | 0% | 0% | 0% | 6% | 100% | 56% |
| Est. Mean* | 1.245 | - - | - - | - - | - - | - - | - - |
| UCL | 1.53 | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | Pass | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 2 | - - | - - | - - | - - | - - | - - |
| Size calculation | Pass | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C15-1 | 1.14 U | 1.53 - | 0.425 UJ | 4.8 - | 0.52 J | 0.19 J | 1.6 - |
| A7SSA-C15-1-D | 1.21 U | 1.22 - | 0.6 J | 5.1 - | 0.47 J | 0.2 J | 1.7 - |
| A7SSA-C15-2 | 1.22 U | 1.43 - | 2.34 UJ | 6.9 - | 0.66 J | 0.26 J | 1.4 - |
| A7SSA-C15-3 | 1.17 U | 0.774 U | 0.64 J | 4.3 - | 0.49 J | 0.2 J | 1.6 - |
| A7SSA-C15-4 | 1.15 U | 2.29 - | 2.35 UJ | 7.6 - | 1 J | 0.23 J | 0.9 U |
| A7SSA-C15-5 | 1.18 U | 1.68 - | 2.33 UJ | 6.9 - | 0.62 J | 0.28 J | 1.1 - |
| A7SSA-C15-6 | 1.22 U | 1.66 - | 0.465 UJ | 4.4 - | 0.33 J | 0.2 J | 1.1 - |
| A7SSA-C15-7 | 1.12 U | 2.06 - | 0.59 J | 4.7 - | 0.36 J | 0.23 J | 1.1 - |
| A7SSA-C15-8 | 1.17 U | 2.29 - | 2.54 UJ | 10.7 - | 1.2 J | 0.31 J | 1.6 - |
| A7SSA-C15-9 | 1.13 U | 1.6 - | 0.57 J | 5.2 - | 0.34 J | 0.2 J | 1.3 - |
| A7SSA-C15-10 | 1.13 U | 0.864 - | 0.52 J | 5.1 - | 0.49 J | 0.25 J | 0.81 U |
| A7SSA-C15-11 | 1.17 U | 3.95 - | 0.51 J | 6.3 - | 0.46 J | 0.24 J | 1 U |
| A7SSA-C15-12 | 1.22 U | 1.12 - | 0.54 J | 4 - | 0.38 J | 0.2 J | 0.67 U |
| A7SSA-C15-13 | 1.18 U | 1.9 - | 0.412 UJ | 7.7 - | 0.23 J | 0.14 J | 0.39 U |
| A7SSA-C15-14 | 1.23 U | 7.95 - | 0.65 J | 6.8 - | 0.82 J | 0.36 J | 1.1 - |
| A7SSA-C15-15 | 1.22 U | 0.986 - | 2.17 UJ | 5.8 - | 0.58 J | 0.27 J | 1.4 - |
| A7SSA-C15-16 | 1.23 U | 1.3 - | 0.64 J | 6.1 - | 0.51 J | 0.27 J | 0.98 U |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 1.23 U | 7.95 | 0 .65 | 10.7 | 1.2 | 0 .36 | 1.7 |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 1 | 7 | 0 | 0 | 0 | 6 |
| % Nondetects | 100% | 6% | 44% | 0% | 0% | 0% | 38% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C15-1 | 0.051 J | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U |
| A7SSA-C15-1-D | 0.064 J | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 34.4 U |
| A7SSA-C15-2 | 0.07 J | 40.4 U | 152 - | 147 - | 40.4 U | 91.3 J | 40.4 U |
| A7SSA-C15-3 | 0.05 J | 35.8 U | 35.8 U | 35.8 U | 35.8 U | 35.8 U | 35.8 U |
| A7SSA-C15-4 | 0.074 J | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U |
| A7SSA-C15-5 | 0.067 J | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U |
| A7SSA-C15-6 | 0.0474 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U |
| A7SSA-C15-7 | 0.046 J | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U |
| A7SSA-C15-8 | 0.093 J | 42.6 U | 42.6 U | 42.6 U | 42.6 U | 42.6 U | 42.6 U |
| A7SSA-C15-9 | 0.0467 J | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 39.3 U |
| A7SSA-C15-10 | 0.07 J | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C15-11 | 0.047 J | 35.3 U | 35.3 U | 35.3 U | 35.3 U | 35.3 U | 35.3 U |
| A7SSA-C15-12 | 0.0438 J | 151 U | 151 U | 151 U | 151 U | 151 U | 151 U |
| A7SSA-C15-13 | 0.0418 J | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U |
| A7SSA-C15-14 | 0.082 J | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U |
| A7SSA-C15-15 | 0.075 J | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U |
| A7SSA-C15-16 | 0.064 J | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 36.1 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 90% | 90% | 90% | 90% | 90% | 90% | 90% |
| Max. Result | 0 .093 | 151 U | 152 | 147 | 151 U | 91.3 | 151 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | - - | - - | - - | - - | - - | - - | - - |
| Test Procedure | - - | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 1 | 16 | 15 | 15 | 16 | 15 | 16 |
| % Nondetects | 6% | 100% | 94% | 94% | 100% | 94% | 100% |
| Est. Mean* | - - | - - | - - | - - | - - | - - | - - |
| UCL | - - | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | - - | - - | - - | - - |
| *a posteriori Sample* | - - | - - | - - | - - | - - | - - | - - |
| Size calculation | - - | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 | Aroclor-1260 |
|---|---|---|---|---|---|---|---|
| A7SSA-C15-1 | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 3.6 U | 3.6 U |
| A7SSA-C15-1-D | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 34.4 U | 3.4 U | 3.4 U |
| A7SSA-C15-2 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U | 4 U |
| A7SSA-C15-3 | 35.8 U | 35.8 U | 35.8 U | 35.8 U | 35.8 U | 3.6 U | 3.6 U |
| A7SSA-C15-4 | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 4 U | 4 U |
| A7SSA-C15-5 | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 40.7 U | 4.1 U | 4.1 U |
| A7SSA-C15-6 | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 40.3 U | 4 U | 4 U |
| A7SSA-C15-7 | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 3.7 U | 3.7 U |
| A7SSA-C15-8 | 42.6 U | 42.6 U | 42.6 U | 42.6 U | 42.6 U | 4.3 U | 4.3 U |
| A7SSA-C15-9 | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 39.3 U | 3.9 U | 3.9 U |
| A7SSA-C15-10 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U | 4 U |
| A7SSA-C15-11 | 35.3 U | 35.3 U | 35.3 U | 35.3 U | 35.3 U | 3.5 U | 3.5 U |
| A7SSA-C15-12 | 151 U | 151 U | 151 U | 151 U | 151 U | 3.8 U | 3.8 U |
| A7SSA-C15-13 | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 3.6 U | 3.6 U |
| A7SSA-C15-14 | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 38.8 U | 3.9 U | 3.9 U |
| A7SSA-C15-15 | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 37.9 U | 3.8 U | 3.8 U |
| A7SSA-C15-16 | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 3.6 U | 3.6 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 | 130 |
| 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 | 151 U | 151 U | 151 U | 151 U | 151 U | 4.3 U | 4.3 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Cesium-137 | Lead-210 |
|---|---|---|---|---|---|---|---|
| A7SSA-C16-1 | 0.852 - | 0.595 J | 0.591 - | 0.595 J | 2.14 U | 0.0378 U | 4.38 U |
| A7SSA-C16-2 | 1.26 - | 0.881 J | 0.843 - | 0.881 J | 8.11 - | 0.0555 J | 8.72 U |
| A7SSA-C16-3 | 1.24 - | 0.867 J | 0.795 - | 0.867 J | 9.91 - | 0.0605 J | 7.26 U |
| A7SSA-C16-4 | 0.863 - | 0.776 J | 0.758 - | 0.776 J | 2.54 U | 0.0424 U | 5.11 U |
| A7SSA-C16-5 | 1.14 - | 0.826 J | 0.841 - | 0.826 J | 9.11 - | 0.0665 U | 0.864 U |
| A7SSA-C16-6 | 0.562 - | 0.368 J | 0.348 - | 0.368 J | 4.63 - | 0.0321 U | 3.86 U |
| A7SSA-C16-7 | 0.886 - | 0.648 J | 0.64 - | 0.648 J | 2.53 U | 0.0435 U | 5.38 U |
| A7SSA-C16-7-D | 0.872 - | 0.638 J | 0.57 - | 0.638 J | 2.35 U | 0.0408 U | 4.96 U |
| A7SSA-C16-8 | 1.37 - | 0.609 J | 0.607 - | 0.609 J | 5.95 J | 0.0481 U | 5.68 U |
| A7SSA-C16-9 | 1.23 - | 1.02 J | 1.11 - | 1.02 J | 5.14 - | 0.0495 U | 1.04 J |
| A7SSA-C16-10 | 1.18 - | 0.856 J | 0.868 - | 0.856 J | 5.67 - | 0.0339 U | 7.28 U |
| A7SSA-C16-11 | 1.6 - | 0.842 J | 0.842 - | 0.842 J | 5.61 - | 0.0296 U | 5.49 U |
| A7SSA-C16-12 | 0.808 - | 0.684 J | 0.666 - | 0.684 J | 2.98 J | 0.0504 U | 5.61 U |
| A7SSA-C16-13 | 2.48 - | 0.889 J | 0.859 - | 0.889 J | 2.33 U | 0.0408 U | 7.96 U |
| A7SSA-C16-14 | 1.36 - | 1.09 J | 1.07 - | 1.09 J | 4.78 - | 0.0648 U | 0.947 U |
| A7SSA-C16-15 | 0.895 - | 0.62 J | 0.608 - | 0.62 J | 3.25 J | 0.0318 U | 7.37 U |
| A7SSA-C16-16 | 0.708 - | 0.461 J | 0.485 - | 0.461 J | 4.36 - | 0.029 U | 5.72 U |
| Limit | 1.7 | 1.8 | 1.7 | 1.5 | 82 | 1.4 | 38 |
| Units | mg/kg | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | pCi/g |
| Conf. Level | 67.1% (LN) | 0% | 0% | 0% | 0% | 0% | 0% |
| Max. Result | **2.48** | 1.09 | 1.11 | 1.09 | 9.91 | 0 .0605 | 1.04 |
| Max. >= Limit | **Yes** | No | No | No | No | No | No |
| W-statistic Prob. # | 67.1% (LN) | - - | - - | - - | - - | - - | - - |
| Test Procedure | Lognormal | - - | - - | - - | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 0 | 0 | 0 | 0 | 4 | 14 | 15 |
| % Nondetects | 0% | 0% | 0% | 0% | 25% | 88% | 94% |
| Est. Mean* | 1.154 | - - | - - | - - | - - | - - | - - |
| UCL | 1.38 | - - | - - | - - | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | pass | - - | - - | - - | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | 6 | - - | - - | - - | - - | - - | - - |
| Size calculation | Pass | - - | - - | - - | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Technetium-99 | Thorium-230 | Antimony | Arsenic | Beryllium | Cadmium | Molybdenum |
|---|---|---|---|---|---|---|---|
| A7SSA-C16-1 | 0.801 U | 1.11 J | 0.456 U | 2.77 - | 0.307 J | 0.137 J | 1.32 - |
| A7SSA-C16-2 | 0.877 U | 1.84 - | 0.446 J | 8.28 - | 0.693 J | 0.126 J | 1.29 - |
| A7SSA-C16-3 | 0.725 U | 2.27 - | 0.486 U | 7.4 - | 0.666 J | 0.122 J | 1.26 J |
| A7SSA-C16-4 | 0.846 U | 1.11 J | 0.467 U | 4.04 - | 0.586 J | 0.168 J | 1.48 - |
| A7SSA-C16-5 | 0.903 U | 1.82 - | 0.405 U | 6.05 - | 0.572 J | 0.144 J | 1.01 J |
| A7SSA-C16-6 | 0.827 U | 0.995 J | 0.443 U | 4.02 - | 0.273 J | 0.305 J | 1.13 J |
| A7SSA-C16-7 | 0.865 U | 1.08 J | 0.418 U | 3.4 - | 0.397 J | 0.149 J | 1.8 - |
| A7SSA-C16-7-D | 0.882 U | 1.36 - | 0.372 U | 2.07 - | 0.256 J | 0.0914 J | 1.06 - |
| A7SSA-C16-8 | 0.793 U | 1.66 - | 0.396 U | 5.27 - | 0.379 J | 0.111 J | 1.3 - |
| A7SSA-C16-9 | 0.857 U | 1.45 - | 0.437 U | 7.79 - | 0.617 J | 0.199 J | 1.23 - |
| A7SSA-C16-10 | 0.835 U | 1.85 - | 0.441 U | 8.63 - | 0.634 J | 0.213 J | 1.32 - |
| A7SSA-C16-11 | 0.833 U | 1.83 - | 0.784 J | 6.11 - | 0.583 J | 0.108 J | 1.22 J |
| A7SSA-C16-12 | 0.857 U | 1.24 - | 0.374 U | 5.75 - | 0.524 J | 0.115 J | 1.44 |
| A7SSA-C16-13 | 0.834 U | 1.76 - | 0.375 U | 4.59 - | 0.418 J | 0.148 J | 1.25 - |
| A7SSA-C16-14 | 0.862 U | 1.58 - | 0.539 J | 18 - | 0.628 J | 0.163 J | 2.55 - |
| A7SSA-C16-15 | 0.898 U | 1.08 J | 0.4 U | 9.54 - | 0.382 J | 0.142 J | 1.62 - |
| A7SSA-C16-16 | 0.884 U | 1.12 J | 0.451 U | 6.91 - | 0.556 J | 0.189 J | 1.07 J |
| Limit | 30 | 280 | 96 | 12 | 1.5 | 82 | 2900 |
| Units | pCi/g | pCi/g | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Conf. Level | 0% | 0% | 0% | 83.5% (LN) | 0% | 0% | 0% |
| Max. Result | 0.903 U | 2.27 | 0 .784 | **18** | 0 .693 | 0 .305 | 2.55 |
| Max. >= Limit | No | No | No | **Yes** | No | No | No |
| W-statistic Prob. # | - - | - - | - - | 83.5% (LN) | - - | - - | - - |
| Test Procedure | - - | - - | - - | Lognormal | - - | - - | - - |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 0 | 13 | 0 | 0 | 0 | 0 |
| % Nondetects | 100% | 0% | 81% | 0% | 0% | 0% | 0% |
| Est. Mean* | - - | - - | - - | 6.79 | - - | - - | - - |
| UCL | - - | - - | - - | 8.09 | - - | - - | - - |
| Prob. > Limit | - - | - - | - - | - - | - - | - - | - - |
| Pass / Fail | - - | - - | - - | pass | - - | - - | - - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | - - | - - | - - | 3 | - - | - - | - - |
| Size calculation | - - | - - | - - | Pass | - - | - - | - - |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Silver | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene |
|---|---|---|---|---|---|---|---|
| A7SSA-C16-1 | 0.145 U | 35.6 U | 35.6 U | 35.6 U | 35.6 U | 35.6 U | 35.6 U |
| A7SSA-C16-2 | 0.14 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U |
| A7SSA-C16-3 | 0.154 U | 37.6 U | 37.6 U | 37.6 U | 37.6 U | 37.6 U | 37.6 U |
| A7SSA-C16-4 | 0.148 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U |
| A7SSA-C16-5 | 0.129 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U |
| A7SSA-C16-6 | 0.141 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U |
| A7SSA-C16-7 | 0.133 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U |
| A7SSA-C16-7-D | 0.118 U | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 36.1 U |
| A7SSA-C16-8 | 0.126 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U |
| A7SSA-C16-9 | 0.139 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C16-10 | 0.14 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U |
| A7SSA-C16-11 | 0.143 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U |
| A7SSA-C16-12 | 0.119 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C16-13 | 0.119 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U |
| A7SSA-C16-14 | 0.125 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U |
| A7SSA-C16-15 | 0.127 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U |
| A7SSA-C16-16 | 0.143 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U |
| Limit | 29000 | 20000 | 2000 | 20000 | 1000 | 200000 | 2000000 |
| Units | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Max. Result | 0.154 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U |
| Max. >= Limit | No | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Est. Mean* | -- | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Dibenzo(a,h)anthracene | Fluoranthene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene | Aroclor-1254 |
|---|---|---|---|---|---|---|
| A7SSA-C16-1 | 35.6 U | 35.6 U | 35.6 U | 35.6 U | 35.6 U | 34 - |
| A7SSA-C16-2 | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 36.2 U | 3.6 U |
| A7SSA-C16-3 | 37.6 U | 37.6 U | 37.6 U | 37.6 U | 37.6 U | 3.8 U |
| A7SSA-C16-4 | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 3.7 U |
| A7SSA-C16-5 | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 3.8 U |
| A7SSA-C16-6 | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 35.7 U | 3.6 U |
| A7SSA-C16-7 | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 35.9 U | 3.6 U |
| A7SSA-C16-7-D | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 36.1 U | 3.6 U |
| A7SSA-C16-8 | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 36.4 U | 3.6 U |
| A7SSA-C16-9 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U |
| A7SSA-C16-10 | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 38.4 U | 3.8 U |
| A7SSA-C16-11 | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 40.4 U | 4 U |
| A7SSA-C16-12 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 4 U |
| A7SSA-C16-13 | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 37.3 U | 3.7 U |
| A7SSA-C16-14 | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 4.2 U |
| A7SSA-C16-15 | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 39.6 U | 4 U |
| A7SSA-C16-16 | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 37.1 U | 3.7 U |
| Limit | 2000 | 10000 | 20000 | 5000 | 10000 | 130 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Conf. Level | 0% | 0% | 0% | 0% | 0% | 0% |
| Max. Result | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 41.9 U | 34 |
| Max. >= Limit | No | No | No | No | No | No |
| W-statistic Prob. # | -- | -- | -- | -- | -- | -- |
| Test Procedure | -- | -- | -- | -- | -- | -- |
| Sample Size | 16 | 16 | 16 | 16 | 16 | 16 |
| Nondetects | 16 | 16 | 16 | 16 | 16 | 15 |
| % Nondetects | 100% | 100% | 100% | 100% | 100% | 94% |
| Est. Mean* | -- | -- | -- | -- | -- | -- |
| UCL | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- |
| Pass / Fail | -- | -- | -- | -- | -- | -- |

| | | | | | | |
|---|---|---|---|---|---|---|
| *a posteriori Sample* | -- | -- | -- | -- | -- | -- |
| Size calculation | -- | -- | -- | -- | -- | -- |

## APPENDIX A.1
## STATISTICAL EVALUATION OF INITIAL CERTIFICATION SAMPLING

| SAMPLE ID | Aroclor-1260 |
|---|---|
| A7SSA-C16-1 | 10.9 J |
| A7SSA-C16-2 | 3.6 U |
| A7SSA-C16-3 | 3.8 U |
| A7SSA-C16-4 | 3.7 U |
| A7SSA-C16-5 | 3.8 U |
| A7SSA-C16-6 | 3.6 U |
| A7SSA-C16-7 | 3.6 U |
| A7SSA-C16-7-D | 3.6 U |
| A7SSA-C16-8 | 3.6 U |
| A7SSA-C16-9 | 4 U |
| A7SSA-C16-10 | 3.8 U |
| A7SSA-C16-11 | 4 U |
| A7SSA-C16-12 | 4 U |
| A7SSA-C16-13 | 3.7 U |
| A7SSA-C16-14 | 4.2 U |
| A7SSA-C16-15 | 4 U |
| A7SSA-C16-16 | 3.7 U |
| Limit | 130 |
| Units | ug/kg |
| Conf. Level | 0% |
| Max. Result | 10.9 |
| Max. >= Limit | No |
| W-statistic Prob. # | - - |
| Test Procedure | - - |
| Sample Size | 16 |
| Nondetects | 15 |
| % Nondetects | 94% |
| Est. Mean* | - - |
| UCL | - - |
| Prob. > Limit | - - |
| Pass / Fail | - - |

| | |
|---|---|
| *a posteriori Sample* | - - |
| Size calculation | - - |

# APPENDIX A.2

# SAMPLING RESULTS AND STATISTICS SECONDARY SAMPLING

## APPENDIX A.2
## STATISTICAL EVALUATION OF SECONDARY CERTIFICATION SAMPLING

### SURFACE DATA

| Sample ID | Arsenic data |
|---|---|
| A7SSA-C02-1A^M | 5.250 - |
| A7SSA-C02-10^1-RMP | 4.600 J |
| A7SSA-C02-11^1-RMP | 4.100 J |
| A7SSA-C02-12^1-RMP | 3.100 J |
| A7SSA-C02-13^1-RMP | 4.400 J |
| A7SSA-C02-14^1-RMP | 4.400 J |
| A7SSA-C02-15^1-RMP | 5.700 J |
| A7SSA-C02-16^1-RMP | 3.500 J |
| A7SSA-C02-2^1-RMP | 2.300 J |
| A7SSA-C02-3^1-RMP | 4.700 J |
| A7SSA-C02-8^1-RMP | 4.800 J |
| A7SSA-C02-9^1-RMP | 5.1 J |
| A7SSA-C02-9^1-RMP-D | 5.3 J |
| Limit | 12 |
| Units | mg/kg |
| Conf. Level | 90.0% |
| Max. Result | 5.7 |
| Max. >= Limit | No |
| W-statistic Prob. # | -- |
| Test Procedure | -- |
| Sample Size | 13 |
| Nondetects | 0 |
| % Nondetects | 0.0% |
| Est. Mean* | -- |
| UCL | -- |
| Prob. > Limit | - - |
| Pass / Fail | -- |

| | |
|---|---|
| a posteriori Sample | -- |
| Size calculation | -- |

## APPENDIX A.2
## STATISTICAL EVALUATION OF SECONDARY CERTIFICATION SAMPLING

### SUBSURFACE DATA

| Sample ID | Arsenic data |
|---|---|
| A7SSA-C02-1^2-RMP | 6.100 J |
| A7SSA-C02-10^5-RMP | 5.200 J |
| A7SSA-C02-11^3-RMP | 3.700 J |
| A7SSA-C02-12^8-RMP | 6.000 J |
| A7SSA-C02-13^4-RMP | 6.600 J |
| A7SSA-C02-14^6-RMP | 4.800 J |
| A7SSA-C02-15^4-RMP | 5.500 J |
| A7SSA-C02-16^4-RMP | 4.500 J |
| A7SSA-C02-18 | 4.130 - |
| A7SSA-C02-2^2-RMP | 2.300 J |
| A7SSA-C02-4^1-RMP | 4.900 J |
| A7SSA-C02-5^1-RMP | 4.400 J |
| A7SSA-C02-6^1-RMP | 5.900 J |
| A7SSA-C02-7^1-RMP | 5.700 J |
| A7SSA-C02-8^3-RMP | 3.100 J |
| A7SSA-C02-9^6-RMP | 5.500 J |
| A7SSA-C02-9^6-RMP-D | 6.200 J |
| Limit | 12 |
| Units | mg/kg |
| Conf. Level | 90% |
| Max. Result | 6.6 |
| Max. >= Limit | No |
| W-statistic Prob. # | -- |
| Test Procedure | -- |
| Sample Size | 16 |
| Nondetects | 0 |
| % Nondetects | 0.0% |
| Est. Mean* | -- |
| UCL | -- |
| Prob. > Limit | - - |
| Pass / Fail | -- |

| | |
|---|---|
| a posteriori Sample | -- |
| Size calculation | -- |

## APPENDIX A.2
## STATISTICAL EVALUATION OF SECONDARY CERTIFICATION SAMPLING

| Sample ID | Aroclor-1254 data |
|---|---|
| A7SSA-C10-1 | 118 - |
| A7SSA-C10-2 | 3.7 U |
| A7SSA-C10-3 | 95.1 - |
| A7SSA-C10-4 | 3.9 U |
| A7SSA-C10-5 | 3.7 U |
| A7SSA-C10-6 | 15 - |
| A7SSA-C10-7A | 8.5 J |
| A7SSA-C10-8A | 4.2 U |
| A7SSA-C10-9 | 7.4 J |
| A7SSA-C10-9-D | 4.8 J |
| A7SSA-C10-10 | 4.1 U |
| A7SSA-C10-11 | 3.8 U |
| A7SSA-C10-12 | 3.9 U |
| A7SSA-C10-13 | 4 U |
| A7SSA-C10-14 | 3.5 U |
| A7SSA-C10-15 | 6.4 J |
| A7SSA-C10-16 | 4.1 U |
| Limit | 130 |
| Units | 0 |
| Conf. Level | 90% |
| Max. Result | 118 |
| Max. >= Limit | No |
| W-statistic Prob. # | -- |
| Test Procedure | -- |
| Sample Size | 16 |
| Nondetects | 0 |
| % Nondetects | 0.0% |
| Est. Mean* | -- |
| UCL | -- |
| Prob. > Limit | -- |
| Pass / Fail | -- |

| | |
|---|---|
| a posteriori Sample | -- |
| Size calculation | -- |

## APPENDIX A.2
## STATISTICAL EVALUATION OF SECONDARY CERTIFICATION SAMPLING

| Sample ID | Radium-226 data |
|---|---|
| A7SSA-C11-1 | 1.522 J |
| A7SSA-C11-10 | 1.553 J |
| A7SSA-C11-11 | 1.790 - |
| A7SSA-C11-12 | 1.522 J |
| A7SSA-C11-13A | 1.395 - |
| A7SSA-C11-14 | 1.564 J |
| A7SSA-C11-15 | 1.290 J |
| A7SSA-C11-16 | 1.364 J |
| A7SSA-C11-17 | 1.880 - |
| A7SSA-C11-18 | 1.595 - |
| A7SSA-C11-19 | 1.385 - |
| A7SSA-C11-2A | 2.164 - |
| A7SSA-C11-3A | 1.227 - |
| A7SSA-C11-4A | 1.290 - |
| A7SSA-C11-5 | 1.753 J |
| A7SSA-C11-6 | 1.796 J |
| A7SSA-C11-7 | 1.174 J |
| A7SSA-C11-8 | 1.669 J |
| A7SSA-C11-9 | 1.012 J |
| Limit | 1.70 |
| Units | pCi/g |
| Conf. Level | 95% |
| Max. Result | **2.16** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | -- |
| Test Procedure | Lognormal |
| Sample Size | 19 |
| Nondetects | 0 |
| % Nondetects | 0.0% |
| Est. Mean* | 1.525 |
| UCL | 1.647 |
| Prob. > Limit | -- |
| Pass / Fail | #DIV/0! |

| | |
|---|---|
| *a posteriori* Sample Size calculation | 15<br>Pass |

## APPENDIX A.2
## STATISTICAL EVALUATION OF SECONDARY CERTIFICATION SAMPLING

| Sample ID | Radium-226 data |
|---|---|
| A7SSA-C12-1 | 1.920 - |
| A7SSA-C12-2 | 1.630 - |
| A7SSA-C12-3 | 1.940 - |
| A7SSA-C12-4-D | 1.350 - |
| A7SSA-C12-5 | 0.786 - |
| A7SSA-C12-6 | 1.180 - |
| A7SSA-C12-7 | 0.991 - |
| A7SSA-C12-8 | 1.210 - |
| A7SSA-C12-9 | 1.500 - |
| A7SSA-C12-17 | 1.030 - |
| A7SSA-C12-11 | 1.020 - |
| A7SSA-C12-12 | 1.310 - |
| A7SSA-C12-18 | 1.930 - |
| A7SSA-C12-14 | 1.410 - |
| A7SSA-C12-19 | 1.860 - |
| A7SSA-C12-20 | 3.270 - |
| Limit | 1.7 |
| Units | pCi/g |
| Conf. Level | 95% |
| Max. Result | **3.27** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | 66.9% (LN) |
| Test Procedure | Lognormal |
| Sample Size | 16 |
| Nondetects | 0 |
| % Nondetects | 0% |
| Est. Mean* | 1.522 |
| UCL | 1.81 |
| Prob. > Limit | - - |
| Pass / Fail | FAIL |

| | |
|---|---|
| *a posteriori Sample* | 27 |
| Size calculation | Fail |

## APPENDIX A.2
## STATISTICAL EVALUATION OF SECONDARY CERTIFICATION SAMPLING

| Sample ID | Aroclor-1254 data |
|---|---|
| A7SSA-C13-17 | 698.000 J |
| A7SSA-C13-2 | 3.600 U |
| A7SSA-C13-3 | 3.700 U |
| A7SSA-C13-4 | 3.900 U |
| A7SSA-C13-4-D | 3.800 U |
| A7SSA-C13-5 | 3.800 U |
| A7SSA-C13-6 | 3.700 U |
| A7SSA-C13-7 | 3.900 U |
| A7SSA-C13-8 | 4.000 U |
| A7SSA-C13-9 | 3.800 U |
| A7SSA-C13-10 | 4.700 J |
| A7SSA-C13-11 | 3.800 U |
| A7SSA-C13-12 | 3.900 U |
| A7SSA-C13-13 | 4.000 U |
| A7SSA-C13-14 | 3.900 U |
| A7SSA-C13-15 | 3.900 U |
| A7SSA-C13-16 | 3.700 U |
| Limit | 130 |
| Units | ug/kg |
| Conf. Level | 90.0% |
| Max. Result | **698** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | < 0.01% (LN) |
| Test Procedure | Proportions (Sign) |
| Sample Size | 16 |
| Nondetects | 14 |
| % Nondetects | 88% |
| Est. Mean* | 1.95 |
| UCL | - - |
| Prob. > Limit | 0.03% |
| Pass / Fail | pass |

| | |
|---|---|
| *a posteriori Sample* Size calculation | 4 Pass |

| Sample ID | Radium-226 data |
|---|---|
| A7SSA-C13-17^RP | 3.122 - |
| A7SSA-C13-2^R | 1.343 - |
| A7SSA-C13-3^R | 0.695 - |
| A7SSA-C13-4^R | 1.543 - |
| A7SSA-C13-5^R | 1.343 - |
| A7SSA-C13-6^R | 1.374 - |
| A7SSA-C13-7^RMPS | 1.174 J |
| A7SSA-C13-8^RMPS | 1.332 J |
| A7SSA-C13-9^RMPS | 1.659 J |
| A7SSA-C13-10^RMPS | 2.059 J |
| A7SSA-C13-11^RMPS | 1.406 J |
| A7SSA-C13-12^RMPS | 1.532 J |
| A7SSA-C13-13^RMPS | 1.206 J |
| A7SSA-C13-14^RMPS | 2.038 J |
| A7SSA-C13-15^RMPS | 1.058 J |
| A7SSA-C13-16^RMPS | 0.928 J |
| Limit | 1.7 |
| Units | pCi/g |
| Conf. Level | 95.0% |
| Max. Result | **3.12234** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | 65.6% (LN) |
| Test Procedure | Lognormal |
| Sample Size | 16 |
| Nondetects | 0 |
| % Nondetects | 0% |
| Est. Mean* | 1.491 |
| UCL | 1.77 |
| Prob. > Limit | - - |
| Pass / Fail | FAIL |

| | |
|---|---|
| *a posteriori Sample* Size calculation | 22 Fail |

## APPENDIX A.2
## STATISTICAL EVALUATION OF SECONDARY CERTIFICATION SAMPLING

| Sample ID | Radium-226 data |
|---|---|
| A7SSA-C15-1 | 0.849 - |
| A7SSA-C15-1-D | 0.757 - |
| A7SSA-C15-2 | 1.24 - |
| A7SSA-C15-3 | 0.82 - |
| A7SSA-C15-4 | 1.25 - |
| A7SSA-C15-5 | 1.27 - |
| A7SSA-C15-6 | 1.53 - |
| A7SSA-C15-8 | 1.2 - |
| A7SSA-C15-9 | 1.53 - |
| A7SSA-C15-10 | 1.2 - |
| A7SSA-C15-11 | 3.1 - |
| A7SSA-C15-12 | 1.55 - |
| A7SSA-C15-13 | 1.13 - |
| A7SSA-C15-14 | 1.61 - |
| A7SSA-C15-15 | 0.894 - |
| A7SSA-C15-16 | 0.81 - |
| A7SSA-C15-17 | 1.64 - |
| Limit | 1.7 |
| Units | 0 |
| Conf. Level | 0.95 |
| Max. Result | **3.1** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | 8.36% (LN) |
| Test Procedure | Lognormal |
| Sample Size | 16 |
| Nondetects | 0% |
| % Nondetects | 0.000 |
| Est. Mean* | 1.35 |
| UCL | 1.59 |
| Prob. > Limit | - - |
| Pass / Fail | pass |

| | |
|---|---|
| a posteriori Sample Size calculation | 10<br>Pass |

# APPENDIX A.3

# SAMPLING RESULTS AND STATISTICS TERTIARY SAMPLING

## APPENDIX A.3
## STATISTICAL EVALUATION OF TERTIARY CERTIFICATION SAMPLING

| Sample ID | Radium-226 |
|---|---|
| A7SSA-C12-1 | 1.920 - |
| A7SSA-C12-2 | 1.630 - |
| A7SSA-C12-3 | 1.940 - |
| A7SSA-C12-4-D | 1.350 - |
| A7SSA-C12-5 | 0.786 - |
| A7SSA-C12-6 | 1.180 - |
| A7SSA-C12-7 | 0.991 - |
| A7SSA-C12-8 | 1.210 - |
| A7SSA-C12-9 | 1.500 - |
| A7SSA-C12-17 | 1.030 - |
| A7SSA-C12-11 | 1.020 - |
| A7SSA-C12-12 | 1.310 - |
| A7SSA-C12-18 | 1.930 - |
| A7SSA-C12-14 | 1.410 - |
| A7SSA-C12-21 | 1.750 - |
| A7SSA-C12-20A | 2.460 - |
| Limit | 1.7 |
| Units | pCi/L |
| Conf. Level | 0.95 |
| Max. Result | **2.46** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | 94.9% (LN) |
| Test Procedure | Lognormal |
| Sample Size | 16 |
| Nondetects | 0 |
| % Nondetects | 0 |
| Est. Mean* | 1.468393196 |
| UCL | 1.703352943 |
| Prob. > Limit | - - |
| Pass / Fail | Fail |

| | |
|---|---|
| *a posteriori Sample* | 17 |
| Size calculation | Fail |

## APPENDIX A.3
## STATISTICAL EVALUATION OF TERTIARY CERTIFICATION SAMPLING

| Sample ID | Radium-226 |
|---|---|
| A7SSA-C13-17A^P | 1.143 - |
| A7SSA-C13-2^R | 1.343 - |
| A7SSA-C13-3^R | 0.695 - |
| A7SSA-C13-4^R | 1.543 - |
| A7SSA-C13-5^R | 1.343 - |
| A7SSA-C13-6^R | 1.374 - |
| A7SSA-C13-7^RMPS | 1.174 J |
| A7SSA-C13-8^RMPS | 1.332 J |
| A7SSA-C13-9^RMPS | 1.659 J |
| A7SSA-C13-10^RMPS | 2.059 J |
| A7SSA-C13-11^RMPS | 1.406 J |
| A7SSA-C13-12^RMPS | 1.532 J |
| A7SSA-C13-13^RMPS | 1.206 J |
| A7SSA-C13-14^RMPS | 2.038 J |
| A7SSA-C13-15^RMPS | 1.058 J |
| A7SSA-C13-16^RMPS | 0.928 J |
| Limit | 1.7 |
| Units | pCi/g |
| Conf. Level | 95.00% |
| Max. Result | **2.05881** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | 60.3% (LN) |
| Test Procedure | Lognormal |
| Sample Size | 16 |
| Nondetects | 0 |
| % Nondetects | 0% |
| Est. Mean* | 1.370 |
| UCL | 1.56 |
| Prob. > Limit | -- |
| Pass / Fail | pass |

| | |
|---|---|
| *a posteriori Sample* | 9 |
| Size calculation | Pass |

| Sample ID | Aroclor-1254 |
|---|---|
| A7SSA-C13-17a | 28.800 J |
| A7SSA-C13-2 | 3.600 U |
| A7SSA-C13-3 | 3.700 U |
| A7SSA-C13-4 | 3.900 U |
| A7SSA-C13-4-D | 3.800 U |
| A7SSA-C13-5 | 3.800 U |
| A7SSA-C13-6 | 3.700 U |
| A7SSA-C13-7 | 3.900 U |
| A7SSA-C13-8 | 4.000 U |
| A7SSA-C13-9 | 3.800 U |
| A7SSA-C13-10 | 4.700 J |
| A7SSA-C13-11 | 3.800 U |
| A7SSA-C13-12 | 3.900 U |
| A7SSA-C13-13 | 4.000 U |
| A7SSA-C13-14 | 3.900 U |
| A7SSA-C13-15 | 3.900 U |
| A7SSA-C13-16 | 3.700 U |
| Limit | 130 |
| Units | ug/kg |
| Conf. Level | 0.9 |
| Max. Result | 28.8 |
| Max. >= Limit | No |
| W-statistic Prob. # | -- |
| Test Procedure | -- |
| Sample Size | 17 |
| Nondetects | 15 |
| % Nondetects | 88% |
| Est. Mean* | -- |
| UCL | -- |
| Prob. > Limit | -- |
| Pass / Fail | -- |

| | |
|---|---|
| *a posteriori Sample* | -- |
| Size calculation | -- |

# APPENDIX A.4

# SAMPLING RESULTS AND STATISTICS QUATERNARY SAMPLING

## APPENDIX A.4
## STATISTICAL EVALUATION OF CERTIFICATION SAMPLING

| Sample ID | Radium-226 |
|---|---|
| A7SSA-C12-1 | 1.920 - |
| A7SSA-C12-2 | 1.630 - |
| A7SSA-C12-3 | 1.940 - |
| A7SSA-C12-4-D | 1.350 - |
| A7SSA-C12-5 | 0.786 - |
| A7SSA-C12-6 | 1.180 - |
| A7SSA-C12-7 | 0.991 - |
| A7SSA-C12-8 | 1.210 - |
| A7SSA-C12-9 | 1.500 - |
| A7SSA-C12-17 | 1.030 - |
| A7SSA-C12-11 | 1.020 - |
| A7SSA-C12-12 | 1.310 - |
| A7SSA-C12-18 | 1.930 - |
| A7SSA-C12-14 | 1.410 - |
| A7SSA-C12-21 | 1.750 - |
| A7SSA-C12-16A | 1.650 - |
| Limit | 1.7 |
| Units | pCi/L |
| Conf. Level | 0.95 |
| Max. Result | **1.94** |
| Max. >= Limit | **Yes** |
| W-statistic Prob. # | 48.4% (N) |
| Test Procedure | Normal |
| Sample Size | 16 |
| Nondetects | 0 |
| % Nondetects | 0.0% |
| Est. Mean* | 1.41 |
| UCL | 1.57 |
| Prob. > Limit | - - |
| Pass / Fail | pass |

| | |
|---|---|
| *a posteriori Sample* Size calculation | 12 Pass |

# APPENDIX B

# V/FCNs FOR THE CDL AND CERTIFICATION PSP FOR AREA 7 SILOS AND SUPPORT AREA

**VARIANCE/FIELD CHANGE NOTICE LOG FOR THE CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR AREA 7 SILOS AND SUPPORT AREA**

| Variance No. | Variance Date | Variance Description | Significant? (Y or N) | Date Signed | Date Distributed | EPA/OEPA Approval |
|---|---|---|---|---|---|---|
| **Revision A** | | | | | | |
| 20500-PSP-0017-1 | 8/19/06 | Documents the collection of soil samples from the retention basin in the southeastern portion of the Silos and Support Area. | Y | 9/25/06 | 10/4/06 | |
| 20500-PSP-0017-2 | 9/21/06 | Documents the collection of soil samples at previously sampled certification boring locations A7SSA-C02-1 and A7SSA-C02-3 and one sample from within each of the same sub-CUs from a random location. | Y | 10/2/06 | 10/4/06 | |
| 20500-PSP-0017-3 | 9/26/06 | Documents the collection of samples from previously sampled certification boring locations A7SSA-C21-10, A7SSA-C11-3, and A7SSA-C11-13 and one sample from within each of the same sub-CUs at a random location | Y | 10/4/06 | 10/4/06 | |
| 20500-PSP-0017-4 | 9/27/06 | Documents the collection of samples from previously sampled certification boring locations A7SSA-C12-10, A7SSA-C12-13, A7SSA-C12-15, and A7SSA-C12-16 and one sample from within each of the same sub-CUs from a random location. | Y | 10/4/06 | 10/4/06 | |
| 20500-PSP-0017-5 | 10/2/06 | Documents the collection of soil samples at previously sampled certification boring location A7SSA-C15-7 and one sample within the same sub-CU from a random location. | Y | 10/20/06 | 10/24/06 | |
| 20500-PSP-0017-6 | 10/3/06 | Documents the collection of soil samples at previously sampled certification boring location A7SSA-C13-1 and one sample from within the same sub-CU from a random location. | Y | 10/23/06 | 10/24/06 | |
| 20500-PSP-0017-7 | 10/3/06 | Documents the collection of soil samples at previously sampled certification boring locations A7SSA-C13-2 through A7SSA-C13-6. | Y | 10/23/06 | 10/24/06 | |
| 20500-PSP-0017-8 | 10/3/06 | Documents the collection of additional soil samples at previously sampled random locations A7SSA-C12-19 and A7SSA-C12-20 and one additional sample from within each of the same sub-CUs from another random location. | Y | 10/23/06 | 10/24/06 | |
| 20500-PSP-0017-9 | 10/3/06 | Documents the collection of soil samples at previously sampled certification boring location A7SSA-C13-17 and one sample from within the same sub-CU from a random location. | Y | 10/23/06 | 10/24/06 | |

**VARIANCE/FIELD CHANGE NOTICE LOG FOR THE CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR AREA 7 SILOS AND SUPPORT AREA**

| Variance No. | Variance Date | Variance Description | Significant? (Y or N) | Date Signed | Date Distributed | EPA/OEPA Approval |
|---|---|---|---|---|---|---|
| 20500-PSP-0017-10 | 10/25/06 | Documents the collection of soil samples at previously sampled certification boring locations A7SSA-C10-7, A7SSA-C10-8 and one sample from with in each of the same sub-CUs from a random location. | Y | 10/26/07 | 10/27/06 | |

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-1 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 4** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 8/19/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples from the retention basin in the south-eastern portion of the Silos and Support Area (See Figure 1). Excavation of contamination identified initially by real-time necessitated re-sampling of previously collected certification samples. Six sample points were impacted by the excavation.

The estimated total number of samples is 6. These samples will be analyzed for radium-226, radium-228, thorium-228, thorium-232, and total uranium (TAL A); lead-210, cesium-137, and thorium-230 (TAL B); technetium-99 (TAL C); aroclor-1254 and aroclor-1260 (TAL H); antimony, arsenic, beryllium, cadmium, molybdenum, and silver (TAL I); and PAHs (TAL J).

See Attachment 1 for the TALs and the Sampling and Analytical Requirements. The Sample Id and its associated location is listed on Attachment 1, where:

A7SSA = Area 7 Silos and Support Area
C09 = Samples from CU 9
10, 11, etc. = Consecutive numbers
A = Additional sample
R = Radiological , M = Metals, P = PCBs/Pesticides, and S = SemiVOAS

Field sketch required: No
Surveying Required: Yes, Surveyors will survey these sample points prior to sampling.
Field data validation: Yes

**Justification:**

Excavation in the retention basin made it necessary for additional samples to be collected. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 8/19/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 9-25-06 | X | PROJECT MANAGER: J.D. Chio | 9/19/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: F. Miller | 20 Sep 06 |
| X | ANALYTICAL CUSTOMER SUPPORT: | 9/20/06 | | RTMP Manager | |
| | WAQ 9-13-06 | | X | SAMPLING MANAGER: T. Buhrlage | 9/21/06 |

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

DISTRIBUTION

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

# ATTACHMENT 1
## SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL(s) | Method | Matrix | ASL | TAT | Preservative | Container[b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| Rads/ Metals/ PCBs/SemiVOAs Any combination of (TALs A/B/C/D/E/F/H/I/J) | Gamma or Alpha Spec and/or LSC or GPC | Solid | D/E[a] | PEDD gamma 3 days<br>EDD gamma 10 days[e]<br>Final gamma 14 days[e]<br>Final alpha (Th230) 10 days<br>Final Tc99 10 days | Cool 4° C | Glass with Teflon-lined lid | 700 g (2100g)[c] |
| | ICP or ICP/MS | | | 10 days | | | |
| | GC | | | 10 days | | | |
| | GC | | | 10 days | | | |
| Metals (TAL G) | ICP-AES or ICP-MS | Liquid[d] | D/E[a] | $HNO_3$ to pH<2 | 10 days | Polyethylene | 500 mL |

**Special Instructions (Samplers):**

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

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

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

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

[e] One sample per CU will be selected for radium-226 analysis utilizing a 21-day in-growth with a 25-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.

GC/MS - gas chromatography/mass spectrometry
GPC - gas proportional counting
ICP/MS - inductively coupled plasma/mass spectrometry
LSC - liquid scintillation counting
GC – Gas Chromatography

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

Field QC will be collected as part of this sampling effort.
Analytical Data Validation is required – VSL D.
Data package requirement – COAs within 10 Days. Full ASL D/E data package within 14 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

DHB 9/25/06

# ATTACHMENT 1 (cont.)
# TARGET ANALYTE LISTS

## TAL 20500-PSP-0017-A
**(6 = Estimated number of samples)**

| Analyte | FRL | MDL - Soil |
|---|---|---|
| Total Uranium | 20 mg/kg | 3.0 mg/kg |
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |
| Radium-228 | 1.8 pCi/g | 0.3 pCi/g |
| Thorium-228 | 1.7 pCi/g | 0.3 pCi/g |
| Thorium-232 | 1.5 pCi/g | 0.3 pCi/g |

## TAL 20500-PSP-0017-B
**(6 = Estimated number of samples)**

| Analyte | FRL | MDL - Soil |
|---|---|---|
| Cesium-137 | 1.4 pCi/g | 0.14 pCi/g |
| Lead-210 | 38 pCi/g | 3.8 pCi/g |
| Thorium-230 | 280 pCi/g | 28 pCi/g |

## TAL 20500-PSP-0017-C
**(6 = Estimated number of samples)**

| Analyte | FRL | MDL - Soil |
|---|---|---|
| Technetium-99 | 29.1 pCi/g | 10 ~~3.0~~ pCi/g |

DHB 10-3-06

## TAL 20500-PSP-0017-H
**(6 = Estimated number of samples)**

| 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-0017-I
**(6 = Estimated number of samples)**

| Analyte | FRL/*BTV* | MDL | MDL (water) |
|---|---|---|---|
| Antimony | 96 mg/kg | 9.6 mg/kg | 1.5 mg/L |
| Arsenic | 12 mg/kg | 1.2 mg/kg | 1.8 mg/L |
| Beryllium | 1.5 mg/kg | 0.15 mg/kg | 0.22 mg/L |
| Cadmium | *5.0 mg/kg* | *0.5 mg/kg* | 2.0 ug/L |
| Molybdenum | *10 mg/kg* | *1.0 mg/kg* | 20 ug/L |
| Silver | *10 mg/kg* | *1.0 mg/kg* | 5.0 ug/L |

4 DRD 9/25/04

# ATTACHMENT 1 (cont.)
# TARGET ANALYTE LISTS

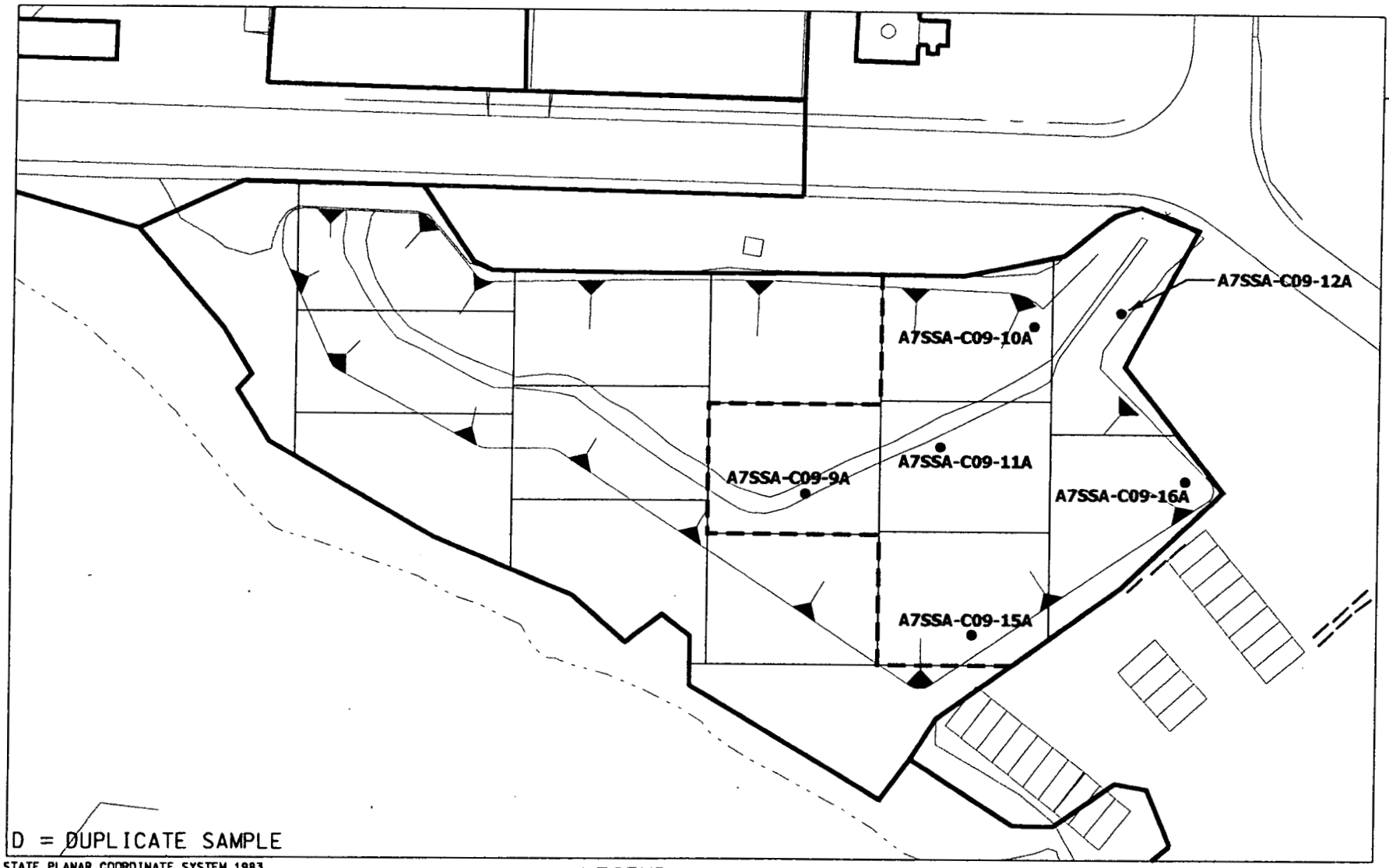
**TAL 20500-PSP-0017-J**
**(6 = Estimated number of samples)**

| Analyte | FRL/*BTV*[b] | MDL |
|---|---|---|
| Benzo(a)anthracene | *1.0 mg/kg* | *0.1 mg/kg* |
| Benzo(a)pyrene | *1.0 mg/kg* | *0.1 mg/kg* |
| Benzo(b)fluoranthene | *1.0 mg/kg* | *0.1 mg/kg* |
| Benzo(g,h,i)perylene | *1.0 mg/kg* | *0.1 mg/kg* |
| Benzo(k)fluoranthene | *1.0 mg/kg* | *0.1 mg/kg* |
| Chrysene | *1.0 mg/kg* | *0.1 mg/kg* |
| Dibenzo(a,h)anthracene | *0.088 mg/kg* | *0.01 mg/kg* [1] |
| Fluoranthene | *10.0 mg/kg* | *1.0 mg/kg* |
| Indeno(1,2,3-cd)pyrene | *1.0 mg/kg* | *0.10 mg/kg* |
| Phenanthrene | *5.0 mg/kg* | *0.5 mg/kg* |
| Pyrene | *10.0 mg/kg* | *1.0 mg/kg* |

[1] 10% of the BTV cannot be achieved.

## SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C09-9A^RMPS | 0.0 – 0.5' | A/B/C/H/I/J | 480016.5 | 1347615 |
| A7SSA-C09-10A^RMPS | 0.0 – 0.5' | A/B/C/H/I/J | 480084.3 | 1347708 |
| A7SSA-C09-11A^RMPS | 0.0 – 0.5' | A/B/C/H/I/J | 480035.6 | 1347670 |
| A7SSA-C09-12A^RMPS | 0.0 – 0.5' | A/B/C/H/I/J | 480089.8 | 1347743 |
| A7SSA-C09-15A^RMPS | 0.0 – 0.5' | A/B/C/H/I/J | 479959.9 | 1347684 |
| A7SSA-C09-16A^RMPS | 0.0 – 0.5' | A/B/C/H/I/J | 480022.2 | 1347770 |




STATE PLANAR COORDINATE SYSTEM 1983
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19-SEP-2006

LEGEND:

• SAMPLE LOCATION

- - - AREA IMPACTED BY EXCAVATION

SCALE
60 30 0 60 FEET

DRAFT

FIGURE 1 ~~2~~. AREA 7 SILOS & SUPPORT AREA RETENTION BASIN ADDITIONAL SAMPLE LOCATIONS

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-2 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 9/21/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring locations A7SSA-C02-1 and A7SSA-C02-3~~, their bounding samples,~~ and one sample from within each of the same sub-CUs from a random location (See Figure 1). 10/3/06

One sample will be collected from the previously sampled certification boring locations A7SSA-C02-1 and A7SSA-C02-3 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. ~~Additionally, one sample will be collected 5 feet from both original samples in each of the cardinal directions (north, south, east, and west).~~ One sample will also be collected from a random location within each sub-CU. The estimated total number of samples is ~~12~~ 4. These samples will be analyzed for arsenic (TAL K). 9/25/06

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, where:

A7SSA = Area 7 Silos and Support Area
C02 = Certification Unit 2
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Poin~~t, N = North, S = South, E = East, and W = West~~
^ = Separates Boring Location from Analyte Type
M = Metals

9/25/06

Field sketch required: Yes
Surveying Required: Yes, Surveyors will survey sample points prior to sampling.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample result was above-FRL for arsenic. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 9/21/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 9/21/06 | X | PROJECT MANAGER: J.D. Chiou | 9/21/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: G. Miller | 22 Sep 06 |
| X | ANALYTICAL CUSTOMER SUPPORT: Paul J. McGregor | 9/22/06 | | RTIMP Manager | |
| X DKP 9/21/06 | WAO | | X | SAMPLING MANAGER: T. Guhringer | 10/2/06 |

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

DISTRIBUTION

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

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| K | ICP-AES or MS | Soil | D/E | 3-days for EDD 7-days for Finals | Cool 4°C | Glass with Teflon-lined lid | 300 g |

**Special Instructions (samplers):**
[a] Samples will be analyzed according to ASL D requirements but the minimum detection level may cause some analyses to be considered ASL E.
[b] Sample container types may be changed at the direction of the Field Sampling Lead, as long as the volume requirements, container compatibility requirements, and SCQ requirements are met.

**Special Instructions (SPL/Lab):**
No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 3 days and a full ASL D/E data package within 7 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

## TAL 20500-PSP-0017-K

**(12 estimated soil analysis specified in V/FCN)**

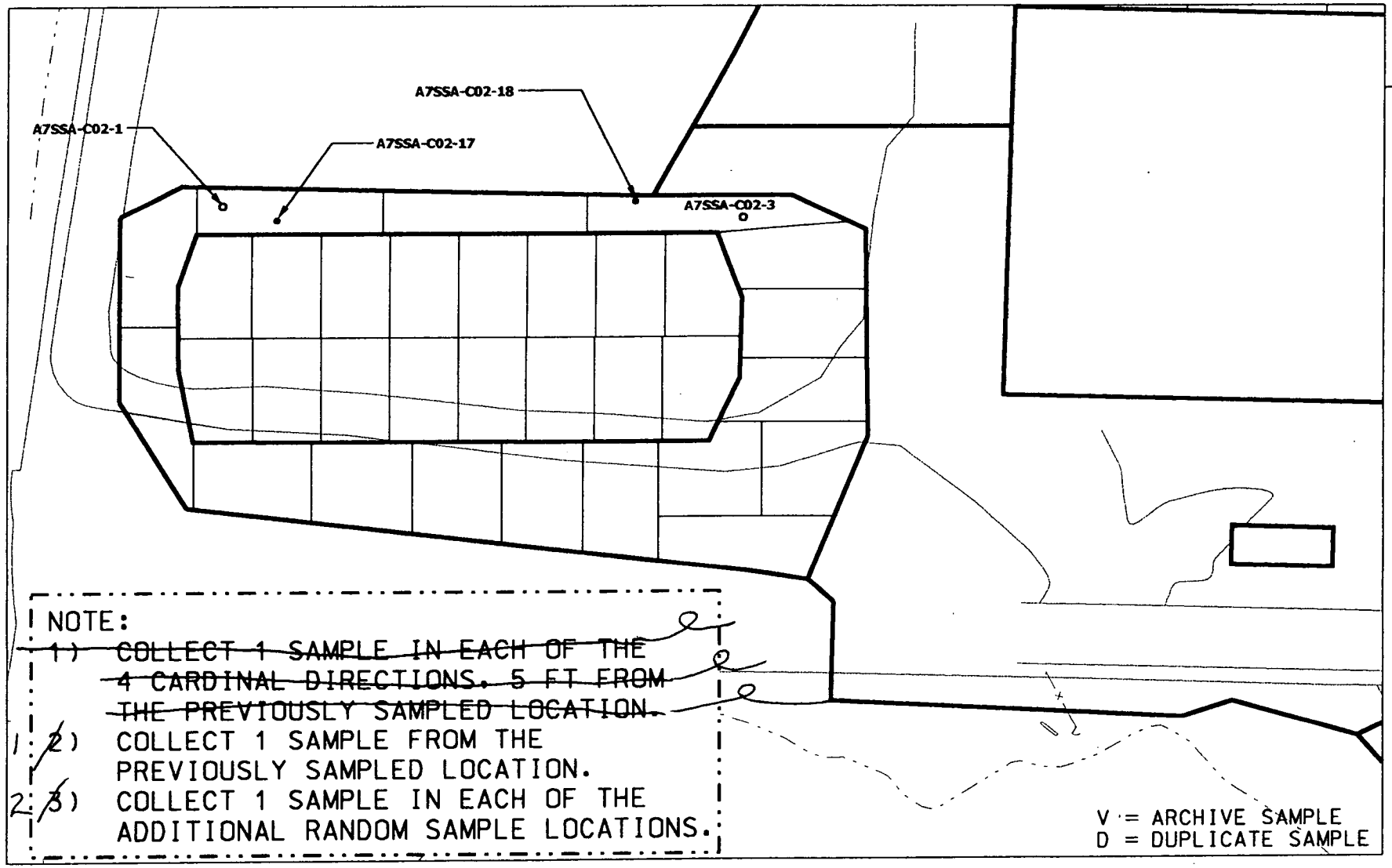
| Analyte | On-Property FRL | MDL |
|---|---|---|
| Arsenic | 12.0 mg/kg | 1.2 mg/kg |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C02-1A^M | 0.0 – 0.5' | K | 480335.1 | 1346884 |
| ~~A7SSA-C02-1N^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480340.1~~ | ~~1346884~~ |
| ~~A7SSA-C02-1S^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480330.1~~ | ~~1346884~~ |
| ~~A7SSA-C02-1E^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480335.1~~ | ~~1346889~~ |
| ~~A7SSA-C02-1W^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480335.1~~ | ~~1346879~~ |
| A7SSA-C02-17^M | 0.0 – 0.5' | K | 480329.25 | 1346905.33 |
| A7SSA-C02-3A^M | 0.0 – 0.5' | K | 480329.8 | 1347094 |
| ~~A7SSA-C02-3N^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480334.8~~ | ~~1347094~~ |
| ~~A7SSA-C02-3S^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480324.8~~ | ~~1347094~~ |
| ~~A7SSA-C02-3E^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480329.8~~ | ~~1347099~~ |
| ~~A7SSA-C02-3W^M~~ | ~~0.0 – 0.5'~~ | ~~K~~ | ~~480329.8~~ | ~~1347089~~ |
| A7SSA-C02-18^M | 0.0 – 0.5' | K | 480336.8 | 1347050.76 |

DHB 9/27/06

DHB 9/27/06




LEGEND:

- • SAMPLE LOCATION
- ○ PREVIOUSLY SAMPLED
- ——— AREA BOUNDARY

SCALE

60 30 0 60 FEET

v:\2fm12\dgn\a7ec_017.dgn 22-SEP-2006
STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 1.

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-3 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 9/61/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring locations A7SSA-C11-2, A7SSA-C11-3, A7SSA-C11-13, and one sample from within each of the same sub-CUs from a random location (See Figure 1).

One sample will be collected from the previously sampled certification boring locations A7SSA-C11-2, A7SSA-C11-3, and A7SSA-C11-13 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. One sample will also be collected from a random location within each sub-CU. The estimated total number of samples is 6. These samples will be analyzed for radium-226 (TAL L).

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, where:

A7SSA = Area 7 Silos and Support Area
C11 = Certification Unit 11
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
R = Radiological Sample

Field sketch required: Yes
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample results were above-FRL for radium-226. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 9/26/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 10/4/06 | X | PROJECT MANAGER: J.D. Chiou | 9/26/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: R. Ku | 26 Sep 06 |
| X | ANALYTICAL CUSTOMER SUPPORT: Paul J. McAuliffe | 9/26/06 | | RTIMS Manager | |
| X | WAO 9/26/06 | | X | SAMPLING MANAGER: T. Buhrlage | 9/27/06 |

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

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

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| L | Gamma spectrometry | Soil | D/E | 10-days for EDD 14-days for Finals | None | Glass or Plastic | 300 g plus 250g[c] |

**Special Instructions (samplers):**

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

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

[c] The extra container of 250 g. is to be delivered to Tom Granat or Dennis Carr for on-site screening purposes.

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

No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 7 days and a full ASL D/E data package within 10 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

## TAL 20500-PSP-0017-L

**(6 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C11-2A^R | 0.0 – 0.5' | L | 480644.9 | 1347295 |
| A7SSA-C11-3A^R | 0.0 – 0.5' | L | 480612.5 | 1347194 |
| A7SSA-C11-~~12~~13A^R | 0.0 – 0.5' | L | 480543.5 | 1347380 |
| A7SSA-C11-17^R | 0.0 – 0.5' | L | 480590.45 | 1347200.91 |
| A7SSA-C11-18^R | 0.0 – 0.5' | L | 480654.78 | 1347264.95 |
| A7SSA-C11-19^R | 0.0 – 0.5' | L | 480565.05 | 1347345.61 |

12/9/08

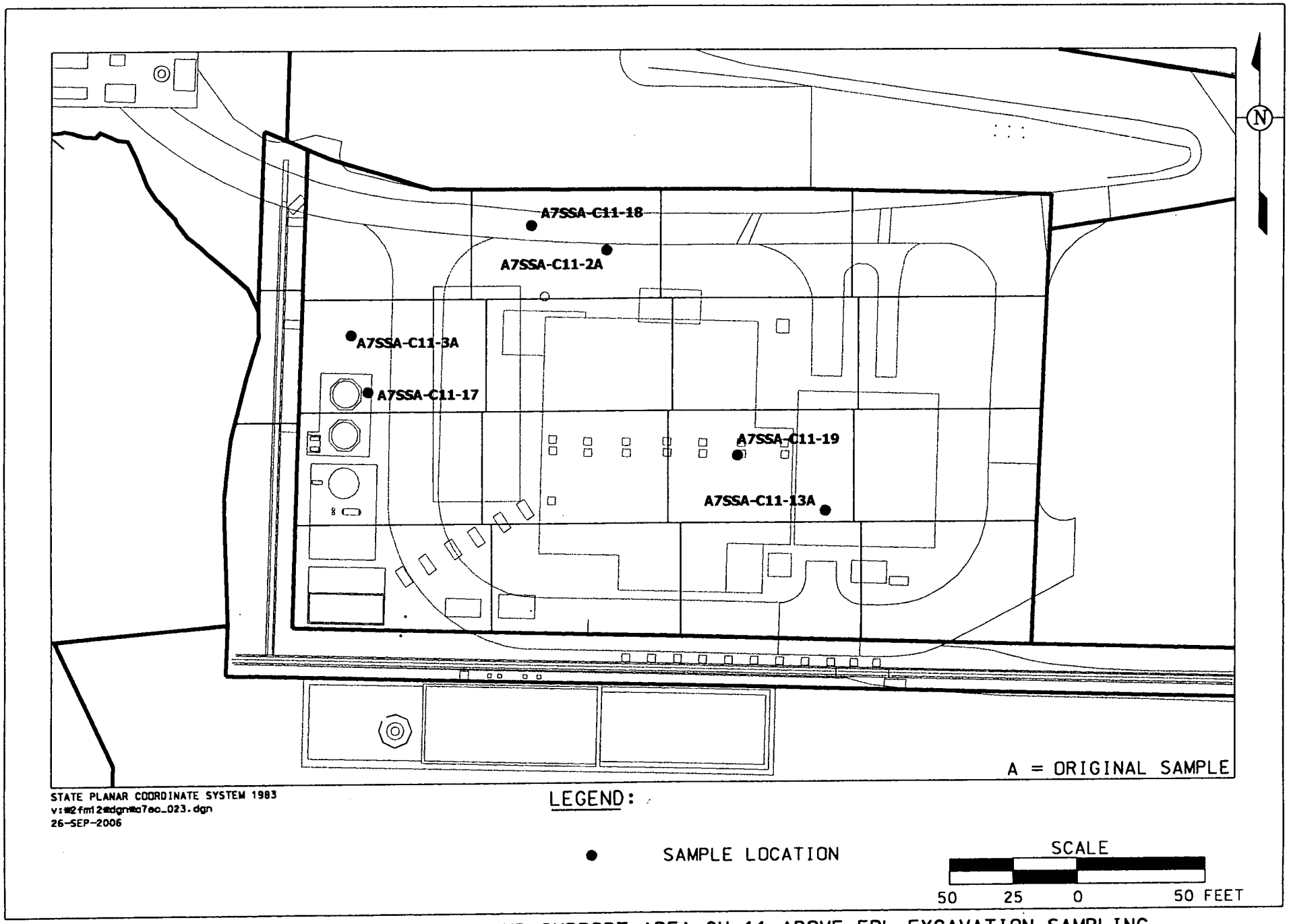


FIGURE 1. AREA 7 SILOS AND SUPPORT AREA CU 11 ABOVE-FRL EXCAVATION SAMPLING

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-4 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 9/27/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring locations A7SSA-C12-10, A7SSA-C12-13, A7SSA-C12-15, and A7SSA-C12-16 and one sample from within each of the same sub-CUs from a random location (See Figure 1).

One sample will be collected from the previously sampled certification boring locations A7SSA-C12-10, A7SSA-C12-13, A7SSA-C12-15, and A7SSA-C12-16 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. One sample will also be collected from a random location within each sub-CU. The estimated total number of samples is 8. These samples will be analyzed for radium-226 (TAL L).

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, where:

A7SSA = Area 7 Silos and Support Area
C12 = Certification Unit 12
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
R = Radiological Sample

Field sketch required: No
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample results were above-FRL for radium-226. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 9/27/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 10-4-06 | X | PROJECT MANAGER: J.D. Chiou | 9/28/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: K. Ahl | 28 Sep 06 |
| X | ANALYTICAL CUSTOMER SUPPORT: Paul J. McMurgan | 9/28/06 | | RTIMP Manager | |
| | WCS | | X | SAMPLING MANAGER: T. Buhrlage | 10/2/06 |

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

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

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| L | Gamma spectrometry | Soil | D/E | 10-days for EDD 14-days for Finals | None | Glass or Plastic | 300 g plus 250g[c] |

**Special Instructions (samplers):**
[a] Samples will be analyzed according to ASL D requirements but the minimum detection level may cause some analyses to be considered ASL E.
[b] Sample container types may be changed at the direction of the Field Sampling Lead, as long as the volume requirements, container compatibility requirements, and SCQ requirements are met.
[c] The extra container of 250 g. is to be delivered to Tom Granat or Dennis Carr for on-site screening purposes.

**Special Instructions (SPL/Lab):**
No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 7 days and a full ASL D/E data package within 10 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

## TAL 20500-PSP-0017-L

**(8 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C12-10A | 0.0 – 0.5' | L | 480562.7 | 1347618 |
| A7SSA-C12-13A | 0.0 – 0.5' | L | 480543.1 | 1347666 |
| A7SSA-C12-15A | 0.0 – 0.5' | L | 480506.1 | 1347686 |
| A7SSA-C12-16A | 0.0 – 0.5' | L | 480494.8 | 1347750 |
| A7SSA-C12-17 | 0.0 – 0.5' | L | 480550.177 | 1347577.11 |
| A7SSA-C12-18. | 0.0 – 0.5' | L | 480564.145 | 1347670.987 |
| A7SSA-C12-19 | 0.0 – 0.5' | L | 480495.269 | 1347646.916 |
| A7SSA-C12-20 | 0.0 – 0.5' | L | 480521.76 | 1347739.348 |

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-5 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 10/2/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring location A7SSA-C15-7 and one sample from within the same sub-CU from a random location (See Figure 1).

One sample will be collected from the previously sampled certification boring location A7SSA-C15-7 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. One sample will also be collected from a random location within this sub-CU. The estimated total number of samples is 2. These samples will be analyzed for radium-226 (TAL L).

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, where:

A7SSA = Area 7 Silos and Support Area
C15 = Certification Unit 15
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
R = Radiological Sample

Field sketch required: No
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample result was above-FRL for radium-226. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 10/2/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 10-4-06 | X | PROJECT MANAGER: J.D. Chiou | 10/2/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: R. Kautz | 20ct06 |
| X | ANALYTICAL CUSTOMER SUPPORT: Paul S. McMorgan | 10/2/06 | | RTI&P Manager | |
| X | WAO 10-2-06 | | X | SAMPLING MANAGER: T. Buhrlage | 10/20/06 |

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

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

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| L | Gamma spectrometry | Soil | D/E | 10-days for EDD 14-days for Finals | None | Glass or Plastic | 300 g plus 250g[c] |

**Special Instructions (samplers):**

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

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

[c] The extra container of 250 g. is to be delivered to Tom Granat or Dennis Carr for on-site screening purposes.

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

No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 7 days and a full ASL D/E data package within 10 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

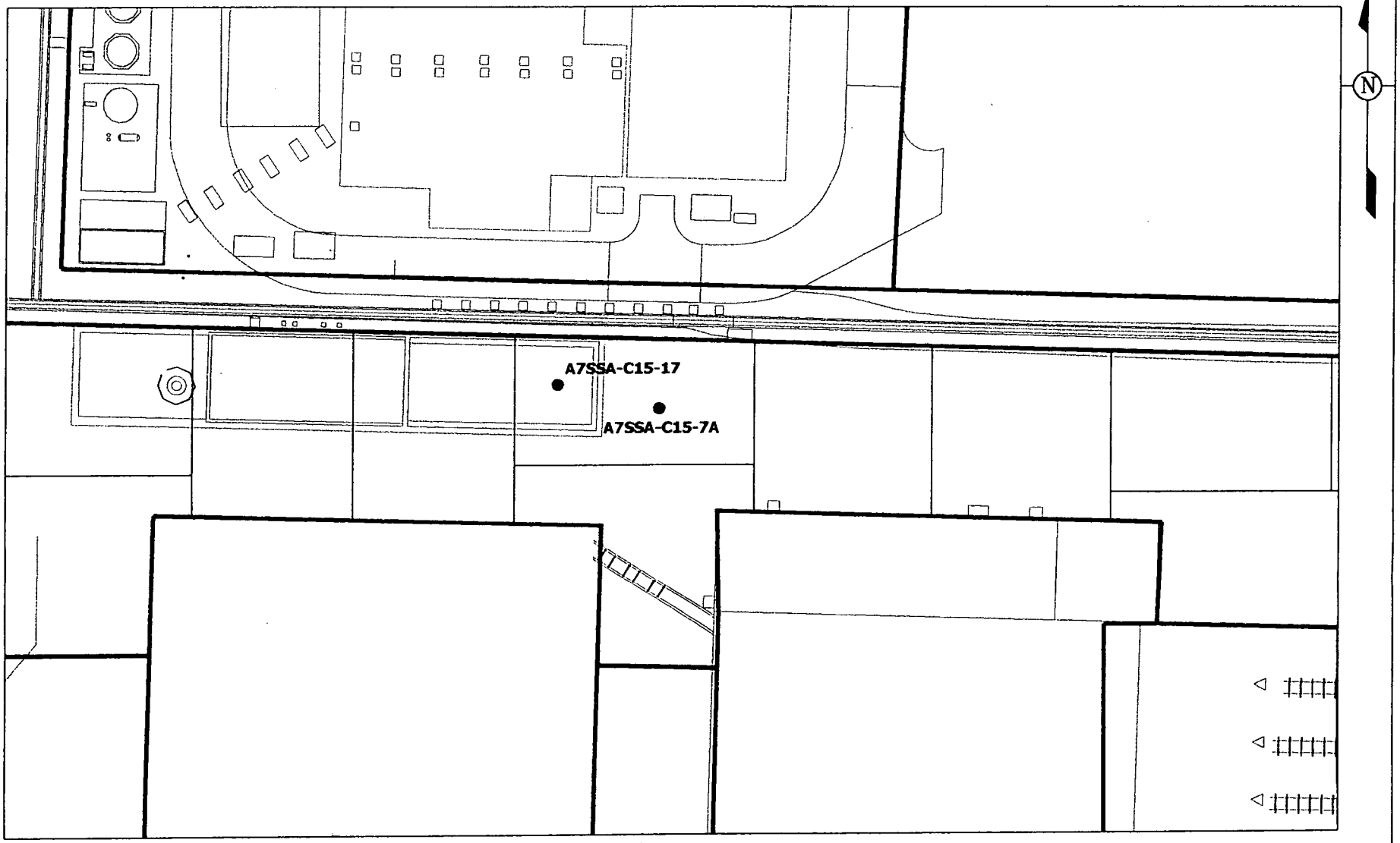
## TAL 20500-PSP-0017-L

**(2 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C15-7A | 0.0 – 0.5' | L | 480450.6 | 1347379 |
| A7SSA-C12-17 | 0.0 – 0.5' | L | 480458.87 | 1347344.33 |

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02-OCT-2006

LEGEND:

● SAMPLE LOCATION
A = ORIGINAL SAMPLE

SCALE
50 25 0 50 FEET

FIGURE 1. AREA 7 SILOS & SUPPORT AREA CU15 - ABOVE FRL LOCATIONS

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-6 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 10/3/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring location A7SSA-C13-1 and one sample from within the same sub-CU from a random location (See Figure 1).

One sample will be collected from the previously sampled certification boring location A7SSA-C-13-1 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. One sample will also be collected from a random location within this sub-CU. The estimated total number of samples is 2. These samples will be analyzed for radium-226 (TAL L) and aroclor-1254 (TAL E).

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, where:

A7SSA = Area 7 Silos and Support Area
C13 = Certification Unit 13
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
R = Radiological Sample; P = PCB/Pesticides

Field sketch required: No
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample result was above-FRL for Aroclor-1254. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 10/3/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Frisk | 10-4-06 | X | PROJECT MANAGER: J.D. Chiou | 10/3/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: R. Abitz | 3Oct06 |
| X | ANALYTICAL CUSTOMER SUPPORT: Paul S. McWright | 10/3/06 | | RTIMP Manager | |
| X | WAO | | X | SAMPLING MANAGER: T. Buhrlage | 10/23/06 |

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

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

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| L/E | Gamma spectrometry | Soil | D/E | 10-days for EDD 14-days for Finals | Cool 4°C | Glass with Teflon-lined lid | 500 g plus 250g[c] |
| | GC | | | 10 days | | | |

**Special Instructions (samplers):**

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

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

[c] The extra container of 250 g. is to be delivered to Tom Granat or Dennis Carr for on-site screening purposes.

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

No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 10 days and a full ASL D/E data package within 14 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

## TAL 20500-PSP-0017-L

**(2 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |

## TAL 20500-PSP-0017-E

**(2 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Aroclor-1254 | 0.13 mg/kg | 0.013 mg/kg |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C13-1A^RP | 0.0 – 0.5' | L/E | 480636.8 | 1347161 |
| A7SSA-C13-17^RP | 0.0 – 0.5' | L/E | 480666.5 | 1347171 |

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-7 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 10/3/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring locations A7SSA-C13-2 through A7SSA-C13-6 (See Figure 1).

One sample will be collected from each of the previously sampled certification boring locations A7SSA-C-13-2 through A7SSA-C13-6 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. Additional random sample locations may be collected at a later date. The estimated total number of samples is 5. These samples will be analyzed for radium-226 (TAL L).

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, where:

A7SSA = Area 7 Silos and Support Area
C13 = Certification Unit 13
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
R = Radiological Sample

Field sketch required: No
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample results were above-FRL for radium-226. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 10/3/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Frisk | 10-4-06 | X | PROJECT MANAGER: J.D. Chiou | 10/3/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: R. Abel | 3 Oct 06 |
| X | ANALYTICAL CUSTOMER SUPPORT: Paul J. Mulvigan | 10/3/06 | | RTIMP Manager | |
| X | WAO | 10/3/06 | X | SAMPLING MANAGER: T. Buhrlage | 10/23/06 |

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

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

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| L | Gamma spectrometry | Soil | D/E | 10-days for EDD 14-days for Finals | None | Glass with Teflon-lined lid | 300 g plus 250g [c] |

**Special Instructions (samplers):**
[a] Samples will be analyzed according to ASL D requirements but the minimum detection level may cause some analyses to be considered ASL E.
[b] Sample container types may be changed at the direction of the Field Sampling Lead, as long as the volume requirements, container compatibility requirements, and SCQ requirements are met.
[c] The extra container of 250 g. is to be delivered to Tom Granat or Dennis Carr for on-site screening purposes.

**Special Instructions (SPL/Lab):**
No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 7 days and a full ASL D/E data package within 10 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

## TAL 20500-PSP-0017-L

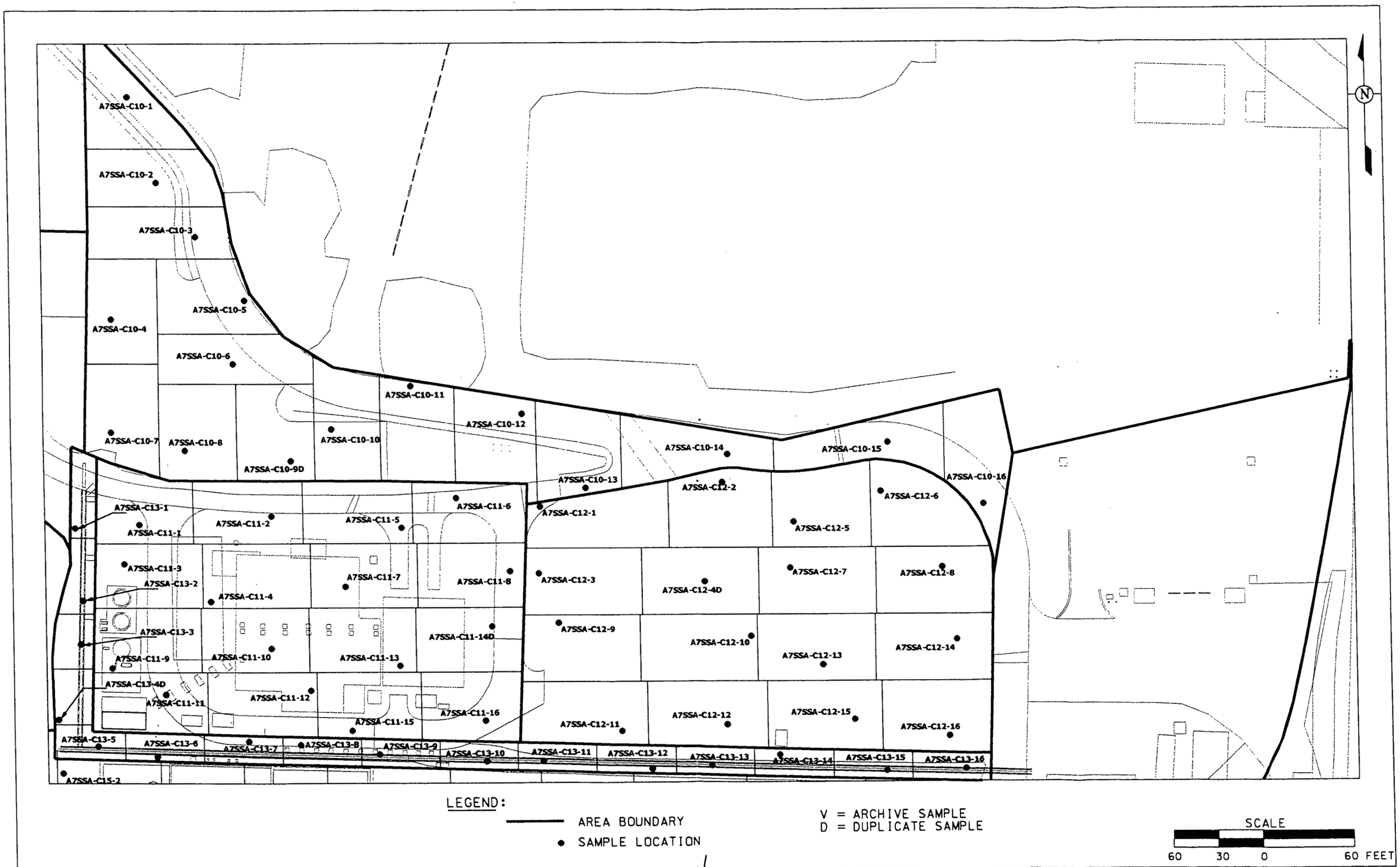
**(5 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C13-2A^R | 0.0 – 0.5' | L | 480587.7 | 1347166 |
| A7SSA-C13-3A^R | 0.0 – 0.5' | L | 480558.3 | 1347164 |
| A7SSA-C13-4A^R | 0.0 – 0.5' | L | 480507.1 | 1347149 |
| A7SSA-C13-5A^R | 0.0 – 0.5' | L | 480489.1 | 1347175 |
| A7SSA-C13-6A^R | 0.0 – 0.5' | L | 480481.9 | 1347215 |

V|FCN 20500-PSP-00177

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STATE PLANAR COORDINATE SYSTEM 1983
21-SEP-2006

FIGURE 1. LOCATION MAP FOR AREA 7 SILOS AND SUPPORT AREA SUB-CU'S AND SAMPLE LOCATIONS

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-8 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 10/3/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of additional soil samples at previously sampled random locations A7SSA-C12-19, and A7SSA-C12-20 and one additional sample from within each of the same sub-CUs from another random location (See Figure 1).

One sample will be collected from the previously sampled random locations A7SSA-C12-19 and A7SSA-C12-20 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. One sample will also be collected from an additional random location within each sub-CU. The estimated total number of samples is 4. These samples will be analyzed for radium-226 (TAL L).

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, where:

A7SSA = Area 7 Silos and Support Area
C12 = Certification Unit 12
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
R = Radiological Sample

Field sketch required: No
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The preliminary results for the random locations collected as part of V/FCN 20500-PSP-0017-4 indicate that sample results continue to be above-FRL for radium-226. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 10/3/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 10-4-06 | X | PROJECT MANAGER: J.D. Chiou | 10/3/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: R. Smith | 30 Oct 06 |
| X | ANALYTICAL CUSTOMER SUPPORT: | 10/4/06 | | RTIMP Manager | |
| | WAO | | X | SAMPLING MANAGER: T. Buhrlage | 10/23/06 |

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

DISTRIBUTION

| | | |
|---|---|---|
| PROJECT MANAGER: | DOCUMENT CONTROL: Jeannie Rosser | OTHER: |
| QUALITY ASSURANCE: | CHARACTERIZATION MANAGER: | OTHER: |
| FIELD MANAGER: | OTHER: | OTHER: |

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| L | Gamma spectrometry | Soil | D/E | 10-days for EDD 14-days for Finals | None | Glass or Plastic | 300 g plus 250g[c] |

**Special Instructions (samplers):**

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

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

[c] The extra container of 250 g. is to be delivered to Tom Granat or Dennis Carr for on-site screening purposes.

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

No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 10 days and a full ASL D/E data package within 14 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

## TAL 20500-PSP-0017-L

**(4 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C12-19A^R | 0.0 – 0.5' | L | 480495.269 | 1347646.916 |
| A7SSA-C12-20A^R | 0.0 – 0.5' | L | 480521.76 | 1347739.348 |
| A7SSA-C12-21^R | 0.0 – 0.5' | L | 480521.78 | 1347662.56 |
| A7SSA-C12-22^R | 0.0 – 0.5' | L | 480528.17 | 1347712.93 |

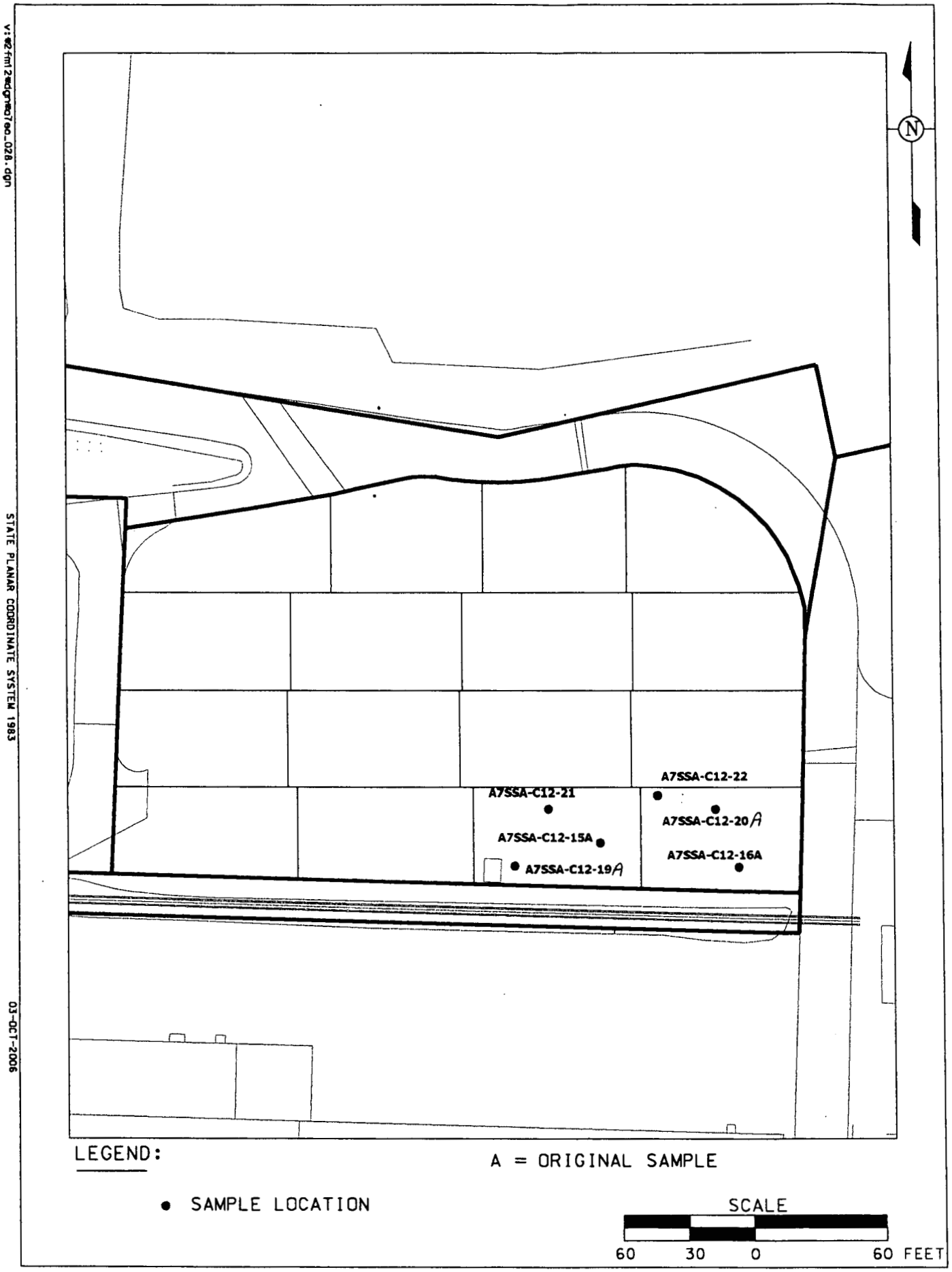



FIGURE 1. AREA 7 SILOS AND SUPPORT AREA CU 12 – ABOVE FRL LOCATIONS

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-9 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 10/16/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring location A7SSA-C13-17 and one sample from within the same sub-CU from a random location (See Figure 1).

One sample will be collected from the previously sampled certification boring location A7SSA-C-13-17 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. One sample will also be collected from a random location within this sub-CU. The estimated total number of samples is 2. These samples will be analyzed for radium-226 (TAL L) and aroclor-1254 (TAL E).

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, where:

A7SSA = Area 7 Silos and Support Area
C13 = Certification Unit 13
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
R = Radiological Sample; P = PCB/Pesticides

Field sketch required: No
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample result was above-FRL for Aroclor-1254. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 10/16/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 10/16/06 | X | PROJECT MANAGER: J.D. Chiou | 10/16/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: R. Aliiz | 10/20/06 |
| X | ANALYTICAL CUSTOMER SUPPORT: | 10/16/06 | | RTIMP Manager | |
| | WAO 10/23/06 | | X | SAMPLING MANAGER: T. Buhrlage | 10/23/06 |

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

DISTRIBUTION

| | | |
|---|---|---|
| PROJECT MANAGER: | DOCUMENT CONTROL: Jeannie Rosser | OTHER: |
| QUALITY ASSURANCE: | CHARACTERIZATION MANAGER: | OTHER: |
| FIELD MANAGER: | OTHER: | OTHER: |

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| L/E | Gamma spectrometry | Soil | D/E | 10-days for EDD 14-days for Finals | Cool 4°C | Glass with Teflon-lined lid | 500 g plus 250g[c] |
| | GC | | | 10 days | | | |

**Special Instructions (samplers):**
[a] Samples will be analyzed according to ASL D requirements but the minimum detection level may cause some analyses to be considered ASL E.
[b] Sample container types may be changed at the direction of the Field Sampling Lead, as long as the volume requirements, container compatibility requirements, and SCQ requirements are met.
[c] The extra container of 250 g. is to be delivered to Tom Granat or Dennis Carr for on-site screening purposes.

**Special Instructions (SPL/Lab):**
No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 10 days and a full ASL D/E data package within 14 days.
Historical Data for Shipping is 82.2 mg/kg total uranium from boring A7-SA1-42.

## TAL 20500-PSP-0017-L

**(2 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Radium-226 | 1.7 pCi/g | 0.3 pCi/g |

## TAL 20500-PSP-0017-E

**(2 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Aroclor-1254 | 0.13 mg/kg | 0.013 mg/kg |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C13-17A^RP | 0.0 – 0.5' | L/E | 480666.5 | 1347171 |
| A7SSA-C13-18^RP | 0.0 – 0.5' | L/E | 480679.5 | 1347164.2 |

V/FCN 20500-PSP-0017-9

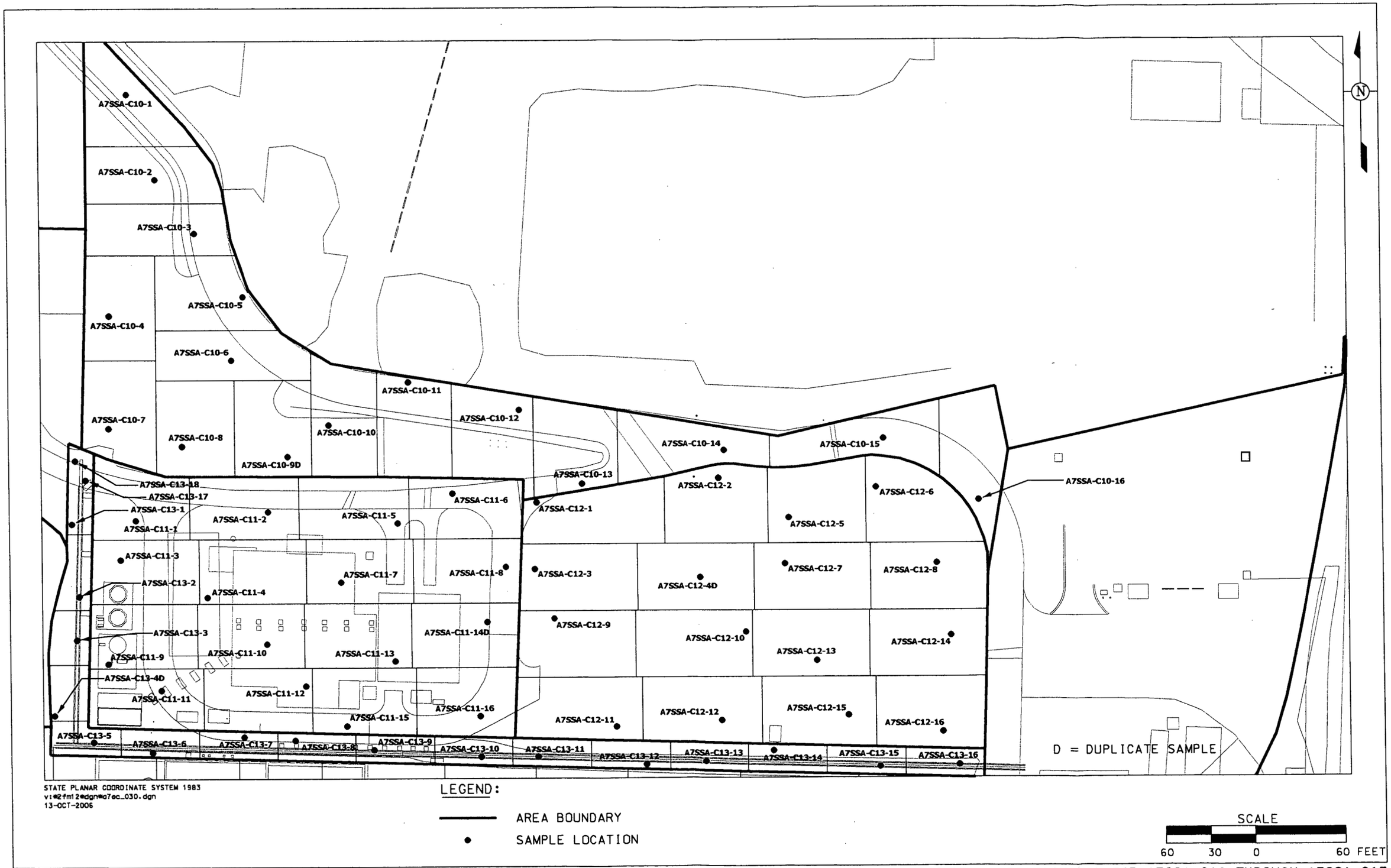



FIGURE 1. AREA 7 SILOS & SUPPORT AREA SUB-CU AND SAMPLE LOCATION MAP FOR A7SSA-C10 THROUGH A7SSA-C13

| VARIANCE / FIELD CHANGE NOTICE | Significant? (Yes or No): YES | V/F: 20500-PSP-0017-10 |
|---|---|---|
| **WBS NO.:** PROJECT/DOCUMENT/ECDC # 20500-PSP-0017 Rev. A | | **Page: 1 of 2** |
| **PROJECT TITLE:** Certification Design Letter and Certification Project Specific Plan For Area 7 Silos and Support Area | | **Date: 10/25/06** |

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

This Variance/Field Change Notice (V/FCN) documents the collection of soil samples at previously sampled certification boring locations A7SSA-C10-7, A7SSA-C10-8, and one sample from within each of the same sub-CUs from a random location.

One sample will be collected from each of the previously sampled certification boring locations A7SSA-C-10-7 and A7SSA-C10-8 after excavation to confirm/verify that all above-FRL contaminants have been removed from this area. One sample will also be collected from a random location within each of these two sub-CUs. The estimated total number of samples is 4. These samples will be analyzed for aroclor-1254 (TAL E).

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, where:

A7SSA = Area 7 Silos and Support Area
C10 = Certification Unit 10
1,2, etc. = Consecutively Numbered Sample Id
A = Additional Sample at Original Sample Point
^ = Separates Boring Location from Analyte Type
P = PCB/Pesticides

Field sketch required: No
Surveying Required: Yes, Surveyors will survey sample points.
Field data validation: Yes

NOTE: Please verify that the entire area to be sampled has been excavated prior to collecting samples. If not, please contact the Characterization Representative immediately.

**Justification:**
The original sample result was above-FRL for Aroclor-1254. Samples need to be collected to confirm/verify that excavation removed any contamination that may have been present in the certification area. Per Section 6.4 of the PSP, the changes to the PSP will be documented with a V/FCN.

REQUESTED BY: Debbie Brennan Date: 10/25/06

| X IF REQD | VARIANCE/FCN APPROVAL | DATE | X IF REQD | VARIANCE/FCN APPROVAL | DATE |
|---|---|---|---|---|---|
| X | QUALITY ASSURANCE: R. Friske | 10/27/06 | X | PROJECT MANAGER: J.D. Chiou | 10/25/06 |
| | DATA QUALITY MANAGEMENT | | X | CHARACTERIZATION MANAGER: R. Abitz | 10/26/06 |
| X | ANALYTICAL CUSTOMER SUPPORT: Paul S. Morrigan | 10/25/06 | | RTIMP Manager | |
| X | WAO 10/25/06 | | X | SAMPLING MANAGER: T. Buhrlage | 10/26/06 |

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

DISTRIBUTION

| | | |
|---|---|---|
| PROJECT MANAGER: | DOCUMENT CONTROL: Jeannie Rosser | OTHER: |
| QUALITY ASSURANCE: | CHARACTERIZATION MANAGER: | OTHER: |
| FIELD MANAGER: | OTHER: | OTHER: |

# SAMPLING AND ANALYTICAL REQUIREMENTS

| TAL | Method | Matrix | ASL [a] | TAT | Preservative | Container [b] | Minimum Mass/Volume |
|---|---|---|---|---|---|---|---|
| E | GC | Soil | D/E | 24 hours for EDD 2-days for data package | Cool 4°C | Glass with Teflon-lined lid | 100 g |

**Special Instructions (samplers):**

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

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

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

No field QC will be collected under this V/FCN.
Analytical Data Validation is required - VSL D/E.
Data Package Requirement – EDD within 24 hours and a full ASL D/E data package within 2 days.
Historical Data for Shipping is A7SSA-C10-7 Thorium-230 2.25 pCi/g
Total Uranium 8.83 mg/kg
A7SSA-C10-8 Radium-226 1.52 pCi/g

DHB 10/25/06

## TAL 20500-PSP-0017-E

**(~~2~~ 4 estimated soil analysis specified in V/FCN)**

| Analyte | On-Property FRL | MDL |
|---|---|---|
| Aroclor-1254 | 0.13 mg/kg | 0.013 mg/kg |

# SAMPLE LOCATIONS AND IDENTIFICATION

| Sample ID | Depth | TAL | Northing | Easting |
|---|---|---|---|---|
| A7SSA-C10-7A^P | 0.0 – 0.5' | E | 480701.3 | 1347187 |
| A7SSA-C10-8A^P | 0.0 – 0.5' | E | 480689.2 | 1347237 |
| A7SSA-C10-17^P | 0.0 – 0.5' | E | 480731 | 1347217 |
| A7SSA-C10-18^P | 0.0 – 0.5' | E | 480719 | 1347267 |

# APPENDIX C

# PRESENTATION AND STATISTICAL ANALYSIS OF UTILITIES DATA

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 3/30/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Beryllium | 0.298 | U | mg/kg | | | 3/30/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Cesium-137 | 0.0373 | U | pCi/g | 0.0373 | 0.0373 | 3/30/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Lead-210 | 1.34 | J | pCi/g | 0.515 | 0.515 | 3/30/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Radium-226 | 0.73 | - | pCi/g | 0.064 | 0.064 | 3/30/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Radium-228 | 0.543 | - | pCi/g | 0.0521 | 0.0521 | 3/30/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Technetium-99 | 0.767 | U | pCi/g | 0.767 | 0.767 | 3/30/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Thorium-228 | 0.559 | - | pCi/g | 0.0521 | 0.0521 | 3/30/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Thorium-230 | 1.29 | J | pCi/g | 0.14 | 0.14 | 3/30/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Thorium-232 | 0.543 | - | pCi/g | 0.0521 | 0.0521 | 3/30/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-10 | A7SA-T-10^RMP | Uranium, Total | 4.83 | - | mg/kg | 1.48 | 1.48 | 3/30/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Beryllium | 0.31 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Cesium-137 | 0.0682 | U | pCi/g | 0.0682 | 0.0682 | 4/6/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Lead-210 | 3.19 | - | pCi/g | 0.825 | 0.825 | 4/6/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Radium-226 | 2.73 | - | pCi/g | 0.112 | 0.112 | 4/6/2006 | 1.7 | pCi/g | Yes |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Radium-228 | 0.717 | - | pCi/g | 0.094 | 0.094 | 4/6/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Technetium-99 | 1.89 | U | pCi/g | 1.89 | 1.89 | 4/6/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Thorium-228 | 0.685 | - | pCi/g | 0.094 | 0.094 | 4/6/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Thorium-230 | 4.23 | - | pCi/g | 0.677 | 0.677 | 4/6/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Thorium-232 | 0.717 | - | pCi/g | 0.094 | 0.094 | 4/6/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-34 | A7SA-T-34^RMP | Uranium, Total | 11.1 | J | mg/kg | 2.07 | 2.07 | 4/6/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 4/21/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Beryllium | 0.71 | - | mg/kg | | | 4/21/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Cesium-137 | 0.0754 | U | pCi/g | 0.0754 | 0.0754 | 4/21/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Lead-210 | 0.935 | U | pCi/g | 0.935 | 0.935 | 4/21/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Radium-226 | 0.861 | - | pCi/g | 0.136 | 0.136 | 4/21/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Radium-228 | 1.23 | - | pCi/g | 0.0911 | 0.0911 | 4/21/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Technetium-99 | 1.91 | U | pCi/g | 1.91 | 1.91 | 4/21/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Thorium-228 | 1.28 | J | pCi/g | 0.0912 | 0.0912 | 4/21/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Thorium-230 | 1.27 | J | pCi/g | 0.295 | 0.295 | 4/21/2006 | 280 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Thorium-232 | 1.23 | - | pCi/g | 0.0911 | 0.0911 | 4/21/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-35 | A7SA-T-35^RMP | Uranium, Total | 4.44 | - | mg/kg | 2.14 | 2.14 | 4/21/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Aroclor-1254 | 4.1 | U | ug/kg | | | 4/21/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Beryllium | 0.79 | - | mg/kg | | | 4/21/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Cesium-137 | 0.078 | U | pCi/g | 0.078 | 0.078 | 4/21/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Lead-210 | 1.02 | U | pCi/g | 1.02 | 1.02 | 4/21/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Radium-226 | 1.23 | - | pCi/g | 0.153 | 0.153 | 4/21/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Radium-228 | 1.15 | - | pCi/g | 0.0927 | 0.0927 | 4/21/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Technetium-99 | 1.89 | U | pCi/g | 1.89 | 1.89 | 4/21/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Thorium-228 | 1.17 | J | pCi/g | 0.0927 | 0.0927 | 4/21/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Thorium-230 | 1.76 | J | pCi/g | 0.294 | 0.294 | 4/21/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Thorium-232 | 1.15 | - | pCi/g | 0.0927 | 0.0927 | 4/21/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-36 | A7SA-T-36^RMP | Uranium, Total | 7.21 | - | mg/kg | 2.12 | 2.12 | 4/21/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 8/18/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Beryllium | 0.381 | U | mg/kg | | | 8/18/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Cesium-137 | 0.0391 | U | pCi/g | 0.0391 | 0.0391 | 8/18/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Lead-210 | 9.5 | U | pCi/g | 9.5 | 9.5 | 8/18/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Radium-226 | 0.953 | - | pCi/g | 0.0758 | 0.0758 | 8/18/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Radium-228 | 0.476 | - | pCi/g | 0.0573 | 0.0573 | 8/18/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Technetium-99 | 0.76 | U | pCi/g | 0.76 | 0.76 | 8/18/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Thorium-228 | 0.485 | - | pCi/g | 0.0573 | 0.0573 | 8/18/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Thorium-230 | 1.2 | - | pCi/g | 0.055 | 0.055 | 8/18/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Thorium-232 | 0.476 | - | pCi/g | 0.0573 | 0.0573 | 8/18/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-50 | A7SA-T-50^RMP | Uranium, Total | 10.2 | - | mg/kg | 1.78 | 1.78 | 8/18/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 8/18/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Beryllium | 0.465 | - | mg/kg | | | 8/18/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Cesium-137 | 0.0329 | U | pCi/g | 0.0329 | 0.0329 | 8/18/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Lead-210 | 6.33 | U | pCi/g | 6.33 | 6.33 | 8/18/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Radium-226 | 1.16 | - | pCi/g | 0.0643 | 0.0643 | 8/18/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Radium-228 | 0.53 | - | pCi/g | 0.0463 | 0.0463 | 8/18/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Technetium-99 | 0.766 | U | pCi/g | 0.766 | 0.766 | 8/18/2006 | 30 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Thorium-228 | 0.469 | - | pCi/g | 0.0463 | 0.0463 | 8/18/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Thorium-230 | 1.98 | - | pCi/g | 0.0548 | 0.0548 | 8/18/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Thorium-232 | 0.53 | - | pCi/g | 0.0463 | 0.0463 | 8/18/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-51 | A7SA-T-51^RMP | Uranium, Total | 14.8 | - | mg/kg | 1.33 | 1.33 | 8/18/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Aroclor-1254 | 3.8 | U | ug/kg | | | 8/18/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Beryllium | 0.404 | U | mg/kg | | | 8/18/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Cesium-137 | 0.0969 | U | pCi/g | 0.0969 | 0.0969 | 8/18/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Lead-210 | 1.39 | U | pCi/g | 1.39 | 1.39 | 8/18/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Radium-226 | 0.952 | - | pCi/g | 0.171 | 0.171 | 8/18/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Radium-228 | 0.779 | - | pCi/g | 0.13 | 0.13 | 8/18/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Technetium-99 | 0.87 | U | pCi/g | 0.87 | 0.87 | 8/18/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Thorium-228 | 0.796 | - | pCi/g | 0.13 | 0.13 | 8/18/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Thorium-230 | 0.864 | J | pCi/g | 0.052 | 0.052 | 8/18/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Thorium-232 | 0.779 | - | pCi/g | 0.13 | 0.13 | 8/18/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-52 | A7SA-T-52^RMP | Uranium, Total | 3.68 | U | mg/kg | 3.68 | 3.68 | 8/18/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 3/30/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Beryllium | 0.456 | U | mg/kg | | | 3/30/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Cesium-137 | 0.045 | U | pCi/g | 0.045 | 0.045 | 3/30/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Lead-210 | 0.605 | U | pCi/g | 0.605 | 0.605 | 3/30/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Radium-226 | 0.795 | - | pCi/g | 0.0788 | 0.0788 | 3/30/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Radium-228 | 0.801 | - | pCi/g | 0.0601 | 0.0601 | 3/30/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Technetium-99 | 0.828 | U | pCi/g | 0.828 | 0.828 | 3/30/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Thorium-228 | 0.806 | - | pCi/g | 0.0601 | 0.0601 | 3/30/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Thorium-230 | 1.28 | J | pCi/g | 0.205 | 0.205 | 3/30/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Thorium-232 | 0.801 | - | pCi/g | 0.0601 | 0.0601 | 3/30/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-8 | A7SA-T-8^RMP | Uranium, Total | 4.05 | - | mg/kg | 1.71 | 1.71 | 3/30/2006 | 82 | mg/kg | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Aroclor-1254 | 3.7 | J | ug/kg | | | 3/30/2006 | 130 | ug/kg | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Beryllium | 0.307 | U | mg/kg | | | 3/30/2006 | 1.5 | mg/kg | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Cesium-137 | 0.0471 | U | pCi/g | 0.0471 | 0.0471 | 3/30/2006 | 1.4 | pCi/g | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Lead-210 | 1.78 | - | pCi/g | 0.606 | 0.606 | 3/30/2006 | 38 | pCi/g | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Radium-226 | 1.26 | - | pCi/g | 0.0835 | 0.0835 | 3/30/2006 | 1.7 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Radium-228 | 0.521 | - | pCi/g | 0.0634 | 0.0634 | 3/30/2006 | 1.8 | pCi/g | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Technetium-99 | 0.809 | U | pCi/g | 0.809 | 0.809 | 3/30/2006 | 30 | pCi/g | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Thorium-228 | 0.517 | - | pCi/g | 0.0634 | 0.0634 | 3/30/2006 | 1.7 | pCi/g | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Thorium-230 | 3.14 | - | pCi/g | 0.0708 | 0.0708 | 3/30/2006 | 280 | pCi/g | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Thorium-232 | 0.521 | - | pCi/g | 0.0634 | 0.0634 | 3/30/2006 | 1.5 | pCi/g | No |
| 1 | A7SA-T-9 | A7SA-T-9^RMP | Uranium, Total | 3.33 | J | mg/kg | 1.88 | 1.88 | 3/30/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Aroclor-1254 | 3.8 | U | ug/kg | | | 3/16/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Beryllium | 0.847 | | mg/kg | | | 3/16/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Cesium-137 | 0.0479 | U | pCi/g | 0.0479 | 0.0479 | 3/16/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Lead-210 | 0.693 | U | pCi/g | 0.693 | 0.693 | 3/16/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Radium-226 | 1.04 | - | pCi/g | 0.085 | 0.085 | 3/16/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Radium-228 | 0.786 | - | pCi/g | 0.0659 | 0.0659 | 3/16/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Technetium-99 | 0.842 | U | pCi/g | 0.842 | 0.842 | 3/16/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Thorium-228 | 0.778 | - | pCi/g | 0.0659 | 0.0659 | 3/16/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Thorium-230 | 1.67 | J | pCi/g | 0.0323 | 0.0323 | 3/16/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Thorium-232 | 0.786 | - | pCi/g | 0.0659 | 0.0659 | 3/16/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-1 | A7SA-T-1^RMP | Uranium, Total | 7.82 | J | mg/kg | 1.34 | 1.34 | 3/16/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Beryllium | 0.354 | U | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Cesium-137 | 0.0419 | U | pCi/g | 0.0419 | 0.0419 | 3/31/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Lead-210 | 0.608 | U | pCi/g | 0.608 | 0.608 | 3/31/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Radium-226 | 0.736 | - | pCi/g | 0.0803 | 0.0803 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Radium-228 | 0.6 | - | pCi/g | 0.0591 | 0.0591 | 3/31/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Technetium-99 | 0.893 | U | pCi/g | 0.893 | 0.893 | 3/31/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Thorium-228 | 0.708 | - | pCi/g | 0.0591 | 0.0591 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Thorium-230 | 1.17 | J | pCi/g | 0.0688 | 0.0688 | 3/31/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Thorium-232 | 0.6 | - | pCi/g | 0.0591 | 0.0591 | 3/31/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-11 | A7SA-T-11^RMP | Uranium, Total | 5.09 | - | mg/kg | 1.56 | 1.56 | 3/31/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Beryllium | 0.512 | U | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Cesium-137 | 0.041 | U | pCi/g | 0.041 | 0.041 | 3/31/2006 | 1.4 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Lead-210 | 0.608 | U | pCi/g | 0.608 | 0.608 | 3/31/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Radium-226 | 0.826 | - | pCi/g | 0.0781 | 0.0781 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Radium-228 | 0.59 | - | pCi/g | 0.0575 | 0.0575 | 3/31/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Technetium-99 | 0.844 | U | pCi/g | 0.844 | 0.844 | 3/31/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Thorium-228 | 0.633 | J | pCi/g | 0.0575 | 0.0575 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Thorium-230 | 1.38 | J | pCi/g | 0.0719 | 0.0719 | 3/31/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Thorium-232 | 0.59 | - | pCi/g | 0.0575 | 0.0575 | 3/31/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-12 | A7SA-T-12^RMP | Uranium, Total | 3.77 | - | mg/kg | 1.44 | 1.44 | 3/31/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Aroclor-1254 | 3.8 | U | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Beryllium | 0.44 | - | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Cesium-137 | 0.0418 | U | pCi/g | 0.0418 | 0.0418 | 3/31/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Lead-210 | 2.61 | U | pCi/g | 2.61 | 2.61 | 3/31/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Radium-226 | 0.795 | - | pCi/g | 0.0749 | 0.0749 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Radium-228 | 0.623 | - | pCi/g | 0.0571 | 0.0571 | 3/31/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Technetium-99 | 1.35 | U | pCi/g | 1.35 | 1.35 | 3/31/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Thorium-228 | 0.625 | - | pCi/g | 0.0571 | 0.0571 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Thorium-230 | 1.76 | J | pCi/g | 0.517 | 0.517 | 3/31/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Thorium-232 | 0.623 | - | pCi/g | 0.0571 | 0.0571 | 3/31/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-18 | A7SA-T-18^RMP | Uranium, Total | 4.43 | - | mg/kg | 1.82 | 1.82 | 3/31/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Aroclor-1254 | 3.7 | U | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Beryllium | 0.44 | - | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Cesium-137 | 0.0315 | U | pCi/g | 0.0315 | 0.0315 | 3/31/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Lead-210 | 2.66 | U | pCi/g | 2.66 | 2.66 | 3/31/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Radium-226 | 0.744 | - | pCi/g | 0.0655 | 0.0655 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Radium-228 | 0.608 | - | pCi/g | 0.0467 | 0.0467 | 3/31/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Technetium-99 | 1.37 | U | pCi/g | 1.37 | 1.37 | 3/31/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Thorium-228 | 0.625 | - | pCi/g | 0.0467 | 0.0467 | 3/31/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Thorium-230 | 1.48 | J | pCi/g | 0.161 | 0.161 | 3/31/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Thorium-232 | 0.608 | - | pCi/g | 0.0467 | 0.0467 | 3/31/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-19 | A7SA-T-19^RMP | Uranium, Total | 3.82 | - | mg/kg | 1.49 | 1.49 | 3/31/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 3/16/2006 | 130 | ug/kg | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Beryllium | 0.671 | U | mg/kg | | | 3/16/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Cesium-137 | 0.0555 | U | pCi/g | 0.0555 | 0.0555 | 3/16/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Lead-210 | 0.775 | U | pCi/g | 0.775 | 0.775 | 3/16/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Radium-226 | 0.974 | - | pCi/g | 0.0956 | 0.0956 | 3/16/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Radium-228 | 0.681 | - | pCi/g | 0.0688 | 0.0688 | 3/16/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Technetium-99 | 0.857 | U | pCi/g | 0.857 | 0.857 | 3/16/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Thorium-228 | 0.704 | - | pCi/g | 0.0688 | 0.0688 | 3/16/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Thorium-230 | 1.87 | J | pCi/g | 0.0366 | 0.0366 | 3/16/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Thorium-232 | 0.681 | - | pCi/g | 0.0688 | 0.0688 | 3/16/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-2 | A7SA-T-2^RMP | Uranium, Total | 4.27 | J | mg/kg | 1.84 | 1.84 | 3/16/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Beryllium | 0.72 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Cesium-137 | 0.0704 | U | pCi/g | 0.0704 | 0.0704 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Lead-210 | 2.2 | J | pCi/g | 0.958 | 0.958 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Radium-226 | 0.959 | - | pCi/g | 0.137 | 0.137 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Radium-228 | 1.24 | - | pCi/g | 0.0906 | 0.0906 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Technetium-99 | 1.75 | U | pCi/g | 1.75 | 1.75 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Thorium-228 | 1.26 | - | pCi/g | 0.0906 | 0.0906 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Thorium-230 | 1.79 | - | pCi/g | 0.288 | 0.288 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Thorium-232 | 1.24 | - | pCi/g | 0.0906 | 0.0906 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-20 | A7SA-T-20^RMP | Uranium, Total | 10.6 | J | mg/kg | 2.17 | 2.17 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Beryllium | 0.34 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Cesium-137 | 0.0447 | U | pCi/g | 0.0447 | 0.0447 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Lead-210 | 0.997 | J | pCi/g | 0.447 | 0.447 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Radium-226 | 0.753 | - | pCi/g | 0.0862 | 0.0862 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Radium-228 | 0.627 | - | pCi/g | 0.0565 | 0.0565 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Technetium-99 | 1.59 | U | pCi/g | 1.59 | 1.59 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Thorium-228 | 0.633 | - | pCi/g | 0.0565 | 0.0565 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Thorium-230 | 1.17 | J | pCi/g | 0.717 | 0.717 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Thorium-232 | 0.627 | - | pCi/g | 0.0565 | 0.0565 | 4/6/2006 | 1.5 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | A7SA-T-21 | A7SA-T-21^RMP | Uranium, Total | 4.83 | J | mg/kg | 0.968 | 0.968 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Beryllium | 0.38 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Cesium-137 | 0.0402 | U | pCi/g | 0.0402 | 0.0402 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Lead-210 | 2.59 | U | pCi/g | 2.59 | 2.59 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Radium-226 | 0.858 | - | pCi/g | 0.0933 | 0.0933 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Radium-228 | 0.69 | - | pCi/g | 0.0678 | 0.0678 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Technetium-99 | 1.69 | U | pCi/g | 1.69 | 1.69 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Thorium-228 | 0.696 | - | pCi/g | 0.0678 | 0.0678 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Thorium-230 | 1.12 | J | pCi/g | 0.464 | 0.464 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Thorium-232 | 0.69 | - | pCi/g | 0.0678 | 0.0678 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-22 | A7SA-T-22^RMP | Uranium, Total | 3.86 | J | mg/kg | 1.58 | 1.58 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Beryllium | 0.31 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Cesium-137 | 0.0514 | U | pCi/g | 0.0514 | 0.0514 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Lead-210 | 0.813 | J | pCi/g | 0.611 | 0.611 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Radium-226 | 0.755 | - | pCi/g | 0.104 | 0.104 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Radium-228 | 0.592 | - | pCi/g | 0.0674 | 0.0674 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Technetium-99 | 1.67 | U | pCi/g | 1.67 | 1.67 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Thorium-228 | 0.592 | - | pCi/g | 0.0674 | 0.0674 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Thorium-230 | 0.792 | J | pCi/g | 0.234 | 0.234 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Thorium-232 | 0.592 | - | pCi/g | 0.0674 | 0.0674 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-23 | A7SA-T-23^RMP | Uranium, Total | 3.88 | J | mg/kg | 1.44 | 1.44 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Beryllium | 0.18 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Cesium-137 | 0.0436 | U | pCi/g | 0.0436 | 0.0436 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Lead-210 | 3.47 | U | pCi/g | 3.47 | 3.47 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Radium-226 | 0.783 | - | pCi/g | 0.0823 | 0.0823 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Radium-228 | 0.508 | - | pCi/g | 0.0648 | 0.0648 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Technetium-99 | 1.54 | U | pCi/g | 1.54 | 1.54 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Thorium-228 | 0.526 | - | pCi/g | 0.0648 | 0.0648 | 4/6/2006 | 1.7 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Thorium-230 | 1.35 | J | pCi/g | 0.397 | 0.397 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Thorium-232 | 0.508 | - | pCi/g | 0.0648 | 0.0648 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-24 | A7SA-T-24^RMP | Uranium, Total | 1.8 | J | mg/kg | 1.52 | 1.52 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Beryllium | 0.26 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Cesium-137 | 0.0312 | U | pCi/g | 0.0312 | 0.0312 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Lead-210 | 1.83 | U | pCi/g | 1.83 | 1.83 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Radium-226 | 0.715 | - | pCi/g | 0.0606 | 0.0606 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Radium-228 | 0.56 | - | pCi/g | 0.0466 | 0.0466 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Technetium-99 | 1.57 | U | pCi/g | 1.57 | 1.57 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Thorium-228 | 0.558 | - | pCi/g | 0.0466 | 0.0466 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Thorium-230 | 0.882 | J | pCi/g | 0.326 | 0.326 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Thorium-232 | 0.56 | - | pCi/g | 0.0466 | 0.0466 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-25 | A7SA-T-25^RMP | Uranium, Total | 4.03 | J | mg/kg | 1.06 | 1.06 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Beryllium | 0.26 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Cesium-137 | 0.0342 | U | pCi/g | 0.0342 | 0.0342 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Lead-210 | 2.8 | U | pCi/g | 2.8 | 2.8 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Radium-226 | 0.711 | - | pCi/g | 0.0731 | 0.0731 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Radium-228 | 0.551 | - | pCi/g | 0.0526 | 0.0526 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Technetium-99 | 1.75 | U | pCi/g | 1.75 | 1.75 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Thorium-228 | 0.564 | - | pCi/g | 0.0526 | 0.0526 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Thorium-230 | 0.947 | J | pCi/g | 0.239 | 0.239 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Thorium-232 | 0.551 | - | pCi/g | 0.0526 | 0.0526 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-26 | A7SA-T-26^RMP | Uranium, Total | 7.67 | J | mg/kg | 1.24 | 1.24 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Beryllium | 0.36 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Cesium-137 | 0.0671 | U | pCi/g | 0.0671 | 0.0671 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Lead-210 | 1.44 | J | pCi/g | 0.864 | 0.864 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Radium-226 | 0.829 | - | pCi/g | 0.116 | 0.116 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Radium-228 | 0.763 | - | pCi/g | 0.088 | 0.088 | 4/6/2006 | 1.8 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Technetium-99 | 2.91 | UJ | pCi/g | 2.91 | 2.91 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Thorium-228 | 0.745 | - | pCi/g | 0.088 | 0.088 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Thorium-230 | 1.39 | J | pCi/g | 0.296 | 0.296 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Thorium-232 | 0.763 | - | pCi/g | 0.088 | 0.088 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-27 | A7SA-T-27^RMP | Uranium, Total | 8.09 | J | mg/kg | 1.88 | 1.88 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Beryllium | 0.44 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Cesium-137 | 0.0462 | U | pCi/g | 0.0462 | 0.0462 | 4/6/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Lead-210 | 1.14 | J | pCi/g | 0.449 | 0.449 | 4/6/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Radium-226 | 0.715 | - | pCi/g | 0.107 | 0.107 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Radium-228 | 0.739 | - | pCi/g | 0.0591 | 0.0591 | 4/6/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Technetium-99 | 1.4 | U | pCi/g | 1.4 | 1.4 | 4/6/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Thorium-228 | 0.756 | - | pCi/g | 0.0591 | 0.0591 | 4/6/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Thorium-230 | 0.791 | J | pCi/g | 0.736 | 0.736 | 4/6/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Thorium-232 | 0.739 | - | pCi/g | 0.0591 | 0.0591 | 4/6/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-28 | A7SA-T-28^RMP | Uranium, Total | 7.1 | J | mg/kg | 1.29 | 1.29 | 4/6/2006 | 82 | mg/kg | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Aroclor-1254 | 3.8 | U | ug/kg | | | 3/17/2006 | 130 | ug/kg | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Beryllium | 0.557 | U | mg/kg | | | 3/17/2006 | 1.5 | mg/kg | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Cesium-137 | 0.0551 | U | pCi/g | 0.0551 | 0.0551 | 3/17/2006 | 1.4 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Lead-210 | 0.788 | U | pCi/g | 0.788 | 0.788 | 3/17/2006 | 38 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Radium-226 | 0.855 | - | pCi/g | 0.101 | 0.101 | 3/17/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Radium-228 | 0.826 | - | pCi/g | 0.0743 | 0.0743 | 3/17/2006 | 1.8 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Technetium-99 | 0.903 | U | pCi/g | 0.903 | 0.903 | 3/17/2006 | 30 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Thorium-228 | 0.865 | - | pCi/g | 0.0743 | 0.0743 | 3/17/2006 | 1.7 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Thorium-230 | 1.34 | J | pCi/g | 0.106 | 0.106 | 3/17/2006 | 280 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Thorium-232 | 0.826 | - | pCi/g | 0.0743 | 0.0743 | 3/17/2006 | 1.5 | pCi/g | No |
| 2 | A7SA-T-6 | A7SA-T-6^RMP | Uranium, Total | 4.6 | - | mg/kg | 1.99 | 1.99 | 3/17/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Aroclor-1254 | 3.7 | U | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Beryllium | 0.591 | U | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Cesium-137 | 0.0536 | U | pCi/g | 0.0536 | 0.0536 | 3/31/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Lead-210 | 0.738 | U | pCi/g | 0.738 | 0.738 | 3/31/2006 | 38 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Radium-226 | 0.871 | - | pCi/g | 0.0902 | 0.0902 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Radium-228 | 0.721 | - | pCi/g | 0.0714 | 0.0714 | 3/31/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Technetium-99 | 0.829 | U | pCi/g | 0.829 | 0.829 | 3/31/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Thorium-228 | 0.788 | J | pCi/g | 0.0714 | 0.0714 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Thorium-230 | 1.3 | J | pCi/g | 0.146 | 0.146 | 3/31/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Thorium-232 | 0.721 | - | pCi/g | 0.0714 | 0.0714 | 3/31/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-13 | A7SA-T-13^RMP | Uranium, Total | 4.33 | - | mg/kg | 1.8 | 1.8 | 3/31/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Aroclor-1254 | 4.8 | J | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Beryllium | 0.617 | U | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Cesium-137 | 0.0555 | U | pCi/g | 0.0555 | 0.0555 | 3/31/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Lead-210 | 0.753 | U | pCi/g | 0.753 | 0.753 | 3/31/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Radium-226 | 0.868 | - | pCi/g | 0.1 | 0.1 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Radium-228 | 0.735 | - | pCi/g | 0.0735 | 0.0735 | 3/31/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Technetium-99 | 0.923 | U | pCi/g | 0.923 | 0.923 | 3/31/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Thorium-228 | 0.803 | J | pCi/g | 0.0735 | 0.0735 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Thorium-230 | 1.18 | J | pCi/g | 0.171 | 0.171 | 3/31/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Thorium-232 | 0.735 | - | pCi/g | 0.0735 | 0.0735 | 3/31/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-14 | A7SA-T-14^RMP | Uranium, Total | 5.12 | - | mg/kg | 1.53 | 1.53 | 3/31/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Beryllium | 0.237 | U | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Cesium-137 | 0.0425 | U | pCi/g | 0.0425 | 0.0425 | 3/31/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Lead-210 | 0.611 | U | pCi/g | 0.611 | 0.611 | 3/31/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Radium-226 | 0.77 | - | pCi/g | 0.0818 | 0.0818 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Radium-228 | 0.628 | - | pCi/g | 0.0631 | 0.0631 | 3/31/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Technetium-99 | 0.881 | U | pCi/g | 0.881 | 0.881 | 3/31/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Thorium-228 | 0.637 | J | pCi/g | 0.0631 | 0.0631 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Thorium-230 | 1.25 | J | pCi/g | 0.155 | 0.155 | 3/31/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Thorium-232 | 0.628 | - | pCi/g | 0.0631 | 0.0631 | 3/31/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-15 | A7SA-T-15^RMP | Uranium, Total | 2.59 | J | mg/kg | 1.5 | 1.5 | 3/31/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 3/31/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Beryllium | 0.438 | U | mg/kg | | | 3/31/2006 | 1.5 | mg/kg | No |

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Cesium-137 | 0.0322 | U | pCi/g | 0.0322 | 0.0322 | 3/31/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Lead-210 | 0.469 | U | pCi/g | 0.469 | 0.469 | 3/31/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Radium-226 | 0.702 | - | pCi/g | 0.0601 | 0.0601 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Radium-228 | 0.607 | - | pCi/g | 0.0452 | 0.0452 | 3/31/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Technetium-99 | 0.88 | U | pCi/g | 0.88 | 0.88 | 3/31/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Thorium-228 | 0.676 | J | pCi/g | 0.0452 | 0.0452 | 3/31/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Thorium-230 | 1.09 | J | pCi/g | 0.0641 | 0.0641 | 3/31/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Thorium-232 | 0.607 | - | pCi/g | 0.0452 | 0.0452 | 3/31/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-16 | A7SA-T-16^RMP | Uranium, Total | 2.88 | - | mg/kg | 1.13 | 1.13 | 3/31/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Aroclor-1254 | 3.7 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Beryllium | 0.47 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Cesium-137 | 0.0596 | U | pCi/g | 0.0596 | 0.0596 | 4/6/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Lead-210 | 0.841 | U | pCi/g | 0.841 | 0.841 | 4/6/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Radium-226 | 0.902 | - | pCi/g | 0.144 | 0.144 | 4/6/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Radium-228 | 0.768 | - | pCi/g | 0.0934 | 0.0934 | 4/6/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Technetium-99 | 1.74 | U | pCi/g | 1.74 | 1.74 | 4/6/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Thorium-228 | 0.764 | - | pCi/g | 0.0934 | 0.0934 | 4/6/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Thorium-230 | 0.644 | J | pCi/g | 0.467 | 0.467 | 4/6/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Thorium-232 | 0.768 | - | pCi/g | 0.0934 | 0.0934 | 4/6/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-29 | A7SA-T-29^RMP | Uranium, Total | 3.87 | J | mg/kg | 1.68 | 1.68 | 4/6/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 3/17/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Beryllium | 0.489 | - | mg/kg | | | 3/17/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Cesium-137 | 0.055 | U | pCi/g | 0.055 | 0.055 | 3/17/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Lead-210 | 0.773 | U | pCi/g | 0.773 | 0.773 | 3/17/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Radium-226 | 1.32 | - | pCi/g | 0.0946 | 0.0946 | 3/17/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Radium-228 | 0.756 | - | pCi/g | 0.0681 | 0.0681 | 3/17/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Technetium-99 | 0.841 | U | pCi/g | 0.841 | 0.841 | 3/17/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Thorium-228 | 0.758 | - | pCi/g | 0.0681 | 0.0681 | 3/17/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Thorium-230 | 1.84 | J | pCi/g | 0.123 | 0.123 | 3/17/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Thorium-232 | 0.756 | - | pCi/g | 0.0681 | 0.0681 | 3/17/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-3 | A7SA-T-3^RMP | Uranium, Total | 10.3 | - | mg/kg | 1.79 | 1.79 | 3/17/2006 | 82 | mg/kg | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 4/6/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Beryllium | 0.43 | - | mg/kg | | | 4/6/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Cesium-137 | 0.0409 | U | pCi/g | 0.0409 | 0.0409 | 4/6/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Lead-210 | 3.1 | J | pCi/g | 2.99 | 2.99 | 4/6/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Radium-226 | 1.05 | - | pCi/g | 0.0726 | 0.0726 | 4/6/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Radium-228 | 0.918 | - | pCi/g | 0.0618 | 0.0618 | 4/6/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Technetium-99 | 1.76 | U | pCi/g | 1.76 | 1.76 | 4/6/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Thorium-228 | 0.928 | - | pCi/g | 0.0618 | 0.0618 | 4/6/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Thorium-230 | 1.87 | - | pCi/g | 0.427 | 0.427 | 4/6/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Thorium-232 | 0.918 | - | pCi/g | 0.0618 | 0.0618 | 4/6/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-30 | A7SA-T-30^RMP | Uranium, Total | 6.25 | J | mg/kg | 1.62 | 1.62 | 4/6/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Aroclor-1254 | 3.4 | U | ug/kg | | | 3/17/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Beryllium | 0.402 | U | mg/kg | | | 3/17/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Cesium-137 | 0.041 | U | pCi/g | 0.041 | 0.041 | 3/17/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Lead-210 | 0.604 | U | pCi/g | 0.604 | 0.604 | 3/17/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Radium-226 | 0.794 | - | pCi/g | 0.0772 | 0.0772 | 3/17/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Radium-228 | 0.607 | - | pCi/g | 0.0585 | 0.0585 | 3/17/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Technetium-99 | 0.912 | U | pCi/g | 0.912 | 0.912 | 3/17/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Thorium-228 | 0.639 | - | pCi/g | 0.0585 | 0.0585 | 3/17/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Thorium-230 | 1.44 | J | pCi/g | 0.0416 | 0.0416 | 3/17/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Thorium-232 | 0.607 | - | pCi/g | 0.0585 | 0.0585 | 3/17/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-4 | A7SA-T-4^RMP | Uranium, Total | 3.34 | - | mg/kg | 1.41 | 1.41 | 3/17/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 7/11/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Beryllium | 0.52 | - | mg/kg | | | 7/11/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Cesium-137 | 0.089 | U | pCi/g | 0.0885 | 0.089 | 7/11/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Lead-210 | 0.925 | J | pCi/g | 0.859 | 0.859 | 7/11/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Radium-226 | 0.945 | - | pCi/g | 0.142 | 0.142 | 7/11/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Radium-228 | 0.618 | - | pCi/g | 0.103 | 0.103 | 7/11/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Technetium-99 | 1.69 | U | pCi/g | 1.69 | 1.69 | 7/11/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Thorium-228 | 0.675 | - | pCi/g | 0.103 | 0.103 | 7/11/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Thorium-230 | 0.776 | - | pCi/g | 0.25 | 0.25 | 7/11/2006 | 280 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Thorium-232 | 0.618 | - | pCi/g | 0.103 | 0.103 | 7/11/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-41 | A7SA-T-41^RMP | Uranium, Total | 2.13 | J | mg/kg | 2.08 | 2.08 | 7/11/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Aroclor-1254 | 3.7 | U | ug/kg | | | 3/17/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Beryllium | 0.177 | U | mg/kg | | | 3/17/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Cesium-137 | 0.036 | U | pCi/g | 0.036 | 0.036 | 3/17/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Lead-210 | 0.491 | U | pCi/g | 0.491 | 0.491 | 3/17/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Radium-226 | 0.737 | - | pCi/g | 0.0624 | 0.0624 | 3/17/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Radium-228 | 0.472 | - | pCi/g | 0.0479 | 0.0479 | 3/17/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Technetium-99 | 3.27 | - | pCi/g | 0.87 | 0.87 | 3/17/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Thorium-228 | 0.473 | - | pCi/g | 0.0479 | 0.0479 | 3/17/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Thorium-230 | 1.46 | J | pCi/g | 0.0992 | 0.0992 | 3/17/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Thorium-232 | 0.472 | - | pCi/g | 0.0479 | 0.0479 | 3/17/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-5 | A7SA-T-5^RMP | Uranium, Total | 1.29 | U | mg/kg | 1.29 | 1.29 | 3/17/2006 | 82 | mg/kg | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Aroclor-1254 | 3.8 | U | ug/kg | | | 9/7/2006 | 130 | ug/kg | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Beryllium | 0.577 | J | mg/kg | | | 9/7/2006 | 1.5 | mg/kg | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Cesium-137 | 0.0306 | U | pCi/g | 0.0306 | 0.0306 | 9/7/2006 | 1.4 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Lead-210 | 6.41 | U | pCi/g | 6.41 | 6.41 | 9/7/2006 | 38 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Radium-226 | 1.248 | - | pCi/g | 0.0646 | 0.0646 | 9/7/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Radium-228 | 0.951 | - | pCi/g | 0.0467 | 0.0467 | 9/7/2006 | 1.8 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Technetium-99 | 0.807 | U | pCi/g | 0.807 | 0.807 | 9/7/2006 | 30 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Thorium-228 | 0.88 | - | pCi/g | 0.0467 | 0.0467 | 9/7/2006 | 1.7 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Thorium-230 | 3.37 | - | pCi/g | 0.0483 | 0.0483 | 9/7/2006 | 280 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Thorium-232 | 0.951 | - | pCi/g | 0.0467 | 0.0467 | 9/7/2006 | 1.5 | pCi/g | No |
| 3 | A7SA-T-54 | A7SA-T-54^RMP | Uranium, Total | 5.16 | - | mg/kg | 1.47 | 1.47 | 9/7/2006 | 82 | mg/kg | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 8/15/2006 | 130 | ug/kg | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Beryllium | 0.16 | U | mg/kg | | | 8/15/2006 | 1.5 | mg/kg | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Cesium-137 | 0.0359 | U | pCi/g | 0.0359 | 0.0359 | 8/15/2006 | 1.4 | pCi/g | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Lead-210 | 8.29 | U | pCi/g | 8.29 | 8.29 | 8/15/2006 | 38 | pCi/g | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Radium-226 | 0.907 | - | pCi/g | 0.0771 | 0.0771 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Radium-228 | 0.563 | - | pCi/g | 0.0516 | 0.0516 | 8/15/2006 | 1.8 | pCi/g | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Technetium-99 | 0.791 | U | pCi/g | 0.791 | 0.791 | 8/15/2006 | 30 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Thorium-228 | 0.561 | - | pCi/g | 0.0516 | 0.0516 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Thorium-230 | 1.05 | - | pCi/g | 0.0412 | 0.0412 | 8/15/2006 | 280 | pCi/g | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Thorium-232 | 0.563 | - | pCi/g | 0.0516 | 0.0516 | 8/15/2006 | 1.5 | pCi/g | No |
| 4 | A7SA-T-42 | A7SA-T-42^RMP | Uranium, Total | 5.44 | - | mg/kg | 1.8 | 1.8 | 8/15/2006 | 82 | mg/kg | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Aroclor-1254 | 3.4 | U | ug/kg | | | 8/15/2006 | 130 | ug/kg | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Beryllium | 0.707 | U | mg/kg | | | 8/15/2006 | 1.5 | mg/kg | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Cesium-137 | 0.046 | U | pCi/g | 0.046 | 0.046 | 8/15/2006 | 1.4 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Lead-210 | 8.68 | U | pCi/g | 8.68 | 8.68 | 8/15/2006 | 38 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Radium-226 | 1.15 | - | pCi/g | 0.0839 | 0.0839 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Radium-228 | 0.773 | - | pCi/g | 0.0726 | 0.0726 | 8/15/2006 | 1.8 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Technetium-99 | 1.46 | - | pCi/g | 0.803 | 0.803 | 8/15/2006 | 30 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Thorium-228 | 0.773 | - | pCi/g | 0.0726 | 0.0726 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Thorium-230 | 1.4 | - | pCi/g | 0.0379 | 0.0379 | 8/15/2006 | 280 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Thorium-232 | 0.773 | - | pCi/g | 0.0726 | 0.0726 | 8/15/2006 | 1.5 | pCi/g | No |
| 4 | A7SA-T-43 | A7SA-T-43^RMP | Uranium, Total | 6.59 | - | mg/kg | 1.92 | 1.92 | 8/15/2006 | 82 | mg/kg | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 8/15/2006 | 130 | ug/kg | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Beryllium | 0.414 | U | mg/kg | | | 8/15/2006 | 1.5 | mg/kg | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Cesium-137 | 0.055 | U | pCi/g | 0.055 | 0.055 | 8/15/2006 | 1.4 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Lead-210 | 1.38 | J | pCi/g | 0.797 | 0.797 | 8/15/2006 | 38 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Radium-226 | 1.19 | - | pCi/g | 0.0974 | 0.0974 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Radium-228 | 0.936 | - | pCi/g | 0.0723 | 0.0723 | 8/15/2006 | 1.8 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Technetium-99 | 0.914 | U | pCi/g | 0.914 | 0.914 | 8/15/2006 | 30 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Thorium-228 | 0.942 | - | pCi/g | 0.0723 | 0.0723 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Thorium-230 | 2.03 | - | pCi/g | 0.0344 | 0.0344 | 8/15/2006 | 280 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Thorium-232 | 0.936 | - | pCi/g | 0.0723 | 0.0723 | 8/15/2006 | 1.5 | pCi/g | No |
| 4 | A7SA-T-44 | A7SA-T-44^RMP | Uranium, Total | 12.3 | - | mg/kg | 2.04 | 2.04 | 8/15/2006 | 82 | mg/kg | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 8/15/2006 | 130 | ug/kg | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Beryllium | 0.769 | U | mg/kg | | | 8/15/2006 | 1.5 | mg/kg | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Cesium-137 | 0.0357 | U | pCi/g | 0.0357 | 0.0357 | 8/15/2006 | 1.4 | pCi/g | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Lead-210 | 8.83 | U | pCi/g | 8.83 | 8.83 | 8/15/2006 | 38 | pCi/g | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Radium-226 | 1.48 | - | pCi/g | 0.0661 | 0.0661 | 8/15/2006 | 1.7 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Radium-228 | 1.11 | - | pCi/g | 0.0525 | 0.0525 | 8/15/2006 | 1.8 | pCi/g | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Technetium-99 | 0.892 | U | pCi/g | 0.892 | 0.892 | 8/15/2006 | 30 | pCi/g | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Thorium-228 | 1.04 | - | pCi/g | 0.0525 | 0.0525 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Thorium-230 | 2.74 | - | pCi/g | 0.0313 | 0.0313 | 8/15/2006 | 280 | pCi/g | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Thorium-232 | 1.11 | - | pCi/g | 0.0525 | 0.0525 | 8/15/2006 | 1.5 | pCi/g | No |
| 4 | A7SA-T-45 | A7SA-T-45^RMP | Uranium, Total | 20.8 | - | mg/kg | 1.75 | 1.75 | 8/15/2006 | 82 | mg/kg | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 8/15/2006 | 130 | ug/kg | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Beryllium | 0.514 | U | mg/kg | | | 8/15/2006 | 1.5 | mg/kg | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Cesium-137 | 0.0335 | U | pCi/g | 0.0335 | 0.0335 | 8/15/2006 | 1.4 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Lead-210 | 6.61 | U | pCi/g | 6.61 | 6.61 | 8/15/2006 | 38 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Radium-226 | 0.834 | - | pCi/g | 0.072 | 0.072 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Radium-228 | 0.674 | - | pCi/g | 0.05 | 0.05 | 8/15/2006 | 1.8 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Technetium-99 | 0.863 | U | pCi/g | 0.863 | 0.863 | 8/15/2006 | 30 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Thorium-228 | 0.642 | - | pCi/g | 0.05 | 0.05 | 8/15/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Thorium-230 | 1.03 | - | pCi/g | 0.0524 | 0.0524 | 8/15/2006 | 280 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Thorium-232 | 0.674 | - | pCi/g | 0.05 | 0.05 | 8/15/2006 | 1.5 | pCi/g | No |
| 4 | A7SA-T-46 | A7SA-T-46^RMP | Uranium, Total | 5.27 | - | mg/kg | 1.52 | 1.52 | 8/15/2006 | 82 | mg/kg | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Aroclor-1254 | 3.6 | U | ug/kg | | | 8/18/2006 | 130 | ug/kg | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Beryllium | 0.473 | - | mg/kg | | | 8/18/2006 | 1.5 | mg/kg | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Cesium-137 | 0.0926 | U | pCi/g | 0.0926 | 0.0926 | 8/18/2006 | 1.4 | pCi/g | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Lead-210 | 5.52 | - | pCi/g | 1.26 | 1.26 | 8/18/2006 | 38 | pCi/g | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Radium-226 | 1.94 | - | pCi/g | 0.163 | 0.163 | 8/18/2006 | 1.7 | pCi/g | Yes |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Radium-228 | 0.697 | - | pCi/g | 0.121 | 0.121 | 8/18/2006 | 1.8 | pCi/g | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Technetium-99 | 0.769 | U | pCi/g | 0.769 | 0.769 | 8/18/2006 | 30 | pCi/g | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Thorium-228 | 0.671 | - | pCi/g | 0.121 | 0.121 | 8/18/2006 | 1.7 | pCi/g | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Thorium-230 | 1.97 | - | pCi/g | 0.0445 | 0.0445 | 8/18/2006 | 280 | pCi/g | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Thorium-232 | 0.697 | - | pCi/g | 0.121 | 0.121 | 8/18/2006 | 1.5 | pCi/g | No |
| 4 | A7SA-T-53 | A7SA-T-53^RMP | Uranium, Total | 4.71 | J | mg/kg | 3.68 | 3.68 | 8/18/2006 | 82 | mg/kg | No |
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 8/7/2006 | 130 | ug/kg | No |
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Beryllium | 0.76 | - | mg/kg | | | 8/7/2006 | 1.5 | mg/kg | No |
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Radium-226 | 0.876 | - | pCi/g | 0.0766 | 0.0766 | 8/7/2006 | 1.7 | pCi/g | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Radium-228 | 1.06 | - | pCi/g | 0.0586 | 0.0586 | 8/7/2006 | 1.8 | pCi/g | No |
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Technetium-99 | 1.89 | U | pCi/g | 1.89 | 1.89 | 8/7/2006 | 30 | pCi/g | No |
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Thorium-228 | 1.08 | - | pCi/g | 0.0586 | 0.0586 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Thorium-232 | 1.06 | - | pCi/g | 0.0586 | 0.0586 | 8/7/2006 | 1.5 | pCi/g | No |
| 4 | A7SSP-T-42 | A7SSP-T-42^RMP | Uranium, Total | 4.21 | - | mg/kg | 1.51 | 1.51 | 8/7/2006 | 82 | mg/kg | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Aroclor-1254 | 3.7 | U | ug/kg | | | 8/7/2006 | 130 | ug/kg | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Beryllium | 0.43 | - | mg/kg | | | 8/7/2006 | 1.5 | mg/kg | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Radium-226 | 0.89 | - | pCi/g | 0.0827 | 0.0827 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Radium-228 | 0.758 | - | pCi/g | 0.052 | 0.052 | 8/7/2006 | 1.8 | pCi/g | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Technetium-99 | 1.76 | U | pCi/g | 1.76 | 1.76 | 8/7/2006 | 30 | pCi/g | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Thorium-228 | 0.79 | - | pCi/g | 0.052 | 0.052 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Thorium-232 | 0.758 | - | pCi/g | 0.052 | 0.052 | 8/7/2006 | 1.5 | pCi/g | No |
| 4 | A7SSP-T-43 | A7SSP-T-43^RMP | Uranium, Total | 1.71 | U | mg/kg | 1.71 | 1.71 | 8/7/2006 | 82 | mg/kg | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Aroclor-1254 | 3.5 | U | ug/kg | | | 8/7/2006 | 130 | ug/kg | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Beryllium | 0.3 | - | mg/kg | | | 8/7/2006 | 1.5 | mg/kg | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Radium-226 | 0.724 | - | pCi/g | 0.0614 | 0.0614 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Radium-228 | 0.514 | - | pCi/g | 0.0462 | 0.0462 | 8/7/2006 | 1.8 | pCi/g | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Technetium-99 | 1.68 | U | pCi/g | 1.68 | 1.68 | 8/7/2006 | 30 | pCi/g | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Thorium-228 | 0.515 | - | pCi/g | 0.0462 | 0.0462 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Thorium-232 | 0.514 | - | pCi/g | 0.0462 | 0.0462 | 8/7/2006 | 1.5 | pCi/g | No |
| 4 | A7SSP-T-44 | A7SSP-T-44^RMP | Uranium, Total | 4.39 | - | mg/kg | 1.46 | 1.46 | 8/7/2006 | 82 | mg/kg | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Aroclor-1254 | 3.8 | U | ug/kg | | | 8/7/2006 | 130 | ug/kg | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Beryllium | 0.58 | - | mg/kg | | | 8/7/2006 | 1.5 | mg/kg | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Radium-226 | 0.933 | - | pCi/g | 0.0917 | 0.0917 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Radium-228 | 0.746 | - | pCi/g | 0.0785 | 0.0785 | 8/7/2006 | 1.8 | pCi/g | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Technetium-99 | 1.65 | U | pCi/g | 1.65 | 1.65 | 8/7/2006 | 30 | pCi/g | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Thorium-228 | 0.729 | - | pCi/g | 0.0785 | 0.0785 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Thorium-232 | 0.746 | - | pCi/g | 0.0785 | 0.0785 | 8/7/2006 | 1.5 | pCi/g | No |
| 4 | A7SSP-T-45 | A7SSP-T-45^RMP | Uranium, Total | 7.28 | - | mg/kg | 1.86 | 1.86 | 8/7/2006 | 82 | mg/kg | No |
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Aroclor-1254 | 3.7 | U | ug/kg | | | 8/7/2006 | 130 | ug/kg | No |
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Beryllium | 0.33 | - | mg/kg | | | 8/7/2006 | 1.5 | mg/kg | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Radium-226 | 0.771 | - | pCi/g | 0.068 | 0.068 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Radium-228 | 0.523 | - | pCi/g | 0.0533 | 0.0533 | 8/7/2006 | 1.8 | pCi/g | No |
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Technetium-99 | 1.7 | U | pCi/g | 1.7 | 1.7 | 8/7/2006 | 30 | pCi/g | No |
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Thorium-228 | 0.539 | - | pCi/g | 0.0533 | 0.0533 | 8/7/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Thorium-232 | 0.523 | - | pCi/g | 0.0533 | 0.0533 | 8/7/2006 | 1.5 | pCi/g | No |
| 4 | A7SSP-T-46 | A7SSP-T-46^RMP | Uranium, Total | 4.26 | - | mg/kg | 0.928 | 0.928 | 8/7/2006 | 82 | mg/kg | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Aroclor-1254 | 4.1 | U | ug/kg | | | 8/8/2006 | 130 | ug/kg | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Beryllium | 0.35 | - | mg/kg | | | 8/8/2006 | 1.5 | mg/kg | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Radium-226 | 0.878 | - | pCi/g | 0.0765 | 0.0765 | 8/8/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Radium-228 | 0.754 | J | pCi/g | 0.0628 | 0.0628 | 8/8/2006 | 1.8 | pCi/g | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Technetium-99 | 2.09 | U | pCi/g | 2.09 | 2.09 | 8/8/2006 | 30 | pCi/g | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Thorium-228 | 0.758 | J | pCi/g | 0.0628 | 0.0628 | 8/8/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Thorium-232 | 0.754 | J | pCi/g | 0.0628 | 0.0628 | 8/8/2006 | 1.5 | pCi/g | No |
| 4 | A7SSP-T-49 | A7SSP-T-49^RMP | Uranium, Total | 7.73 | - | mg/kg | 1.93 | 1.93 | 8/8/2006 | 82 | mg/kg | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Aroclor-1254 | 4.2 | U | ug/kg | | | 8/10/2006 | 130 | ug/kg | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Beryllium | 0.676 | - | mg/kg | | | 8/10/2006 | 1.5 | mg/kg | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Radium-226 | 0.913 | - | pCi/g | 0.0765 | 0.0765 | 8/10/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Radium-228 | 0.68 | - | pCi/g | 0.0554 | 0.0554 | 8/10/2006 | 1.8 | pCi/g | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Technetium-99 | 0.89 | U | pCi/g | 0.89 | 0.89 | 8/10/2006 | 30 | pCi/g | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Thorium-228 | 0.628 | - | pCi/g | 0.0554 | 0.0554 | 8/10/2006 | 1.7 | pCi/g | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Thorium-232 | 0.68 | - | pCi/g | 0.0554 | 0.0554 | 8/10/2006 | 1.5 | pCi/g | No |
| 4 | A7SSP-T-50 | A7SSP-T-50^RMP | Uranium, Total | 4.81 | - | mg/kg | 1.69 | 1.69 | 8/10/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Aroclor-1254 | 9.5 | J | ug/kg | | | 1/31/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Beryllium | 0.375 | - | mg/kg | | | 1/31/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Radium-226 | 0.824 | - | pCi/g | 0.0391 | 0.0391 | 1/31/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Radium-228 | 0.568 | - | pCi/g | 0.034 | 0.034 | 1/31/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Technetium-99 | 2.78 | - | pCi/g | 0.853 | 0.853 | 1/31/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Thorium-228 | 0.582 | - | pCi/g | 0.034 | 0.034 | 1/31/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Thorium-232 | 0.568 | - | pCi/g | 0.034 | 0.034 | 1/31/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-14 | A7SSP-T-14^RMP | Uranium, Total | 13.2 | - | mg/kg | 0.945 | 0.945 | 1/31/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Aroclor-1254 | 4.1 | U | ug/kg | | | 1/31/2006 | 130 | ug/kg | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Beryllium | 0.221 | U | mg/kg | | | 1/31/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Radium-226 | 0.748 | - | pCi/g | 0.0701 | 0.0701 | 1/31/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Radium-228 | 0.51 | - | pCi/g | 0.0499 | 0.0499 | 1/31/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Technetium-99 | 0.842 | U | pCi/g | 0.842 | 0.842 | 1/31/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Thorium-228 | 0.539 | - | pCi/g | 0.0499 | 0.0499 | 1/31/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Thorium-232 | 0.51 | - | pCi/g | 0.0499 | 0.0499 | 1/31/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-15 | A7SSP-T-15^RMP | Uranium, Total | 5.43 | - | mg/kg | 1.23 | 1.23 | 1/31/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Aroclor-1254 | 4.1 | U | ug/kg | | | 2/16/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Beryllium | 0.4 | - | mg/kg | | | 2/16/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Radium-226 | 0.991 | - | pCi/g | 0.126 | 0.126 | 2/16/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Radium-228 | 0.881 | J | pCi/g | 0.0924 | 0.0924 | 2/16/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Technetium-99 | 2.01 | U | pCi/g | 2.01 | 2.01 | 2/16/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Thorium-228 | 0.899 | J | pCi/g | 0.0924 | 0.0924 | 2/16/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Thorium-232 | 0.881 | J | pCi/g | 0.0924 | 0.0924 | 2/16/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-16 | A7SSP-T-16^RMP | Uranium, Total | 2.86 | J | mg/kg | 2.62 | 2.62 | 2/16/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Aroclor-1254 | 4.2 | U | ug/kg | | | 2/17/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Beryllium | 0.5 | - | mg/kg | | | 2/17/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Radium-226 | 1.11 | J | pCi/g | 0.114 | 0.114 | 2/17/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Radium-228 | 1.01 | J | pCi/g | 0.0895 | 0.0895 | 2/17/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Technetium-99 | 1.91 | U | pCi/g | 1.91 | 1.91 | 2/17/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Thorium-228 | 1.06 | J | pCi/g | 0.0895 | 0.0895 | 2/17/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Thorium-232 | 1.01 | J | pCi/g | 0.0895 | 0.0895 | 2/17/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-18 | A7SSP-T-18^RMP | Uranium, Total | 10.5 | - | mg/kg | 2.38 | 2.38 | 2/17/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Aroclor-1254 | 4.3 | U | ug/kg | | | 2/20/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Beryllium | 0.5 | - | mg/kg | | | 2/20/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Radium-226 | 1.07 | - | pCi/g | 0.121 | 0.121 | 2/20/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Radium-228 | 1.06 | - | pCi/g | 0.0821 | 0.0821 | 2/20/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Technetium-99 | 1.79 | U | pCi/g | 1.79 | 1.79 | 2/20/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Thorium-228 | 1.11 | - | pCi/g | 0.0821 | 0.0821 | 2/20/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Thorium-232 | 1.06 | - | pCi/g | 0.0821 | 0.0821 | 2/20/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-19 | A7SSP-T-19^RMP | Uranium, Total | 5.51 | - | mg/kg | 2.22 | 2.22 | 2/20/2006 | 82 | mg/kg | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Aroclor-1254 | 4.1 | U | ug/kg | | | 2/20/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Beryllium | 0.39 | - | mg/kg | | | 2/20/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Radium-226 | 0.958 | - | pCi/g | 0.113 | 0.113 | 2/20/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Radium-228 | 0.921 | - | pCi/g | 0.0848 | 0.0848 | 2/20/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Technetium-99 | 1.79 | U | pCi/g | 1.79 | 1.79 | 2/20/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Thorium-228 | 0.82 | - | pCi/g | 0.0848 | 0.0848 | 2/20/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Thorium-232 | 0.921 | - | pCi/g | 0.0848 | 0.0848 | 2/20/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-20 | A7SSP-T-20^RMP | Uranium, Total | 3.53 | J | mg/kg | 2.29 | 2.29 | 2/20/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Aroclor-1254 | 4.1 | U | ug/kg | | | 3/17/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Beryllium | 0.88 | J | mg/kg | | | 3/17/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Radium-226 | 1.61 | - | pCi/g | 0.0756 | 0.0756 | 3/17/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Radium-228 | 1.14 | - | pCi/g | 0.0566 | 0.0566 | 3/17/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Technetium-99 | 0.949 | U | pCi/g | 0.949 | 0.949 | 3/17/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Thorium-228 | 1.05 | - | pCi/g | 0.0566 | 0.0566 | 3/17/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Thorium-232 | 1.14 | - | pCi/g | 0.0566 | 0.0566 | 3/17/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-21 | A7SSP-T-21^RMP | Uranium, Total | 5.88 | - | mg/kg | 1.82 | 1.82 | 3/17/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Aroclor-1254 | 3.9 | U | ug/kg | | | 3/17/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Beryllium | 0.968 | - | mg/kg | | | 3/17/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Radium-226 | 1.19 | - | pCi/g | 0.063 | 0.063 | 3/17/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Radium-228 | 0.592 | - | pCi/g | 0.045 | 0.045 | 3/17/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Technetium-99 | 2.89 | - | pCi/g | 0.864 | 0.864 | 3/17/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Thorium-228 | 0.581 | - | pCi/g | 0.045 | 0.045 | 3/17/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Thorium-232 | 0.592 | - | pCi/g | 0.045 | 0.045 | 3/17/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-22 | A7SSP-T-22^RMP | Uranium, Total | 7.97 | J | mg/kg | 1.37 | 1.37 | 3/17/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Aroclor-1254 | 3.8 | U | ug/kg | | | 8/1/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Beryllium | 0.72 | - | mg/kg | | | 8/1/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Radium-226 | 1.3 | J | pCi/g | 0.124 | 0.124 | 8/1/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Radium-228 | 1.03 | - | pCi/g | 0.0854 | 0.0854 | 8/1/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Technetium-99 | 1.9 | U | pCi/g | 1.9 | 1.9 | 8/1/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Thorium-228 | 1.04 | - | pCi/g | 0.0854 | 0.0854 | 8/1/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Thorium-232 | 1.03 | - | pCi/g | 0.0854 | 0.0854 | 8/1/2006 | 1.5 | pCi/g | No |

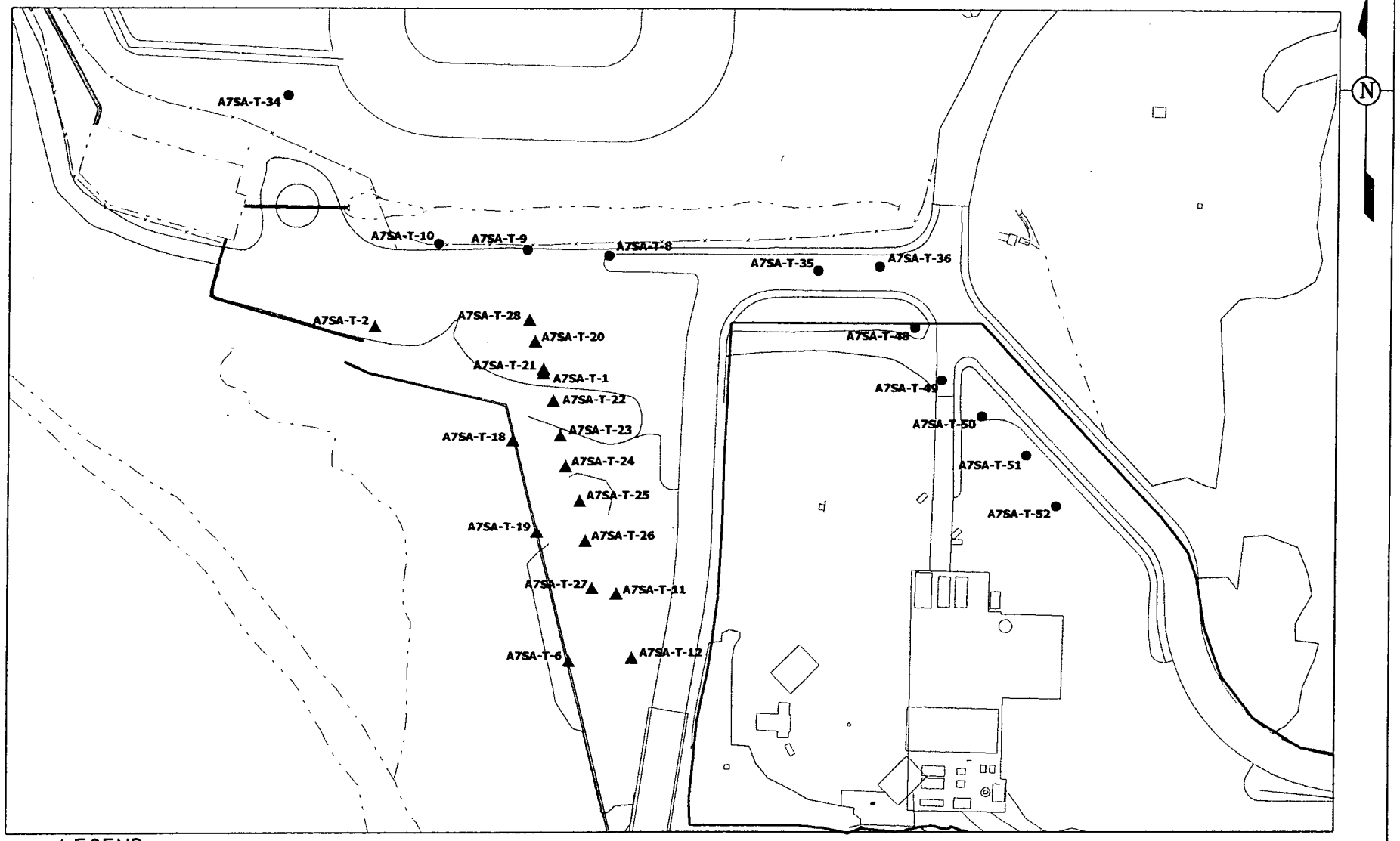
## APPENDIX C
## PRESENTATION AND STATISTICAL ANALYSIS OF UTILITY DATA

| CU Number | Boring ID | Sample ID | Parameter | Result | VQ | Units | MDC | ValMDC | Sample Date | FRL | FRL Unit | FRL? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | A7SSP-T-39 | A7SSP-T-39^RMP | Uranium, Total | 5.88 | - | mg/kg | 1.9 | 1.9 | 8/1/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Aroclor-1254 | 4 | U | ug/kg | | | 8/3/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Beryllium | 0.53 | - | mg/kg | | | 8/3/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Radium-226 | 1.4 | - | pCi/g | 0.115 | 0.115 | 8/3/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Radium-228 | 1.05 | - | pCi/g | 0.0912 | 0.0912 | 8/3/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Technetium-99 | 4.31 | - | pCi/g | 2.19 | 2.19 | 8/3/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Thorium-228 | 1.05 | - | pCi/g | 0.0912 | 0.0912 | 8/3/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Thorium-232 | 1.05 | - | pCi/g | 0.0912 | 0.0912 | 8/3/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-40 | A7SSP-T-40^RMP | Uranium, Total | 5.98 | - | mg/kg | 2.19 | 2.19 | 8/3/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Aroclor-1254 | 4 | U | ug/kg | | | 8/3/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Beryllium | 0.75 | - | mg/kg | | | 8/3/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Radium-226 | 1.19 | - | pCi/g | 0.117 | 0.117 | 8/3/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Radium-228 | 1.06 | - | pCi/g | 0.0831 | 0.0831 | 8/3/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Technetium-99 | 2.25 | U | pCi/g | 2.25 | 2.25 | 8/3/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Thorium-228 | 1.05 | - | pCi/g | 0.0831 | 0.0831 | 8/3/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Thorium-232 | 1.06 | - | pCi/g | 0.0831 | 0.0831 | 8/3/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-41 | A7SSP-T-41^RMP | Uranium, Total | 3.94 | - | mg/kg | 2.23 | 2.23 | 8/3/2006 | 82 | mg/kg | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Aroclor-1254 | 30 | - | ug/kg | | | 8/7/2006 | 130 | ug/kg | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Beryllium | 0.61 | - | mg/kg | | | 8/7/2006 | 1.5 | mg/kg | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Radium-226 | 0.887 | - | pCi/g | 0.0861 | 0.0861 | 8/7/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Radium-228 | 0.731 | - | pCi/g | 0.0855 | 0.0855 | 8/7/2006 | 1.8 | pCi/g | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Technetium-99 | 4.83 | - | pCi/g | 1.78 | 1.78 | 8/7/2006 | 30 | pCi/g | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Thorium-228 | 0.712 | - | pCi/g | 0.0855 | 0.0855 | 8/7/2006 | 1.7 | pCi/g | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Thorium-232 | 0.731 | - | pCi/g | 0.0855 | 0.0855 | 8/7/2006 | 1.5 | pCi/g | No |
| 5 | A7SSP-T-47 | A7SSP-T-47^RMP | Uranium, Total | 6.62 | - | mg/kg | 1.47 | 1.47 | 8/7/2006 | 82 | mg/kg | No |

## APPENDIX C
## PRESENTATION AND STATISTICAL EVALUATION OF UTILITY DATA

| PrimaryCOCs | | PrimaryCOCs | |
|---|---|---|---|
| Sample ID | Radium-226 | Sample ID | Radium-226 |
| CU01 | CU01 | CU04 | CU04 |
| A7SA-T-10 | 0.73 - | A7SA-T-42 | 0.907 - |
| A7SA-T-34 | 2.73 - | A7SA-T-43 | 1.15 - |
| A7SA-T-35 | 0.861 - | A7SA-T-44 | 1.19 - |
| A7SA-T-36 | 1.23 - | A7SA-T-45 | 1.48 - |
| A7SA-T-48 | 1.48 - | A7SA-T-46 | 0.834 - |
| A7SA-T-49 | 0.703 - | A7SA-T-53 | 1.94 - |
| A7SA-T-50 | 0.953 - | A7SSP-T-42 | 0.876 - |
| A7SA-T-51 | 1.16 - | A7SSP-T-43 | 0.89 - |
| A7SA-T-52 | 0.952 - | A7SSP-T-44 | 0.724 - |
| A7SA-T-8 | 0.795 - | A7SSP-T-45 | 0.933 - |
| A7SA-T-9 | 1.26 - | A7SSP-T-46 | 0.771 - |
| | | A7SSP-T-49 | 0.878 - |
| Limit | 1.7 | Limit | 1.7 |
| Units | pCi/g | Units | pCi/g |
| Conf. Level | 95% | Conf. Level | 95% |
| Max. Result | 2.73 | Max. Result | 1.94 |
| Max. >= Limit | Yes | Max. >= Limit | Yes |
| W-statistic Prob. # | 18.8% (LN) | W-statistic Prob. # | 7.1% (LN) |
| Test Procedure | Lognormal | Test Procedure | Lognormal |
| Sample Size | 11 | Sample Size | 12 |
| Nondetects | 0 | Nondetects | 0 |
| % Nondetects | 0% | % Nondetects | 0% |
| Est. Mean* | 1.2 | Est. Mean* | 1.0 |
| UCL | 1.50 | UCL | 1.24 |
| Prob. > Limit | - - | Prob. > Limit | - - |
| Pass / Fail | Pass | Pass / Fail | pass |

| | | | |
|---|---|---|---|
| *a posteriori Sample* | 6 | *a posteriori Sample* | 4 |
| Size calculation | Pass | Size calculation | Pass |




LEGEND:

● SAMPLE LOCATION (CU1)

▲ SAMPLE LOCATION (CU2)

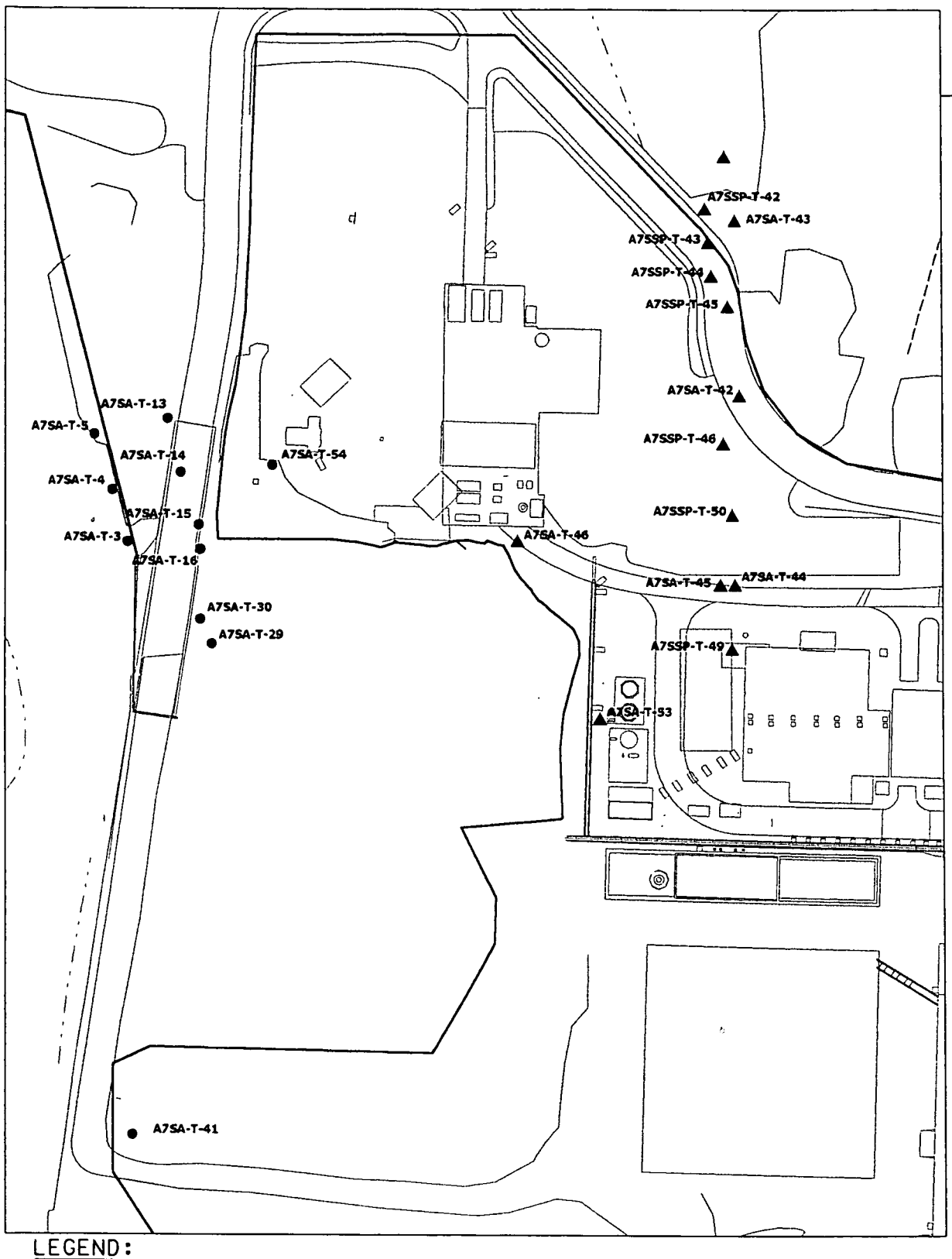
SCALE

100 50 0 100 FEET

v:\2fm12\dgn\a7sa_trench_001.dgn
STATE PLANAR COORDINATE SYSTEM 1983

FIGURE C-1. UTILITY TRENCH SAMPLE LOCATIONS

26-OCT-2006




LEGEND:

● SAMPLE LOCATION (CU3)

▲ SAMPLE LOCATION (CU4)

SCALE

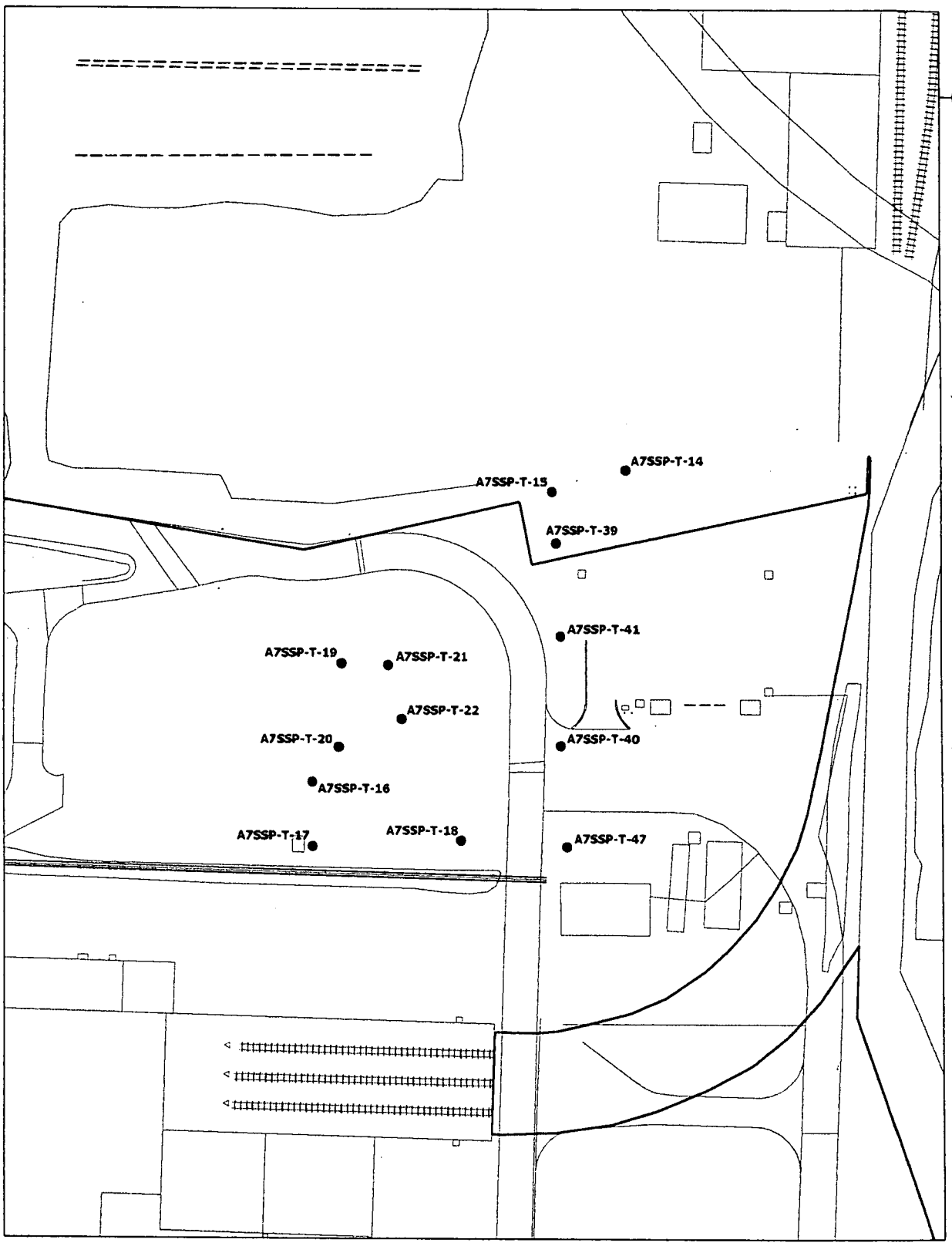
100 50 0 100 FEET

FIGURE C-2. UTILITY TRENCH SAMPLE LOCATIONS

v:\2fml2\dgn\eo\eo_trench_002.dgn

STATE PLANAR COORDINATE SYSTEM 1983

26-OCT-2006




LEGEND:

● SAMPLE LOCATION (CU5)

SCALE

100 50 0 100 FEET

FIGURE C-3. UTILITY TRENCH SAMPLE LOCATIONS

V:\02fm12\dgn\ao7ao_trench_003.dgn

STATE PLANAR COORDINATE SYSTEM 1983

26-OCT-2006

# APPENDIX D

# CORRECTION OF 7-DAY RADIUM-226 RESULTS

# APPENDIX D
# CORRECTION OF 7-DAY RADIUM-226 RESULTS

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

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

21-day value = 1.053*7-day value - 0.0156

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

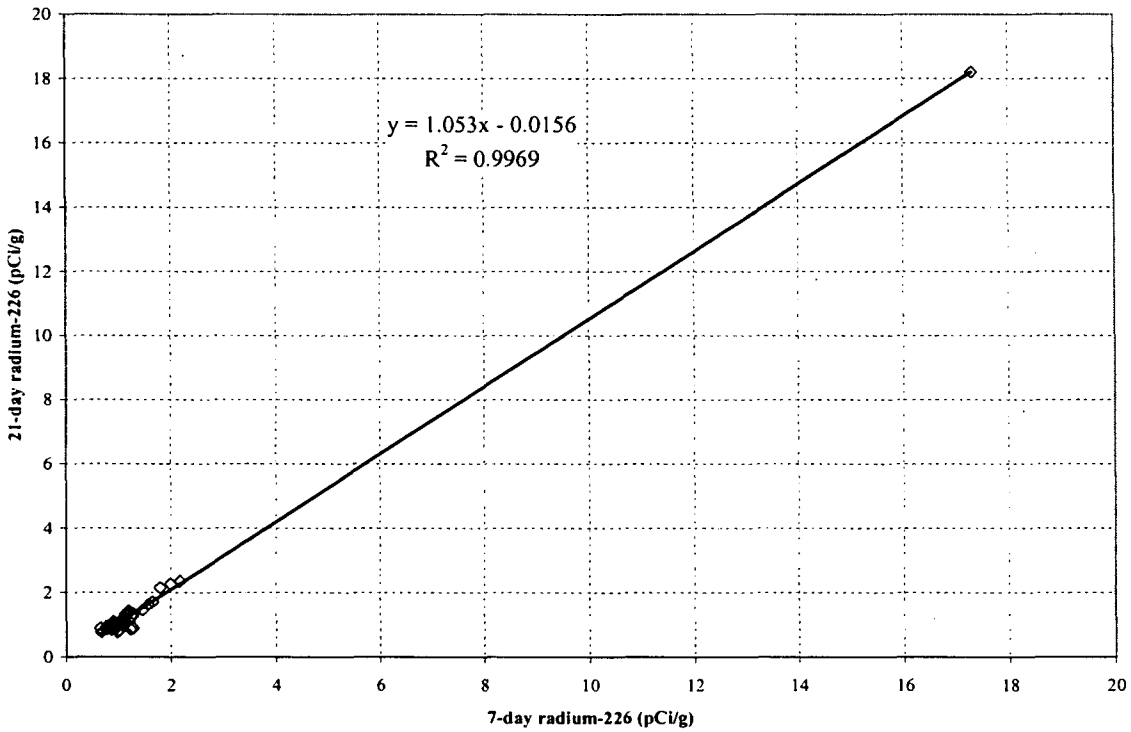


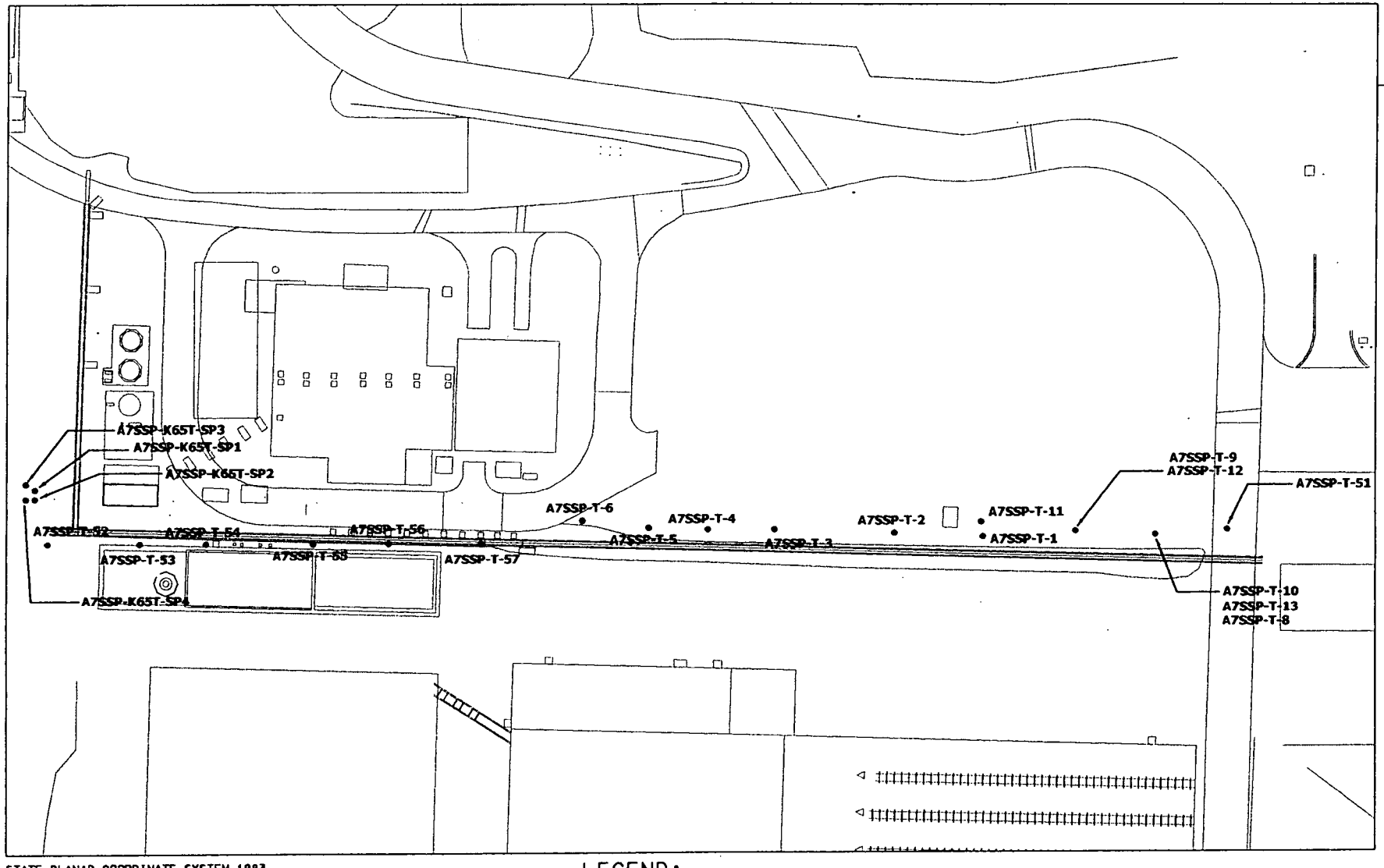

FIGURE 1. Regression analysis of radium-226 data based on 7- and 21-day in-growth period for radon-222

# APPENDIX E

# STATISTICAL ANALYSIS OF K-65 TRENCH DATA

## APPENDIX E
## STATISTICAL EVALUATION OF K-65 TRENCH DATA

| | Primary COCs | | | | | Secondary COCs | | |
|---|---|---|---|---|---|---|---|---|
| **Sample ID** | Radium-226 | Radium-228 | Thorium-228 | Thorium-232 | Uranium, Total | Technetium-99 | Beryllium | Aroclor-1254 |
| A7SSP-K65T-SP1 | 1.090 - | 0.816 - | 0.794 - | 0.816 - | 4.210 - | 0.829 U | 0.502 U | 4.100 U |
| A7SSP-K65T-SP2 | 1.048 - | 1.010 - | 1.040 - | 1.010 - | 6.020 - | 0.875 U | 0.481 U | 4.100 U |
| A7SSP-K65T-SP3 | 0.969 - | 0.708 - | 0.697 - | 0.708 - | 5.560 - | 0.834 U | 0.525 J | 4.100 U |
| A7SSP-K65T-SP4 | 0.800 - | 0.690 - | 0.798 - | 0.690 - | 2.890 - | 0.846 U | 0.371 U | 4.100 U |
| A7SSP-T-1 | 1.620 - | 0.926 - | 0.956 - | 0.926 - | 6.100 - | 0.973 - | 0.691 - | 12.100 U |
| A7SSP-T-10/13 | 2.040 - | 1.050 - | 1.060 - | 1.050 - | 9.440 - | 0.804 U | 0.647 - | 13.300 U |
| A7SSP-T-2 | 1.390 - | 0.927 - | 0.914 - | 0.927 - | 5.610 - | 1.900 - | 0.473 - | 12.500 U |
| A7SSP-T-3 | 1.600 - | 0.970 - | 0.963 - | 0.970 - | 4.190 - | 1.230 - | 0.605 - | 12.200 U |
| A7SSP-T-4 | 1.750 - | 0.730 - | 0.770 - | 0.730 - | 9.950 - | 2.570 - | 0.580 - | 12.200 U |
| A7SSP-T-5 | 1.210 - | 0.821 - | 0.829 - | 0.821 - | 6.000 - | 0.791 U | 0.533 - | 11.600 U |
| A7SSP-T-51 | 0.917 - | 0.747 - | 0.747 - | 0.747 - | 5.500 - | 0.874 U | 0.554 J | 4.000 U |
| A7SSP-T-52 | 1.501 - | 0.835 - | 0.865 - | 0.835 - | 7.230 - | 0.881 U | 0.612 U | 4.100 U |
| A7SSP-T-53 | 0.988 - | 0.709 - | 0.706 - | 0.709 - | 8.770 - | 0.829 U | 0.537 J | 4.000 U |
| A7SSP-T-54 | 1.080 - | 0.838 - | 0.828 - | 0.838 - | 3.360 UJ | 0.791 U | 0.464 U | 4.000 U |
| A7SSP-T-55 | 1.353 - | 0.793 - | 0.772 - | 0.793 - | 3.990 J | 1.080 J | 0.548 U | 4.000 U |
| A7SSP-T-56 | 1.680 - | 0.573 - | 0.619 - | 0.573 - | 2.890 U | 0.841 U | 0.341 U | 3.900 U |
| A7SSP-T-57 | 1.374 - | 0.686 - | 0.703 - | 0.686 - | 2.770 U | 0.788 U | 0.195 U | 3.500 U |
| A7SSP-T-6 | 1.790 - | 0.839 - | 0.830 - | 0.839 - | 8.280 - | 5.530 - | 0.464 - | 12.000 U |
| A7SSP-T-7 | 0.983 - | 0.794 - | 0.791 - | 0.794 - | 3.560 J | 1.450 U | 0.900 - | 11.800 U |
| A7SSP-T-8/11 | 1.420 - | 0.907 - | 0.925 - | 0.907 - | 4.450 U | 0.732 U | 0.681 - | 12.300 U |
| A7SSP-T-9/12 | 2.850 - | 0.915 - | 0.922 - | 0.915 - | 4.880 U | 1.220 - | 0.486 - | 12.600 U |
| Limit | 1.70 | 1.80 | 1.7 | 1.5 | 82.00 | 29.1 | 1.5 | 130.00 |
| Units | pCi/g | pCi/g | pCi/g | pCi/g | mg/kg | pCi/g | mg/kg | ug/kg |
| Conf. Level | 95.0% | 95.0% | 95.0% | 95.0% | 95.0% | 90.0% | 90.0% | 90.0% |
| Max. Result | 2.85 | 1.05 | 1.06 | 1.05 | 9.95 | 5.53 | 0.9 | 6.65 |
| Max. >= Limit | Yes | No | No | No | No | No | No | No |
| W-statistic Prob. # | 96.0% (LN) | -- | -- | -- | -- | -- | -- | -- |
| Test Procedure | Lognormal | -- | -- | -- | -- | -- | -- | -- |
| Sample Size | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Nondetects | 0 | 0 | 0 | 0 | 5 | 14 | 8 | 21 |
| % Nondetects | 0.0% | 0.0% | 0 | 0 | 23.8% | 66.67% | 38.10% | 100.0% |
| Est. Mean* | 1.403 | -- | -- | -- | -- | -- | -- | -- |
| UCL | 1.592 | -- | -- | -- | -- | -- | -- | -- |
| Prob. > Limit | -- | -- | -- | -- | -- | -- | -- | -- |
| Pass / Fail | pass | -- | -- | -- | -- | -- | -- | -- |
| *a posteriori Sample* | 12 | -- | -- | -- | -- | -- | -- | -- |
| Size calculation | Pass | -- | -- | -- | -- | -- | -- | -- |




STATE PLANAR COORDINATE SYSTEM 1983
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28-OCT-2006

LEGEND:

• SAMPLE PATTY LOCATIONS

SCALE

80 40 0 80 FEET

FIGURE E-1. SAMPLE POINTS ASSOCIATED WITH K-65 TRENCH EXCAVATION AREA