Department of Energy

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

NOV 3 2006

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

DOE-0043-07

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

Dear Mr. Saric and Mr. Schneider:

TRANSMITTAL OF THE DRAFT CERTIFICATION REPORT FOR AREA 5 ADMINISTRATION AREA AND THE EAST AND WEST PARKING LOTS

Enclosed for your review is the draft Certification Report for Area 5 Administration Area and the East and West Parking Lots.

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

Sincerely,

Johnny Reising

Johnny W. Reising
Director

Enclosure

cc w/enclosure:
J. Desormeau, DOE-OH/FCP
T. Schneider, OEPA-Dayton (three copies of enclosure)
G. Jablonowski, USEPA-V, SRF-5J
M. Cullerton, Tetra Tech
M. Shupe, HSI GeoTrans
S. Helmer, ODH
AR Coordinator, Fluor Fernald, Inc./MS6

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

CERTIFICATION REPORT FOR AREA 5 ADMINISTRATION AREA AND THE EAST AND WEST PARKING LOTS

FERNALD CLOSURE PROJECT
FERNALD, OHIO

OCTOBER 2006

U.S. DEPARTMENT OF ENERGY

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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
EPL	East Parking Lot
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
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
TPU	Total Propagated Uncertainty
UCL	upper confidence limit
V&V	verification and validation process
VOC	volatile organic compound
VSL	Validation Support Level
WAC	waste acceptance criteria
WPL	West Parking Lot

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 5 Administration Area, East Parking Lot (EPL), and West Parking Lots (WPL) meet 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. 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.

Certification unit (CU) delineation for the Area 5 Administration Area and the East and West Parking Lots are described in the Certification Design Letter (CDL) for Area 5 East Parking Lot (DOE 2005a) and Certification Project Specific Plan (PSP) for Area 5 East Parking Lot (DOE 2005b) and the CDL/Certification PSP for Area 5 Administration Area and West Parking Lot (DOE 2006). Additionally, eight CUs were constructed from samples obtained from the bottom of utility trenches to demonstrate that contamination had been removed from below the excavated utility. 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 5 Administration Area, EPL, and WPL underwent the certification process in the Spring of 2005 and the in the Fall of 2006. All samples related to this effort were 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.

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 5 Administration Area and East and West Parking Lots (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) for Area 5 East Parking Lot (EPL, DOE 2005a) and Certification Project Specific Plan (PSP) for Area 5 EPL (DOE 2005b) and CDL and Certification PSP for Area 5 Administration Area and West Parking Lot (WPL, 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 within this 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 5 identified as Area 5 Administration Area, EPL, and WPL (Figure 1-1).

After all necessary remediation is completed within each area or its associated phase, the soil will be 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 A was the appropriate remedial approach for contaminated material in Area 5 Administration Area, EPL, and WPL. The remediation details are presented in the CDL and Certification PSP for Area 5 EPL and the CDL/Certification PSP for Area 5 Administration Area and WPL.

1.3 AREA DESCRIPTION

The focus of this certification report is the 4.4-acre Area 5 East Parking Lot and the 17-acre Area 5 Administration Area and WPL. The boundary for this area is shown on Figure 1-1. As with other parts of Area 5, certification of Area 5 Administration Area, EPL, and WPL has been performed in several phases based on the required remedial actions in each of the different areas.

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 5 Administration Area, EPL, and WPL. The Area 5 East Parking Lot was divided into four Group 1 CUs and Area 5 Administration Area and West Parking Lot was divided into 13 Group 1 CUs. The certification design for these seventeen CUs follows the general approach outlined in Section 3.4 of the SEP. Additionally, eight trench CUs were created to account for samples collected from the bottom of utility trenches.

1.5 OBJECTIVES

The objectives of this Certification Report are:

- Provide an overview of the precertification and remedial activities conducted in the Area 5 Administration Area, EPL, and WPL
- 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 17 CUs that make up the Area 5 Administration Area, EPL, and WPL and the eight CUs that comprise samples collected from the bottom of utility trenches
- Present the statistical analysis showing that all 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 C. 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
Appendix B	Utilities Data and Statistical Analysis
Appendix C	Correction of 7-Day Radium-226 Results

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.

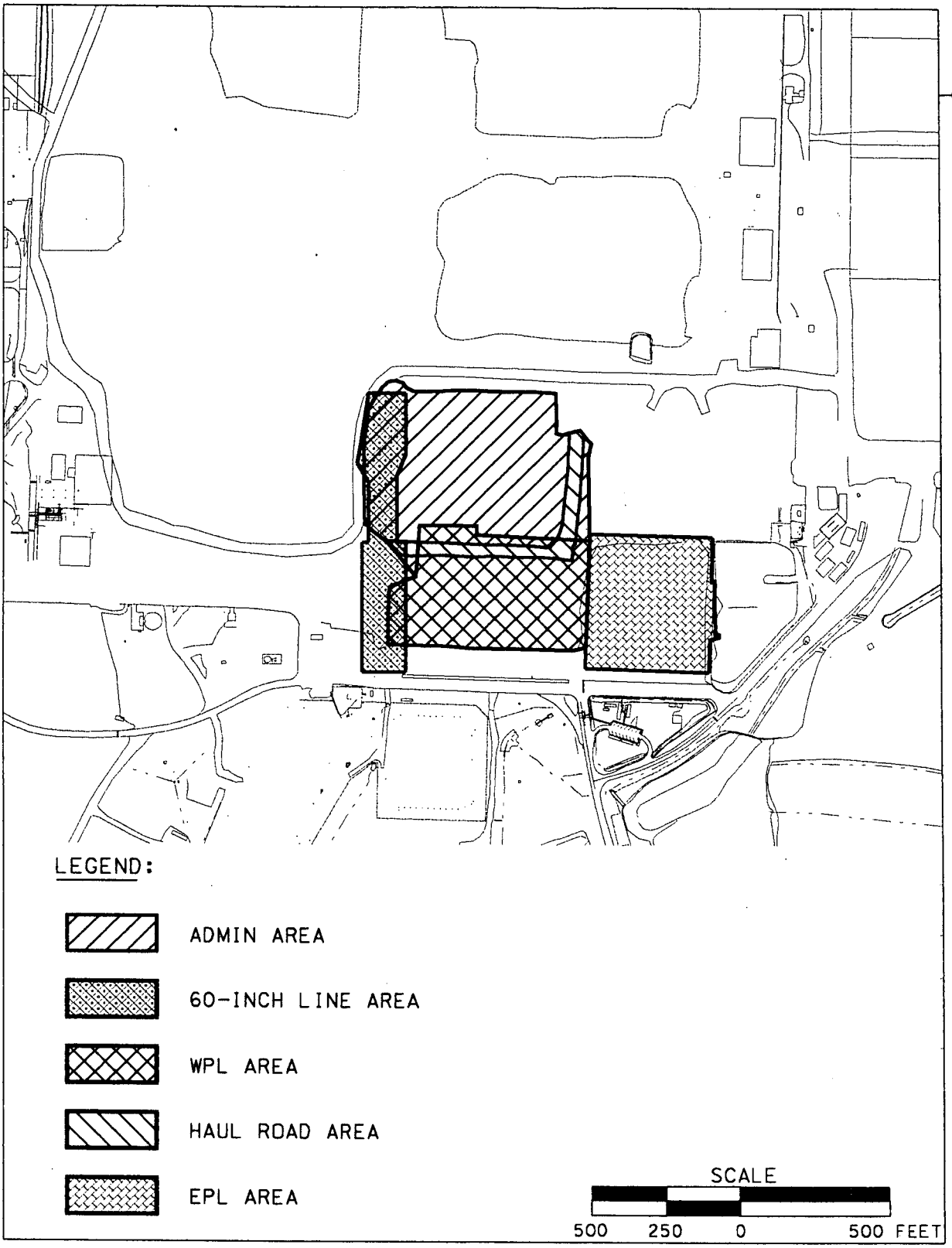
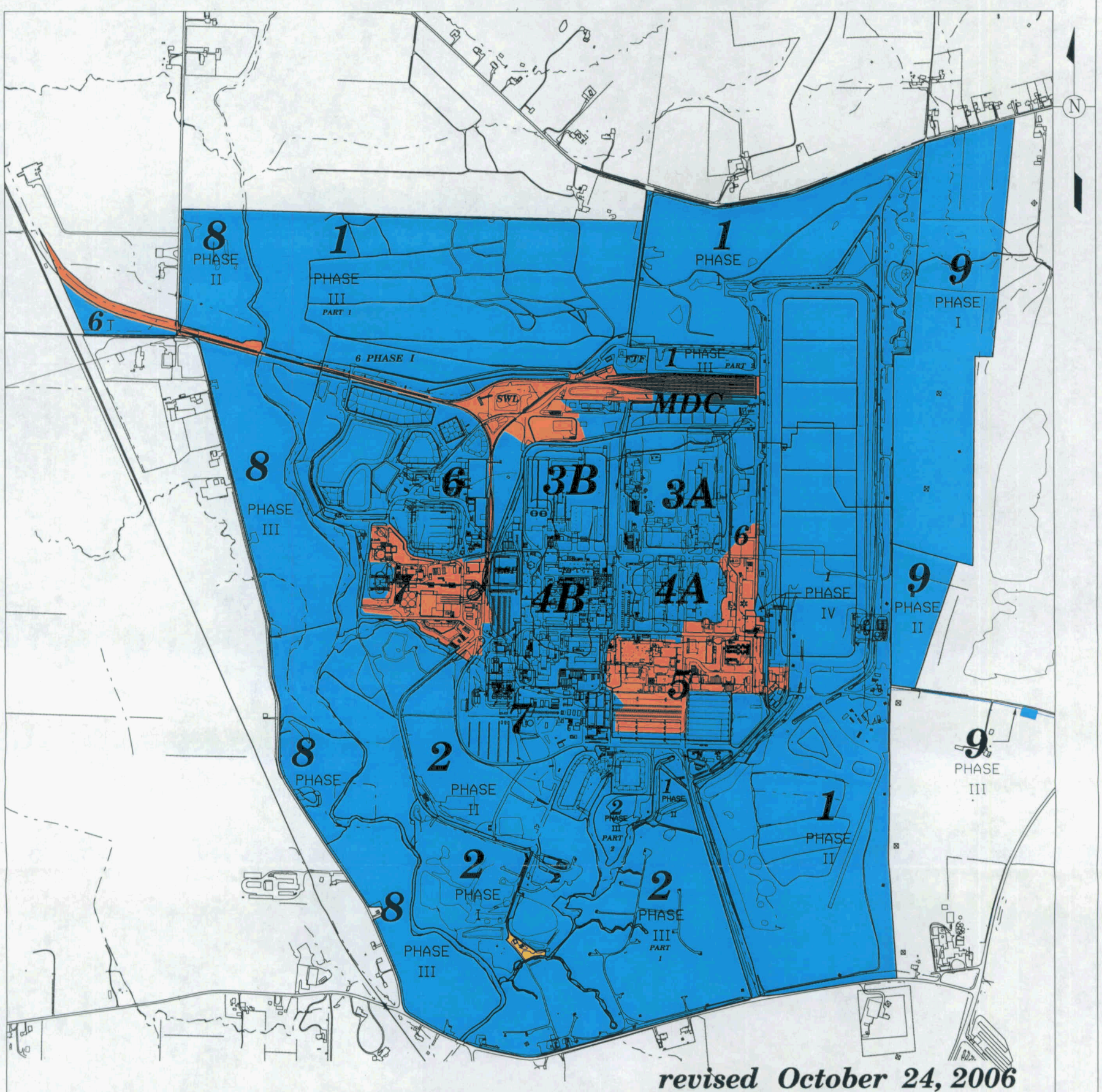


FIGURE 1-1. AREA 5 ADMINISTRATION, WPL, HAUL ROAD, AND 60-INCH LINE AREAS

v:\2fm12\dgn\ec5_adm_wpl_epl_100.dgn
STATE PLANAR COORDINATE SYSTEM 1983
26-OCT-2006



revised October 24, 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	8.9	18.0	0	0	0
AREA 6	148.9	114.9	34.0	0	0	0
AREA 7	77.0	55.4	21.5	0	0	0
AREA 8	98.9	98.9	0	0	0	0
MDC	39.8	34.3	5.5	0	0	0
PR/SSOD/PPDD	33.3	33.3	0	0	0	0
TOTAL ON SITE	1048.6	968.5	80.0	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\cert1map102406.dgn
STATE PLANAR COORDINATE SYSTEM 1983
06-NOV-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 5 EPL and the CDL/Certification PSP for Area 5 Administration Area and WPL.

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 retained for certification evaluation, the reason for their retention 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 5 Administration Area, EPL, and WPL soil footprint meet the certification criteria in Section 3.4 of the SEP and the SEP Addendum (DOE 2001). A total of 17 Group 1 CUs were designed to cover all of the areas within the scope of this document. The Administration Area, EPL, and WPL CUs are depicted on Figure 2-1, and the sample locations for all areas are shown on Figures 2-2 through 2-8. In order to demonstrate that no above-FRL conditions existed in trenches created by the removal of utilities, samples were collected from the trench bottoms after the utilities were removed. Eight trench CUs were configured from the samples shown on Figures 2-9 through 2-10. Data from this sampling effort, along with a statistical evaluation (where necessary), are presented in Appendix B.

Several factors were taken into consideration when determining the boundaries for each CU within Area 5 Administration Area, EPL, and WPL: 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, because it was considered to be a potentially impacted area, it was comprised of Group 1 CUs to increase sample density and to ensure the excavation fully remediated this area.

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 re-tested. 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 2-10. Four of the 16 sample locations (one location from each quadrant of the CU) were designated with a "V", indicating archive sample locations, which were not collected unless they were needed for additional analysis. One sample location in the CU was designated with a "D", indicating a field duplicate sample collection location.

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

Samples were 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. Exceptions include the certification locations designated as archive samples, which were identified in the field but not collected at this time because 12 samples generally suffice to meet the statistical certification criteria. 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 and Certification PSP for Area 5 EPL and the CDL/Certification PSP for Area 5 Administration Area and WPL.

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.

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TABLE 2-1
ASCOC RETENTION PROCESS FOR AREA 5 ADMINISTRATION AREA AND EAST AND WEST PARKING LOTS

ASCOC	FRL/BTV	Reason Retained	CU(s)
Radionuclides			
Total Uranium	82/20[a] mg/kg	Primary Radionuclide	All
Radium-226	1.7 pCi/g	Primary Radionuclide	All
Radium-228	1.8 pCi/g	Primary Radionuclide	All
Thorium-228	1.7 pCi/g	Primary Radionuclide	All
Thorium-232	1.5 pCi/g	Primary Radionuclide	All
Cesium-137	1.4 pCi/g	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line	A5A-PC08 A5A-PC09 A5WPL-PC05
Lead-210	38 pCi/g	Potential contaminant from Waste Pits and Silos material hauling operations.	A5A-PC08
Technetium-99	30[b] pCi/g	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line	A5A-PC08 A5A-PC09 A5WPL-PC05
Thorium-230	280 pCi/g	Potential contaminant from Waste Pits and Silos material hauling operations.	A5A-PC08
Organics			
1,1-dichloroethene	0.41 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
1,1,1-trichloroethane	4.3[d] mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
1,2-dichloroethene	0.16 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
4-Methyl-2-pentone	2500 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Acetone	43,000 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Aroclor-1254	0.13 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05 All 4 EPL CUs
Aroclor-1260	0.13 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Benzene	850 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05

TABLE 2-1
ASCOC RETENTION PROCESS FOR AREA 5 ADMINISTRATION AREA AND EAST AND WEST PARKING LOTS

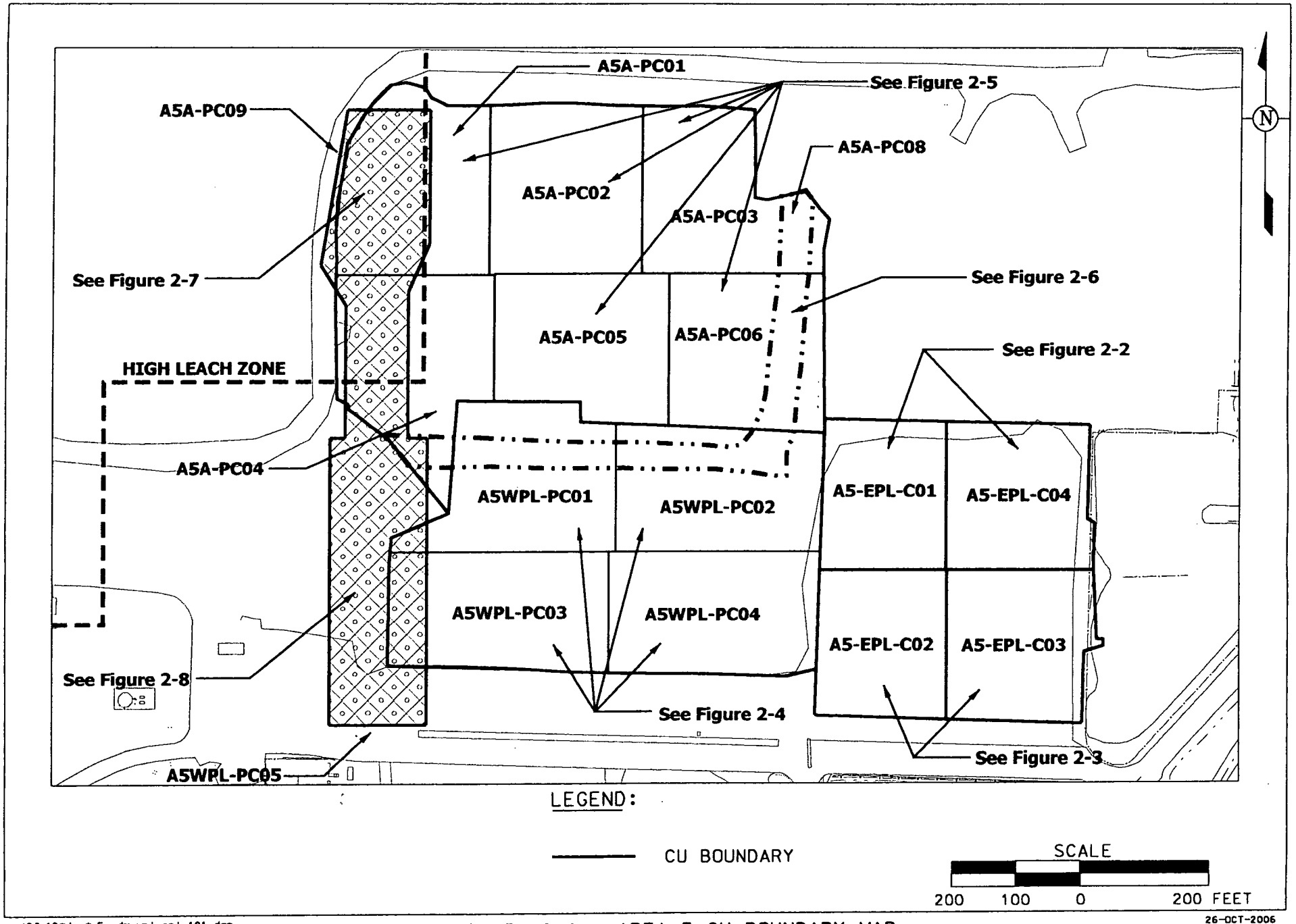
ASCOC	FRL/BTV	Reason Retained	CU(s)
Organics (continued)			
Benzo(a)pyrene	2.0 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Benzo(a)anthracene	20 mg/kg / (*1.0 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Benzo(b)fluoranthene	20 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Benzo(g,h,i)perylene	(*1.0 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Benzo(k)fluoranthene	200 mg/kg / (*1.0 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Bromodichloromethane	4.0 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations.	A5A-PC08
Carbon tetrachloride	2.1 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Chrysene	2000 mg/kg / (*1.0 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Dieldrin	0.015 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Dibenzo(a,h)anthracene	2.0 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Ethylbenzene	5,100 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Fluoranthene	(*10 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Indeno(1,2,3-cd)pyrene	20 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Methyl Chloride	37 mg/kg / (*85 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Phenanthrene	(*5 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Pyrene	(*10 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Tetrachloroethene	3.6 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Toluene	100,000 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05

TABLE 2-1
ASCOC RETENTION PROCESS FOR AREA 5 ADMINISTRATION AREA AND EAST AND WEST PARKING LOTS

ASCOC	FRL/BTV	Reason Retained	CU(s)
Organics (continued)			
Trichloroethene	25 mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Xylenes, Total	920,000 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Metals			
Antimony	96 mg/kg / (*10 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Arsenic	12.0 mg/kg	Detected at concentrations above the FRL. Potential contaminant from Waste Pits and Silos material hauling operations.	All
Barium	68,000 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Beryllium	1.5 mg/kg	Detected at concentrations above the FRL. Potential contaminant from Waste Pits and Silos material hauling operations.	All
Cadmium	82 mg/kg / (*5.0 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Chromium	300[e] mg/kg	Potential contaminant from Waste Pits and Silos material hauling operations. Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC08 A5A-PC09 A5WPL-PC05
Lead	400 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Mercury	7.5 mg/kg	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Molybdenum	2900 mg/kg / (*10 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation.	A5A-PC09 A5WPL-PC05
Selenium	5,400 mg/kg	Potential contaminant from 60-inch storm sewer line excavation	A5A-PC09 A5WPL-PC05
Silver	29,000 mg/kg / (*10 mg/kg*)	Potential contaminant from 60-inch storm sewer line excavation	A5A-PC09 A5WPL-PC05
Fluoride	78,000 mg/kg	Potential contaminant from Waste Pits and Silos Material hauling operations.	A5A-PC08

[a] The total uranium FRL is lower in the defined high leachability zones (i.e., 20 mg/kg).
[b] Where the WAC is less than the FRL (as with technetium-99), the WAC value will be used when evaluating data.
[c] Benchmark toxicity value (BTV) applies to ecological constituent of concern.
[d] The FRL is actually for 1,1,2-trichloroethane because 1,1,1-trichloroethane does not have a FRL. This value will be used for statistical comparison for certification criteria.
[e] The FRL is actually for hexavalent chromium because total chromium does not have a FRL.

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



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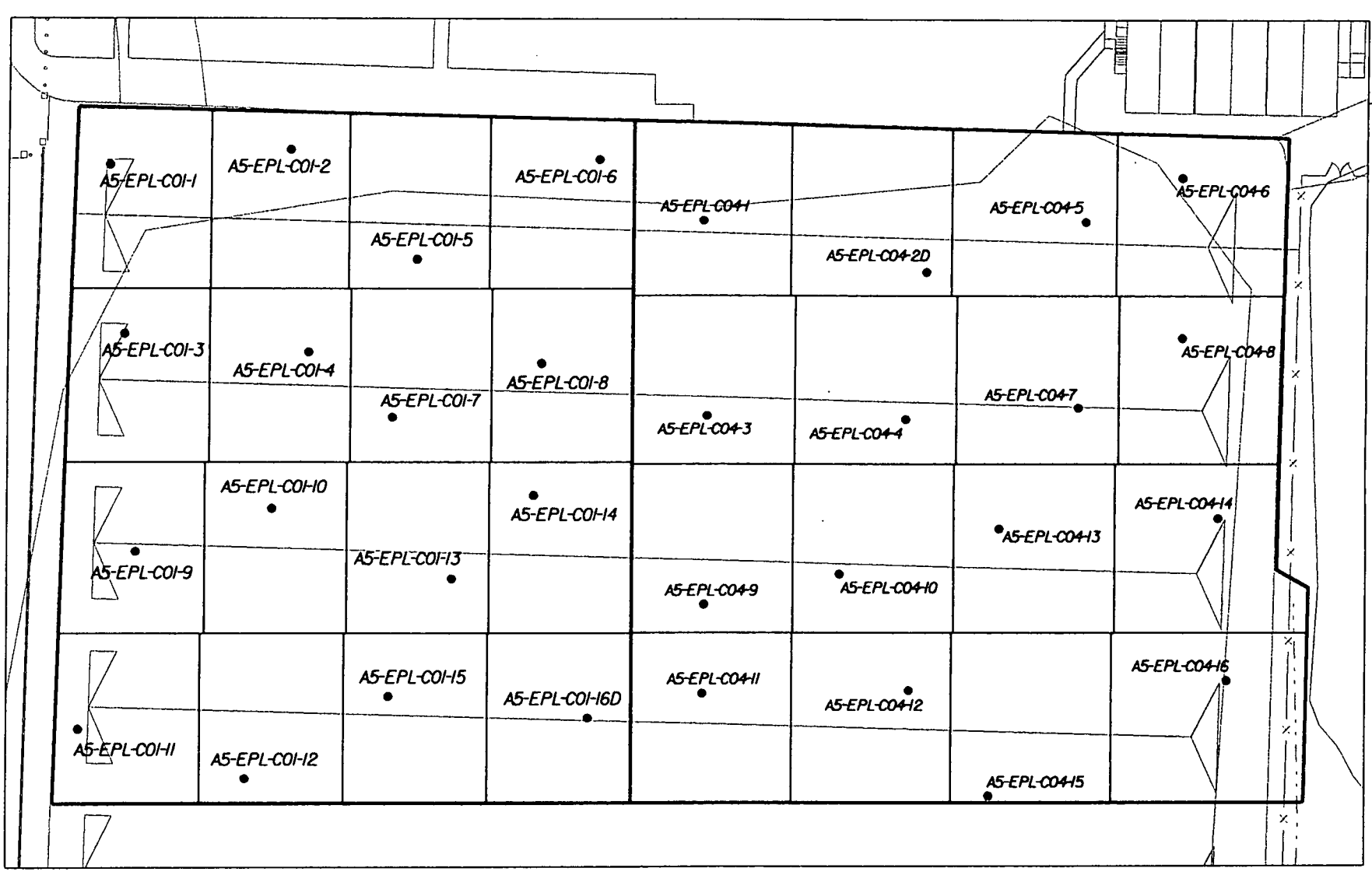
STATE PLANAR COORDINATE SYSTEM 1983

26-OCT-2006

FIGURE 2-1. AREA 5 CU BOUNDARY MAP



LEGEND:

• SAMPLE LOCATION

SCALE

50 25 0 50 FEET

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STATE PLANAR COORDINATE SYSTEM 1983

FIGURE 2-2. CERTIFICATION SAMPLING LOCATIONS FOR A5EPL-C01 AND A5EPL-C04

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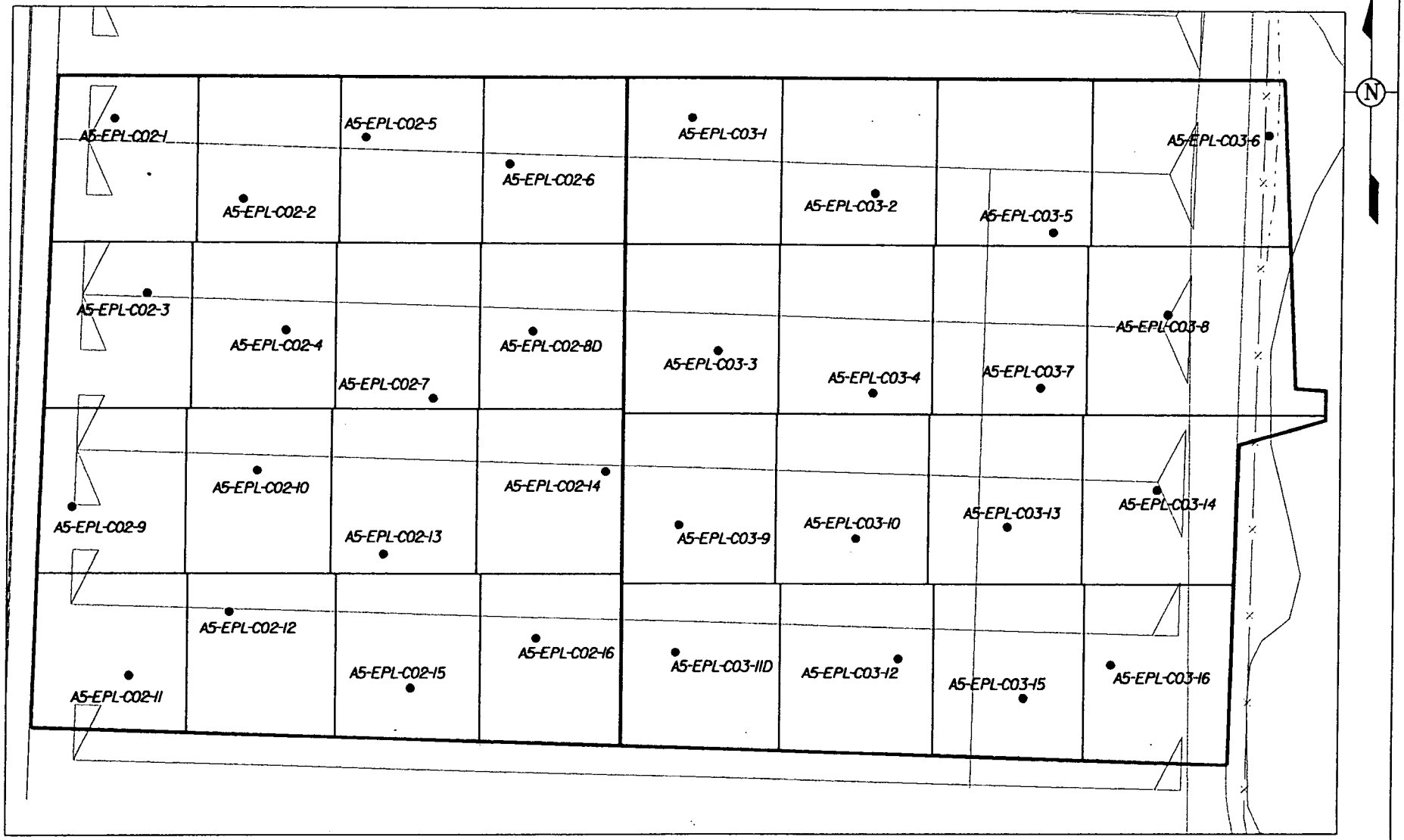

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STATE PLANAR COORDINATE SYSTEM 1983

LEGEND:

• SAMPLE LOCATION

SCALE

50 25 0 50 FEET

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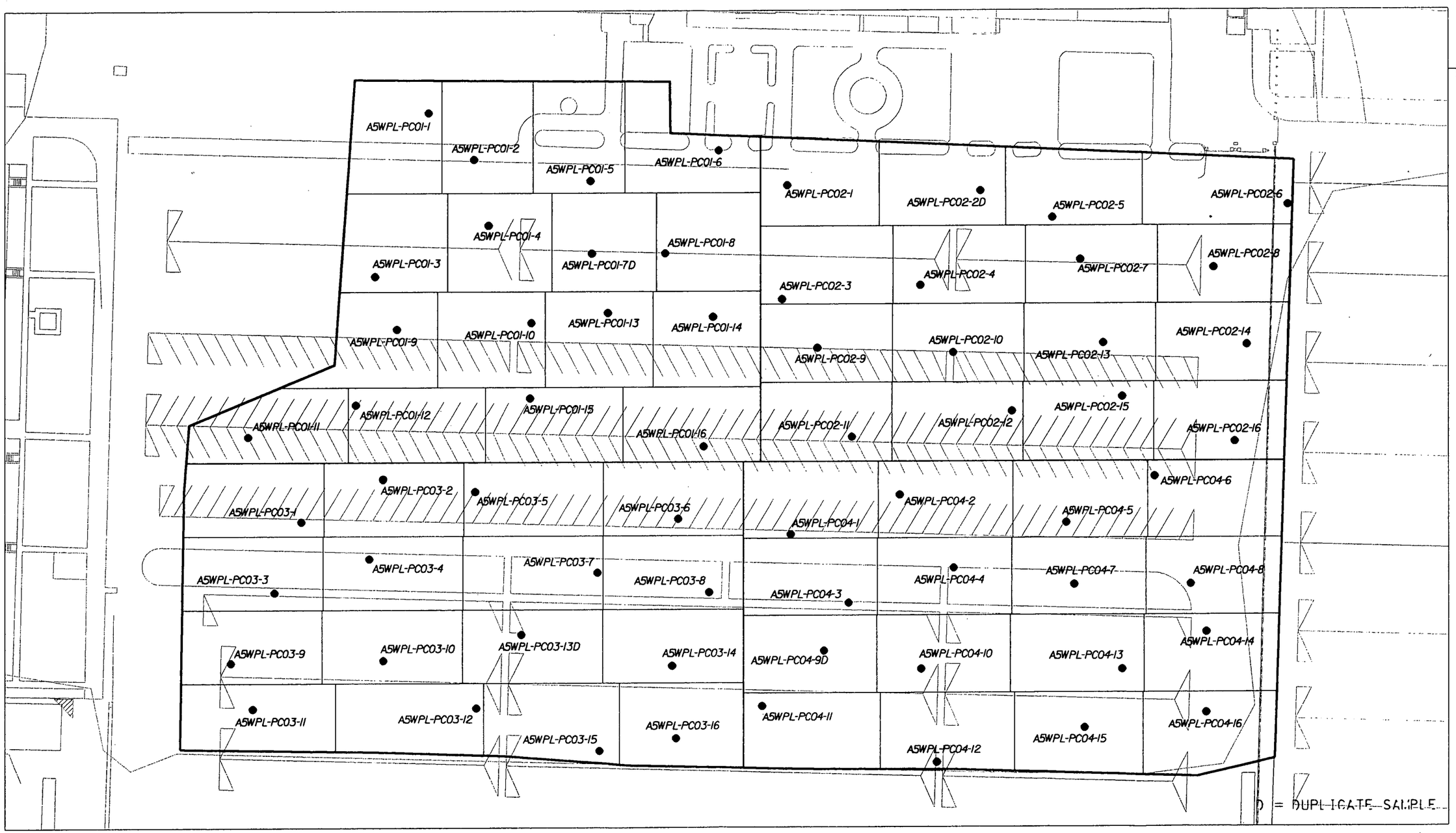
FIGURE 2-3. CERTIFICATION SAMPLING LOCATIONS FOR A5EPL-C02 AND A5EPL-C03



LEGEND:

● SAMPLE LOCATION

SCALE

60 30 0 60 FEET

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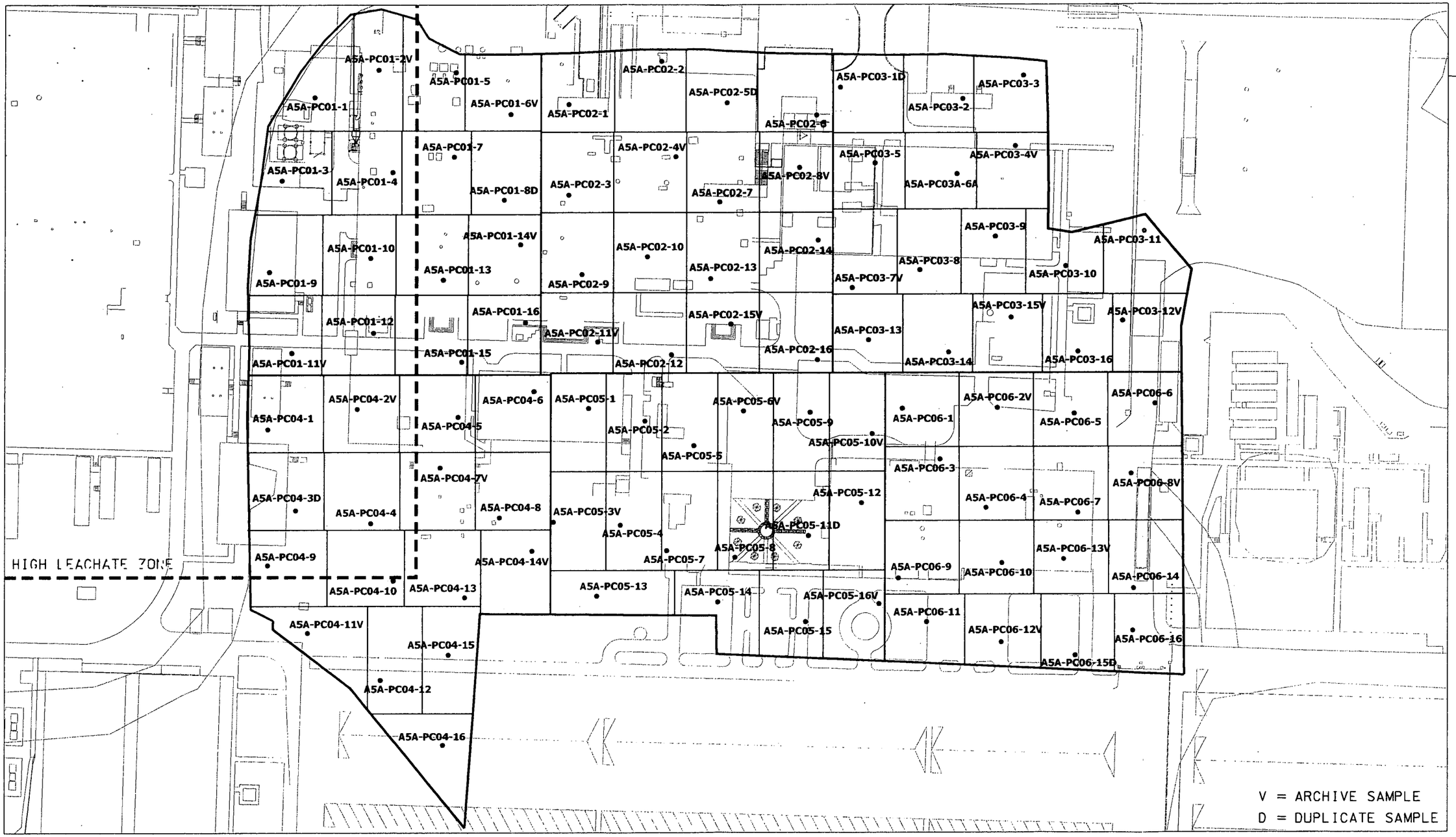
FIGURE 2-4. AREA 5 WEST PARKING LOT CERTIFICATION SAMPLE LOCATIONS



LEGEND:

• SAMPLE LOCATION

SCALE

80 40 0 80 FEET

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FIGURE 2-5. AREA 5 ADMINISTRATION AREA CERTIFICATION SAMPLE LOCATIONS

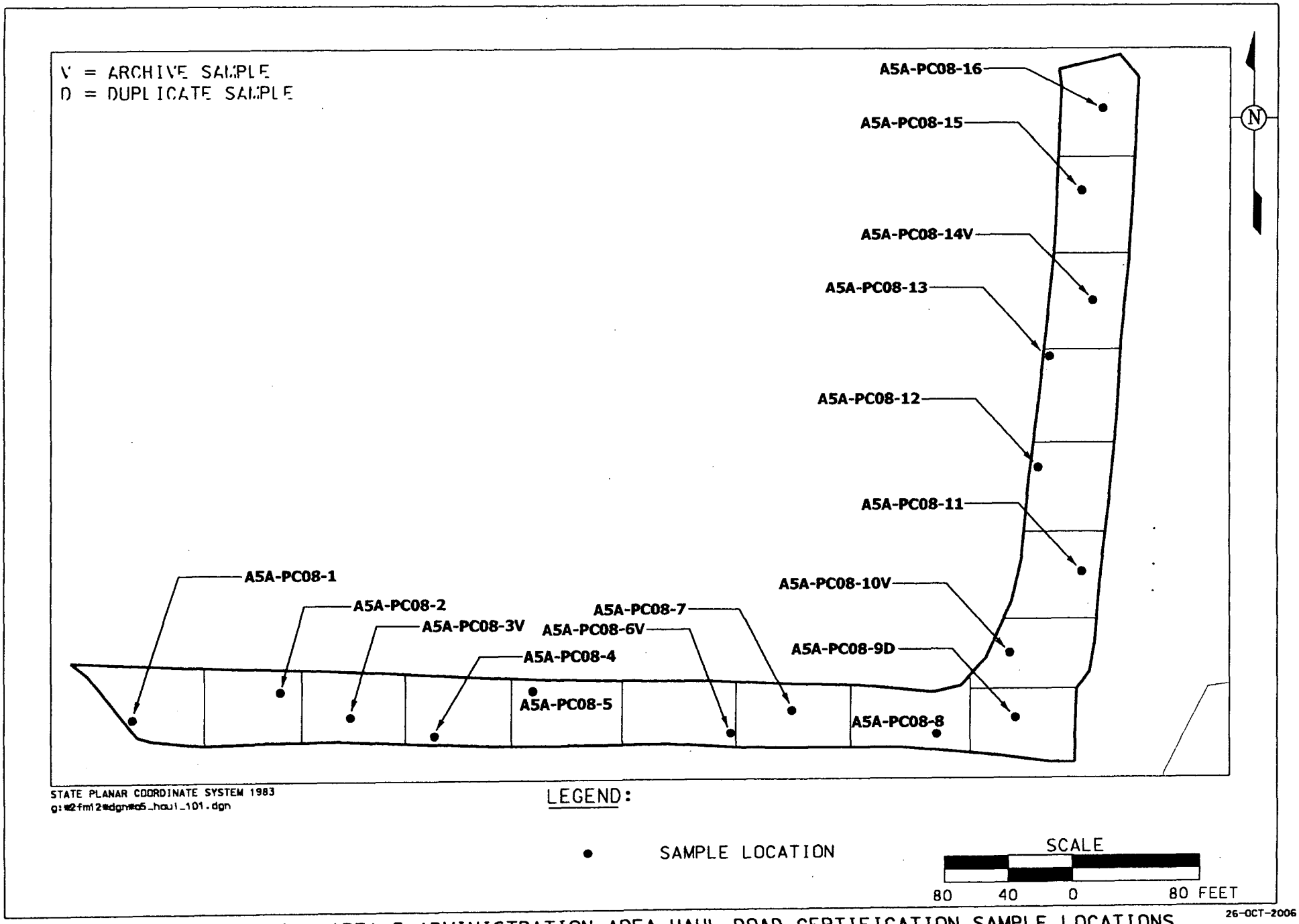

FIGURE 2-6. AREA 5 ADMINISTRATION AREA HAUL ROAD CERTIFICATION SAMPLE LOCATIONS

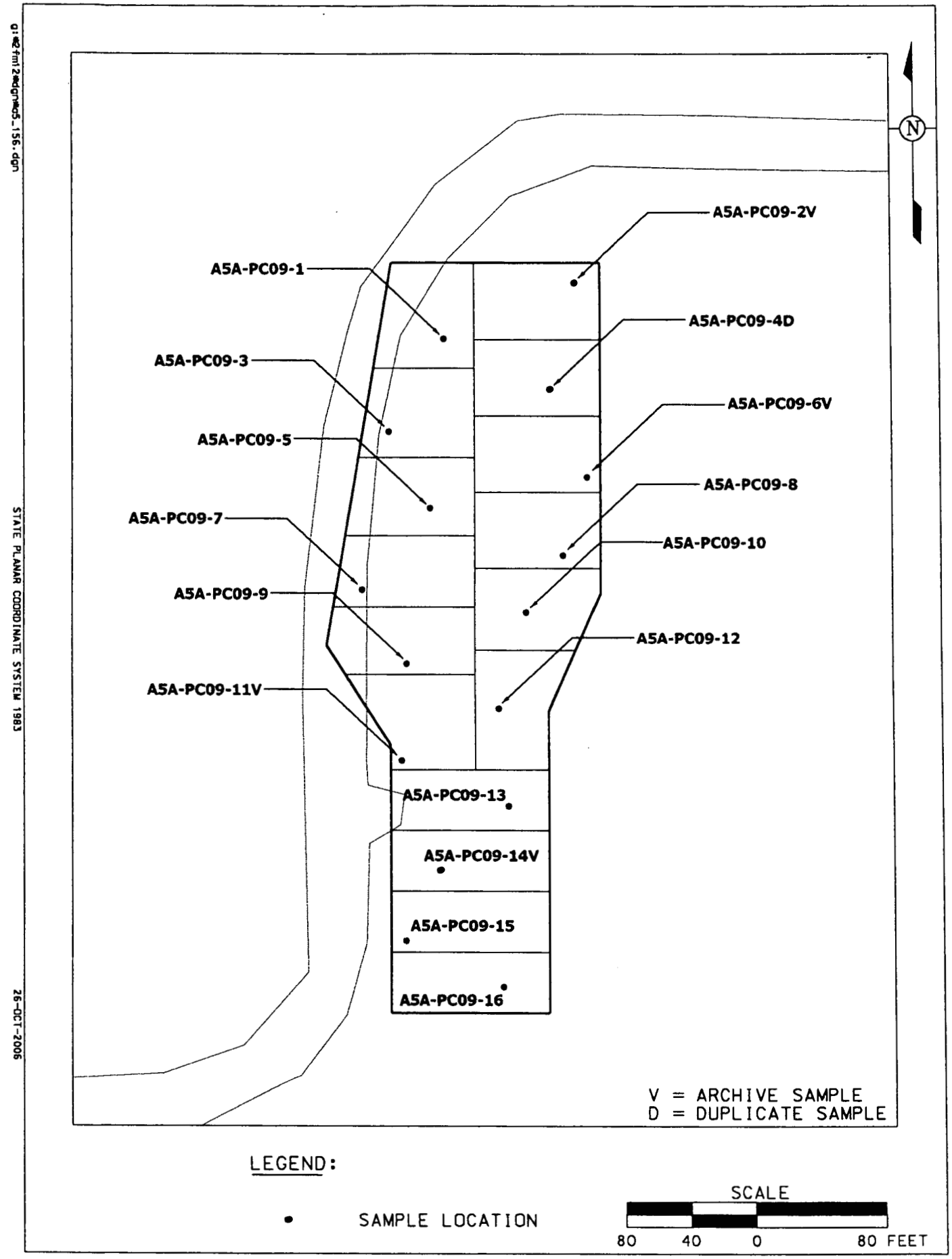

FIGURE 2-7. AREA 5 60-INCH LINE CERTIFICATION SAMPLE LOCATIONS

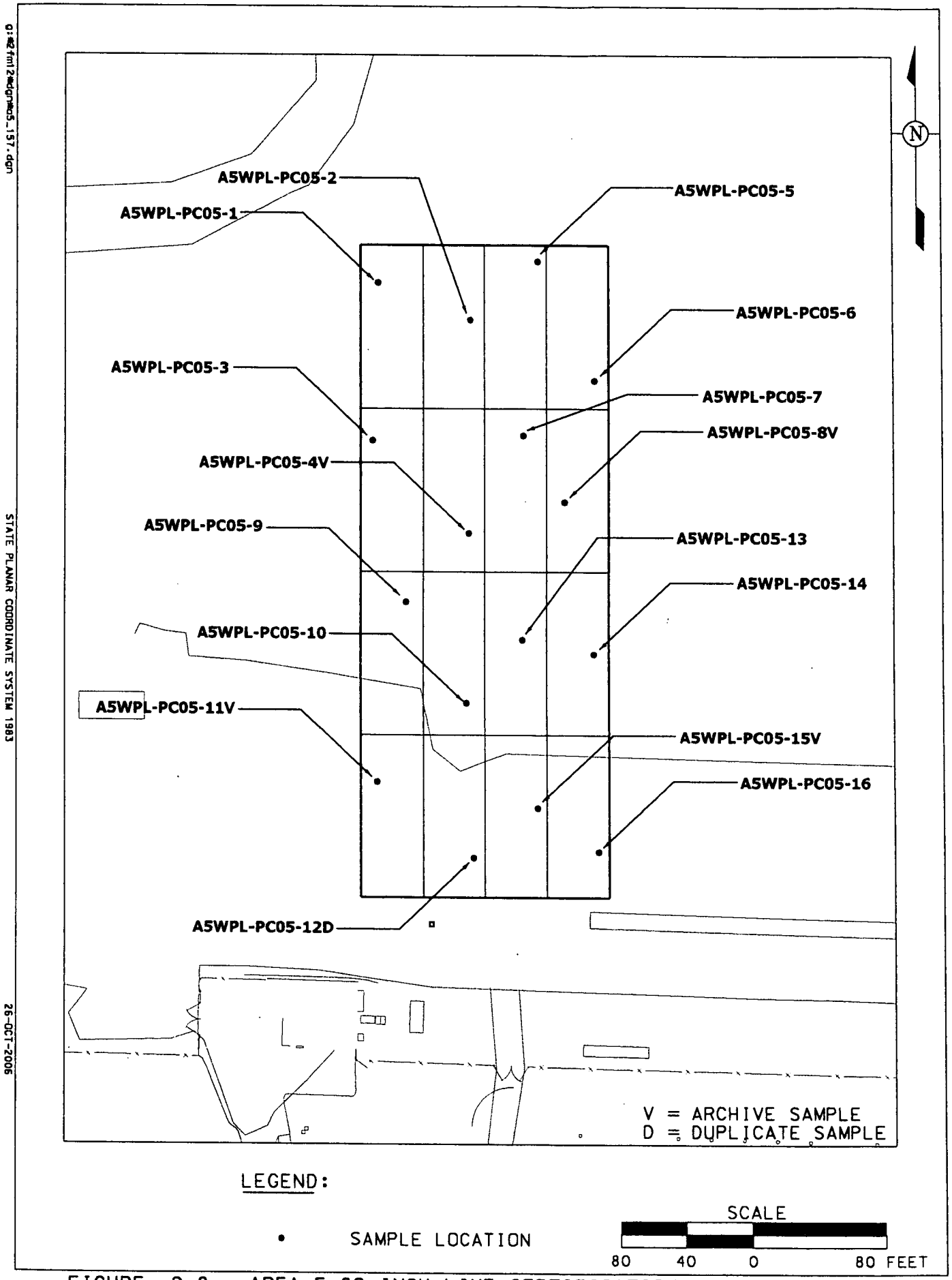

FIGURE 2-8. AREA 5 60-INCH LINE CERTIFICATION SAMPLE LOCATIONS

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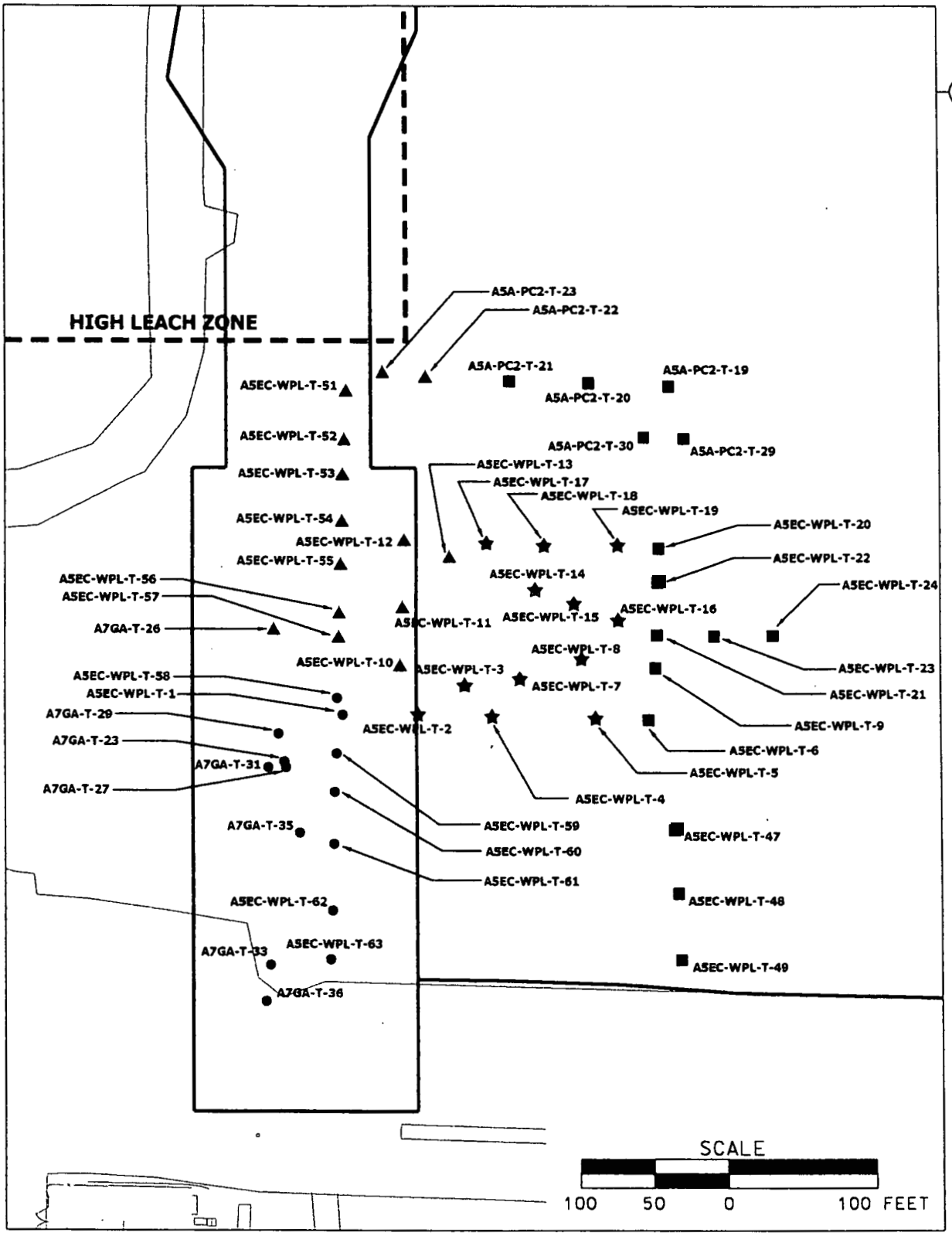
STATE PLANAR COORDINATE SYSTEM 1983
26-OCT-2006



LEGEND:

- ● SAMPLE LOCATION (CU1)
- ▲ SAMPLE LOCATION (CU2)
- ★ SAMPLE LOCATION (CU3)
- ■ SAMPLE LOCATION (CU4)

FIGURE 2-9. UTILITY TRENCH SAMPLE LOCATIONS

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STATE PLANAR COORDINATE SYSTEM 1983
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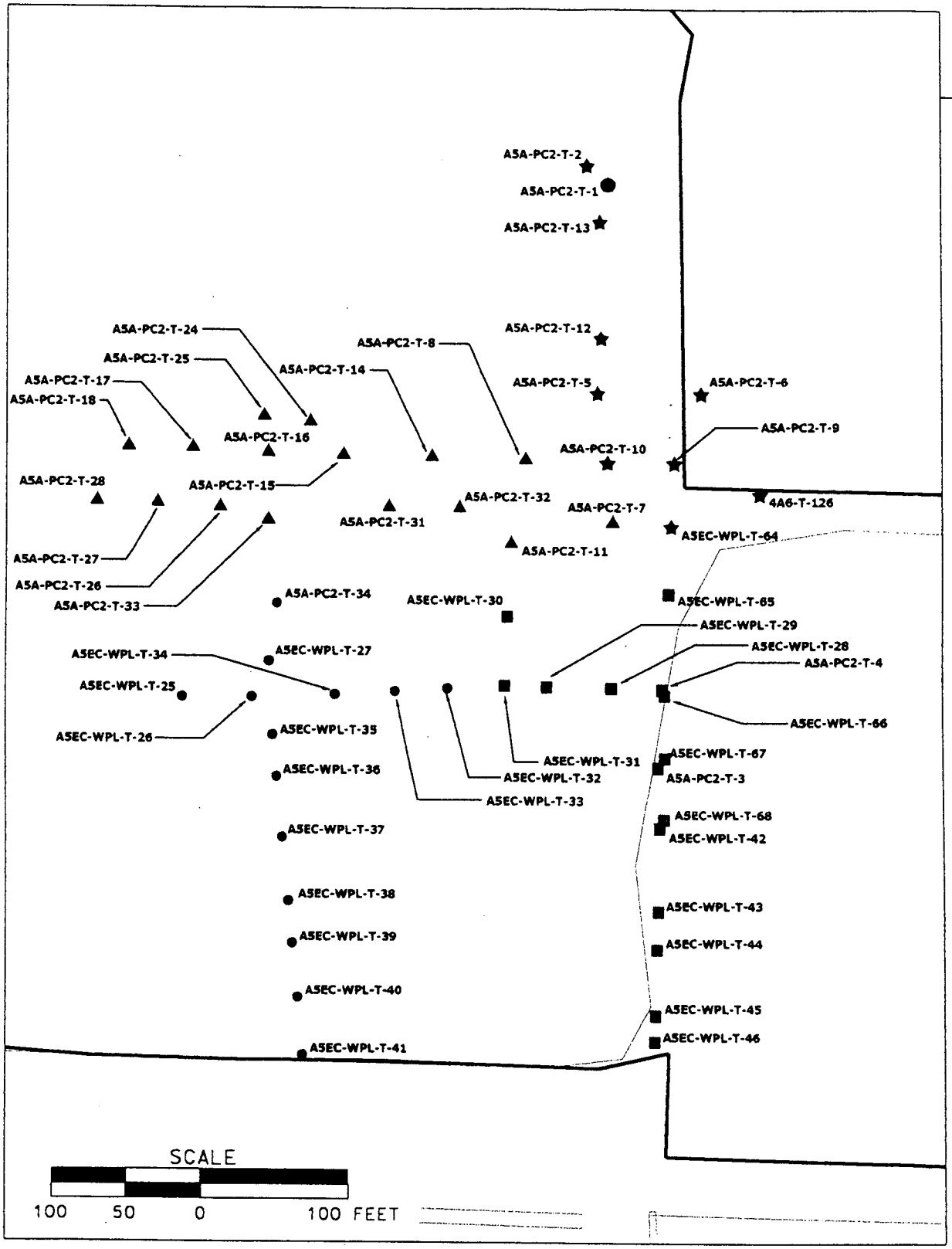

LEGEND:

- ● SAMPLE LOCATION (CU5)
- ▲ SAMPLE LOCATION (CU6)
- ★ SAMPLE LOCATION (CU7)
- ■ SAMPLE LOCATION (CU8)

FIGURE 2-10. UTILITY TRENCH SAMPLE LOCATIONS

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STATE PLANAR COORDINATE SYSTEM 1983

26-OCT-2006

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

Precertification surveys were performed from August 2003 through September 2006 per the PSP Guidelines for General Characterization for Sitewide Soil Remediation, Sections 3.0 and 6.0 (DOE 2005c). Real-time survey results are presented in the appendices of the CDL and Certification PSP for Area 5 EPL and the CDL/Certification PSP for Area 5 Administration Area and WPL.

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 PSPs. There were no changes (variances) to the two CDL/PSPs.

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 Sitewide Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ, DOE 2003) 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. Where possible, 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.

Volatile Organic Compounds (VOCs)

Samples submitted for VOC analyses were analyzed by gas chromatography/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:

$$\text{Total Uranium (mg/kg)} = 2.998544 \text{ (mg/pCi * g/kg)} \times \text{Uranium-238 (pCi/g)}$$

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 C), 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 that exceed the FRL. 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 5 Administration Area, EPL and WPL.

Area 5 Administration Area and East and West Parking Lot CUs

All seventeen CUs passed the certification criteria as outlined in Section 2.2.4. Final certification data are presented in Appendix A.

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 eight CUs, and the results and statistical evaluation are presented in Appendix B. Radium-226 exceeded the FRL in two CUs and the statistical analysis in Appendix B shows all of the CUs pass certification

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 5 Administration Area, EPL and WPL. 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, Ohio.

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, Ohio.

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, Ohio.

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, Ohio.

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, Ohio.

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, 2001, "Addendum to the 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, Ohio.

U.S. Department of Energy, 2005a, "Certification Design Letter for Area 5 East Parking Lot," Final, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2005b, "Project Specific Plan for Area 5 East Parking Lot Certification Sampling," Revision 0, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

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

U.S. Department of Energy, 2006, "Certification Design Letter and Certification Project Specific Plan for Area 5 Administration Area and East and West Parking Lots," Revision 0, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

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

APPENDIX A
STATISTICAL ABBREVIATIONS AND SYMBOLS

The procedure used to determine if the data follow a normal or lognormal distribution 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; Log Normal: 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.

CERTIFICATION UNIT A5-EPL-C01

SAMPLE ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Aroclor-1254
A5-EPL-C01-1	0.91 -	0.674 -	0.695 -	0.674 -	3.84 U	7.24 -	3.7 U
A5-EPL-C01-2	0.882 -	0.626 -	0.636 -	0.626 -	3.34 U	5.25 -	3.8 UJ
A5-EPL-C01-3	0.763 -	0.677 -	0.707 -	0.677 -	3.59 U	11.4 -	3.9 U
A5-EPL-C01-4	0.902 -	0.529 -	0.505 -	0.529 -	4.79 J	6.54 -	3.9 U
A5-EPL-C01-5	0.921 -	0.782 -	0.771 -	0.782 -	2.83 U	8.41 -	3.8 U
A5-EPL-C01-6	1.46 -	1.17 -	1.15 -	1.17 -	2.99 U	7.15 -	4 U
A5-EPL-C01-7	0.811 -	0.691 -	0.684 -	0.691 -	2.62 U	6.86 -	2.4 J
A5-EPL-C01-8	0.876 -	0.751 -	0.705 -	0.751 -	6.21 J	5.55 -	5 -
A5-EPL-C01-9	0.808 -	0.806 -	0.778 -	0.806 -	2.76 U	6.8 -	3.3 J
A5-EPL-C01-10	0.88 -	0.843 -	0.859 -	0.843 -	2.71 U	16.5 -	1.3 J
A5-EPL-C01-11	0.878 -	0.753 -	0.777 -	0.753 -	3.69 U	5.13 -	3.8 U
A5-EPL-C01-12	0.986 -	0.628 -	0.667 -	0.628 -	6.32 J	9.53 -	2.1 J
A5-EPL-C01-13	0.994 -	0.817 -	0.807 -	0.817 -	3.83 U	6.84 -	3.8 U
A5-EPL-C01-14	0.797 -	0.852 -	0.821 -	0.852 -	5.9 -	5.55 -	3.8 U
A5-EPL-C01-15	0.702 -	0.892 -	0.861 -	0.892 -	4.1 U	6.66 -	3.8 U
A5-EPL-C01-16	0.899 -	0.754 -	0.679 -	0.754 -	3.78 U	5.76 -	3.9 U
A5-EPL-C01-16-D	0.816 -	0.779 -	0.823 -	0.779 -	4.36 -	5.57 -	3.9 U
Limit	1.7	1.8	1.7	1.5	82	12	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.46	1.17	1.15	1.17	6.32	**16.5**	5
Max. >= Limit	No	No	No	No	No	**Yes**	No
W-statistic Prob. #	- -	- -	- -	- -	- -	1.8% (LN)	- -
Test Procedure	- -	- -	- -	- -	- -	Median (Sign)	- -
Sample Size	16	16	16	16	16	16	16
Nondetects	0	0	0	0	11	0	11
% Nondetects	0%	0%	0%	0%	69%	0%	69%
Est. Mean*	- -	- -	- -	- -	- -	6.82	- -
UCL	- -	- -	- -	- -	- -	7.24	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	Pass	- -

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

CERTIFICATION UNIT A5-EPL-C02

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Aroclor-1254
A5-EPL-C02-1	1.1 -	1.05 -	1.03 -	1.05 -	2.89 U	5.26 -	3.9 U
A5-EPL-C02-2	0.713 -	0.569 -	0.603 -	0.569 -	2.57 U	6.68 -	1.6 J
A5-EPL-C02-3	0.878 -	0.827 -	0.83 -	0.827 -	2.89 U	9.18 -	1.6 J
A5-EPL-C02-4	0.558 -	0.509 -	0.478 -	0.509 -	2.59 U	4.98 -	1.3 J
A5-EPL-C02-5	0.813 -	0.621 -	0.633 -	0.621 -	2.53 U	4.13 -	2.2 J
A5-EPL-C02-6	0.722 -	0.789 -	0.8 -	0.789 -	2.69 U	4.76 -	0.7 J
A5-EPL-C02-7	0.754 -	0.789 -	0.761 -	0.789 -	2.81 U	4.56 -	3.8 UJ
A5-EPL-C02-8	0.779 -	0.754 -	0.757 -	0.754 -	2.76 U	5.59 -	3.8 UJ
A5-EPL-C02-8-D	0.855 -	0.818 -	0.83 -	0.818 -	2.87 U	6.67 -	0.9 J
A5-EPL-C02-9	1.04 -	0.887 -	0.834 -	0.887 -	2.92 U	10.4 -	1.5 J
A5-EPL-C02-10	0.983 -	0.795 -	0.802 -	0.795 -	2.81 U	10.4 -	4.1 J
A5-EPL-C02-11	0.989 -	0.793 -	0.757 -	0.793 -	2.84 U	5.76 -	2.6 J
A5-EPL-C02-12	0.928 -	0.964 -	0.945 -	0.964 -	5.89 J	5.49 -	0.7 J
A5-EPL-C02-13	0.836 -	0.62 -	0.599 -	0.62 -	2.72 U	4.56 -	3.9 U
A5-EPL-C02-14	0.866 -	0.709 -	0.689 -	0.709 -	2.73 U	4.43 -	0.9 J
A5-EPL-C02-15	0.719 -	0.577 -	0.551 -	0.577 -	2.8 U	6.15 -	1.5 J
A5-EPL-C02-16	0.936 -	0.842 -	0.822 -	0.842 -	2.84 U	8.15 -	1.1 J
Limit	1.7	1.8	1.7	1.5	82	12	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.1	1.05	1.03	1.05	5.89	10.4	4.1
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	15	0	3
% Nondetects	0%	0%	0%	0%	94%	0%	19%
Est. Mean*	- -	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5-EPL-C03

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Aroclor-1254
A5-EPL-C03-1	0.913 J	0.658 -	0.58 -	0.658 -	4.19 U	5.25 -	0.6 J
A5-EPL-C03-2	0.962 J	0.866 -	0.792 -	0.866 -	4.01 U	5.56 -	34 -
A5-EPL-C03-3	0.864 J	0.86 -	0.836 -	0.86 -	4.17 U	4.81 -	7.7 -
A5-EPL-C03-4	0.96 J	0.829 -	0.825 -	0.829 -	4.25 U	5.45 -	1.3 J
A5-EPL-C03-5	1.01 J	0.913 -	0.964 -	0.913 -	3.86 U	6.31 -	1.4 J
A5-EPL-C03-6	1.48 J	1.19 -	1.27 -	1.19 -	4.86 U	15.3 -	14 -
A5-EPL-C03-7	1.2 J	0.946 -	0.872 -	0.946 -	4.81 U	7.47 -	61 -
A5-EPL-C03-8	1.01 J	1.03 -	0.986 -	1.03 -	4.31 U	6.8 -	12 UJ
A5-EPL-C03-9	1.04 J	0.591 -	0.472 -	0.591 -	5.33 J	4.79 -	0.6 J
A5-EPL-C03-10	1.29 J	1.11 -	1.13 -	1.11 -	4.53 U	8.32 -	4.7 -
A5-EPL-C03-11	0.922 J	0.905 -	0.941 -	0.905 -	4.08 U	6.77 -	4 U
A5-EPL-C03-11-D	1.09 J	0.928 -	0.904 -	0.928 -	4.18 U	8.86 -	3.9 U
A5-EPL-C03-12	0.628 J	0.809 -	0.799 -	0.809 -	4.16 U	3.18 -	3.8 U
A5-EPL-C03-13	1.08 J	0.938 -	0.903 -	0.938 -	4.14 U	8.31 -	0.8 J
A5-EPL-C03-14	0.795 J	0.736 -	0.712 -	0.736 -	6.65 J	4.56 -	0.8 J
A5-EPL-C03-15	0.851 J	0.642 -	0.638 -	0.642 -	3.75 U	3.77 -	12 UJ
A5-EPL-C03-16	1 J	0.836 -	0.795 -	0.836 -	4.08 U	5.48 -	3.9 U
Limit	1.7	1.8	1.7	1.5	82	12	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.48	1.19	1.27	1.19	6.65	**15.3**	61
Max. >= Limit	No	No	No	No	No	**Yes**	No
W-statistic Prob. #	- -	- -	- -	- -	- -	60.9% (LN)	- -
Test Procedure	- -	- -	- -	- -	- -	Lognormal	- -
Sample Size	16	16	16	16	16	16	16
Nondetects	0	0	0	0	14	0	5
% Nondetects	0%	0%	0%	0%	88%	0%	31%
Est. Mean*	- -	- -	- -	- -	- -	6.51	- -
UCL	- -	- -	- -	- -	- -	7.49	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	pass	- -

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

CERTIFICATION UNIT A5-EPL-C04

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Aroclor-1254
A5-EPL-C04-1	0.832 J	0.752 J	0.746 -	0.752 J	2.89 U	7.13 J	3.9 U
A5-EPL-C04-2	0.461 J	0.499 J	0.476 -	0.499 J	2.23 U	3.83 J	3.6 U
A5-EPL-C04-2-D	0.363 J	0.381 J	0.375 -	0.381 J	2.16 U	6.46 J	3.6 U
A5-EPL-C04-3	0.815 J	0.809 J	0.817 -	0.809 J	3.09 U	7.22 J	4.1 U
A5-EPL-C04-4	0.715 J	0.706 J	0.683 -	0.706 J	3.36 U	5.55 J	3.9 U
A5-EPL-C04-5	1.36 J	1.28 J	1.25 -	1.28 J	3.36 U	5.09 J	4.3 U
A5-EPL-C04-6	1.42 J	1.15 J	1.14 -	1.15 J	7.74 -	6.78 J	4.2 U
A5-EPL-C04-7	1.03 J	0.809 J	0.801 -	0.809 J	6.57 -	5.2 J	3.8 U
A5-EPL-C04-8	1.25 J	1.1 J	1.06 -	1.1 J	6.67 -	15.5 J	4.2 U
A5-EPL-C04-9	0.674 J	0.705 J	0.747 -	0.705 J	2.9 U	11 J	3.7 U
A5-EPL-C04-10	0.92 J	0.822 J	0.803 -	0.822 J	2.88 U	4.84 J	3.8 U
A5-EPL-C04-11	0.994 J	0.774 J	0.77 -	0.774 J	5.38 J	6.68 J	3.8 U
A5-EPL-C04-12	0.621 J	0.507 J	0.531 -	0.507 J	2.63 U	5.26 J	3.6 U
A5-EPL-C04-13	1.2 J	0.884 J	0.88 -	0.884 J	6.08 J	7.17 J	3.8 U
A5-EPL-C04-14	1.5 J	1.07 J	1.05 -	1.07 J	3.55 J	12.2 J	16 UJ
A5-EPL-C04-15	1.04 J	0.793 J	0.774 -	0.793 J	3.22 U	6.69 J	14 UJ
A5-EPL-C04-16	1.37 J	0.976 J	0.932 -	0.976 J	4.79 J	6.81 J	16 UJ
Limit	1.7	1.8	1.7	1.5	82	12	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.5	1.28	1.25	1.28	7.74	**15.5**	16 UJ
Max. >= Limit	No	No	No	No	No	**Yes**	No
W-statistic Prob. #	- -	- -	- -	- -	- -	1.4% (LN)	- -
Test Procedure	- -	- -	- -	- -	- -	Median (Sign)	- -
Sample Size	16	16	16	16	16	16	16
Nondetects	0	0	0	0	9	0	12
% Nondetects	0%	0%	0%	0%	56%	0%	75%
Est. Mean*	- -	- -	- -	- -	- -	6.74	- -
UCL	- -	- -	- -	- -	- -	7.17	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	Pass	- -

a posteriori Sample	- -	- -	- -	- -	- -	7	- -
Size calculation	- -	- -	- -	- -	- -	Pass	- -

CERTIFICATION UNIT A5WPL-PC01

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A5WPL-PC01-1	1.1 J	0.854 J	0.87 -	0.854 J	8.72 -
A5WPL-PC01-2	1.17 J	0.973 J	1.03 -	0.973 J	13.6 -
A5WPL-PC01-3	1.12 J	0.815 J	0.849 -	0.815 J	7.89 -
A5WPL-PC01-4	0.908 J	0.614 J	0.646 -	0.614 J	3.47 J
A5WPL-PC01-5	0.871 J	0.506 J	0.526 -	0.506 J	4.28 J
A5WPL-PC01-6	0.913 J	0.765 J	0.827 -	0.765 J	5.49 -
A5WPL-PC01-7	1.11 J	0.926 J	0.913 -	0.926 J	3.47 U
A5WPL-PC01-7-D	0.979 J	0.749 J	0.803 -	0.749 J	3.78 J
A5WPL-PC01-8	1.08 J	0.809 J	0.833 -	0.809 J	3.12 J
A5WPL-PC01-9	1.04 J	0.777 J	0.794 -	0.777 J	3.75 J
A5WPL-PC01-10	1.14 J	0.79 J	0.797 -	0.79 J	3.28 U
A5WPL-PC01-11	1.21 J	0.907 J	0.894 -	0.907 J	7.9 -
A5WPL-PC01-12	1.12 J	0.974 J	1 -	0.974 J	7 -
A5WPL-PC01-13	0.954 J	0.781 J	0.782 -	0.781 J	4.96 J
A5WPL-PC01-14	1.16 J	0.893 J	0.865 -	0.893 J	5.87 -
A5WPL-PC01-15	0.99 J	0.788 J	0.794 -	0.788 J	7.4 -
A5WPL-PC01-16	0.944 J	0.82 J	0.84 -	0.82 J	3.55 J
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	1.21	0 .974	1.03	0 .974	13.6
Max. >= Limit	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -
Sample Size	16	16	16	16	16
Nondetects	0	0	0	0	1
% Nondetects	0%	0%	0%	0%	6%
Est. Mean*	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5WPL-PC02

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total
A5WPL-PC02-1	1.21 J	1.01 J	1.01 J	1.01 J	2.72 J
A5WPL-PC02-2	1.47 J	1.11 J	1.07 J	1.11 J	4.01 -
A5WPL-PC02-2-D	1.76 J	1.41 J	1.47 J	1.41 J	6.63 -
A5WPL-PC02-3	1.14 J	0.911 J	0.942 J	0.911 J	3.14 -
A5WPL-PC02-4	1.31 J	0.916 J	0.915 J	0.916 J	4.22 -
A5WPL-PC02-5	1.21 J	0.875 J	0.876 J	0.875 J	3.71 -
A5WPL-PC02-6	0.889 J	0.747 J	0.73 J	0.747 J	3.74 U
A5WPL-PC02-7	1.17 J	0.75 J	0.741 J	0.75 J	3.73 U
A5WPL-PC02-8	0.956 J	0.675 J	0.689 J	0.675 J	3.9 J
A5WPL-PC02-9	1.17 J	0.894 J	0.866 J	0.894 J	3.9 U
A5WPL-PC02-10	1.04 J	0.845 J	0.864 J	0.845 J	3.41 U
A5WPL-PC02-11	0.935 J	0.802 J	0.838 J	0.802 J	3.3 U
A5WPL-PC02-12	1.1 J	0.867 J	0.861 J	0.867 J	6.5 -
A5WPL-PC02-13	1.01 J	0.722 J	0.685 J	0.722 J	6.48 -
A5WPL-PC02-14	0.915 J	0.693 J	0.721 J	0.693 J	4.47 J
A5WPL-PC02-15	1.09 J	0.805 J	0.811 J	0.805 J	3.79 J
A5WPL-PC02-16	1.14 J	0.806 J	0.811 J	0.806 J	6.9 -
Limit	1.7	1.8	1.7	1.5	82
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%
Max. Result	**1.76**	1.41	1.47	1.41	6.9
Max. >= Limit	**Yes**	No	No	No	No
W-statistic Prob. #	8.7% (LN)	- -	- -	- -	- -
Test Procedure	Lognormal	- -	- -	- -	- -
Sample Size	16	16	16	16	16
Nondetects	0	0	0	0	5
% Nondetects	0%	0%	0%	0%	31%
Est. Mean*	1.128	- -	- -	- -	- -
UCL	1.22	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -
Pass / Fail	pass	- -	- -	- -	- -

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

CERTIFICATION UNIT A5WPL-PC03

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Beryllium
A5A-PC01A-1	1.18 J	0.878 -	0.877 -	0.878 -	11.2 -	4.06 -	0.454 -
A5A-PC01A-3	1.64 J	1.28 -	1.3 -	1.28 -	51.9 -	4.71 -	0.577 -
A5A-PC01A-4	1.29 J	0.998 -	0.993 -	0.998 -	10 -	7.1 -	0.653 -
A5A-PC01A-5	1.41 J	1.1 -	1.11 -	1.1 -	6.22 J	8.43 -	0.662 -
A5A-PC01A-7	1.29 J	1.01 -	1.06 -	1.01 -	10.5 -	8.98 -	0.666 -
A5A-PC01A-8	1.23 J	0.945 -	0.933 -	0.945 -	3.95 J	7.12 -	0.689 -
A5A-PC01A-8-D	1.22 J	0.878 -	0.898 -	0.878 -	6.19 -	7.07 -	0.698 -
A5A-PC01A-9	1.28 J	1.07 -	1.09 -	1.07 -	9.03 -	8.37 -	0.477 -
A5A-PC01A-10	1.13 J	0.935 -	0.914 -	0.935 -	4.7 J	8.31 -	0.683 -
A5A-PC01A-12	1.15 J	0.901 -	0.901 -	0.901 -	6.6 -	5.63 -	0.604 -
A5A-PC01A-13	1.27 J	1.17 -	1.22 -	1.17 -	8.05 -	6.71 -	0.684 -
A5A-PC01A-15	1.15 J	0.899 -	0.902 -	0.899 -	6.66 -	6.74 -	0.694 -
A5A-PC01A-16	1.03 J	0.806 -	0.832 -	0.806 -	2.85 J	6.84 -	0.641 -
Limit	1.7	1.8	1.7	1.5	82	12	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.64	1.28	1.3	1.28	51.9	8.98	0 .698
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	0	0
% Nondetects	0%	0%	0%	0%	0%	0%	0%
Est. Mean*	- -	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5WPL-PC04

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic
A5WPL-PC04-1	1.17 -	0.969 -	0.984 -	0.969 -	7.13 -	8.15 -
A5WPL-PC04-2	1.34 -	1.06 -	1.08 -	1.06 -	3.94 U	4.63 -
A5WPL-PC04-3	1.23 -	0.849 -	0.9 -	0.849 -	11.7 -	5.39 -
A5WPL-PC04-4	1.6 -	1.28 -	1.33 -	1.28 -	4.07 U	4.31 -
A5WPL-PC04-5	1.27 -	1.06 -	1.14 -	1.06 -	4.12 J	6.07 -
A5WPL-PC04-6	1.19 -	0.905 -	0.969 -	0.905 -	7.78 -	6.37 -
A5WPL-PC04-7	1.65 -	1.34 -	1.33 -	1.34 -	12.3 -	7.1 -
A5WPL-PC04-8	1.22 -	1.05 -	1.08 -	1.05 -	3.2 U	7.73 -
A5WPL-PC04-9	1.53 -	1.23 -	1.26 -	1.23 -	3.98 U	5.77 -
A5WPL-PC04-9-D	1.58 -	1.14 -	1.19 -	1.14 -	6.96 -	5.2 -
A5WPL-PC04-10	1.55 -	1.26 -	1.32 -	1.26 -	4.21 J	6.82 -
A5WPL-PC04-11	1.17 -	0.862 -	0.905 -	0.862 -	6.37 J	3.9 -
A5WPL-PC04-12	1.32 -	0.917 -	0.908 -	0.917 -	3.68 U	3 -
A5WPL-PC04-13	1.4 -	1.09 -	1.05 -	1.09 -	7.39 -	4.48 -
A5WPL-PC04-14	1.28 -	1.04 -	1.04 -	1.04 -	3.65 U	7 -
A5WPL-PC04-15	1.32 -	1.03 -	1.04 -	1.03 -	4.68 J	4.16 -
A5WPL-PC04-16	1.24 -	0.951 -	1.01 -	0.951 -	9.77 -	6.08 -
Limit	1.7	1.8	1.7	1.5	82	12
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%
Max. Result	1.65	1.34	1.33	1.34	12.3	8.15
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -
Sample Size	16	16	16	16	16	16
Nondetects	0	0	0	0	5	0
% Nondetects	0%	0%	0%	0%	31%	0%
Est. Mean*	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5WPL-PC05

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Cesium-137	Technetium-99	Antimony
A5WPL-PC05-1	1.12164 -	0.842 -	0.845 -	0.842 -	10.3 -	0.049 U	2.05 U	0.57 J
A5WPL-PC05-2	0.767832 -	0.641 -	0.647 -	0.641 -	2.44 J	0.039 U	1.99 U	0.62 J
A5WPL-PC05-3	0.968955 -	0.867 -	0.852 -	0.867 -	8.39 -	0.0474 J	1.99 U	2.25 UJ
A5WPL-PC05-5	0.917358 -	0.835 -	0.829 -	0.835 -	5.49 -	0.044 U	2.06 U	2.04 UJ
A5WPL-PC05-6	0.81627 -	0.818 -	0.828 -	0.818 -	3.65 J	0.0601 -	2.05 U	0.44 J
A5WPL-PC05-7	1.04793 -	0.942 -	0.95 -	0.942 -	3.82 -	0.071 U	1.9 U	1 J
A5WPL-PC05-9	0.893139 -	0.841 -	0.816 -	0.841 -	3.02 J	0.07 U	2.19 U	2.43 UJ
A5WPL-PC05-10	0.798369 -	0.739 -	0.747 -	0.739 -	4.97 -	0.045 U	2.02 U	0.62 J
A5WPL-PC05-12	1.11111 -	0.876 -	0.835 -	0.876 -	2.34 U	0.082 U	1.98 U	2.32 UJ
A5WPL-PC05-12-D	0.957372 -	0.822 -	0.808 -	0.822 -	3.82 -	0.036 U	2.31 U	2.34 UJ
A5WPL-PC05-13	0.939471 -	0.898 -	0.904 -	0.898 -	4.62 J	0.043 U	1.99 U	2.13 UJ
A5WPL-PC05-14	1.11111 -	1.01 -	1.03 -	1.01 -	6.33 -	0.044 U	2.1 U	2.17 UJ
A5WPL-PC05-16	1.017393 -	1.15 -	1.12 -	1.15 -	4.81 -	0.049 U	2.09 U	2.38 UJ
Limit	1.7	1.8	1.7	1.5	82	1.4	30	96
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%
Max. Result	1.12164	1.15	1.12	1.15	10.3	0 .0601	2.31 U	1
Max. >= Limit	No	No	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--	--	--
Sample Size	12	12	12	12	12	12	12	12
Nondetects	0	0	0	0	0	10	12	7
% Nondetects	0%	0%	0%	0%	0%	83%	100%	58%
Est. Mean*	--	--	--	--	--	--	--	--
UCL	--	--	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--	--	--

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

CERTIFICATION UNIT A5WPL-PC05

SAMPLE ID	Arsenic	Barium	Beryllium	Cadmium	Chromium	Lead	Mercury	Molybdenum	Selenium
A5WPL-PC05-1	6.8 J	89.7 -	0.51 -	0.51 -	18.7 J	10.5 J	0.018 J	1.4 -	0.628 U
A5WPL-PC05-2	4.9 J	53.7 -	0.35 -	0.36 J	11.7 J	6.9 J	0.0093 J	1.7 -	0.634 U
A5WPL-PC05-3	12.3 J	98.3 -	0.67 -	0.562 U	22.8 J	12.9 J	0.022 J	1.2 -	3.37 U
A5WPL-PC05-5	5.7 J	94.7 -	0.74 -	0.509 U	20.7 J	9.1 J	0.018 J	1.7 -	3.05 U
A5WPL-PC05-6	6.8 J	66 -	0.62 -	0.27 J	14.5 J	8.6 J	0.018 J	1 -	0.636 U
A5WPL-PC05-7	7.5 J	86.5 -	0.64 -	0.31 J	19.9 J	10.8 J	0.017 J	1.4 -	0.677 U
A5WPL-PC05-9	14.3 J	103 -	0.74 -	0.606 U	25.4 J	8.8 J	0.016 J	2.1 -	3.64 U
A5WPL-PC05-10	6.6 J	71.7 -	0.74 -	0.24 J	15.3 J	8.1 J	0.013 J	1.5 -	0.725 U
A5WPL-PC05-12	6.7 J	91.9 -	0.69 -	0.58 U	21 J	13.6 J	0.021 J	1.2 -	3.48 U
A5WPL-PC05-12-D	7.1 J	93.1 -	0.61 -	0.585 U	19.9 J	14.9 J	0.021 J	1.6 -	3.51 U
A5WPL-PC05-13	6.1 J	80.6 -	0.6 -	0.533 U	19.7 J	10.9 J	0.016 J	1.5 -	3.2 U
A5WPL-PC05-14	7.4 J	103 -	0.73 -	0.542 U	23.4 J	14.7 J	0.021 J	1.4 -	3.25 U
A5WPL-PC05-16	9.7 J	182 -	0.84 -	0.596 U	25.7 J	13.9 J	0.024 J	1.1 -	3.57 U
Limit	12	68000	1.5	82	300	400	7.5	2900	5400
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Conf. Level	90%	90%	90%	90%	90%	90%	90%	90%	90%
Max. Result	**14.3**	182	0 .84	0 .51	25.7	14.9	0 .024	2.1	3.64 U
Max. >= Limit	**Yes**	No	No	No	No	No	No	No	No
W-statistic Prob. #	23.3% (LN)	- -	- -	- -	- -	- -	- -	- -	- -
Test Procedure	Lognormal	- -	- -	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12	12	12	12
Nondetects	0	0	0	7	0	0	0	0	12
% Nondetects	0%	0%	0%	58%	0%	0%	0%	0%	100%
Est. Mean*	7.94	- -	- -	- -	- -	- -	- -	- -	- -
UCL	9.08	- -	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	pass	- -	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5WPL-PC05

SAMPLE_ID	Silver	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
A5WPL-PC05-1	0.105 U	109 -	117 -	210 -	109 -	35 U
A5WPL-PC05-2	0.106 U	36.7 U	36.7 U	36.7 U	36.7 U	36.7 U
A5WPL-PC05-3	0.112 U	37.6 U	37.6 U	37.6 U	37.6 U	37.6 U
A5WPL-PC05-5	0.102 U	34.8 U	34.8 U	34.8 U	34.8 U	34.8 U
A5WPL-PC05-6	0.106 U	35.4 U	35.4 U	78 J	35.4 U	35.4 U
A5WPL-PC05-7	0.113 U	38 U	38 U	38 U	38 U	38 U
A5WPL-PC05-9	0.121 U	40.6 U	40.6 U	40.6 U	40.6 U	40.6 U
A5WPL-PC05-10	0.121 U	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U
A5WPL-PC05-12	0.116 U	39.2 U	39.2 U	39.2 U	39.2 U	39.2 U
A5WPL-PC05-12-D	0.117 U	39.6 U	39.6 U	39.6 U	39.6 U	39.6 U
A5WPL-PC05-13	0.107 U	36.8 U	36.8 U	51.5 J	36.8 U	36.8 U
A5WPL-PC05-14	0.108 U	339 -	379 -	691 -	278 -	36.1 U
A5WPL-PC05-16	0.119 U	39.9 U	39.9 U	39.9 U	39.9 U	39.9 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	0.121 U	339	379	691	278	40.9 U
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12
Nondetects	12	10	10	8	10	12
% Nondetects	100%	83%	83%	67%	83%	100%
Est. Mean*	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5WPL-PC05

SAMPLE_ID	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
A5WPL-PC05-1	114 -	35 U	141 J	35 U	43.2 J	167 J
A5WPL-PC05-2	36.7 U	36.7 U	36.7 U	36.7 U	36.7 U	36.7 U
A5WPL-PC05-3	37.6 U	37.6 U	37.6 U	37.6 U	37.6 U	37.6 U
A5WPL-PC05-5	34.8 U	34.8 U	54.4 J	34.8 U	34.8 U	49.2 J
A5WPL-PC05-6	52.2 J	35.4 U	70.8 J	35.4 U	35.4 U	58.5 J
A5WPL-PC05-7	38 U	38 U	38 U	38 U	38 U	38 U
A5WPL-PC05-9	40.6 U	40.6 U	40.6 U	40.6 U	40.6 U	40.6 U
A5WPL-PC05-10	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U	40.9 U
A5WPL-PC05-12	39.2 U	39.2 U	39.2 U	39.2 U	39.2 U	39.2 U
A5WPL-PC05-12-D	39.6 U	39.6 U	39.6 U	39.6 U	39.6 U	39.6 U
A5WPL-PC05-13	36.8 U	36.8 U	38.6 J	36.8 U	36.8 U	41.1 J
A5WPL-PC05-14	360 -	36.1 U	683 J	246 -	290 J	486 J
A5WPL-PC05-16	39.9 U	39.9 U	39.9 U	39.9 U	39.9 U	39.9 U
Limit	2000000	2000	10000	20000	5000	10000
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%	90%	90%	90%
Max. Result	360	40.9 U	683	246	290	486
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12
Nondetects	9	12	7	11	10	7
% Nondetects	75%	100%	58%	92%	83%	58%
Est. Mean*	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -
a posteriori Sample	- -	- -	- -	- -	- -	- -
Size calculation	- -	- -	- -	- -	- -	- -

CERTIFICATION UNIT A5WPL-PC05

SAMPLE ID	Aroclor-1254	Aroclor-1260	Dieldrin
A5WPL-PC05-1	7.5 J	3.5 U	1.4 U
A5WPL-PC05-2	3.7 U	3.7 U	1.5 U
A5WPL-PC05-3	7.3 J	3.8 J	1.5 U
A5WPL-PC05-5	3.5 U	3.5 U	1.4 U
A5WPL-PC05-6	3.5 U	3.5 U	1.4 U
A5WPL-PC05-7	3.8 U	3.8 U	1.5 U
A5WPL-PC05-9	4.1 U	4.1 U	1.6 U
A5WPL-PC05-10	4.1 U	4.1 U	1.6 U
A5WPL-PC05-12	3.9 U	3.9 U	1.6 U
A5WPL-PC05-12-D	4 U	4 U	1.6 U
A5WPL-PC05-13	3.7 U	3.7 U	1.5 U
A5WPL-PC05-14	10.7 J	3.6 U	1.5 U
A5WPL-PC05-16	4 U	4 U	1.6 U
Limit	130	130	15
Units	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%
Max. Result	10.7	3.8	1.6 U
Max. >= Limit	No	No	No
W-statistic Prob. #	- -	- -	- -
Test Procedure	- -	- -	- -
Sample Size	12	12	12
Nondetects	9	11	12
% Nondetects	75%	92%	100%
Est. Mean*	- -	- -	- -
UCL	- -	- -	- -
Prob. > Limit	- -	- -	- -
Pass / Fail	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC01A

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Beryllium
A5A-PC01A-1	1.18 J	0.878 -	0.877 -	0.878 -	11.2 -	4.06 -	0.454 -
A5A-PC01A-3	1.64 J	1.28 -	1.3 -	1.28 -	51.9 -	4.71 -	0.577 -
A5A-PC01A-4	1.29 J	0.998 -	0.993 -	0.998 -	10 -	7.1 -	0.653 -
A5A-PC01A-5	1.41 J	1.1 -	1.11 -	1.1 -	6.22 J	8.43 -	0.662 -
A5A-PC01A-7	1.29 J	1.01 -	1.06 -	1.01 -	10.5 -	8.98 -	0.666 -
A5A-PC01A-8	1.23 J	0.945 -	0.933 -	0.945 -	3.95 J	7.12 -	0.689 -
A5A-PC01A-8-D	1.22 J	0.878 -	0.898 -	0.878 -	6.19 -	7.07 -	0.698 -
A5A-PC01A-9	1.28 J	1.07 -	1.09 -	1.07 -	9.03 -	8.37 -	0.477 -
A5A-PC01A-10	1.13 J	0.935 -	0.914 -	0.935 -	4.7 J	8.31 -	0.683 -
A5A-PC01A-12	1.15 J	0.901 -	0.901 -	0.901 -	6.6 -	5.63 -	0.604 -
A5A-PC01A-13	1.27 J	1.17 -	1.22 -	1.17 -	8.05 -	6.71 -	0.684 -
A5A-PC01A-15	1.15 J	0.899 -	0.902 -	0.899 -	6.66 -	6.74 -	0.694 -
A5A-PC01A-16	1.03 J	0.806 -	0.832 -	0.806 -	2.85 J	6.84 -	0.641 -
Limit	1.7	1.8	1.7	1.5	82	12	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.64	1.28	1.3	1.28	51.9	8.98	0 .698
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	0	0
% Nondetects	0%	0%	0%	0%	0%	0%	0%
Est. Mean*	- -	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC02A

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Beryllium
A5A-PC02A-1	1.08 -	0.859 J	0.844 J	0.859 J	8.4 -	8.48 J	0.776 -
A5A-PC02A-2	1.42 -	0.984 J	0.959 J	0.984 J	4.9 J	7.74 J	0.672 -
A5A-PC02A-3	1.68 -	1.37 J	1.39 J	1.37 J	3.85 U	9.52 J	0.856 -
A5A-PC02A-5	1.39 -	1.06 J	1.01 J	1.06 J	9.89 -	7.41 J	0.775 -
A5A-PC02A-5-D	1.3 -	0.856 J	0.814 J	0.856 J	6.71 -	10.2 J	0.938 -
A5A-PC02A-6	1.1 -	0.688 J	0.7 J	0.688 J	14.6 -	6.19 J	0.531 -
A5A-PC02A-7	1.01 -	0.687 J	0.677 J	0.687 J	7.92 -	5.62 J	0.698 -
A5A-PC02A-9	1.5 -	1.1 J	1.07 J	1.1 J	6.18 -	6.73 J	0.744 -
A5A-PC02A-10	1.43 -	1.04 J	1.03 J	1.04 J	12.5 -	7.96 J	0.734 -
A5A-PC02A-12	1.06 -	0.873 J	0.877 J	0.873 J	9.46 -	7.04 J	0.747 -
A5A-PC02A-13	1.29 -	0.969 J	0.971 J	0.969 J	6.81 -	7.27 J	0.696 -
A5A-PC02A-14	1.53 -	1.06 J	1.09 J	1.06 J	7.22 -	6.6 J	0.738 -
A5A-PC02A-16	1.57 -	1.17 J	1.18 J	1.17 J	6.35 -	16.9 J	0.97 -
Limit	1.7	1.8	1.7	1.5	82	12	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.68	1.37	1.39	1.37	14.6	**16.9**	0 .97
Max. >= Limit	No	No	No	No	No	**Yes**	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12	12
Nondetects	0	0	0	0	1	0	0
% Nondetects	0%	0%	0%	0%	8%	0%	0%
Est. Mean*	- -	- -	- -	- -	- -	8.34	- -
UCL	- -	- -	- -	- -	- -	9.45	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	pass	- -

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

CERTIFICATION UNIT A5A-PC03A

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Beryllium
A5A-PC03A-1	1.34 J	1.07 J	1.12 J	1.07 J	4.47 J	2.5 J	0.75 J
A5A-PC03A-1-D	1.09 J	0.798 J	0.808 J	0.798 J	8.15 J	6.2 J	0.59 J
A5A-PC03A-2	1.15 J	0.985 J	0.999 J	0.985 J	14.5 J	8.5 J	0.84 J
A5A-PC03A-3	1.07 J	0.858 J	0.858 J	0.858 J	19.7 J	6.5 J	0.66 J
A5A-PC03A-5	1.08 J	0.836 J	0.831 J	0.836 J	6.43 J	6 J	0.79 J
A5A-PC03A-6	1.1 J	0.969 J	0.971 J	0.969 J	11.2 J	6.3 J	0.61 J
A5A-PC03A-8	1.49 J	1.09 J	1.07 J	1.09 J	5.06 J	5.2 J	0.6 J
A5A-PC03A-9	1.1 J	0.865 J	0.857 J	0.865 J	8.02 J	8.5 J	0.84 J
A5A-PC03A-10	1.64 J	0.965 J	1.3 J	0.965 J	9.93 J	7 J	0.69 J
A5A-PC03A-11	1.44 J	1.11 J	1.12 J	1.11 J	7.06 J	5.6 J	1 J
A5A-PC03A-13	1.29 J	1.13 J	1.17 J	1.13 J	8.26 J	12.1 J	0.85 J
A5A-PC03A-14	1.12 J	0.894 J	0.873 J	0.894 J	11.2 J	7.1 J	0.76 J
A5A-PC03A-16	1.29 J	1.03 J	1.05 J	1.03 J	9.3 J	6.3 J	0.73 J
Limit	1.7	1.8	1.7	1.5	82	12	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.64	1.13	1.3	1.13	19.7	**12.1**	1
Max. >= Limit	No	No	No	No	No	**Yes**	No
W-statistic Prob. #	--	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--	--
Sample Size	12	12	12	12	12	12	12
Nondetects	0	0	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%	0%	0%
Est. Mean*	--	--	--	--	--	7.11	--
UCL	--	--	--	--	--	7.83	--
Prob. > Limit	--	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	pass	--

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

CERTIFICATION UNIT A5A-PC04A

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Beryllium
A5A-PC04A-1	0.841 J	0.644 -	0.607 -	0.644 -	8.59 -	6.4 -	0.59 -
A5A-PC04A-3	1.27 J	1.28 -	1.34 -	1.28 -	32.2 -	6.9 -	0.56 -
A5A-PC04A-3-D	1.08 J	1.16 -	1.18 -	1.16 -	35.3 -	7.6 -	0.65 -
A5A-PC04A-4	2.17 J	1.03 -	1.01 -	1.03 -	30.1 -	6.5 -	0.8 -
A5A-PC04A-5	1.25 -	0.888 -	0.888 -	0.888 -	9.31 -	7.29 -	0.836 -
A5A-PC04A-6	1.2 -	0.911 -	0.906 -	0.911 -	10.7 -	6.9 -	0.806 -
A5A-PC04A-8	1.12 -	0.962 -	0.955 -	0.962 -	5.17 -	6.5 -	0.73 -
A5A-PC04A-9	0.971 J	0.87 -	0.87 -	0.87 -	15.9 -	4.9 -	0.54 -
A5A-PC04A-10	1.41 -	1.15 -	1.14 -	1.15 -	47.1 -	5.7 -	0.673 -
A5A-PC04A-12	0.985 -	0.773 -	0.782 -	0.773 -	4.76 U	6.01 -	0.616 -
A5A-PC04A-13	1.04 -	0.811 -	0.836 -	0.811 -	5.41 J	5.71 -	0.551 -
A5A-PC04A-15	1.28 -	1 -	1.02 -	1 -	35.5 -	5.02 -	0.584 -
A5A-PC04A-16	1.14 -	0.994 -	0.98 -	0.994 -	4.67 U	5.79 -	0.587 -
Limit	1.7	1.8	1.7	1.5	82	12	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	**2.17**	1.28	1.34	1.28	47.1	7.6	0 .836
Max. >= Limit	**Yes**	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	2	0	0
% Nondetects	0%	0%	0%	0%	17%	0%	0%
Est. Mean*	1.223	- -	- -	- -	- -	- -	- -
UCL	1.40	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	pass	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC05A

SAMPLE ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Beryllium
A5A-PC05A-1	0.924 -	0.867 -	0.869 -	0.867 -	6.83 -	5.67 -	0.447 -
A5A-PC05A-2	1.27 -	0.923 -	0.93 -	0.923 -	9.06 -	8.24 -	0.716 -
A5A-PC05A-4	1.16 -	0.888 -	0.898 -	0.888 -	3.88 U	5.31 -	0.555 -
A5A-PC05A-5	1.38 -	0.96 -	0.978 -	0.96 -	9.33 -	7.67 -	0.713 -
A5A-PC05A-7	1.45 -	1.17 -	1.2 -	1.17 -	7.33 -	4.44 -	0.532 -
A5A-PC05A-8	1.38 -	1.06 -	1.08 -	1.06 -	5.99 -	8 -	0.685 -
A5A-PC05A-9	1.38 -	0.975 -	0.98 -	0.975 -	7.95 -	8.11 -	0.647 -
A5A-PC05A-11	1.08 -	0.829 -	0.843 -	0.829 -	10.1 -	6 -	0.573 -
A5A-PC05A-11-D	1.18 -	0.827 -	0.831 -	0.827 -	11.8 -	5.42 -	0.466 -
A5A-PC05A-12	1.7 -	1.34 -	1.4 -	1.34 -	8.6 -	5.82 -	1.16 -
A5A-PC05A-13	1.49 -	1.14 -	1.13 -	1.14 -	74.6 -	6.26 -	0.557 -
A5A-PC05A-14	1.18 -	0.755 -	0.743 -	0.755 -	5.02 J	5.88 -	0.514 -
A5A-PC05A-15	1.26 -	0.93 -	0.913 -	0.93 -	7.44 J	6.72 -	0.746 -
Limit	1.7	1.8	1.7	1.5	82	12	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.7	1.34	1.4	1.34	74.6	8.24	1.16
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	1	0	0
% Nondetects	0%	0%	0%	0%	8%	0%	0%
Est. Mean*	- -	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC06A

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Arsenic	Beryllium
A5A-PC06A-1	1.13 J	0.863 J	0.857 J	0.863 J	6.01 J	8.14 -	0.709 -
A5A-PC06A-3	1.21 J	0.941 J	0.933 J	0.941 J	7.5 J	12.4 -	0.773 -
A5A-PC06A-4	1.26 J	0.943 J	0.884 J	0.943 J	14 J	7.73 -	0.986 -
A5A-PC06A-5	0.884 J	0.842 J	0.874 J	0.842 J	3.06 J	6.27 -	0.483 -
A5A-PC06A-6	1.11 J	1 J	0.988 J	1 J	7.47 J	7.6 -	0.598 -
A5A-PC06A-7	0.993 J	0.823 J	0.833 J	0.823 J	5.84 J	4.9 -	0.439 -
A5A-PC06A-9	1.05 J	0.837 J	0.826 J	0.837 J	9.13 J	7 -	0.671 -
A5A-PC06A-10	1.1 J	0.908 J	0.899 J	0.908 J	7.87 J	7.68 -	0.711 -
A5A-PC06A-11	0.81 J	0.696 J	0.682 J	0.696 J	3.28 J	4.96 -	0.496 -
A5A-PC06A-14	1 J	0.802 J	0.821 J	0.802 J	4.64 J	6.35 -	0.498 -
A5A-PC06A-15	1.39 J	1.32 J	1.38 J	1.32 J	13.7 J	5.81 -	0.602 -
A5A-PC06A-15-D	1.3 J	0.979 J	0.98 J	0.979 J	10.6 J	6.61 -	0.631 -
A5A-PC06A-16	1.29 J	0.805 J	0.839 J	0.805 J	6.6 J	8.07 -	0.831 -
Limit	1.7	1.8	1.7	1.5	82	12	1.5
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%
Max. Result	1.39	1.32	1.38	1.32	14	**12.4**	0 .986
Max. >= Limit	No	No	No	No	No	**Yes**	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12	12
Nondetects	0	0	0	0	0	0	0
% Nondetects	0%	0%	0%	0%	0%	0%	0%
Est. Mean*	- -	- -	- -	- -	- -	7.32	- -
UCL	- -	- -	- -	- -	- -	8.12	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	pass	- -

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

CERTIFICATION UNIT A5A-PC08

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Cesium-137	Lead-210	Technetium-99	Thorium-230
A5A-PC08-1	0.976326 -	0.655 -	0.652 -	0.655 -	6.7 -	0.0639 U	1.07 J	1.6 U	1.16 -
A5A-PC08-2	1.11111 -	0.812 -	0.815 -	0.812 -	6.2 -	0.0801 U	0.838 U	1.35 U	1.64 -
A5A-PC08-4	1.21641 -	0.772 -	0.762 -	0.772 -	5.54 -	0.0961 U	1.57 J	1.32 U	1.39 -
A5A-PC08-5	1.20588 -	0.783 -	0.818 -	0.783 -	7.21 -	0.0949 U	0.975 U	1.56 U	1.59 -
A5A-PC08-7	1.0374 -	0.712 -	0.722 -	0.712 -	6.4 -	0.0735 U	0.781 U	1.51 U	1.77 -
A5A-PC08-8	1.07952 -	0.743 -	0.742 -	0.743 -	11.6 -	0.0807 U	0.789 U	1.7 J	1.82 -
A5A-PC08-9	1.05846 -	0.684 -	0.66 J	0.684 -	8.8 -	0.0455 U	5.36 U	0.868 U	1.15 J
A5A-PC08-9-D	1.07952 -	0.693 -	0.686 J	0.693 -	8.77 -	0.0484 U	5.49 U	0.848 U	1.72 J
A5A-PC08-11	0.746772 -	0.583 -	0.596 J	0.583 -	11.2 -	0.0467 U	5.33 U	0.807 U	1.02 J
A5A-PC08-12	0.895245 -	0.729 -	0.739 J	0.729 -	6.56 -	0.0549 U	5.48 U	0.866 U	1.14 J
A5A-PC08-13	0.81627 -	0.647 -	0.61 J	0.647 -	4.41 J	0.0797 J	5.35 U	0.945 U	1.25 J
A5A-PC08-15	0.886821 -	0.712 -	0.709 J	0.712 -	2.88 U	0.0473 U	5.71 U	0.859 U	1.18 J
A5A-PC08-16	0.895245 -	0.709 -	0.697 J	0.709 -	6.91 -	0.141 -	5.2 U	0.865 U	1.16 J
Limit	1.7	1.8	1.7	1.5	82	1.4	38	30	280
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g	pCi/g	pCi/g	pCi/g
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%	90%
Max. Result	1.21641	0 .812	0 .818	0 .812	11.6	0 .141	1.57	1.7	1.82
Max. >= Limit	No	No	No	No	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12	12	12	12
Nondetects	0	0	0	0	1	10	10	11	0
% Nondetects	0%	0%	0%	0%	8%	83%	83%	92%	0%
Est. Mean*	- -	- -	- -	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC08

SAMPLE_ID	Arsenic	Beryllium	Chromium	Fluoride	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenzo(a,h)anthracene
A5A-PC08-1	5.2 -	0.6 -	16 J	5.18 J	120 J	165 J	35.8 U
A5A-PC08-2	5.5 -	0.55 -	15.5 J	3.86 J	110 J	192 J	35.6 U
A5A-PC08-4	5.6 -	0.55 -	15.9 J	4.73 J	42 J	56.5 J	36.6 U
A5A-PC08-5	5.4 -	0.55 -	15.3 J	4.95 J	243 -	403 J	36.8 U
A5A-PC08-7	5.3 -	0.53 -	18.9 J	2.85 J	65.3 J	117 J	36.8 U
A5A-PC08-8	5.2 -	0.48 -	13.3 J	4.04 J	134 J	234 J	36.3 U
A5A-PC08-9	5.76 -	0.599 -	14.7 J	0.794 J	130 J	197 J	141 J
A5A-PC08-9-D	5.17 -	0.526 -	13.4 J	0.736 J	173 J	270 J	145 J
A5A-PC08-11	3.85 -	1.72 -	12.5 J	0.586 J	296 -	488 J	160 J
A5A-PC08-12	4.8 -	0.527 -	13.6 J	0.738 J	38.2 U	106 J	38.2 U
A5A-PC08-13	4.65 -	0.464 -	12.1 J	0.647 J	348 -	629 J	37.8 U
A5A-PC08-15	5.99 -	0.527 -	14.4 J	0.652 J	270 -	412 J	38 U
A5A-PC08-16	4.14 -	0.43 -	10.5 J	0.645 J	283 -	421 J	37.2 U
Limit	12	1.5	300	78000	2000	20000	2000
Units	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%	90%	90%	90%	90%
Max. Result	5.99	**1.72**	18.9	5.18	348	629	160
Max. >= Limit	No	**Yes**	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12	12
Nondetects	0	0	0	0	1	0	10
% Nondetects	0%	0%	0%	0%	8%	0%	83%
Est. Mean*	- -	0.54	- -	- -	- -	- -	- -
UCL	- -	0.55	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	Pass	- -	- -	- -	- -	- -
a posteriori Sample	- -	5	- -	- -	- -	- -	- -
Size calculation	- -	Pass	- -	- -	- -	- -	- -

CERTIFICATION UNIT A5A-PC08

SAMPLE_ID	Indeno(1,2,3-cd)pyrene	Aroclor-1254	Aroclor-1260	Dieldrin
A5A-PC08-1	79.7 J	5.6 J	3.6 U	1.4 U
A5A-PC08-2	62 J	3.6 J	3.6 U	1.4 U
A5A-PC08-4	36.6 U	3.7 U	3.7 U	1.5 U
A5A-PC08-5	126 J	5.3 J	3.7 U	1.5 U
A5A-PC08-7	36.8 U	3.7 U	3.7 U	1.5 U
A5A-PC08-8	65.3 J	8.9 J	4.4 J	1.5 U
A5A-PC08-9	146 J	6.3 J	3.8 U	1.5 U
A5A-PC08-9-D	162 J	5.1 J	3.8 U	1.5 U
A5A-PC08-11	215 J	18.8 U	18.8 U	1.5 U
A5A-PC08-12	127 J	3.8 U	3.8 U	1.5 U
A5A-PC08-13	235 J	3.8 U	3.8 U	1.5 U
A5A-PC08-15	195 J	3.8 U	3.8 U	1.5 U
A5A-PC08-16	249 J	3.7 U	3.7 U	1.5 U
Limit	20000	130	130	15
Units	ug/kg	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%	90%
Max. Result	249	8.9	4.4	1.5 U
Max. >= Limit	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -
Sample Size	12	12	12	12
Nondetects	2	7	11	12
% Nondetects	17%	58%	92%	100%
Est. Mean*	- -	- -	- -	- -
UCL	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC09

SAMPLE_ID	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Cesium-137	Technetium-99	Antimony
A5A-PC09-1	1.010022 -	0.946 -	0.948 -	0.946 -	8.79 -	0.044 U	1.44 U	2.02 UJ
A5A-PC09-3	1.018446 -	0.919 -	0.918 -	0.919 -	6.78 -	0.055 U	1.4 U	0.454 UJ
A5A-PC09-4	1.023711 -	0.921 -	0.904 -	0.921 -	15 -	0.058 U	1.43 U	2.16 UJ
A5A-PC09-4-D	0.922623 -	0.88 -	0.872 -	0.88 -	14.2 -	0.05 U	1.52 U	2.16 UJ
A5A-PC09-5	0.912093 -	1.04 -	1.03 -	1.04 -	6 -	0.052 U	1.57 U	0.444 UJ
A5A-PC09-7	0.970008 -	0.965 -	0.926 -	0.965 -	9.42 -	0.046 U	1.48 U	0.423 UJ
A5A-PC09-8	1.33224 -	1.14 -	1.13 -	1.14 -	5.31 -	0.055 U	1.46 U	2.18 UJ
A5A-PC09-9	1.06899 -	0.793 -	0.795 -	0.793 -	6.29 -	0.069 U	1.52 U	2.9 U
A5A-PC09-10	0.980538 -	0.978 -	0.982 -	0.978 -	5.73 -	0.047 U	1.43 U	2.18 UJ
A5A-PC09-12	0.934206 -	0.957 -	0.962 -	0.957 -	5.04 -	0.062 U	1.5 U	2.13 UJ
A5A-PC09-13	1.06899 -	0.926 -	0.919 -	0.926 -	8.46 -	0.052 U	1.5 U	3 U
A5A-PC09-15	1.07952 -	1.11 -	1.1 -	1.11 -	18.8 -	0.156 -	1.49 U	2.16 UJ
A5A-PC09-16	1.04793 -	0.981 -	0.978 -	0.981 -	14.4 -	0.052 U	1.42 U	3.4 J
Limit	1.7	1.8	1.7	1.5	82	1.4	30	96
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g	pCi/g	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%
Max. Result	1.33224	1.14	1.13	1.14	18.8	0 .156	1.57 U	3.4
Max. >= Limit	No	No	No	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12	12	12
Nondetects	0	0	0	0	0	11	12	11
% Nondetects	0%	0%	0%	0%	0%	92%	100%	92%
Est. Mean*	- -	- -	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC09

SAMPLE_ID	Arsenic	Barium	Beryllium	Cadmium	Chromium	Lead	Mercury	Molybdenum	Selenium
A5A-PC09-1	7.2 J	105 -	0.64 -	0.504 U	20.9 J	11.9 J	0.024 J	1.01 U	16.8 J
A5A-PC09-3	6.4 J	102 -	0.6 -	0.113 U	20.1 J	12.9 J	0.022 J	1 U	8.3 J
A5A-PC09-4	4.7 J	109 -	0.51 -	0.108 U	18.9 J	12.7 J	0.028 J	0.99 U	5.9 J
A5A-PC09-4-D	6.8 J	102 -	0.62 -	0.108 U	17 J	13.3 J	0.03 J	1.2 U	5.7 J
A5A-PC09-5	6.3 J	108 -	0.69 -	0.111 U	18.2 J	12.8 J	0.03 J	0.67 U	11.4 J
A5A-PC09-7	7.7 J	100 -	0.68 -	0.106 U	18.8 J	11.1 J	0.017 J	1.1 U	7.3 J
A5A-PC09-8	10.5 J	129 -	0.76 -	0.544 U	24.6 J	14.3 J	0.027 J	1.09 U	27 J
A5A-PC09-9	6.3 J	103 -	0.57 -	0.538 U	19.9 J	13.9 J	0.022 J	2.2 -	9.4 J
A5A-PC09-10	9.4 J	58.1 -	0.75 -	0.109 U	10.9 J	9.4 J	0.022 J	0.91 U	13.1 J
A5A-PC09-12	5.7 J	195 J	0.69 -	1 -	26.7 J	14.6 J	0.03 J	1.4 -	3.2 U
A5A-PC09-13	7.4 J	113 -	0.64 -	0.105 U	18.7 J	13.2 J	0.022 J	1.1 U	7 J
A5A-PC09-15	7.7 J	116 -	0.74 -	0.54 U	20.9 J	16.6 J	0.029 J	1.3 U	20.6 J
A5A-PC09-16	6.1 J	84.4 -	0.56 -	0.104 U	17 J	10.3 J	0.022 J	0.84 U	3.12 J
Limit	12	68000	1.5	82	300	400	7.5	2900	5400
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Conf. Level	90%	90%	90%	90%	90%	90%	90%	90%	90%
Max. Result	10.5	195	0 .76	1	26.7	16.6	0 .03	2.2	27
Max. >= Limit	No	No	No	No	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12	12	12	12
Nondetects	0	0	0	11	0	0	0	10	1
% Nondetects	0%	0%	0%	92%	0%	0%	0%	83%	8%
Est. Mean*	- -	- -	- -	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC09

SAMPLE_ID	Silver	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
A5A-PC09-1	1.1 -	35.1 U	35.1 U	35.1 U	35.1 U	35.1 U
A5A-PC09-3	1 -	37.8 U	37.8 U	37.8 U	37.8 U	37.8 U
A5A-PC09-4	1.2 -	36.9 U	59 J	101 -	43.5 J	36.9 U
A5A-PC09-4-D	1.1 -	37.2 U	37.2 U	124 -	48.5 J	113 J
A5A-PC09-5	0.77 -	38.4 U	38.4 U	38.4 U	38.4 U	38.4 U
A5A-PC09-7	0.93 -	37 U	37 U	37 U	37 U	37 U
A5A-PC09-8	1.5 -	37.1 U	37.1 U	37.1 U	37.1 U	37.1 U
A5A-PC09-9	1.5 -	36.9 U	36.9 U	36.9 U	36.9 U	36.9 U
A5A-PC09-10	1.8 -	37.4 U	37.4 U	37.4 U	37.4 U	37.4 U
A5A-PC09-12	0.107 U	37.3 U	37.3 U	37.3 U	37.3 U	37.3 U
A5A-PC09-13	1.3 -	36.3 U	36.3 U	36.3 U	36.3 U	36.3 U
A5A-PC09-15	1.2 -	36.3 U	36.3 U	36.3 U	36.3 U	36.3 U
A5A-PC09-16	1.4 -	151 -	260 -	367 -	239 -	34.8 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	1.8	151	260	367	239	113
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	- -	- -	- -	- -	- -	- -
Test Procedure	- -	- -	- -	- -	- -	- -
Sample Size	12	12	12	12	12	12
Nondetects	1	11	10	10	10	11
% Nondetects	8%	92%	83%	83%	83%	92%
Est. Mean*	- -	- -	- -	- -	- -	- -
UCL	- -	- -	- -	- -	- -	- -
Prob. > Limit	- -	- -	- -	- -	- -	- -
Pass / Fail	- -	- -	- -	- -	- -	- -

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

CERTIFICATION UNIT A5A-PC09

SAMPLE_ID	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
A5A-PC09-1	35.1 U	35.1 U	38.4 J	35.1 U	35.1 U	38.1 J
A5A-PC09-3	37.8 U	37.8 U	37.8 U	37.8 U	37.8 U	37.8 U
A5A-PC09-4	59.9 J	36.9 U	76.8 J	39.8 J	36.9 U	78.7 J
A5A-PC09-4-D	96.1 J	37.2 U	175 J	37.2 U	109 J	145 J
A5A-PC09-5	38.4 U	38.4 U	38.4 U	38.4 U	38.4 U	38.4 U
A5A-PC09-7	37 U	37 U	37 U	37 U	37 U	37 U
A5A-PC09-8	37.1 U	37.1 U	37.1 U	37.1 U	37.1 U	37.1 U
A5A-PC09-9	36.9 U	36.9 U	36.9 U	36.9 U	36.9 U	36.9 U
A5A-PC09-10	37.4 U	37.4 U	37.4 U	37.4 U	37.4 U	37.4 U
A5A-PC09-12	37.3 U	37.3 U	37.3 U	37.3 U	37.3 U	37.3 U
A5A-PC09-13	36.3 U	36.3 U	36.3 U	36.3 U	36.3 U	36.3 U
A5A-PC09-15	39.3 J	36.3 U	71.3 J	36.3 U	38.1 J	61.6 J
A5A-PC09-16	189 -	34.8 U	323 J	198 -	161 J	273 J
Limit	2000000	2000	10000	20000	5000	10000
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%	90%	90%	90%
Max. Result	189	38.4 U	323	198	161	273
Max. >= Limit	No	No	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--
Test Procedure	--	--	--	--	--	--
Sample Size	12	12	12	12	12	12
Nondetects	9	12	8	10	9	8
% Nondetects	75%	100%	67%	83%	75%	67%
Est. Mean*	--	--	--	--	--	--
UCL	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--

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

CERTIFICATION UNIT A5A-PC09

SAMPLE ID	Aroclor-1254	Aroclor-1260	Dieldrin
A5A-PC09-1	3.8 J	3.5 U	1.4 U
A5A-PC09-3	3.8 U	3.8 U	1.5 U
A5A-PC09-4	8 J	3.7 U	1.5 U
A5A-PC09-4-D	6 J	3.7 U	1.5 U
A5A-PC09-5	3.8 U	3.8 U	1.5 U
A5A-PC09-7	3.7 U	3.7 U	1.5 U
A5A-PC09-8	3.7 U	3.7 U	1.5 U
A5A-PC09-9	3.7 U	3.7 U	1.5 U
A5A-PC09-10	3.7 U	3.7 U	1.5 U
A5A-PC09-12	3.7 U	3.7 U	1.5 U
A5A-PC09-13	3.6 U	3.6 U	1.5 U
A5A-PC09-15	12 J	6.3 J	1.5 U
A5A-PC09-16	8.1 J	3.5 U	1.4 U
Limit	130	130	15
Units	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%
Max. Result	12	6.3	1.5 U
Max. >= Limit	No	No	No
W-statistic Prob. #	- -	- -	- -
Test Procedure	- -	- -	- -
Sample Size	12	12	12
Nondetects	8	11	12
% Nondetects	67%	92%	100%
Est. Mean*	- -	- -	- -
UCL	- -	- -	- -
Prob. > Limit	- -	- -	- -
Pass / Fail	- -	- -	- -

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

APPENDIX B

UTILITIES DATA AND STATISTICAL ANALYSIS

CERTIFICATION UNIT AREA 5 UTILITIES

PrimaryCOCs		PrimaryCOCs	
Sample ID	Radium-226	Sample ID	Radium-226
CU05	CU05	CU07	CU07
A5A-PC2-T-34	0.957 -	4A6-T-126	2.72 -
A5EC-WPL-T-25	1.04 -	A5A-PC2-T-1	0.969 -
A5EC-WPL-T-26	1.02 -	A5A-PC2-T-10	0.977 -
A5EC-WPL-T-27	0.934 -	A5A-PC2-T-12	0.813 -
A5EC-WPL-T-32	1.58 -	A5A-PC2-T-13	0.753 -
A5EC-WPL-T-33	1.6 -	A5A-PC2-T-2	0.972 -
A5EC-WPL-T-34	1.59 -	A5A-PC2-T-5	0.928 -
A5EC-WPL-T-35	1.52 -	A5A-PC2-T-6	0.849 -
A5EC-WPL-T-36	1.45 -	A5A-PC2-T-9	0.929 -
A5EC-WPL-T-37	0.911 -	A5EC-WPL-T-64	0.967 -
A5EC-WPL-T-38	1.12 -		
A5EC-WPL-T-39	1.51 -		
A5EC-WPL-T-40	1.65 -		
A5EC-WPL-T-41	1.75 -		
Limit	1.7	Limit	1.7
Units	pCi/g	Units	pCi/g
Conf. Level	95%	Conf. Level	95%
Max. Result	1.75	Max. Result	2.72
Max. >= Limit	Yes	Max. >= Limit	Yes
W-statistic Prob. #	2.7% (N)	W-statistic Prob. #	< 0.01% (LN)
Test Procedure	Wilcoxon	Test Procedure	Median (Sign)
Sample Size	14	Sample Size	10
Nondetects	0	Nondetects	0
% Nondetects	0%	% Nondetects	0%
Est. Mean*	1.5	Est. Mean*	0.9
UCL	1.59	UCL	0.98
Prob. > Limit	0.00	Prob. > Limit	- -
Pass / Fail	pass	Pass / Fail	Pass
a posteriori Sample	7	*a posteriori Sample*	8
Size calculation	Pass	Size calculation	Pass

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
7	4A6-T-126	4A6-T-126^RMP	Thorium-232	0.711	-	pCi/g
7	4A6-T-126	4A6-T-126^RMP	Aroclor-1254	3.8	U	ug/kg
7	4A6-T-126	4A6-T-126^RMP	Uranium, Total	9.39	-	mg/kg
7	4A6-T-126	4A6-T-126^RMP	Thorium-228	0.73	-	pCi/g
7	4A6-T-126	4A6-T-126^RMP	Technetium-99	0.799	U	pCi/g
7	4A6-T-126	4A6-T-126^RMP	Radium-228	0.711	-	pCi/g
7	4A6-T-126	4A6-T-126^RMP	Radium-226	2.72	-	pCi/g
7	4A6-T-126	4A6-T-126^RMP	Beryllium	0.811	U	mg/kg
7	4A6-T-126	4A6-T-126^RMP	Aroclor-1260	3.8	U	ug/kg
7	A5A-PC2-T-1	A5A-PC2-T-1^R	Radium-228	0.724	-	pCi/g
7	A5A-PC2-T-1	A5A-PC2-T-1^R	Thorium-228	0.739	-	pCi/g
7	A5A-PC2-T-1	A5A-PC2-T-1^R	Thorium-232	0.724	-	pCi/g
7	A5A-PC2-T-1	A5A-PC2-T-1^R	Uranium, Total	11.7	-	mg/kg
7	A5A-PC2-T-1	A5A-PC2-T-1^R	Radium-226	0.969	-	pCi/g
7	A5A-PC2-T-10	A5A-PC2-T-10^R	Thorium-232	0.816	-	pCi/g
7	A5A-PC2-T-10	A5A-PC2-T-10^R	Uranium, Total	2.67	U	mg/kg
7	A5A-PC2-T-10	A5A-PC2-T-10^R	Radium-226	0.977	-	pCi/g
7	A5A-PC2-T-10	A5A-PC2-T-10^R	Radium-228	0.816	-	pCi/g
7	A5A-PC2-T-10	A5A-PC2-T-10^R	Thorium-228	0.833	-	pCi/g
6	A5A-PC2-T-11	A5A-PC2-T-11^R	Radium-228	0.662	-	pCi/g
6	A5A-PC2-T-11	A5A-PC2-T-11^R	Thorium-228	0.659	-	pCi/g
6	A5A-PC2-T-11	A5A-PC2-T-11^R	Thorium-232	0.662	-	pCi/g
6	A5A-PC2-T-11	A5A-PC2-T-11^R	Uranium, Total	3.3	J	mg/kg
6	A5A-PC2-T-11	A5A-PC2-T-11^R	Radium-226	0.914	-	pCi/g
7	A5A-PC2-T-12	A5A-PC2-T-12^R	Radium-228	0.757	-	pCi/g
7	A5A-PC2-T-12	A5A-PC2-T-12^R	Uranium, Total	4.66	-	mg/kg
7	A5A-PC2-T-12	A5A-PC2-T-12^R	Thorium-228	0.756	-	pCi/g
7	A5A-PC2-T-12	A5A-PC2-T-12^R	Radium-226	0.813	-	pCi/g
7	A5A-PC2-T-12	A5A-PC2-T-12^R	Thorium-232	0.757	-	pCi/g
7	A5A-PC2-T-13	A5A-PC2-T-13^R	Radium-226	0.753	-	pCi/g
7	A5A-PC2-T-13	A5A-PC2-T-13^R	Radium-228	0.588	-	pCi/g
7	A5A-PC2-T-13	A5A-PC2-T-13^R	Thorium-228	0.598	-	pCi/g
7	A5A-PC2-T-13	A5A-PC2-T-13^R	Thorium-232	0.588	-	pCi/g
7	A5A-PC2-T-13	A5A-PC2-T-13^R	Uranium, Total	4.71	-	mg/kg
6	A5A-PC2-T-14	A5A-PC2-T-14^R	Thorium-232	0.873	J	pCi/g
6	A5A-PC2-T-14	A5A-PC2-T-14^R	Radium-226	1.15	-	pCi/g
6	A5A-PC2-T-14	A5A-PC2-T-14^R	Uranium, Total	3.69	J	mg/kg
6	A5A-PC2-T-14	A5A-PC2-T-14^R	Radium-228	0.873	J	pCi/g
6	A5A-PC2-T-14	A5A-PC2-T-14^R	Thorium-228	0.872	-	pCi/g
6	A5A-PC2-T-15	A5A-PC2-T-15^R	Radium-226	0.832	-	pCi/g
6	A5A-PC2-T-15	A5A-PC2-T-15^R	Radium-228	0.665	J	pCi/g
6	A5A-PC2-T-15	A5A-PC2-T-15^R	Thorium-228	0.667	-	pCi/g
6	A5A-PC2-T-15	A5A-PC2-T-15^R	Thorium-232	0.665	J	pCi/g
6	A5A-PC2-T-15	A5A-PC2-T-15^R	Uranium, Total	3.73	-	mg/kg

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
6	A5A-PC2-T-16	A5A-PC2-T-16^R	Radium-228	0.773	J	pCi/g
6	A5A-PC2-T-16	A5A-PC2-T-16^R	Uranium, Total	4.47	-	mg/kg
6	A5A-PC2-T-16	A5A-PC2-T-16^R	Thorium-228	0.767	-	pCi/g
6	A5A-PC2-T-16	A5A-PC2-T-16^R	Radium-226	0.909	-	pCi/g
6	A5A-PC2-T-16	A5A-PC2-T-16^R	Thorium-232	0.773	J	pCi/g
6	A5A-PC2-T-17	A5A-PC2-T-17^R	Uranium, Total	2.61	-	mg/kg
6	A5A-PC2-T-17	A5A-PC2-T-17^R	Radium-226	0.811	-	pCi/g
6	A5A-PC2-T-17	A5A-PC2-T-17^R	Radium-228	0.693	J	pCi/g
6	A5A-PC2-T-17	A5A-PC2-T-17^R	Thorium-228	0.703	-	pCi/g
6	A5A-PC2-T-17	A5A-PC2-T-17^R	Thorium-232	0.693	J	pCi/g
6	A5A-PC2-T-18	A5A-PC2-T-18^R	Uranium, Total	5.36	-	mg/kg
6	A5A-PC2-T-18	A5A-PC2-T-18^R	Thorium-232	0.762	J	pCi/g
6	A5A-PC2-T-18	A5A-PC2-T-18^R	Thorium-228	0.768	-	pCi/g
6	A5A-PC2-T-18	A5A-PC2-T-18^R	Radium-226	0.956	-	pCi/g
6	A5A-PC2-T-18	A5A-PC2-T-18^R	Radium-228	0.762	J	pCi/g
4	A5A-PC2-T-19	A5A-PC2-T-19^R	Radium-226	1.24	-	pCi/g
4	A5A-PC2-T-19	A5A-PC2-T-19^R	Radium-228	1	J	pCi/g
4	A5A-PC2-T-19	A5A-PC2-T-19^R	Thorium-228	0.954	-	pCi/g
4	A5A-PC2-T-19	A5A-PC2-T-19^R	Thorium-232	1	J	pCi/g
4	A5A-PC2-T-19	A5A-PC2-T-19^R	Uranium, Total	2.53	U	mg/kg
7	A5A-PC2-T-2	A5A-PC2-T-2^R	Radium-226	0.972	-	pCi/g
7	A5A-PC2-T-2	A5A-PC2-T-2^R	Radium-228	0.829	-	pCi/g
7	A5A-PC2-T-2	A5A-PC2-T-2^R	Thorium-228	0.828	-	pCi/g
7	A5A-PC2-T-2	A5A-PC2-T-2^R	Thorium-232	0.829	-	pCi/g
7	A5A-PC2-T-2	A5A-PC2-T-2^R	Uranium, Total	3.86	U	mg/kg
4	A5A-PC2-T-20	A5A-PC2-T-20^R	Uranium, Total	4.38	-	mg/kg
4	A5A-PC2-T-20	A5A-PC2-T-20^R	Thorium-232	0.617	J	pCi/g
4	A5A-PC2-T-20	A5A-PC2-T-20^R	Radium-226	0.727	-	pCi/g
4	A5A-PC2-T-20	A5A-PC2-T-20^R	Radium-228	0.617	J	pCi/g
4	A5A-PC2-T-20	A5A-PC2-T-20^R	Thorium-228	0.602	-	pCi/g
4	A5A-PC2-T-21	A5A-PC2-T-21^R	Radium-226	0.802	-	pCi/g
4	A5A-PC2-T-21	A5A-PC2-T-21^R	Radium-228	0.698	J	pCi/g
4	A5A-PC2-T-21	A5A-PC2-T-21^R	Thorium-228	0.695	-	pCi/g
4	A5A-PC2-T-21	A5A-PC2-T-21^R	Thorium-232	0.698	J	pCi/g
4	A5A-PC2-T-21	A5A-PC2-T-21^R	Uranium, Total	4.86	-	mg/kg
2	A5A-PC2-T-22	A5A-PC2-T-22^R	Radium-226	1.1	-	pCi/g
2	A5A-PC2-T-22	A5A-PC2-T-22^R	Radium-228	0.896	-	pCi/g
2	A5A-PC2-T-22	A5A-PC2-T-22^R	Thorium-228	0.868	-	pCi/g
2	A5A-PC2-T-22	A5A-PC2-T-22^R	Thorium-232	0.896	-	pCi/g
2	A5A-PC2-T-22	A5A-PC2-T-22^R	Uranium, Total	3.8	J	mg/kg
2	A5A-PC2-T-23	A5A-PC2-T-23^R	Thorium-232	0.667	-	pCi/g
2	A5A-PC2-T-23	A5A-PC2-T-23^R	Uranium, Total	3.29	J	mg/kg
2	A5A-PC2-T-23	A5A-PC2-T-23^R	Radium-228	0.667	-	pCi/g
2	A5A-PC2-T-23	A5A-PC2-T-23^R	Radium-226	0.828	-	pCi/g
2	A5A-PC2-T-23	A5A-PC2-T-23^R	Thorium-228	0.629	-	pCi/g
6	A5A-PC2-T-24	A5A-PC2-T-24^R	Radium-228	0.734	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
6	A5A-PC2-T-24	A5A-PC2-T-24^R	Thorium-228	0.712	-	pCi/g
6	A5A-PC2-T-24	A5A-PC2-T-24^R	Thorium-232	0.734	-	pCi/g
6	A5A-PC2-T-24	A5A-PC2-T-24^R	Uranium, Total	4.35	U	mg/kg
6	A5A-PC2-T-24	A5A-PC2-T-24^R	Radium-226	0.821	-	pCi/g
6	A5A-PC2-T-25	A5A-PC2-T-25^R	Radium-228	0.841	-	pCi/g
6	A5A-PC2-T-25	A5A-PC2-T-25^R	Uranium, Total	6.17	J	mg/kg
6	A5A-PC2-T-25	A5A-PC2-T-25^R	Thorium-228	0.877	-	pCi/g
6	A5A-PC2-T-25	A5A-PC2-T-25^R	Radium-226	1.08	-	pCi/g
6	A5A-PC2-T-25	A5A-PC2-T-25^R	Thorium-232	0.841	-	pCi/g
6	A5A-PC2-T-26	A5A-PC2-T-26^R	Radium-226	1.28	-	pCi/g
6	A5A-PC2-T-26	A5A-PC2-T-26^R	Radium-228	0.898	J	pCi/g
6	A5A-PC2-T-26	A5A-PC2-T-26^R	Thorium-228	0.892	-	pCi/g
6	A5A-PC2-T-26	A5A-PC2-T-26^R	Thorium-232	0.898	J	pCi/g
6	A5A-PC2-T-26	A5A-PC2-T-26^R	Uranium, Total	3.88	U	mg/kg
6	A5A-PC2-T-27	A5A-PC2-T-27^R	Thorium-232	1.13	J	pCi/g
6	A5A-PC2-T-27	A5A-PC2-T-27^R	Uranium, Total	5.71	J	mg/kg
6	A5A-PC2-T-27	A5A-PC2-T-27^R	Radium-228	1.13	J	pCi/g
6	A5A-PC2-T-27	A5A-PC2-T-27^R	Radium-226	1.63	-	pCi/g
6	A5A-PC2-T-27	A5A-PC2-T-27^R	Thorium-228	1.09	-	pCi/g
6	A5A-PC2-T-28	A5A-PC2-T-28^R	Radium-226	1.29	-	pCi/g
6	A5A-PC2-T-28	A5A-PC2-T-28^R	Radium-228	1.07	J	pCi/g
6	A5A-PC2-T-28	A5A-PC2-T-28^R	Thorium-228	1.11	-	pCi/g
6	A5A-PC2-T-28	A5A-PC2-T-28^R	Thorium-232	1.07	J	pCi/g
6	A5A-PC2-T-28	A5A-PC2-T-28^R	Uranium, Total	3.8	U	mg/kg
4	A5A-PC2-T-29	A5A-PC2-T-29^R	Radium-228	1.02	J	pCi/g
4	A5A-PC2-T-29	A5A-PC2-T-29^R	Uranium, Total	5.77	J	mg/kg
4	A5A-PC2-T-29	A5A-PC2-T-29^R	Thorium-228	1.05	-	pCi/g
4	A5A-PC2-T-29	A5A-PC2-T-29^R	Radium-226	1.23	-	pCi/g
4	A5A-PC2-T-29	A5A-PC2-T-29^R	Thorium-232	1.02	J	pCi/g
8	A5A-PC2-T-3	A5A-PC2-T-3^R	Radium-226	0.932	-	pCi/g
8	A5A-PC2-T-3	A5A-PC2-T-3^R	Radium-228	0.773	-	pCi/g
8	A5A-PC2-T-3	A5A-PC2-T-3^R	Thorium-228	0.763	-	pCi/g
8	A5A-PC2-T-3	A5A-PC2-T-3^R	Thorium-232	0.773	-	pCi/g
8	A5A-PC2-T-3	A5A-PC2-T-3^R	Uranium, Total	3.04	U	mg/kg
4	A5A-PC2-T-30	A5A-PC2-T-30^R	Radium-228	1.03	J	pCi/g
4	A5A-PC2-T-30	A5A-PC2-T-30^R	Uranium, Total	3.52	U	mg/kg
4	A5A-PC2-T-30	A5A-PC2-T-30^R	Radium-226	1.45	-	pCi/g
4	A5A-PC2-T-30	A5A-PC2-T-30^R	Thorium-232	1.03	J	pCi/g
4	A5A-PC2-T-30	A5A-PC2-T-30^R	Thorium-228	1.03	-	pCi/g
6	A5A-PC2-T-31	A5A-PC2-T-31^R	Radium-226	1.03	-	pCi/g
6	A5A-PC2-T-31	A5A-PC2-T-31^R	Radium-228	0.757	-	pCi/g
6	A5A-PC2-T-31	A5A-PC2-T-31^R	Thorium-228	0.768	-	pCi/g
6	A5A-PC2-T-31	A5A-PC2-T-31^R	Thorium-232	0.757	-	pCi/g
6	A5A-PC2-T-31	A5A-PC2-T-31^R	Uranium, Total	3.15	U	mg/kg
6	A5A-PC2-T-32	A5A-PC2-T-32^R	Radium-228	0.752	J	pCi/g
6	A5A-PC2-T-32	A5A-PC2-T-32^R	Uranium, Total	5.29	J	mg/kg

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
6	A5A-PC2-T-32	A5A-PC2-T-32^R	Thorium-228	0.757	-	pCi/g
6	A5A-PC2-T-32	A5A-PC2-T-32^R	Radium-226	0.861	-	pCi/g
6	A5A-PC2-T-32	A5A-PC2-T-32^R	Thorium-232	0.752	J	pCi/g
6	A5A-PC2-T-33	A5A-PC2-T-33^R	Radium-226	0.883	-	pCi/g
6	A5A-PC2-T-33	A5A-PC2-T-33^R	Radium-228	0.623	J	pCi/g
6	A5A-PC2-T-33	A5A-PC2-T-33^R	Thorium-228	0.632	-	pCi/g
6	A5A-PC2-T-33	A5A-PC2-T-33^R	Thorium-232	0.623	J	pCi/g
6	A5A-PC2-T-33	A5A-PC2-T-33^R	Uranium, Total	2.87	U	mg/kg
5	A5A-PC2-T-34	A5A-PC2-T-34^R	Uranium, Total	3.21	U	mg/kg
5	A5A-PC2-T-34	A5A-PC2-T-34^R	Radium-228	0.722	J	pCi/g
5	A5A-PC2-T-34	A5A-PC2-T-34^R	Radium-226	0.957	-	pCi/g
5	A5A-PC2-T-34	A5A-PC2-T-34^R	Thorium-228	0.727	-	pCi/g
5	A5A-PC2-T-34	A5A-PC2-T-34^R	Thorium-232	0.722	J	pCi/g
8	A5A-PC2-T-4	A5A-PC2-T-4^R	Radium-226	0.983	-	pCi/g
8	A5A-PC2-T-4	A5A-PC2-T-4^R	Radium-228	0.762	-	pCi/g
8	A5A-PC2-T-4	A5A-PC2-T-4^R	Thorium-228	0.779	-	pCi/g
8	A5A-PC2-T-4	A5A-PC2-T-4^R	Thorium-232	0.762	-	pCi/g
8	A5A-PC2-T-4	A5A-PC2-T-4^R	Uranium, Total	3.21	U	mg/kg
7	A5A-PC2-T-5	A5A-PC2-T-5^R	Radium-226	0.928	-	pCi/g
7	A5A-PC2-T-5	A5A-PC2-T-5^R	Radium-228	0.778	-	pCi/g
7	A5A-PC2-T-5	A5A-PC2-T-5^R	Thorium-228	0.797	-	pCi/g
7	A5A-PC2-T-5	A5A-PC2-T-5^R	Thorium-232	0.778	-	pCi/g
7	A5A-PC2-T-5	A5A-PC2-T-5^R	Uranium, Total	3.47	U	mg/kg
7	A5A-PC2-T-6	A5A-PC2-T-6^R	Thorium-232	0.673	-	pCi/g
7	A5A-PC2-T-6	A5A-PC2-T-6^R	Uranium, Total	3.64	U	mg/kg
7	A5A-PC2-T-6	A5A-PC2-T-6^R	Radium-226	0.849	-	pCi/g
7	A5A-PC2-T-6	A5A-PC2-T-6^R	Radium-228	0.673	-	pCi/g
7	A5A-PC2-T-6	A5A-PC2-T-6^R	Thorium-228	0.658	-	pCi/g
6	A5A-PC2-T-7	A5A-PC2-T-7^R	Radium-228	0.658	-	pCi/g
6	A5A-PC2-T-7	A5A-PC2-T-7^R	Thorium-228	0.608	-	pCi/g
6	A5A-PC2-T-7	A5A-PC2-T-7^R	Thorium-232	0.658	-	pCi/g
6	A5A-PC2-T-7	A5A-PC2-T-7^R	Uranium, Total	5.11	J	mg/kg
6	A5A-PC2-T-7	A5A-PC2-T-7^R	Radium-226	0.784	-	pCi/g
6	A5A-PC2-T-8	A5A-PC2-T-8^R	Radium-228	0.785	-	pCi/g
6	A5A-PC2-T-8	A5A-PC2-T-8^R	Uranium, Total	2.88	U	mg/kg
6	A5A-PC2-T-8	A5A-PC2-T-8^R	Thorium-228	0.778	-	pCi/g
6	A5A-PC2-T-8	A5A-PC2-T-8^R	Radium-226	0.894	-	pCi/g
6	A5A-PC2-T-8	A5A-PC2-T-8^R	Thorium-232	0.785	-	pCi/g
7	A5A-PC2-T-9	A5A-PC2-T-9^R	Radium-226	0.929	-	pCi/g
7	A5A-PC2-T-9	A5A-PC2-T-9^R	Radium-228	0.823	-	pCi/g
7	A5A-PC2-T-9	A5A-PC2-T-9^R	Thorium-228	0.828	-	pCi/g
7	A5A-PC2-T-9	A5A-PC2-T-9^R	Thorium-232	0.823	-	pCi/g
7	A5A-PC2-T-9	A5A-PC2-T-9^R	Uranium, Total	5.46	-	mg/kg
1	A5EC-WPL-T-1	A5EC-WPL-T-1^R	Uranium, Total	3.86	U	mg/kg
1	A5EC-WPL-T-1	A5EC-WPL-T-1^R	Thorium-232	0.704	-	pCi/g
1	A5EC-WPL-T-1	A5EC-WPL-T-1^R	Radium-228	0.704	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
1	A5EC-WPL-T-1	A5EC-WPL-T-1^R	Radium-226	0.966	J	pCi/g
1	A5EC-WPL-T-1	A5EC-WPL-T-1^R	Thorium-228	0.69	-	pCi/g
2	A5EC-WPL-T-10	A5EC-WPL-T-10^R	Radium-226	1.34	J	pCi/g
2	A5EC-WPL-T-10	A5EC-WPL-T-10^R	Radium-228	1.12	-	pCi/g
2	A5EC-WPL-T-10	A5EC-WPL-T-10^R	Thorium-228	1.16	-	pCi/g
2	A5EC-WPL-T-10	A5EC-WPL-T-10^R	Thorium-232	1.12	-	pCi/g
2	A5EC-WPL-T-10	A5EC-WPL-T-10^R	Uranium, Total	8.31	-	mg/kg
2	A5EC-WPL-T-11	A5EC-WPL-T-11^R	Radium-228	0.929	-	pCi/g
2	A5EC-WPL-T-11	A5EC-WPL-T-11^R	Uranium, Total	3.43	U	mg/kg
2	A5EC-WPL-T-11	A5EC-WPL-T-11^R	Thorium-228	0.927	-	pCi/g
2	A5EC-WPL-T-11	A5EC-WPL-T-11^R	Radium-226	1.06	J	pCi/g
2	A5EC-WPL-T-11	A5EC-WPL-T-11^R	Thorium-232	0.929	-	pCi/g
2	A5EC-WPL-T-12	A5EC-WPL-T-12^R	Radium-226	0.796	J	pCi/g
2	A5EC-WPL-T-12	A5EC-WPL-T-12^R	Radium-228	0.648	-	pCi/g
2	A5EC-WPL-T-12	A5EC-WPL-T-12^R	Thorium-228	0.693	-	pCi/g
2	A5EC-WPL-T-12	A5EC-WPL-T-12^R	Thorium-232	0.648	-	pCi/g
2	A5EC-WPL-T-12	A5EC-WPL-T-12^R	Uranium, Total	3.88	J	mg/kg
2	A5EC-WPL-T-13	A5EC-WPL-T-13^R	Radium-228	1.01	-	pCi/g
2	A5EC-WPL-T-13	A5EC-WPL-T-13^R	Uranium, Total	4.18	-	mg/kg
2	A5EC-WPL-T-13	A5EC-WPL-T-13^R	Radium-226	1.24	-	pCi/g
2	A5EC-WPL-T-13	A5EC-WPL-T-13^R	Thorium-232	1.01	-	pCi/g
2	A5EC-WPL-T-13	A5EC-WPL-T-13^R	Thorium-228	1	-	pCi/g
3	A5EC-WPL-T-14	A5EC-WPL-T-14^R	Radium-226	0.828	-	pCi/g
3	A5EC-WPL-T-14	A5EC-WPL-T-14^R	Radium-228	0.808	-	pCi/g
3	A5EC-WPL-T-14	A5EC-WPL-T-14^R	Thorium-228	0.854	-	pCi/g
3	A5EC-WPL-T-14	A5EC-WPL-T-14^R	Thorium-232	0.808	-	pCi/g
3	A5EC-WPL-T-14	A5EC-WPL-T-14^R	Uranium, Total	3.8	-	mg/kg
3	A5EC-WPL-T-15	A5EC-WPL-T-15^R	Radium-228	0.764	-	pCi/g
3	A5EC-WPL-T-15	A5EC-WPL-T-15^R	Uranium, Total	3.89	-	mg/kg
3	A5EC-WPL-T-15	A5EC-WPL-T-15^R	Thorium-228	0.754	-	pCi/g
3	A5EC-WPL-T-15	A5EC-WPL-T-15^R	Radium-226	0.948	-	pCi/g
3	A5EC-WPL-T-15	A5EC-WPL-T-15^R	Thorium-232	0.764	-	pCi/g
3	A5EC-WPL-T-16	A5EC-WPL-T-16^R	Uranium, Total	3.12	J	mg/kg
3	A5EC-WPL-T-16	A5EC-WPL-T-16^R	Radium-226	1.5	-	pCi/g
3	A5EC-WPL-T-16	A5EC-WPL-T-16^R	Radium-228	1.26	-	pCi/g
3	A5EC-WPL-T-16	A5EC-WPL-T-16^R	Thorium-228	1.31	-	pCi/g
3	A5EC-WPL-T-16	A5EC-WPL-T-16^R	Thorium-232	1.26	-	pCi/g
3	A5EC-WPL-T-17	A5EC-WPL-T-17^R	Uranium, Total	3.24	U	mg/kg
3	A5EC-WPL-T-17	A5EC-WPL-T-17^R	Thorium-232	0.919	-	pCi/g
3	A5EC-WPL-T-17	A5EC-WPL-T-17^R	Radium-226	1.15	-	pCi/g
3	A5EC-WPL-T-17	A5EC-WPL-T-17^R	Radium-228	0.919	-	pCi/g
3	A5EC-WPL-T-17	A5EC-WPL-T-17^R	Thorium-228	0.924	-	pCi/g
3	A5EC-WPL-T-18	A5EC-WPL-T-18^R	Radium-226	1.03	-	pCi/g
3	A5EC-WPL-T-18	A5EC-WPL-T-18^R	Radium-228	0.841	-	pCi/g
3	A5EC-WPL-T-18	A5EC-WPL-T-18^R	Thorium-228	0.812	-	pCi/g
3	A5EC-WPL-T-18	A5EC-WPL-T-18^R	Thorium-232	0.841	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
3	A5EC-WPL-T-18	A5EC-WPL-T-18^R	Uranium, Total	3.46	J	mg/kg
3	A5EC-WPL-T-19	A5EC-WPL-T-19^R	Radium-226	0.901	-	pCi/g
3	A5EC-WPL-T-19	A5EC-WPL-T-19^R	Radium-228	0.703	-	pCi/g
3	A5EC-WPL-T-19	A5EC-WPL-T-19^R	Thorium-228	0.731	-	pCi/g
3	A5EC-WPL-T-19	A5EC-WPL-T-19^R	Thorium-232	0.703	-	pCi/g
3	A5EC-WPL-T-19	A5EC-WPL-T-19^R	Uranium, Total	2.79	U	mg/kg
3	A5EC-WPL-T-2	A5EC-WPL-T-2^R	Thorium-232	0.622	-	pCi/g
3	A5EC-WPL-T-2	A5EC-WPL-T-2^R	Uranium, Total	2.67	U	mg/kg
3	A5EC-WPL-T-2	A5EC-WPL-T-2^R	Radium-228	0.622	-	pCi/g
3	A5EC-WPL-T-2	A5EC-WPL-T-2^R	Radium-226	0.791	J	pCi/g
3	A5EC-WPL-T-2	A5EC-WPL-T-2^R	Thorium-228	0.637	-	pCi/g
4	A5EC-WPL-T-20	A5EC-WPL-T-20^R	Radium-228	0.811	-	pCi/g
4	A5EC-WPL-T-20	A5EC-WPL-T-20^R	Thorium-228	0.825	-	pCi/g
4	A5EC-WPL-T-20	A5EC-WPL-T-20^R	Thorium-232	0.811	-	pCi/g
4	A5EC-WPL-T-20	A5EC-WPL-T-20^R	Uranium, Total	8.24	-	mg/kg
4	A5EC-WPL-T-20	A5EC-WPL-T-20^R	Radium-226	0.913	-	pCi/g
4	A5EC-WPL-T-21	A5EC-WPL-T-21^R	Radium-228	0.552	-	pCi/g
4	A5EC-WPL-T-21	A5EC-WPL-T-21^R	Uranium, Total	2.91	U	mg/kg
4	A5EC-WPL-T-21	A5EC-WPL-T-21^R	Thorium-228	0.571	-	pCi/g
4	A5EC-WPL-T-21	A5EC-WPL-T-21^R	Radium-226	0.839	-	pCi/g
4	A5EC-WPL-T-21	A5EC-WPL-T-21^R	Thorium-232	0.552	-	pCi/g
4	A5EC-WPL-T-22	A5EC-WPL-T-22^R	Radium-226	0.939	-	pCi/g
4	A5EC-WPL-T-22	A5EC-WPL-T-22^R	Radium-228	0.682	-	pCi/g
4	A5EC-WPL-T-22	A5EC-WPL-T-22^R	Thorium-228	0.695	-	pCi/g
4	A5EC-WPL-T-22	A5EC-WPL-T-22^R	Thorium-232	0.682	-	pCi/g
4	A5EC-WPL-T-22	A5EC-WPL-T-22^R	Uranium, Total	3.18	U	mg/kg
4	A5EC-WPL-T-23	A5EC-WPL-T-23^R	Thorium-228	1.04	-	pCi/g
4	A5EC-WPL-T-23	A5EC-WPL-T-23^R	Thorium-232	0.994	-	pCi/g
4	A5EC-WPL-T-23	A5EC-WPL-T-23^R	Radium-226	1.23	-	pCi/g
4	A5EC-WPL-T-23	A5EC-WPL-T-23^R	Radium-228	0.994	-	pCi/g
4	A5EC-WPL-T-23	A5EC-WPL-T-23^R	Uranium, Total	3.17	U	mg/kg
4	A5EC-WPL-T-24	A5EC-WPL-T-24^R	Radium-226	0.852	-	pCi/g
4	A5EC-WPL-T-24	A5EC-WPL-T-24^R	Radium-228	0.451	-	pCi/g
4	A5EC-WPL-T-24	A5EC-WPL-T-24^R	Thorium-228	0.428	-	pCi/g
4	A5EC-WPL-T-24	A5EC-WPL-T-24^R	Thorium-232	0.451	-	pCi/g
4	A5EC-WPL-T-24	A5EC-WPL-T-24^R	Uranium, Total	6.21	-	mg/kg
5	A5EC-WPL-T-25	A5EC-WPL-T-25^R	Radium-228	0.857	-	pCi/g
5	A5EC-WPL-T-25	A5EC-WPL-T-25^R	Uranium, Total	2.85	U	mg/kg
5	A5EC-WPL-T-25	A5EC-WPL-T-25^R	Thorium-228	0.922	-	pCi/g
5	A5EC-WPL-T-25	A5EC-WPL-T-25^R	Radium-226	1.04	-	pCi/g
5	A5EC-WPL-T-25	A5EC-WPL-T-25^R	Thorium-232	0.857	-	pCi/g
5	A5EC-WPL-T-26	A5EC-WPL-T-26^R	Uranium, Total	4.9	J	mg/kg
5	A5EC-WPL-T-26	A5EC-WPL-T-26^R	Radium-226	1.02	-	pCi/g
5	A5EC-WPL-T-26	A5EC-WPL-T-26^R	Radium-228	0.911	-	pCi/g
5	A5EC-WPL-T-26	A5EC-WPL-T-26^R	Thorium-228	0.969	-	pCi/g
5	A5EC-WPL-T-26	A5EC-WPL-T-26^R	Thorium-232	0.911	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
5	A5EC-WPL-T-27	A5EC-WPL-T-27^R	Uranium, Total	7.49	-	mg/kg
5	A5EC-WPL-T-27	A5EC-WPL-T-27^R	Thorium-232	0.711	-	pCi/g
5	A5EC-WPL-T-27	A5EC-WPL-T-27^R	Radium-226	0.934	-	pCi/g
5	A5EC-WPL-T-27	A5EC-WPL-T-27^R	Thorium-228	0.736	-	pCi/g
5	A5EC-WPL-T-27	A5EC-WPL-T-27^R	Radium-228	0.711	-	pCi/g
8	A5EC-WPL-T-28	A5EC-WPL-T-28^R	Uranium, Total	5.61	J	mg/kg
8	A5EC-WPL-T-28	A5EC-WPL-T-28^R	Radium-226	1.15	-	pCi/g
8	A5EC-WPL-T-28	A5EC-WPL-T-28^R	Radium-228	0.948	-	pCi/g
8	A5EC-WPL-T-28	A5EC-WPL-T-28^R	Thorium-228	0.949	-	pCi/g
8	A5EC-WPL-T-28	A5EC-WPL-T-28^R	Thorium-232	0.948	-	pCi/g
8	A5EC-WPL-T-29	A5EC-WPL-T-29^R	Uranium, Total	3.64	U	mg/kg
8	A5EC-WPL-T-29	A5EC-WPL-T-29^R	Thorium-232	0.893	-	pCi/g
8	A5EC-WPL-T-29	A5EC-WPL-T-29^R	Thorium-228	0.876	-	pCi/g
8	A5EC-WPL-T-29	A5EC-WPL-T-29^R	Radium-226	1.06	-	pCi/g
8	A5EC-WPL-T-29	A5EC-WPL-T-29^R	Radium-228	0.893	-	pCi/g
3	A5EC-WPL-T-3	A5EC-WPL-T-3^R	Uranium, Total	3.51	U	mg/kg
3	A5EC-WPL-T-3	A5EC-WPL-T-3^R	Radium-226	1.12	J	pCi/g
3	A5EC-WPL-T-3	A5EC-WPL-T-3^R	Radium-228	0.845	-	pCi/g
3	A5EC-WPL-T-3	A5EC-WPL-T-3^R	Thorium-232	0.845	-	pCi/g
3	A5EC-WPL-T-3	A5EC-WPL-T-3^R	Thorium-228	0.859	-	pCi/g
8	A5EC-WPL-T-30	A5EC-WPL-T-30^R	Radium-226	1.27	-	pCi/g
8	A5EC-WPL-T-30	A5EC-WPL-T-30^R	Radium-228	0.773	-	pCi/g
8	A5EC-WPL-T-30	A5EC-WPL-T-30^R	Thorium-228	0.764	-	pCi/g
8	A5EC-WPL-T-30	A5EC-WPL-T-30^R	Thorium-232	0.773	-	pCi/g
8	A5EC-WPL-T-30	A5EC-WPL-T-30^R	Uranium, Total	6.73	J	mg/kg
8	A5EC-WPL-T-31	A5EC-WPL-T-31^R	Thorium-228	1.06	-	pCi/g
8	A5EC-WPL-T-31	A5EC-WPL-T-31^R	Thorium-232	1.06	-	pCi/g
8	A5EC-WPL-T-31	A5EC-WPL-T-31^R	Radium-228	1.06	-	pCi/g
8	A5EC-WPL-T-31	A5EC-WPL-T-31^R	Radium-226	1.36	-	pCi/g
8	A5EC-WPL-T-31	A5EC-WPL-T-31^R	Uranium, Total	4.43	-	mg/kg
5	A5EC-WPL-T-32	A5EC-WPL-T-32^R	Radium-226	1.58	-	pCi/g
5	A5EC-WPL-T-32	A5EC-WPL-T-32^R	Radium-228	1.16	-	pCi/g
5	A5EC-WPL-T-32	A5EC-WPL-T-32^R	Thorium-228	1.15	-	pCi/g
5	A5EC-WPL-T-32	A5EC-WPL-T-32^R	Thorium-232	1.16	-	pCi/g
5	A5EC-WPL-T-32	A5EC-WPL-T-32^R	Uranium, Total	5.25	-	mg/kg
5	A5EC-WPL-T-33	A5EC-WPL-T-33^R	Thorium-228	1.16	-	pCi/g
5	A5EC-WPL-T-33	A5EC-WPL-T-33^R	Thorium-232	1.16	-	pCi/g
5	A5EC-WPL-T-33	A5EC-WPL-T-33^R	Radium-228	1.16	-	pCi/g
5	A5EC-WPL-T-33	A5EC-WPL-T-33^R	Radium-226	1.6	-	pCi/g
5	A5EC-WPL-T-33	A5EC-WPL-T-33^R	Uranium, Total	5.71	-	mg/kg
5	A5EC-WPL-T-34	A5EC-WPL-T-34^R	Radium-226	1.59	-	pCi/g
5	A5EC-WPL-T-34	A5EC-WPL-T-34^R	Radium-228	1.38	-	pCi/g
5	A5EC-WPL-T-34	A5EC-WPL-T-34^R	Thorium-228	1.41	-	pCi/g
5	A5EC-WPL-T-34	A5EC-WPL-T-34^R	Thorium-232	1.38	-	pCi/g
5	A5EC-WPL-T-34	A5EC-WPL-T-34^R	Uranium, Total	6.09	-	mg/kg
5	A5EC-WPL-T-35	A5EC-WPL-T-35^R	Radium-228	1.19	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
5	A5EC-WPL-T-35	A5EC-WPL-T-35^R	Uranium, Total	5.17	-	mg/kg
5	A5EC-WPL-T-35	A5EC-WPL-T-35^R	Thorium-228	1.16	-	pCi/g
5	A5EC-WPL-T-35	A5EC-WPL-T-35^R	Radium-226	1.52	-	pCi/g
5	A5EC-WPL-T-35	A5EC-WPL-T-35^R	Thorium-232	1.19	-	pCi/g
5	A5EC-WPL-T-36	A5EC-WPL-T-36^R	Uranium, Total	5.96	-	mg/kg
5	A5EC-WPL-T-36	A5EC-WPL-T-36^R	Radium-226	1.45	-	pCi/g
5	A5EC-WPL-T-36	A5EC-WPL-T-36^R	Radium-228	1.1	-	pCi/g
5	A5EC-WPL-T-36	A5EC-WPL-T-36^R	Thorium-228	1.11	-	pCi/g
5	A5EC-WPL-T-36	A5EC-WPL-T-36^R	Thorium-232	1.1	-	pCi/g
5	A5EC-WPL-T-37	A5EC-WPL-T-37^R	Thorium-232	0.69	-	pCi/g
5	A5EC-WPL-T-37	A5EC-WPL-T-37^R	Uranium, Total	2.51	J	mg/kg
5	A5EC-WPL-T-37	A5EC-WPL-T-37^R	Radium-228	0.69	-	pCi/g
5	A5EC-WPL-T-37	A5EC-WPL-T-37^R	Radium-226	0.911	-	pCi/g
5	A5EC-WPL-T-37	A5EC-WPL-T-37^R	Thorium-228	0.78	-	pCi/g
5	A5EC-WPL-T-38	A5EC-WPL-T-38^R	Radium-226	1.12	-	pCi/g
5	A5EC-WPL-T-38	A5EC-WPL-T-38^R	Radium-228	0.865	-	pCi/g
5	A5EC-WPL-T-38	A5EC-WPL-T-38^R	Thorium-228	0.868	-	pCi/g
5	A5EC-WPL-T-38	A5EC-WPL-T-38^R	Thorium-232	0.865	-	pCi/g
5	A5EC-WPL-T-38	A5EC-WPL-T-38^R	Uranium, Total	4.03	-	mg/kg
5	A5EC-WPL-T-39	A5EC-WPL-T-39^R	Radium-226	1.51	-	pCi/g
5	A5EC-WPL-T-39	A5EC-WPL-T-39^R	Radium-228	1.16	-	pCi/g
5	A5EC-WPL-T-39	A5EC-WPL-T-39^R	Thorium-228	1.15	-	pCi/g
5	A5EC-WPL-T-39	A5EC-WPL-T-39^R	Thorium-232	1.16	-	pCi/g
5	A5EC-WPL-T-39	A5EC-WPL-T-39^R	Uranium, Total	6.25	-	mg/kg
3	A5EC-WPL-T-4	A5EC-WPL-T-4^R	Thorium-232	0.86	-	pCi/g
3	A5EC-WPL-T-4	A5EC-WPL-T-4^R	Uranium, Total	3.82	J	mg/kg
3	A5EC-WPL-T-4	A5EC-WPL-T-4^R	Radium-228	0.86	-	pCi/g
3	A5EC-WPL-T-4	A5EC-WPL-T-4^R	Radium-226	1.05	J	pCi/g
3	A5EC-WPL-T-4	A5EC-WPL-T-4^R	Thorium-228	0.834	-	pCi/g
5	A5EC-WPL-T-40	A5EC-WPL-T-40^R	Radium-228	1.3	-	pCi/g
5	A5EC-WPL-T-40	A5EC-WPL-T-40^R	Thorium-228	1.33	-	pCi/g
5	A5EC-WPL-T-40	A5EC-WPL-T-40^R	Thorium-232	1.3	-	pCi/g
5	A5EC-WPL-T-40	A5EC-WPL-T-40^R	Uranium, Total	3.41	U	mg/kg
5	A5EC-WPL-T-40	A5EC-WPL-T-40^R	Radium-226	1.65	-	pCi/g
5	A5EC-WPL-T-41	A5EC-WPL-T-41^R	Radium-228	1.41	-	pCi/g
5	A5EC-WPL-T-41	A5EC-WPL-T-41^R	Uranium, Total	5.57	-	mg/kg
5	A5EC-WPL-T-41	A5EC-WPL-T-41^R	Thorium-228	1.41	-	pCi/g
5	A5EC-WPL-T-41	A5EC-WPL-T-41^R	Radium-226	1.75	-	pCi/g
5	A5EC-WPL-T-41	A5EC-WPL-T-41^R	Thorium-232	1.41	-	pCi/g
8	A5EC-WPL-T-42	A5EC-WPL-T-42^R	Radium-226	1.17	-	pCi/g
8	A5EC-WPL-T-42	A5EC-WPL-T-42^R	Radium-228	0.797	-	pCi/g
8	A5EC-WPL-T-42	A5EC-WPL-T-42^R	Thorium-228	0.793	-	pCi/g
8	A5EC-WPL-T-42	A5EC-WPL-T-42^R	Thorium-232	0.797	-	pCi/g
8	A5EC-WPL-T-42	A5EC-WPL-T-42^R	Uranium, Total	5.8	-	mg/kg
8	A5EC-WPL-T-43	A5EC-WPL-T-43^R	Thorium-232	0.831	-	pCi/g
8	A5EC-WPL-T-43	A5EC-WPL-T-43^R	Thorium-228	0.849	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
8	A5EC-WPL-T-43	A5EC-WPL-T-43^R	Radium-228	0.831	-	pCi/g
8	A5EC-WPL-T-43	A5EC-WPL-T-43^R	Radium-226	1.04	-	pCi/g
8	A5EC-WPL-T-43	A5EC-WPL-T-43^R	Uranium, Total	3.37	U	mg/kg
8	A5EC-WPL-T-44	A5EC-WPL-T-44^R	Radium-226	1.51	-	pCi/g
8	A5EC-WPL-T-44	A5EC-WPL-T-44^R	Radium-228	1.38	-	pCi/g
8	A5EC-WPL-T-44	A5EC-WPL-T-44^R	Thorium-228	1.37	-	pCi/g
8	A5EC-WPL-T-44	A5EC-WPL-T-44^R	Thorium-232	1.38	-	pCi/g
8	A5EC-WPL-T-44	A5EC-WPL-T-44^R	Uranium, Total	3.54	U	mg/kg
8	A5EC-WPL-T-45	A5EC-WPL-T-45^R	Radium-226	1.22	-	pCi/g
8	A5EC-WPL-T-45	A5EC-WPL-T-45^R	Radium-228	0.956	-	pCi/g
8	A5EC-WPL-T-45	A5EC-WPL-T-45^R	Thorium-228	0.964	-	pCi/g
8	A5EC-WPL-T-45	A5EC-WPL-T-45^R	Thorium-232	0.956	-	pCi/g
8	A5EC-WPL-T-45	A5EC-WPL-T-45^R	Uranium, Total	5.1	-	mg/kg
8	A5EC-WPL-T-46	A5EC-WPL-T-46^R	Thorium-232	1.2	-	pCi/g
8	A5EC-WPL-T-46	A5EC-WPL-T-46^R	Uranium, Total	3.77	U	mg/kg
8	A5EC-WPL-T-46	A5EC-WPL-T-46^R	Radium-226	1.43	-	pCi/g
8	A5EC-WPL-T-46	A5EC-WPL-T-46^R	Radium-228	1.2	-	pCi/g
8	A5EC-WPL-T-46	A5EC-WPL-T-46^R	Thorium-228	1.17	-	pCi/g
4	A5EC-WPL-T-47	A5EC-WPL-T-47^R	Radium-228	0.893	-	pCi/g
4	A5EC-WPL-T-47	A5EC-WPL-T-47^R	Thorium-228	0.907	-	pCi/g
4	A5EC-WPL-T-47	A5EC-WPL-T-47^R	Thorium-232	0.893	-	pCi/g
4	A5EC-WPL-T-47	A5EC-WPL-T-47^R	Uranium, Total	3.47	U	mg/kg
4	A5EC-WPL-T-47	A5EC-WPL-T-47^R	Radium-226	1.06	-	pCi/g
4	A5EC-WPL-T-48	A5EC-WPL-T-48^R	Radium-228	0.762	-	pCi/g
4	A5EC-WPL-T-48	A5EC-WPL-T-48^R	Uranium, Total	7.38	-	mg/kg
4	A5EC-WPL-T-48	A5EC-WPL-T-48^R	Thorium-228	0.771	-	pCi/g
4	A5EC-WPL-T-48	A5EC-WPL-T-48^R	Radium-226	1.07	-	pCi/g
4	A5EC-WPL-T-48	A5EC-WPL-T-48^R	Thorium-232	0.762	-	pCi/g
4	A5EC-WPL-T-49	A5EC-WPL-T-49^R	Radium-226	1.56	-	pCi/g
4	A5EC-WPL-T-49	A5EC-WPL-T-49^R	Radium-228	1.31	-	pCi/g
4	A5EC-WPL-T-49	A5EC-WPL-T-49^R	Thorium-228	1.29	-	pCi/g
4	A5EC-WPL-T-49	A5EC-WPL-T-49^R	Thorium-232	1.31	-	pCi/g
4	A5EC-WPL-T-49	A5EC-WPL-T-49^R	Uranium, Total	3.81	U	mg/kg
3	A5EC-WPL-T-5	A5EC-WPL-T-5^R	Uranium, Total	4.61	U	mg/kg
3	A5EC-WPL-T-5	A5EC-WPL-T-5^R	Thorium-232	0.97	-	pCi/g
3	A5EC-WPL-T-5	A5EC-WPL-T-5^R	Radium-228	0.97	-	pCi/g
3	A5EC-WPL-T-5	A5EC-WPL-T-5^R	Radium-226	1.26	J	pCi/g
3	A5EC-WPL-T-5	A5EC-WPL-T-5^R	Thorium-228	1.01	-	pCi/g
2	A5EC-WPL-T-51	A5EC-WPL-T-51^R	Radium-226	1.21	-	pCi/g
2	A5EC-WPL-T-51	A5EC-WPL-T-51^R	Radium-228	0.871	-	pCi/g
2	A5EC-WPL-T-51	A5EC-WPL-T-51^R	Thorium-228	0.863	-	pCi/g
2	A5EC-WPL-T-51	A5EC-WPL-T-51^R	Thorium-232	0.871	-	pCi/g
2	A5EC-WPL-T-51	A5EC-WPL-T-51^R	Uranium, Total	3.8	U	mg/kg
2	A5EC-WPL-T-52	A5EC-WPL-T-52^R	Radium-228	0.805	-	pCi/g
2	A5EC-WPL-T-52	A5EC-WPL-T-52^R	Uranium, Total	3.21	U	mg/kg
2	A5EC-WPL-T-52	A5EC-WPL-T-52^R	Thorium-228	0.804	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
2	A5EC-WPL-T-52	A5EC-WPL-T-52^R	Radium-226	0.959	-	pCi/g
2	A5EC-WPL-T-52	A5EC-WPL-T-52^R	Thorium-232	0.805	-	pCi/g
2	A5EC-WPL-T-53	A5EC-WPL-T-53^R	Radium-226	1.43	-	pCi/g
2	A5EC-WPL-T-53	A5EC-WPL-T-53^R	Radium-228	1.06	-	pCi/g
2	A5EC-WPL-T-53	A5EC-WPL-T-53^R	Thorium-228	1.09	-	pCi/g
2	A5EC-WPL-T-53	A5EC-WPL-T-53^R	Thorium-232	1.06	-	pCi/g
2	A5EC-WPL-T-53	A5EC-WPL-T-53^R	Uranium, Total	3.81	U	mg/kg
2	A5EC-WPL-T-54	A5EC-WPL-T-54^R	Radium-228	1	-	pCi/g
2	A5EC-WPL-T-54	A5EC-WPL-T-54^R	Uranium, Total	8.93	-	mg/kg
2	A5EC-WPL-T-54	A5EC-WPL-T-54^R	Radium-226	1.13	-	pCi/g
2	A5EC-WPL-T-54	A5EC-WPL-T-54^R	Thorium-232	1	-	pCi/g
2	A5EC-WPL-T-54	A5EC-WPL-T-54^R	Thorium-228	1.02	-	pCi/g
2	A5EC-WPL-T-55	A5EC-WPL-T-55^R	Radium-226	1.11	-	pCi/g
2	A5EC-WPL-T-55	A5EC-WPL-T-55^R	Radium-228	0.911	-	pCi/g
2	A5EC-WPL-T-55	A5EC-WPL-T-55^R	Thorium-228	0.905	-	pCi/g
2	A5EC-WPL-T-55	A5EC-WPL-T-55^R	Thorium-232	0.911	-	pCi/g
2	A5EC-WPL-T-55	A5EC-WPL-T-55^R	Uranium, Total	6.13	-	mg/kg
2	A5EC-WPL-T-56	A5EC-WPL-T-56^R	Radium-228	1.11	-	pCi/g
2	A5EC-WPL-T-56	A5EC-WPL-T-56^R	Uranium, Total	4.31	J	mg/kg
2	A5EC-WPL-T-56	A5EC-WPL-T-56^R	Thorium-228	1.1	-	pCi/g
2	A5EC-WPL-T-56	A5EC-WPL-T-56^R	Radium-226	1.23	-	pCi/g
2	A5EC-WPL-T-56	A5EC-WPL-T-56^R	Thorium-232	1.11	-	pCi/g
2	A5EC-WPL-T-57	A5EC-WPL-T-57^R	Uranium, Total	5.56	J	mg/kg
2	A5EC-WPL-T-57	A5EC-WPL-T-57^R	Radium-226	1.01	-	pCi/g
2	A5EC-WPL-T-57	A5EC-WPL-T-57^R	Radium-228	0.809	-	pCi/g
2	A5EC-WPL-T-57	A5EC-WPL-T-57^R	Thorium-228	0.825	-	pCi/g
2	A5EC-WPL-T-57	A5EC-WPL-T-57^R	Thorium-232	0.809	-	pCi/g
1	A5EC-WPL-T-58	A5EC-WPL-T-58^R	Uranium, Total	3.57	U	mg/kg
1	A5EC-WPL-T-58	A5EC-WPL-T-58^R	Thorium-232	1.04	-	pCi/g
1	A5EC-WPL-T-58	A5EC-WPL-T-58^R	Radium-226	1.29	-	pCi/g
1	A5EC-WPL-T-58	A5EC-WPL-T-58^R	Radium-228	1.04	-	pCi/g
1	A5EC-WPL-T-58	A5EC-WPL-T-58^R	Thorium-228	1.07	-	pCi/g
1	A5EC-WPL-T-59	A5EC-WPL-T-59^R	Radium-226	1.02	-	pCi/g
1	A5EC-WPL-T-59	A5EC-WPL-T-59^R	Radium-228	0.783	-	pCi/g
1	A5EC-WPL-T-59	A5EC-WPL-T-59^R	Thorium-228	0.766	-	pCi/g
1	A5EC-WPL-T-59	A5EC-WPL-T-59^R	Thorium-232	0.783	-	pCi/g
1	A5EC-WPL-T-59	A5EC-WPL-T-59^R	Uranium, Total	6.1	-	mg/kg
4	A5EC-WPL-T-6	A5EC-WPL-T-6^R	Radium-226	0.813	J	pCi/g
4	A5EC-WPL-T-6	A5EC-WPL-T-6^R	Radium-228	0.654	-	pCi/g
4	A5EC-WPL-T-6	A5EC-WPL-T-6^R	Thorium-228	0.63	-	pCi/g
4	A5EC-WPL-T-6	A5EC-WPL-T-6^R	Thorium-232	0.654	-	pCi/g
4	A5EC-WPL-T-6	A5EC-WPL-T-6^R	Uranium, Total	2.98	U	mg/kg
1	A5EC-WPL-T-60	A5EC-WPL-T-60^R	Thorium-232	0.756	-	pCi/g
1	A5EC-WPL-T-60	A5EC-WPL-T-60^R	Uranium, Total	3.99	J	mg/kg
1	A5EC-WPL-T-60	A5EC-WPL-T-60^R	Radium-228	0.756	-	pCi/g
1	A5EC-WPL-T-60	A5EC-WPL-T-60^R	Radium-226	0.914	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
1	A5EC-WPL-T-60	A5EC-WPL-T-60^R	Thorium-228	0.764	-	pCi/g
1	A5EC-WPL-T-61	A5EC-WPL-T-61^R	Radium-228	0.635	J	pCi/g
1	A5EC-WPL-T-61	A5EC-WPL-T-61^R	Thorium-228	0.626	-	pCi/g
1	A5EC-WPL-T-61	A5EC-WPL-T-61^R	Thorium-232	0.635	J	pCi/g
1	A5EC-WPL-T-61	A5EC-WPL-T-61^R	Uranium, Total	1.83	J	mg/kg
1	A5EC-WPL-T-61	A5EC-WPL-T-61^R	Radium-226	0.853	-	pCi/g
1	A5EC-WPL-T-62	A5EC-WPL-T-62^R	Radium-228	0.701	J	pCi/g
1	A5EC-WPL-T-62	A5EC-WPL-T-62^R	Uranium, Total	4.34	J	mg/kg
1	A5EC-WPL-T-62	A5EC-WPL-T-62^R	Thorium-228	0.666	-	pCi/g
1	A5EC-WPL-T-62	A5EC-WPL-T-62^R	Radium-226	1.02	-	pCi/g
1	A5EC-WPL-T-62	A5EC-WPL-T-62^R	Thorium-232	0.701	J	pCi/g
1	A5EC-WPL-T-63	A5EC-WPL-T-63^R	Radium-226	1.01	-	pCi/g
1	A5EC-WPL-T-63	A5EC-WPL-T-63^R	Radium-228	0.676	-	pCi/g
1	A5EC-WPL-T-63	A5EC-WPL-T-63^R	Thorium-228	0.62	-	pCi/g
1	A5EC-WPL-T-63	A5EC-WPL-T-63^R	Thorium-232	0.676	-	pCi/g
1	A5EC-WPL-T-63	A5EC-WPL-T-63^R	Uranium, Total	4.5	U	mg/kg
7	A5EC-WPL-T-64	A5EC-WPL-T-64^R	Radium-228	0.821	-	pCi/g
7	A5EC-WPL-T-64	A5EC-WPL-T-64^R	Uranium, Total	4.56	U	mg/kg
7	A5EC-WPL-T-64	A5EC-WPL-T-64^R	Thorium-232	0.821	-	pCi/g
7	A5EC-WPL-T-64	A5EC-WPL-T-64^R	Radium-226	0.967	-	pCi/g
7	A5EC-WPL-T-64	A5EC-WPL-T-64^R	Thorium-228	0.75	-	pCi/g
8	A5EC-WPL-T-65	A5EC-WPL-T-65^R	Radium-226	1.06	-	pCi/g
8	A5EC-WPL-T-65	A5EC-WPL-T-65^R	Radium-228	0.928	-	pCi/g
8	A5EC-WPL-T-65	A5EC-WPL-T-65^R	Thorium-228	0.872	-	pCi/g
8	A5EC-WPL-T-65	A5EC-WPL-T-65^R	Thorium-232	0.928	-	pCi/g
8	A5EC-WPL-T-65	A5EC-WPL-T-65^R	Uranium, Total	4.57	U	mg/kg
8	A5EC-WPL-T-66	A5EC-WPL-T-66^R	Radium-226	1.6	-	pCi/g
8	A5EC-WPL-T-66	A5EC-WPL-T-66^R	Radium-228	1.14	-	pCi/g
8	A5EC-WPL-T-66	A5EC-WPL-T-66^R	Thorium-228	1.19	-	pCi/g
8	A5EC-WPL-T-66	A5EC-WPL-T-66^R	Thorium-232	1.14	-	pCi/g
8	A5EC-WPL-T-66	A5EC-WPL-T-66^R	Uranium, Total	6.1	-	mg/kg
8	A5EC-WPL-T-67	A5EC-WPL-T-67^R	Thorium-232	0.621	-	pCi/g
8	A5EC-WPL-T-67	A5EC-WPL-T-67^R	Uranium, Total	2.33	J	mg/kg
8	A5EC-WPL-T-67	A5EC-WPL-T-67^R	Radium-228	0.621	-	pCi/g
8	A5EC-WPL-T-67	A5EC-WPL-T-67^R	Radium-226	0.799	-	pCi/g
8	A5EC-WPL-T-67	A5EC-WPL-T-67^R	Thorium-228	0.63	-	pCi/g
8	A5EC-WPL-T-68	A5EC-WPL-T-68^R	Radium-228	0.647	-	pCi/g
8	A5EC-WPL-T-68	A5EC-WPL-T-68^R	Thorium-228	0.641	-	pCi/g
8	A5EC-WPL-T-68	A5EC-WPL-T-68^R	Thorium-232	0.647	-	pCi/g
8	A5EC-WPL-T-68	A5EC-WPL-T-68^R	Uranium, Total	4.68	-	mg/kg
8	A5EC-WPL-T-68	A5EC-WPL-T-68^R	Radium-226	0.755	-	pCi/g
3	A5EC-WPL-T-7	A5EC-WPL-T-7^R	Radium-228	0.712	-	pCi/g
3	A5EC-WPL-T-7	A5EC-WPL-T-7^R	Uranium, Total	3.33	U	mg/kg
3	A5EC-WPL-T-7	A5EC-WPL-T-7^R	Thorium-228	0.699	-	pCi/g
3	A5EC-WPL-T-7	A5EC-WPL-T-7^R	Radium-226	0.959	J	pCi/g
3	A5EC-WPL-T-7	A5EC-WPL-T-7^R	Thorium-232	0.712	-	pCi/g

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
3	A5EC-WPL-T-8	A5EC-WPL-T-8^R	Radium-226	1	J	pCi/g
3	A5EC-WPL-T-8	A5EC-WPL-T-8^R	Radium-228	0.688	-	pCi/g
3	A5EC-WPL-T-8	A5EC-WPL-T-8^R	Thorium-228	0.723	-	pCi/g
3	A5EC-WPL-T-8	A5EC-WPL-T-8^R	Thorium-232	0.688	-	pCi/g
3	A5EC-WPL-T-8	A5EC-WPL-T-8^R	Uranium, Total	4.38	J	mg/kg
4	A5EC-WPL-T-9	A5EC-WPL-T-9^R	Thorium-232	0.924	-	pCi/g
4	A5EC-WPL-T-9	A5EC-WPL-T-9^R	Uranium, Total	3.59	U	mg/kg
4	A5EC-WPL-T-9	A5EC-WPL-T-9^R	Radium-228	0.924	-	pCi/g
4	A5EC-WPL-T-9	A5EC-WPL-T-9^R	Radium-226	1.57	J	pCi/g
4	A5EC-WPL-T-9	A5EC-WPL-T-9^R	Thorium-228	0.999	-	pCi/g
1	A7GA-T-23	A7GA-T-23^RMP	Radium-226	1.04	-	pCi/g
1	A7GA-T-23	A7GA-T-23^RMP	Uranium, Total	8.25	-	mg/kg
1	A7GA-T-23	A7GA-T-23^RMP	Thorium-232	0.684	-	pCi/g
1	A7GA-T-23	A7GA-T-23^RMP	Radium-228	0.684	-	pCi/g
1	A7GA-T-23	A7GA-T-23^RMP	Dieldrin	1.5	UJ	ug/kg
1	A7GA-T-23	A7GA-T-23^RMP	Beryllium	0.4	-	mg/kg
1	A7GA-T-23	A7GA-T-23^RMP	Aroclor-1260	3.8	U	ug/kg
1	A7GA-T-23	A7GA-T-23^RMP	Aroclor-1254	3.8	U	ug/kg
1	A7GA-T-23	A7GA-T-23^RMP	Thorium-228	0.683	-	pCi/g
2	A7GA-T-26	A7GA-T-26^RMP	Radium-226	0.976	-	pCi/g
2	A7GA-T-26	A7GA-T-26^RMP	Radium-228	0.694	-	pCi/g
2	A7GA-T-26	A7GA-T-26^RMP	Uranium, Total	5.45	-	mg/kg
2	A7GA-T-26	A7GA-T-26^RMP	Thorium-232	0.694	-	pCi/g
2	A7GA-T-26	A7GA-T-26^RMP	Dieldrin	1.5	UJ	ug/kg
2	A7GA-T-26	A7GA-T-26^RMP	Aroclor-1254	3.8	UJ	ug/kg
2	A7GA-T-26	A7GA-T-26^RMP	Beryllium	0.32	-	mg/kg
2	A7GA-T-26	A7GA-T-26^RMP	Aroclor-1260	3.8	UJ	ug/kg
2	A7GA-T-26	A7GA-T-26^RMP	Thorium-228	0.682	-	pCi/g
1	A7GA-T-27	A7GA-T-27^RMP	Dieldrin	1.5	U	ug/kg
1	A7GA-T-27	A7GA-T-27^RMP	Uranium, Total	3.76	-	mg/kg
1	A7GA-T-27	A7GA-T-27^RMP	Thorium-232	0.585	-	pCi/g
1	A7GA-T-27	A7GA-T-27^RMP	Thorium-228	0.594	-	pCi/g
1	A7GA-T-27	A7GA-T-27^RMP	Radium-226	0.78	-	pCi/g
1	A7GA-T-27	A7GA-T-27^RMP	Beryllium	0.26	-	mg/kg
1	A7GA-T-27	A7GA-T-27^RMP	Aroclor-1260	3.7	U	ug/kg
1	A7GA-T-27	A7GA-T-27^RMP	Aroclor-1254	3.7	U	ug/kg
1	A7GA-T-27	A7GA-T-27^RMP	Radium-228	0.585	-	pCi/g
1	A7GA-T-29	A7GA-T-29^RMP	Thorium-228	0.769	J	pCi/g
1	A7GA-T-29	A7GA-T-29^RMP	Thorium-232	0.812	J	pCi/g
1	A7GA-T-29	A7GA-T-29^RMP	Radium-226	1.08	-	pCi/g
1	A7GA-T-29	A7GA-T-29^RMP	Radium-228	0.812	J	pCi/g
1	A7GA-T-29	A7GA-T-29^RMP	Beryllium	0.58	-	mg/kg
1	A7GA-T-29	A7GA-T-29^RMP	Aroclor-1260	4.1	UJ	ug/kg
1	A7GA-T-29	A7GA-T-29^RMP	Aroclor-1254	4.1	UJ	ug/kg
1	A7GA-T-29	A7GA-T-29^RMP	Dieldrin	1.6	U	ug/kg
1	A7GA-T-29	A7GA-T-29^RMP	Uranium, Total	4.71	J	mg/kg

APPENDIX B
AREA 5 UTILITIES DATA

CU	Boring	Sample ID	Parameter	Result	VQ	Units
1	A7GA-T-31	A7GA-T-31^RMP	Dieldrin	1.5	UJ	ug/kg
1	A7GA-T-31	A7GA-T-31^RMP	Uranium, Total	2.85	J	mg/kg
1	A7GA-T-31	A7GA-T-31^RMP	Thorium-232	0.583	-	pCi/g
1	A7GA-T-31	A7GA-T-31^RMP	Thorium-228	0.552	-	pCi/g
1	A7GA-T-31	A7GA-T-31^RMP	Radium-226	0.618	-	pCi/g
1	A7GA-T-31	A7GA-T-31^RMP	Beryllium	0.43	-	mg/kg
1	A7GA-T-31	A7GA-T-31^RMP	Aroclor-1260	3.7	U	ug/kg
1	A7GA-T-31	A7GA-T-31^RMP	Aroclor-1254	3.7	U	ug/kg
1	A7GA-T-31	A7GA-T-31^RMP	Radium-228	0.583	-	pCi/g
1	A7GA-T-33	A7GA-T-33^RMP	Radium-226	0.899	-	pCi/g
1	A7GA-T-33	A7GA-T-33^RMP	Radium-228	0.55	-	pCi/g
1	A7GA-T-33	A7GA-T-33^RMP	Thorium-228	0.52	-	pCi/g
1	A7GA-T-33	A7GA-T-33^RMP	Uranium, Total	3.19	-	mg/kg
1	A7GA-T-33	A7GA-T-33^RMP	Beryllium	0.353	U	mg/kg
1	A7GA-T-33	A7GA-T-33^RMP	Aroclor-1260	3.7	U	ug/kg
1	A7GA-T-33	A7GA-T-33^RMP	Aroclor-1254	7.6	J	ug/kg
1	A7GA-T-33	A7GA-T-33^RMP	Thorium-232	0.55	-	pCi/g
1	A7GA-T-33	A7GA-T-33^RMP	Dieldrin	1.5	U	ug/kg
1	A7GA-T-35	A7GA-T-35^RMP	Radium-228	0.725	-	pCi/g
1	A7GA-T-35	A7GA-T-35^RMP	Uranium, Total	4.27	-	mg/kg
1	A7GA-T-35	A7GA-T-35^RMP	Thorium-228	0.7	-	pCi/g
1	A7GA-T-35	A7GA-T-35^RMP	Radium-226	1.04	-	pCi/g
1	A7GA-T-35	A7GA-T-35^RMP	Dieldrin	1.5	U	ug/kg
1	A7GA-T-35	A7GA-T-35^RMP	Beryllium	0.617	-	mg/kg
1	A7GA-T-35	A7GA-T-35^RMP	Aroclor-1260	3.8	U	ug/kg
1	A7GA-T-35	A7GA-T-35^RMP	Aroclor-1254	3.8	U	ug/kg
1	A7GA-T-35	A7GA-T-35^RMP	Thorium-232	0.725	-	pCi/g
1	A7GA-T-36	A7GA-T-36^RMP	Uranium, Total	3.98	J	mg/kg
1	A7GA-T-36	A7GA-T-36^RMP	Aroclor-1254	3.8	U	ug/kg
1	A7GA-T-36	A7GA-T-36^RMP	Aroclor-1260	3.81	U	ug/kg
1	A7GA-T-36	A7GA-T-36^RMP	Beryllium	0.661	U	mg/kg
1	A7GA-T-36	A7GA-T-36^RMP	Dieldrin	1.5	U	ug/kg
1	A7GA-T-36	A7GA-T-36^RMP	Radium-226	0.928	-	pCi/g
1	A7GA-T-36	A7GA-T-36^RMP	Radium-228	0.615	-	pCi/g
1	A7GA-T-36	A7GA-T-36^RMP	Thorium-228	0.581	-	pCi/g
1	A7GA-T-36	A7GA-T-36^RMP	Thorium-232	0.615	-	pCi/g

APPENDIX C

CORRECTION OF 7-DAY RADIUM-226 RESULTS

APPENDIX C
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.

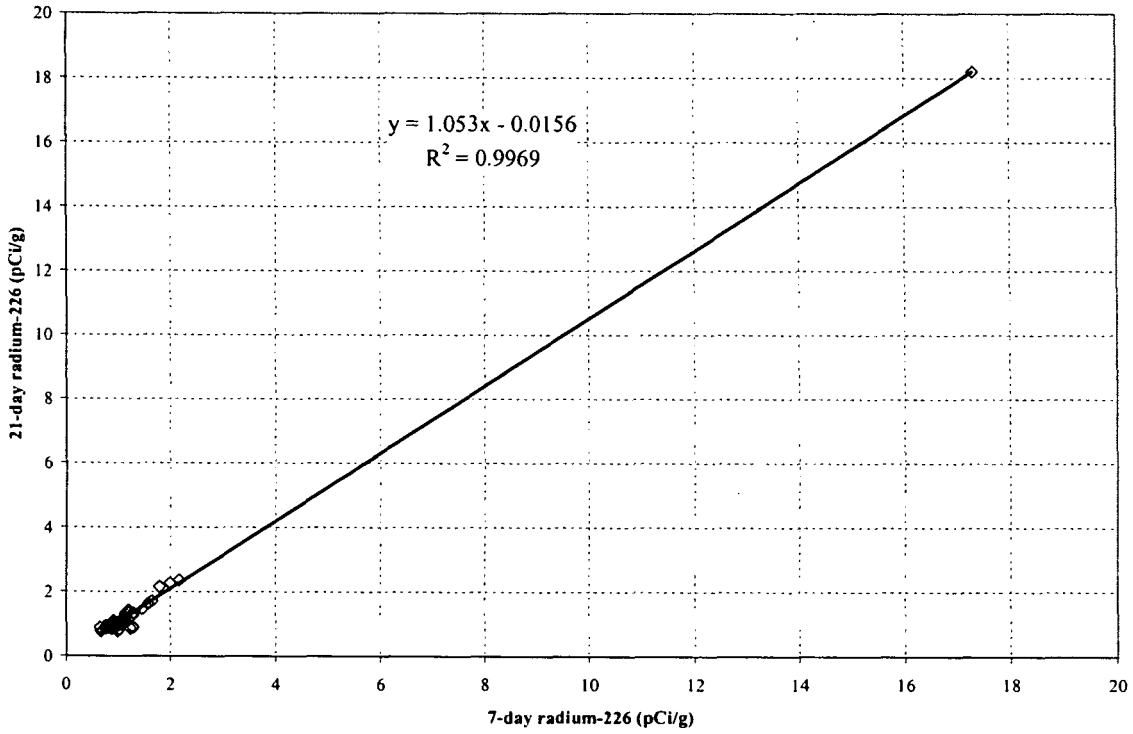

FIGURE 1. Regression analysis of radium-226 data based on 7- and 21-day in-growth period for radon-222