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OCT 19 2006



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DOE-0017-07

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Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF ADDENDUM 4 TO THE CERTIFICATION REPORT FOR  
AREA 1, PHASE II**

Reference: "Certification Report for Area 1, Phase II," Document 20710-RP-0016, dated  
September 2000

Enclosed for your approval is Addendum 4 to the Certification Report for Area 1, Phase II. This addendum includes coverage of the area surrounding the Dissolved Oxygen Facility as well as an area where a clay pipe was encountered while excavating/relocating the drainage ditch east of the On-Site Disposal Facility Cell 8.

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

Sincerely,

Johnny W. Reising  
Director

Enclosure

Mr. James Saric  
Mr. Thomas Schneider

-2-

DOE-0017-07

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**ADDENDUM 4 TO THE  
CERTIFICATION REPORT  
FOR AREA 1, PHASE II**

**FERNALD CLOSURE PROJECT  
FERNALD, OHIO**



**OCTOBER 2006**

**U.S. DEPARTMENT OF ENERGY  
FERNALD AREA OFFICE**

**20710-RP-0016  
REVISION 0  
ADDENDUM 4**

**REVISION SUMMARY**

<b><u>Revision</u></b>	<b><u>Date</u></b>	<b><u>Description of Revision</u></b>
Revision 0	9-28-00	Initial controlled issuance.
PCN 1	11-7-00	Correction of inaccurate reference to failed CUs in Paragraph 1 of the Executive Summary, an incorrectly reported analytical result unit on Page 3-3 and information on the failed CUs in Section 5.1.5.
Addendum 1	1-22-02	Created to include coverage of the Equipment Wash Facility, associated drainage line, and the immediate surrounding area.
Addendum 2	7-1-04	Revised to include updated statistics for CU A1P2-S3HR-04 due to debris discovered during site preparation excavation activities for the construction of the OSDF Cell 7 and 8 liners.
Addendum 3	3-1-05	Revised to include coverage of the footprint of the Debris Haul Road, which is located north of the former OSDF Equipment Wash Facility.
Addendum 3 PCN 1	4-18-05	Revised Table 5-1 to correct typographical error requested by OEPA.
Addendum 4	10-18-06	Revised to include coverage of the area surrounding the Dissolved Oxygen Facility, as well as an area where a clay pipe was encountered while excavating/relocating the drainage ditch east of Cell 8.

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## LIST OF ACRONYMS AND ABBREVIATIONS

A1P11	Area 1, Phase II
ASCOC	area-specific constituent of concern
CDL	Certification Design Letter
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CU	certification unit
DO	Dissolved Oxygen
DOE	U.S. Department of Energy
FCP	Fernald Closure Project
FRL	final remediation level
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
OSDF	On-Site Disposal Facility
pCi/g	picoCuries per gram
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SED	Sitewide Environmental Database
SEP	Sitewide Excavation Plan
VSL	validation support level

## EXECUTIVE SUMMARY

This addendum to the Area 1, Phase II (A1PII) Certification Report (DOE 2000a) presents the information and data used by the U.S. Department of Energy (DOE) to determine that existing soil concentrations do not exceed the final remediation levels for the area surrounding the Dissolved Oxygen (DO) Building. In addition to the area surrounding the DO Building, two samples have been added to Certification Unit (CU) A1P2-S3DP-02 following the removal of clay pipe that was discovered during the excavation/relocation of a drainage ditch located east of On-Site Disposal Facility Cell 8. On the basis of this reported information and supporting project files, DOE has determined that no additional remedial actions are required in this area of the site. Upon approval from the regulatory agencies, DOE intends to proceed with future land use activities.

A discussion of previous A1PII certification efforts and certification criteria are provided in the main report. This addendum focuses on the area surrounding the DO Building as well as the new samples in CU A1P2-S3DP-02. Both of these areas will be considered certified when the U.S. Environmental Protection Agency and the Ohio Environmental Protection Agency agree that the certification criteria have been met.

The certification samples were analyzed at laboratories on the Fernald Closure Project Approved Laboratories List per the Sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ, DOE 2003). All these samples were analyzed and reported at the required analytical support level. Analytical data packages included sample results with associated quality assurance/quality control data and all applicable raw data. The data were also subjected to the required validation and verification process, which did not identify any significant quality concerns.

## 1.0 INTRODUCTION

### 1.1 PURPOSE

This addendum to the Area 1, Phase II (A1PII) Certification Report presents the information and data used by the U.S. Department of Energy (DOE) to determine that existing soil contamination does not exceed the final remediation levels (FRLs) within the area surrounding the Dissolved Oxygen (DO) Building as well as an area where a clay pipe was encountered while excavating/relocating the drainage ditch east of On-Site Disposal Facility (OSDF) Cell 8. This addendum presents certification results for the certification units (CUs) identified in Addendum 3 to the A1PII Certified for Reuse Areas, Trap Range, Sector 2C, and Sector 3 Certification Design Letter (CDL, DOE 2006).

### 1.2 SCOPE AND AREA DESCRIPTION

This Certification Report addendum documents certification activities for the area surrounding the DO Building that is located on the eastern side of the Fernald Closure Project (FCP). This area was not previously certified, and will be referred to as CU A1P2-DO. Also included in the Certification Report addendum is documentation of the certification activities for two samples added to CU A1P2-S3DP-02 following the removal of clay pipe that was discovered during the excavation/relocation of a drainage ditch located east of OSDF Cell 8. See Figure 1-1 for the area surrounding the DO Building and Figure 1-2 for the location of CU A1P2-S3DP-02.

### 1.3 OBJECTIVES

The objectives of this Certification Report addendum is to describe the certification approach, field activities and data analyses used to support the certification process for the areas covered in this addendum.

### 1.4 REPORT FORMAT

A summary of pertinent information from the four previous certification reports and previous CDLs is provided in the main CDL (DOE 2000b), along with supporting data. This addendum focuses on information pertaining to the area surrounding the DO Building as well as two samples added to CU A1P2-S3DP-02 following the removal of clay pipe that was discovered during the excavation/relocation of a drainage ditch located east of OSDF Cell 8. Refer to the main document for additional A1PII certification details.

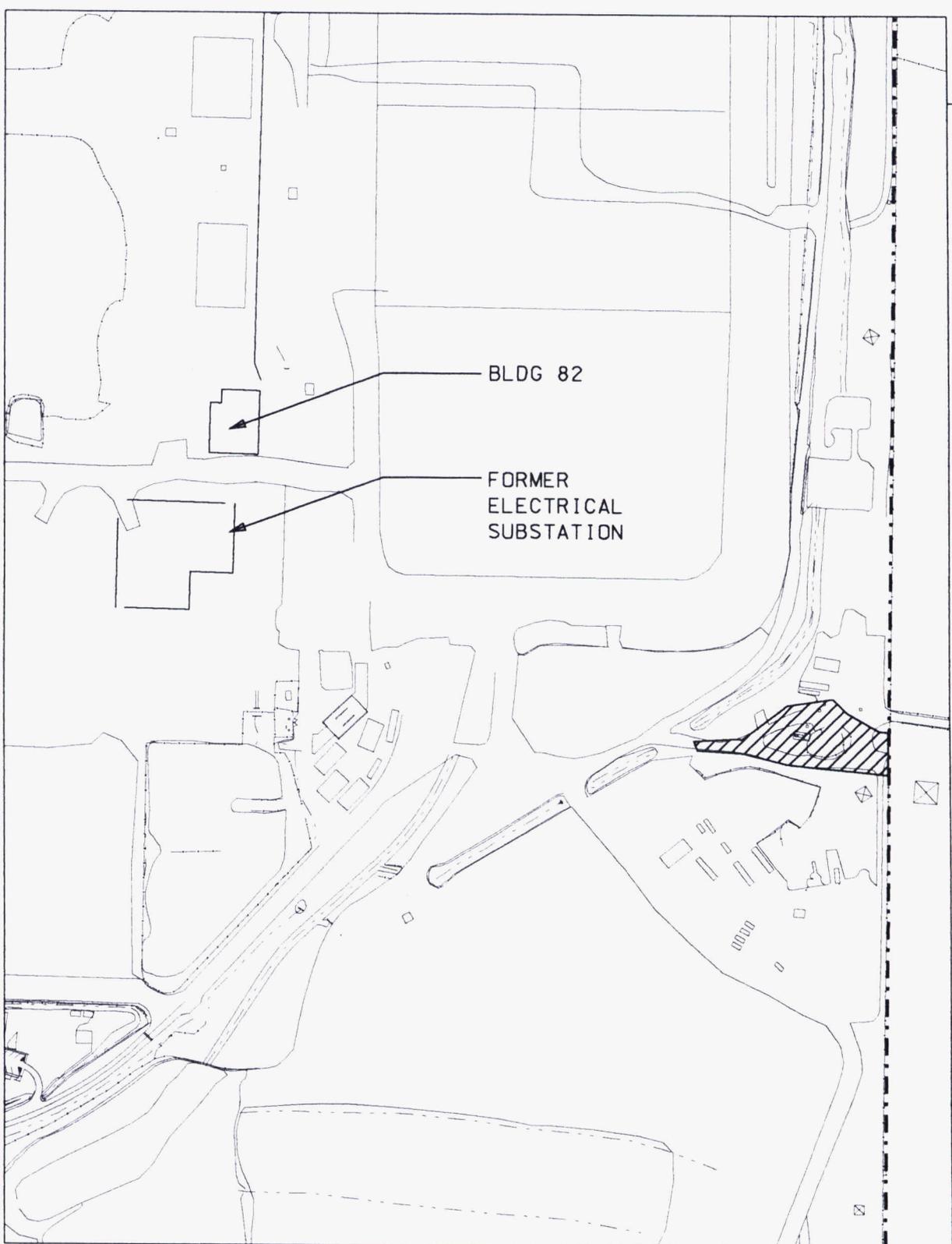
### 1.5 FCP CERTIFICATION MASTER MAP

In order to track certification and characterization for reuse areas at the FCP, DOE has included a controlled map (Figure 1-3) showing the status of the soil remediation areas and phased areas with all Certification Reports and CDLs. Note that this figure has been revised to show the certification status of the CU surrounding the DO Building.

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STATE PLANNING COORDINATE SYSTEM 1983

18-OCT-2006



LEGEND:

 A1PII DO BLDG AREA

 FCP BOUNDARY

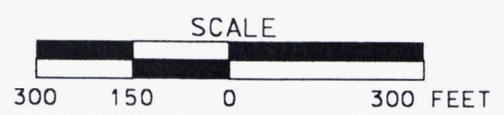
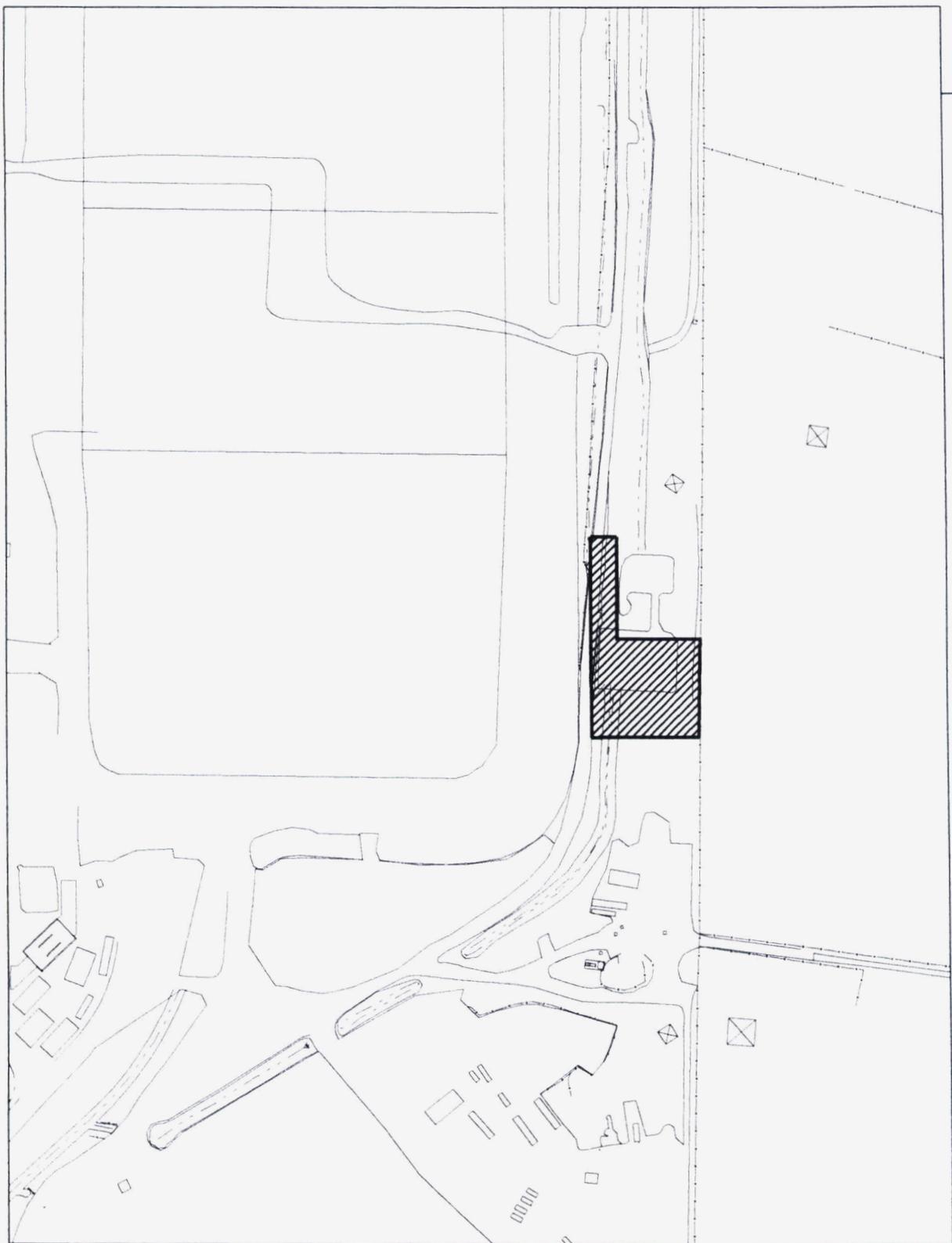


FIGURE 1-1. LOCATION OF THE AREA 1 PHASE II DISSOLVED OXYGEN BUILDING AREA AT THE FCP



LEGEND:

 A1P2-S3DP-02

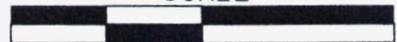
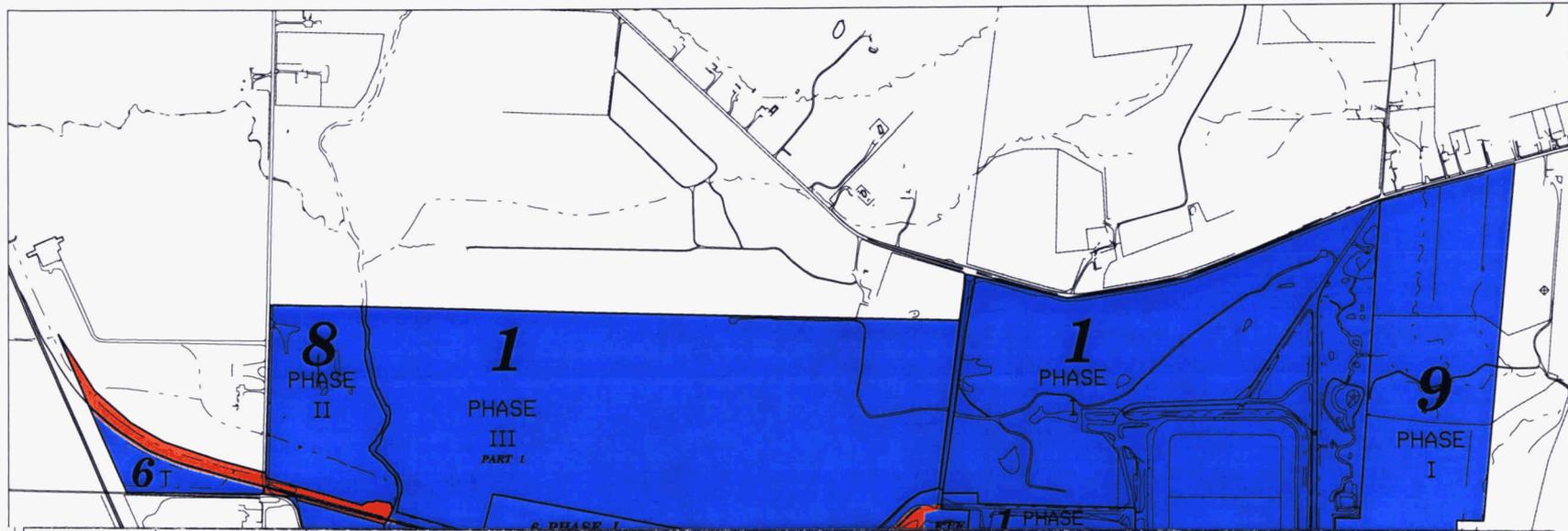
SCALE  
  
250 125 0 250 FEET

FIGURE 1-2. CU A1P2-S3DP-02 LOCATION MAP



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.



FIGURE 1-3. FCP CONTROLLED CERTIFICATION MAP

## 2.0 CERTIFICATION APPROACH

### 2.1 CERTIFICATION DESIGN

The certification design for the CDL, the area-specific constituent of concern (ASCOC) selection process, and statistical analyses are summarized in the main Certification Report. The general certification strategy is described in Section 3.4 of the Sitewide Excavation Plan (SEP, DOE 1998).

### 2.2 ASCOCs

The ASCOC selection process for this CU is described in the addendum to the CDL. The ASCOCs are listed in Table 2-1.

### 2.3 STATISTICAL ANALYSIS

The statistical analysis of certification samples is discussed in Appendix G of the SEP, and specific statistical analyses pertinent to A1PII are provided in the main Certification Report.

**TABLE 2-1**  
**ASCOC LIST FOR CU A1P2-DO AND A1P2-S3DP-02**

ASCOC	FRL	Reason Retained
Radium-226	1.7 pCi/g	Retained as a primary ASCOC sitewide
Radium-228	1.8 pCi/g	Retained as a primary ASCOC sitewide
Thorium-228	1.7 pCi/g	Retained as a primary ASCOC sitewide
Thorium-232	1.5 pCi/g	Retained as a primary ASCOC sitewide
Total Uranium	82 mg/kg	Retained as a primary ASCOC sitewide
Antimony	96 mg/kg	Remediation Area 1 Ecological ASCOC per SEP
Aroclor-1254	0.13 mg/kg	Remediation Area 1 Secondary ASCOC per SEP
Aroclor-1260	0.13 mg/kg	Remediation Area 1 Secondary ASCOC per SEP
Arsenic	12 mg/kg	Remediation Area 1 Secondary ASCOC per SEP
Beryllium	1.5 mg/kg	Remediation Area 1 Secondary ASCOC per SEP
Lead	400 mg/kg	Remediation Area 1 Ecological and Secondary ASCOC per SEP
Molybdenum	2900 mg/kg	Remediation Area 1 Ecological ASCOC per SEP
Technetium-99	30 pCi/g	Remediation Area 1 Secondary ASCOC per SEP
Tetrachloroethene	3.6 mg/kg	Retained as a secondary ASCOC due to process knowledge (found in Sewage Treatment Plant, which is adjacent to DO Building Area)

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

### 3.0 OVERVIEW OF FIELD ACTIVITIES

This section is limited to information not presented in previous certification reports. The section specifically presents information related to the area surrounding the DO Building as well as an area where a clay pipe was encountered while excavating/relocating the drainage ditch east of OSDF Cell 8, as discussed in Addendum 3 to the CDL for A1PII Certified for Reuse Areas, Trap Range, Sector 2C, and Sector 3.

#### 3.1 PRECERTIFICATION ACTIVITIES

##### 3.1.1 Area Surrounding the Dissolved Oxygen Building

Phase 1 and Phase 2 real-time scans were conducted around the DO Building in June 2005. For the precertification real-time data collected, results showed all total uranium, radium-226, and thorium-232 were below the target levels (three times the FRL for total uranium and thorium-232; seven times the FRL for radium-226).

##### 3.1.2 Drainage Ditch Expansion/Relocation

Phase 1 and Phase 2 real-time scans were completed at in the area where clay pipe was discovered during the drainage ditch expansion in May 2006; and a Phase 2 real-time scan was completed in July 2006 upon the discovery of a second piece of clay pipe. For the precertification real-time data collected, results showed all total uranium, radium-226, and thorium-232 were below the target levels (three times the FRL for total uranium and thorium-232; seven times the FRL for radium-226).

#### 3.2 CERTIFICATION ACTIVITIES

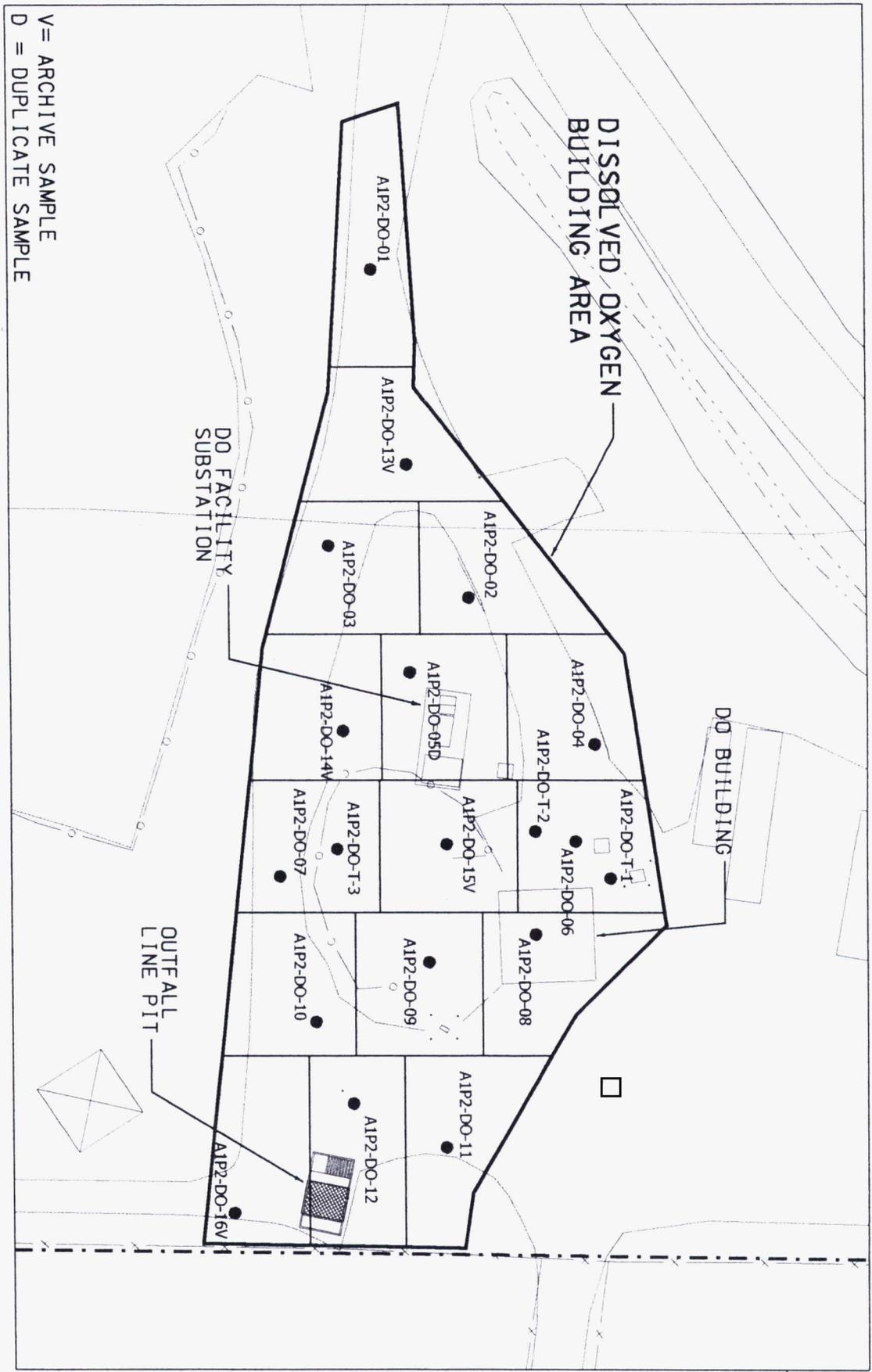
##### 3.2.1 Area Surrounding the Dissolved Oxygen Building

Certification sampling of CU A1P2-DO was completed under the Project Specific Plan for Predesign of Area 1, Phase II - Dissolved Oxygen Building Area (Supplement to 20300-PSP-0011) (DOE 2005). While the samples were collected under a predesign PSP, the CU design followed the general approach outlined in Section 3.4 of the SEP, including CU size, minimum distance between points, analytical support levels as well as validation of all analytical data. The samples were collected from the top 0 to 0.5-foot interval of soil. Any samples collected as a result of utility removal are also in CU A1P2-DO, and all sample locations are shown on Figure 3-1.

##### 3.2.2 Drainage Ditch Excavation/Relocation

During excavation/relocation of the drainage ditch east of OSDF Cell 8, there were two instances when clay pipe was encountered. Each time, one sample was collected from the excavated footprint. The two samples are being included with the A1PII CU A1P2-S3DP-02. The sample locations are shown on

Figure 3-2. The samples were collected under approved significant Variance/Field Change Notices  
20730-PSP-0009-27 and 20730-PSP-0009-28.

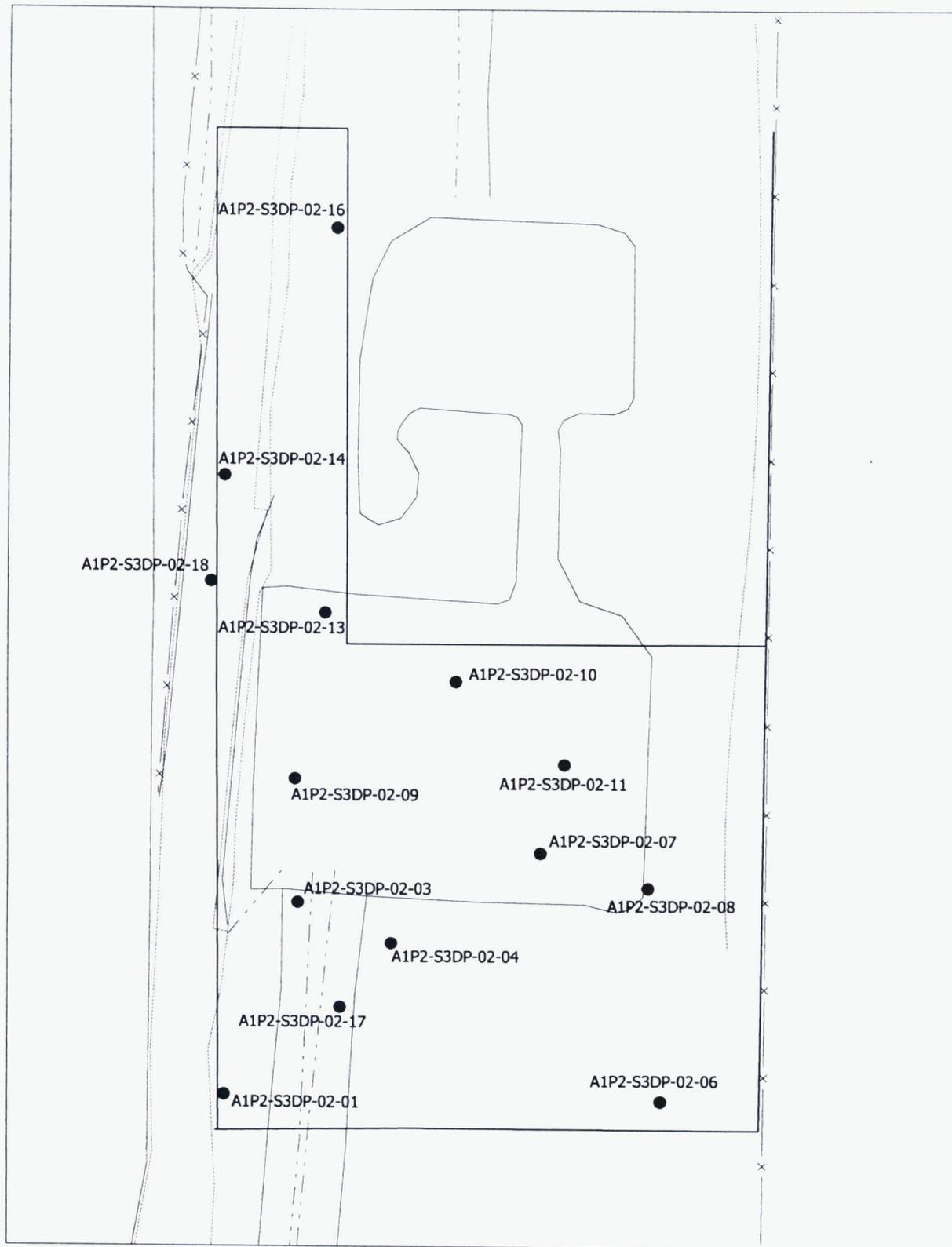


V = ARCHIVE SAMPLE  
D = DUPLICATE SAMPLE

LEGEND:  
- - - - - FCP BOUNDARY  
● SAMPLE LOCATION

SCALE  
50 25 0 50 FEET

FIGURE 3-1. SAMPLE LOCATIONS FOR CU A1P2-DO



LEGEND:

● SAMPLE LOCATION

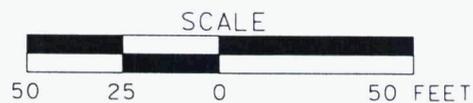


FIGURE 3-2. SAMPLE LOCATIONS FOR CU A1P2-S3DP-02

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

##### 4.1 ANALYTICAL METHODOLOGIES

The analytical methodologies used for A1PII samples are described in the main Certification Report.

##### 4.2 DATA VERIFICATION AND VALIDATION

For this project, all of the data were reviewed and validated for all criteria noted in the main Certification Report. Per project requirements, a minimum of 10 percent of the certification data were validated to Validation Support Level (VSL) D. This validation included the same review process as for VSL B, but included a systematic review of the raw data and recalculations.

##### 4.3 DATA REDUCTION

Each sample used to support the certification decision was entered in the FCP Sitewide Environmental Database (SED) with field, laboratory and validation information as described in the main Certification Report. Based on this information, the following actions were taken for data reduction of the CU data set.

1. All the data for each CU were queried from the SED. All the data were used even if the CU had more than the minimum required data points
2. The data from the validation fields were used for statistical calculations
3. Data with a qualifier of R or Z was not used in the statistical calculations
4. The highest of the two duplicate results was used in the statistical calculations
5. One half of the non-detect (U or UJ) values were used in the statistical calculations.

## 5.0 CERTIFICATION EVALUATION AND CONCLUSIONS

### 5.1 CERTIFICATION RESULTS, ISSUES AND EVALUATIONS

#### 5.1.1 CU A1P2-DO

The CU for the area surrounding the DO Building passed the certification criteria. The determination of successful certification or certification failure was based on a review of certification sample data for the CU. All initial results were below the FRL except for four elevated above-FRL arsenic results. Statistical analysis, as described in the SEP, of the data showed arsenic passed the certification criteria. All of the certification data is presented in Table 5-1.

#### 5.1.2 CU A1P2-S3DP-02

Two samples within CU A1P2-S3DP-02 had two elevated above-FRL arsenic results. The samples were collected under the original certification effort of A1P2. The samples results from the two newly collected samples were below-FRL for all analytes, and the CU passes the certification criteria. The certification data is presented in Table 5-2.

### 5.2 CERTIFICATION CONCLUSIONS

DOE has determined that the remedial objectives in the Operable Unit 5 Record of Decision (DOE 1996) have been achieved both CU A1P2-DO and A1P2-S3DP-02 addressed in this addendum, and no further remedial actions are required. Upon U.S. Environmental Protection Agency and Ohio Environmental Protection Agency concurrence, this area will be released for final land use.

**TABLE 5-1  
CU A1P2-S3DP-02 CERTIFICATION DATA**

SAMPLE ID	Primary COCs					Secondary COCs					
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Technetium-99	Antimony	Arsenic	Beryllium	Lead	Molybdenum
A1P2-S3DP-02-01	1.105 -	0.809 -	0.8 -	0.809 -	7.032 -	1.73 U	0.98 U	9.1 -	0.74 -	19.8 J	1.2 U
A1P2-S3DP-02-03	1.234 -	0.955 -	0.932 -	0.955 -	6.067 -	1.28 U	1.13 -	11.7 -	0.91 -	16.9 J	1.2 U
A1P2-S3DP-02-03-D	1.213 -	0.925 -	0.911 -	0.925 -	5.384 -	1.24 U	3.9 -	8.5 -	0.77 -	12.3 J	0.88 U
A1P2-S3DP-02-04	1.532 -	1.275 -	1.261 -	1.275 -	2.992 U	1.4 U	1.02 U	13.1 -	1 -	15.8 J	0.84 U
A1P2-S3DP-02-06	1.284 -	0.998 -	1.005 -	0.998 -	8.202 -	1.32 U	1.04 U	7 U	0.42 U	17.4 J	0.93 U
A1P2-S3DP-02-07	0.78 -	0.657 -	0.662 -	0.657 -	2.363 -	1.22 U	2.53 -	5.6 U	0.58 -	10.4 J	1.5 -
A1P2-S3DP-02-08	0.85 -	0.773 -	0.779 -	0.773 -	3.498 J	1.31 U	3.04 -	6.7 U	0.62 -	10.7 J	1 U
A1P2-S3DP-02-09	1.164 -	0.681 -	0.668 -	0.681 -	5.379 -	2.17 -	3.38 -	7.4 U	0.77 -	12.2 J	1.6 -
A1P2-S3DP-02-10	0.717 -	0.664 -	0.673 -	0.664 -	2.655 J	1.16 U	1.9 -	5.8 U	0.55 U	10 J	1.4 -
A1P2-S3DP-02-11	0.918 -	0.648 -	0.642 -	0.643 -	2.311 U	1.26 U	3.77 -	6.8 U	0.63 U	10 J	1 U
A1P2-S3DP-02-13	0.831 -	0.847 -	0.838 -	0.847 -	2.514 J	1.22 U	2.99 -	6 U	0.75 -	10.7 J	1.3 U
A1P2-S3DP-02-14	1.541 -	1.22 -	1.206 -	1.22 -	5.178 -	1.1 J	1.76 -	8.9 -	0.76 -	14.8 J	1.7 -
A1P2-S3DP-02-16	1.526 -	1.159 -	1.158 -	1.159 -	4.543 J	1.15 U	1.65 -	12.3 -	1.1 -	13.1 J	0.3 U
A1P2-S3DP-02-17	1.21 -	1.12 -	1.11 -	1.12 -	9.34 -	1.88 U	0.111 UJ	7.5 -	0.9 -	16.1 J	0.8 U
A1P2-S3DP-02-18	1.12 -	0.96 -	0.972 U	0.96 -	3.76 -	1.67 U	2.22 UJ	5.9 -	0.79 -	16.9 J	0.89 J
A1P2-S3DP-02-10S	0.881 -	0.676 -	0.657 -	0.676 -	3.973 -	1.39 U	2.71 -	6.4 U	0.74 -	9.2 J	0.61 J
Limit	1.7	1.8	1.7	1.5	82	30	96	12	1.5	400	2900
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%	90%	90%	90%
Max. Result	1.541	1.275	1.261	1.275	9.34	2.17	3.9	13.1	1.1	19.8	1.7
Max. > Limit	No	No	No	No	No	No	No	Yes	No	No	No
W-statistic Prob. #	--	--	--	--	--	--	--	1.4% (LN)	--	--	--
Test Procedure	--	--	--	--	--	--	--	Proportions (Sign)	--	--	--
Sample Size	15	15	15	15	15	15	15	15	15	15	15
Nondetects	0	0	1	0	2	13	5	8	3	0	9
% Nondetects	0%	0%	7%	0%	13%	87%	33%	53%	20%	0%	60%
Est. Mean*	--	--	--	--	--	--	--	3.7	--	--	--
UCL	--	--	--	--	--	--	--	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--	0.00	--	--	--
Pass / Fail	--	--	--	--	--	--	--	pass	--	--	--
<i>a posteriori</i> Sample Size calculation	--	--	--	--	--	--	--	7 Pass	--	--	--

Note: Est. Mean = Estimated measure of central tendency (Normal: Mean; LogNormal: Est. Mean; Non-Parametric: Median)

The maximum value of the two duplicates was used in all statistical equations.

#: This is the highest reported probability of the Shapiro-Wilk W-statistic for tests for the validity of the normality assumption.

The test is performed on the raw data (untransformed) data (N) and the log-transformed data (LN) to test for lognormality.

**TABLE 5-1  
CU A1P2-S3DP-02 CERTIFICATION DATA**

SAMPLE ID	Secondary COCs		
	Aroclor-1254	Aroclor-1260	Tetrachloroethene
A1P2-S3DP-02-01	38.4 U	38.4 U	11.7 U
A1P2-S3DP-02-03	38.1 U	38.1 U	11.8 U
A1P2-S3DP-02-03-D	38.6 U	38.6 U	12 U
A1P2-S3DP-02-04	42.5 U	42.5 U	11.5 U
A1P2-S3DP-02-06	40.1 U	40.1 U	11.7 U
A1P2-S3DP-02-07	38.2 U	38.2 U	11.3 U
A1P2-S3DP-02-08	38.3 U	38.3 U	11.4 U
A1P2-S3DP-02-09	41.4 U	41.4 U	13.3 U
A1P2-S3DP-02-10	39.4 U	39.4 U	2.85 J
A1P2-S3DP-02-11	39.2 U	39.2 U	13.5 U
A1P2-S3DP-02-13	38.1 U	38.1 U	8.94 J
A1P2-S3DP-02-14	42.1 U	42.1 U	12.6 U
A1P2-S3DP-02-16	41.1 U	41.1 U	12.8 U
A1P2-S3DP-02-17	3.8 U	3.8 U	1.3 U
A1P2-S3DP-02-18	3.9 U	3.9 U	1.4 U
A1P2-S3DP-02-10S	48.5 U	48.5 U	5.43 J
Limit	130	130	3600
Units	ug/kg	ug/kg	ug/kg
Conf. Level	90%	90%	90%
Max. Result	48.5 U	48.5 U	13.5 U
Max. > Limit	No	No	No
W-statistic Prob. #	--	--	--
Test Procedure	--	--	--
Sample Size	15	15	15
Nondetects	15	15	12
% Nondetects	100%	100%	80%
Est. Mean*	--	--	--
UCL	--	--	--
Prob. > Limit	--	--	--
Pass / Fail	--	--	--
<i>a posteriori</i> Sample Size calculation	--	--	--

Note: Est. Mean = Estimated measure of central tendency (Normal: Mean; LogNormal: Est. Mean; Non-Parametric: Median)

The maximum value of the two duplicates was used in all statistical equations.

#: This is the highest reported probability of the Shapiro-Wilk W-statistic for tests for the validity of the normality assumption.

The test is performed on the raw data (untransformed) data (N) and the log-transformed data (LN) to test for lognormality.

**TABLE 5-2  
CU A1P2-DO CERTIFICATION DATA**

SAMPLE ID	Primary COCs					Secondary COCs						
	Radium-226	Radium-228	Thorium-228	Thorium-232	Uranium, Total	Technetium-99	Antimony	Arsenic	Beryllium	Lead	Molybdenum	Aroclor-1254
A1P2-DO-01^1-RMP	1.31 J	1.26 J	1.21 J	1.26 J	3.72 U	0.801 U	1.24 U	13.8 J	0.654 J	17.7 J	2.07 J	1.4 J
A1P2-DO-02^1-RMP	1.15 J	0.953 J	0.955 J	0.953 J	6.47 -	0.793 U	1.52 U	10 J	0.772 J	17.1 J	1.17 J	4.4 U
A1P2-DO-03^1-RMP	1.52 J	1.38 J	1.36 J	1.38 J	5.68 J	0.819 U	1.34 U	15.2 J	1.28 J	24 J	1.55 J	4 U
A1P2-DO-04^1-RMP	1.1 J	0.988 J	0.985 J	0.988 J	15 -	0.876 -	1.42 U	8.93 J	1 J	20 J	1.56 J	4.3 U
A1P2-DO-05^1-RMP	1.26 J	1.17 J	1.13 J	1.17 J	8.55 -	0.781 U	1.47 U	6.89 J	0.633 J	19.9 J	0.919 J	4.1 U
A1P2-DO-05^1-RMP-D	0.707 J	0.697 J	0.695 J	0.697 J	6.59 -	0.749 U	1.15 U	12.3 J	0.269 J	8.56 J	0.864 J	4 U
A1P2-DO-06^1-RMP	1.34 J	0.859 J	0.859 J	0.859 J	4.2 J	0.77 U	1.17 U	5.69 J	0.754 J	17.5 J	0.873 J	3.6 U
A1P2-DO-07^1-RMP	1.02 J	0.718 J	0.726 J	0.718 J	5.37 J	0.753 U	1.31 U	4.09 J	0.46 J	8.88 J	1.1 J	3.8 U
A1P2-DO-08^1-RMP	1.08 -	0.778 J	0.782 J	0.778 J	4.62 -	0.76 U	1.4 U	3.94 J	0.972 -	15 J	1.75 J	1.7 J
A1P2-DO-09^1-RMP	1.73 J	1.18 J	1.26 J	1.18 J	5.09 J	0.825 U	1.59 U	13.7 J	0.903 J	15.4 J	1.84 J	4.2 U
A1P2-DO-10^1-RMP	0.998 J	0.947 J	0.962 J	0.947 J	5.59 J	0.771 U	1.32 U	7.18 J	0.762 J	14 J	1.31 J	3.8 U
A1P2-DO-11^1-RMP	0.966 J	1.03 J	1.05 J	1.03 J	5.85 -	0.75 U	1.17 U	2.19 U	0.607 J	10.5 J	0.948 J	3.8 U
A1P2-DO-12^1-RMP	1.03 J	1.02 J	1 J	1.02 J	6.22 -	0.755 U	1.4 U	7.02 J	0.685 J	12.9 J	1.45 J	3.8 U
A1P2-DO-T-1^RMP	0.425 -	0.3 -	0.28 -	0.3 -	3.2 -	1.56 U	0.417 U	2.8 -	0.16 -	3.3 J	0.84 J	3.5 U
A1P2-DO-T-2^RMP	0.353 -	0.28 -	0.273 -	0.28 -	3.87 -	1.68 U	0.55 U	2.1 -	0.12 J	2.3 J	0.78 J	3.5 U
A1P2-DO-T-3^RMP	0.672 -	0.649 -	0.65 -	0.649 -	3.81 J	1.68 U	1 U	4.8 -	0.39 -	7.9 J	0.86 J	3.7 U
Limit	1.7	1.8	1.7	1.5	82	30	96	12	1.5	400	2900	130
Units	pCi/g	pCi/g	pCi/g	pCi/g	mg/kg	pCi/g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg
Conf. Level	95%	95%	95%	95%	95%	90%	90%	90%	90%	90%	90%	90%
Max. Result	1.73	1.38	1.36	1.38	15	0.876	1.59 U	15.2	1.28	24	2.07	4.4 U
Max. > Limit	No	No	No	No	No	No	No	Yes	No	No	No	No
W-statistic Prob. #	--	--	--	--	--	--	--	41.4% (LN)	--	--	--	--
Test Procedure	--	--	--	--	--	--	--	Lognormal	--	--	--	--
Sample Size	15	15	15	15	15	15	15	15	15	15	15	15
Nondetects	0	0	0	0	1	14	15	1	0	0	0	13
% Nondetects	0%	0%	0%	0%	7%	93%	100%	7%	0%	0%	0%	87%
Est. Mean*	--	--	--	--	--	--	--	8.0	--	--	--	--
UCL	--	--	--	--	--	--	--	11.46	--	--	--	--
Prob. > Limit	--	--	--	--	--	--	--	--	--	--	--	--
Pass / Fail	--	--	--	--	--	--	--	pass	--	--	--	--
<i>a posteriori</i> Sample Size calculation	--	--	--	--	--	--	--	7 Pass	--	--	--	--

Note: Est. Mean = Estimated measure of central tendency (Normal: Mean; LogNormal: Est. Mean; Non-Parametric: Median)

The maximum value of the two duplicates was used in all statistical equations.

#: This is the highest reported probability of the Shapiro-Wilk W-statistic for tests for the validity of the normality assumption.

The test is performed on the raw data (untransformed) data (N) and the log-transformed data (LN) to test for lognormality.

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TABLE 5-2  
CU A1P2-DO CERTIFICATION DATA

SAMPLE ID	Secondary COCs	
	Aroclor-1260	Tetrachloroethene
A1P2-DO-01^1-RMP	3.7 U	1.1 U
A1P2-DO-02^1-RMP	4.4 U	1 U
A1P2-DO-03^1-RMP	4 U	0.9 U
A1P2-DO-04^1-RMP	3.1 J	1.1 U
A1P2-DO-05^1-RMP	4.1 U	0.9 U
A1P2-DO-05^1-RMP-D	4 U	1 U
A1P2-DO-06^1-RMP	3.6 U	1 U
A1P2-DO-07^1-RMP	3.8 U	1 U
A1P2-DO-08^1-RMP	4.2 U	0.9 U
A1P2-DO-09^1-RMP	4.2 U	1.1 U
A1P2-DO-10^1-RMP	3.8 U	1.1 U
A1P2-DO-11^1-RMP	3.8 U	0.8 U
A1P2-DO-12^1-RMP	3.8 U	0.9 U
A1P2-DO-T-1^RMP	3.5 U	1.1 U
A1P2-DO-T-2^RMP	3.5 U	1.1 U
A1P2-DO-T-3^RMP	3.7 U	0.8 U
Limit	130	3600
Units	ug/kg	ug/kg
Conf. Level	90%	90%
Max. Result	4.4 U	1.1 U
Max. > Limit	No	No
W-statistic Prob. #	--	--
Test Procedure	--	--
Sample Size	15	15
Nondetects	14	15
% Nondetects	93%	100%
Est. Mean*	--	--
UCL	--	--
Prob. > Limit	--	--
Pass / Fail	--	--
<i>a posteriori</i> Sample Size calculation	--	--

Note: Est. Mean = Estimated measure of central tendency (Normal: Mean; LogNormal: Est. Mean; Non-Parametric: Median)

The maximum value of the two duplicates was used in all statistical equations.

#: This is the highest reported probability of the Shapiro-Wilk W-statistic for tests for the validity of the normality assumption.

The test is performed on the raw data (untransformed) data (N) and the log-transformed data (LN) to test for lognormality.

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