

**ADDENDUM TO THE
CERTIFICATION DESIGN LETTER
FOR AREA 1, PHASE II,
CERTIFIED FOR REUSE AREAS,
TRAP RANGE, SECTOR 2C, AND SECTOR 3**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**



DECEMBER 14, 2001

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

**20710-RP-0014
REVISION 0
ADDENDUM 1**

REVISION SUMMARY

<u>Revision</u>	<u>Date</u>	<u>Description of Revision</u>
Revision 0	2/11/00	Initial controlled issuance.
PCN 1	4/7/00	Revised Figure 1-6 to remove shading within CU boundaries for S2-OS-01 and S2-LL-02.
PCN 2	6/2/00	Revised the Executive Summary, Sections 1, 3, 4, and 5 and added Figures 1-7 and 1-8 to include additional information regarding recertification of portions of CUs A1P2-S1TR-01 and A1P2-S1TR-03 for lead and arsenic as a separate CU.
Addendum 1	12/14/01	Created to include coverage of the Equipment Wash Facility, associated drain lines and the immediate surrounding area.

TABLE OF CONTENTS

Executive Summary	ES-1
1.0 Introduction.....	1-1
1.1 Objectives	1-1
1.2 Scope	1-1
2.0 Historical Data	2-1
2.1 Predesign Data.....	2-1
3.0 Area-Specific Constituents of Concern.....	3-1
4.0 Certification Approach	4-1
4.1 Certification Design	4-1
4.2 Sampling.....	4-1
4.3 Analytical Methodology and Statistical Analysis.....	4-2
5.0 Schedule.....	5-1
References.....	R-1

LIST OF TABLES

Table 2-1	Historical Data for the EWF and Drainage Line Area
Table 3-1	ASCOC List for all CUs
Table 3-2	ASCOC List for the EWF and Drainage Line CUs

LIST OF FIGURES

Figure 1-1	FEMP Controlled Certification Map
Figure 1-2	A1PII Certification Units Design
Figure 2-1	A1PII Historical Data for EWF and Drainage Line Area
Figure 4-1	A1P2-S2EWF CU Boundary
Figure 4-2	A1P2-S2EWF Sample Locations
Figure 4-3	A1P2-S2DL Sample Locations and CU Boundary

LIST OF ACRONYMS AND ABBREVIATIONS

A1PII	Area 1, Phase II
ASCOC	area-specific constituent of concern
ASL	analytical support level
CDL	Certification Design Letter
COC	constituent of concern
CU	certification unit
DOE	U.S. Department of Energy
EWF	Equipment Wash Facility
FEMP	Fernald Environmental Management Project
FRL	final remediation level
$\mu\text{g/g}$	micrograms per kilogram
mg/kg	milligram per kilogram
OSDF	On-Site Disposal Facility
pCi/g	picoCuries per gram
ppm	parts per million
PSP	Project Specific Plan
SEP	Sitewide Excavation Plan
V/FCN	Variance/Field Change Notice

4

EXECUTIVE SUMMARY

This addendum to the Certification Design Letter (CDL) for Area 1, Phase II (A1PII) Certified Areas for Reuse, Trap Range, Sector 2C and Sector 3 presents the certification approach to the Equipment Wash Facility (EWF) and its associated drainage line. The CDL addendum includes the following information:

- A definition of the boundaries of the area to be certified under this addendum
- The area-specific constituents of concern (ASCOCs) pertinent to these areas
- A presentation of the certification unit (CU) boundaries and proposed sampling strategy
- The analytical requirements and the statistical methodology that will be employed
- The proposed schedule for certification activities.

The scope of this CDL addendum is limited to the EWF footprint and drainage line. The certification design presented in this CDL addendum follows the general approach outlined in Section 3.4 of the Sitewide Excavation Plan (SEP, DOE 1998). The selection process for the ASCOCs was accomplished using constituent of concern (COC) lists in the Operable Unit 5 Record of Decision (DOE 1996), pre-design investigation data, and process knowledge. These two Sector 2 Group 1 CUs were established for the EWF footprint and the drain line. The ASCOCs in this area are: total uranium, thorium-228, thorium-232, radium-228, radium-226, arsenic, lead and beryllium. Certification of these areas is needed to expedite the construction schedule for placement of a permanent horizontal well.

1.0 INTRODUCTION

This addendum to the Certification Design Letter (CDL) for Area 1, Phase II (A1PII) Certified Areas for Reuse, Trap Range, Sector 2C and Sector 3 presents the certification approach to the Equipment Wash Facility (EWF) and its associated drainage line. The document describes the certification approach for demonstrating that soils associated with the EWF and drainage line certification units (CUs) meet the final remediation levels (FRLs) for all applicable area-specific constituents of concern (ASCOCs). Refer to the main document for a discussion of those A1PII CUs that have previously been addressed (DOE 2000).

The Fernald Environmental Management Project (FEMP) Controlled Certification Map (Figure 1-1), which shows the certification status for the entire FEMP, is included with this CDL addendum to assist the Regulatory Agencies in tracking progress.

1.1 OBJECTIVES

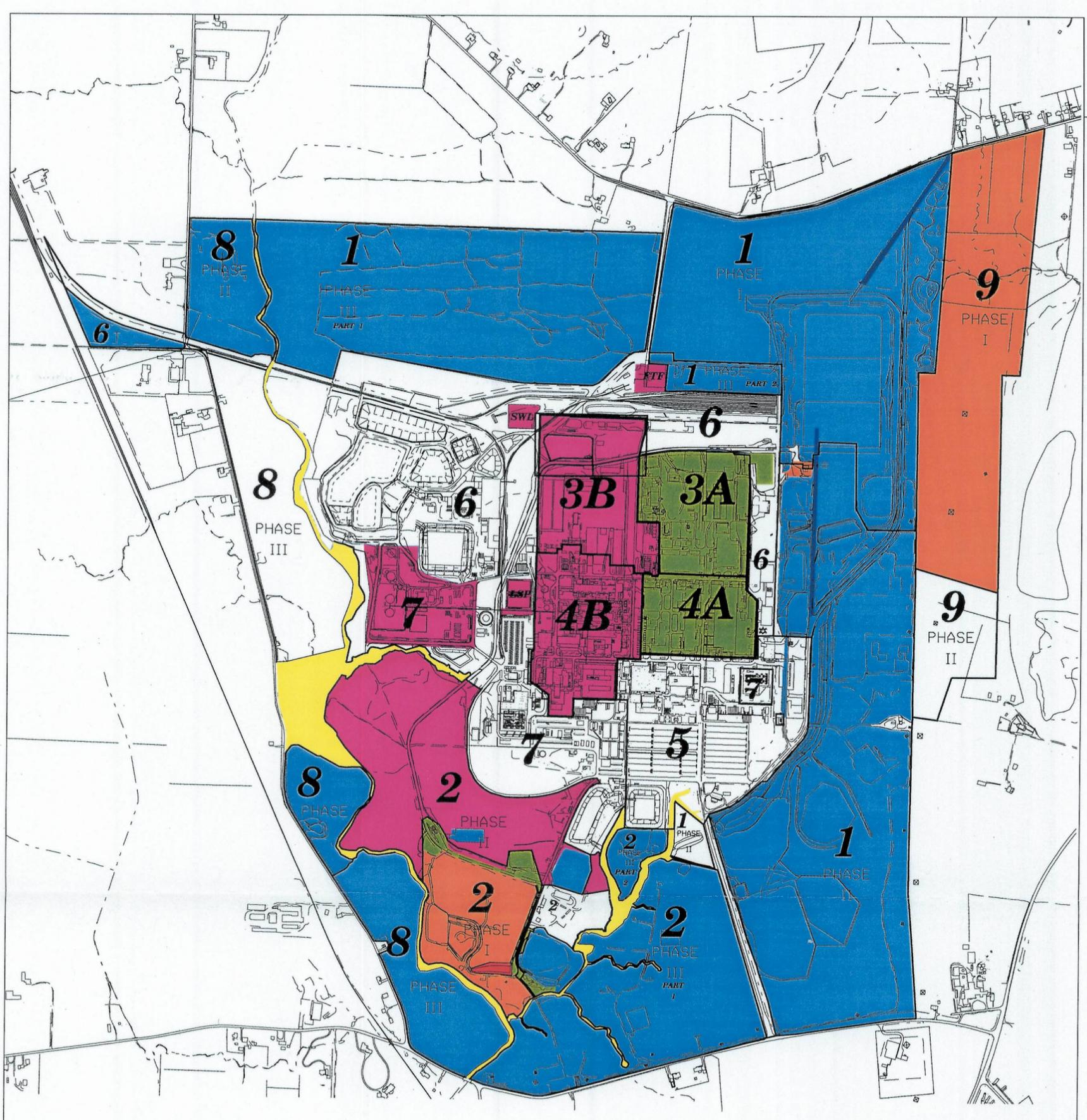
The primary objectives of this CDL addendum are as follows:

- Define the boundaries of the areas to be certified under this addendum
- List the selected ASCOCs pertinent to these areas
- Present the CU boundaries and proposed sampling strategy
- Summarize the analytical requirements and the statistical methodology that will be employed
- Present the proposed schedule for the certification activities.

1.2 SCOPE

This CDL addendum documents the certification design and sampling for the area around the EWF and the associated drainage line. The EWF CU boundary is shown in Figure 1-2; the drainage line CU encompasses the width and depth of the drainage line. Certification of these two CUs was necessary prior to removal of the EWF and associated drainage line in order to expedite the construction schedule for placement of a permanent horizontal well.

The area north of the EWF footprint is not included in this certification effort because it is currently being used to On-Site Disposal Facility (OSDF) placement activities, specifically the Debris Haul Road. The EWF area is to be certified to support OSDF Cell 4.



AREAS	TOTAL ACRES	APPROVED CERT. ACRES	CERT. ACRES IN PROGRESS	REMEDATION ACRES IN PROGRESS	PREDESIGN ACRES IN PROGRESS	REMAINING ACRES
AREA 1	389.9	388.4	0.7	0	0	* 0.8
AREA 2	176.0	82.6	22.8	5.5	57.9	** 7.2
AREA 3A/4A	42.8	0	0	42.8	0	0
AREA 3B/4B	56.9	0	0	0	56.9	0
AREA 5	53.2	0	0	0	0	53.2
AREA 6	134.6	4.4	0	0	2.9	127.3
AREA 7	70.1	0	0	0	19.1	51.0
AREA 8	98.5	60.2	0	0	0	38.3
PR/SSOD/PPDD	*** 27.7	0	0	0	2.1	25.6
TOTAL ON SITE	1049.7	535.6	23.5	48.3	138.9	303.4
AREA 9	89.6	0	71.9	0	0	17.7
TOTAL OFF SITE	89.6	0	71.9	0	0	17.7

* AREA 1 REMAINING ACRES INCLUDES THE DISSOLVED OXYGEN FACILITY AREA. THE INTERIM LEACHATE LINE CORRIDOR IS INCLUDED IN AREA 6

** AREA 2 REMAINING ACRES INCLUDES 0.8 ACRES OF CHARACTERIZED FOR REUSE AREAS (BASIN 2 ■), THE CONSTRUCTION SUPPORT AREA, AND SUBSURFACE SOIL FOR THE UTILITY CORRIDORS/TRANSFER LINES WITHIN THE AFP CERTIFICATION AREA.

*** PADDYS RUN/STORMSEWER OUTFALL DITCH CORRIDOR IS IDENTIFIED IN ■.

API ROADS EXCLUDED FROM CERTIFICATION. ■

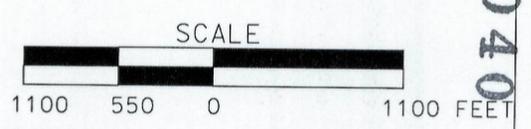


FIGURE 1-1. FEMP CONTROLLED CERTIFICATION MAP

2.0 HISTORICAL DATA

A detailed discussion of the historical data for Sectors 2 and 3 is provided in the main CDL; this addendum is limited to specific data pertaining to the EWF and its associated drainage line.

2.1 PREDESIGN DATA

Based on historical (1997) data indicating above-FRL constituents in the EWF footprint (Table 2-1 and Figure 2-1), lead and arsenic will be retained as COCs for this CU. Historical data for an adjacent CU, collected in 1997, indicated above-FRL concentrations of beryllium, so it will also be retained as a COC.

The drainage line CU boundary encompasses the width and length of the drainage line. Since the drainage line is within the EWF footprint, lead and arsenic will likewise be retained as COCs for this CU. Historical data for an adjacent CU, collected in 1997, indicated above-FRL concentrations of beryllium, so it will also be retained as a COC.

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**TABLE 2-1
 HISTORICAL DATA FOR THE EWF AND DRAINAGE LINE AREA**

Boring ID	Boring Location		Sample Interval		Parameter	Result	Units	Qual.
	Northing	Easting	Top	Bottom				
P17-31C-712816	481816.84	1350712.41	0	0.33	Potassium-40	22	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Radium-226	1.5	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Radium-228	1.1	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Thorium-228	1.1	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Thorium-228	1.3	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Thorium-232	1.1	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Thorium-232	1.3	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Uranium-238	2.4	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Uranium, Total	7.197	µg/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Thorium-230	1.6	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Uranium-234	3.4	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Uranium-235/236	1.2	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Uranium-238	3.6	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Cesium-137	0.08	pCi/g	
P17-31C-712816	481816.84	1350712.41	0	0.33	Uranium-235	0.4	pCi/g	
P17-31C-753816	481816.8	1350753.72	0	0.33	Aluminum	9780	mg/kg	
P17-31C-753816	481816.8	1350753.72	0	0.33	Arsenic	8.6	mg/kg	
P17-31C-753816	481816.8	1350753.72	0	0.33	Lead	18	mg/kg	
P17-31C-753816	481816.8	1350753.72	0	0.33	Molybdenum	1.2	mg/kg	B
P17-31C-753816	481816.8	1350753.72	0	0.33	Manganese	552	mg/kg	
P17-31C-753816	481816.8	1350753.72	0	0.33	Beryllium	0.7	mg/kg	
P17-31C-753816	481816.8	1350753.72	0	0.33	Aroclor-1260	46	µg/kg	
P17-32C2-M-6	481777.29	1350808.32	0	0.33	Aluminum	7650	mg/kg	*
P17-32C2-M-6	481777.29	1350808.32	0	0.33	Arsenic	7.5	mg/kg	
P17-32C2-M-6	481777.29	1350808.32	0	0.33	Beryllium	0.73	mg/kg	
P17-32C2-M-6	481777.29	1350808.32	0	0.33	Manganese	713	mg/kg	
P17-32C2-M-6	481777.29	1350808.32	0	0.33	Molybdenum	0.92	mg/kg	
P17-32C2-M-6	481777.29	1350808.32	0	0.33	Manganese	563	mg/kg	
P17-32INV2-M-7	481778	1350816	0.5	1	Arsenic	4.6	mg/kg	
P17-32INV2-M-8	481789	1350832	0.5	1	Arsenic	5.8	mg/kg	
P17-32INV2-M-9	481797	1350857	0.5	1	Arsenic	8.5	mg/kg	
P17-32C-841737	481737	1350841	0	0.33	Aluminum	13300	mg/kg	
P17-32C-841737	481737	1350841	0	0.33	Arsenic	8.2	mg/kg	
P17-32C-841737	481737	1350841	0	0.33	Lead	21.8	mg/kg	
P17-32C-841737	481737	1350841	0	0.33	Molybdenum	0.74	mg/kg	B
P17-32C-841737	481737	1350841	0	0.33	Manganese	539	mg/kg	
P17-32C-841737	481737	1350841	0	0.33	Beryllium	0.78	mg/kg	
P17-32C-824828	481828.87	1350824.7	0	0.33	Aluminum	13200	mg/kg	
P17-32C-824828	481828.87	1350824.7	0	0.33	Beryllium	0.96	mg/kg	
P17-32C-824828	481828.87	1350824.7	0	0.33	Lead	15.7	mg/kg	
P17-32C-824828	481828.87	1350824.7	0	0.33	Manganese	668	mg/kg	

12

**TABLE 2-1
 HISTORICAL DATA FOR THE EWF AND DRAINAGE LINE AREA**

Boring ID	Boring Location		Sample Interval		Parameter	Result	Units	Qual.
	Northing	Easting	Top	Bottom				
P17-32C-824828	481828.87	1350824.7	0	0.33	Arsenic	10.3	mg/kg	
P17-32C-824828	481828.87	1350824.7	0	0.33	Molybdenum	0.94	mg/kg	U
P17-32C-824828	481828.87	1350824.7	0	0.33	Aroclor-1260	49	µg/kg	
P17-32C-843800	481800	1350843	0	0.33	Cesium-137	0.119	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Radium-226	1.071	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Radium-228	1.347	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Thorium-228	1.52	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Thorium-228	1.188	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Thorium-230	1.62	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Thorium-232	1.25	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Thorium-232	1.169	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Uranium-238	4.698	pCi/g	
P17-32C-843800	481800	1350843	0	0.33	Uranium, Total	14.087	µg/g	J
P17-32C-843800	481800	1350843	0	0.33	Uranium-235	0.181	pCi/g	
P17-32C-847827	481827.36	1350847.33	0	0.33	Aluminum	11500	mg/kg	
P17-32C-847827	481827.36	1350847.33	0	0.33	Lead	16	mg/kg	
P17-32C-847827	481827.36	1350847.33	0	0.33	Manganese	324	mg/kg	
P17-32C-847827	481827.36	1350847.33	0	0.33	Arsenic	10.7	mg/kg	J
P17-32C-847827	481827.36	1350847.33	0	0.33	Beryllium	0.62	mg/kg	U
P17-32C-847827	481827.36	1350847.33	0	0.33	Molybdenum	0.94	mg/kg	U
P17-32C-847827	481827.36	1350847.33	0	0.33	Aroclor-1260	49	µg/kg	UJ
P17-32C-850820	481820	1350850	0	0.33	Aluminum	23800	mg/kg	
P17-32C-850820	481820	1350850	0	0.33	Arsenic	14.1	mg/kg	
P17-32C-850820	481820	1350850	0	0.33	Beryllium	2.3	mg/kg	
P17-32C-850820	481820	1350850	0	0.33	Lead	17.6	mg/kg	
P17-32C-850820	481820	1350850	0	0.33	Manganese	1080	mg/kg	
P17-32C-850822	481822	1350850	0	0.33	Potassium-40	22.89	pCi/g	
P17-32C-850822	481822	1350850	0	0.33	Radium-226	1.247	pCi/g	
P17-32C-850822	481822	1350850	0	0.33	Radium-228	1.525	pCi/g	
P17-32C-850822	481822	1350850	0	0.33	Thorium-228	1.474	pCi/g	
P17-32C-850822	481822	1350850	0	0.33	Thorium-232	1.451	pCi/g	
P17-32C-850822	481822	1350850	0	0.33	Uranium-235	0.269	pCi/g	
P17-32C-850822	481822	1350850	0	0.33	Uranium-238	3.406	pCi/g	
P17-32C-850822	481822	1350850	0	0.33	Uranium, Total	10.213	µg/g	
P17-32C-850822	481822	1350850	0	0.33	Cesium-137	0.065	pCi/g	J
P17-32C-850822	481822	1350850	0	0.33	Thorium-228	1.28	pCi/g	J
P17-32C-850822	481822	1350850	0	0.33	Thorium-230	1.54	pCi/g	J
P17-32C-850822	481822	1350850	0	0.33	Thorium-232	1.07	pCi/g	J
P17-32C-860812	481812	1350860	0	0.33	Cesium-137	0.099	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Potassium-40	17.93	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Radium-226	1.099	pCi/g	

13

**TABLE 2-1
HISTORICAL DATA FOR THE EWF AND DRAINAGE LINE AREA**

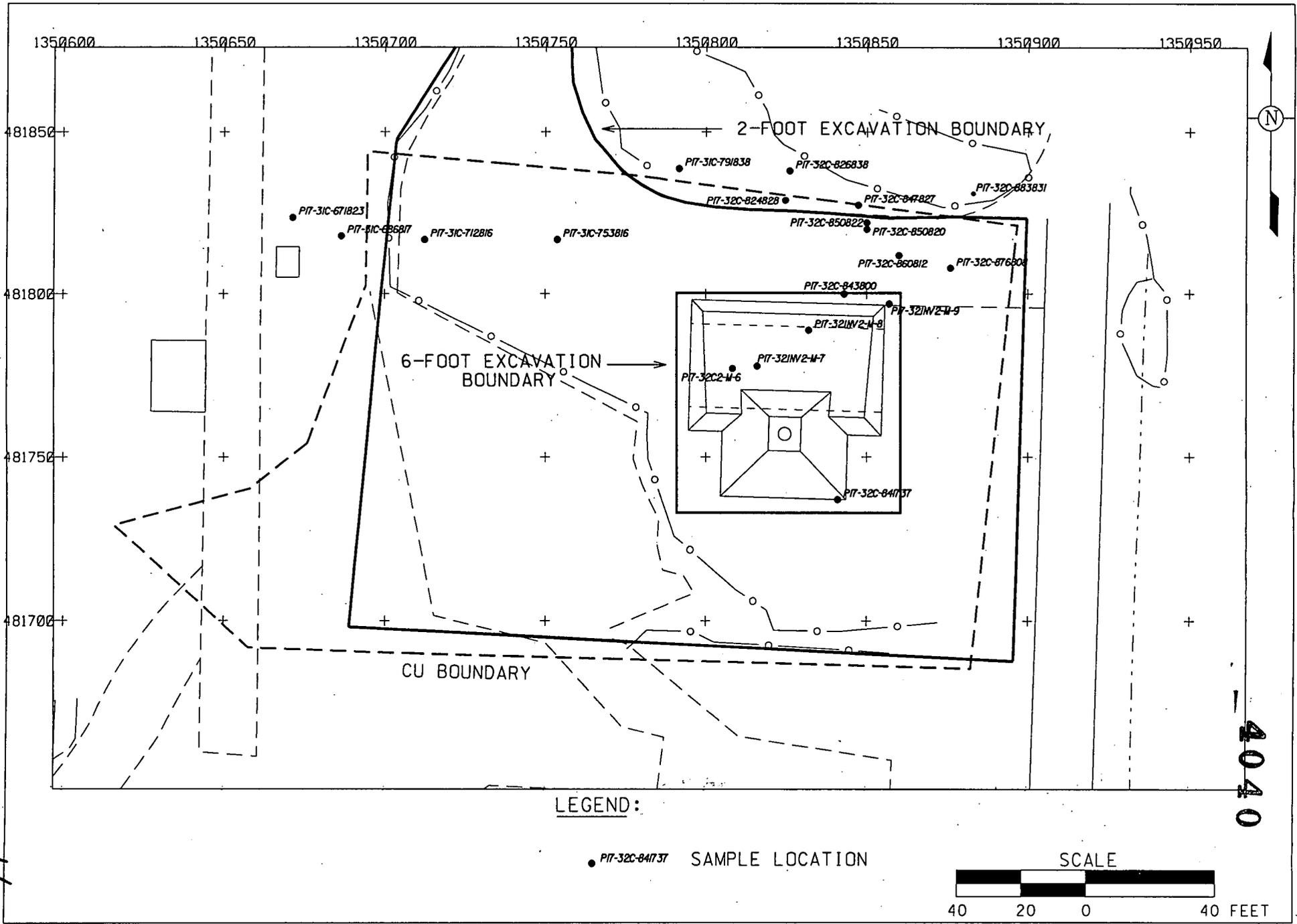
Boring ID	Boring Location		Sample Interval		Parameter	Result	Units	Qual.
	Northing	Easting	Top	Bottom				
P17-32C-860812	481812	1350860	0	0.33	Radium-228	1.257	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Thorium-228	1.32	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Thorium-228	1.329	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Thorium-230	1.53	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Thorium-232	1.11	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Thorium-232	1.308	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Uranium-238	4.106	pCi/g	
P17-32C-860812	481812	1350860	0	0.33	Uranium, Total	12.312	µg/g	
P17-32C-860812	481812	1350860	0	0.33	Uranium-235	0.244	pCi/g	J
P17-32C-876808	481808	1350876	0	0.33	Aluminum	17200	mg/kg	
P17-32C-876808	481808	1350876	0	0.33	Arsenic	13.8	mg/kg	
P17-32C-876808	481808	1350876	0	0.33	Lead	15.6	mg/kg	
P17-32C-876808	481808	1350876	0	0.33	Molybdenum	1.1	mg/kg	B
P17-32C-876808	481808	1350876	0	0.33	Manganese	171	mg/kg	
P17-32C-876808	481808	1350876	0	0.33	Beryllium	0.64	mg/kg	U
P17-31C-671823	481823.56	1350671.36	0	0.33	Aluminum	7360	mg/kg	
P17-31C-671823	481823.56	1350671.36	0	0.33	Arsenic	6.2	mg/kg	
P17-31C-671823	481823.56	1350671.36	0	0.33	Lead	15.2	mg/kg	
P17-31C-671823	481823.56	1350671.36	0	0.33	Manganese	915	mg/kg	J
P17-31C-671823	481823.56	1350671.36	0	0.33	Beryllium	0.61	mg/kg	U
P17-31C-671823	481823.56	1350671.36	0	0.33	Molybdenum	0.94	mg/kg	U
P17-31C-671823	481823.56	1350671.36	0	0.33	Aroclor-1260	48	µg/kg	U
P17-31C-686817	481817.96	1350686.5	0	0.33	Potassium-40	21	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Radium-226	1.5	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Radium-228	1.3	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Thorium-228	1.2	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Thorium-228	1.3	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Thorium-232	1.1	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Thorium-232	1.3	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Uranium-234	3.4	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Uranium-235/236	0.95	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Uranium-238	3	pCi/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Uranium, Total	8.996	µg/g	
P17-31C-686817	481817.96	1350686.5	0	0.33	Thorium-230	1.6	pCi/g	J
P17-31C-686817	481817.96	1350686.5	0	0.33	Uranium-238	3.5	pCi/g	J
P17-31C-686817	481817.96	1350686.5	0	0.33	Cesium-137	0.06	pCi/g	U
P17-31C-686817	481817.96	1350686.5	0	0.33	Uranium-235	0.21	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Potassium-40	19	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Radium-226	1.6	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Radium-228	1.6	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Thorium-228	1.2	pCi/g	

**TABLE 2-1
 HISTORICAL DATA FOR THE EWF AND DRAINAGE LINE AREA**

Boring ID	Boring Location		Sample Interval		Parameter	Result	Units	Qual.
	Northing	Easting	Top	Bottom				
P17-31C-791838	481838.71	1350791.6	0	0.33	Thorium-228	1.3	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Thorium-232	1.2	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Thorium-232	1.3	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Uranium-234	2.2	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Uranium-235/236	0.79	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Uranium-238	1.9	pCi/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Uranium, Total	5.697	µg/g	
P17-31C-791838	481838.71	1350791.6	0	0.33	Thorium-230	1.5	pCi/g	J
P17-31C-791838	481838.71	1350791.6	0	0.33	Uranium-238	2.3	pCi/g	J
P17-31C-791838	481838.71	1350791.6	0	0.33	Cesium-137	0.05	pCi/g	U
P17-31C-791838	481838.71	1350791.6	0	0.33	Uranium-235	0.13	pCi/g	U
P17-32C-826838	481838	1350826	0	0.33	Cesium-137	0.082	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Potassium-40	21.26	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Radium-226	1.304	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Radium-228	1.262	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Thorium-228	1.3	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Thorium-228	1.35	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Thorium-230	1.38	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Thorium-232	1.25	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Thorium-232	1.289	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Uranium-238	4.2	pCi/g	
P17-32C-826838	481838	1350826	0	0.33	Uranium, Total	12.594	µg/g	
P17-32C-826838	481838	1350826	0	0.33	Uranium-235	0.268	pCi/g	J
P17-32C-883831	481831	1350883	0	0.33	Cesium-137	0.16	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Potassium-40	18	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Radium-226	1.3	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Radium-228	1.4	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Thorium-228	1.2	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Thorium-228	1.4	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Thorium-230	1.6	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Thorium-232	1.2	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Thorium-232	1.4	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Uranium-234	6.8	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Uranium-235/236	0.59	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Uranium-238	7.9	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Uranium-238	6.1	pCi/g	
P17-32C-883831	481831	1350883	0	0.33	Uranium, Total	18.291	µg/g	
P17-32C-883831	481831	1350883	0	0.33	Uranium-235	0.44	pCi/g	U

µg/g micrograms per gram
 mg/kg milligrams per kilogram
 pCi/g picoCuries per gram

15



LEGEND:

● PIT-32C-84737 SAMPLE LOCATION

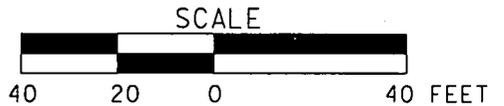


FIGURE 2-1. HISTORICAL DATA FOR EWF AND DRAINAGE LINE AREA

16

4040

3.0 AREA-SPECIFIC CONSTITUENTS OF CONCERN

The ASCOC selection process is discussed in the main CDL. For ease of reference, the lists of ASCOCs for A1PII, including the EWF footprint and the drainage line, are provided below.

**TABLE 3-1
ASCOC LIST FOR ALL CUs**

ASCOC	FRL	Reason Retained
Total Uranium	82 mg/kg	Retained as a primary ASCOC sitewide
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
Arsenic	12 mg/kg	Retained as a secondary ASCOC
Lead	400 mg/kg	Retained as a secondary and ecological ASCOC

**TABLE 3-2
ASCOC LIST FOR THE EWF AND DRAINAGE LINE CUs**

ASCOC	FRL	Reason Retained
Total Uranium	82 ppm	Retained due to process knowledge
Thorium-228	1.5 mg/kg	Retained due to process knowledge
Thorium-232	1.5 pCi/g	Retained due to process knowledge
Radium-228	1.8 pCi/g	Retained due to process knowledge
Radium-226	1.7 pCi/g	Retained due to process knowledge
Arsenic	12 mg/kg	Retained as secondary ASCOC
Lead	400 mg/kg	Retained as secondary ASCOC
Beryllium	1.5 mg/kg	Retained as secondary COC due to process knowledge

ppm - parts per million

4.0 CERTIFICATION APPROACH

4.1 CERTIFICATION DESIGN

The certification design for Sectors 2 and 3 is discussed in the main CDL. The primary excavation approach within Sector 2 was Approach A, Shallow Excavation of Impacted On-Property Areas, and the following considerations were used in the CU design:

- EWF Footprint – The remediation area of the EWF was included in the CU design. The boundary was defined by the certification boundary to the east, the temporary leachate line corridor to the west, CU A1P2-S2-SP-01 to the south and an area to the north associated with the Debris Haul Road that will be excavated at a future date. The eastern boundary was extended to accommodate the horizontal well installation.
- Drainage Line – The width and length of the drainage line was included in the CU design.

The following CUs are addressed in this addendum:

- A1P2-S2EWF – Excavated footprint of the EWF and surrounding area. This CU is being certified for construction of OSDF Cell 4 and to install a horizontal well. Figure 4-1 shows the CU boundary and Figure 4-2 shows the sample point locations within the sub-CUs.
- A1P2-S2DL – The EWF drainage line. This CU is being certified for placement of a horizontal well. Figure 4-3 shows the sample locations; the CU boundary is the width and length of the drainage line.

4.2 SAMPLING

As discussed in Variance/Field Change Notice (V/FCN) Nos. 20710-PSP-0009-19 through -22 to the Project Specific Plan (PSP) for Certification Sampling of A1PII Certified for Reuse Areas, Trap Range, Sector 2C, and Sector 3 (DOE 1999), certification sampling was conducted in two phases, pre- and post-excavation.

Phase I – The EWF was excavated to a depth of 6 feet, and the surrounding excavation boundary to a depth of 2 feet, as shown in Figure 4-1. The CU boundary extends to the west, past the 2-foot excavation boundary; therefore, any of the 16 randomly sampled locations that fell within the EWF footprint were collected at the 6 to 6.5-foot interval, while samples within the 2-foot excavation boundary were

collected at the 2 to 2.5-foot interval. Those samples that were within the EWF CU, but outside the planned excavation, were collected at the surface interval of 0 to 6 inches.

Phase I – Drainage Line pre-excavation: Sixteen sample locations were established at even spacing along the drainage line. The samples were collected at varying depths due to the existing topography. The actual sampling depth at each location was determined by subtracting the known, as-built drain line elevation and the known bedding thickness from the current elevation.

Phase II – EWF post-excavation: Thirteen samples and four archive samples, from the same locations used for pre-excavation sampling, were collected and analyzed for total uranium. All Phase II samples were collected from the surface (0 to 6-inch interval) and analyzed as described in Section 4 of the PSP.

Phase II – Drainage Line post-excavation: After the drainage line was excavated to design depth, a trackhoe bucket was used to collect additional soil from the design surface of the drainage line at the same locations identified for pre-excavation sampling. Samples were then collected from the trackhoe bucket and analyzed for total uranium.

4.3 ANALYTICAL METHODOLOGY AND STATISTICAL ANALYSIS

The analytical methodology and statistical approach are provided in Section 4.3 of the main CDL. Sample containers and preservation comply with Table 3-1 of the PSP. Analysis and data validation is at Analytical Support Level (ASL) D as described in Section 4 of the PSP.

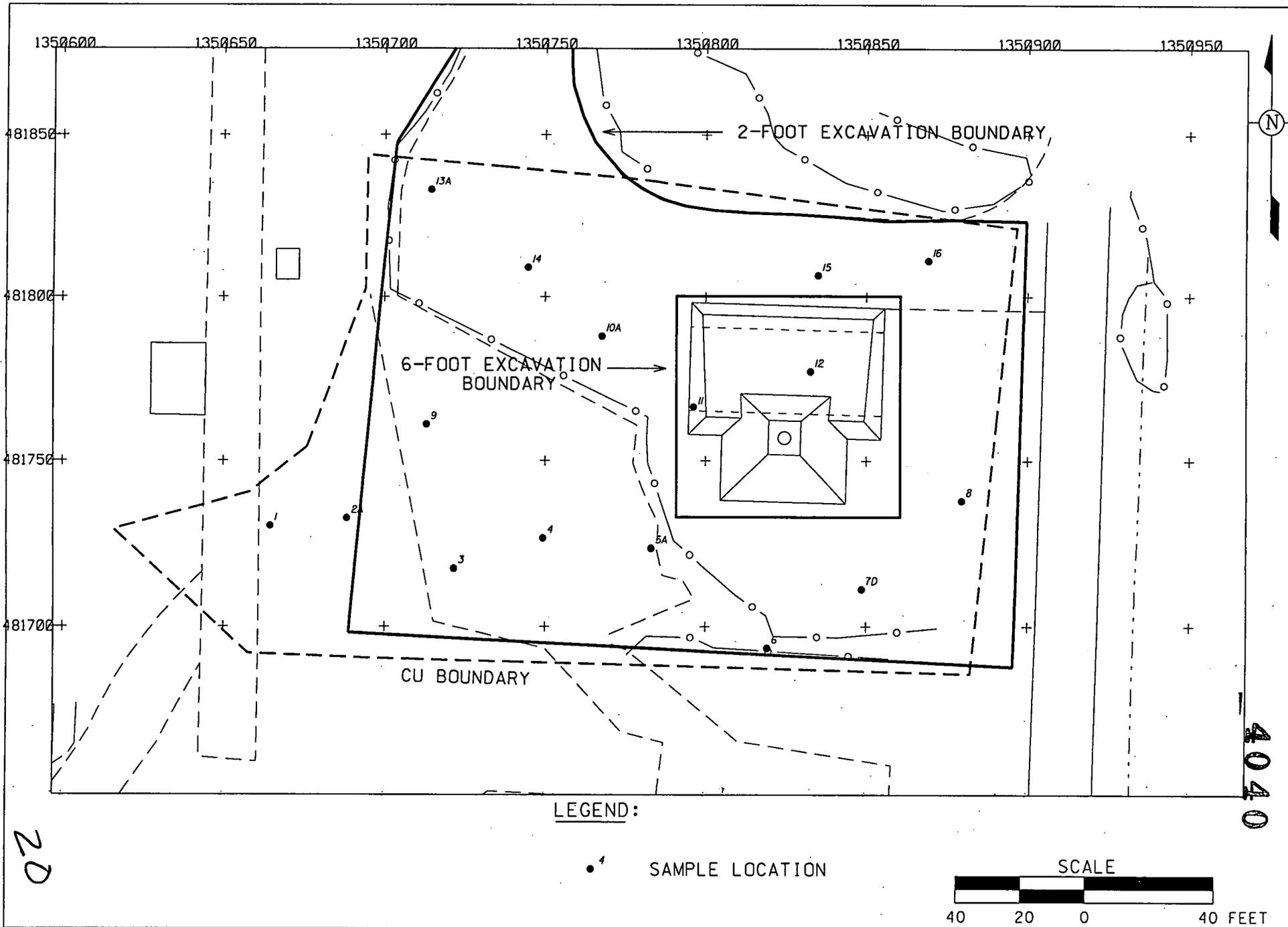
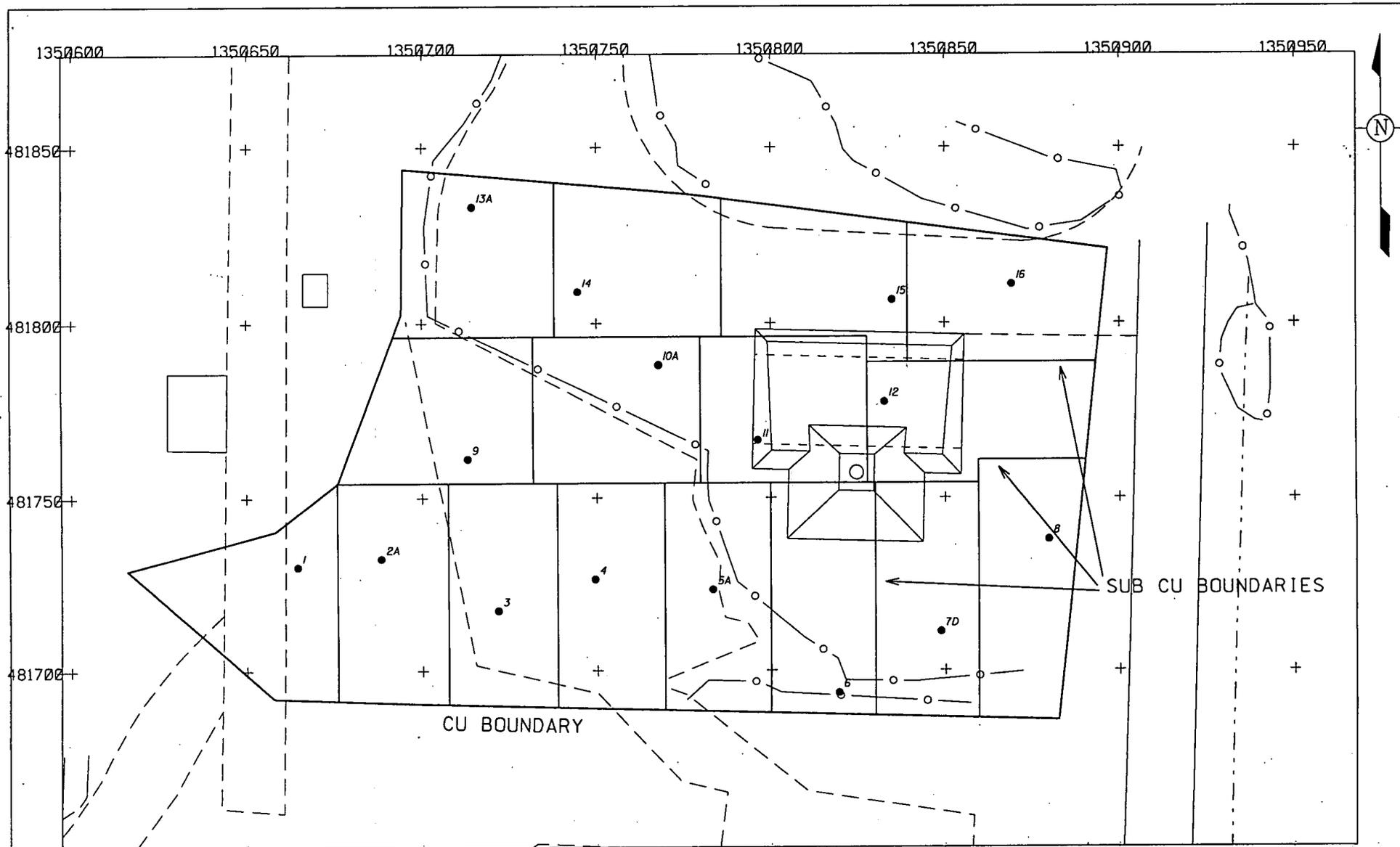


FIGURE 4-1. A1P2-S2 EWF CU BOUNDARY



LEGEND:

● 4 SAMPLE LOCATION

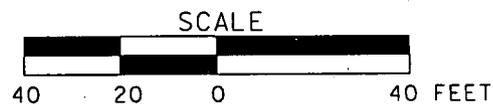
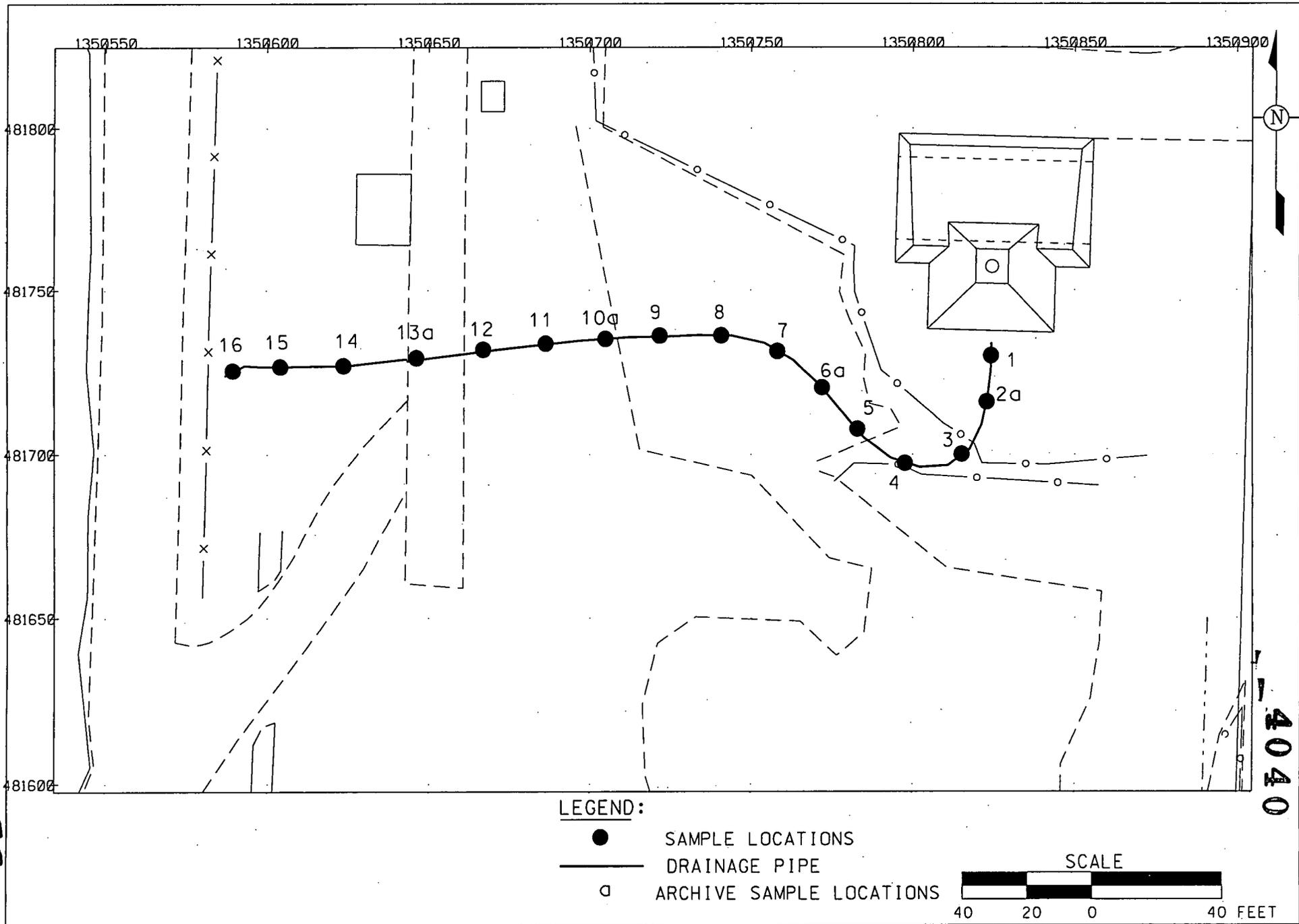


FIGURE 4.2 A1B2 G2 EWE SAMPLE LOCATIONS



LEGEND:

- SAMPLE LOCATIONS
- DRAINAGE PIPE
- ARCHIVE SAMPLE LOCATIONS

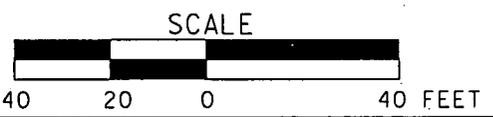


FIGURE 4-3. A1P2-S2 DL SAMPLE LOCATIONS AND CU BOUNDARY

5.0 SCHEDULE

The following draft schedule shows key activities for the completion of the work within A1PII.

<u>ACTIVITY</u>	<u>TARGET DATE</u>
Submit CDL addendum (including CUs A1P2-S2EWF and A1P2-S2DL)	December 14, 2001
Start of Field Work	November 26, 2001
Complete Field Work	December 11, 2001
Complete Analytical Work	December 14, 2001
Complete Data Validation and Statistical Analysis	December 17, 2001
Submit Certification Report addendum (including CUs A1P2-S2EWF and A1P2-S2DL)	December 18, 2001

REFERENCES

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

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

U.S. Department of Energy, 1999, "Project Specific Plan for Area 1, Phase II Certified for Reuse Areas, Trap Range, Sector 2C, and Sector 3," Revision 1, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2000, "Certification Design Letter for Area 1, Phase II Certified for Reuse Areas, Trap Range, Sector 2C and Sector 3," Revision 0, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, OH.