Department of Energy

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

OCT 19 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-0021-07

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 RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS AND CHANGE PAGES TO THE FINAL CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR AREA 6 GENERAL AREA WEST

References:
1) Letter DOE-0010-07, J. Reising to J. Saric/T. Schneider, "Transmittal of the Final Certification Design Letter and Certification Project Specific Plan for Area 6 General Area West," dated October 11, 2006

2) Letter, T. Schneider to J. Reising, "Disapproval - Draft CDL and Certification PSP for Area 6 General Area West," dated October 16, 2006

Enclosed for your approval are responses to Ohio Environmental Protection Agency comments and change pages to the final Certification Design Letter and Certification Project Specific Plan for Area 6 General Area West. These change pages incorporate the referenced comment responses.

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

Sincerely,

Johnny W. Reising
Director

Enclosures

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

RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE FINAL CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR AREA 6 GENERAL AREA WEST

FERNALD CLOSURE PROJECT
FERNALD, OHIO

OCTOBER 2006

U.S. DEPARTMENT OF ENERGY

RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR AREA 6 GENERAL AREA WEST (20600-PSP-0020, Revision 0)

COMMENTS

1. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: General Pg #: Line #: NA Code: C
Original Comment #: 1
Comment: It is inappropriate and counter constructive to add areas to documents, which have been reviewed and approved. It is especially detrimental when the information is added in such an inadequate manner as presented in this CDL for SP-9. The addition of this sampling to the CDL/PSP appears to be an after thought and is significantly lacking in integration within the document. The document should be substantially revised to address either the addition of the SP-9 footprint or the footprint removed from the document.

Response: The SP-9 footprint is within the original CDL boundary. Only ten rail cars of debris generated during the Silos Project D&D activities were loaded out through SP-9. Before SP-9 operation, the area was lined with HDPE to protect the underlying soil from recontamination after precertification. However, elevated radium-226 levels were detected by real time scan in soil following demobilization of the SP-9 operation. Due to the unexpected recontamination of the footprint, it was necessary to remediate the area that covers portion of the original CUs 11 and 12 and certify this footprint over these previously precertified CUs. The extent of the recontamination was from the haul road to the rail line that covers the entire SP-9 operation. The boundary of CU 24 matches the recontaminated and subsequently remediated area as shown in Figure 4-1.

SP-9 operation and subsequent remediation of this footprint were communicated to EPA and OEPA during multiple weekly conference calls.

Action: Add the following text in Section 2.6:

"The SP-9 footprint is within the original CDL boundary. Only ten rail cars of debris generated during the Silos Project D&D activities were loaded out through SP-9. Before SP-9 operation, the area was lined with HDPE to protect the underlying soil from recontamination after precertification. However, elevated radium-226 levels were detected by real time scan in soil following demobilization of the SP-9 operation. Due to the unexpected recontamination of the footprint, it was necessary to remediate the area that covers portion of the original CUs 11 and 12 and certify this footprint over these previously precertified CUs. The extent of the recontamination was from the haul road to the rail line that covers the entire SP-9 operation."

2. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: Section 2 Pg #: Line #: NA Code: C
Original Comment #: 2
Comment: No reference to SP-9 is included nor any discussion of the soils that were staged there and their source. No discussion of remedial actions or real time scanning is presented.

Response: Section 2.6 on Page 2-5 was added into the CDL to provide general information regarding the SP-9 including source of materials. Section 3.2.6 on Page 3-5 was added to present the COCs selected for SP-9 footprint. All the COCs for CUs 11 and 12 plus the COCs associated with Silos materials were selected. As stated in Section 2.6 the real time scanning results after

remedial actions are provided on Figures A-11 through A-14 in Appendix A. The real time scanning results confirmed that the additional soil remediation following SP-9 operation was adequate.

Action: See Action in Response to Comment #1.

3. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 2.4.2/4.1.1 Pg #: 2-4 & 4-1 Line #: NA Code: C
Original Comment #: 3
Comment: The text provides a discussion regarding CU 23P, however, this CU is not "located" on any map in the document. Even though this CU consisted of overburden soil and samples from CU 23. It should be marked on the CU design maps in the CDL. In addition, CU 23P should be added to the list of CUs in Section 4.1.1.

Response: Agree. CU 23P will be added to the list of CUs in Section 4.1.1. As stated in Section 2.4.2, this overburden pile is located in sub-CUs 10 and 11 within CU 23. Locations of sub-CUs 10 and 11 are shown in Figure 4-5. A dashed outline of the pile will be added to Figure 4-5.

Action: CU 23P will be added to the list of CUs in Section 4.1.1. A reference to Figure 4-5 will be added in Section 2.4.2 as following:

"This overburden is encompassed in two sub-CUs (10 and 11) of CU 23 as shown in Figure 4-5."

4. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 2.2.2/Table A-2 Pg #: 2-2 Line #: NA Code: C
Original Comment #: 4
Comment: Section 2.2.2 mentions a location being 3x the FRL for radium-226 between the WP 6 and the SWM Pond. A physical sample was collected, which resulted being slightly above the FRL. However, the data on Table A-2 does not seem to be referenced in this CDL, nor is it referenced in Section 2.2.2. Please provide clarification regarding Table A-2 and include a discussion in regards to its results being above the FRL for radium-226 and other parameters listed on the table.

Response: The text will be expanded.

Action: The following text will be inserted to the beginning of the second paragraph of Section 2.2.2:

"Figure A-8 indicated that there was one location greater than three times the FRL for radium-226 between Waste Pit 6 and the SWM Pond. The HPGe result of this location is presented in Table A-2 with Location ID A6J-P3-3716. All the other Phase 3 HPGe results as presented in Table A-2 are below three times the FRLs and require no further action per SEP."

5. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 3.2.6 Pg #: 3-5 Line #: 4-13 Code: C
Original Comment #: 5
Comment: Though reference to SP-9 is included here the discussion is inadequate to judge what areas contributed soil to SP-9 and thus what ASCOCs should be selected. Reference is made to Table 3-3 for "reasoning" though no obvious reasoning is presented at all in Table 3-3. In fact, Table 3-3 would appear to conflict with Table 3-2 that eliminates aroclor-1260 for all CUs while Table 3-3 retains it.

Response: The source of recontamination in the SP-9 footprint was from the Silos buildings. Therefore COCs associated with Silos buildings as well as the original list of COCs for CUs 11 and 12 are selected for CU 24. Also see Responses to Comments #1 and #2 regarding SP-9 in general.

Table 3-3 was referenced in Sections 3.2.4, 3.2.5, and 3.2.6 for the reasoning of ASCOCs. The correct reference should be Table 3-2.

Aroclor-1260 was retained in Table 3-3 by mistake after being screened out in Table 3-2.

Action: Remove aroclor-1260 from Table 3-3.

References to Table 3-3 in Sections 3.2.4, 3.2.5, and 3.2.6 will be corrected.

The following text will be added at the beginning of Section 3.2.6:

"The source of recontamination in the SP-9 footprint was from the Silos buildings. Therefore, each ASCOC from the….."

6. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 4.0 Pg #: 2-4 Line #: 25-27 Code: C
Original Comment #: 6
Comment: No detailed discussion of the CU layout for CU 24 is provided and it would seem appropriate considering the late addition of this CU and the fact that it overlaps existing CUs.

Response: See Responses to Comments #1 and #2.

Action: Title of Section 4.1.2 will be changed to "Special Certification Unit Design."

Also the following text will be added at the end of the section:

"Elevated radium-226 levels were detected by real time scan in soil following demobilization of the SP-9 operation. Due to the unexpected recontamination of the footprint, it was necessary to remediate the area that covers portion of the original CUs 11 and 12 and certify this footprint over these previously precertified CUs. The extent of the recontamination was from the haul road to the rail line that covers the entire SP-9 operation. The boundary of CU 24 matches the recontaminated and subsequently remediated area as shown in Figure 4-1."

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CERTIFICATION DESIGN LETTER AND CERTIFICATION PROJECT SPECIFIC PLAN FOR AREA 6 GENERAL AREA WEST

FERNALD CLOSURE PROJECT
FERNALD, OHIO

OCTOBER 2006

U.S. DEPARTMENT OF ENERGY

20600-PSP-0020
REVISION 0
PCN 1

REVISION SUMMARY

Revision	Date	Description of Revision
Revision 0	10-11-06	Initial controlled issuance.
PCN 1	10-18-06	Revisions were made to Sections 2.2.2, 2.4.2, 2.6, 3.2.4, 3.2.5, 3.2.6, 4.1.1, 4.1.2, Table 3-3, and Figure 4-5 to incorporate additional OEPA comment responses.

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LIST OF APPENDICES

2.0 HISTORICAL AND PRECERTIFICATION DATA

In accordance with the SEP, prior to conducting precertification and certification activities, all soil demonstrated to contain contamination above the associated FRLs or other applicable action levels must be identified and removed per an area-specific Integrated Remedial Design Package. In addition to these predesign investigations, the Remedial Investigation Reports (RI, DOE 1995a and 1995b), and Feasibility Study Reports (FS, DOE 1995c and 1995d) for Operable Units (OUs) 3 and 5 were used for remedial design of the areas included in this certification effort. Before initiating the certification process, all historical soil data within the Area 6 General Area West certification area were pulled from the Sitewide Environmental Database (SED). The data is summarized in Sections 2.1 through 2.5.

Based on the results of sampling and scanning activities summarized in Sections 2.1 through 2.5, it has been determined that no further remedial actions are necessary to remove above-FRL or above-WAC soil.

Some utilities removed as part of the remediation process were taken out after all excavation was completed to design grade and precertification had been completed. Once the utility had been removed, per the technical specification, precertification was performed on the trench bottom created by the removal of these utilities and then backfilled with the precertified overburden soil. These sampling events are described in Variance/Field Change Notices (V/FCNs) 20600-PSP-0016-47, written to the PSP for Excavation Control and Precertification of the Area 6 Waste Pits and General Area; and 20500-PSP-0009-35, written to the PSP for Excavation Control and Precertification of Area 7 Silos and General Area (DOE 2005b). In the BSL, samples were collected from trench bottoms created by utility removal under V/FCNs 20600-PSP-0016-16, 20600-PSP-0016-23, and 20600-PSP-0016-25 written to the PSP for Excavation Control and Precertification of the Area 6 Waste Pits and General Area.

2.1 AREA 6G

2.1.1 Historical, Predesign and Excavation Control

Based on the results of historical data collection, predesign sampling was done to determine the nature and extent of contamination present in Area 6G. Samples were collected to fill in any data gaps left in this area. Additionally, data were also collected to bound above-FRL areas with physical sampling. The results of the investigations are presented in the Excavation Plan for Area 6 Waste Pits and General Area (DOE 2005c).

Excavation of the Area 6 General Area West - Area 6G began in July 2005. In addition to the removal of contamination present in areas designated as either above-WAC or above-FRL, existing foundations, slabs, footers, piers as well as other support structures were removed as part of the excavation effort. Additional at- and below-grade structures that were removed included the BSL liner, several observation sumps, and

under drain system. Likewise, all utilities, miscellaneous debris, sand, and gravel were removed. These activities are presented in the Excavation Plan for Area 6 Waste Pits and General Area.

2.1.2 Precertification

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of Area 6 Waste Pits and General Area. Precertification real-time scanning results are provided in Appendix A. Due to the need to construct a parking lot in the footprint of the BSL, it was necessary to collect physical samples for all of the Area 6 ASCOCs prior to the construction of the parking lot to ensure that this area would meet the certification criteria. Therefore, following the removal of the liner and the sand underneath it, the area was real-time scanned for precertification. Once real-time precertification was completed, physical samples were collected under V/FCNs 20600-PSP-0016-7, 9, 13, 15, and 18 for the PSP for Excavation Control and Precertification of the Area 6 Waste Pits and General Area (see Appendix E) and the construction of the parking lot commenced. This is discussed further in Section 4.

2.2 AREA 6J

2.2.1 Historical, Predesign and Excavation Control

Prior to beginning predesign, all historical data from Area 6J were evaluated. Predesign samples were then collected to determine the nature and extent of the contamination, bound above-WAC and above-FRL areas, and to fill in any existing data gaps. The locations of above-WAC surface areas were delineated using real-time measurement systems. The results of the investigations are presented in the Excavation Plan for Area 6 Waste Pits and General Area.

Excavation of the Area 6 General Area West - Area 6J began in 2005. In addition to the removal of contamination present in areas designated as either above-WAC or above-FRL, existing at-grade concrete and asphalt pads/roads were excavated as part of the remediation process. These activities are presented in the Excavation Plan for Area 6 Waste Pits and General Area.

2.2.2 Precertification

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of Area 6 Waste Pits and General Area. Precertification real-time scanning results are provided in Appendix A.

Figure A-8 indicated that there was one location greater than three times the FRL for radium-226 between Waste Pit 6 and the SWM Pond. The HPGe result of this location is presented in Table A-2 with PCN 1

Location ID A6J-P3-3716. All the other Phase 3 HPGe results as presented in Table A-2 are below three times the FRLs and require no further action per SEP. A physical sample, A6E-P6-AS9, was collected from this location and the result was 1.72 picoCuries per gram (pCi/g), which is slightly above the FRL of 1.7 pCi/g and far less than two times the FRL (3.4 pCi/g). Therefore, no further action is necessary.

2.3 AREA 6K

2.3.1 Historical, Predesign and Excavation Control

Prior to beginning predesign, all historical data from Area 6K were evaluated. Predesign samples were then collected to determine the nature and extent of the contamination, to bound above-WAC and above-FRL areas, and fill in any existing data gaps. The locations of above-WAC surface areas were delineated using real-time measurement systems. The results of the investigations are presented in the Excavation Plan for Area 6 Waste Pits and General Area.

Excavation of the Area 6 General Area West - Area 6K began in the fall of 2005. In addition to the removal of contamination present in areas designated as either above-WAC or above-FRL, existing at-grade concrete and asphalt pads/roads were excavated as part of the remediation process. Additional at- and below-grade structures removed include the Material Handling Building and the Railcar Loadout Building. Likewise, all utilities and miscellaneous debris and gravel were removed. These activities are presented in the Excavation Plan for Area 6 Waste Pits and General Area.

2.3.2 Precertification

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of Area 6 Waste Pits and General Area. Precertification real-time scanning results are provided in Appendix A.

2.4 AREA 7A

2.4.1 Historical, Predesign and Excavation Control

Prior to beginning predesign, all historical data from Area 7A were evaluated. Predesign samples were then collected to determine the nature and extent of the contamination, to bound above-FRL areas, and to fill in any existing data gaps. The location of above-FRL surface areas were delineated using real-time measurement systems. The results of the investigations are presented in the Excavation Plan for Area 7 Silos and General Area (DOE 2005d)

Excavation of the Area 6 West - Area 7A began in August 2005 following the demolition of the Silos 1 and 2 structures. In addition to the removal of contamination present in areas designated as either above-WAC or above-FRL, existing at-grade concrete and asphalt pads/roads were excavated as part of the

remediation process. Additional at- and below-grade structures that were removed included the western portion of the K-65 trench, the K-65 decant sump, and the K-65 drum waste handling sump. These activities are presented in the Excavation Plan for Area 7 Silos and General Area.

2.4.2 Precertification

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of Area 7. Phase 2 Precertification identified three isolated locations in Area 7A as being greater than three times the FRL for radium-226. These locations were delineated, excavated, and confirmed. All of the precertification real-time scanning results are provided in Appendix A.

In addition to the real-time scans, the area where the Transfer Tank Area (TTA) Retention Basin was to be excavated was sampled under V/FCN 20500-PSP-0009-69 so that the overburden soil could be placed in the area due south of the basin. Samples were collected from six borings and the analytical results from the overburden demonstrated the COCs were below FRL. The footprint of the area where the overburden soil was to be placed was precertified with real-time scanning to provide a 'clean' footprint for this overburden soil. Following these events, the overburden soil from the TTA Basin was taken directly to the area due south and was not staged anywhere prior. The TTA Retention Basin is not in the scope of this PSP, but the area where the overburden soil was placed is included in the scope of this PSP. This overburden is encompassed in two sub-CUs (10 and 11) of CU 23 as shown in Figure 4-5. The two sub-CUs where the soil was placed will be sampled at the original surface prior to the addition of the overburden. As a conservative measure, samples of the overburden will also be collected in these two sub-CUs and the data will be included with the data for V/FCN 20500-PSP-0009-69 as a separate CU (CU 23P) in the Certification Report for this area. The physical data from V/FCN 20500-PSP-0009-69 is included in Appendix D. This is also discussed further in Section 4. PCN 1

2.5 AREA 7C

2.5.1 Historical, Predesign and Excavation Control

Prior to beginning predesign, all historical data from Area 7C were evaluated. Predesign samples were then collected to determine the nature and extent of the contamination, to bound above-FRL areas, and to fill in any existing data gaps. The location of above-FRL surface areas was delineated using real-time measurement systems. The results of the investigations are presented in the Excavation Plan for Area 7 Silos and General Area.

Excavation of the Area 6 West - Area 7C began in the fall of 2005. In addition to the removal of contamination present in areas designated as either above-WAC or above-FRL, existing at-grade concrete and asphalt pads/roads were excavated as part of the remediation process. Additional at- and below-grade

structures that were removed included the Cement Pond. These activities are presented in the Excavation Plan for Area 7 Silos and General Area.

2.5.2 Precertification

According to guidelines established in Section 3.3.3 of the SEP, precertification activities were conducted to evaluate residual radiological contamination patterns as specified in the PSP for Excavation Control and Precertification of Area 7. Precertification real-time scanning results are provided in Appendix A.

2.6 POST PRECERTIFICATION ACTIVITIES

Following precertification, the southeast corner of Area 6 General Area West (i.e., the southern footprint of the Railcar Loadout Building) was lined and used as a stockpile area, known as SP-9, for the rail loadout of a small portion of material from the demolition of the Silos in Area 7 for off-site disposal. This affected Areas 6G and 6K. When this loadout was completed, precertification confirmation scanning was performed. The results of this confirmation are provided on Figures A-11 through A-14 in Appendix A. A CU was designed to encompass the footprint of SP-9 and this CU overlays portions of two CUs already planned for this area.

The SP-9 footprint is within the original CDL boundary. Only ten rail cars of debris generated during the Silos Project D&D activities were loaded out through SP-9. Before SP-9 operation, the area was lined with HDPE to protect the underlying soil from recontamination after precertification. However, elevated radium-226 levels were detected by real time scan in soil following demobilization of the SP-9 operation. Due to the unexpected recontamination of the footprint, it was necessary to remediate the area that covers portion of the original CUs 11 and 12 and certify this footprint over these previously precertified CUs. The extent of the recontamination was from the haul road to the rail line that covers the entire SP-9 operation PCN 1

- Chrysene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- Phenanthrene
- Pyrene
- Technetium-99
- Thorium-230

3.2.3 Area 6K ASCOC Selection

Each ASCOC on the Area 6 list (see Table 3-1) was evaluated for its relevance to Area 6K. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228 and thorium-232 are sitewide primary ASCOCs, and will be retained as ASCOCs for the Area 6K CUs. Additional secondary COCs have been retained in this area due to historical above-WAC or above-FRL results as well as former land use. The complete list of COCs that are going to be retained for certification can be found in Table 3-3. The specific secondary COCs for this area are as follows:

Area 6K Secondary ASCOCs

- Antimony
- Cadmium
- Silver
- Technetium-99
- Thorium-230

3.2.4 Area 7A ASCOC Selection

Each ASCOC on the Area 7 list (see Table 3-1) was evaluated for its relevance to Area 7A. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228 and thorium-232 are sitewide primary ASCOCs, and will be retained as ASCOCs for the Area 7A CUs. Additional secondary COCs have been retained in this area due to historical above-WAC or above-FRL results as well as former land use. The complete list of COCs that are going to be retained for certification can be found in Table 3-3. The specific secondary COCs for this area are as follows: PCN 1

Area 7A Secondary ASCOCs

- Antimony
- Cadmium
- Molybdenum
- Silver
- Benzo(a)anthracene
- Benzo(a)pyrene

- Benzo(b)fluoranthene
- Benzo(g,h,i)perlene
- Benzo(k)fluoranthene
- Fluoranthene
- Chrysene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- Phenanthrene
- Pyrene
- Aroclor-1254
- Beryllium
- Cesium-137
- Lead-210
- Techhetium-99
- Thorium-230

3.2.5 Area 7C ASCOC Selection

Each ASCOC on the Area 7 list (see Table 3-1) was evaluated for its relevance to Area 7C. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228 and thorium-232 are sitewide primary ASCOCs, and will be retained as ASCOCs for the Area 7A CUs. Additional secondary COCs have been retained in this area due to historical above-WAC or above-FRL results as well as former land use. The complete list of COCs that are going to be retained for certification can be found in Table 3-3. The specific secondary COCs for this area are as follows: PCN 1

Area 7C Secondary ASCOCs

- Antimony
- Cadmium
- Molybdenum
- Silver
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perlene
- Benzo(k)fluoranthene
- Fluoranthene
- Chrysene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- Phenanthrene
- Pyrene
- Aroclor-1254
- Beryllium
- Cesium-137

- Lead-210
- Technetium-99
- Thorium-230

3.2.6 SP-9 ASCOC Selection

The source of recontamination in the SP-9 footprint was from the Silos buildings. Therefore, each ASCOC from the Area 6G, 6K, 7A, and 7C lists in the previous sections as evaluated for its relevance to SP-9. Table 3-2 presents the reasoning for either retaining or eliminating the ASCOCs. Total uranium, radium-226, radium-228, thorium-228 and thorium-232 are sitewide primary ASCOCs, and will be retained as ASCOCs for the SP-9 CU. Secondary COCs from the CUs in Area 6G, 6K, and 7A have been retained in this area due to the fact that SP-9 overlaps CUs 11 and 12 from Areas 6G and 6K, and it was the load-out area for the material from the demolition of the Silos in Area 7A. The complete list of COCs that are going to be retained for certification can be found in Table 3-3. The specific secondary COCs for this area are as follows: PCN 1

SP-9 Secondary ASCOCs

- Aroclor-1254
- Beryllium
- Cesium-137
- Lead-210
- Technetium-99
- Thorium-230

TABLE 3-1
ASCOCs FOR AREA 6 AND AREA 7 FROM THE SEP

Primary COCs	Secondary COCs for Area 6	Secondary COCs for Area 7
Radium-226	Aroclor-1254	Aroclor-1254
Radium-228	Aroclor-1260	Aroclor-1260
Thorium-228	Arsenic	Arsenic
Thorium-232	Benzo(a)pyrene	Beryllium
Total Uranium	Benzo(b)fluoranthene	Cesium-137
	Beryllium	Dieldrin
	Bromodichloromethane	Lead
	Cesium-137	Lead-210
	Dibenzo(a,h)anthracene	Manganese
	1,1-Dichloroethene	Technetium-99
	Dieldrin	Thorium-230
	Fluoride	
	Heptachlorodibenzo-p-dioxins	
	Indeno(1,2,3-c,d)pyrene	
	Octachlorodibenzo-p-dioxins	
	Technetium-99	
	Tetrachloroethene	
	Thorium-230	
	Ecological COCs for Area 6	**Ecological COCs for Area 7**
	Antimony	Antimony
	Cadmium	Cadmium
	Silver	Molybdenum
	PAHs[a]	Silver
		PAHs[a]

[a] PAHs - polyaromatic hydrocarbons (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perlene, benzo(k)fluoranthene, fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene)

TABLE 3-3
ASCOC LIST FOR AREA 6 GENERAL AREA WEST CERTIFICATION UNITS

ASCOC	FRL/*BTV*[a]	MDC
Radiological		
Total Uranium	82.0 mg/kg	8.2 mg/kg
Radium-226	1.7 pCi/g	0.3 pCi/g
Radium-228	1.8 pCi/g	0.18 pCi/g
Thorium-228	1.7 pCi/g	0.3 pCi/g
Thorium-232	1.5 pCi/g	0.15 pCi/g
Cesium-137	1.4 pCi/g	0.14 pCi/g
Technetium-99	29.1 pCi/g[b]	2.91 pCi/g
Thorium-230	280 pCi/g	28.0 pCi/g
Lead-210	38 pCi/g	3.8 pCi/g
PCBs/Pesticides		
Aroclor-1254	0.13 mg/kg	0.013 mg/kg
Semi-Volatile Organics[a]		
Benzo(a)anthracene	20 mg/kg *(1.0 mg/kg)*	*0.1 mg/kg*
Benzo(a)pyrene	2.0 mg/kg *(1.0 mg/kg)*	*0.1 mg/kg*
Benzo(b)fluoranthene	20 mg/kg *(1.0 mg/kg)*	*0.1 mg/kg*
Benzo(k)fluoranthene	200 mg/kg *(1.0 mg/kg)*	*0.1 mg/kg*
Benzo(g,h,i)perlene	*1.0 mg/kg*	*0.1 mg/kg*
Chrysene	2,000 mg/kg *(1.0 mg/kg)*	*0.1 mg/kg*
Dibenzo(a,h)anthracene	2.0 mg/kg *(0.088 mg/kg)*	*0.01 mg/kg*[c]
Fluoranthene	*10.0 mg/kg*	*1.0 mg/kg*
Indeno(1,2,3-cd)pyrene	20 mg/kg *(1.0 mg/kg)*	*0.1 mg/kg*
Phenanthrene	*5.0 mg/kg*	*0.5 mg/kg*
Pyrene	*10.0 mg/kg*	*0.1 mg/kg*
Metals		
Arsenic	12 mg/kg	1.2 mg/kg
Beryllium	1.5 mg/kg	0.15 mg/kg
Cadmium	*5.0 mg/kg*	*0.5 mg/kg*
Silver	*10.0 mg/kg*	*1.0 mg/kg*
Antimony	*10.0 mg/kg*	*1.0 mg/kg*
Molybdenum	*10.0 mg/kg*	*1.0 mg/kg*

[a] Benchmark toxicity values (BTVs) apply to area-specific ECOCs. The minimum detectable level (MDL) is set at 10 percent of the BTV.

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

[c] 10 percent of the BTV is not achievable.

MDC - minimum detectable concentration
mg/kg - milligrams per kilogram
PCBs - polychlorinated biphenyls

4.0 CERTIFICATION DESIGN AND SAMPLING PROGRAM

4.1 CERTIFICATION DESIGN

The intent of this certification effort is to certify the soil within the Area 6 General Area West. The certification design for Area 6 General Area West follows the general approach outlined in Section 3.4 of the SEP. The CU design is shown in Figure 4-1 and sample locations are depicted in Figures 4-2 through 4-5. Twenty-six Group 1 CUs were designed to represent the Area 6 General Area West. As discussed in Section 3.0 of this document, the five primary ASCOCs (total uranium, radium-226, radium-228, thorium-228, and thorium-232) will be retained in each CU as well as various other secondary ASCOC as outlined in Table 3-2.

Several factors were taken into consideration when determining the boundaries for each CU within the Area 6 General Area West. Some of these include: historical land use, proximity to other areas of the site, and COC data. Additionally, because the areas contain impacted material, they will be comprised of Group 1 CUs to allow for more concentrated sampling and ensure excavation activities and removal of above and below grade structures had no effect on the soil.

4.1.1 Certification Unit Design

The Area 6 General Area West consists of 26 Group 1 CUs (four of which are in the BSL footprint) that were designed around a combination of former land use, location, and COCs for each area. As shown in Figure 4-1, the separate areas included in this certification effort are represented by groups of CUs as follows:

• CUs 1 through 3	Will not be included in the scope of this PSP **Note:** These CUs were originally for the SWL (Area 6G), which will be included in the CDL/PSP for SP-7	
• CU 4	Former SWM Pond (Area 6K)	
• CUs 5 and 10	Former Material Handling Building (Area 6K)	
• CU 6, 7, 8, 9, 14, and 15	Area 6J	
• CU 11	Former Railcar Loadout Building (Area 6K)	
• CUs 12 and 13	Area 6G	
• CU 16	Former Surrogate Material Pond (Area 6J)	
• CU 17	Former Cement Pond (Area 7C)	
• CU 17A	Flood Plain west of the Waste Pits (Northwest of Cement Pond) (Area 7C)	
• CUs 18 and 19	Area 7C	
• CUs 20 and 21	Silos 1 and 2 Footprint (Area 7A)	
• CU 22	Area 7A	
• CU 23	South of the TTA Retention Basin (Area 7A) **Note:** This CU will have stratified certification	
• CU 23P	South of the TTA Retention Basin (Area 7A)	PCN 1

- CU 24 — SP-9 footprint
  Note: This CU overlaps CUs 11 and 12 and extends into the former rail line to the east
- BSL 1-4 — BSL Footprint

4.1.2 Special Certification Unit Design PCN 1

The overburden soil that was removed to create the TTA Retention Basin was placed in the area immediately south, which is now CU 23. As stated in Section 2.4.2, this soil was sampled (six borings) prior to excavation and is included in Appendix D. Although the analytical results from the overburden demonstrated that it was below FRL for all of the ASCOCs, additional samples will be collected from the two sub-CUs (A6GAW-C23-10 and A6GAW-C23-11) where the overburden was placed. This overburden will be certified as an individual CU, CU 23P, using the data from the two new locations and the data collected from the original six borings (V/FCN 20500-PSP-0009-69). The highest point above the original surface is approximately 10 feet.

In sub-CUs A6GAW-C23-10 and A6GAW-C23-11, sampling will be conducted through the pile and a core will be obtained at the surface that existed prior to the placement of the overburden soil. Since the overburden only occupies the overlying surface, all samples taken of the pre-existing surface through the pile will be associated with CU 23 and the samples of the overburden will be associated with CU 23P, the overburden CU.

Elevated radium-226 levels were detected by real time scan in soil following demobilization of the SP-9 operation. Due to the unexpected recontamination of the footprint, it was necessary to remediate the area that covers portion of the original CUs 11 and 12 and certify this footprint over these previously precertified CUs. The extent of the recontamination was from the haul road to the rail line that covers the entire SP-9 operation. The boundary of CU 24 matches the recontaminated and subsequently remediated area as shown in Figure 4-1. PCN 1

4.1.3 Sampling Prior to CU Design

There were circumstances in the footprint of the BSL that required samples to be collected prior to CU design to be used for certification. Considerations were made in regard to CU design and the locations of these samples. Further clarification is given below for this area.

4.1.3.1 Footprint of the BSL

As discussed in Section 2.1.2, due to the need of a parking lot in the footprint of the BSL, it was necessary to collect physical samples prior to the construction of the parking lot to ensure that this area would meet the certification criteria. Therefore, following the removal of the liner and the sand underneath it, the area was real-time scanned for precertification. Once real-time precertification was completed, physical

samples were collected under the PSP for Excavation Control and Precertification of the Area 6 Waste Pits and General Area. Samples were collected from this area for the primary radionuclides as well as secondary ASCOCs (cesium-137, technetium-99, arsenic, beryllium, mercury, aroclor-1254, dieldrin, PAHs, 1,1-dichloroethene, tetrachloroethene, and bromodichloromethane). Because thorium-230 and antimony are ASCOCs for this area, they were added at a later date per V/FCN 20600-PSP-0016-98. The data are presented in Appendix E.

The BSL footprint, including the berms, is approximately 250,000 square feet, which is the size of four Group 1 CUs (see Figure 4-1). The samples were collected and analyzed at Analytical Support Level D (ASL). Upon further review, it was verified that three additional sample locations were needed to fulfill the requirements of 16 sub-CUs within each CU. These locations were added per V/FCN 20600-PSP-0016-99 and sampling of the surface beneath the gravel was performed this data are also presented in Appendix E. The only activities in this area since sample collection were the construction of the parking lot and the staging and pumping used oil. If there were any oil spills form the staging and pumping of oil, it would have been treated as any other oil spill by excavating/removing the impacted material, with no more physical sampling. The material used to construct the parking lot was clean gravel, so the results for the above mentioned borings will be used as certification data points.

4.1.4 Sample Location Design

The selection of certification sampling locations was conducted 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 of 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 Area 6 General Area West sub-CUs and planned certification sampling locations are shown on Figures 4-2 through 4-6. Four of the 16 sample locations in each CU are designated with a "V", indicating archive sample locations. One sample location per CU is designated with a "D", indicating a field duplicate sample collection location. The sample locations, field duplicate samples, and archive samples are identified in Appendix C.

Prior to commencement of certification sampling field activities, all certification sample locations will be surveyed and field verified to make sure no surface obstacles would prevent sample collection at the planned location. Locations may be moved if a subsurface obstacle prevents sample collection. Requirements for moving a certification sample location are discussed below in Section 4.3.1.

Other than CU23, samples will be collected for analysis from 0 to 6 inches at 12 of the 16 locations in each CU. The four samples designated as "archive" will not be collected unless they are needed for additional analysis.

4.2 SURVEYING

Before certification sampling activities begin, the North American Datum of 1983 (NAD83) State Planar coordinates for each selected sampling location (with the exception of the archive sample locations) will be surveyed and identified in the field with a flag. All locations will be field verified to ensure no surface obstacles will prevent collection at the planned location. The Area 6 General Area West CU boundaries are shown on Figure 4-1. Appendix C and Figures 4-2 through 4-6 show the sub-CU boundaries and the tentative certification sampling locations, all of which meet the minimum distance criterion.

4.3 PHYSICAL SOIL SAMPLE COLLECTION

4.3.1 Sample Collection

Soil samples will be collected according to procedure SMPL-01, Solids Sampling, using 3-inch diameter, 6-inch long, plastic or stainless steel liners. At the discretion of the Field Sampling Lead, samples may be collected using alternative methods specified in SMPL-01, as long as sufficient volume is collected from the appropriate depth to perform the prescribed analyses. If necessary, the soil core shall be divided and placed into the proper sample containers. Samples will be collected from 12 of the 16 sample locations in the CU, including one field duplicate sample. The archive locations will not be collected unless necessary. When sampling below overlying material (e.g., gravel, asphalt, etc.), the sampling interval will begin where the soil contains less than 50 percent overlying material. Upon completion of sample collection, boreholes will be collapsed and no additional abandonment is necessary.

Quality control sample requirements will include a duplicate field sample, and a container blank and/or rinsate, and will be collected per procedure SMPL-21, Collection of Field Quality Control Samples. For the duplicate field sample, twice the soil volume (a second core) will be collected at one location in the CU, and will not be homogenized with the original sample. The location that requires the collection of a duplicate sample is identified in Appendix C. Depending on the sample collection method used, container blanks or rinsates will be collected. A container blank will be collected prior to sample collection and at the conclusion of sample collection for this entire certification project. All samples will be assigned unique sample identification numbers. Additional information regarding quality control requirements can be found in Section 6.1.

If a subsurface obstacle prevents sample collection at the specified location, it can be moved according to the following guidelines:

- The distance moved must be as small as possible (less than 3 feet);
- It must remain within the boundary of the same CU and sub-CU, and must still meet the minimum distance criterion; and
- If the distance moved is greater than 3 feet, the move must be documented in a V/FCN, considered as significant, which will be approved by the agencies prior to collection.
- Anytime a location is moved, the appropriate figure should be used to determine the best direction to move the point to adhere to the above guidelines. The Characterization Manager or designee should be contacted when a sample location is moved. All final sampling locations will be documented in the Certification Report for this area.

Customer sample numbers and FACTS identification numbers will be assigned to all samples collected. The sample labels will be completed with sample collection information, and technicians will complete a Field Activity Log (FAL), a Sample Collection Log, and a Chain of Custody/Request for Analysis form in the field prior to submittal of the samples.

All soil samples from the CU with like analyses (including the field duplicate) will be batched and submitted to the Sample Processing Laboratory (SPL) under one set of Chain of Custody/Request for Analysis forms which will represent one analytical release. The container blank and/or rinsate will be listed on a separate Chain of Custody/Request for Analysis form. No alpha/beta screens will be required, as historical information can be used for shipping purposes.

4.3.2 Equipment Decontamination

Decontamination is performed to prevent the introduction of contaminants from sampling equipment to subsequent soil samples. Field Technicians will ensure that sampling equipment (core tubes and caps) has been decontaminated prior to transport to the field. As described in SMPL-01, all sampling equipment will have been decontaminated before it is transported to the field site, and the 6-inch core liners will be decontaminated using the Level II (Section K.11 of the SCQ) procedure upon receipt from the manufacturer. Decontamination is also necessary in the field if sampling equipment is reused. If an alternate sampling method is used, equipment will be decontaminated between collections of sample intervals, and again after the sampling performed under this PSP is completed. Following decontamination, clean disposable wipes may be used to replace air-drying of the equipment.

4.3.3 Physical Sample Identification

Each soil certification sample will be assigned a unique sample identification number as *Remediation Area-CU Number/Identifier-Location^Depth Interval-Analysis-QC,* where:

A6GAW = Sample collected from Area 6 General Area West

C04	=	Certification sample representing the 4th certification unit from the area (all subsequent CUs will be consecutively numbered) **Note**: CUs 1-3 were originally for the SWL (Area 6G), which will be included in the CDL/PSP for SP-7
P	=	Sample of Pile material in CU 23 only (A6GAW-C23P)
Location	=	Sample Location number within each CU (1 through 16)
^	=	Separates Location from Depth Interval
Depth Interval	=	(only if needed) Equals twice the bottom depth (in feet) (i.e., "1" = 0.0 to 0.5', "2" = 0.5 to 1.0', etc.)
Analysis	=	"R" indicates radiological analysis, "M" indicates a metals analysis, "P" indicates a PCB/pesticides analysis, "S" indicates a semi-volatile analysis, "D" indicates dioxin analysis, and "V' indicates an archive sample.
QC	=	Quality control sample, if applicable. A "D" indicates a field duplicate sample; "Y" indicates a container blank sample; and "X" indicates a rinsate.

For example, a field duplicate sample taken from the tenth sample location from the 1st Area 6 General Area West CU for radiological, metals, and pesticides/PCBs analysis would be identified as A6GAW-C01-10^RMP-D. It should be noted that the "^" symbol should not be included in the sample number for container blanks, rinsates, and trip blanks. Additionally, the CU number is not required for trip blanks, rinsates, or container blanks. The sample identifiers are as presented in Appendix C.

4.4 ANALYTICAL METHODOLOGY

All soil samples from the CU with like analyses (including the field duplicate) will be batched and submitted to the SPL under one set of Chain of Custody/Request for Analysis forms which will represent one analytical release. Container blanks will be listed on a separate Chain of Custody/Request for Analysis form but may be batched together in one analytical release.

All samples will be prepared for shipment to off-site laboratories per procedure 9501, Shipping Samples to Off-site Laboratories. Samples will only be shipped to off-site laboratories that are listed on the Fluor Fernald Approved Laboratories List. Historical data from the area will be used to ship the samples off site. The highest post-excavation total uranium result from this certification area is 218 mg/kg from boring A6E-A6-DG-9.

As soon as the samples arrive at the laboratory where the analysis will take place, all samples should be prepared for analysis [including homogenization for non-volatile organic compound (VOC) samples], and radiological samples should be sealed to begin the in-growth period for radium analysis.

Additional sampling and analytical requirements are listed in Table 4-1 and the Target Analyte Lists (TALs) are shown in Table 4-2.

Laboratory analysis of certification samples will be conducted using an approved analytical method, as discussed in Appendix H of the SEP. Where possible, the CRDL is set at 10 percent of the FRL. Analyses will be conducted to either ASL D or E. All requirements for ASL E are the same as for ASL D except the MDL for the selected analytical method must be at least 20 percent of FRL.

A minimum of 10 percent of the laboratory data will be validated to Validation Support Level (VSL) D with the remainder validated to VSL B. Additional validation information can be found in Section 6.

4.5 STATISTICAL ANALYSIS

Once data are validated, results will be entered into the SED and a statistical analysis will be performed to evaluate the pass/fail criteria for each CU. The statistical approach is discussed in Section 3.4.3 and Appendix G of the SEP, and will be the same for this area as it has been for previous certification areas.

Two criteria must be met for the CU to pass certification. If the data distribution is normal or lognormal, the first criterion compares the 95 percent upper confidence limit (UCL) on the mean of each primary ASCOC 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 results 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 related to individual samples. An individual sample cannot be greater than two times the FRL (see Section 3.4.6 and Figure 3-11 of the SEP for further details). When the given UCL on the mean for each ASCOC is less than its FRL, and the hotspot criterion is met, the CU has met both criteria and will be considered certified.

In the event that the CU fails certification, the following scenarios will be evaluated: 1) a high variability in the data set, 2) localized contamination, and 3) widespread contamination. Details on the evaluation and responses to these possible outcomes are provided in Section 3.4.5 of the SEP. When all CUs within the scope of this CDL has passed certification, a Certification Report will be issued. The Certification Report will be submitted to the U.S. Environmental Protection Agency (EPA) and the Ohio Environmental Protection Agency (OEPA) to receive acknowledgement that the pertinent operable unit remedial actions were completed and the individual CUs are certified and ready to be released for interim or final land use. Section 7.4 of the SEP provides additional details and describes the required content of the Certification Report.

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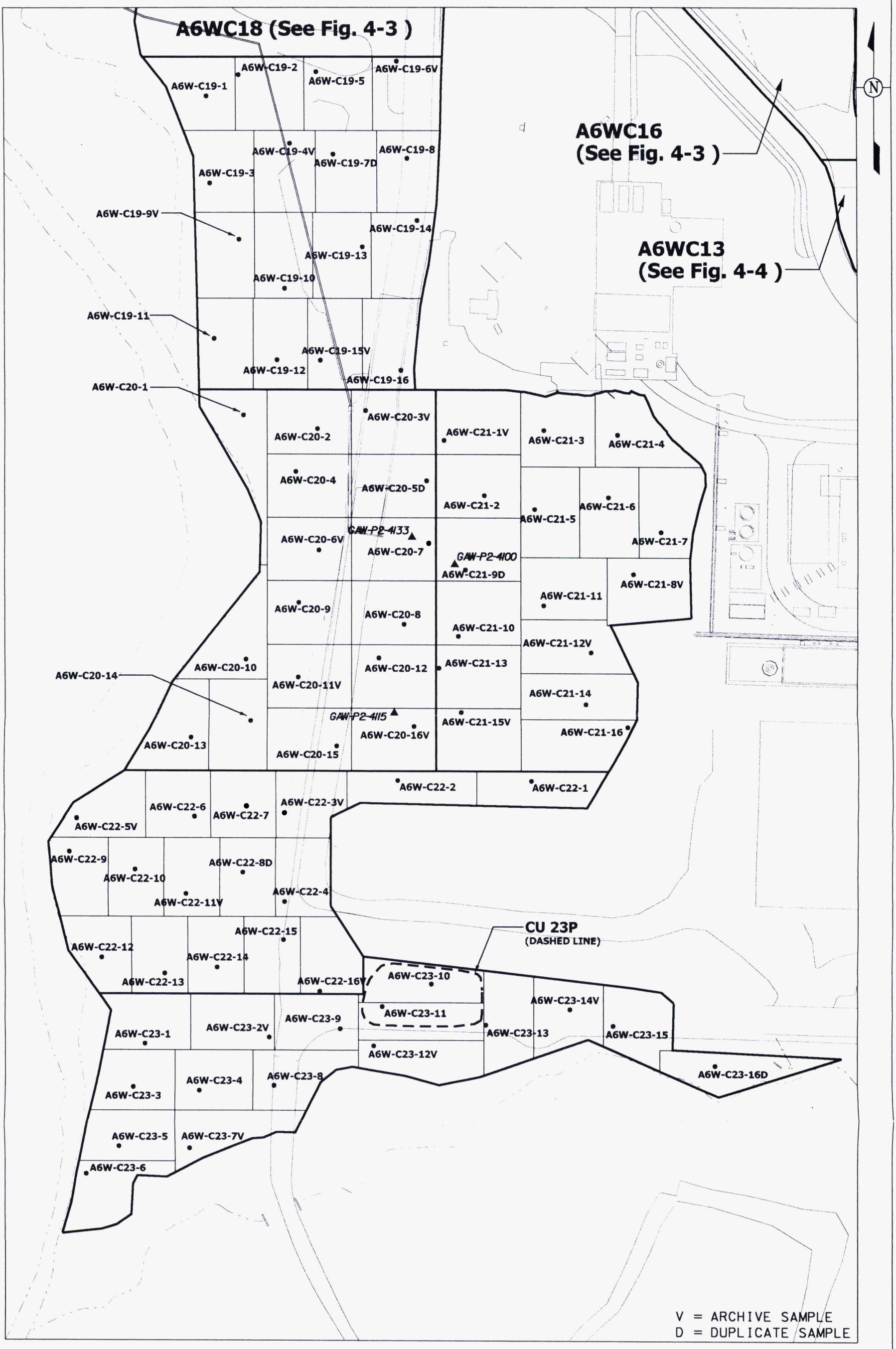

FIGURE 4-5. SUB CU AND SAMPLE LOCATION MAP FOR AREAS 7A & 7C