

**AREA 9, PHASE III
ABANDONED OUTFALL LINE
EXCAVATION PLAN
PART ONE**

**FERNALD CLOSURE PROJECT
FERNALD, OHIO**



SEPTEMBER 2004

U.S. DEPARTMENT OF ENERGY

**21140-PL-0002
REVISION 0
PCN 1**

REVISION SUMMARY

| <u>Revision</u> | <u>Date</u> | <u>Description of Revision</u> |
|-----------------|-------------|---|
| Rev. 0 | 8-19-04 | Initial controlled issuance |
| PCN 1 | 9-2-04 | Per OEPA's request, text has been added to Section 2.1.2 to address the results of the additional silver and boron samples that were collected upgradient of Manhole-180 and clarify the reasoning for excluding boron as a constituent of concern. |

2.0 PREDESIGN INVESTIGATION AND CHARACTERIZATION DATA

2.1 SUMMARY OF HISTORICAL AND PREDESIGN INVESTIGATIONS

2.1.1 Historical Investigations

In April 1989, an overflow of the abandoned old outfall line occurred at Manhole MH180. In May 1989, characterization soil samples were taken in the affected area and documented in the Final Report for the Offsite Soils Removal Action Around Manhole 180, FMPC Effluent Line, dated June 23, 1989. The results of the characterization sampling revealed that the soil immediately to the east of MH 180 exceeded the adopted criteria for soil removal for the site area at that time. The criteria identified for this removal action was 52 parts per million (ppm) total uranium and/or 46 ppm total thorium. These action levels were established and used prior to the development of the Operable Unit 5 (OU5) off-site soil final remediation levels (FRLs). The affected area was eight feet by eight feet by two feet deep and was excavated in June 1989. Following excavation, samples were collected and analyzed with results demonstrating that the soil concentration criteria were achieved. The excavated area was backfilled.

In 1993, still prior to the establishment of OU5 off-site soil FRLs, additional samples were collected along the Great Miami River bank near the point of the outfall line discharge. The samples were split between an off-site commercial laboratory and the on-site laboratory. The on-site sample results, which were above the now established OU5 off-site soil FRLs in four borings, appear to be questionably high in comparison to the off-site laboratory's analytical results. All of the results from the off-site laboratory were below the OU5 off-site soil FRLs; therefore, confirmatory samples will be collected from the borings whose results were above the OU5 off-soil site FRLs. The historical data is presented in Appendix B (Table B-1, and associated Figures) of this plan.

2.1.2 Predesign

The Project Specific Plan for Area 9, Phase III Outfall Ditch Pre-design Investigation (21140-PSP-0002) has been completed and submitted to the agencies for review in May 2004. The pre-design sampling data is reported in Appendix B (Table B-2 and associated figures).

PCN 1 Recent surface data indicated that both boron and silver had results above the FRL near MH-180A, which is on the northwest corner of the lower plowed field west of State Route 128. Additional samples have been collected significantly upgradient of MH-180A in a separate plowed field that is on a plateau west of MH-180A, and they were analyzed for boron and silver in an effort to determine if the elevated values are the result of the overflow event. It was decided that if the results of these constituents upgradient from

MH-180A were consistent with the levels determined at MH-180A, then the source of the concentrations was not from the overflow event and could be attributed to natural or agricultural activity. However, if the results of the samples collected upgradient of MH-180A were less than the levels found at MH-180A, then the source would be attributed to the overflow event at MH-180A and, therefore, considered a contaminant that required remediation. The concentrations of boron from the samples collected upgradient of MH-180A were consistent with those determined at MH-180A. Therefore, boron was excluded from being a constituent of concern. However, these samples also demonstrate that silver is not present at concentrations above the off-property FRL upgradient of MH-180A and, therefore, the soil at the surface of MH-180A is confirmed to be above FRL and will be excavated as impacted.

Additionally, in the samples around MH-180A, total chromium was found at levels above 11 mg/kg, which is the OU5 off-soil site FRLs for hexavalent chromium (Cr+6). Several samples that were greater than 11 mg/kg total chromium were then analyzed for Cr+6. The results demonstrated that hexavalent chromium is not present in the soils around MH-180A at levels above the OU5 off-soil site FRLs. In fact, of the 16 samples analyzed for hexavalent chromium, only one of the results is a detected result of 0.114 mg/kg, which is well below the OU5 off-soil site FRL of 11 mg/kg. Therefore, it was determined that hexavalent chromium is not an issue in the soil around MH-180A. However, as a conservative measure, hexavalent chromium will be retained as a constituent of concern during certification effort.

Lastly, in an attempt to gain information of the bedding material beneath the pipe, Geoprobe core samples have been taken at each of the manhole locations where depth and location of the pipe can be physically determined, which demonstrate that the bedding material is well below WAC.

2.2 ABOVE-FRL/IMPACTED MATERIAL EXCAVATION BOUNDARIES

Historical OU5 off-site FRL exceedances were investigated with biased predesign samples to confirm the presence of impacted soil. The predesign sampling data was evaluated to determine if there are any OU5 off-site soil FRL exceedances. All original predesign samples refuted the presence of contamination above the off-property FRL. However, as noted above, additional predesign samples that were collected around MH-180A demonstrated silver to be above the off-property FRL down to a depth of 1.5-feet. Therefore, bounding samples were collected in the four cardinal directions (west at A9P3-MH180-CS9, east at A9P3-MH180-CS10, north at A9P3-MH180-25, and south at A9P3-MH180-4) to bound this contamination. This material will be excavated and sent to the OSDF. The footprint of this excavation will be certified prior to trenching to remove the abandoned outfall line. An additional certification unit covering this area has been established and is described in the associated Certification Design Letter.

Although samples of the bedding material have been collected prior to excavation, and demonstrated that the material is below-WAC, the bedding material and soil underneath the bedding material will be committed to above-WAC. The pipe, bedding material, and soil underneath the bedding material will be dispositioned in the SP-7 stockpile area.