

## MOUND



## Public Fact Sheet

### Operable Unit 1 Landfill Area

July 2009

#### Background

The Operable Unit 1 (OU-1) Landfill Area or Area B as it was originally called, occupies approximately 4 acres in the southwestern portion of the Mound site. The OU-1 area includes the "historic landfill" that was used to dispose of general trash and liquid wastes from 1948 to 1974. During the mid-1950's, potentially contaminated Dayton Unit IV salvage materials consisting of steel and metal debris, polonium-210 contaminated sand from research and production activities and approximately 2,500 empty, 55-gallon crushed drums that had been used to store thorium wastes were buried in the southwest corner of OU-1. An overflow pond was constructed in the OU-1 area during 1977 and 1978 that partially covered the historic landfill. The portion of the historic landfill wastes excavated during the construction of the pond (principally trenches that had been used to dispose of non-hazardous wastes) was relocated and encapsulated in a sanitary landfill area over top of the historic landfill area. No site wastes were disposed of in OU-1 after 1974.

In 1989, the Mound site was placed on the Environmental Protection Agency's (EPA) National Priorities List (NPL) as a result of the volatile organic compounds (VOCs) detected in the groundwater beneath the OU-1 Landfill Area. In 1995, an OU-1 CERCLA Record of Decision was issued which required the collection and treatment of groundwater beneath the OU-1 area. As part of implementing this decision in 1996, a groundwater pump-and-treat system was installed and continues to operate. Shortly after installation of the pump-and-treat system, the Department of Energy (DOE)

installed a soil vapor extraction (SVE) system to treat residual VOCs in soils and accelerate remediation of the site. During the summer of 2005, a significant number of crushed thorium drums were removed from the southwest corner of the OU-1 Landfill Area and (the area) was subsequently backfilled with clean soil.

In 2005, Congress directed DOE to take additional actions at OU-1 in response to the Miamisburg Mound Community Improvement Corporation (MMCIC) and the City of Miamisburg plans to expand an adjacent road and construct a building in the OU-1 area. Congress appropriated \$30,000,000 to execute additional work at OU-1. The work was conducted under the OU1 Response Action Plan, Final dated July 2006. The scope included the excavation of 5 waste priority areas and final verification of the entire OU-1 footprint

In 2007, excavation work began in the OU-1 Landfill Area. Between 2007 and 2008, approximately 60,500 cubic yards of contaminated soil/debris were successfully removed from OU-1 and transported to several off-site facilities for treatment and/or disposal. In 2008, the funding appropriated by Congress was exhausted before the entire OU-1 Landfill Area could be exhumed and the excavated portions of the OU-1 Landfill Area were backfilled with clean soil after verification sampling occurred. In 2009, the OU-1 Overflow Pond was drained, backfilled, re-graded and seeded.



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Figure 1 provides a site map showing the location of the OU-1 Landfill Area.



Figure 1. Operable Unit 1 Landfill Area

As part of the 2009 American Recovery and Reinvestment Act (ARRA) implementation, the DOE made available additional funding to complete the remaining waste priority areas in OU-1. This follow on excavation work is an extension of the original scope outlined in the 2006 Response Action Plan. This ARRA scope includes the excavation and disposal of the remaining sanitary wastes and historic wastes still buried in the OU-1 Landfill Area; and verification of the remaining OU-1 footprint not verified as part of the 2005 Congressionally directed scope. As with previous cleanup work at the Miamisburg Closure Project, oversight of the

excavation activity will be conducted by the DOE, EPA and the Ohio Environmental Protection Agency (Ohio EPA).

### Characterization

The radiological contaminants of concern (COCs) and cleanup objectives for the OU-1 Landfill Area are presented in Table 1 (units are in pCi/g). The chemical COCs are provided in Table 2 (units are in mg/kg). These COCs were based upon the previous excavation work performed in 2007-2008. The calculated clean up objectives were based on  $1 \times 10^{-5}$  risk for industrial/commercial use.

Table 1. Radiological COCs and Cleanup Objectives

Analyte	Cleanup Objective (pCi/g)
Actinium-227+daughters	4.6
Americium-241	63
Bismuth-210m	8.3
Lead-210 + daughters	7.4
Plutonium-238	55
Plutonium-239/240	62
Protactinium-231	4.0
Radium-226 + daughters	2.9
Thorium-230	2.8
Thorium-232 + daughters	2.1
Uranium-234	2.0
Uranium-235	3.2
Uranium-238+daughters	2.2



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Table 2. Chemical COCs and Cleanup Objectives

CAS#	Analyte	Cleanup Objective (mg/kg)
127-18-4	Tetrachloroethene	187
79-01-6	Trichloroethene	52.5
75-01-4	Vinyl Chloride	4.14
67-66-3	Choloroform	5.15
100-41-4	Ethylbenze	0.48
108-88-3	Toluene	250
	PCB – Aroclor-1248	14.7

The scheduled work in the OU-1 Landfill Area includes the excavation and disposal of Priority 5 (Sanitary Waste Area) and Priority 7 (Historic Waste Area) wastes.

Priority 5 wastes include the sanitary wastes and approximately 60% of the original constructed landfill liner material. This 60% of the original liner material was assumed to be waste due to the commingling of waste and liner at the interface. Based on the observations from the previous excavation and historical documents, the following Priority 5 waste volume estimates and types will be used for planning purposes: 4,080 swollen cubic yards (scy) of low-level radioactive waste, 1020 scy of mixed waste, containing both low-level radiological waste and polychlorinated biphenyls (PCBs) and/or VOCs, and 100 banked cubic yards of hazardous waste. In addition, approximately 6,500 scy of clean cover material will need to be excavated to support the removal of the waste in the landfill.

Priority 7 wastes include those present in the

east leg of the Historic Waste Area. The following Priority 7 waste volume estimates and waste types are used for planning purposes: 11,500 scy of low-level radioactive waste; 173 scy of mixed waste, containing both low-level radiological waste and PCBs and/or VOCs; and 575 scy of hazardous wastes.

[Note: Priority 6 soils consist of berm material between Priority 5 (Sanitary Waste Area) and Priority 7 (Historic Waste Area) and other material required to be removed during the cut back of the sides of the excavation to access the Priority 7 waste. The estimated volume of Priority 6 material for planning purposes is approximately 12,600 scy. Priority 8 soils consist of any remaining clean berm material that is required to be removed or managed following excavation of all the wastes and to support the final restoration and grading of the OU-1 area. For planning purposes, approximately 13,000 scy of clean berm material is expected to be generated during the excavation process.]

### Excavation Plan

The successful excavation methodologies used in the OU-1 work activities during 2007-2008 will again be employed. An excavation plan describing the general methodology of performing the work in the OU-1 Landfill Area will be used. The plan also includes an Emergency Response Plan, Worker Safety and Health Program Plan, Waste Management Plan, Radiological Management Plan, Verification Sampling and Analysis Plan, Environmental Investigation Plan and Waste Management Sampling and Analysis Plan.



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### **Schedule**

The OU-1 Landfill Area excavation work is scheduled to begin mid-summer of 2009 and be completed in May 2011. A summary of the excavation work and the verification data will be included in the OU-1 Landfill Area Closeout Report. The Closeout Report will be placed in the public reading room after the conclusion of the verification sampling and approval by the Core Team.

### **Cost**

The ARRA-funded excavation work scheduled for the OU-1 Landfill Area is estimated to cost about \$22.5 million.

### **Additional Information**

Additional information on OU-1 can be found in the public reading room, or by contacting Paul Lucas (DOE-Mound) at 937-247-2221.