



**Strategic Initiative 3 – Accelerate Waste Pits Subproject Description**

The Waste Pits subproject area is located in the northwest portion of the Fernald site on a 37-acre tract containing six waste pits, a burn pit, the clearwell, miscellaneous structures, facilities, and soil. The waste pits contain over 1 million *in situ* tons of low-level radioactive wastes derived from the refining and metallurgical processing of uranium ore concentrates and thorium over a 37-year period. The Operable Unit 1 Record of Decision specifies off-site disposal of the waste pit material at a permitted commercial disposal facility.

**Execution Strategy**

Fernald’s cleanup plan involves excavating the pits and surrounding contaminated soils, preparing and treating the waste using thermal drying to remove excess moisture, and transporting the waste by rail to Envirocare.



In 1997, Fluor Fernald awarded a subcontract to the IT Group (now known as Shaw Environmental & Infrastructure) to execute the pit excavation, waste treatment, and railcar loading for off-site shipment, while using on-site labor forces. A performance-based contracting model was used to award a fixed unit price subcontract.

Excavation was initiated in 1999 and is focusing on Pits 1 through 6, representing the majority of the volume in the pits. Excavation will then conclude with the remediation of the burn pit and the clearwell. Excavation of the pits is being performed with bulldozers and long-reach excavators that dig out the material and load it into dump trucks that haul the material to the Material Handling Building. There, the material is evaluated for moisture content and radiological levels. Based upon this evaluation, the material is then blended and/or treated by thermal drying to meet Envirocare’s waste acceptance criteria.



If the material needs to be dried, it is fed into one of two indirect fired rotary dryers, which use heat to remove the moisture. Off-gas from the drying process is treated prior to release into the atmosphere to ensure that air emission criteria are met; similarly, water generated through this process or from excavation activities is managed through the subproject’s wastewater treatment system prior to being discharged to the site’s Advanced Wastewater Treatment Facility. The removal of excess moisture through the rotary dryers is expected to reduce the volume of the waste pit material from over 1 million tons (*in situ*) to 810,000 tons (processed and shipped).

After processing, the waste material is sampled to ensure that it meets Envirocare waste acceptance criteria, then loaded into 110-ton gondola railcars. In addition to a permanent lining installed in each railcar, a disposable liner designed to contain the material is also used. Once loading of a railcar is complete, the disposable liner is folded over the waste and a lid is secured on the railcar.

Commercial rail carrier CSX Transportation ships the trains from Fernald to East Saint Louis, IL, where transport responsibility transfers to Union Pacific Railroad. Union Pacific then transports the unit trains to Envirocare. The railcars are emptied and the exterior of each railcar cleaned before the return trip back to Fernald. The subproject plans to ship 60 railcars per unit train at a rate of two to three per month through September 2004, for an estimated total of 127 unit trains.

**New Strategies to Achieve 2006 Closure**

In order to accelerate site closure from 2009 to 2006, the following initiatives were developed for the Waste Pits subproject:

- Adopt a 24-hour-per-day, 7-days-a-week schedule for dryer operation
- Utilize the On-Site Disposal Facility for selected subsurface and waste pits cover material disposition instead of disposal off site, contingent upon U.S. EPA and Ohio EPA evaluations



In accordance with the Operable Unit 1 Record of Decision, the Pit 4 cap was planned to be shipped off site with the waste pit material. However, because the cap was constructed using soil with low levels of contamination from several areas around the site, sampling of the Pit 4 cap was performed in October 2001 to demonstrate that 8,100 cubic yards of the material meets the on-site waste acceptance criteria. The subproject is currently pursuing this strategy through an amendment to the Operable Unit 1 Record of Decision. In addition, this amendment will: align technetium-99 soil cleanup levels in the waste pit area to be consistent with Operable Unit 5 levels; clarify terminology as it relates to the definition of contaminated liner; and eliminate the requirement for a final cap over the waste pits area to be consistent with the site’s restoration plans.

Sampling will be performed in phases as the bottoms of the waste pits are exposed, to determine the maximum amount of soil that meets the on-site waste acceptance criteria.



The Waste Pits subproject increased dryer operations to a 24/7 schedule and increased annual production to 200,000 tons to complete processing by September 2004.

The current assumption is that the first 6 inches of pit liner material will be disposed of off site, and the remaining contaminated underlying soil will meet on-site waste acceptance criteria and be disposed of in the On-Site Disposal Facility. Following the first phase of data collection beneath Pits 1 and 3, U.S. and Ohio EPA concurrence with the data findings will be sought.

**Current Subproject Status**

The subproject is 74% complete with 600,000 tons of waste from Pits 1 through 6 shipped to Envirocare on 94 unit trains. To support the acceleration of site closure from 2009 to 2006, the Waste Pits subproject increased dryer operations to a 24/7 schedule and

**Subproject Status:**

- Subproject is 74% complete
- 600,000 tons of waste pit material have been shipped
- 94 unit trains have safely traveled from Fernald to Envirocare in Utah
- Cost to Complete: \$101 million
- Subproject will be complete in January 2005

recently increased the annual production rate to 200,000 tons. In order to increase transportation capacities, 55 additional gondola railcars were procured, which increased Fernald’s fleet to 225 gondola cars. An additional 25 gondola railcars have been leased and will arrive in September 2003. The remaining 210,000 tons of waste will be shipped by September 2004 to meet subproject completion (which includes safe shutdown and demobilization) in January 2005.

**Key Actions and Responsibilities**

The following table lists the key actions needed to accelerate the Waste Pits subproject to meet 2006 site closure. Also included are the responsible organizations, the status of the key action, and the date that the key action is needed. The key actions for all eight strategic initiatives (subprojects) are compiled in Attachment 2.

Key Actions and Responsibilities for Waste Pits			
Action	Responsibility	Status	Date Needed
Procure 55 additional gondola railcars to increase transportation capacity	Fluor Fernald	Complete	—
Initiate 24/7 schedule for dryer operations to increase process capacity	Fluor Fernald	Complete	—
Increase annual production rate to 200,000 tons/year	Fluor Fernald	Complete	—
Pursue Operable Unit 1 Record of Decision Amendment to dispose of waste pit area soils in the On-Site Disposal Facility and align cleanup levels to be consistent with Operable Unit 5	DOE-OH and Fluor Fernald	In progress	Fall 2003
Demonstrate to U.S. EPA and Ohio EPA that the soil underlying the waste pits meets the on-site waste acceptance criteria	DOE-OH and Fluor Fernald	In progress	Fall 2003 (for first phase of sampling)