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PROGRESS REPORT OPERABLE UNIT 1 WASTE STORAGE AREA JULY 1991

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Fernald Site

Remedial Investigation/ Feasibility Study

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PROGRESS REPORT JULY 1991

Operable Unit 1
WASTE STORAGE AREA

Introduction

The Remedial Investigation/Feasibility Study (RI/FS) is the blueprint for cleanup at the U.S. Department of Energy's Fernald Site. The nature and extent of contamination at the site and surrounding areas is being thoroughly investigated so that appropriate remedial actions can be formulated and implemented.

The Fernald Site has been divided into five sections, known as Operable Units, for environmental investigation and cleanup. The Operable Units were defined based on their location or the potential for similar technologies to be used in the ultimate cleanup.

During the course of the RI/FS effort, certain conditions are occasionally identified which call for more immediate action. These actions are called "Removal Actions" and are initiated where there is a need to accelerate cleanup activities to address releases or potential releases of hazardous substances. Removal Actions are coordinated with the U.S. EPA and the Ohio EPA.

Following is a progress report on Operable Unit 1 including its history, the current status of RI/FS activities, cleanup alternatives under consideration, and work being done to alleviate near-term concerns.

Background

Operable Unit 1 includes the six waste pits, the burn pit and the clearwell. The six waste pits, constructed between 1952 and 1979, contain waste from past operations at the Fernald Site. No waste has been placed in any of the pits since the mid-1980s. Pits 1-3 are covered with soil. Pit 4 is covered with bentonite clay and a synthetic cover. Pits 5 and 6 are lined with synthetic membranes. The pits range in size from that of a football field to a baseball diamond and vary in depth from 13 to 30 feet. It is estimated that the six pits contain approximately 475,000 tons of waste, including uranium, thorium and other radioactive and chemical elements.

The burn pit, constructed in 1957, was used to burn laboratory chemicals and waste oils before it was taken out of service in 1970.

The clearwell was a settling basin for stormwater runoff from portions of the waste storage area including Pits 1-3 and Pit 5. Sediment in the base of the clearwell is estimated to be about 3.5 feet deep and contain concentrations of radionuclides and chemical constituents.

RI/FS Activities

- In May 1991, DOE completed the specifications and requirements needed to conduct field sampling and laboratory analysis of the soil berms at the western boundaries of Pit 3, Pit 5, and the Clearwell. Representative soil samples collected from the berms will be analyzed for radioactive and chemical contaminants. Geotechnical analysis of the soil samples from the berms is also being performed to confirm the stability of these retention structures.
- Additional sampling activities were initiated in the waste pit area in June 1991 to obtain additional information needed to complete Operable Unit 1 waste characterization and treatability studies. These activities involve the collection of samples and the installation of a number of shallow wells within several of the waste pits. Data generated from sample analysis will provide information about the chemical form and characteristics of the various materials in the waste pits, so better predictions can be made about the potential for contaminant migration. Samples of materials in the pits will be used to conduct tests and develop potential stabilization formulas for waste treatment technologies currently under consideration.
- RI/FS documents for Operable Unit 1 are on hold pending receipt of the needed characterization and treatability data.

Cleanup Alternatives

Five alternatives to cleanup the waste storage area have been identified.

The first alternative would involve stabilizing the waste, removing and treating standing water, and construction of a slurry wall, subsurface drains and a groundwater extraction system. This alternative would leave the waste in place, but eliminate

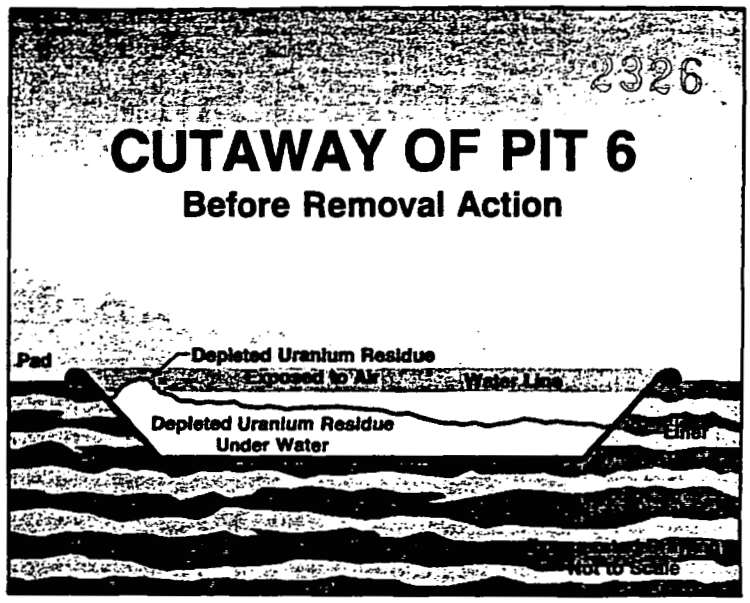
personal exposure and provide a system to prevent contamination from migrating into the groundwater.

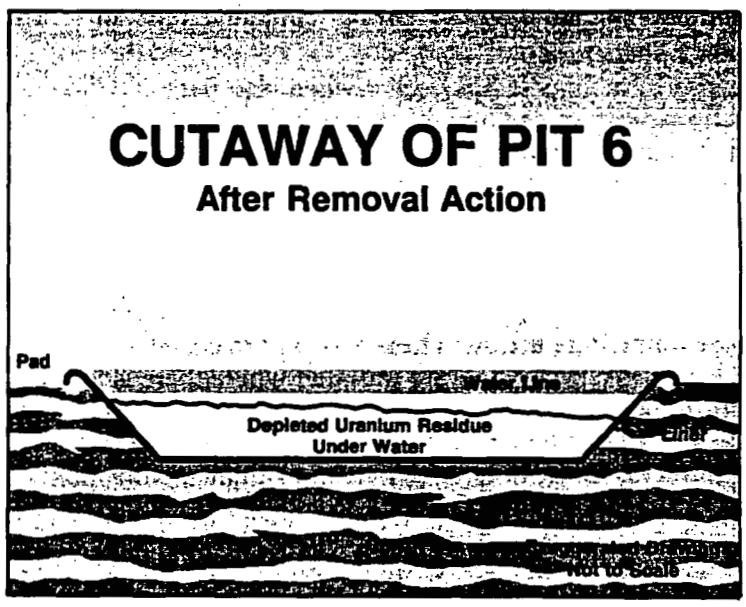
The second alternative would involve removing the waste and contaminated materials from their current location, stabilizing or treating the waste, treating and discharging standing water, and permanent disposal of the stabilized/treated waste in an engineered structure on the Fernald Site.

The third alternative is identical to the second, but with permanent disposal at an off-site facility.

The fourth alternative is similar to the second alternative and would involve removing the waste from the pits, but leaving in place the contaminated soils that surround the pits and fit them with caps.

The fifth alternative is the same as the fourth alternative except the soils would be treated in place prior to capping.





A removal action to submerge a mound of dried radioactive waste in Pit 6 was completed in December 1990 (see graphic cutaways above), reducing potential airborne emissions due to wind erosion from the Fernald Site's waste pit area.

Removal Actions

The *Waste Pit Area Stormwater Runoff Control Removal Action* is designed to collect and treat potentially contaminated stormwater runoff from the waste pit area to prevent it from reaching Paddy's Run Creek. DOE received U.S. EPA and Ohio EPA concurrence on the Work Plan for implementing the Waste Pit Area Stormwater Runoff Control Removal Action in April. The Sampling and Analysis portion of this Work Plan was modified as requested by the U.S. EPA and the Ohio EPA. These modifications include soil sampling for hazardous substance listed (HSL) contaminants in soils which are proposed to be disturbed during excavation operations as part of this removal action. Sampling and analysis for HSLs in the soils was completed in early June. The removal action will provide runoff control, as well as a collection system, designed to collect stormwater runoff from the waste pit area and allow it to pass through the Biodenitrification Surge Lagoon prior to discharge from the site. Work to remove contaminated soil, and excavation work to install drainage control structures, began in June. Project construction is scheduled for completion by July 1992, when the system is expected to be placed into full operation.

More information about Operable Unit 1 is available in the Public Environmental Information Center (PEIC), where Fernald Site cleanup documents are kept in the Administrative Record. The PEIC is located in the JAMTEK building, 10845 Hamilton-Cleves Highway, Harrison, Ohio, 45030. The telephone number is (513) 738-0164.