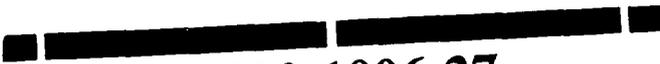


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**PROGRESS REPORT OPERABLE UNIT 5
ENVIRONMENTAL MEDIA FEBRUARY 1992**

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FACT SHEET**



Fernald Project

Remedial Investigation/ Feasibility Study

2936

PROGRESS REPORT

FEBRUARY 1992

Operable Unit 5 ENVIRONMENTAL MEDIA

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Introduction

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

The FEMP 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 when 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 5 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 5 encompasses the environmental media at the FEMP and surrounding areas that could be impacted by the facility. While other Operable Units focus on specific waste facilities or defined areas, Operable Unit 5 is concerned with those environments that could be affected by the FEMP. "Environmental media" includes the groundwater, surface water, soils, sediments, air, vegetation and wildlife throughout the FEMP and surrounding areas. The groundwater includes the Great Miami Buried Valley Aquifer, a source of water in the vicinity of the FEMP. Surface waters include the Great Miami River, Paddy's Run Creek, and the FEMP's storm sewer outfall ditch. Sediments in Operable Unit 5 include solid materials carried in stormwater runoff or

plant effluent discharges to surface waters or drainageditches. Soils on and off the FEMP boundaries also are being investigated for possible contamination due to past discharges or air emissions.

RI/FS Activities

Paddy's Run Seepage Investigation Study: An investigation continues to determine how Paddy's Run Creek interfaces with the Great Miami Buried Valley Aquifer. The study is evaluating the impact that leakage of surface water through the bed of Paddy's Run Creek might be having on local groundwater flow. A series of wells have been installed along Paddy's Run Creek, and sampling activities are in progress to determine the extent of any contamination in the aquifer at that location. Additional studies of the flow of the creek itself are under way to help determine what, if any, relationship exists between any identified contaminants in the aquifer at that location and the intermittent surface water flow conditions in the creek. This information is important to determine if, and what type, of response action may be warranted. Collected samples will be analyzed and resulting data will be included in the final Remedial Investigation and Feasibility Study reports for Operable Unit 5.

Reports: A Soil Washing Treatability Study Work Plan was submitted to U.S. EPA on December 10, 1991. Comments received from U.S. EPA in mid-January are being addressed by DOE. A revised work plan is due back to U.S. EPA by February 18, 1992. The work plan is designed to examine physical and chemical separation of uranium from soils. Significant cost and schedule improvements could be realized in the implementation of final remedial actions if an implementable soil washing treatment technology can be identified. Data generated from the study will be used to support the completion of the Operable Unit 5 Feasibility Study. The preparation of other Operable Unit 5 RI/FS reports is proceeding consistent with the schedules set forth in the 1991 Amended Consent Agreement.

Removal Actions

South Groundwater Contamination Plume (Removal No. 3): The purpose of this Removal Action is to protect public health by limiting access to the use of uranium-contaminated groundwater in an area south of the FEMP. This Removal Action is broken into five parts.

Part 1 includes installation of an alternate water source to an industry affected by the contamination plume. The drawings and specifications for supplying the industry with the large volume of water it requires have been completed. This portion of Part 1 was issued for bids on February 7, 1992. Construction is expected to begin in late March 1992, pending acquisition of required easements. This portion of the project involves the installation of production wells outside the plume area and a water distribution system to the industry. Analysis of samples taken from the selected well site, to determine adequacy of the quality and quantity of the extracted water, showed the groundwater in the well field area is within natural background levels for uranium. This portion of Part 1 of the Removal Action is scheduled to be operational by July 14, 1992.

Another industry, which requires only a small volume of water, will be provided with an alternate water supply by being tied into the proposed public water system.

Part 2 involves the installation of a groundwater recovery well system to pump groundwater from the South Plume through a force main and back to the FEMP for monitoring and discharge to the Great Miami River. As a result of information obtained from a separate remedial investigation that is being performed at the Paddy's Run Road Site (PRRS), additional concerns have been identified in the South Plume area.

The PRRS consists of several industries that in past years have reportedly released both organics and inorganics into the environment which have now found their way to the Great Miami Buried Valley Aquifer. The PRRS plume extends to very near the location of the proposed Part 2 well field as described in the November 1990 South Plume Engineering Evaluation/Cost Analysis (EE/CA). Operation of a uranium recovery well field at the location originally described in the EE/CA could result in the spreading and/or extraction and discharge of contaminants from this other plume to the Great Miami River.

As a result of these conditions, the Part 2 well field was relocated to an area north of the plume being investigated by PRRS. An addendum to the EE/CA entitled "Explanation of Significant Differences" was prepared to reflect the relocation of the well field. That document is available for review in the Public Environmental Information Center.

The FEMP's current effluent outfall pipeline to the Great Miami River will be discontinued due to its

age and limited capacity to handle future flow. A new effluent outfall pipeline will be installed under Part 2 of this Removal Action. The new outfall pipeline will parallel the existing outfall pipeline to the Great Miami River.

Part 2 work also includes increasing the pump-out capacity at the Stormwater Retention Basin to reduce the potential for future overflow of the basin. The drawings and specifications for the force main, the new outfall pipeline, and for providing increased pump-out capacity at the Stormwater Retention Basin, are complete.

Construction on this portion of the project is expected to begin in April 1992. The groundwater recovery well system is expected to be operational by January 1993.

Part 3 involves construction of an Interim Advanced Wastewater Treatment (IAWWT) system. The IAWWT system will remove uranium from site wastewater streams and, by doing so, will reduce the amount of uranium discharged to the Great Miami River. The design of the IAWWT system was modified to incorporate the additional treatment capacity required to address the relocation of the Part 2 well field. The new location is in an area of higher uranium concentration which means that more uranium will have to be removed from wastewater streams to achieve the desired reduction of uranium discharges to the river.

Two trailer-mounted IAWWT facilities are currently being fabricated off site. These facilities will comprise the IAWWT unit to be located near the Stormwater Retention Basin. Construction activities are scheduled to begin in February 1992.

Drawings and specifications are complete for a second IAWWT unit to be installed in the FEMP's existing Bionitrification Effluent Treatment building. The IAWWT system, which includes the unit at the Stormwater Retention Basin and at the Bionitrification Effluent Treatment building, is scheduled to be operational by July 30, 1992.

Part 4 of the removal action involves groundwater monitoring and institutional controls to prevent the use of contaminated groundwater. This activity is being implemented through the existing FEMP Groundwater Monitoring Program. The program has been expanded to include more frequent monitoring of private wells located near areas of known contamination.

Part 5 involves additional groundwater investigations in the vicinity of the South Plume. Additional investigations will be performed under Part 5 to identify the location and extent of any remaining contamination attributable to the FEMP remaining in the groundwater south (downgradient) of the recovery wells to be installed under Part 2.

The Part 5 investigation will include Hydropunch sampling, a soil vapor survey, sampling of existing monitoring wells, and groundwater modeling activities. Hydropunching is an efficient method for

extracting groundwater samples without the expense of installing wells. A soil vapor survey is used to help determine the presence of volatile organic compounds in subsurface soils and groundwater.

Because the U.S. EPA has issued a proposed limit of 20 parts per billion (ppb) for uranium in drinking water, the investigation will attempt to identify the location of the contamination in the aquifer exceeding the 20 ppb level. The information obtained will be used to allow the FEMP to limit access to this water until additional response actions for this area can be implemented.

Collect Uncontrolled Production Area Runoff - Northeast (Removal No. 16): The scope of this Removal Action is to collect stormwater runoff from perimeter areas of the 136-acre production area which are not presently draining into the Stormwater Retention Basin. The work plan for this Removal Action is on schedule to be submitted to U.S. EPA on or before March 2, 1992.

Cleanup Alternatives

While a range of alternatives are under consideration for dealing with contaminated groundwater, the most viable alternative currently appears to be pumping it out of the ground and returning it to the FEMP for treatment and discharge to the Great Miami River.

Cleanup alternatives for soils and sediments include removing them for disposal either at the FEMP or an off-site disposal facility, or treating contaminated soils and sediments in place and isolating the materials from the environment with a protective covering system.

More information about Operable Unit 5 is available in the Public Environmental Information Center (PEIC), where Fernald Project 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.