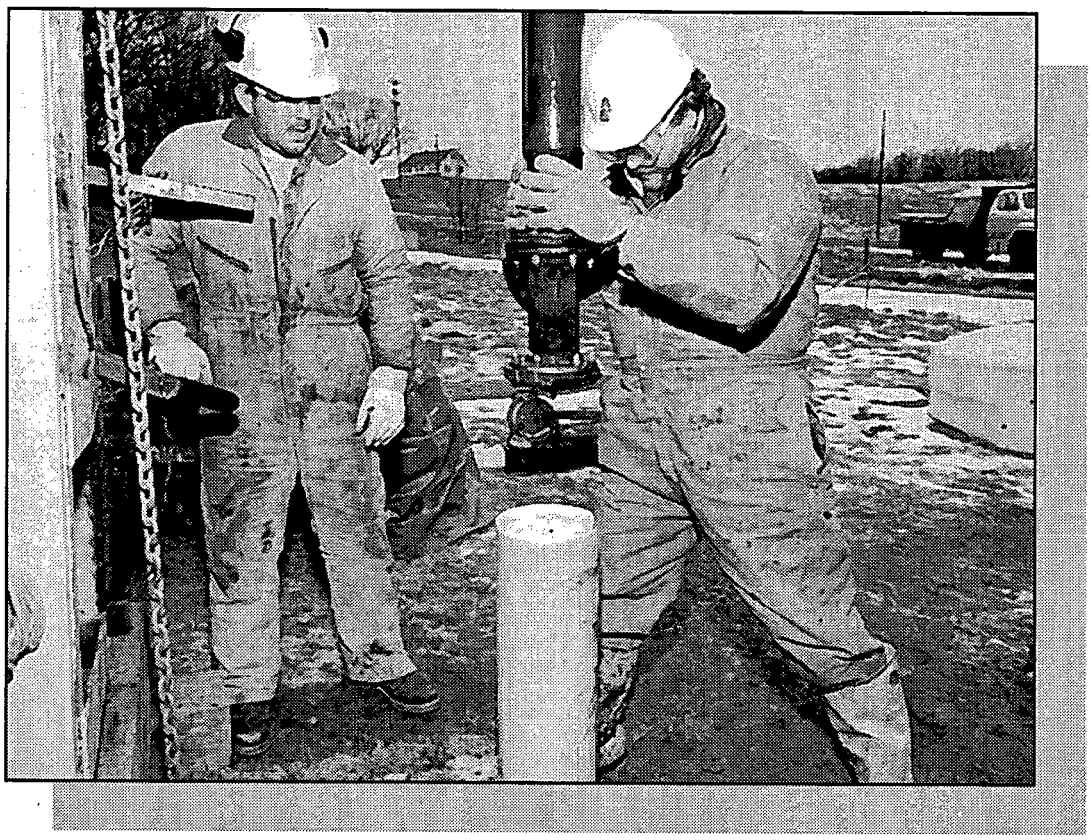
5-168.7 1390

Fact Sheet

Fernald Aquifer Restoration /Wastewater Project



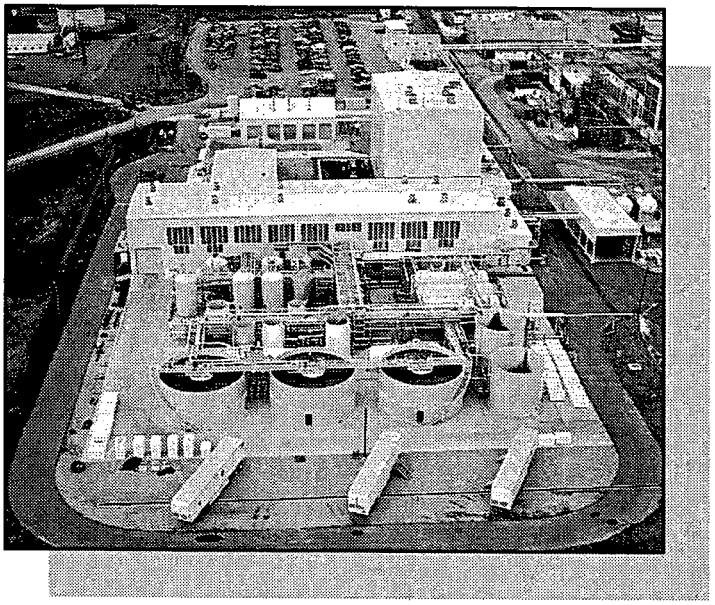
Fernald workers are developing a re-injection well to maximize the capability of the well to accept water (6501-34).

Description

The U.S. Department of Energy's (DOE) Fernald Environmental Management Project is located over the Great Miami Aquifer, one of the largest sources of drinking water in the nation. Following years of metal production, a small portion of the aquifer became contaminated with uranium from the site. The levels of uranium in the groundwater are above the health-protective concentration limit proposed by the Environmental Protection Agency (EPA). Consequently, the DOE will restore the contaminated portion, bringing the uranium concentration level to, or below, the allowable limit.

Cleanup Plan

The DOE's commitment to restore the aquifer is defined in the Record of Decision (ROD) for Operable Unit 5, one of the five areas at Fernald designated by EPA for remediation. The ROD calls for restoring the aquifer within 27 years by pumping the contaminated water to the surface and treating it for uranium, a process known as "pump-and-treat" technology. Four wells are now in operation south of the Fernald site. Since the pumping began in 1993, more than 2.6 billion gallons of



The Advanced Wastewater Treatment Facility uses an ion-exchange resin system to extract uranium from water before discharging to the Great Miami River (6385-459).

groundwater have been pumped and more than 360 pounds of uranium have been removed from the aquifer. The groundwater uranium concentration in the off-property area of the wells has already been reduced from more than 300 to less than 200 parts per billion.

The DOE is attempting to shorten the 27-year aquifer remediation to 10 years. The effort to reduce the length of the remediation includes the use of re-injection technology, wherein some of the groundwater pumped and treated will be injected back into the aquifer. This helps flush uranium contamination to pumping wells. Although simple in concept, the success of long-term, large-scale re-injection is unproven at Fernald. To work, the chemistry of the injected water must be in balance with that of the aquifer.

Evaluation of this technology is being sponsored by the DOE's Office of Science and Technology Subsurface Contaminants Focus Area. Tests yielded enough promising results to warrant a long-term, large-scale demonstration incorporated into the actual aquifer remediation design. If it fails, DOE will consider other strategies to reduce the length of remediation.

To meet treated effluent discharge requirements, an extensive system for moving, holding, treating, and discharging water has been developed at Fernald. Several treatment facilities are now removing uranium from controlled surface run-off from the more highly contaminated areas, remediation wastewater, and groundwater.

The Advanced Wastewater Treatment (AWWT) Facility began operating in 1995, with a design capacity of 1,100 gallons per minute (gpm). An expansion now under way will boost capacity to a total of 2,900 gpm. Most of the treated groundwater processed through the AWWT expansion will be re-injected back into the aquifer, with the remainder discharged into the Great Miami River.

DOE provided $6 million of a $10-million project to bring water to the affected area near Fernald. Completed in 1997, the project involved installation of a 12-mile line from the Bolton Water Treatment Plant and hook-ups to 132 homes within two miles of the site (6001-145).

For More Information...

More information about this and other Fernald cleanup projects is available in the Public Environmental Information Center, 10995 Hamilton-Cleves Highway (Delta Building), or on Fernald's Web site address: www.fernald.gov. Stakeholders can also learn about cleanup plans and progress at Fernald's monthly Cleanup Progress Briefings held on the second Tuesday of each month.

For specific questions about this project, call Rob Janke, DOE-Fernald project manager at (513) 648-3124, or send an e-mail to rob_janke@fernald.gov.

Graphics #4985 4/98