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**FACT SHEET: FERNALD ENVIRONMENTAL  
MANAGEMENT PROJECT DOE INITIATES  
GROUNDWATER PROJECT**

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# FACT SHEET: FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

3302

Fernald, Ohio

## DOE initiates groundwater project

Past operations at the U. S. Department of Energy's (DOE) former uranium processing facility at Fernald have resulted in uranium contamination of groundwater beneath and in an area south of the former Feed Materials Production Center. Uranium production at the site ended in July 1989, and all activities are focused on environmental restoration. The site is now known as the Fernald Environmental Management Project (FEMP).

As part of an Amended Consent Agreement with the U. S. Environmental Protection Agency (EPA) to clean up the Fernald site, DOE has begun a project to remove the groundwater contamination through the installation of a series of recovery wells and pipelines, limit further migration of the contamination plume, and protect the public from access to the contaminated groundwater.

The project is an extremely complex undertaking requiring detailed technical studies of groundwater flow patterns, careful engineering of the recovery system, and close coordination of DOE efforts with the requirements of federal and state regulatory agencies and the interests of area property owners as required by law.

The uranium contamination is present in the upper portion of the Great Miami Buried Valley Aquifer, and is referred to as the South Groundwater Contamination Plume (South Plume). The South Plume underlies land south of the FEMP, and is moving southward at an estimated rate of 200 feet per year. In early 1992, the center of the plume was located about 800 feet south of Willey Road, which borders the southern edge of the FEMP.

The contamination is estimated to be as high as 400 parts of uranium per billion parts of water (parts per billion, or ppb) near the center of the plume. The plume's outer boundary is defined by contamination in the 20-30 ppb range. In the cleanup agreement between DOE and U. S. EPA, a target level of 30 ppb was established as the level at which corrective action must be taken to protect residents. Recently, the U. S. EPA issued a proposed maximum contaminant limit of 20 ppb for uranium in drinking water.

The South Plume project is one of several Removal Actions initiated under the cleanup agreement between DOE and U. S. EPA. Removal Actions are near-term measures designed to reduce risk to public health and the environment, while final remediation actions for the ultimate cleanup of the FEMP are being developed through a comprehensive Remedial Investigation/Feasibility Study (RI/FS) process.

### Five-part plan developed

An Engineering Evaluation/Cost Analysis (EE/CA) was prepared to evaluate the cleanup alternatives for the South Plume Removal Action. Based on the EE/CA and its subsequent revisions, the South Plume Removal Action was divided into five separate parts.

- Part 1 includes installation of an alternate water source for an industrial firm whose water source was contaminated by uranium.
- Part 2 involves installation of a recovery well system to pump groundwater from the South Plume back to the FEMP for monitoring and discharge to the Great Miami River. The scope of Part 2 also includes installation of a new effluent outfall pipeline from the FEMP to the river, and increased pump-out capacity at the FEMP's existing Stormwater Retention Basin to reduce the possibility of future overflow.
- Part 3 involves construction of an Interim Advanced Wastewater Treatment system to reduce the amount of uranium discharges from the FEMP to the river.
- Part 4 involves groundwater monitoring and institutional controls to ensure that residents in the area do not use uranium-contaminated groundwater.
- Part 5 involves groundwater modeling and additional groundwater investigations in the area south of the Part 2 recovery well system.

The locations of the wellfields necessary for the completion of Parts 1 and 2 were determined based on scientific calculations using computer modeling and data from monitoring wells installed as part of the ongoing RI/FS effort. DOE designed the routing of the pipelines to keep construction costs as low as possible and to minimize the impacts on affected private properties.

The South Plume Removal Action has been influenced by a separate environmental investigation, unrelated to the FEMP, known as the Paddy's Run Road Site (PRRS). Several industries in that area have reportedly released various organic and inorganic contaminants into the surrounding soils and groundwater. Those contaminants have entered the underlying Great Miami Buried Valley Aquifer in the vicinity of the South Plume.

Since it was discovered that organic contaminants associated with the PRRS were so close to the originally proposed location of the wellfield planned for Part 2 of the Removal Action, it was decided to move the wellfield north to avoid influencing the PRRS contamination plumes or extracting the PRRS contaminants along with uranium-contaminated groundwater in the South Plume.

#### Private property access required

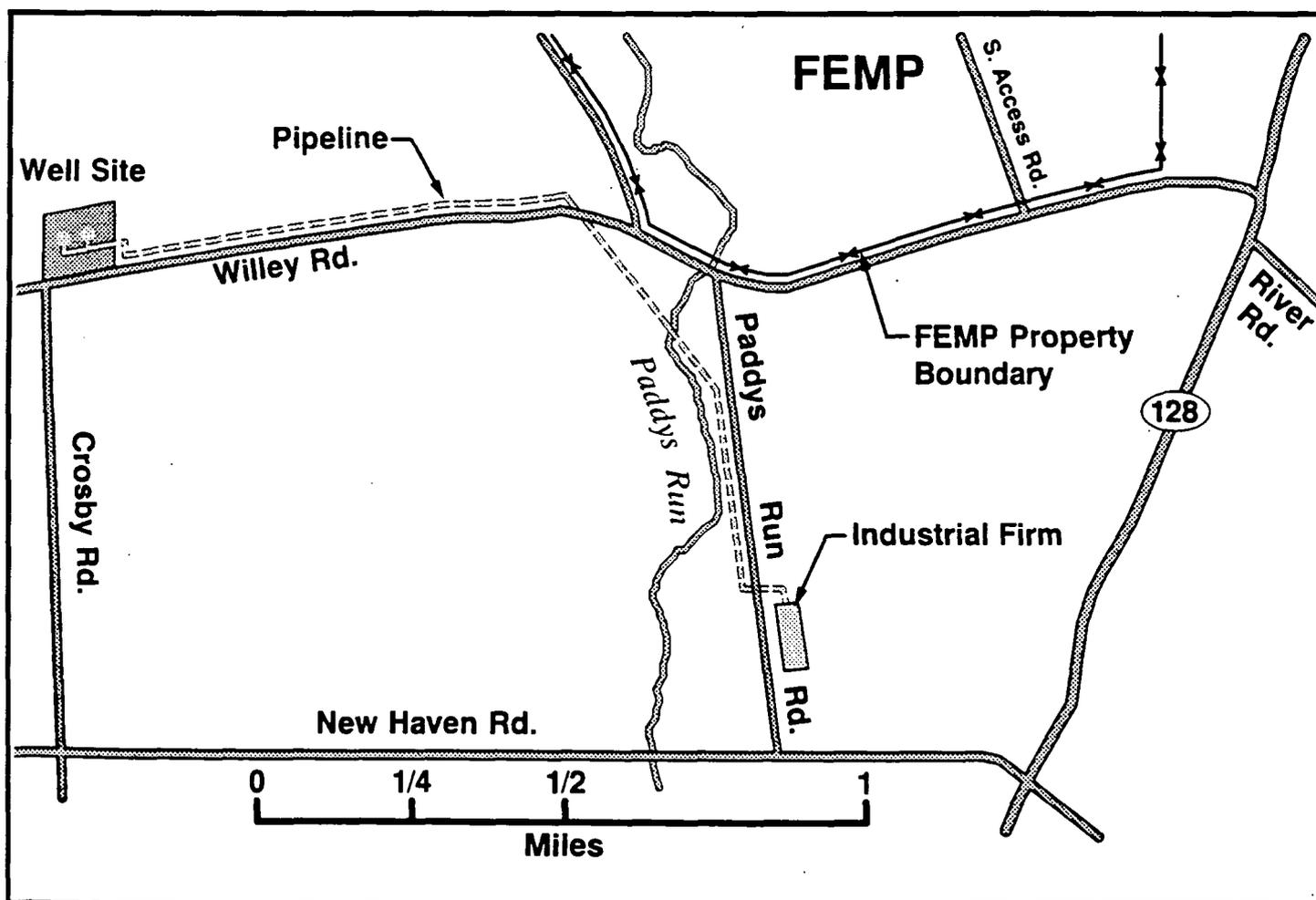
The installation of the wells and pipelines necessary for completion of Parts 1 and 2 of the South Plume Removal Action requires access and/or easement agreements from several private and industrial properties located in and adjacent to the South Plume area. Construction cannot be completed nor can pumping of the South Plume be initiated until access to all required properties has been gained.

The U.S. Army Corps of Engineers (COE) is negotiating on behalf of DOE to gain access and/or easements in support of Part 1, Part 2, and Part 5 of the Removal Action. Several property owners have denied access and/or refused offers to purchase easements for Part 1 and Part 2 projects. The COE continues to negotiate with these property owners, but the process as required by government real estate laws and regulations is lengthy and continues to delay the planned construction phase and initiation of the Removal Action.

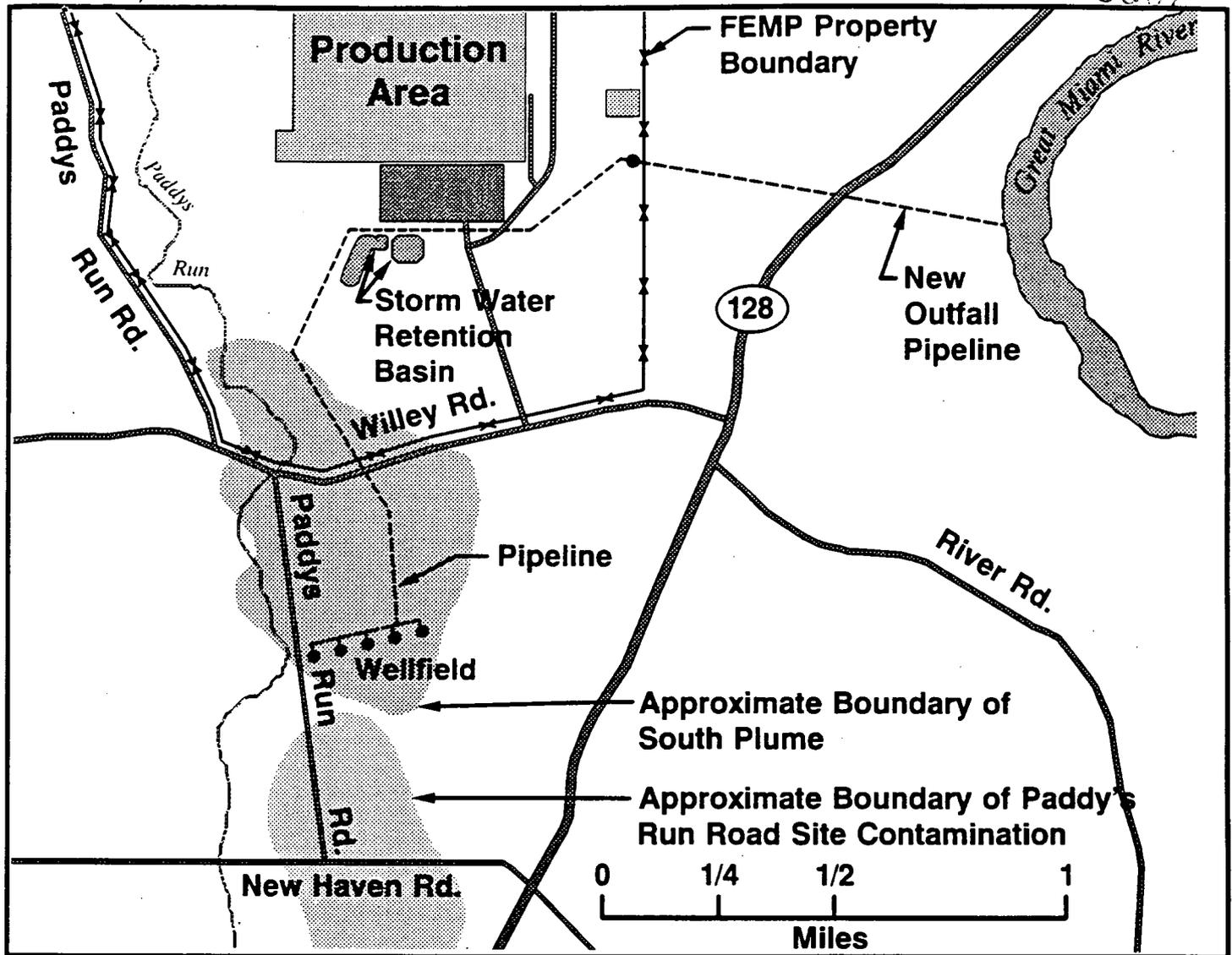
In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646, as amended by Public Law 100-17 and as set forth in Code of Federal Regulations 49 Part 24), the COE and DOE are negotiating for the acquisition of real property interest. Two property owners have rejected all offers made for three separate tracts where perpetual easement interest was pursued. Condemnation assemblies have been prepared for these three parcels and a fourth parcel where ownership cannot be determined. These assemblies are sent to DOE Headquarters for review and approval prior to submission to the Department of Justice.

#### Schedule extensions necessary

The DOE has informed the U.S. EPA that, due to the need to initiate and carry out condemnation proceedings, the milestone dates for Part 1 of the Removal Action cannot be met as established in the



PART 1 - ALTERNATE WATER SUPPLY



**PART 2 - GROUNDWATER RECOVERY WELL SYSTEM**

Amended Consent Agreement between the DOE and EPA. Schedule delays for Part 2 may also occur if negotiations with affected property owners fail and condemnation proceedings are necessary to acquire the easements. The milestone dates previously established in the Amended Consent Agreement assumed that access and/or easements to properties could be acquired voluntarily and that condemnation would not be necessary.

Most of the land required to complete Parts 1 and 2 of the Removal Action is currently used for farming or is open space. No homes or other structures will be affected, and no residents will have to move from their properties as a result of the implementation of this Removal Action.

Seven property easement tracts are required to complete Part 1. DOE has obtained access for construction from three of these property owners and field work is scheduled to begin in late May 1992. Condemnation proceedings are in progress to acquire access to the other four property tracts.

Easements on six properties are required for completion of Part 2. Property appraisals are being prepared and negotiations continue with these property owners, but condemnation proceedings may be needed to acquire access to some of these properties as well.

**The condemnation process**

Condemnation proceedings cannot be initiated until all reasonable efforts to negotiate the acquisition (under PL 91-646) have been met. This includes the establishment of fair market value for the needed interest and written notification to the owner containing the just compensation determined by the appraisal. If the property owner rejects the government's offer, then condemnation proceedings may be initiated.

The COE prepares a condemnation assembly which includes the Declaration of Taking and all pertinent information. This information is forwarded to the appropriate COE and DOE offices concurrently for review. Upon approval by the Secretary of Energy, DOE in Washington, D.C., the Condemnation assembly is

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Management Project

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transmitted by the COE to the Department of Justice for approval. Following approval by the Department of Justice, it is then transmitted to the U.S. Attorney General's office, which files a complaint along with a deposit of estimated just compensation in U.S. District Court. If appropriate, immediate possession to the property can be requested when the complaint and Declaration of Taking are filed in U.S. District Court. The court then reviews the complaint and renders a decision on possession of the property.

**Other work continues**

Work is proceeding on schedule for Part 3 of the Removal Action, which involves the installation of an Interim Advanced Wastewater Treatment (IAWWT) system. The IAWWT system will remove uranium from FEMP wastewater and, by doing so, will reduce the overall amount of uranium discharged to the Great Miami River from the FEMP (including discharges of uranium from the recovery wells in the South Plume area and other scheduled Removal Actions).

Two separate units currently under construction will comprise the IAWWT system. One of the units will be located on site near the Stormwater Retention Basin. The other unit will be located on site at the Bionitrification Effluent Treatment building. The IAWWT units are scheduled to be operational by July 30, 1992. The IAWWT system will operate at a total maximum flow of 400 gallons per minute and will reduce the FEMP uranium discharges to a level equal to or below 1,700 pounds of uranium per year.

Part 4 of the South Plume Removal Action is being implemented through the existing FEMP Groundwater Monitoring Program. This involves continued sampling of existing RI/FS groundwater wells and homeowner wells, and institutional controls (capping and locking contaminated wells) to prevent use of contaminated groundwater. The program has been expanded to include more frequent monitoring of private wells located adjacent to areas of known contamination.

Part 5 will involve additional groundwater investigations in the vicinity of the South Plume, and groundwater modeling to identify the location and extent of any contamination attributable to the FEMP remaining in the groundwater south (downgradient) of the recovery wells to be installed under Part 2. The objective of the Part 5 investigation is to locate where contamination in the aquifer exceeds the U. S. EPA's proposed 20 ppb limit for drinking water. The information obtained will be used to limit access to this water until additional response actions for this area can begin.

**Mark your calendar:  
the next planned Community Meeting is July 21, 1992.**