

## **Transferring the Wayne, New Jersey, Site to Beneficial Reuse**

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### **ABSTRACT**

The U.S. Department of Energy (DOE) included the Wayne, New Jersey, Site in the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1984, and the site was listed on the National Priorities List that same year. The U.S. Army Corps of Engineers (USACE) completed physical remediation of the site in 2006 and is pursuing regulatory closeout. In September 2006, DOE transferred the site to Wayne Township for park and recreational use.

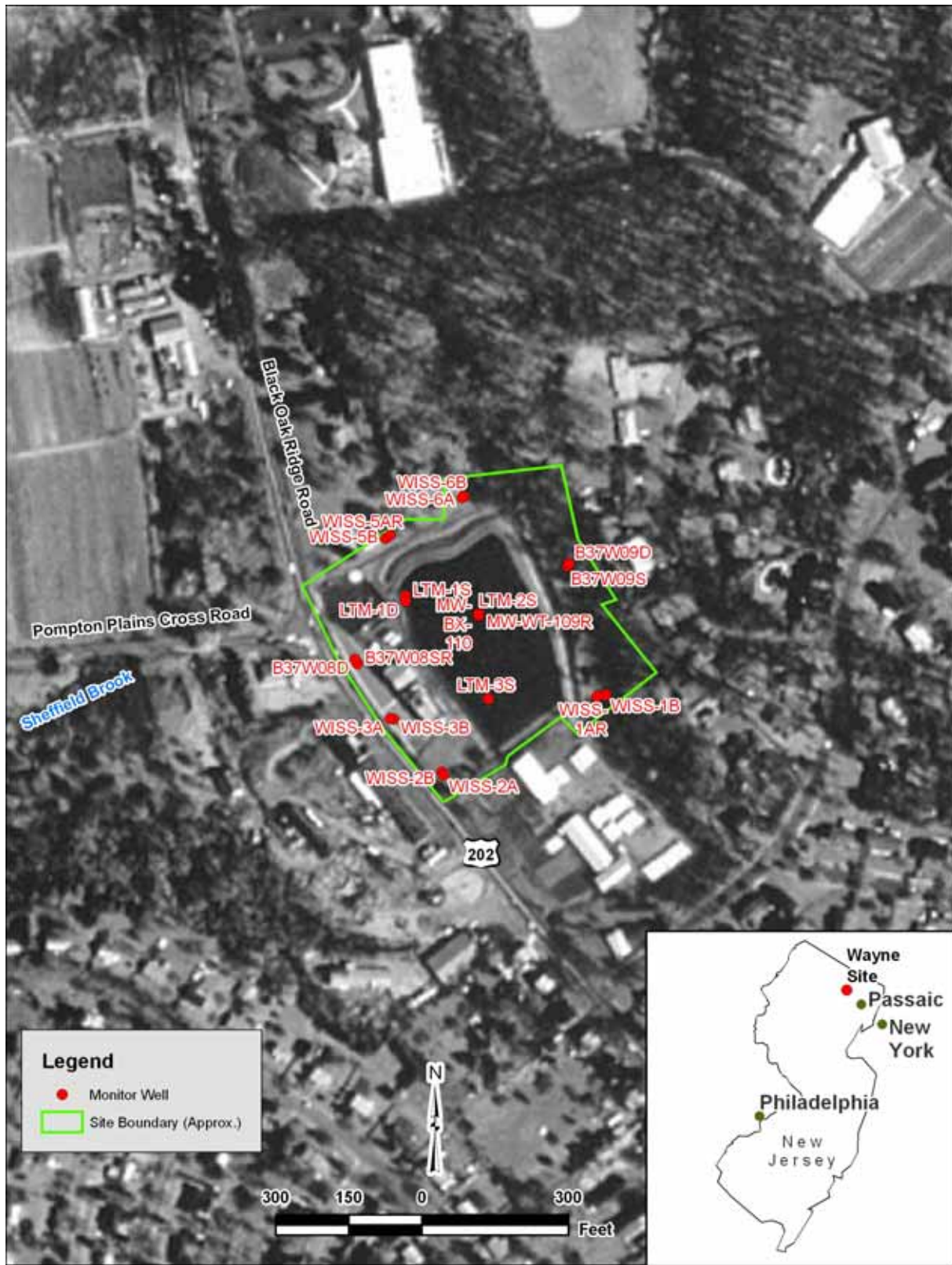
The transfer and reuse process involved the coordinated efforts of DOE, USACE, and other local, state, and federal agencies. DOE imposed an interim ground water use restriction as a best management practice until the regulators concur that the remedy is fully implemented and protective. An institutional control will be applied to potential contamination remaining beneath public rights-of-way.

This paper presents a discussion of the process of transferring site responsibility from USACE to the DOE Office of Legacy Management, transitioning the site to an appropriate new use that benefits the local community, long-term surveillance and maintenance requirements for the remediated site, the challenges that were identified and addressed, and lessons learned that may be applied to future FUSRAP site transfers.

### **INTRODUCTION**

The Wayne, New Jersey, Site contained radioactive waste and was listed on the National Priorities List (NPL). Between 1985 and 2006, the U.S. Department of Energy (DOE) and the U.S. Army Corps of Engineers (USACE) remediated the site to a condition that allows unrestricted use. DOE transferred the Wayne Site to Wayne Township on September 27, 2006. Remediation and transfer required close cooperation between the two agencies and resulted in returning this valuable suburban property to beneficial reuse. The new owner intends to use the 2.6-hectare (6.5-acre) property for a recreation facility. The transfer process and an analysis of lessons learned might be applicable to future transfers of remediated DOE property.

The site is located at 868 Black Oak Ridge Road in a mixed commercial-and-residential area of Wayne Township (Fig. 1). DOE transferred the Wayne Site to Wayne Township for recreational use through the National Park Service's Land to Parks Program. An institutional control may be required for residual radioactive contamination left beneath adjacent public roads. Other DOE



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Fig. 1. Location and land use at the Wayne, New Jersey, Site.

long-term surveillance and maintenance (LTS&M) requirements will consist of managing and preserving site information and responding to requests for information.

## **BACKGROUND**

### **History and Contamination**

W.R. Grace and Co., Inc. (formerly Rare Earths, Inc.) operated the Wayne, New Jersey, Site as a rare earth and thorium processing facility from 1948 to 1971. Contaminated waste materials were buried on site, and the facility license was amended in 1971 to allow only storage. In 1974, W.R. Grace demolished most of the site buildings and disposed of the debris on the site. The U.S. Nuclear Regulatory Commission (NRC) terminated the radioactive materials license in 1975, and the site was released without radiological restrictions with the provision that the locations of the buried radioactive materials were documented in land records.

A 1980 survey conducted by the State of New Jersey indicated radiological contamination at the site and nearby vicinity properties, particularly along Sheffield Brook from the site to the confluence with the Pompton River. The U.S. Environmental Protection Agency (EPA) listed the site on the National Priorities List.[1]

Contaminants at the site included thorium, uranium, and their decay products. Other contaminants included metals and organic compounds associated with the extraction processes. Contaminated media included soil, building debris, and ground water in the burial pits.

In 1984, Congress authorized DOE to conduct a decontamination research and development project at the site, and the site was included in FUSRAP. DOE acquired the site in 1985 for interim storage of contaminated material removed from vicinity properties because a permanent disposal option was not available.

### **Initial Remediation Activities**

DOE conducted remedial action between 1985 and 1987 at nearby vicinity properties and used the Wayne Site for interim storage of contaminated soil and debris. DOE remediated additional vicinity properties in 1993. Remediation of assessed contaminated materials at Wayne vicinity properties was conducted using then current cleanup standards. In 1997, DOE shipped the interim pile off site for permanent disposal. USACE began removal of the buried process wastes in 1998. By 2000, USACE had shipped more than 40,000 cubic yards of contaminated material off site for permanent disposal.

### **Final Site Remedy**

After the initial removal action was completed, USACE developed a comprehensive assessment and engineering design for final remediation of the Wayne Site. The final remedy was documented in the April 2000 *Record of Decision for the Wayne Interim Storage Site*. [2]

The 2000 Record of Decision established the following remedy:

- Demolish the site operations building and dispose of debris;
- Remove radiologically contaminated soil and dispose of at a licensed off-site facility;
- Treat ground water removed from excavation before release;
- Maintain the integrity of the clay layer overlying the shallow sand-and-gravel aquifer, which serves as a hydraulic barrier;
- Monitor site ground water for 5 years to establish ground water quality after contaminated material has been removed; and
- Restore the site to allow future beneficial use.

In 2003, USACE published an Explanation of Significant Difference.[3] USACE documented that contaminated soils are assumed to remain beneath Black Oak Ridge Road and Pompton Plains Cross Road. Passiac County has agreed to notify USACE when the soils become accessible. Also, USACE reviewed the final site conditions at vicinity properties remediated by DOE between 1984 and 1987 and in 1993. The then-current DOE cleanup standards for radionuclides in soil were higher than the site cleanup standards established in the 2000 Record of Decision. Therefore, USACE conducted additional remediation at two vicinity properties, Sheffield Park and a small right-of-way area adjacent to Pompton Plains Cross Road.

### **Remedial Action**

In accordance with the April 2000 Record of Decision, USACE removed an additional 55,410 cubic yards of contaminated process waste, soil, and building debris, which was transported to a licensed off-site disposal facility. During this activity, USACE treated and released approximately 20 million gallons of storm water and water removed from excavations. The site has been restored with grasses; the chain-link security fence was left in place (Fig. 2).

USACE initiated the 5-year ground water monitoring program in 2002, and the last sampling event occurred in May 2006.

### **Unrestricted Use after Regulator Concurrence**

The remedy selected in the 2000 Record of Decision prescribed actions that would result in site conditions that allowed unrestricted use.[2] This unrestricted use was substantiated with a health risk assessment which demonstrated that site risks would not be unacceptable if the selected remedy were implemented.



**Fig. 2. Wayne, New Jersey, Site frontage, September 2005.**

### **Ground Water Monitoring**

New Jersey law requires that affected stratigraphic units bounding a water resource must be monitored to determine the potential for contaminating ground water. At the Wayne Site, the disposal areas were in surface deposits that are underlain by a clay layer, below which is a sand-and-gravel aquifer. The clay layer is mostly continuous and provides a hydrological and geochemical barrier to downward movement of contaminants. Ground water in the aquifer has an upward hydraulic gradient, further isolating any residual contamination from the aquifer.

Although monitoring demonstrated that the ground water in the aquifer was not degraded by site contaminants, USACE installed shallow monitor wells in the backfill soils in the former on-site disposal areas. The soil backfill is essentially impermeable and the well yield is low. The wells recover very slowly and are sampled by collecting the fluid that has accumulated in the well bore since the previous sampling. In the backfill wells, several well-bore fluid samples contained elevated gross alpha activities. USACE analyzed the samples for uranium to determine the source of the gross alpha activity and found that uranium concentrations were elevated. When the uranium contribution is subtracted from the gross alpha activities, gross alpha results do not exceed ground water standards at any location on the Wayne site. There is no uranium standard for site ground water.

The selected remedy specified monitoring for 5 years to assess ground water quality; trend analysis may also demonstrate that the conditions are stable. The uranium concentrations in fluids within the backfill soils do not constitute a hazard because of limited yield; consequently, exposure pathways are incomplete.

## **Regulatory Closeout**

The New Jersey Department of Environmental Protection (NJDEP) and EPA accepted the Final Post-Remedial Action Report in 2004, signifying that site remedial action construction is complete.[4, 5]

## **Protectiveness**

Implementation of the selected remedy resulted in no unacceptable risks to human health or the environment under any future land-use or exposure scenario. Protectiveness will be documented through EPA and NJDEP approval of the Final Closeout Report. This action is anticipated in late 2006 or early 2007.

## **National Priorities List Delisting**

EPA will take the lead to remove the Wayne Site from the NPL. USACE may assist in writing the final closeout report, which will establish that the selected remedy has been implemented and the site is protective of human health and the environment. Upon EPA approval of the report, EPA will follow Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) protocols for deletion.

## **TRANSITION PROCESS**

DOE property transfers are implemented in accordance with DOE Order 430.1B, *Real Property Asset Management* [6] and DOE Order 413.1A, *Management Control Program* [7]. These orders prescribe the processes for declaring a property surplus, disclosing involvement with hazardous materials, and complying with federal real property laws and regulations.

DOE has mandated that as much remediated property as possible will be returned to non-DOE ownership for beneficial reuse. This is in accordance with Executive Order EO 13327, *Federal Real Property Asset Management*. [8] The Wayne, New Jersey, Site was an obvious candidate for reuse. Final site conditions resulted in an undeveloped parcel that could be used for any purpose. The property is located in a heavily developed area primarily used for residential and commercial purposes.

DOE evaluated the environmental impact of the transfer and developed an environmental checklist in accordance with the National Environmental Policy Act (NEPA). The evaluation process resulted in the conclusion that transfer of the Wayne property to a non-DOE owner for recreational use would not result in a significant impact. The DOE NEPA Compliance Officer categorically excluded the transfer from further NEPA consideration on April 26, 2006.[9] Transfer of the Wayne property required the coordinated support of the General Services Administration (GSA), National Park Service (NPS), USACE, and local government (Table I).

Table I. Agency Responsibilities for Remediation and Transfer of the Wayne, New Jersey, Site

Action	Agency
Complete remedial action	USACE
Assess residual risk	DOE
Document hazards – Standard Form 118, “Report of Excess Real Property”	DOE
Prepare best management practice ground water use restriction	DOE
Document historical activities and final conditions – CERCLA Section 120(h)	DOE
Confirm real property description	DOE/GSA
U.S. Department of Health and Human Services Right of Refusal	DOE/GSA
Assignment to NPS Land to Parks Program	GSA
Transfer to township	NPS/DOE
Regulatory closeout	New Jersey Department of Environmental Protection/EPA
LTS&M	DOE

### Deed and Title

DOE commissioned a legal survey of the Wayne Site in 1995 to confirm property boundaries as documented in public records and indicated by lines of usage. The survey revealed that the residence west of the property encroached upon the land owned by the United States of America. In 2002, USACE commissioned another survey to determine the extent of the encroachment with respect to the existing chain-link security fence surrounding the Wayne Site. These survey instruments were sufficient for transfer.

### Best Management Practice Ground Water Use Restriction

To complete the transition of the Wayne Site before the regulators provided final concurrence in protectiveness, DOE imposed a ground water use restriction on the property as a best management practice. The use restriction was incorporated into the disclosure and covenant required under CERCLA Section 120(h), which is appended to the deed. The restriction prohibits well drilling or water extraction from within the site boundary without DOE and NJDEP approval. This provision allows the owner to install a water well to remove ground water from the uppermost aquifer if DOE and the state approve the well configuration.

The selected remedy for the Wayne Site does not include any use restrictions within the property boundary. DOE will remove the restriction upon receiving the approved Final Closeout Report,



which will indicate that the regulator agrees that the restriction is not needed to maintain site protectiveness. Removal will entail amending the deed restriction. Until then, the restriction applies to Wayne Township and subsequent owners. Because the restriction is not a component of the selected remedy, DOE reserved the right to remove the restriction at its sole discretion.

### **General Services Administration Support**

DOE retained GSA to execute the real property transfer. GSA was tasked to complete the transfer in accordance with applicable regulations governing disposition of federally owned property. DOE submitted an Excess Real Property Checklist to GSA in winter 2006. The checklist documents site setting, cultural and environmental attributes, and hazards. The checklist helps ensure compliance with applicable federal and state laws and regulations.

In February 2006, DOE submitted a CERCLA Certification to GSA that disclosed the history of involvement with hazardous materials and indicated the remedial action closeout was not yet complete. The certification also described the best management practice restriction on ground water use that DOE would impose to allow the property transfer to proceed.

Regulations require that federally owned property first be offered to other federal agencies. The Department of Health and Human Services evaluated the property for use for low-income housing through the Department of Housing and Urban Development. Because the Excess Real Property Checklist indicated the property was historically used for radioactive materials processing and storage and was currently on the NPL, the Department of Housing and Urban Development signified the determination that the parcel was not suitable for its purposes.

DOE submitted the CERCLA Section 120(h) disclosure and covenant to GSA in February 2006.[10] This document complied with CERCLA requirements, including reservation of right of access for future investigations or remedial action, if needed. The disclosure also imposed the best management practice restriction on ground water use that was previously described.

GSA revised the description of the DOE-owned property to exclude the encroachment. The encroached-upon property was transferred to the adjacent property owner through a quitclaim deed.

### **Site Transfer**

On June 12, 2006, GSA assigned the property to NPS to convey to Wayne Township through the Land to Parks Program for public park and recreational use.[11] The assignment included the legal description of the property and the CERCLA 120(h) disclosure, covenant, reservation of right of access, and ground water use restriction, which were incorporated into the deed. GSA authorized a discount of as much as 100 percent of the assessed value for the transfer. Transfer of the Wayne, New Jersey, Site from DOE to Wayne Township was completed in September 2006.



## **LONG-TERM SURVEILLANCE AND MAINTENANCE REQUIREMENTS**

The Record of Decision specifies a remedy which will result in site conditions that will be protective for any use. Therefore, active LTS&M (e.g., inspections, maintenance, or monitoring) will not be required. DOE requirements will consist of managing site records and responding to inquiries from stakeholders. USACE will convey site information to DOE that consists of the CERCLA Administrative Record, verification and closeout documentation, and other pertinent site documents. USACE will submit other remedial action documentation, such as procurement and contract information, to the Kansas City Federal Records Center for permanent retention. USACE will retain all documentation that might include sensitive, proprietary information, or information managed under the Privacy Act. DOE will have metadata for the information USACE retains and will be afforded supervised access, if necessary.

### **Institutional Controls**

USACE identified radiological contamination along the course of Sheffield Brook. Remediation included accessible areas on both sides of Black Oak Ridge Road and downstream along Pompton Plains Cross Road. However, contamination was not removed from within the rights-of-way beneath the paved road surfaces. Therefore, contamination may remain beneath the pavements, although these areas were not characterized. USACE will work with EPA to establish an agreement with the owner of the roads to assess the potentially contaminated area and remove any material exceeding standards when these areas become accessible during road reconstruction. DOE and USACE will coordinate to determine which agency assumes the responsibility to periodically contact Passiac County to check when the roads are scheduled for reconstruction.

DOE will amend the deed restriction to remove the ground water use restriction upon receiving the approved Final Closeout Report. Until the restriction is removed, DOE will monitor the restriction by periodically checking state records for well permits on the property, contacting the responsible agency within the Wayne Township government to ensure awareness of the restriction, and conducting site inspections.

## **LESSONS LEARNED**

### **DOE/USACE Cooperation**

DOE could not have completed the transfer of the Wayne Site without the cooperation of USACE. According to the 1999 Memorandum of Agreement between DOE and USACE, DOE has no involvement in remedy selection, remedial action, and site closeout. USACE supported the DOE action to transfer the site to Wayne Township as a professional courtesy to enable DOE to meet its goals for property reuse. USACE provided documentation and information on site conditions and regulatory activities, survey and graphics information, and monitoring results. USACE also accommodated the DOE request to collect duplicate samples from the monitor wells associated with the Wayne Site.

## Records and Information

The Wayne Site transfer served as a test case for information exchange between USACE and DOE. DOE assessed information available in the public domain and determined that additional information was needed to complete the evaluation of site postclosure-care requirements and real-property transfer documentation. USACE provided the requested information. Cooperation between the agencies was essential for DOE to meet the goals of site transfer and preparation to assume LTS&M responsibility of the site.

## Monitoring

DOE participation in the USACE sampling activities at the Wayne Site allowed staff of the two agencies to compare methods, procedures, and multi-laboratory quality checks (Fig. 3). These activities allowed DOE to prepare for assuming monitoring responsibilities at other FUSRAP sites because DOE was able to ensure that the methods and procedures produced representative and reproducible results.



**Fig. 3. Collection of ground water samples at the Wayne, New Jersey, Site.**

In 2005, DOE analyzed samples for the same suite of analytes for which USACE samples were analyzed, which included isotopic uranium analyses. Because the results of the 2005 samples indicated that uranium isotope ratios represented typical natural abundances, DOE analyzed samples for only total uranium and selected metals in 2006. This information reduced the required sample volume that was difficult to obtain from the backfill wells, site time for collection, and analytical costs.

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#### **ACKNOWLEDGMENT**

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