

**EPA Superfund
Explanation of Significant Differences:**

**ROCKY HILL MUNICIPAL WELL
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ROCKY HILL BOROUGH, NJ
08/15/2005**

EXPLANATION OF SIGNIFICANT DIFFERENCES

ROCKY HILL MUNICIPAL WELL FIELD

Site Name and Location

Rocky Hill Municipal Well Field
Montgomery Township
Somerset County, New Jersey

Introduction

The purpose of this Explanation of Significant Differences (ESD) is to explain the changes made by the United States Environmental Protection Agency (EPA) to the groundwater remedy selected in its June 30, 1988 Record of Decision (ROD) for the Rocky Hill Municipal Well Superfund Site (the Site). The ROD calls for extraction of contaminated ground water from the primary source area followed by on-site treatment and reinjection of the treated water back into the underlying aquifer.

EPA issues this ESD in accordance with Section 117 (c) of the Comprehensive Environmental Response, Compensation & Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. § 9617 (c) and Section 300.435(c) (2) (i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.435 (c) (2) (i).

The ESD and documents that provide the basis of the ESD decision will be incorporated into the Administrative Record for the Site in accordance, with Section 300.825 (a) (2) of the NCP. The Administrative Record is available for review during business hours at EPA Region 2, 290 Broadway, New York, NY 10007, and at the information repository in the Mary Jacobs Memorial Branch Library, 62 Washington Street, Rocky Hill, New Jersey.

Site Location, History, Contamination Problems, Selected Remedy

The Rocky Hill Municipal Well (RHMW) Site is located in Somerset County, New Jersey in the vicinity of the intersection of U.S. Route 206 and south of N. J. Route 518. The Rocky Hill municipal well is located on a 2 acre tract of land in the Borough of Rocky Hill, which services the residents of Rocky Hill.

RHMW wells numbered 1 and 2 were constructed in 1936. These two wells provided a source of potable water to the Borough of Rocky Hill. Well number 1 was abandoned and sealed between 1976 and 1978. In 1978, a study by Rutgers University on the RHMW revealed trichloroethene (TCE) contamination in groundwater at 25 parts per billion (ppb). Continued testing of this well by the Borough of Rocky Hill from 1978 to 1983 indicated that the TCE concentration ranged from about 50 ppb to 200 ppb. Due to the elevated levels of TCE in water, well number 2 was closed in

November 1979. Levels of TCE in the well water eventually declined and the well was subsequently reopened. Levels of TCE, however, increased, and the well was closed for a second time in January 1982. During the shutdown of well number 2, the borough of Rocky Hill obtained potable water from Elizabethtown Water Company. After the installation of two air stripping units by the borough for well number 2, the well reopened as a potable source of water in July 1983. Discovery of contamination in the Rocky Hill municipal well led the New Jersey Department of Environmental Protection (NJDEP) investigators to sample the residential wells of the neighboring Montgomery Township Housing Development (MTHD). The sample results detected the presence of TCE in domestic wells of residences within the MTHD. In March 1981, Elizabethtown Water Company water lines were installed in the MTHD, and residents were advised not to use well water.

In 1983, the Site was included on the national priorities List. In 1984, NJDEP entered into a Cooperative Agreement with EPA under which it performed the remedial investigation and feasibility study (RI/FS) for the RHMW Site.

In April 1988 NJDEP issued a remedial investigation (RI) report which identified the nature and extent of the groundwater contamination and concluded that the source of groundwater contamination to the RHMW and MTHD sites was at or in the vicinity of the Princeton Gamma-Tech, Inc. facility located on Route 518.

EPA issued RODs for both the MTHD and RHMW Sites in June 1988. Both sites are being addressed jointly due to their close proximity and the similarity of contaminants present. One remedy was chosen which addresses the entire groundwater contaminant plume beneath the Sites. The remedy called for the extraction of contaminated groundwater from the primary source area followed by on-site treatment and reinjection of the treated water back into the underlying aquifer; connection of affected residences to the public water supply; sealing of private water supply within the contaminant plume; and implementation of a groundwater sampling program to monitor the effectiveness of the cleanup.

In 1988, the new Jersey Department of Environmental Protection (NJDEP) began to design the remedy for the Site employing Camp, Dresser, & McKee (CDM) as its contractor. Initial remedial design (DR) work included construction and sampling of new monitoring wells, and sampling of existing monitoring wells. During the RD it was found that contamination has been detected in a down gradient well (MW-19), located on the east side of the Millstone River, that did not previously contain detectable levels of TCE in previous sampling events. This indicated that the groundwater plume was migrating beyond previously estimated contamination boundaries. The RD also indicated the concentrations of TCE found in a major source area of groundwater contamination in the Princeton Gamma-Tech, Inc. property well (well PGTMW-1) has increased from 5,000 parts per billion (ppb) in the 1980s to 1,800 ppb of TCE by 1992.

In 1991, cost recovery litigation was initiated between the Potentially Responsible parties (PRPs) and EPA. In 1994, the PRPs indicated an interest in negotiating the implementation of the remedy and the RD contract between NJDEP and CDM was suspended. Separate negotiations began in 1995 between EPA and a prior operator and current owner of the former Fifth Dimension Facility to

investigate and additional potential source of contamination. Negotiations were unsuccessful and EPA conducted an investigation at the property. The results of the investigation at the Former Fifth Dimension Facility showed that it was a source of TCE groundwater contamination with a maximum concentration of 89 ppb of TCE in groundwater.

In December of 1996, the lead for the remedial design and implementation of the remedy at the Site was transferred from NJDEP to EPA.

In January 1988 EPA performed a limited site-wide groundwater sampling event to determine the current vertical and horizontal extent of the groundwater contamination plume. The analytical results showed that TCE contamination concentrations, while still significantly elevated above the state drinking water standard of 1 ppb, had further decreased. TCE was detected in the groundwater at the Site at levels ranging from non-detect to a high of 340 ppb. EPA restarted the RD work following the conclusion of unsuccessful settlement negotiations between the parties in 1999. In August 1999, EPA contracted through the U.S. Army Corps of Engineers (USACE) through an interagency agreement for the completion of RD work at the site. USACE has subcontracted with CDM Federal programs Corporation to complete the work.

In 2001, EPA re-evaluated the remedy selected in the 1988 ROD in order to assure its technical merits and conformance with all current Agency guidance and policy. This re-evaluation included the review of all relevant guidance and policy generated since the ROD to determine if post-ROD policy and guidance would have an impact on the planned cleanup at the Site. This review indicated that the selected remedy complies with all current, relevant guidance and policy, is protective of human health and the environment and remains the appropriate remedy to address contamination at the Site.

CDM resumed RD field work in February 2001. As part of this work, 20 bedrock monitoring wells were re-constructed to further refine groundwater sample collection. Following bedrock monitoring well construction, additional rounds of groundwater sampling were conducted in 2002. The information obtained from these sampling events suggest that concentrations of TCE have decreased in the aquifer between 1998 and 2002. Although levels have decreased from those found in previous sampling events, TCE contamination in groundwater remains at levels several hundred times greater than the health-based MCL for TCE of 1 ppb. The remedial design for groundwater pumping and treatment was complete in August 2003.

Description of the Significant Differences and the Basis for those Differences

The differences between the remedy selected in the 1988 ROD, and the actions described in the ESD relate to the treatment of the groundwater and the discharge of the treated effluent.

As mentioned above, the components of the remedy selected in the 1988 ROD that address site-wide groundwater impacted by volatile organic compounds (VOCs) are summarized below:

1. Extraction of the contaminated groundwater through pumping followed by on-site treatment through air stripping to achieve federal and state cleanup standards, and reinjection of the treated groundwater back into the underlying aquifer;
2. Connection of any remaining affected residences to the public water supply;
3. Sealing of private water supply and monitoring wells within the contaminant plume; and
4. Implementation of a groundwater sampling program to monitor the effectiveness of the cleanup.

Construction of the groundwater treatment systems commenced in march 2004; all except 3 residential properties have been hooked up to the municipal water supply (those 3 residents declined EPA's offers to hookup to the public water supply); and approximately 30 residential wells are in the process of being sealed.

This ESD focuses on the component of the remedy chosen in the 1988 ROD which called for extraction of the contaminated groundwater within the primary plume through pumping followed by on-site treatment through air-stripping and reinjection of the treated water back into the underlying aquifer.

With this document, EPA, after consultation with NJDEP, modifies the selected remedy for the groundwater as follows:

1. liquid-phase granular activated carbon (GAC) adsorption will be used for groundwater treatment in lieu of air stripping with vapor-phase activated carbon off-gas treatment; and
2. surface water discharge of the treated groundwater will be used as an alternative to effluent reinjection via injection wells.

Air stripping and GAC adsorption are both recognized by EPA as best available technologies (BATs) and presumptive ex-situ treatment technologies for VOC removal from water. A technical evaluation of these two treatment options was completed in 1994. The results of this evaluation support the use of GAC adsorption based upon cost savings and broader operational flexibility and control (e.g., hydraulic operating range, effective treatment range according to influent water quality).

Given the reduced size of the primary TCE plume and the simplified and less costly operation of a surface discharge of treated water, injection of treated water is not required to provide hydraulic control and to flush contaminants from the aquifer. Furthermore, injection wells are prone to biological and inorganic fouling as a result of differences in water chemistry between the groundwater effluent and the aquifer. Chemical and physical treatment of injection wells is typically

required on a routine basis in order to maintain adequate hydraulic capacity for reinjection. Even with such treatment, hydraulic capacity generally decreases with time, eventually resulting in the need to replace injection wells. Given these considerations, surface water discharge via connection to the existing storm water sewer is the preferred option for effluent disposal. Treated water will be discharged to the existing storm sewers near the locations of the groundwater treatment facilities. These storm sewers ultimately discharge into the Beden Brook, a tributary of the Millstone River. A New Jersey Pollutant Discharge Elimination System permit equivalent for discharge of the two groundwater treatment systems to the Beden Brook was issued by NJDEP on March 12, 2003.

Support Agency Comments

The State of New Jersey supports EPA's revision to this remedy and decision to issue this ESD.

Affirmation of Statutory Determinations

EPA is issuing this ESD after consultation with NJDEP. The NJDEP concurs with the approach presented in this ESD. When implemented, the remedy, as modified by this ESD, will continue to be protective of human health and the environment, and will comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action.

The modified remedy is technically feasible, cost-effective, and satisfies the statutory requirements of CERCLA Section 121.

Public Participation Activities

In accordance with the NCP, a formal public comment period is not required when issuing an ESD. However, EPA will announce the availability of the ESD in a local newspaper of general circulation. The ESD has been placed in the Administrative Record for the Site and the information repository at the Mary Jacobs Branch Library, 62 Washington Street, Rocky Hill, New Jersey.