Region 1, New England

September 1998

Re-Solve, Inc. Superfund Site Fact Sheet

North Dartmouth, Massachusetts

GROUNDWATER TREATMENT SYSTEM OPERATIONAL

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has prepared this fact sheet to inform the community of the status of remedial activities at the Re-Solve, Inc., Superfund Site in North Dartmouth, Massachusetts. The fact sheet describes the groundwater treatment system recently installed and now operating full-time at the site. Additional information about the site and the on-going cleanup activities is available to the public at the information repositories listed on page 7 of this fact sheet.

SITE BACKGROUND

The Re-Solve, Inc., Superfund Site (Site) is a six acre parcel located on North Hixville Road in North Dartmouth, MA (see locus map on following page). Between 1956 and 1980, Re-Solve, Inc. operated as a chemical reclamation facility that handled solvents, waste oils, organic and inorganic liquids and solids, acids, alkalies, and polychlorinated biphenyls (PCBs). The company separated impurities from these hazardous materials and sold recycled chemicals. During processing, distillation residue, liquid sludge

waste, and impure solvents were dumped into four unlined lagoons that seeped directly into the groundwater. To control dust, workers spread waste oil throughout the site. As a result, the site soil and groundwater were contaminated with PCBs and volatile organic compounds (VOCs).

The site is surrounded by wetlands, forest and rural residential properties. The site is bordered by Carols' Brook to the south, the Copicut River to the east, wetlands to the north, and North Hixville Road to the west. Also, in an area located less than 500 feet from the site, the Copicut River is designated as a state Wildlife Protection Area.

In 1983, EPA placed the site on the National Priorities List (NPL), or Superfund List. An initial Remedial Investigation/Feasibility Study (RI/FS) was completed in 1983. EPA signed the first Record of Decision (ROD) in 1983. The first ROD required the removal of waste materials from the four waste lagoons, former cooling pond, and oil spreading area. This action, referred to as Operable Unit 1, was completed in April 1985 and resulted in the excavation and disposal of approximately 15,000 cubic yards of waste material at a permitted off-site facility.

In 1983, a supplemental RI/FS was undertaken to further define the extent of on-site PCB contamination and in 1987 a second Record of Decision required two additional remedial actions, Source Control and Groundwater Treatment. These two actions are referred to as Operable Units 2 and 3, respectively. The Source Control action was conducted between 1993 and 1994, and included the excavation and treatment of PCB -contaminated soils and sediments through an on-site Low Temperature Thermal Desorption treatment process. In addition, two wetland restoration projects were successfully completed (totaling one acre) by June 1996.

GROUNDWATER TREATMENT SYSTEM

The Groundwater Treatment Remedial Action (Operable Unit 3) requires the implementation of a groundwater extraction and treatment system. The objectives are

to clean up volatile organic compounds (VOCs) beyond the Site's Waste Management Area (WMA) boundary and to prevent the contamination from potentially migrating.

The Groundwater Treatment Remedial Action includes a system of groundwater extraction wells and groundwater monitoring wells. A total of eight groundwater extraction wells (denoted on Figure 1 as RW-1 through RW-8) were installed to remove contaminated groundwater. The eight extraction wells were divided into two tiers. The first tier (Tier 1) of four extraction wells (RW-1 through RW-4) were installed along the Site's Waste Management Boundary (WMA) to prevent the migration of concentrated groundwater contamination called Dense Non-Aqueous Phase Liquid (DNAPL). The second tier (Tier 2) of four extraction wells (RW-5 through RW-8) were installed along the west side of the Copicut River to clean-up groundwater contamination to safe drinking water standards. The design allows for the outer Tier 2 wells to be shut down as groundwater performance monitoring indicates that cleanup standards have been achieved. Tier 2 compliance monitoring will be performed while the inner Tier 1 wells continue extracting groundwater. A total of 42 monitoring wells, including 25 new wells, are used for monitoring groundwater contamination levels. Also, 65 monitoring wells are used to monitor groundwater elevations while the system is in operation and to evaluate the amount of groundwater captured by the treatment system.

Figure 1 shows the site with the Tier 1 and 2 extraction wells, groundwater treatment system and the Waste Management Area. Contaminated groundwater is pumped from the eight extraction wells and treated on site through a filtration, precipitation, air stripping, activated carbon adsorption, and catalytic oxidation system. A schematic of the system is presented in Figure 2. The treated water must comply with surface water discharge requirements before being discharged to the Copicut River. The treated air must comply with emission requirements prior to release into the atmosphere.

In August 1996, the Re-Solve Site Group selected Roy F. Weston Inc. to implement the Groundwater Treatment System. Roy F. Weston is responsible for collecting one year of baseline environmental monitoring, construction and startup of the groundwater extraction and treatment system, and one year of system operation and maintenance.

Baseline environmental monitoring was conducted prior to groundwater treatment plant startup (February 1997 - February 1998) to establish baseline conditions (conditions before the treatment system is operational) at the Site. The baseline monitoring program included monthly water level measurements, a groundwater and surface water quality sampling event, wetlands monitoring, fish sampling and residential well sampling.

CONSTRUCTION & STARTUP

In an effort to speed up the Groundwater Treatment Remedial Action, EPA expedited the approval of Roy F. Weston's groundwater drilling program plan, allowing extraction and monitoring wells to be installed from November 1996 - May 1997. In February 1997, EPA approved of the environmental baseline monitoring program. By July 1997, EPA approved of all the required Groundwater Treatment Remedial Action plans.

Construction of the groundwater treatment plant began in August 1997. Activities included construction of a driveway, installation of utilities, erection of the treatment system building, trenching and installation of extraction well piping to the treatment plant, and installation of the process equipment, tanks, pumps, instrumentation and related components of the treatment system. Treatment plant construction and system performance and operations tests were completed by April 1998 (see next page for photograph of system).

This photograph illustrates the completed Groundwater Treatment System at the Re-Solve Site.

Groundwater treated during the system's performance test was held on the site prior to discharge until analytical results confirmed that the treated groundwater met the EPA and Massachusetts Department of Environmental Protection (MADEP) effluent discharge requirements. A seven day operations test was performed to ensure that the treatment system would meet effluent discharge and air emission criteria. The results of the operations test were reviewed by EPA and MADEP; and the agencies provided conditional approval on April 27, 1998 to begin long term operation of the groundwater treatment system.

The first year of system operation and maintenance was initiated on April 27, 1998. Based upon the start-up data, seven day operation test, and continuous monitoring data, this state-of-the-art groundwater treatment system meets or exceeds all

federal and state monitoring and discharge requirements.

After the first year of operation and maintenance, the Re-Solve Site Group will select a contractor for subsequent years of operation and maintenance. Groundwater treatment plant process monitoring and environmental performance monitoring will be conducted during the operation and maintenance period. Figure 3 shows highlights of the Groundwater Treatment Remedial Action schedule.

OPERATIONS & MAINTENANCE

During the operation and maintenance period, the Remedial Action contractor will prepare quarterly and annual monitoring reports. The reports will summarize process and environmental performance monitoring. Process monitoring includes sampling and analysis of influent water to, and effluent water and vapors from, the plant; process water within the plant; and sludge and spent carbon generated during plant operation. Process monitoring will determine: 1) the effectiveness of the operation of the primary unit processes within the plant; and 2) compliance with effluent discharge and air emission criteria. Environmental performance monitoring will include sampling and analysis of groundwater and surface water, fish sampling, wetlands monitoring and residential well monitoring.

As the groundwater cleanup proceeds, the outer set (Tier 2) of extraction wells are expected to be successively shut down, followed by interim [compliance] monitoring to ensure that clean up standards continue to be attained downgradient of the wells. The inner Tier 1 extraction wells will continue to treat contaminated groundwater and serve to contain the highest concentrations of contamination called Dense Non-Aqueous Phase Liquids (DNAPLs). Comprehensive compliance monitoring will continue for three years following the shutdown of extraction wells to determine that the ROD-specified cleanup standards continue to be satisfied. After EPA and MADEP have certified that the remedial action is complete, all treatment and extraction system equipment will be decommissioned.

When the EPA 1987 clean-up decision was made, it was estimated that the Groundwater Treatment Remedial Action clean-up at the Waste Management Boundary would take at least 10 years. Since then, additional data collection has determined that the Waste Management Area is contaminated with DNAPLs. Due to this concentrated and persistent contamination, the operation and maintenance of the remedy will likely take more time to achieve the desired clean-up levels.

FOR MORE INFORMATION:

EPA Contacts:

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Community Involvement Coordinator

Documents about the remedial activities at the Re-Solve Site are available for public review at the information repositories listed below:

Southworth Public Library
732 Dartmouth Street
Dartmouth, MA 02748
(508) 999-0726
Hours:
M, T, Th 9:00 am - 8:00 pm
W, F, Sa 9:00 am - 5:00 pm
(closed Sat from July 1 through Labor Day)

Dartmouth Conservation Commission
Dartmouth Town Hall
400 Slocum Road
Dartmouth, MA 02747
(508) 999-0722
Hours:
M 9:00 am - 4:00 pm
T - F, 8:45 am - 4:30 pm

FIGURE 3
HIGHLIGHTS OF THE GROUNDWATER TREATMENT REMEDIAL ACTION SCHEDULE