

**SUPERFUND PRELIMINARY SITE CLOSEOUT REPORT
FINAL REMEDIAL ACTION
FOR
CITY OF DELAVAN MUNICIPAL WELL No. 4 SUPERFUND SITE
DELAVAN, WISCONSIN**

I. INTRODUCTION

This Preliminary Close Out Report (PCOR) documents the completion of construction activities for the work carried out by the Potentially Responsible Parties (PRPs) under a contract with the Wisconsin Department of Natural Resources (WDNR) for the City of Delavan Municipal Well No. 4 Superfund Site in accordance with U.S. EPA's OSWER Directive 9320.2-09 A-P. The September 2000 No Further Action ROD requires the continued operation and maintenance of existing soil vapor and groundwater extraction and treatment systems and groundwater monitoring until Wisconsin NR140 Preventative Action Limits (PALs) are achieved. The WDNR conducted an inspection of the extraction and treatment systems on August 23, 2000, and determined that the Potentially Responsible Parties (PRPs) have constructed the remedy in accordance with remedial design (RD) plans and specifications and that the systems were operating as designed.

Since the September 2000 ROD calls for no additional construction, beyond replacement or repair of monitoring wells, all construction activities are now considered to be complete.

II. SUMMARY OF SITE CONDITIONS

Site Description

The Delavan Municipal Well No. 4, Superfund Site is located within the corporate limits of the City of Delavan, Wisconsin, and is defined as the contaminated aquifer used by the City of Delavan Municipal Well No.4. The portion of the aquifer that was contaminated is generally located on property occupied by Sta-Rite Industries Inc. The area encompasses approximately 70 acres and is located in the SE1/4 of Section 17 in Delavan Township (T2N, R16E), and is bordered on the south by a commercial strip shopping center, on the west by Wright Street and on the north by the Wisconsin Calumet Railroad. The west side of Wright Street, adjacent to the site, is occupied by industrial and commercial properties, and Municipal Well No. 4. Sta-Rite has operated manufacturing facilities located at 293 Wright Street since 1958. Two major plants on the site produce high quality water pumps and related products. Plant No. 1 is located approximately 1000 feet northeast of Municipal Well No. 4 and Plant No. 2 is located approximately 400 feet east of Municipal Well No. 4. The City installed Municipal Well No. 4 in 1968.

Site History and Enforcement Activities

In March 1982, during a random public well sampling program by the WDNR, trichloroethylene (TCE) was detected in the City of Delavan Municipal Well No.4. The TCE exceeded the suggested levels for water quality standards as set by the Wisconsin Department of Health and Social Services. Subsequent samplings also identified 1,1,1-trichloroethane (TCA) and

tetrachloroethylene (PCE) in City of Delavan Municipal Well No. 4. The WDNR subsequently recommended that City of Delavan Municipal Well No. 4 be removed from the municipal water supply system. The City of Delavan complied in July 1982.

During 1982, the WDNR initiated efforts to identify users of the compounds detected at the City of Delavan Municipal Well No. 4. Questionnaires were sent to facilities in the vicinity of the well regarding historical solvent use and disposal practices. Sta-Rite was identified as a potential source of the compounds occurring in the well based on previous solvent use as well as the proximity of Sta-Rite facilities to City of Delavan Municipal Well No. 4.

The USEPA subsequently performed a hazard assessment and as a result, the City of Delavan Municipal Well No. 4 was nominated to the National Priority List (NPL) in 1983 and listed in 1984. Subsequent to the nomination of the City of Delavan Municipal Well No. 4 to the NPL in 1983, both the City of Delavan and Sta-Rite performed hydrogeological investigations of the source(s) of impacts to City of Delavan Municipal Well No. 4. The studies identified an area near Sta-Rite Plant #2 which contained concentrations of TCE in the soil and ground water apparently due to a former solvent disposal sump. TCE and TCA were also found in the soil and ground water around Plant #1. Since 1983 additional investigations were conducted at the site by Sta-Rite to further define the extent of the impacts and to identify and implement appropriate remedial technologies.

Sta-Rite and WDNR executed a contract (SF-90-02) on September 21, 1990, to conduct a Remedial Investigation/Feasibility Study (RI/FS) and Remedial Design/Remedial Action (RD/RA) on the Delavan City Municipal Well No. 4 NPL site. The purpose of the RI/FS was to determine the nature and extent of contamination, assess the potential for risks to human health and the environment, determine the need for further investigation, and, if necessary, provide data for design and implementation of selected remedies to remediate the impacts.

Investigative activities performed as part of an RI/FS for this facility were conducted between August 1991 and July 1992. These activities included soils, soil gas, groundwater, surface-water, and sediment investigations as well as an ecological assessment of the facility and the surface-water corridor downstream of the stormwater discharge which contains runoff and extracted ground water from the Sta-Rite facility. The following reports were prepared for this site:

1. Site Evaluation Report (1990) summarized existing data and conditions at the Sta-Rite facility.
2. Project Work Plans (1991) provided details of the scope of the proposed Remedial Investigation.
3. Monitoring Well Evaluation (1991) summarized existing monitoring data and conditions at the Sta-Rite facility.
4. Interim Draft Technical Memorandum #1, Source Characterization (1992), describes the

source areas confirmed as part of Remedial Investigation activities, and identifies additional data needs to fully characterize suspected source areas.

5. Technical Memorandum #2, Migration Pathway Assessment (1992), describes the migration pathways for impacts detected on site, and the potential for off-site migration of these impacts in concentrations potentially harmful to human health and the environment.
6. Technical Memorandum #3, Baseline Risk Assessment Data Summary (1993), provides the results of investigations which were requested by Wisconsin Department of Natural Resources to perform a Baseline Risk Assessment for the site.
7. Technical Memorandum #4, Contaminant Extent Characterization (1993), presents the results of Remedial Investigation (RI) activities which were performed at and near the Sta-Rite Industries, Inc., manufacturing facility.
8. Remedial Investigation (1993)
9. Focused Feasibility Study for Interim Remedial Action (1993)

Various solvents were used in manufacturing processes at the Sta-Rite facilities. TCE was used throughout both plants in various manufacturing and cleaning processes up until 1977. Other solvents used at the facilities included TCA and PCE. The compounds detected in the greatest concentrations and which are the most prevalent at the site are TCE, TCA, and PCE. These three compounds have been preliminarily identified as the compounds of greatest potential concern based on their potential toxicity and concentrations observed at the site. The other organic compounds which are less prevalent at the site and which have occurred at relatively low concentrations in ground-water samples probably represent miscellaneous, small volume releases of organic solvents, and/or degradation products.

A series of floor, drains and sumps in Plant #1 were used from 1958 to 1976 to collect spills and other discharges and to separate sludge and solids from the spills prior to their discharge to the storm sewer system. Because the sumps were constructed of concrete block, leakage to the surrounding soils was possible. From 1982 through 1984, most of the sumps and floor drains were permanently sealed. These areas comprise the previously known release areas.

Spent solvents and other waste liquids were also thought to have been released to open pits and the ground surface south of Plant #1, below or just south of an area currently covered by a plant expansion constructed in 1974. The area beneath the existing addition was investigated and no areas of residual impacts were noted, however, one location immediately south of the existing plant expansion appears to have residual impacts. Spent solvents were reportedly released onto cast iron chips in the area southeast of Plant #1, however the exact release locations were uncertain. The area of these releases has been evaluated using soil gas, soil, and ground water sampling.

Pervasive low levels of volatile organic compounds (VOCs) appear to exist below Plant #1, and several of the former disposal sumps have residual VOC impacts to soils. The areas investigated beneath the Plant #1 structures, however, appear to be relatively minor sources of VOCs as the monitor wells installed upgradient of these known release areas and trends in VOC concentration gradients indicate that a source of greater impacts probably exists southeast of Plant #1. One source area was detected southeast of Plant #1 at the former chip storage area. This area is immediately upgradient of the site monitor wells, which have the highest concentrations of VOCs impacts, and is, therefore, thought to be the major area of concern. The size of this area is approximately 100 feet by 200 feet.

Previous investigative work at the site documented that from 1968 to 1977 solvents were discharged to a sump adjacent to the north wall of Plant #2. The former unlined sump functioned as a release area for waste to soils via a floor drain in an adjacent solvent storage area inside Plant #2. The sump was excavated and removed in 1983. Visibly impacted soils were excavated from the sump and treated. Since May 1988, residual soil impacts have been undergoing remediation by an in-situ soil vapor extraction system.

In addition, a drainage swale off the edge of the pavement southeast of Plant #2 was a suspected source area, based on interviews with Sta-Rite personnel, and review of historical aerial photographs. Liquid waste was known to have been released in this area. The general area encompassed by this source is approximately 180 feet by 50 feet, based on soil gas and soil analytical data. Remedial investigation activities at Plant #2 verified that these two areas had residual soil impacts, which have impacted ground-water quality.

Following the initial investigations, several corrective measures were implemented by Sta-Rite since 1983 to remove and/or contain VOC impacts on Sta-Rite property:

1. The sump area at Plant #2 was excavated and removed in 1983. Visibly impacted soils were excavated from the sump area. A portion of the soils were removed for disposal and the remainder were aerated and used as backfill.
2. A groundwater extraction system (GWES), consisting of five groundwater extraction wells at Plant #1 and two extraction wells at Plant #2, was installed in 1984 to remove impacted ground water. The groundwater extraction system is also used hydraulically to control off-site migration of impacted water. These systems are still in place and operating. All extracted water is discharged to the storm sewer after nozzle aeration treatment.
3. A spray irrigation flushing system was installed in 1984 to spray a portion of the groundwater extracted by Extraction Well EX-1 onto the ground surface at the Plant #2 sump area so that infiltrating water would enhance the removal of solvent from impacted soils. A gravel trench was installed in the vicinity of the former trench to assist in infiltration. The spray irrigation of groundwater ceased in the late 1980's and all extracted groundwater was then discharged to the storm sewer.

4. A soil vapor extraction system (SVES) was installed at the former sump location at Plant #2 in May, 1988 and has been in operation continuously since its installation. To enhance the VOC removal rate from this area, which had significant soil impacts remaining, heating wells were added and Heated Soil Vapor Extraction (HSVE) began operation in 1998.
5. Combination (or dual) soil vapor and groundwater extraction wells were installed in the former chip storage and drainage swale source areas in 1994. These are called the chip storage extraction system (CSES) and the southern soil extraction system (SES), respectively.
6. Groundwater monitoring wells have been installed to monitor all source areas. Site groundwater monitoring continues on a quarterly basis.

The estimated capital cost for construction of the above remedial measures is approximately \$750,000 with an annual operation and maintenance cost of \$75,000. These figures were provided by the Potentially Responsible Party (PRP).

III. DEMONSTRATION OF QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) FROM CLEANUP ACTIVITIES

The remedial design and the construction specifications for the removal action were carefully reviewed by USEPA and WDNR staff for compliance with all requirements of the ROD, any applicable plan modifications, and Part 201 procedures. The QA/QC program utilized throughout the remedial action was sufficient and enabled the USEPA and the State of Wisconsin to determine that the testing results reported were accurate to the degree needed to assure satisfactory execution of the remedial action consistent with the RI/FS and RD/RA contract between the PRPs and the WDNR.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

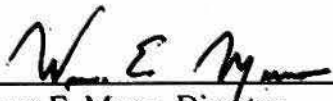
The following activities will be completed according to the schedule below:

ACTIVITY	ESTIMATED COMPLETION	RESPONSIBLE ORGANIZATION
Groundwater Monitoring Plan	September 2001	PRPs
Five-Year Review	September 30, 2005	WDNR
Maintain Existing Soil Vapor and Groundwater Extraction Systems	2000 - until NR140 PALs are achieved.	PRPs

Long-Term Monitoring	2000 - until NR140 PALs are achieved	PRPs
Final Close Out Report	When NR140 PALs are achieved	US EPA

V. FIVE-YEAR REVIEW

Hazardous substances will remain at the site above health-based levels that allow unrestricted exposures after completion of the remedial action. Pursuant to CERCLA Section 121(c) and as provided in the current guidance on Five-Year Reviews: OSWER Directive 9355.7-02, Structure and Components of Five-Year Reviews, May 23, 1991, OSWER Directive 9355.702A, Supplemental Five-Year Review Guidance, July 26, 1994, and the Second Supplemental Five-Year Review Guidance, December 21, 1995, U.S. EPA must conduct a statutory five-year review. The five-year review will be completed no less often than every 5 years after signature of the ROD (September 2000).



 William E. Muno, Director
 Superfund Division

9/28/00

 Date