Five-Year Review Report

for

Delavan Well #4

City of Delavan

Walworth County, Wisconsin

September 2005

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And

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Date:

9/27/05

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Five-Year Review Report
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List of Acronyms

AOC	Administrative Order by Consent
ARAR	Applicable, Relevant and Appropriate Requirement
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIC	Community Involvement Coordinator
City	City of Delavan
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program (EPA-approved contract laboratories)
DCA	Dichloroethane
FSP	Field Sampling Plan
EPA	United States Environmental Protection Agency
ES	Enforcement Standard (State of Wisconsin)
ESD	Explanation of Significant Differences
FCOR	Final Closeout Report - documents completion of Remedial Action
FR	Federal Register
FS	Feasibility Study
FY	Fiscal Year
GIS	Geographic Information System
HDPE	High-Density Polyethylene
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
mg/l	Milligrams per Liter
MW	Monitoring Well
NCP	National Contingency Plan
NPL	National Priorities List
NR	Natural Resources (as in "NR 140.28, WAC")
NRWQC	National Recommended Water Quality Criteria
O&M	Operation and Maintenance
ORC	Office of Regional Counsel (Region 5)
OSWER	Office of Solid Waste and Emergency Response
PALs	Preventive Action Limits

PCE	Perchloroethylene or Tetrachloroethylene
PCOR	Preliminary Closeout Report
ppb	Parts per billion or ug/L (water) and ug/kg (soil/sediment)
ppm	Parts per million, or mg/L (water) or mg/kg (soil/sediment)
PRPs	Potentially Responsible Parties
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act of 1976
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RP	Responding Party
RPM	Remedial Project Manager (U.S. EPA)
SARA	Superfund Amendments and Reauthorization Act of 1986
SDWA	Safe Drinking Water Act
SEWRPC	Southeast Wisconsin Regional Planning Commission
SMCL	Secondary Maximum Contaminant Level
SOW	Statement of Work
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TBC	To Be Considered
TCA	Trichloroethane
TCE	Trichloroethylene
TCL	Target Compound List
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UAO	Unilateral Administrative Order
USGS	United States Geological Survey
VOC	Volatile Organic Compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources

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Executive Summary

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 Delavan Municipal Well No. 4. The portion of the aquifer that was contaminated is generally located on property occupied by Sta-Rite Industries, Inc., which was recently acquired by Pentair Water (Sta-Rite).

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.

EPA 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 initial remedial activities.

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 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 deemed necessary, provide data for design and implementation of selected remedies to remediate the impacts.

In 1993 after a careful evaluation of the RI/FS, the WDNR in consultation with the EPA approved an Interim Remedial Action. The Interim Remedial Action consisted of installing two separate extraction systems at the areas found to be the source of the contamination. These extraction systems consisted of combination soil vapor and groundwater extraction wells installed in the former chip storage and drainage swale source areas. These systems were installed in 1994.

The WDNR and EPA are conducting this five-year review of the Remedial Action (RA) for the Delavan Municipal Well No. 4 as mandated by Section 121(c) of CERCLA, and amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The June 2001 guidance, *Comprehensive Five-Year Review Guidance,* OSWER No. 9355.7-03B-P, provides that EPA will conduct policy reviews no less often than five years at sites where a remedial action, upon completion, will not leave hazardous substances, pollutants or contaminants on site above levels

that allow for unlimited use and unrestricted exposure but will require more than five years to complete.

The trigger for this five-year review was the issue date of EPA's Record of Decision dated September 28, 2000 ("ROD"). The ROD selected no further action under CERCLA authorities because the existing and planned response action under state authorities (including Wisconsin's agreement with Sta-Rite Industries) was progressing adequately to meet the remedial action objectives of the ROD.

The data collected and evaluated during this five-year review indicate that the state remedy is operating according to design. Based on evaluation of annual operational reports a portion of the extraction system has been taken out of operation with no significant affect on groundwater quality and thus may no longer be needed to protect against off site migration of groundwater contamination. The original groundwater extraction system ("original extraction system") that was installed in 1984 by Sta-Rite will continue in operation until groundwater standards are met and will continue to be met at compliance points.

Operation and maintenance activities have been generally effective and are ongoing as prescribed in the No Further Action ROD. Groundwater and effluent monitoring will occur until it is demonstrated that groundwater cleanup standards have been and will continue to be met at all points of compliance throughout the plume.

Based upon existing monitoring data the ongoing response action taken under the state's authorities is expected to meet the response action objectives identified in the ROD.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: **Delavan Well No. 4**

EPA ID *(from WasteLAN)*: **WID980820062**

Region: **5**	State: **WI**	City/County: **Delavan/Walworth, Wisconsin**

SITE STATUS

NPL status: ☒ **Final** ☐ **Deleted** ☐ **Other (specify)** **Five Year Review**

Remediation status **(choose all that apply):** ☐ **Under Construction** ☒ **Operating** ☐ **Complete**

Multiple OUs?* **YES** ☒ **NO** ☐	Construction completion date: 9/30/2000

Has site been put into reuse? ☐ **YES** ☒ **NO**

REVIEW STATUS

Lead agency: ☐ **EPA** **State** ☒ **Tribe** ☐ **Other Federal Agency**

Author name: **Thomas A. Wentland**

Author title: **Remedial Project Manager**	Author affiliation: **Wisconsin DNR**

Review period:** **4/2005 – 9/2005**

Date(s) of site inspection: **08/30/2005**

Type of review:

☒ **Post-SARA** ☐ **Pre-SARA** ☐ **NPL-Removal only**
☐ **Non-NPL Remedial Action Site** ☐ **NPL State/Tribe-lead**
☐ **Regional Discretion**

Review number: ☒ **1 (first)** ☐ **2 (second)** ☐ **3 (third)** ☐ **Other (specify)**

Triggering action:

☐ **Actual RA Onsite Construction at OU #_____** ☐ **Actual RA Start at OU#____**
☐ **Construction Completion** ☐ **Previous Five-Year Review Report**
☒ **Other (specify) Five Years since ROD**

Triggering action date *(from WasteLAN)*: **09/28/2000**

Due date *(five years after triggering action date)*: **09/28/2005**

Issues:
Conduct sampling and analysis to determine whether PALs are being met and will continue to be met at all points of compliance pursuant to Ch NR 140.22. Determine whether PALs are being met and will continue to be met at points of compliance upon shutting down the groundwater extraction /treatment system on an extended probationary or permanent basis. Certain groundwater areas under and near the Sta-Rite property may exceed PALs and require interim groundwater use restrictions until groundwater standards are achieved.

Soils in certain areas of the Sta-Rite property have been cleaned up to levels that are protective of industrial uses but are not protective of non-industrial uses.

Recommendations and Follow-up Actions:

Submit Interim IC Plan to prohibit groundwater use until groundwater cleanup standards are achieved

Submit IC Plan to implement restrictive covenant/environmental easement prohibiting non-industrial areas in areas of the Site that are not protective of these uses.

Protectiveness Statement(s):

The state's remedy currently protects human health and the environment because groundwater meets cleanup standards at any point of current groundwater use. The soil vapor/groundwater extraction system has been constructed and maintained according to the requirements and specifications set forth in the Interim Remedial Action and the ROD. The extracted and discharged groundwater meets all applicable discharge requirements, thereby demonstrating the effectiveness of the extraction system. Long term protection will be achieved when groundwater cleanup standards have been and will continue to be achieved throughout the plume and when land use restrictions are implemented and monitored at the Site.

Other Comments:
None

I. Introduction

The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of such reviews are documented in the site-specific five-year review reports. In addition, five-year review reports identify issues or deficiencies, if any, found during the review process for the site, and provide recommendations to address or correct them.

The WDNR is preparing this site-wide five-year review in consultation with EPA pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The EPA interpreted this requirement further in the National Contingency Plan (NCP); 40 CFR §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The WDNR has conducted a site-wide five-year review of the remedial action (RA) implemented at the City of Delavan Municipal Well No. 4 in Delavan, Wisconsin (the "Site"). The review for this Site, was conducted from April 2005 through September 2005, by the WDNR Remedial Project Manager (RPM), with assistance from the EPA. This report documents the results of the review. As part of this review, the RPM reviewed all data collected under the regular monitoring under operation and maintenance (O&M) for the Site to evaluate the current Site status.

The triggering action for this policy review was the issue date of the ROD, September 28, 2000. This policy five-year review is being conducted because the remedy will take more than 5 years to achieve levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

TABLE 1 - CHRONOLOGY OF SITE EVENTS

Event	Date
Sta-Rite facility constructed.	1958
WDNR random municipal well sampling program.	March 1982
City of Delavan takes Well No. 4 out of service.	July 1982
Sta-Rite identified as potential source.	1982
City of Delavan Well No. 4 nominated to NPL	1983
City and Sta-Rite perform hydrogeological investigations.	1983
City of Delavan Well No. 4 listed on NPL	1984
Sta-Rite and WDNR enter into contract for RI/FS & RD/RA	September 21, 1990
Sta-Rite conducts Site Evaluation Report	1990
Sta-Rite prepares Project Work Plans	1991
Sta-Rite conducts Monitoring Well Evaluation	1991
Sta-Rite conducts Remedial Investigation	1993
Sta-Rite prepares Focused Feasibility Study for Interim Remedial Action	1993
Interim Remedial Action put in operation	June 16, 1994
Record of Decision (Extraction) - signed	September 28, 2000
Five Year Report Completed	September 28, 2005

III. Background

Physical Characteristics

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 Delavan Municipal Well No. 4. The portion of the aquifer that was contaminated is generally located on the 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.

Land Resource Use

The Site sits near the intersection of Interstate Highway I-43 and State Trunk Highway 50. The land use in the area is currently mixed use and includes commercial, residential and light industrial. The site is located on the far east side of the City of Delavan and borders on agricultural land use. The City of Delavan has a population slightly less than 14,000 and is expected to grow at an increasing rate.

History of Contamination

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 (VOC) 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 as the monitor wells installed up gradient of these known release areas and trends in VOC concentration

gradients indicated 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 up gradient 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 has 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. Residual soil impacts are currently being remediated by an in-situ soil vapor extraction system that has been operating since May 1988.

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.

Initial Response

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. The sump area at Plant No. 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.

A ground extraction system, consisting of five groundwater extraction wells at Plant No. 1 and two extraction wells at Plant No. 2, was installed in 1984 to remove impacted groundwater. The groundwater extraction 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.

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 No. 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.

A soil vapor extraction system was installed at the former sump location at Plant No. 2 in May, 1988 and operated until 1998 when a heated soil vapor extraction system was added to enhance VOC removal.

Combination soil vapor and groundwater extraction wells were installed in the former chip storage area and the drainage swale source areas in 1994.

Groundwater monitoring wells have been installed to monitor all source areas.

Basis for Taking Action

In 1983, EPA proposed the Site for listing on the National Priorities List. The Site listing was finalized in 1984. In September 1986, Sta-Rite, the only PRP, entered into a contract with WDNR for the purpose of performing a Remedial Investigation/ Feasibility Study (RI/FS). The goal of the RI/FS was to determine the effect of the City of Delavan Well No. 4 Site on the surrounding environment and to present cleanup alternatives for reducing the risks to human health and the environment. The PRP contractor performing the RI was Geo Trans, Inc.

During the RI, samples were taken from surface and subsurface soils, monitoring wells, residential/municipal wells, surface water, and sediment.

Based on the 1993 Remedial Investigation (RI) report and the 2000 ROD, the primary contaminants or chemicals of concern (COCs) affecting the soil and groundwater were organic compounds. Specifically, the primary COCs were identified as:

TCE	Trichloroethylene
TCA	1,1,1-Trichloroethane
PCE	Tetrachloroethylene

Monitoring wells were installed the Sta-Rite property to ascertain the location of areas of chemical concentration contributing to the contamination of City of Delavan Municipal No 4. Groundwater was determined to be moving in a southwest direction from the site toward the City of Delavan Municipal No 4. Sampling of the Well No. 4 indicated that the raw water at the well exceeded the suggested levels for water quality standards as set by the Wisconsin Department of Health and Social Services. At that time the well was removed from the municipal system of the City of Delavan.

The RI concluded that the Site posed a risk to human health by allowing contaminated groundwater to enter the municipal system. Based on these findings Sta-Rite constructed the dual soil vapor and groundwater extraction systems on its property to control the spread of contaminants to the City of Delavan Municipal No 4.

IV. Remedial Actions

Remedy Selection

The Interim Remedial Action constructed in June 1994 included construction of soil vapor and groundwater extraction in the chip storage area and in the drainage swale east of Plant No. 2.

This remedy was operated in addition to the existing soil vapor extraction system at the Plant No. 2 sump area and the site-wide groundwater extraction system.

EPA issued a Record of Decision (ROD) for the final remedy for this site on September 28, 2000. The ROD selected no further action under CERCLA authorities because the existing and planned response action under state authorities (including operation and maintenance of the original extraction system and interim remedial action of soil vapor/groundwater extraction wells) was progressing to meet the remedial action objectives of the ROD. The ROD states that no further action is necessary for the Site other than the continued operation and maintenance of the Interim Remedial Action. The Interim Remedial Action consisted of soil vapor/groundwater extraction wells.

Remedial Action Goals

The primary goals of the remedial actions at City of Delavan Municipal No. 4 Site as described in the ROD were: 1) to meet groundwater PALs pursuant to Ch NR 140, Wis. Adm. Code; and 2) to remediate unsaturated soil in accordance with Ch NR 720, Wis. Adm. Code.

Remedy Implementation

The Interim Remedial Action was designed as a dual soil vapor and groundwater extraction system. A central vacuum unit located near the southeastern corner of Plant No. 2 is fitted with three independent vacuum header pipes each serving a separate source area; the chip storage area, the southeast swale area, and the former sump area. The areas were piped independently in order to provide flexibility in operation. The chip storage area has 29 soil vapor extraction wells. The southeast extraction system has 10-soil vapor extraction wells and the former sump area has four soil vapor extraction wells.

In addition to the soil vapor extraction wells, six groundwater extraction wells were installed in the Chip Storage Area and four were installed in the Southeast Extraction System area. The groundwater is aerated and discharged to a storm sewer system. The groundwater discharge is regulated under the Wisconsin Pollutant Discharge Elimination System.

Since the final remedy was implemented Sta-Rite has prepared annual operation and maintenance reports covering that time period. These reports have shown a steady decline in the COC's at the site. Sampling of raw water intake at the City of Delavan Municipal No 4. demonstrated the COC's are no longer present and Well No. 4 is back on line and fully functional.

System Operations

The dual soil vapor extraction/groundwater extraction (SVE/GWE) remediation system at the site consists of three legs. The first leg of the SVE/GWE remediation system addressed the impacts at the former chip storage area southeast of Plant 1 and is referred to as the chip storage extraction

system (CSES). The second leg remediated the impacts found in the southeast corner of the site and is referred to as the southeast extraction system (SES). The third leg, which is only an SVE system, remediated soil impacts at the former location of a sump that was located adjacent to the north wall of Plant 2 and is referred to as the former sump area.

SVE from the CSES and SES legs were discontinued on March 18, 2002 per the recommendation made in the February 1999 through April 2001 progress report (GeoTrans, Inc., July 6, 2001), which was approved by the WDNR in a letter dated February 13, 2002. No groundwater was extracted from the dual SVE/GWE wells in the SES area since 2002 because none of the submersible pumps in the dual SVE/GWE wells were operational. Fine-grained sediment that entered the wells during the operation of the dual SVE/GWE system clogged the well screens and caused the pumps in the dual SVE/GWE wells to fail. Attempts to remove the submersible pumps from the dual SVE/GWE wells in the SES area in 2003 were unsuccessful due to the presence of the fine-grained sediment in the wells. Groundwater extraction from the dual SVE/GWE wells in the CSES area was also stopped on December 23, 2003. The suspension of groundwater extraction from the SES and CSES areas was approved by the WDNR in a letter dated April 22, 2004.

SVE from the third leg of the dual SVE/GWE system, which is located in the former sump source area, was discontinued on December 9, 2003 per the recommendation made in the 2003 Annual Progress Report for the Delavan facility (GeoTrans, March 29, 2004). SVE was stopped because soil sample analytical results for soil samples collected from the former sump source area in 2003 indicated there were only approximately four pounds of VOC impacts remaining in the soil above the water table. This recommendation was approved by the WDNR in a letter dated April 22, 2004.

In accordance with the recommendation made in the May 2001 through December 2002 progress report (GeoTrans, January 28, 2003), a groundwater investigation was performed in the CSES and SES areas in 2003. Four temporary monitor wells (TW-303, TW-304, TW-305 and TW-306) were installed in and around the SES area and two rounds of groundwater samples were collected from the temporary monitor wells to document the degree and extent of residual groundwater impacts. Three temporary monitor wells were also to be installed around the CSES, but the wells were unable to be installed in this area due to the presence of cobbles and boulders at depth. Because the temporary monitor wells were unable to be installed around the CSES area, two rounds of groundwater samples were collected from the operational SVE/GWE wells in the CSES and from existing monitor well MW-1026, which is located approximately 113 feet downgradient of the CSES. Groundwater samples were also collected from the temporary monitor wells installed in the SES area during this reporting period on September 17, 2004. The groundwater analytical results from the groundwater investigation conducted in the CSES and SES areas and the sampling round conducted in September 2004 show trichloroethene (TCE) is the only contaminant present above its Chapter NR140 enforcement standard (ES) in both areas. Groundwater samples have also been collected from the monitor wells and groundwater extraction wells that are part of the groundwater monitoring program for the Delavan facility. The

analytical results from 2004 show stabilized or continued declining VOC concentrations in groundwater both at Plant 1 and Plant 2.

Groundwater samples are supposed to be collected semi-annually from select monitor wells and extraction wells located on the Delavan facility property. However, the first sampling round, which was supposed to be conducted in the first half of 2004, was mistakenly not performed by Sta-Rite personnel. Also, monitor wells TW-1 and MW-1027, which are part of the groundwater monitoring program for the Delavan facility, were not sampled in 2004 because the Sta-Rite personnel performing the groundwater sampling was working off an old sampling list that did not include these monitor wells. Two groundwater-sampling rounds will be conducted by Sta-Rite personnel in 2005. Groundwater samples will also be collected from monitor wells TW-1 and MW- 1027 in 2005.

V. Progress Since the Last Review

This is the first Five Year Review for the Site.

VI. Five-Year Review Process

Administrative Components

The EPA legal and community involvement staff, the WDNR and Sta-Rite were notified of the five-year review Site inspection in August 2005. The RPM established the components of the Review, which included:

- Community Notification
- Document Review
- Data Review
- Site Inspection/Community Interviews
- Five-Year Review Report Development and Review

The review Site inspection date was coordinated among the various representatives from EPA, WDNR and the PRP group and set for August 30, 2005. The City of Delavan was notified of the initiation of the five-year review on August 4, 2005 via a notice that was placed in the local paper, the Delavan Enterprise. The Sta-Rite five-year review team was led by the WDNR Site Manager, Thomas Wentland, EPA Superfund Remedial Project Manager, David Linnear and included EPA's Community Information Coordinator (CIC) Susan Pastor, and PRP Representative Jon Raymound of Sta-Rite.

Community Notification

Activities to involve the community in the five-year review process were initiated in August 2005 in the form of a notification by the Region 5 Superfund CIC for the Site, Susan Pastor. A notice announcing the initiation of the five-year review process and soliciting Site information and

concerns from the community was published on August 4, 2005 in the Delavan Enterprise, a weekly newspaper serving the City of Delavan.

Historically, there have been few community concerns regarding the Site. This is the only superfund site in Walworth County. Past community relation activities for the Site have included a public meeting held August 23, 2000 prior to issuing the ROD. A public comment period was held from August 17 to September 18, 2000. Fact sheets were routinely distributed to update the community of the cleanup progress. WDNR has also maintained an administrative record document repository in the community throughout the cleanup process at the Aram Public Library in Delavan Wisconsin.

Document Review

The five-year review included a review of the relevant documents such as the RI/FS, RD/RA, SOWs, ROD, all enforcement documents, state groundwater quality standards, and risk-based levels to protect human health and the environment. Also, post-RA documents such as the PCOR, and applicable EPA and WDNR guidance were reviewed.

Data Review

The following information was reviewed in the preparation of this Five-Year Review.

- City of Delavan Well No. 4 Annual Report, February 1998 through February 1999
- City of Delavan Well No. 4 Annual Report, February 1999 through April 2001
- City of Delavan Well No. 4 Annual Report, April 2001 through December 2003
- City of Delavan Well No. 4 Annual Report, January 2004 through December 2004
- WDNR, Drinking Water System, Sample History Report, 01/01/1980 to 09/08/2005

Site Inspection

A site inspection was conducted on August 30, 2005. Mr. Jon Raymond, Pentair Water, Environmental Engineer, Mr. David Linnear, EPA RPM and Mr.Thomas A. Wentland WDNR Project Manager conducted the inspection reviewing the treatment process at the three soil vapor/groundwater extraction areas. The purpose of the inspection was to assess protectiveness of the remedy, including condition of site security to restrict access, and the Site itself, i.e., soil vapor / groundwater extraction system, monitoring wells, and surrounding land.

Site Interviews

Mr. Thanintr T. Ratarasarn, P.E. Drinking Water Engineer with the WDNR and Mr. James Piester, Chief Operator of the City of Delavan Water Utility were interviewed in conjunction with the raw water quality of the City of Delavan Well No. 4. Information from this interview was used to determine the protectiveness of the remedy.

VII. Technical Assessment

Question A: ***Is the remedy functioning as intended by the decision documents?***

Remedial Action Performance

Based on a review of relevant documents, remedial action objectives, risk assumptions, and the results of the Site inspection, all portions of the remedy, currently appear to be functioning as intended by the ROD and are expected to continue in this manner. The effectiveness and progress of the remedy has been tracked through the monitoring program. Site monitoring has been performed since October 1994. These data indicate that the Site presently does not pose an immediate threat to human health or the environment.

The ROD selected no further action under CERCLA authorities because the existing and planned response action under state authorities (including Wisconsin's agreement with Sta-Rite Industries) was progressing adequately to meet the remedial action objectives of the ROD. The ROD states that the remedial action objective for contaminated groundwater at the site was to meet Ch NR 140, Wis. Adm. Code regarding groundwater PALs for all contaminants of concern. Ch NR 140.22 identifies the following points of compliance for groundwater PALs: a) any point of present groundwater use; b) any point beyond the boundary of the property on which the facility, practice or activity is located; and, c) any point within the property boundaries beyond the 3 dimensional design management zone if one is established by the department at each facility, practice or activity.

Monitoring data indicates that PALs are met at and near the boundary of the Sta-rite facility, however, contamination exceeds PALs at a few locations on Sta-rite facility.

The original groundwater extraction system remains in operation to ensure that groundwater contamination is contained within the Sta-rite facility boundary and does not move beyond the Sta-rite boundary. Additional monitoring is being implemented to evaluate the effectiveness of the extraction. The state lead groundwater remedial action appears to continue to be progressing to meet the groundwater remedial action objectives of the ROD. An interim institutional control plan needs to be developed to prohibit groundwater use in areas that exceed PALs (such as under the Sta-rite facility) until cleanup standards are met throughout the plume.

The ROD states that the soil at the site must be remediated in accordance with Ch NR 720, Wis. Adm. Code. The ROD also states that contaminated soil must be addressed so contaminants migrating from the soil to groundwater do not cause exceedances of Wisconsin groundwater standards. Based on information in the 2004 Annual Progress Report (GeoTrans, March 14, 2005) certain areas of soil at the facility exceed site-specific soil performance standards for TCE and PCE. An institutional control plan needs to be developed to prohibit non-industrial uses in

areas where cleanup standards are based on industrial use in order to be protective pursuant to NR 720.11.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Changes in Standards and TBCs

There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. There have been no changes in the cleanup standards identified in the ROD. No new classes of potential chemical-specific standards were noted since the ROD. While the chemical-specific criteria for surface water were set at the time of the ROD, some of the chemical specific regulatory and guidance levels have been amended since the ROD.

Surface Water

The following discharge standards pertaining to surface water are applicable to this site:
- Water Quality Criteria (AWQC), 40 CFR. Part 131 Quality Criteria for Water, 1986.
- Surface Water Quality Standards (NR 102, NR 105, NR 106 WAC)

Groundwater

Groundwater is extracted, and subsequently discharged in accordance with NPDES, 40 CFR 122, 125 and the Wisconsin Pollutant Discharge Elimination System (WPDES). Discharge of treated groundwater to the drainage channels adjacent to the Site must meet requirements of Section 402 of the Clean Water Act and must not exceed discharge limits established by the State of Wisconsin (NR 102, NR 105, NR 106, and NR 207 WAC). Groundwater extraction and monitoring is done in compliance with Wisconsin Groundwater Monitoring and Recovery Requirements (NR 141, NR 181, WAC).

Wisconsin PALs and ESs continue to define acceptable groundwater concentrations at groundwater remediation sites in the State of Wisconsin. Some revisions to the chemical-specific PALs have occurred since the 1988 groundwater quality standards were issued by WDNR and identified as remedial action objectives in the 2000 ROD. Annual reports from the site always compare sampling results to current PALs and are showing a consistent decline in contaminant levels. Therefore the state lead remedy is anticipated to be more protective than originally developed in the ROD.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There are no newly identified ecological risks at this Site. No additional information has come to light that could affect the protectiveness of the remedy when it is fully implemented.

Technical Assessment Summary

Based on a review of relevant documents, risk assumptions, and the results of the site inspection, the response action under state authorities is expected to meet the remedial action objectives identified in the ROD. The effectiveness of the remedy tracked through the monitoring program indicates that the Site presently does not pose an immediate threat to human health and the environment.

VIII. Issues

The following issue was identified as a result of this second five-year review:

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Conduct sampling and analysis to determine whether PALs are being met and will continue to be met at all points of compliance pursuant to Ch NR 140.22. Determine whether PALs are being met and will continue to be met at points of compliance upon shutting down the groundwater extraction /treatment system on an extended probationary basis. Certain *groundwater areas under and near the Sta-Rite property may* exceed PALs and require interim groundwater use restrictions until groundwater standards are achieved. **Soils in certain areas of the Sta-Rite property have been cleaned up to levels that are protective of industrial uses but are not protective of non-industrial uses.**	**N**	**Y**

IX. Recommendation and Follow-up Action

The following recommendation and follow-up actions are recommended to resolve the issues identified during this second five-year review:

RECOMMENDATIONS AND FOLLOW-UP ACTION

Issue	Recommendations and Follow-up Actions	Party Responsible	Over-sight Agency	Mile-stone Date	Affects Protectiveness (Y/N)	
					Current	Future

Issue	Recommendations and Follow-up Actions	Party Responsible	Over-sight Agency	Mile-stone Date	Affects Protectiveness (Y/N)	
					Current	Future
Certain areas near and under Sta-Rite property may exceed groundwater cleanup standards	**Submit Interim IC Plan to prohibit groundwater use until groundwater cleanup standards are achieved**	**Sta-Rite**	**WDNR**	**3/2006**	**N**	**Y**
Soils in certain areas of the Sta-Rite Site have been cleaned to levels based on *commercial/industri* al use and require land use restrictions	**Submit IC Plan to implement restrictive covenant/ environmental easement prohibiting non-industrial areas in these areas**	**Sta-Rite**	**WDNR**	**3/2006**	**N**	**Y**

X. Protectiveness Statement

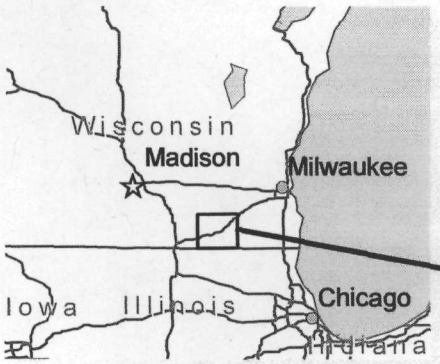
The state's remedy currently protects human health and the environment because groundwater meets cleanup standards at any point of current groundwater use. The soil vapor/groundwater extraction system has been constructed and maintained according to the requirements and specifications set forth in the Interim Remedial Action and the ROD. The extracted and discharged groundwater meets all discharge standards, thereby demonstrating the effectiveness of the extraction system. Long term protection will be achieved when groundwater cleanup standards have been and will continue to be achieved throughout the plume and when land use restrictions are implemented and monitored at the Site.

XI. Next Review

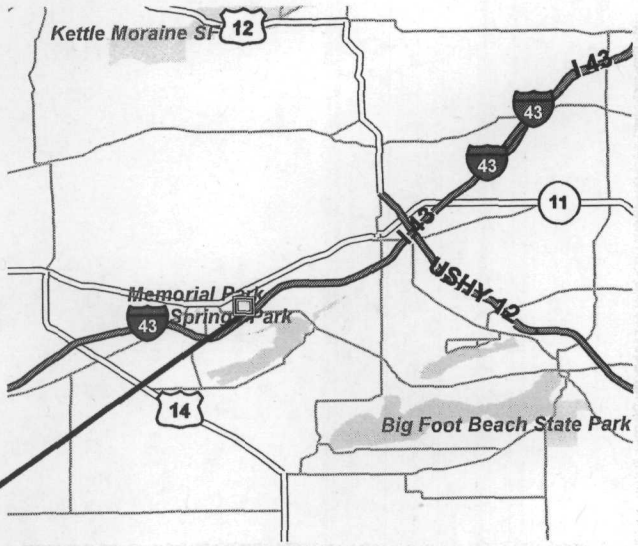
The next five-year review is scheduled to be completed by September 28, 2010.

Delavan Municipal Well #4 Superfund Site

1) State



2) Walworth County



3) Delavan Municipal Well #4

Figure 1

Plot created by Sarah Backhouse U.S. EPA Region 5 on 9/13/2005

GEOS
Groundwater Evaluation and Optimization System