

US EPA RECORDS CENTER REGION 5



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**Explanation of Significant Differences
Delavan Municipal Well No. 4 Superfund Site
EPA ID: WID980820062
Delavan, Walworth County, Wisconsin**

**PREPARED BY:
Wisconsin Department of Natural Resources
Milwaukee, Wisconsin**

**FOR:
U.S. Environmental Protection Agency
Region 5
Chicago, Illinois**

Explanation of Significant Differences Delavan Municipal Well No. 4 Superfund Site

I. Introduction

This decision document is an Explanation of Significant Differences (ESD) for the Delavan Municipal Well No. 4 Superfund Site (Site), located in Delavan, Walworth County, Wisconsin. This ESD is issued in accordance with § 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Section 300.435(c)(2)(i).

The Wisconsin Department of Natural Resources (DNR) is the lead agency for the Site and the U.S. Environmental Protection Agency (EPA) serves as the support agency. DNR issued the Record of Decision (ROD) addressed by this ESD, with EPA concurrence, on September 28, 2000, with both agencies signing the ROD. Similarly, DNR is issuing this ESD in consultation with EPA.

In accordance with § 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for the Site which was developed in accordance with § 113(k) of CERCLA, 42 U.S.C. § 9613(k). The Administrative Record is available for review at the Site information repository located at the Aram Public Library, 404 East Walworth Avenue, Delavan, Wisconsin 53115. The Administrative Record is also available for review at the EPA Region 5 Superfund Records Center, 77 West Jackson Boulevard (7th Floor), Chicago, Illinois 60604, Monday through Friday, 8 a.m. to 4 p.m. (central time), by calling 312-886-0900 for an appointment.

II. Statement of Purpose

The lead agency issues an ESD when it determines that changes to the original selected remedy are significant but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost. The 2000 ROD was a "No Further Action" ROD with groundwater monitoring. The ROD did not require that institutional controls (ICs) be implemented at the Site, however ICs have now been determined to be necessary. EPA and DNR also have determined that the groundwater remedial action objective (RAO) and groundwater cleanup standards in the ROD need to be updated. This ESD therefore serves the following purposes:

- Documentation of a final decision to add ICs and a long-term stewardship (LTS) plan as components of the selected remedy to ensure long-term protectiveness at the Site, and clarification of the required ICs.
- Revision and clarification of the groundwater RAO and cleanup standards for the Site.

The changes presented in this document represent significant – but not fundamental – changes from the original selected remedy, and are therefore appropriately addressed in an ESD.

III. Site History, Contamination, and Selected Remedy

The Site is located within the corporate limits of the City of Delavan, Wisconsin, and is defined as the contaminated aquifer used by Delavan Municipal Well No. 4. The portion of the aquifer that is contaminated is generally located on property occupied by Pentair Flow Technologies (Pentair), formerly Sta-Rite Industries, Inc. Various solvents were used in manufacturing processes at the Pentair facilities. Trichloroethylene (TCE) was used at the facilities in various manufacturing and cleaning processes until 1977. In March 1982, during a public well sampling program by the DNR, TCE was detected in Delavan Municipal Well No. 4 (Well No. 4) at concentrations that exceeded the suggested levels for water quality standards set by the Wisconsin Department of Health and Social Services. Subsequent sampling events also identified 1,1,1-trichloroethane (TCA) and tetrachloroethylene (PCE) in Well No. 4. As a result, the City removed Well No. 4 from the municipal water supply system in 1982, and EPA listed the Site on the National Priorities List in 1984. Additional background information about the Site can be found in the 2000 ROD and the most recent Five-Year Review Report for the Site, dated August 17, 2015.

In September 1986, Pentair, the only potentially responsible party (PRP) at the Site, entered into a contract with the DNR to perform a Remedial Investigation/Feasibility Study (RI/FS). The primary contaminants or chemicals of concern (COCs) affecting the soil and groundwater identified during the RI were TCE, TCA, and PCE, all of which are volatile organic compounds (VOCs). Other VOCs were detected during the RI, but less frequently and at lower concentrations. The COCs are hazardous substances as defined in § 104(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. § 302.4.

Starting in 1983, Pentair implemented corrective measures over a period of ten years to remove and/or contain the VOCs on the Pentair property, including the following:

- excavation of a former sump and adjacent soils;
- installation of a spray irrigation flushing system so infiltrating water would enhance the removal of the VOCs from impacted soils; and
- installation of a soil vapor extraction and groundwater extraction (SVE/GWE) system, as well as groundwater extraction and monitoring wells.

In January 1993, the DNR approved interim remedial measures for the Site which called for the construction of expanded SVE/GWE systems. The expanded soil vapor and groundwater extraction and treatment systems were installed in June 1994.

DNR subsequently issued a ROD on September 28, 2000, with EPA concurrence. The primary RAOs described in the ROD are paraphrased as follows:

- 1) for contaminated groundwater to meet Wis. Admin. Chapter NR 140, groundwater preventive action limits (PALs) for all COCs; and
- 2) to remediate unsaturated soil in accordance with Wis. Admin. Chapter NR 720, so that contaminants in soil do not cause exceedances of groundwater standards.

The ROD selected No Further Action because the interim remedial actions being taken at the Site were deemed to be protective of human health and the environment and to comply with federal and state applicable or relevant and appropriate requirements (ARARs). The ROD determined that no further action was necessary other than groundwater monitoring and continued operation and maintenance (O&M) of the soil vapor extraction and groundwater extraction and treatment systems.

Since 1994, when the expanded SVE/GWE system was installed and began operation, the groundwater contamination has been contained within the property limits of the Pentair site. Due to significant reductions in VOCs observed in Site monitoring wells, operation of the SVE/GWE system was discontinued in phases in March 2002 and December 2003. In addition, raw water intake sampling at Well No. 4 has demonstrated that VOCs are no longer present in the well. As of 2000, Well No. 4 is back on-line and fully functional as a municipal water supply well. In addition, since 2000, Pentair's annual O&M reports show a steady decline in the VOCs in groundwater and soils at the Site. Seven groundwater extraction wells remain in operation to control off-site migration of contaminated groundwater.

IV. Basis for the Document and Description of Significant Differences

Institutional Controls

The 2000 ROD did not include ICs as part of the selected remedy. This ESD determines and documents that ICs are a necessary component of the soil and groundwater remedy at the Site. ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to ensure long-term protectiveness for any areas which do not allow for unlimited use and unrestricted exposure. Groundwater across the Pentair property currently exceeds applicable groundwater cleanup standards and requires ICs to restrict groundwater use until the groundwater RAO is achieved. Soils in three former source areas of TCE discharge (former sump source area, former chip storage area, and former southeast extraction area) of the Pentair property have been cleaned up to levels that are protective of industrial uses but are not protective of non-industrial uses, and also require ICs to prevent non-commercial/non-industrial uses in these specific areas.

The EPA requires ICs, which are known as Continuing Obligations (COs) by the DNR. Sites in Wisconsin, with COs serving as ICs are listed on the DNR's Bureau for Remediation and Redevelopment Tracking System (BRRTS) database. BRRTS is an online, publicly-accessible registry of sites in Wisconsin which have environmental contamination. The DNR has placed the Delavan Municipal Well No. 4 Site on BRRTS, issued the CO notification letter on October 25, 2017, received the final IC Implementation and Assurance Plan (ICIAP) from Pentair on February 16, 2018, and subsequently approved the ICIAP and imposed the COs on June 4, 2018.

Long-term protectiveness at the Site requires compliance with the use restrictions specified in the ICs. Effective ICs must be implemented, maintained, monitored, and enforced to ensure that the remedy continues to operate as intended. This ESD also determines and documents the final decision to add an LTS plan as a component of the remedy to ensure long-term protectiveness at

the Site. The LTS plan shall include regular inspections of ICs at the Site and an annual certification that the required ICs are in place and effective. Additionally, the title work must be examined to ensure that no inconsistencies exist that may interfere with the ICs.

To ensure long-term protectiveness of the remedy, additional steps to impose ICs using Wisconsin's CO regulations are necessary at this Site. COs include institutional and land use controls. COs are assigned to the property, so each new owner is legally responsible for their compliance. COs are enforceable by DNR under Wisconsin Statute 292.12 and, in this case, were imposed in an approval letter of the ICIAP from DNR. As part of imposing the COs, DNR listed the Site on BRRTS at <http://dnr.wi.gov/topic/Brownfields/WRRD.html>. Listing the site on BRRTS provides public notice of residual contamination and controls required to be maintained to ensure long term protectiveness. Sites can also be viewed on the Remediation and Redevelopment Sites Map view, under the GIS Registry layer, at the same web address. In addition, for all sites in the database, DNR approval is required prior to well construction or reconstruction, in accordance with Wis. Admin. Code § NR 812.09(4)(w). This requirement also applies to private drinking water wells and high capacity wells. See Wis. Admin. Code § NR 812.09(4)(a).

Groundwater RAO and Groundwater Cleanup Standards

The 2000 ROD included the following specific language regarding the RAO for contaminated groundwater at the Site:

The remedial action objective for contaminated groundwater at the site is to meet ch NR 140, Wis. Adm. Code, groundwater PALS for all contaminants of concern. If groundwater monitoring indicates that it is not technically or economically feasible to achieve PALS, § NR 140.28 provides standards for the granting of a site-specific exemption from the requirement to achieve PALS. However, an exemption cannot be granted for levels higher than Enforcement Standards.

Wis. Admin. Code § NR 140 establishes a two-tiered system of groundwater quality standards that are to be followed, namely Preventive Action Limits (PALs) and Enforcement Standards (ESs). Wis. Admin. Code § NR 140 provides that PALs are to be used as an indicator parameter for potential groundwater contamination, and the ES is the groundwater cleanup level for human health and welfare concern. The ES has been determined to be an acceptable groundwater cleanup level for this site.

Table 5 of Wis. Admin. Code § NR 140 provides a range of responses that may be taken or required if a PAL is exceeded. This range of responses includes "no action." The ES is a groundwater compliance standard (see Wis. Admin. Code §§ NR 140.10 and NR 140.26) for substances of public health or welfare concern in the groundwater, and this standard is not to be exceeded. Table 6 of Wis. Admin. Code § NR 140 provides a range of responses that may be taken or required if an ES is exceeded. This range of responses does not include "no action."

Under current implementation of Wis. Admin. Code § NR 140, cases involving contaminated soil and/or groundwater are routinely closed by the DNR Remediation and Redevelopment Program using the ES as the basis for closure, citing Wis. Admin. Code § NR 140.22, which specifies

compliance with PALs at certain locations only to the extent that this compliance is technically and economically feasible. DNR has concluded since the mid-1990s that groundwater quality compliance with PALs at contaminant discharge sites in Wisconsin is, in many cases, neither technically nor economically feasible.

As detailed above, the 2000 ROD specified compliance with groundwater PALs for all COCs as the groundwater RAO. However, an appropriate compliance requirement should have been designated as general compliance with Wis. Admin. Code § NR 140, not specifically PALs. **The groundwater RAO for the selected remedy is therefore revised by this ESD as follows:**

The remedial action objective for contaminated groundwater at the site is to meet the requirements of Wis. Admin. Code § NR 140, for all contaminants of concern.

For the majority of the contaminants found at the Site, the ESs are numerically equivalent to the federal maximum contaminant levels (MCLs). When both the state and federal agencies have identified cleanup levels as potential ARARs, the NCP requires that the state standard be used as the ARAR when it is more stringent than the federal standard.

Table 1 below shows 1) all current COCs, 2) the original cleanup standard (i.e., the PAL) for each COC resulting from the 2000 ROD, 3) the current Wis. Admin. Code § NR 140 ES, 4) the current MCL, and 5) the revised cleanup standard as modified by this ESD. All values are in units of micrograms per liter (µg/L). The last column provides the revised groundwater cleanup standards for the Site.

Table 1: Revised Groundwater Cleanup Standards for Site COCs

COC	Original Cleanup Standard Resulting From 2000 ROD and Current NR 140 PAL (µg/L)	Current NR 140 ES (µg/L)	Current MCL (µg/L)	Revised Groundwater Cleanup Standard (µg/L)
PCE	0.5	5	5	5
1,1,1-TCA	40	200	200	200
TCE	0.5	5	5	5
1,1,2-TCA	0.5	5	5	5
Vinyl chloride	0.02	0.2	2	0.2

Monitoring Well (MW) TW-4 at the Site is monitored yearly for total VOCs, including several other VOCs, in addition to the main COCs. This ESD clarifies the cleanup standards for the monitored VOCs at this monitoring well, based on a similar evaluation as was done above for the main COCs at the Site.

Table 2: Revised Groundwater Cleanup Standards for Total VOCs at MW TW-4

Total VOC Contaminant	Original Cleanup Standard Resulting From 2000 ROD and Current NR 140 PAL (µg/L)	Current NR 140 ES (µg/L)	Current MCL (µg/L)	Revised Groundwater Cleanup Standard (µg/L)
PCE	0.5	5	5	5
1,1,1-TCA	40	200	200	200
TCE	0.5	5	5	5
1,1,2-TCA	0.5	5	5	5
Vinyl chloride	0.02	0.2	2	0.2
Acetone	1800	9000	-	9000
Benzene	0.5	5	5	5
Chloroform	0.6	6	-	6
1,1-DCA	85	850	-	850
1,2-DCA	0.5	5	5	5
1,1-DCE	0.7	7	7	7
cis-1,2-DCE	7	70	70	70
Trans-1,2-DCE	20	100	100	100
Methylene chloride	0.5	5	-	5
Ethylbenzene	140	700	700	700
Xylenes, total	400	2000	10,000	2000

Summary of Remedy Modifications

This ESD documents the following significant changes to the ROD-selected remedy for the Site:

- addition of the requirement for ICs to restrict the land use to industrial use only in the three former TCE-source areas where contaminated soils remain at levels exceeding the non-industrial direct contact soil standard (Figure 1).
- addition of the requirement for site-wide ICs for groundwater that has not yet achieved the groundwater RAO. Groundwater contamination exists across the site above regulatory standards. A continuing obligation requiring that water supply wells not be constructed on the Site without prior approval of the DNR pursuant to Wis. Admin. Code § NR 812.09(4)(w) will be imposed. This requirement also applies to private drinking water wells and high capacity wells. See Wis. Admin. Code § NR 812.09(4)(a). As part of imposing the continuing obligation, this site will be listed on the Wisconsin BRRTS database;
- addition of the requirement for an LTS plan to document the specific LTS procedures that will be used to monitor, maintain and enforce the ICs at the Site; and
- revision and clarification of the groundwater RAO and the groundwater cleanup standards as indicated in Tables 1 and 2 above.

V. Support Agency Comments

As the lead agency at the Site, DNR consulted with EPA on this ESD in accordance with NCP § 300.435(c)(2) and § 300.435(c)(2)(i) and CERCLA §121(f). EPA, as the support agency at the Site, supports the remedy changes described in this ESD.

VI. Statutory Determinations

EPA and DNR have determined that these significant changes comply with the statutory requirements of CERCLA §121, 42 U.S.C. § 621, are protective of human health and the environment, comply with federal and State requirements that are applicable or relevant and appropriate to the remedial action, are cost-effective, and use permanent solutions and alternative treatment technologies to the maximum extent practicable.

Because the remedy changes described in this ESD will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, statutory reviews will continue to be conducted no less often than every five years after the initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment. Five-year reviews were completed in 2005, 2010, and 2015. The next five-year review is scheduled to be completed by August 2020.

VII. Public Participation

DNR, the lead agency at the Site, will meet the public participation requirements set out in the NCP § 300.435(c)(2) by publishing this ESD, making it available to the public in the Administrative Record, and publishing a notice summarizing the ESD in a major local newspaper.

VIII. Authorizing Signatures

The lead agency formally authorizes this ESD by the signature below.

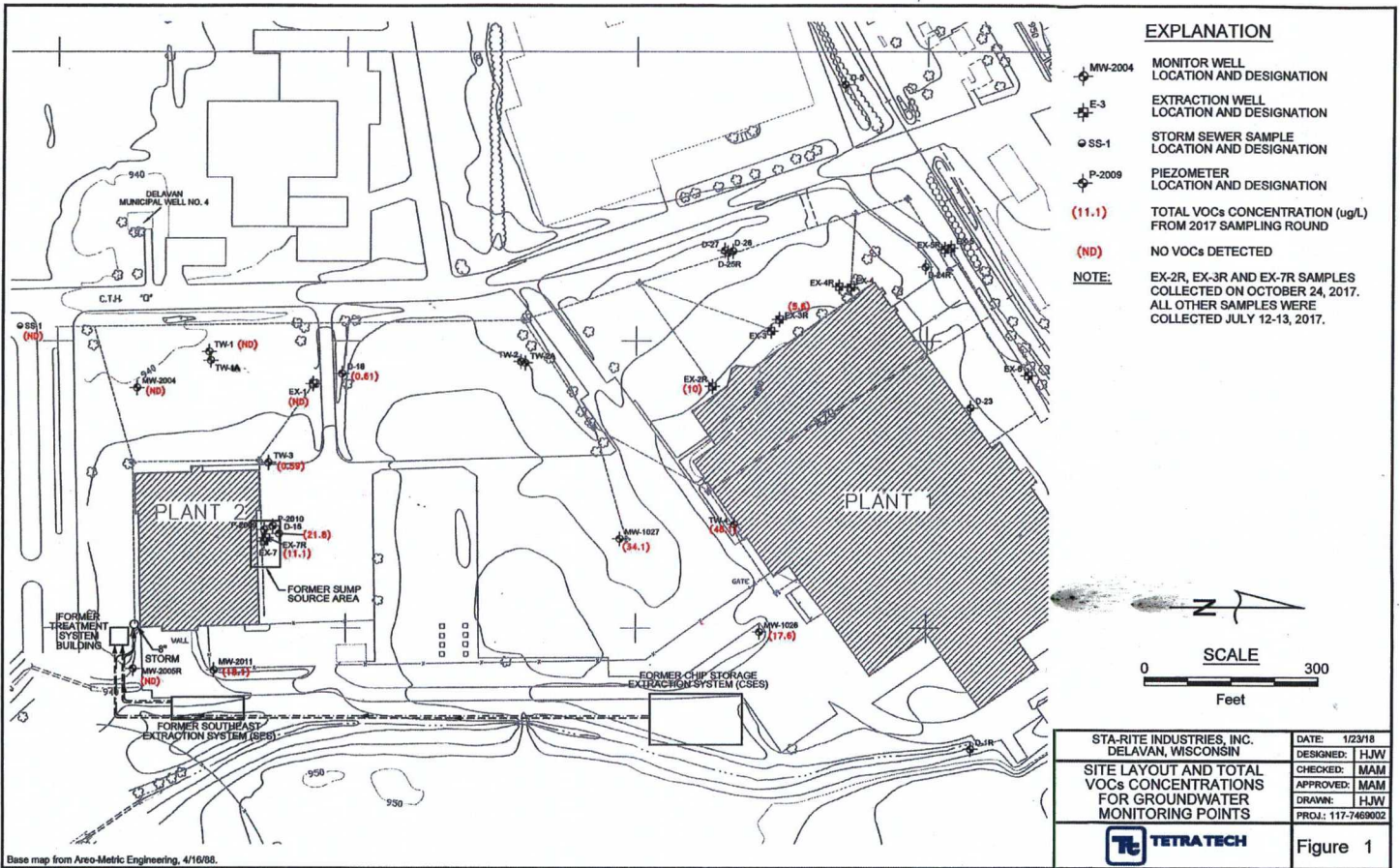
June 5, 2018
Date

Darsi Foss
Darsi Foss
Program Director
Remediation & Redevelopment Program
Wisconsin Department of Natural Resources

The support agency indicates its concurrence with this ESD by the signature below.

6/21/2018
Date

Robert A. Kaplan
for Robert A. Kaplan, Acting Director
Superfund Division
EPA Region 5



Base map from Aero-Metric Engineering, 4/16/08.
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