

**From:** McKnight, Kevin - DNR  
**Sent:** Friday, February 16, 2024 9:43 AM  
**To:** rick.podlaski@thermofisher.com  
**Cc:** robert.fetter@thermofisher.com; david.decourcybower@erm.com; john.roberts@erm.com; Austin, Brian P - DNR; Phelps, William L - DNR; Haas, David J - DNR; Beggs, Tauren R - DNR; McKnight, Kevin - DNR  
**Subject:** ISCO/ISCR Pilot Test - Hamilton Industries Site (Former) BRRTS# 02-36-578316  
**Attachments:** 20240216\_64\_Inject\_Infiltrate\_Appr.pdf

Mr. Podlaski,

Attached is your approved Infiltration/Injection Temporary Exemption approval for the proposed pilot test to remediate chlorinated solvents in groundwater at this site. The DNR added Ethene/Ethane analysis to the groundwater monitoring plan for the initial and 90 day sampling events to assist in determining if full dichlorination is occurring. These analytes should be added to the overall site groundwater sampling plan in any areas chlorinated solvents are present.

If you have questions regarding this letter please contact me.

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**Kevin D. McKnight**

Hydrogeologist - Remediation and Redevelopment Program  
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February 16, 2024

Thermo Fisher Scientific  
Attn: Rick Podlaski  
P.O. Box 17340  
Stamford, CT 06907  
Via Electronic Mail to [rick.podlaski@thermofisher.com](mailto:rick.podlaski@thermofisher.com)

Subject: Infiltration/Injection Temporary Exemption Request for  
Hamilton Industries Site (Former), 1316 18<sup>th</sup> St., Two Rivers WI  
DNR BRRTS Activity #: 02-36-578316, FID #: 436034060  
WPDES Permit Site ID (FIN): 92126

Dear Mr. Podlaski:

The purpose of this letter is to approve a temporary exemption for the injection of a remedial material into groundwater at the site identified above in accordance with Wisconsin Administrative (Wis. Admin) Code § 140.28(5). The Wisconsin Department of Natural Resources (DNR) received a request for a temporary exemption to inject PersulfOx and Provectus EZVI solutions into groundwater at the Hamilton Industries Site (Former) from your consultant, ERM, on December 21, 2023. The DNR also received a complete electronic Notice of Intent (eNOI) and Discharge Management Plan for the *Contaminated Groundwater from Remedial Action Operations* Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit No. WI-0046566-07-0 on February 13, 2024. A review fee of \$700 was submitted on January 16, 2024. This temporary exemption approval is intended to provide assurances to Thermo Fisher Scientific that the environmental cleanup being conducted in response to a discharge of hazardous substances on the site is being conducted in accordance with Wisconsin Statutes (Wis. Stat.) § 292.12.

This project is for pilot testing In Situ Chemical Oxidation (ISCO) utilizing sodium persulfate (PersulfOx) and In Situ Chemical Reduction (ISCR) utilizing zero valent iron (Provectus EZVI) coupled with emulsified vegetable oil to remediate chlorinated solvent groundwater contamination on the site. Both pilot tests will be in areas of the site with >500ug/l trichloroethylene (TCE) in groundwater. The pilot test for ISCO will be in the shallow sandy aquifer upland area while ISCR will be utilized in the silt and clay aquifer along the East Twin River. Groundwater analysis will be performed post injection to evaluate effectiveness of ISCO/ISCR and a final report will be submitted with conclusions and recommendations based on the pilot tests.

### **DETERMINATION ON THE NR 812 INJECTION PROHIBITION**

The proposed injection for remedial activity is approved by the DNR and is therefore not prohibited under Wis. Admin. Code § NR 812.05.

## NR 140 TEMPORARY EXEMPTION

DNR approval is granted to Thermo Fisher Scientific for a temporary exemption in accordance with Wis. Admin. Code § 140.28(5) for the injection of PersulfOx and Provectus EZVI solutions to groundwater on the Hamilton Industries Site (Former) property, with terms and conditions. Based on the information provided, it appears the requirements for a temporary exemption for the injection of a remedial material for which a groundwater quality standard has not been established under Wis. Admin. Code § NR 140.28(1)(d) have been or will be met, in accordance with Wis. Admin. Code § NR 140.28(5)(c) and (d).

The expiration date of the temporary exemption shall be 1 year from the date of this letter. DNR approval is granted with the following terms and conditions:

A. Prerequisites for the DNR Granting a Temporary Exemption. Wis. Admin. Code § NR 140.28(5)(c):

1. The remedial action for restoring contaminated soil or groundwater, and any infiltrated or injected contaminated water and remedial materials, shall achieve the applicable response objectives required by Wis. Admin. Code § NR 140.24(2) or § NR 140.26(2) within a reasonable period of time.
2. The type, concentration and volume of substances or remedial material to be infiltrated or injected shall be minimized to the extent that is necessary for restoration of the contaminated soil or groundwater and be approved by the DNR prior to use.
3. Any infiltration or injection of contaminated water or remedial material into soil or groundwater shall not significantly increase the threat to public health or welfare, or to the environment.
4. No uncontaminated or contaminated groundwater, substance or remedial material shall be infiltrated or injected into an area where a floating non-aqueous liquid is present in the contaminated soil or groundwater.
5. There will be no expansion of soil or groundwater contamination, or migration of any infiltrated or injected contaminated water or remedial material, beyond the edge of previously contaminated areas, except that infiltration or injection into previously uncontaminated areas may be allowed if the DNR determines that expansion into adjacent, previously uncontaminated areas is necessary for the restoration of the contaminated soil or groundwater, and the requirements of Wis. Admin. Code § NR 140.18(1) will be met.
6. All necessary federal, state and local licenses, permits and other approvals are obtained and compliance with all applicable environmental protection requirements is required. Coverage under the *Contaminated Groundwater from Remedial Action Operations* WPDES General Permit No. WI-0046566-07-0 is required for this action.

B. Specific Requirements. Wis. Admin. Code § NR 140.28(6)(b) and (c):

1. The remedial materials to be injected to the groundwater shall be limited to PersulfOx and Provectus EZVI solutions, emulsified vegetable oil and clean water.
2. The remedial material and injection project shall be as described in the *Pilot Test Work Plan for In-Situ Remediation* dated December 21, 2023.
3. Thermo Fisher Scientific shall notify the DNR of field activities no less than one (1) week

- before implementation.
4. In the monitoring plan, include screening for soil vapor as a best management practice.
  5. Remediation progress reports shall be submitted with the semiannual progress reports. The progress reports shall include the groundwater monitoring results. The first report should be submitted not more than 180 days after the first injection. Recommendations as to the next phase of sampling and/or the need for additional treatment shall be included in a future report. This report shall be submitted as soon as the necessary information is available and must be submitted prior to the expiration date of this temporary approval.
  6. Any significant changes based on information from the injection groundwater monitoring reports or results shall be submitted to the DNR for approval prior to the changes being implemented at the site. This includes, but is not limited to, adjustments to the volume/mass of the media injected, additional injection points, number of injection events and/or changes in the type of remediation media used in the injection points.
  7. Modifications to the sampling schedule may be requested.
  8. In the event of future injection activities, the responsible party may apply for an extension of this approval. A request for an extension of this approval must be received by the DNR before the expiration date of the temporary exemption.
  9. Any extension approvals will be dependent on DNR review of site-specific data or any other information it deems necessary.
  10. Upon completion of the project, the injection holes must be abandoned in accordance with Wis. Admin. Code § NR 141.25 and later topped off with grout or native soils if settling occurs, unless converted to Wis. Admin. Code ch. NR 141 complying monitoring wells, or an alternative approved by the DNR project manager.
  11. Monitoring Conditions:
    - a. The actual volume injected must be recorded on an hourly basis for each day of the project.
    - b. The baseline monitoring must be performed prior to the first injection event as documented in Table 5: Pilot Test Monitoring Parameters included in the work plan dated December 21, 2023.
      - i. Expand the list of analytes to include Ethene and Ethane analysis at all groundwater sampling locations.**
    - c. After completion of the injection phase of the remedial action (90 day sampling event), all monitoring wells shall be sampled for the parameters listed in 11.b
    - d. A site-specific Health and Safety Plan shall be followed.
    - e. The injection shall be performed at less than 100 pounds per square inch (psi) at a rate which prohibits solution mounding in the aquifer and plume disfigurement.

Failure to adhere to the terms and conditions of this temporary exemption may result in the DNR requiring revisions to the remedial action design, operation or monitoring procedures, or the revocation of this temporary exemption approval and the implementation of an alternative remedial action to restore soil or groundwater quality.

## WPDES PERMIT APPROVAL

The DNR determined that the proposed injection/infiltration discharge to groundwater from Hamilton Industries Site (Former), located at 1316 18<sup>th</sup> St., Two Rivers WI, is eligible for coverage and is hereby authorized under the *Contaminated Groundwater from Remedial Action Operations* WPDES General Permit No. WI-0046566-07-0. This determination was based on review of a complete eNOI and discharge management plan submitted by ERM Inc., and received by DNR on February 13, 2024. Download the permit and fact sheet from the DNR General Permits web page at [dnr.wisconsin.gov/topic/Wastewater/GeneralPermits.html](http://dnr.wisconsin.gov/topic/Wastewater/GeneralPermits.html).

The DNR is also approving the discharge management plan that was submitted with the eNOI in accordance with the *Contaminated Groundwater from Remedial Action Operations* WPDES General Permit No. WI-0046566-07-0. The discharge management plan satisfies the requirements in Section 3 of the general permit.

The proposed injection/infiltration discharge to groundwater is eligible for coverage and is hereby authorized under the *Contaminated Groundwater from Remedial Action Operations* WPDES General Permit No. WI-0046566-07-0 in accordance with Wis. Admin. Code § NR 205.08, subject to the following general permit conditions:

1. Coverage Effective Date: Coverage at your facility will become effective under this permit upon the date of this letter until permit coverage termination, revocation or reissuance of the general permit. This permit applies only to the discharge activities and sites described in the eNOI for the above referenced project.
2. Discharge Management Plan: The permittee shall operate consistent with the approved discharge management plan. A copy of the discharge management plan shall be retained by the permittee and this plan shall be made available upon DNR inspection or submitted to the DNR upon request. Permittees shall notify the DNR when the discharge management plan is amended to determine if the amendment requires DNR approval.
3. Reporting: The permittee is exempt from monitoring and reporting under this general permit and shall follow the terms and conditions of the remedial action plan approval under Wis. Admin. Code ch. NR 724 and the temporary exemption granted under Wis. Admin. Code § NR 140.28(5).
4. Coverage Termination: Once the project is completed, please complete and submit a *Notice of Termination* (Form 3400-221) to the DNR, available at [dnr.wi.gov/topic/wastewater/GeneralPermits.html](http://dnr.wi.gov/topic/wastewater/GeneralPermits.html).
5. Change of Authorized Representative: If you plan on changing the authorized representative contact for the facility or you want to assign a new person to be a duly authorized representative to submit specific permit documents on your behalf, please complete and submit a *Delegation of Signature Authority* (Form 3400-220) to the DNR, available at [dnr.wi.gov/topic/wastewater/GeneralPermits.html](http://dnr.wi.gov/topic/wastewater/GeneralPermits.html).
6. Facility Changes: If there have been or will be any changes in facility operations that result in new or different wastewater discharges to the waters of the state, please contact the DNR consistent with Section 7.1.6 of the general permit. If reapplication is necessary, please complete a notice of intent (NOI) form for the applicable general permit to verify that your discharge is eligible for that general

permit. NOI forms are available at [dnr.wi.gov/topic/wastewater/GeneralPermits.html](http://dnr.wi.gov/topic/wastewater/GeneralPermits.html).

7. **Compliance with Permit Conditions:** You are responsible for compliance with the general permit requirements and conditions listed above and all other applicable requirements and conditions contained in the general permit. **To assure you remain in compliance and avoid any enforcement action, please carefully read the general permit.**

### LEGAL AUTHORITIES AND APPEAL RIGHTS FOR WPDES GENERAL PERMIT

Wis. Stat. § 283.35(1) authorizes the DNR to issue a general permit applicable to a designated area of the state authorizing discharges from specified categories or classes of point sources located within that area. Upon the request of the owner or operator of a point source, the DNR shall withdraw the point source from the coverage of a general permit and issue an individual WPDES permit for that source in accordance with Wis. Stat. § 283.35(2). Additionally, the DNR may withdraw a point source from the coverage of a general permit and issue an individual WPDES permit if that source meets any of the factors listed in Wis. Stat. § 283.35(3). Issuance of such an individual permit will provide for a public comment period and potentially a public informational hearing and/or an adjudicatory hearing. In lieu of general permit withdrawal, the DNR may refer any violation of a general permit to the Department of Justice for enforcement under Wis. Stat. § 283.91, pursuant to Wis. Stat. § 283.89. To remain in compliance and avoid any enforcement action, please read your permit carefully.

To challenge the reasonableness of or necessity for any term or condition of an issued, reissued or modified general permit, Wis. Stat. § 283.63 and Wis. Admin. Code ch. NR 203 require that you file a verified petition for review with the Secretary of the Department of Natural Resources within 60 days after notice of the permit decision was issued by the DNR. For other permit-related decisions, such as the decision to confer general permit coverage to your facility, that are not reviewable pursuant to Wis. Stat. § 283.63, it may be possible for permittees or other persons to obtain an administrative review pursuant to Wis. Stat. § 227.42 and Wis. Admin. Code § NR 2.05(5) or a judicial review pursuant to Wis. Stat. § 227.52. If you choose to pursue one of these options, you should know that Wisconsin Statutes and Administrative Code establish time periods within which requests to review DNR decisions must be filed.

If you have questions regarding this letter, please contact me at (920) 808-0170 or [Kevin.McKnight@wisconsin.gov](mailto:Kevin.McKnight@wisconsin.gov).

Sincerely,



Kevin D. McKnight  
Hydrogeologist, Northeast Region  
Remediation & Redevelopment Program

Attachment: Table 5: Pilot Test Monitoring Parameters

Infiltration/Injection Temporary Exemption Request  
Hamilton Industries Site (Former)  
DNR BRRTS Activity #: 02-36-578316  
February 16, 2024

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David de Courcy-Bower, ERM ([david.decourcybower@erm.com](mailto:david.decourcybower@erm.com))

John Roberts, ERM ([john.roberts@erm.com](mailto:john.roberts@erm.com))

Brian Austin, DNR, Drinking and Groundwater Program ([Brian.Austin@wisconsin.gov](mailto:Brian.Austin@wisconsin.gov))

Bill Phelps, DNR, Drinking and Groundwater Program ([William.Phelps@wisconsin.gov](mailto:William.Phelps@wisconsin.gov))

David Haas, DNR, Wastewater – [David.Haas@wisconsin.gov](mailto:David.Haas@wisconsin.gov)

Tauren Beggs, DNR, Remediation & Redevelopment Program ([Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov))

TABLE 5: Pilot Test Monitoring Parameters

Former Hamilton Industries Site  
 1316 18th St, Two Rivers, WI  
 BRRTS #02-36-578316

Add Ethene/Ethane sampling to initial and 90 day sampling events

Well	Depth to Water	Organics <sup>2</sup>		Cations - Laboratory Analysis				Anions - Laboratory Analysis				Field Measured (field test kits) <sup>1</sup>				Field measured (water quality meter / low flow)				
		VOC EPA 8260 ug/L	PFAS EPA 537 ng/L	Total and Dissolved Metals (Ca, Mg, Na, K, Fe, Mn) by USEPA Method 200.7	Chloride (dissolved) Method 9056a mg/L	Sulfide (dissolved) Method 9034 mg/L	Sulfate (dissolved) Method 9038 mg/L	Nitrate (dissolved) EPA 353.2 mg/L	Alkalinity mg/L as CaCO <sub>3</sub>	Ferrous Iron, Fe(2+) mg/L	Sulfate (SO <sub>4</sub> <sup>2-</sup> ) mg/L	Persulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> )	Temp deg. C	Diss Oxygen mg/L	Spec Cond uS	pH s.u.	ORP mV			
<b>INITIAL SAMPLING (Prior to Pilot Injection Testing)</b>																				
INJ-1	X	X											X	X	X	X	X			
INJ-2	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
INJ-3	X	X											X	X	X	X	X			
INJ-4	X	X											X	X	X	X	X			
INJ-5	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
INJ-6	X	X											X	X	X	X	X			
MW-13S	X	X																		
MW-13D	X	X																		
MW-15S	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
MW-15I	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
MW-15D	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
MW-27S	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
MW-28S	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
MW-29S	X	X											X	X	X	X	X			
MW-30I	X	X											X	X	X	X	X			
MW-31S	X	X											X	X	X	X	X			
City Water	-	-	X	X	X	X	X	X	X	X	X		X	X	X	X	X			
<b>15, 30 and 60-DAY SAMPLING (WATER LEVELS AND FIELD WATER QUALITY ONLY UNLESS SC FROM LOW-FLOW IS CONSISTENTLY &gt; 1,850 uS/cm, or pH is &lt; 7.2) <sup>3</sup></b>																				
INJ-1	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	X	X			
INJ-2	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	X	X			
INJ-3	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	X	X			
INJ-4	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	X	X			
INJ-5	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	X	X			
INJ-6	X	-	-	-	X	-	-	-	-	-	X	X	X	X	X	X	X			
MW-13S	X	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X			
MW-13D	X	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X			
MW-15S	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			
MW-15I	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			
MW-15D	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			
MW-27S	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			
MW-28S	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			
MW-29S	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			
MW-30I	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			
MW-31S	X	-	-	-	X	-	-	-	-	-	X	X	-	X	X	X	X			



TABLE 5: Pilot Test Monitoring Parameters

Former Hamilton Industries Site
1316 18th St, Two Rivers, WI
BRRTS #02-36-578316

Well	Depth to Water	Organics <sup>2</sup>		Cations - Laboratory Analysis	Anions - Laboratory Analysis				Field Measured (field test kits) <sup>1</sup>				Field measured (water quality meter / low flow)				
		VOC EPA 8260 ug/L	PFAS EPA 537 ng/L	Total and Dissolved Metals (Ca, Mg, Na, K, Fe, Mn) by USEPA Method 200.7	Chloride (dissolved) Method 9056a mg/L	Sulfide (dissolved) Method 9034 mg/L	Sulfate (dissolved) Method 9038 mg/L	Nitrate (dissolved) EPA 353.2 mg/L	Alkalinity mg/L as CaCO <sub>3</sub>	Ferrous Iron, Fe(2+) mg/L	Sulfate (SO <sub>4</sub> <sup>2-</sup> ) mg/L	Persulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> ) mg/L	Temp deg. C	Diss Oxygen mg/L	Spec Cond uS	pH s.u.	ORP mV
<b>90-DAY AND 180-DAY SAMPLING (WATER LEVELS AND FIELD WATER QUALITY ONLY UNLESS SC FROM LOW-FLOW IS CONSISTENTLY &gt; 1,850 uS/cm, or pH is &lt; 7.2) <sup>3</sup></b>																	
INJ-1	X	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X
INJ-2	X	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X
INJ-3	X	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X
INJ-4	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INJ-5	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INJ-6	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-13S	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-13D	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-15S	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-15I	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-15D	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-27S	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-28S	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-29S	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-30I	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-31S	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:

1 Field test kits include:

Acid titration (Standard Method 404 or equivalent)

Ferrous Iron (Fe2+), HACH Test Kit IR-24 Dual Range (<https://www.hach.com/p-iron-color-disc-test-kits/255600>).

Sulfate (SO<sub>4</sub><sup>2-</sup>), HACH Test Kit USEPA1 SulfaVer 4 Method2 Method 8051 ([www.hach.com](http://www.hach.com))

Persulfate (Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>), Chemetrics Kit K-7870 Color Comparison Field Kit (<https://www.chemetrics.com/product-category/test-kits/persulfate/>)

2 If sample will be collected within 2 months of a routine quarterly monitoring event, do not sample well for VOCs.

3 Specific Conductivity and pH limits set as the upper 66% (SC) and lower 33% (pH) limits on the normal distribution of field measured values.