Prepared by:
Ramboll US Corporation

Date:
May 2020

Project Number:
169005819

UNDERGROUND INJECTION CONTROL APPROVAL REQUEST

MARQUETTE UNIVERSITY
(FORMER ONE-HOUR VALET DRYCLEANERS SITE)
1214-1222 WEST WELLS STREEET
MILWAUKEE, WISCONSIN

BRRTS NO. 02-41-152248
FID NO. 241086120

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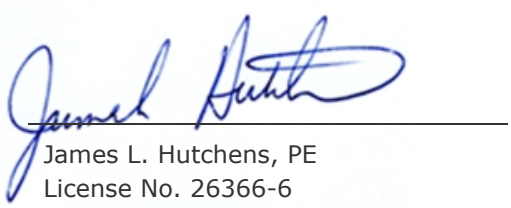
CERTIFICATION

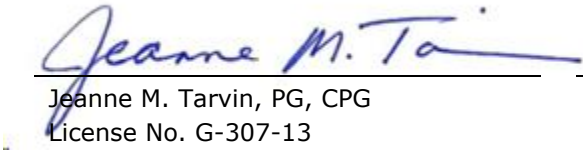
I, James Hutchens, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A–E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A–E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to NR 726, Wis. Adm. Code.



James L. Hutchens, PE
License No. 26366-6

May 26, 2020
Date

I, Jeanne Tarvin, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.



Jeanne M. Tarvin, PG, CPG
License No. G-307-13

May 26, 2020
Date

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ACRONYMS AND ABBREVIATIONS

ABC®	Anerobic BioChem®
amsl	above mean sea level
bgs	below ground surface
BRRTS	Bureau of Remediation and Redevelopment Tracking System
*c*DCE	cis-1,2-dichloroethene
CVOC	chlorinated volatile organic compound
DERF	Drycleaner Environmental Response Fund
Dhc	Dehalococcoides
DPT	direct-push technology
ERD	enhanced reductive de-chlorination
ES	enforcement standard
eV	electron-volt
Ft	feet or foot
Ft-bgs	feet or foot below ground surface
Ft/ft	foot per foot
Marquette	Marquette University
µg/kg	microgram per kilogram
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
mg/L	milligrams per liter
mL	milliliter
mV	millivolt
NR	Natural Resource
PAL	Preventative Action Limit
Ramboll	Ramboll US Corporation
RCL	residual contaminant level
Site	Former One-Hour Valet Drycleaner Site
TCE	trichloroethene
*t*DCE	trans-1,2-dichloroethene
TOC	total organic carbon
UIC	Underground Injection Control
US	United States
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
ZVI	zero-valent iron

1. INTRODUCTION AND BACKGROUND

Ramboll US Corporation (Ramboll), on behalf of Marquette University (Marquette), has prepared the following Underground Injection Control (UIC) Approval Request for the Former One-Hour Valet Dry Cleaner Site (the "Site") located in Milwaukee, Wisconsin. This request was completed in accordance with the Wisconsin Pollutant Discharge Elimination System (WPDES) general permit requirements to request a two-year exemption for injection activities in accordance with Wisconsin Administrative Code (WAC) NR 140.28(5) and approval to inject remedial materials under WAC NR 812.05. This request is for performance of initial injection activities and installation of permanent injection wells with subsequent injection activities to take place as required. Injection of remedial materials are proposed for discharge to groundwater at the Site.

The *Post-Remedial Action Documentation Report* (Ramboll, May 2020), submitted to the Wisconsin Department of Natural Resources (WDNR) concurrently with this request, documents the post soil blending remedial monitoring activities completed through March 2020. In addition, this Report provides a work plan for the performance of the supplemental remedial amendment injections addressed in this request. The objective of the additional remediation work is to further remediate groundwater impacted with chlorinated volatile organic compounds (CVOCs) at the Site.

This UIC Approval Request meets the following requirements:

- WAC Chapter NR 140, NR 700, and NR 800 Rule Series; and
- WDNR Publication PUB-RR-935 (Infiltration and Injection Requests).

1.1 WDNR Project Manager

Mr. Issac Ross
Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King, Junior Drive
Milwaukee, Wisconsin 53212-3128
(414) 263-8519
Issac.Ross@wisconsin.gov

1.2 Responsible Party/Site Owner

Marquette University
Mr. Joel Smullen, AIA
517 North 14th Street
Milwaukee, Wisconsin 53233
(414) 288-4620
Joel.Smullen@marquette.edu

1.3 Consultant Information

Ms. Jeanne Tarvin, PG, CPG
Ramboll US Corporation
175 North Corporate Drive, Suite 160
Brookfield, Wisconsin 53045
(262) 901-0085
jtarvin@ramboll.com

1.4 Site Setting

The Site is located at 1214-1222 West Wells Street in the southwest ¼ of the northwest ¼ of Section 29, Township 7 North, Range 22 East, City of Milwaukee, Milwaukee County, Wisconsin. The geographic position of the Site in WTM 91 (x, y) coordinates obtained from the WDNR Remediation and Redevelopment (RR) interactive Site Map (http://dnrmaps.wi.gov) is 688795, 287401. The Site includes two tax parcels in the City of Milwaukee, including Tax Parcel Nos. 3910218000 and 3910219100.

The Site is bounded on the west by a public alley and Marquette parking structure, on the north by a hospital parking garage, on the east by North 12th Street and on the south by West Wells Street, as shown on Figure 1. The Site is currently owned by Marquette and is enrolled in the WDNR-administered Dry-cleaner Environmental Response Fund (DERF) Program for claimants seeking financial assistance with the site investigation and remediation of dry-cleaning solvent releases to the subsurface. The former Site buildings were demolished in Spring 2018 and the property was redeveloped as an asphalt paved parking lot in the Summer of 2019.

The Site slopes from the northwest to the east and south, resulting in storm water drainage toward North 12th Street and West Wells Street. The nearest surface water body is the Menomonee River, which is located approximately one-half mile to the south of the Site. Potable water for the area is provided by the City of Milwaukee municipal water supply, the source of which is Lake Michigan.

The Site has been subject to several subsurface investigations since 1999 which are briefly discussed in Sections 2.2 and 2.3. The WDNR has assigned Bureau of Remediation and Redevelopment Tracking System (BRRTS) number 02-41-152248 to the case file.

1.5 Project Contacts and Emergency Procedures

The proposed injection remedy will be conducted using *in-situ* injection methods and will be performed on behalf of Marquette by Redox Tech, LLC (Redox Tech), under the guidance of Ramboll. The project contact personnel for the injections and permanent injection well installations are as follows:

Regulatory Agency: Wisconsin Department of Natural Resources

- Issac Ross, WDNR Project Manager: (414) 263-8519

Responsible Party's Environmental Consultant: Ramboll US Corporation

- Jeanne Tarvin, Project Principle, Direct: (262) 901-0085, Cell: (414) 326-5365
- Susan Petrofske, Project Manager, Direct: (262) 901-3501, Cell: (262) 391-5990

Remediation Contractor: Redox Tech, LLC

- Steve Markesic, Project Manager, Direct: (248) 564-3403

Local community questions or concerns should be directed to the attention of Mr. Joel Smullen (414-288-4620) of Marquette who will engage Ramboll to assist, as appropriate. In the event of an emergency, Mr. Smullen is the primary contact, and the secondary contact is Ms. Tarvin/Ms. Petrofske of Ramboll.

2. SITE INVESTIGATION INFORMATION

2.1 Geologic and Hydrologic Setting

The predominant undisturbed lithologic units encountered at the Site at depths ranging to 28 feet below ground surface (ft-bgs) (Boring PZ-4) to 31 ft-bgs (Boring PZ-2R) include granular and cohesive fill and glacial deposits comprised of silty clay and clayey silt with interbedded thin discontinuous silt and fine sand seams. These glacial deposits shift to silty sand and sand deposits that contain thin discontinuous lenses of silt and silty clay to a maximum observed depth of previously completed soil borings PZ-3 (51 ft-bgs) and PZ-4 (45 ft-bgs). Please note that PZ-3 was abandoned in 2018 due to the July 2018 remedial action discussed in Section 2.2.

Water levels in the monitoring wells have ranged between approximately 7 and 14 ft-bgs. Water table elevations are highest in the northwestern portion of the Site (approximately 642.5 to 648.5 feet above mean sea level [amsl] at MW-2), and the lowest water table elevations are present within the eastern portion of the Site (approximately 635.6 to 636.4 feet amsl at MW-1 and MW-5, respectively).

Shallow groundwater generally flows from northwest to southeast. During the March 2020 groundwater sampling event a horizontal hydraulic gradient of 0.051 feet per foot (ft/ft) was calculated between MW-2 and MW-5. Based on the invert elevations of 12-inch diameter sanitary sewer lines located near the eastern and southern property boundary, groundwater may be intercepted by the sanitary sewers. Water level measurements obtained from monitoring well/piezometer nests MW-5/PZ-4 during the March 2020 sampling event indicate downward vertical hydraulic gradient of 0.5 ft/ft.

In-situ hydraulic conductivity testing was completed in monitoring wells MW-3, MW-5, PZ-3, and PZ-4 during previous site investigation activities by GZA GeoEnvironmental, Inc (GZA) in 2011 and documented in a 2012 Site Investigation Report (GZA, 2012). The results of the *in-situ* aquifer testing revealed hydraulic conductivities in the range of 7.8×10^{-5} centimeters per second (cm/sec) to 6×10^{-4} cm/sec, with a geometric mean of 3×10^{-4} cm/sec. Based on the low, mean and high hydraulic conductivities, the measured hydraulic gradient and an estimated porosity of 25 percent, the horizontal groundwater flow velocity was calculated to range between 15 feet per year (ft/yr) to 100 ft/yr, with a mean of 50 ft/yr (GZA, 2012).

2.2 Previous Site Investigations and 2018 Remedial Action

Site investigation activities were initiated at the Site in 1999 and were conducted in several phases. Site investigation activities prior to the 2018 remedial action were documented in the *Site Investigation Report* in 2012 (GZA, 2012). Site investigation activities include soil boring and monitoring well installation, test pit excavations, groundwater monitoring events, and hydrogeologic testing. Following source area soil and groundwater investigation activities, a *Remedial Design Report* (Ramboll, 2018), which included evaluation of remedial action options, was prepared to document the technical basis, design, and implementation approach for the selected remedial option. The selected remedy was *in-situ* enhanced reductive de-chlorination (ERD) through soil blending technology. The *Remedial Design Report* was approved by the WDNR in early 2018, and soil and groundwater remediation activities were conducted in July 2018.

Approximately 1,940 cubic yards of CVOC impacted soil and groundwater were treated using *in-situ* ERD soil blending by incorporating zero-valent iron (ZVI) and a carbon amendment (commercially known as Anaerobic BioChem [ABC®]) into the delineated impacted soils. A Temporary Injection Exemption Request was approved by the WDNR on March 28, 2018 for this work. The soil blending

was primarily focused on treating saturated soil and groundwater at depths below the former dry cleaner's basement floor. Following completion of the soil blending activities, the balance of the former basement void was backfilled with crushed concrete from the former Site buildings. A *Remedial Action Documentation Report* (Ramboll, 2019) was submitted to the WDNR which documented the remediation activities conducted and described the planned post-remediation monitoring activities. The post-remediation monitoring activities include routine groundwater sampling and soil confirmation sampling.

2.3 Post-Remedial Action Monitoring and Soil Confirmation Sampling

Multiple post-remedial action activities have been completed since July 2018 including, reinstallation of monitoring wells (PZ-1R and PZ-2R); three post-remedial action groundwater sampling events; and post-remedial action soil confirmation sampling. Post-remedial action activities were completed to assess the performance of the *in-situ* ERD remedial action.

Three post-remedial action groundwater sampling events completed in May 2019, August 2019, and March 2020 indicate that CVOCs concentrations in groundwater above WAC NR 140 ES criteria within the treatment area and immediately downgradient are dechlorinating through reductive processes. Evidence of reductive dechlorination can be observed through increasing concentrations of tetrachloroethene (PCE) degradation products (cis-1,2-dichloroethene [cDCE], vinyl chloride [VC], methane, ethane, and ethene) in groundwater. Continued elevated concentrations of total organic carbon (TOC) introduced during the July 2018 soil blending event should facilitate continued reductive dechlorination.

Post-remedial action soil confirmation samples were collected on March 9, 2020, approximately 20 months after completion of the July 2018 soil blending activities. Five soil borings were advanced to prescribed depths according to previous treatment depths. Two soil samples were collected per soil boring to evaluate the progress of the remedial action. The soil confirmation samples indicate that maximum PCE concentrations have substantially decreased since the July 2018 remedial action. In addition, increased concentrations of PCE degradation products (e.g., trichloroethene [TCE] and cDCE) in the confirmation soil samples indicate the occurrence of reductive dechlorination of PCE.

Based on residual CVOC concentrations detected in a subset of the post-remedial action soil and groundwater samples collected to date, Ramboll proposes completion of supplemental remedial actions to further enhance reductive dechlorination at the Site. These supplemental remedial actions would be completed through amendment injection via approximately nine proposed injection wells that would be installed within the 2018 treatment area. The installation of injection wells would allow for subsequent amendment injections, if needed, with minimal disruption to the current use of the Site as a parking lot.

3. APPLICATION COMPONENTS

3.1 Description of Proposed Remedial Technology

The July 2018 soil blending treatment activities were completed prior to redevelopment activities and allowed for immediate access to impacted soils. The current Site conditions do not allow for re-blending of impacted soil and, as such, require *in-situ* ERD injection technology to replenish available carbon and dissolved iron. Supplemental soil and groundwater treatment will be accomplished by injecting a combination of a carbon substrate (ABC®), ZVI, and a non-pathogenic microbial culture (KB-1 bioaugmentation containing *Dehalococcoides* [*Dhc*]) at nine locations within the 2018 soil blending area. Safety data sheets (SDS) for the remediation materials are provided in Appendix A.

3.2 Implementation of Injection and Permanent Injection Well Installation Activities

To adequately provide supplemental chemical amendment to treatment area soils, no more than nine injection wells will be installed utilizing a direct-push technology (DPT) drill-rig equipped with large diameter DPT tooling allowing for the installation of pre-packed one-inch diameter wells of varying screen lengths in accordance with WAC NR 141. The wells will be installed in locations throughout the July 2018 treatment area and where March 2020 soil confirmation samples indicated elevated CVOC concentrations. The injection wells will be focused around soil confirmation borings C1, C2, C4, and C5. Proposed locations of the nine injection wells are shown on Figure 1. Proposed injection well locations and quantity are subject to change based on field conditions and further evaluation of the available analytical data.

Prior to well installation, abrupt elevated pressure techniques (fracturing) will be applied to create fractures within the soil matrix across the treatment and proposed screened interval. Applied pressures are anticipated to range between 200 and 300 pounds per square inch (psi). Voids created during the fracturing will be immediately occupied with an emulsion of fine-grain quartz sand, ZVI, carbon amendment, and bioaugmentation microbial culture. Three of the injection borings near boring C1 will have six fracture horizons at approximate discrete depths of 20, 22.5, 25, 27.5, 30, and 32.5 ft-bgs. Fracture thickness is anticipated to be approximately one-quarter inch and radiate approximately 7 to 8 feet from each boring location. Three injection borings near boring C2 will have three fracture horizons at approximate depths of 25, 27.5, and 30 ft-bgs. The remaining three injection borings near borings C4 and C5 will have two fracture horizons at 13 and 15 ft-bgs.

Each fracture will receive approximately 250 pounds of sand, 100 pounds of ZVI, 35 gallons of carbon amendment, and 100 milliliters (mL) of KB-1 bioaugmentation bacteria culture. The KB-1 bioaugmentation bacteria culture is a naturally occurring, non-pathogenic microbial culture that contains *Dhc*. *Dhc* is a group of microorganisms documented to promote the complete dechlorination of chlorinated ethenes to non-toxic ethene (Lu, 2006). The injection of *Dhc* will replenish and increase the existing microbial colony. Estimated total amendment quantities to be applied during the injection well installation activities are approximately 9,750 pounds of sand, 3,900 pounds of ZVI, 1,400 gallons of carbon amendment, and one gallon of KB-1 bioaugmentation bacteria culture. All chemical amendments will be stored and managed within a secured remediation injection trailer.

Following the application of the chemical amendment in the induced fractures at each soil boring, DPT tooling will be removed from the soil boring and decontaminated using potable water. Each pre-packed well will be installed within the annulus and completed at the surface within an eight-inch diameter bolt-down type flush-mount well compartment secured in a concrete pad. Soil cuttings are not anticipated to be generated during the well installation activities within the treated soil area due to the installation of pre-packed monitoring wells. The anticipated waste material is anticipated to be limited to surficial asphalt cores associated with the well compartment installation.

The need for additional amendment injection events will be evaluated using groundwater analytical data (e.g., TOC and volatile organic compounds [VOCs]), groundwater field parameter data (e.g., dissolved oxygen [DO], oxidation-reduction potential [ORP], and pH), and CVOC molar trends. If necessary, these additional injection events will be completed to replenish the carbon amendment (ABC®), and possibly the KB-1 bioaugmentation bacteria culture. If additional injections are warranted, WDNR approval of the quantities and volumes of the proposed chemical amendments will be sought in advance.

3.3 Notifications and Permits

The following sections identify the permits and notifications that are anticipated to be required to conduct the proposed injection activities.

3.3.1 Wisconsin Pollutant Discharge Elimination System Coverage

A "Request for Coverage Under WPDES Wastewater Discharge Permit (WI-0046566-07) for Contaminated Groundwater from Remedial Action Operations" is provided as Appendix B.

3.3.2 Potable Water Use

During chemical amendment preparation potable water will be used to create the aqueous ABC® solution. Water will be obtained from a faucet located in the adjacent Marquette parking garage immediately west of the remediation area. Potable water will be deoxygenated prior to injection activities. Deoxygenation will be completed by adding a combination of sugar and yeast or sodium sulfite. The volumes of deoxygenation chemicals used will be based on the quantity of required deoxygenated water.

3.3.3 Air Permit Applicability

An air permit will not be applicable for the injection process. Fugitive emissions are not anticipated to be generated during pre-injection activities nor emerge due to material being injected below the groundwater table approximately 12 to 35 feet bgs.

3.4 Injection Monitoring

3.4.1 Pre-Injection Vapor Screening and Screening of Ambient Air

During implementation of the *in-situ* injection activities, pre-injection vapor screening including the screening of ambient air at the injection site will not be conducted as all remediation activities will be performed in closed environments (e.g., mixing of remediation materials in closed tanks) or will be injected at depths greater than 12 feet bgs. Additionally, remediation materials are non-reactive (carbon, iron filings, sand, and non-pathogenic bacteria) and in an aqueous solution. Fugitive emissions are not anticipated during injection activities.

3.4.2 Injection Monitoring Activities

Surface materials (e.g., asphalt and vegetation) will be visually monitored during injection activities. If remediation material is observed to daylight or surface at the injection point, the injection process will be immediately stopped. After pressures in the injection lines have decreased, the injection will resume at a lower injection rate and pressure. If remediation material is continuously observed to be daylighting during injection activities, the injection will cease at the location.

3.4.3 Post-Injection Monitoring Activities

Following injection activities, verification of injection activities will be completed by continuing the semi-annual groundwater monitoring program proposed for this Site. The updated groundwater monitoring program is included in the *Post-Remedial Action Documentation Report* (Ramboll, May 2020).

3.4.4 Utilities

During injection activities existing utilities will be located by a private utility locator and the Wisconsin Digger's hotline (811) will be notified. Injection locations will avoid utilities during installation. The injection process will be occurring at depths from 12 to 35 feet bgs and anticipated that utilities will not be disturbed during injection activities due to the depth. Given the non-reactive nature of the

remediation materials, there is no anticipated material incompatibility should contact between a utility and the remediation material occur.

3.5 Project Schedule

The estimated project schedule is provided below and is dependent upon receipt of WDNR approval of this UIC Approval Request:

Task	Anticipated Completion Date
Obtain Approval from WDNR	June 2020
Initial Injection/Injection Well Installation	June 29 through July 3, 2020
Supplemental Injection Activities (If Needed)	Potentially Spring 2021 and/or 2022

4. REFERENCES

GZA GeoEnvironmental, Inc. 2012. *Site Investigation Report Dry Cleaner Solvent Release,* Former One-Hour Valet Dry Cleaners Property. February 24.

Lu, X., D. H. Kampbell, and J. T. Wilson. 2006. *Evaluation of the Role of Dehalococcoides Organisms in the Natural Attenuation of Chlorinated Ethylenes in Groundwater*. USEPA, Washington, DC, EPA/600/R-06/029.

Ramboll US Corporation. 2018. *Remedial Design Report.* Former One-Hour Valet Dry Cleaners, Milwaukee, Wisconsin. February.

Ramboll US Corporation. 2019. *Remedial Action Documentation Report.* Former One-Hour Valet Dry Cleaners, Milwaukee, Wisconsin. March.

Ramboll US Corporation. 2020. *Post-Remedial Action Documentation Report.* Former One-Hour Valet Dry Cleaners, Milwaukee, Wisconsin. May.

FIGURE

HOSPITAL PARKING STRUCTURE

UNIVERSITY PARKING STRUCTURE

PUBLIC ALLEY

N 12th STREET

WELLS STREET

MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9
PZ-1R
PZ-2R
PZ-4
SG-1
C1
C2
C3
C4
C5
C5A
C5B
GUY

SOIL TREATMENT BOUNDARY

LEGEND

- PROPERTY BOUNDARY
- BUILDING FOOTPRINT
- ASPHALT
- CONCRETE
- FENCE LINE
- 1-FT ELEVATION CONTOUR
- UNDERGROUND ELECTRIC
- OVERHEAD ELECTRIC
- TELEPHONE
- WATER LINE
- GAS
- CABLE TV
- FIBER OPTIC
- STORMWATER SEWER
- SANITARY SEWER
- STEAM
- CATCH BASIN
- MANHOLE
- VALVE
- TRAFFIC LIGHT
- TRANSFORMER
- METER
- LIGHT POLE
- UTILITY POLE / GUY
- TREE
- FIRE HYDRANT
- TELEPHONE PEDESTAL
- CONTROL BOX
- MONITORING WELL
- CONFIRMATION SAMPLE
- SOIL TREATMENT BOUNDARY
- PROPOSED INJECTION WELL

REFERENCE: THE SITE LAYOUT, SITE FEATURES, ELEVATIONS, UTILITIES, AND OTHER FEATURES NEAR THE PROPERTY WERE OBTAINED FROM GRAEF-USA IN DECEMBER 2017. MONITORING WELLS WERE SURVEYED IN OCTOBER 2019.

0 25
SCALE IN FEET

PROPOSED SUPPLEMENTAL IN-SITU ERD INJECTION LOCATIONS

FORMER ONE-HOUR VALET DRY CLEANERS
1214 WEST WELLS STREET
MILWAUKEE, WISCONSIN

RAMBOLL

FIGURE 1

DRAFTED BY: HJW | DATE: 4/22/2020 | 1690005819

L:\Loop Project Files_CAD\1690005819_Former 1hr Dry Cleaners\Post-Remedial Action Report\11_Proposed Supplemental In-Situ ERD Injection Locations.dwg

APPENDIX A

SAFETY DATA SHEETS FOR PROPOSED REMEDIATION MATERIALS

SAFETY DATA SHEET
Anaerobic BioChem (ABC)

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Anaerobic BioChem**
GENERAL USE: **Bioremediation of halogenated organics and metals**

MANUFACTURER:

Redox Tech, LLC
200 Quade Drive
Cary, NC 27513
919-678-0140

EMERGENCY TELEPHONE:

Within USA and Canada: 1-800-424-9300
+1 703-527-3887 (collect calls accepted)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Product is generally recognized as safe. May cause irritation exposure to eyes. Long term contact to skin may cause some drying and minor irritation.

3. COMPOSITION INFORMATION ON INGREDIENTS

Proprietary mixture of fatty acids, glycerol, lactates and dipotassium phosphate.

4. FIRST AID MEASURES

EYES: Immediately flush with water for up to 15 minutes. If irritation persists, seek medical attention.

SKIN: Rinse with water. Irritation is unlikely, but if irritation occurs or persists, seek medical attention.

INGESTION: Generally safe to ingest but not recommended.

INHALATION: No first aid required.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Deluge with water

FIRE/EXPLOSION HAZARDS: Product is combustible only at temperatures above 600C

FIRE FIGHTING PROCEDURES: Use flooding with plenty of water, carbon dioxide or other inert gasses. Wear full protective clothing and self-contained breathing apparatus. Deluging with water is the best method to control combustion of the product.

FLAMMABILITY LIMITS: non-combustible

SENSITIVITY TO IMPACT: non-sensitive

SENSITIVITY TO STATIC DISCHARGE: non-senstive

6. ACCIDENTAL RELEASE MEASURES

Confine and collect spill. Transfer to an approved DOT container and properly dispose. Do not dispose of or rinse material into sewer, stormwater or surface water. Discharge of product to surface water could result in depressed dissolved oxygen levels and subsequent biological impacts.

7. HANDLING AND STORAGE

HANDLING: Protective gloves and safety glasses are recommended.

STORAGE: Keep dry. Use first in, first out storage system. Keep container tightly closed when not in use. Avoid contamination of opened product. Avoid contact with reducing agents.

8. EXPOSURE CONTROLS – PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
ABC	**NA**	**NA**	**NA**

ENGINEERING CONTROLS: None are required

PERSONAL PROTECTIVE EQUIPMENT

EYES and FACE: Safety glasses recommended
RESPIRATOR: none necessary
PROTECTIVE CLOTHING: None necessary
GLOVES: rubber, latex or neoprene recommended but not required

9. PHYSICAL AND CHEMICAL PROPERTIES

Odor:	none to mild pleasant organic odor
Appearance:	clear to light amber
Auto-ignition Temperature	Non-combustible
Boiling Point	>600 C
Melting Point	NA
Density	1.15 gram/cc
Solubility	infinite
pH	7-9

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Do not contact with strong oxidizers
STABILITY: product is stable
POLYMERIZATION: will not occur
INCOMPATIBLE MATERIALS: strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS:

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
A: General Product Information
Acute exposure may cause mild skin and eye irritation.
B: Component Analysis - LD50/LC50

No information available.

B: Component Analysis - TDLo/LDLo
TDLo (Oral-Man) none

Carcinogenicity
A: General Product Information
No information available.
B: Component Carcinogenicity
Product is not listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Epidemiology
No information available.

Neurotoxicity
No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Discharge to water may cause depressed dissolved oxygen and subsequent ecological stresses
Environmental Fate
No potential for food chain concentration

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Material is not considered hazardous, but consult with local, state and federal agencies prior to disposal to ensure all applicable laws are met.

14. TRANSPORT INFORMATION

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subjectto change with changes in package size. Consult shipperrequirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information
Shipping Name: Not Regulated
Hazard Class: Not Classified
UN/NA #: Not Classified
Packing Group:None
Required Label(s):None

50th Edition International Air Transport Association (IATA):
Not hazardous and not regulated

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

Material is not regulated under IMDG

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III

SECTION 311 No Hazard for Immediate health Hazard
SECTION 312 No Threshold Quanitity
SECTION 313 Not listed

CERCLA NOT REGULATED UNDER CERCLA

TSCA NOT REGULATED UNDER TSCA

CANADA (WHIMS): NOT REGULATED

16. OTHER INFORMATION

HMIS:

Health	1
Flammability	0
Physical Hazard	0
Personal Protection	E

E: Safety Glasses, gloves

SAFETY DATA SHEET

1. CHEMICAL IDENTIFICATION AND COMPANY INFORMATION

Product Name: **KB-1®**

Company Info:
SiREM
130 Stone Rd. W., Guelph, Ontario, Canada, N1G 3Z2
Phone: 519-822-2265
Toll Free, North America: 1-866-251-1747
Fax: 888-635-3470
www.siremlab.com

Emergency Phone Number: 519-822-2265 (for 24/7 assistance, contact poison center hotline in your jurisdiction).

Description: Microbial inoculum (non-pathogenic, non-hazardous) in growth media consisting of a dilute aqueous solution of mineral salts and nutrients.

Recommended Use: Bioremediation of contaminated groundwater.

Restrictions on Use: KB-1® product intended for laboratory research and field applications for cleanup of contaminated groundwater. Products are not intended to be used as human or animal therapeutics, cosmetics, agricultural or pesticide products, food additives, or as household chemicals.

2. HAZARDS IDENTIFICATION

GHS Classification: Not classified as “hazardous” per OSHA 29 CFR 1910.1200, “Hazard Communication”.

GHS Label elements, including hazard and precautionary statements: Not Applicable.

HMIS Rating:	**Health**	**Flammability**	**Physical Hazard**	**Personal Protection**
	1	0	0	B*
NFPA Rating:	**Health**	**Flammability**	**Reactivity**	**Special Hazard**
	1	0	0	N/A

* B = Safety Glasses, Gloves.

A review of available data indicates minimal potential for health effects related to normal use of this product. Microbial components are non-pathogenic. The product is not expected to be a health hazard as a result of inhalation of mists, ingestion or skin contact. Eye contact may result in mild irritation/redness. Normal hygiene precautions should be observed, including eye protection, skin protection, and hand washing. The potential exists for individuals with hypersensitivity to biological materials to exhibit allergic sensitivity to biological components of this product (see Section 4, “First Aid Measures”).

3. COMPOSITION/INFORMATION ON INGREDIENTS

KB-1® is a microbial culture grown in an aqueous dilute solution of mineral salts and nutrients classified as non-hazardous in accordance with provisions of OSHA 29 CFR 1910.1200, "Hazard Communication."

The microbial composition of KB-1®, as determined by phylogenetic analysis, includes:

Dehalococcoides sp.
Geobacter sp.
Methanomethylovorans sp.

Identification of organisms was obtained by matching 16S rRNA gene sequence of organisms in KB-1® to other known organisms. The characteristics of related organisms can be used to identify potential or likely characteristics of organisms in KB-1®.

4. FIRST AID MEASURES

Avoid direct contact with skin and eyes. In any case of any exposure which elicits a response, a physician should be consulted immediately.

Route of Entry	Symptoms	First Aid Procedures
Ingestion	Upset stomach, irritation of digestive tract.	Do not induce vomiting. Drink several cups of water. Seek medical attention.
Skin contact	Skin irritation – reddening, itching or inflammation.	Remove contaminated clothes. Wash skin with plenty of water and soap. Seek medical attention if irritation develops or open wounds are present.
Eye contact	Eye irritation – redness, tearing, blurred vision.	Rinse immediately with plenty of water for 15 – 20 minutes, lifting lower and upper eyelids occasionally (remove contact lenses if easily possible). Seek medical attention if undue irritation or redness occurs.
Inhalation of mist	Respiratory irritation, coughing, breathing difficulty.	Remove victim to fresh air. Administer first aid as appropriate for symptoms. Seek medical attention if serious symptoms occur.

5. FIRE FIGHTING MEASURES

General:	This material is non-flammable, consisting primarily of water, and poses no special hazards if involved in a fire situation.
Suitable extinguishing media:	If material is involved in fire situation, use extinguishing media suitable for surrounding fire.
Special protective equipment and precautions for firefighters:	No special equipment necessary; use equipment appropriate for surrounding fire.
Hazardous combustion products:	Not applicable.
Toxic gases produced:	Not applicable.
Shock/impact sensitivity:	Not shock sensitive.

6. ACCIDENTAL RELEASE MEASURES

Method of containment and cleanup:	Spilled KB-1® should be soaked up with sorbent and saturated with a 10% bleach solution (prepared by making a one in ten dilution of diluted standard bleach [normally sold at a strength of 5.25% sodium hypochlorite] to disinfect affected surfaces. Sorbent should be double bagged and disposed of as indicated in Section 13. After removal of sorbent, area should be washed with 10% bleach solution to disinfect. If liquid from the culture vessel is present on the fittings, non-designated tubing or exterior of the stainless steel pressure vessel liquid should be wiped off and the area washed with 10% bleach solution.
Ventilation:	No special ventilation is required in the event of the spill, as the material consists of water and non-volatile constituents. If the potential for generation of mist exists, open windows and provide adequate ventilation. If high levels of mist are encountered, use personal protective equipment indicated below.
Eye/skin protection:	Have eye-washing facilities readily available where eye contact can occur. Wash skin with soap and water. Use appropriate protective gloves when handling. Showering and changing into street clothes after work is recommended.
Protective equipment for airborne mist:	A NIOSH/MSHA approved dust mask or air purifying respirator with dust/mist filter is recommended where elevated concentrations of airborne mist are expected.

7. HANDLING AND STORAGE

Handling and storage precautions:	Use personal protective equipment (eye & skin protection) and hygiene measures (hand washing) to minimize contact with the material. KB-1® is shipped in stainless steel pressure vessels and connected to injection lines and inert gas is used to pressurize the vessel to displace the contents. KB-1® should be handled with care to avoid any spillage. Vessels are shipped with 1 to 5 pound per square inch (psi) pressure; valves should not be opened until connections to appropriate lines for subsurface injection are in place. During storage, avoid exposing stainless steel pressure vessels to undue temperature extremes (i.e., temperatures less than 0°C or greater than 30°C may result in harm to the microbial cultures and damage to the vessels). All valves should be in the closed position when the vessel is not pressurized to prevent the escape of gases and to maintain anaerobic conditions in the vessel.
Incompatibilities:	Avoid exposure of the culture to air as the presence of oxygen will kill the microbes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Permissible Exposure Limits (PELs): ACHIH Threshold Limit Values (TLVs):	No occupational exposure limits are established for microbial constituents. Mixture is not classified as "hazardous" in accordance with 29 CFR 1910.1200 "Hazard Communication," exceedance of exposure limits is not anticipated either under normal conditions of use, or as the result of an accidental release.
Engineering controls:	Generally not required under normal conditions of use. If method of use will result in significant mist generation, use under conditions of adequate ventilation.
Work practices:	Use good hygiene practices, avoid mist generation, and minimize contact with the material as a general precautionary measure.
Personal protective equipment:	Under normal conditions of use, wear safety glasses, protective gloves (latex, vinyl or nitrile) and steel toed footwear as general precautionary measures, particularly when opening pressure vessel valves or when pressurizing vessels to inject contents into the subsurface environment. For laboratory use, also wear lab coat. For higher risk of eye contact, wear safety goggles or face shield, as appropriate. Respiratory protection is not required under normal conditions of use (see Section 6, "Accidental Release Measures."

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, physical state:	Aqueous liquid, dark grey, slightly turbid under anaerobic conditions, pink if exposed to air (oxygen).
Odor:	Pungent ("skunky") odor.
Solubility:	Soluble in water.
pH:	6.5 – 7.5
Melting range	Not determined, approximately equivalent to water.
Vapor density:	Not determined, approximately equivalent to water.
Vapor pressure:	Not determined, approximately equivalent to water.
Relative density:	Not determined, approximately equivalent to water.
Evaporation rate:	Not determined, approximately equivalent to water.
Initial Boiling point, boiling range	Not determined, approximately equivalent to water.
Flammability	Not flammable.
Partition coefficient	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature:	No data, bacterial contents will decompose by heating.
Flash point	N/A

10. STABILITY AND REACTIVITY

Chemical stability and reactivity:	Stable and non-reactive.
Possibility of hazardous reactions:	Stable. Spontaneous hazardous chemical reactions / decomposition will not occur.
Conditions to avoid:	Maintain under anaerobic conditions to preserve product integrity (exposure to air/oxygen will kill microbes).
Incompatible materials:	Strong oxidizers, acids, water reactive materials.
Hazardous decomposition products:	Not applicable.
Shock sensitivity:	Not shock sensitive; will not decompose and form shock sensitive compounds.

11. TOXICOLOGICAL INFORMATION

Potential for pathogenicity: KB-1® has tested **negative** (i.e., the organisms are not present) for a variety of pathogenic organisms indicated below:

Pathogenic Organisms	Disease(s) Caused	Test Results
Salmonella sp.	*Typhoid fever, gastroenteritis*	Not Detected
Listeria monocytogenes	*Listerioses*	"
Vibrio sp.,	*Cholera, gastroenteritis*	"
Campylobacter sp.,	*Bacterial diarrhea*	"
Clostridia sp.,	*Food poisoning, botulism, tetanus, gas gangrene*	"
Bacillus anthracis	*Anthrax*	"
Pseudomonas aeruginosa	*Wound infection*	"
Yersinia sp.,	*Bubonic plague, intestinal infection*	"
Yeast and Mold	*Candidiasis, yeast infection etc.*	"
Fecal coliforms	*Indicator organisms for many human pathogens diarrhea, urinary tract infections*	"
Enterococci	*Various opportunistic infections*	"

While there is no evidence that virulent pathogenic organisms are present in KB-1®, there is potential that certain organisms in KB-1® may have the potential to act as opportunistic (mild) pathogens, particularly in individuals with open wounds and/or compromised immune systems. For this reason standard hygienic procedures such as hand washing after use should be observed.

12. ECOLOGICAL INFORMATION

This product is not rated as “hazardous” as either an acute or chronic ecological hazard, in accordance with the OSHA Hazard Communication standard, 29 CFR 1910.1200.

13. DISPOSAL CONSIDERATION

Material must be disinfected or sterilized prior to disposal. Consult local regulations prior to disposal.

14. TRANSPORT INFORMATION

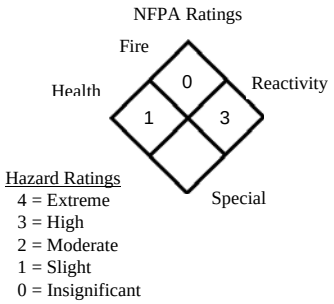
U.S. (D.O.T.):	Proper Shipping Name:	Culture of Micro-organisms
	Hazard Class:	Not applicable
	UN/NA:	Not applicable
	Labels:	Not applicable
Canada (T.D.G.)	Proper Shipping Name:	Culture of Micro-organisms
	Hazard Class:	Not applicable
	UN/NA:	Not applicable
	Labels:	Not applicable
International: IMDG:	Proper Shipping Name:	Culture of Micro-organisms
	Hazard Class:	Not applicable
	UN/NA:	Not applicable
	Labels:	Not applicable
IATA:	Proper Shipping Name:	Culture of Micro-organisms
	Hazard Class:	Not applicable
	UN/NA:	Not applicable
	Labels:	Not applicable

15. REGULATORY INFORMATION

TSCA:	No
SARA TITLE III	
Section 302 (EHS) Ingredients:	No
Section 313 Ingredients:	No
Section 304 (EHS/CERCLA) Ingredients:	No
SARA TITLE III NOTIFICATION INFORMATION	
Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Sudden Release of Pressure Hazard:	No

16. OTHER INFORMATION

SiREM provides the information contained herein for hazard communication and safety planning purposes, based on existing information on each of the product components available in the literature; no independent testing was conducted on the final product. The above information is intended to be used only as a guide to the appropriate precautionary handling of this material by a properly trained person.



FORM NO. 7963-F
DATE REVISED: 01/23/2007

Material Safety Data Sheet

(Essentially Similar to U.S. Department of Labor Suggested Form For Hazard Communication Compliance)

I. Product Identification

Product Type - OXWELD IRON CUTTING & SCARFING POWDER

Manufacturer - THE ESAB GROUP, INC.
Website: www.esabna.com

Address - 801 Wilson Avenue, P. O. Box 517
Hanover, PA 17331

Telephone No. - 1-717-637-8911
1-800-933-7070

Emergency No. - 1-717-637-8911
(CHEMTREC) 1-800-424-9300

COMPOSITION OF CUTTING & SCARFING POWDER
(Weight %)

Product Trade Name	Iron Powder
Oxweld 200	100

THE ESAB GROUP requests the users of these products to study this Material Safety Data Sheet (MSDS) and the product labels and become fully aware of the product hazards and safety information. To promote the safe use of these products a user should (1) notify and train its employees, agents and contractors concerning the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for these products, and (3) request that such customers notify and train their employees and customers, for these products, of the same product hazards and safety information.

II. Hazardous Ingredients

IMPORTANT: This section covers the materials from which this product is manufactured. The fumes and gases produced during normal use of these products are covered in Section V. The term **HAZARDOUS** should be interpreted as a term required and defined by Laws, Statutes, or Regulations, and does not necessarily imply the existence of any hazard when the products are used as directed by **THE ESAB GROUP**.

			ACGIH TLV	OSHA - PEL	
Material	**(CAS No.)**	**SARA**	**TWA (mg/m^3)**	**TWA (mg/m^3)**	**STEL (mg/m^3)**
Iron	(7439-89-6)		5 (Oxide Fume)	10 (Total Particulate)	--

NOTE: In the ingredients table, an asterisk (*) after the CAS number indicates a toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and 40 CFR Part 372.

Some of these products may not contain all of the materials listed. For details of composition, refer to the COMPOSITION TABLE in Section I.

III. Physical Data

As shipped, these products are nonflammable, non-explosive, non-reactive, and non-hazardous.

Physical State: GAS ( ) LIQUID ( ) SOLID (X)

Odor and Appearance: Grey, granular powder. Odorless.

IV. Fire & Explosion Hazard

Flammable/Explosive: NO ( ) YES (X)

Under what conditions: Fine dust concentrations can explode in the presence of an ignition source.

Extinguishing Media: Carbon dioxide or water. Apply extinguishing media with fog nozzles and fine spray to prevent dusting. Flame, hot metal and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation. See ANSI Z49.1 "Safety in Welding and Cutting" and "Safe Practices" Code: SP, published by the American Welding Society, P. O. Box 351040, Miami, FL 33135, and NFPA 51B "Standard for Fire Prevention During Welding, Cutting, and Other Hot Work," published by the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 for additional fire prevention and protection information.

V. Reactivity Data

Stability: Stable (X) Unstable ( ) Polymerization will not occur.

Incompatible products: None currently known.

Hazardous decomposition products: The fumes and gases produced during cutting and scarfing cannot be classified simply. The composition and quantity of both are dependent upon the material being worked, the process, procedures, and consumables used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the material being worked (such as paint, plating or galvanizing), the number of cutting and scarfing operations and the volume of the work area, the quality and amount of ventilation, the position of the worker's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning or painting activities). When the materials are consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the ingredients, plus those from the material being worked and the coatings etc. noted above.

Reasonably expected decomposition products from normal use of these products include a complex of the oxides of the materials listed in Section II, as well as carbon monoxide, carbon dioxide and nitrogen oxides. The only way to determine the true identity of the decomposition products is by sampling and analysis. The composition and quantity of the fumes and gases to which a worker may be overexposed can be determined from a sample obtained from inside the welder's helmet, if worn, or in the workers breathing zone. See ANSI/AWS F1.1 "Method for Sampling Airborne Particles Generated by Welding and Allied Processes," available from the American Welding Society.

VI. Physical and Health Hazard Data

Cutting and scarfing may create one or more of the following health or physical hazards. Fumes and gases can be dangerous to your health. Electric shock can kill you. Arc rays can injure eyes and burn skin. Noise can damage hearing. An additional detailed description of the Health and Physical Hazards and their consequences may be found in ESAB's publications F52-529 "Precautions and Safe Practices for Electric Welding and Cutting" and F1798 "Precautions and Safe Practices for Gas Welding, Cutting and Heating." You may obtain copies from your local supplier or by writing to the address in Section I.

Route of overexposure: The primary route of entry of the decomposition products is by inhalation. Skin contact, eye contact, and ingestion are possible. Absorption by skin contact is unlikely. When these products are used as recommended by **THE ESAB GROUP**, and ventilation maintains exposure to the decomposition products below the limits recommended in this section, overexposure is unlikely.

Effects of acute (short-term) overexposure to the gases, fumes and dusts may include irritation of the eyes, lungs, nose and throat. Some toxic gases associated with cutting and scarfing may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty in breathing, frequent coughing, or chest pain.

Pre-existing Medical Conditions Aggravated by Overexposure: Individuals with allergies or impaired respiratory function may have symptoms worsened by exposure to cutting/scarfing fumes; however, such reaction cannot be predicted due to the variation in composition and quantity of the decomposition products.

Effects of chronic (long-term) overexposure to air contaminants may lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest X-rays. The severity of the change is proportional to the length of the exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on X-rays may be caused by non-work factors such as smoking, etc.

Exposure limits for the ingredients are listed in Section II. The 1989 OSHA TWA for welding fume is 5 mg/m^3. TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and excessive concentrations. When these products are used as recommended by **THE ESAB GROUP**, and the preventive measures taught in this MSDS are followed, overexposure to hazardous substances will not occur.

Emergency First Aid Measures: In case of emergency**,** call for medical aid. Employ first aid technique recommended by the Red Cross. **IF BREATHING IS DIFFICULT,** give oxygen and call for a physician. **FOR ELECTRIC SHOCK**, disconnect and turn off the power. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician. **FOR ARC BURN**, apply cold, clean compresses and call a physician.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, Other): NONE

VII. Precautions for Safe Handling and Use/Applicable Control Measures

Read and understand the manufacturer's instructions and the precautionary label on this product. See American National Standard Z-49.1, "Safety in Welding and Cutting," published by the American Welding Society, P. O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more detail on many of the following:

Ventilation: Use enough ventilation, local exhaust, or both, at the work area to keep the fumes and gases below the TLVs in the worker's breathing zone and the general area. Train the worker to keep his head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplied respirator when cutting in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection: Wear correct eye protection such as safety glasses and eye shields for radiation and flying particles. Provide protective screens and flash goggles, if necessary, to shield others.

Protective Clothing: Wear head, hand and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the worker not to touch live electrical parts and to insulate himself from work and ground.

Procedure for Cleanup of Spills or Leaks: NOT APPLICABLE

Waste Disposal Method: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations.

The opinions expressed in this MSDS are those of qualified experts within **THE ESAB GROUP**. We believe that the information contained herein is current as of the date of this MSDS. Since the use of this information and these opinions and the conditions of use of these products are not within the control of **THE ESAB GROUP**, it is the user's obligation to determine the conditions of safe use of these products.

APPENDIX B

REQUEST FOR INITIAL COVERAGE UNDER WPDES (WI-0046566-07, 06/2018)

1. Notice of Intent (NOI) Contaminated Groundwater from Remedial Action Operations
2. Discharge Management Plan
3. Table 1 – Summary of CVOCs Detected in March 2020 (Soil and Groundwater)

State of Wisconsin
Department of Natural Resources
Bureau of Water Quality
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Notice of Intent (NOI)
Contaminated Groundwater from Remedial Action Operations
WPDES Permit No. WI-0046566-07-0
Rev. 06/2018

Notice: Pursuant to chs. NR 200 and 205, Wis. Adm. Code, this notice of intent (NOI) is required to request coverage under the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0046566-07-0 for discharges of contaminated groundwater to waters of the state of Wisconsin. Failure to complete this form in its entirety may result in a returned NOI or a denied NOI. Personal information collected will be used for administrative purposes and may be provided to requestors to the extent required by Wisconsin Open Records law [ss. 19.31-19.39, Wis. Stats.].

SECTION I: FACILITY/PROJECT LOCATION INFORMATION			
Facility/Project Name Former One-Hour Valet Dry Cleaners		Facility Mailing Address (i.e. PO Box, Street, or Route) VACANT	
Facility/Project Physical Address (i.e. Street or Route) 1214-1222 West Wells Street		City, State, Zip Code Milwaukee, Wisconsin 53233	
County Milwaukee	Facility Phone No. VACANT	Facility Fax No.	Facility Email Address
SECTION II: FACILITY CONTACT INFORMATION			
Facility Operator/Plant Manager Mr. Joel Smullen		Title Project Manager	
Company Marquette University		Contact Mailing Address (i.e. PO Box, Street, or Route) 517 North 14th Street	
City, State, Zip Code Milwaukee, Wisconsin 53233		Contact Phone No. (414) 263-8524	Alternative Phone No.
Contact Fax No.		Contact Email Address Joel.Smullen@Marquette.edu	
Discharge Monitoring Contact Name Jeanne Tarvin		Title Managing Principal	
Company Ramboll US Corporation		Contact Mailing Address (i.e. PO Box, Street, or Route) 175 North Corporate Drive, Suite 160	
City, State, Zip Code Brookfield, Wisconsin 53045		Contact Phone No. (262) 901-0085	Alternative Phone No.
Contact Fax No. (262) 901-0079		Contact Email Address jtarvin@ramboll.com	
Authorized Representative Name Mr. Joel Smullen		Title Project Manager	
Company Marquette University		AR Mailing Address (i.e. PO Box, Street, or Route) 517 North 14th Street	
City, State, Zip Code Milwaukee, Wisconsin 53233		AR Phone No. (414) 263-8524	Alternative Phone No.
AR Fax No.		AR Email Address Joel.Smullen@marquette.edu	

State of Wisconsin
Department of Natural Resources
Bureau of Water Quality
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

SECTION III: FACILITY OWNER MAILING ADDRESS (if different from Authorized Representative)		
Facility Owner Name	Title	
Parent Company	Owner Mailing Address (i.e. PO Box, Street, or Route)	
City, State, Zip Code	Owner Phone No.	Alternative Phone No.
Contact Fax No.	Contact Email Address	

SECTION IV: DISCHARGE CHARACTERIZATION

Type of Wastewater (check all that apply):	**Discharge Frequency** (e.g. Annual, Monthly, Daily)	**Average Daily Flow** (gallons of water discharged per day)	**Type of Wastewater** (check all that apply):	**Discharge Frequency** (e.g. Annual, Monthly, Daily)	**Average Daily Flow** (gallons of water discharged per day)
☐ Treated wastewater from groundwater remediation project			☐ Cleaning or decontamination wastewaters from the cleaning of treatment equipment for a remediation project		
☒ Infiltration or injection of a substance or remedial material for remediation of soil or groundwater	Varies, anticipated duration is 5 days for initial injection. Subsequent injections would be 1 day in duration as needed.	400 gallons per day	☐ Other (describe type)		
☐ Treated wastewater from dewatering of construction trenches or pits			☐ Other (describe type)		
☐ Landspreading or spray irrigation of agricultural chemical contaminated wastewater			☐ Other (describe type)		

State of Wisconsin
Department of Natural Resources
Bureau of Water Quality
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Notice of Intent (NOI)
Contaminated Groundwater from Remedial Action Operations
WPDES Permit No. WI-0046566-07-0
Rev. 06/2018

SECTION V: ELIGIBILITY CHECKLIST

1. Is the wastewater discharged from and/or to properties within tribal lands (i.e. land owned by or held in trust for the tribes and land within recognized reservation boundaries)?

☐ Yes. **Your discharge is not eligible for this General Permit.** *If all discharges from your facility go to or come from properties in tribal lands, you do not require regulation under a WPDES discharge permit. Therefore, skip the rest of the NOI and sign the last page. We will remove you from our tracking system. The Tribe or United States Environmental Protection Agency (EPA) regulates discharges within tribal lands.*

☒ No. **Proceed to question 2.**

2. Is the wastewater discharged to a Publicly Owned Treatment Works (i.e. sanitary sewer)? A septic system is not considered a sanitary sewer.

☐ Yes. **Your discharge is not eligible for this General Permit.** *If all discharges from your facility go to a sanitary sewer, you do not require regulation under a WPDES discharge permit. Therefore, skip the rest of the NOI and sign the last page. We will remove you from our tracking system. If at some point in the future operations at your facility result in a discharge, you will need to inform the Department. If only some or no discharges from your facility go to the sanitary sewer, please proceed to question 3.*

☒ No. **Proceed to question 3.**

3. Are any of the following wastewaters discharged or mixed with the above wastewaters to surface water or groundwater: Contact or noncontact cooling water, water from boiler cleaning operations, air compressor condensate contaminated with oil and grease, softener regeneration backwash, municipal wastewater, domestic wastewater, or process wastewaters from the production of any material or product, or other wastewater not otherwise cover by this general permit?

☐ Yes. **Your discharge is not eligible for this General Permit.** *Skip the rest of the NOI and complete the certification on last page. Contact the Department to obtain application for an individual WPDES discharge permit.*

☒ No. **Proceed to question 4.**

4. What is the receiving water for your discharge? If your facility has more than one outfall, indicate in the space provided which outfalls go to groundwater and which go to surface waters. *(check all that apply)*

☒ **Groundwater Discharge** (*any wastewater that is allowed to infiltrate or seep into the soil from a permeable surface including but not limited to any drain field, agricultural field, ditch, swale, depression, trench or pit, adsorption pond, infiltration pond, rain garden, prairie, or vegetative area that may impact groundwater quality*). **If you will only be discharging to groundwater, please proceed to question 5.**

Outfall #(s):None

☐ **Wetland Discharge** (*any discernible, confined and discrete conveyance system including but not limited to any pipe, ditch, channel, tunnel, conduit, swale, or storm sewer that will carry wastewater to a wetland. Wetlands mean an area where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions*). **If you will only be discharging to wetlands, please proceed to question 5.**

Outfall #(s):

Note: *The Department will need to determine if your discharge would cause significant adverse impacts to wetlands*

☐ **Surface Water Discharge** *(any discernible, confined and discrete conveyance system including but not limited to any pipe, ditch, channel, tunnel, conduit, swale, or storm sewer that will carry wastewater to a creek, stream, pond, marsh, bay, reservoir, river, lake, or other surface water within the state of Wisconsin*). **Proceed to question 4A.**

Outfall #(s):

A. What is the name(s) of the surface water your discharge enters?

Proceed to question 4B.

B. What is the Water Body Identification Code (WBIC) of the surface water your discharge enters?

Proceed to question 4C.

Note: The WBIC for a specific surface water can be found at: http://dnr.wi.gov/water/waterSearch.aspx.

C. Is the discharge directly to a surface water classified as an outstanding or exceptional resource waters as defined in ch. NR 102, Wis. Adm. Code.?

☐ Yes. **Your discharge is not eligible for this General Permit.** *Skip the rest of the NOI and complete the certification on last page. Contact the Department to obtain application for an individual WPDES discharge permit.*

☐ No. **Proceed to question 4D.**

D. Is the discharge directly to a surface water classified as a public water supply (i.e. Lake Superior, Lake Michigan and Lake Winnebago) in ch. NR 104, Wis. Adm. Code?

☐ Yes. **Your discharge is not eligible for this General Permit.** *Skip the rest of the NOI and complete the certification on last page. Contact the Department to obtain application for an individual WPDES discharge permit.*

☐ No. **Proceed to question 5.**

5. Does the discharge contain water treatment additives (i.e. biocides such as microbicides, fungicides, molluscicdes, chlorine, etc.) or water quality conditioners (i.e. scale and corrosion inhibitors, pH adjustment chemicals, oxygen scavengers, conditioning agents, water softening compounds, etc.) that may enter surface water or groundwater without receiving wastewater treatment or that are used in a treatment process but are not expected to be removed by wastewater treatment?

☐ Yes. **For each additive used, please fill out and attach an Additive Review Worksheet.** *Additive Review Worksheets must be completed to receive coverage under this general permit. The Additive Review Worksheet is not required for additives with active ingredients consisting of chlorine, hypochlorite, sulfuric acid, hydrochloric acid or sodium hydroxide. Also, chemicals used in an industrial process generating wastewater that eventually receives treatment or chemicals added as part of wastewater treatment process (such as ferric chloride, alum or pickle liquor) are not considered water treatment additives and need not require an additive review.* **Proceed to question 6.**

☒ No. **Proceed to question 6.**

6. Will chlorine-based compounds be used to control the growth of micro-organisms in the treatment system or used to decontaminate the treatment system after completion of the remediation project?

☐ Yes. **Proceed to question 6A.**

☒ No. **Proceed to question 7.**

A. Will chemicals be used to dechlorinate the wastewater prior to discharge to surface water?

☐ Yes. **The wastewater will be dechlorinated with chemicals. Proceed to question 7.**

☐ No. **The wastewater will not be dechlorinated with chemicals. Proceed to question 7.**

7. Is a discharge management plan attached to this NOI that includes all the information necessary from Section 3 of the permit?

☒ Yes. **Proceed to question 8.**

☐ No. **This form will be considered incomplete and returned to you.**

8. Has the groundwater at the site been analyzed for contaminants and are the results attach to the discharge management plan?

☒ Yes. **Proceed to question 9.**

☐ No. **This form will be considered incomplete and returned to you.**

9. If a treatment facility is required for the treatment of contaminated groundwater, have the plans and specifications been submitted to or approved by the department under s. 281.41, Wis. Stats., and ch. NR 108, Wis. Adm. Code?

☐ Yes. **Proceed to Section VI.**

☒ No. **Please contact wastewater plan review staff to find out how to get the plans approved. Proceed to Section VI.**

Note: Department wastewater plan review staff can be found here: http://dnr.wi.gov/topic/wastewater/planreviewers.html.

Additionally, department plan submittal requirements can be found here: http://dnr.wi.gov/topic/wastewater/AdequateSubmittal.html.

SECTION VI: CERTIFICATION

This form must be signed by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2., Wis. Adm. Code. To delegate signatory authority to a duly authorized representative, please submit a Delegation of Signature Authority (DSA) form (Form 3400-220).

I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Representative Name	Title
Joel Smullen	Project Manager
Authorized Representative Signature: Joel M. Smullen	Date Signed: 5/28/20

State of Wisconsin
Department of Natural Resources
Bureau of Water Quality
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Notice of Intent (NOI)
Contaminated Groundwater from Remedial Action Operations
WPDES Permit No. WI-0046566-07-0
Rev. 06/2018

Submitter Name (If different from Authorized Representative) Jeanne Tarvin	Title Managing Principal
Submitter Signature 	Date Signed May 27, 2020

Please print and sign this certification page. Scan and email the completed form, certification page and any other supporting information to the department regional general permit reviewer at least thirty (30) business days before the expected start date of discharge. A listing of the general permit reviewers for each region with mailing addresses and phone numbers can be found at http://dnr.wi.gov/topic/wastewater/GeneralPermits.html. Please scroll to the "How to Apply" section and click the department region that the discharge is located in.

DISCHARGE MANAGEMENT PLAN FOR WPDES NOTICE OF INTENT
CONTAMINATED GROUNDWATER FROM REMEDIAL ACTION OPERATION
FORMER ONE-HOUR VALET DRY CLEANERS SITE
1214-1222 WEST WELLS STREET
MILWAUKEE, WISCONSIN
(BRRTS NO. 02-41-152248)

Ramboll US Corporation (Ramboll), on behalf of Marquette University (Marquette), has prepared this Discharge Management Plan (DMP), an attachment to the Wisconsin Pollution Discharge Elimination System (WPDES) Notice of Intent (NOI) Contaminated Groundwater from Remedial Action Operations for injection and installation of permanent injection wells to address soil and groundwater chlorinated volatile organic compound (CVOC) impacts at the Former One-Hour Valet Dry Cleaners property located at 1214-1222 West Wells Street in Milwaukee, Wisconsin (the "Site").

The objective of this DMP is to provide information on the monitoring activities that are planned during implementation of the proposed remedy at the Site which involves the injection of a carbon amendment (Anaerobic BioChem [ABC®]), zero-valent iron (ZVI), and KB-1 bioaugmentation bacterial culture into the groundwater aquifer. The injection of these materials is planned to replenish previously applied remediation materials which are remediating the tetrachloroethene (PCE) and PCE degradation products (trichloroethene [TCE], cis-1,2-dichloroethene [cDCE], and vinyl chloride [VC]) in groundwater. The attached Table 1 provides a summary of the volatile organic compounds (VOCs) detected in soil and groundwater at the Site.

The proposed scope of work under this DMP includes the following:

- Initial injection and permanent injection well installation.
- Supplemental injection activities, if necessary.

The initial injection and permanent injection well installation activities are anticipated to be completed the week of June 29 through July 3, 2020. Nine injection wells are proposed to be installed within the July 2018 soil treatment area. Approximately 1,400 gallons of remediation material will be injected at varying depths. The locations of the injection wells are shown on Figure 1 in the Underground Injection Control Approval Request.

NOTIFICATIONS AND PERMITS

WPDES Coverage

A "Request for Coverage Under Wisconsin Pollutant Discharge Elimination System (WPDES) Wastewater Discharge Permit (WI-0046566-07) for Contaminated Groundwater from Remedial Action Operations" has been completed and is part of this DMP.

Potable Water Use

During chemical amendment preparation potable water will be used to create the aqueous ABC® solution. Water will be obtained from a faucet located in the adjacent Marquette parking garage immediately west of the remediation area. Potable water will be deoxygenated prior to injection activities. Deoxygenation will be completed by adding a combination of sugar and yeast or sodium

sulfite. The volumes of deoxygenation chemicals used will be based on the quantity of required deoxygenated water.

Air Permit Applicability

An air permit will not be applicable for the injection process. Fugitive emissions are not anticipated to be generated during pre-injection activities nor emerge due to material being injected below the groundwater table approximately 12 to 35 feet below ground surface (ft-bgs).

REMEDIATION MATERIALS

In July 2018, approximately 1,940 cubic yards of CVOC impacted soil and groundwater within an identified source area were treated using *in-situ* enhanced reductive dichlorination (ERD) soil blending technology to incorporate a carbon amendment (commercial known as ABC®) and ZVI into the soil and groundwater matrix. Based on recent sampling events completed in March 2020, elevated concentrations of CVOCs observed in post-remedial action soil confirmation samples and semi-annual groundwater samples will require supplemental *in-situ* ERD remediation treatment. Due to recent Site redevelopment activities, it is recommended to implement supplemental treatment through a series of nine injections via installation of nine permanent injection wells. In addition to a carbon amendment and ZVI, KB-1 bioaugmentation bacteria culture and quartz sand will be incorporated into the initial injection through abrupt elevated pressure techniques into each of the nine injection locations to create fractures within the soil matrix across the treatment internal and proposed injection well screened interval. Applied pressures are anticipated to be between 200 and 300 pounds per square inch (psi). Voids created during the fracturing will be immediately occupied with a slurry of remediation materials. Potable water will be used to homogenize the remediation materials prior to injection. All remediation materials are non-reactive. The need for additional amendment injection events will be evaluated using groundwater analytical data, groundwater field parameter data, and CVOC molar trends. If necessary, these additional injection events will be completed to replenish the carbon amendment and possibly the KB-1 bioaugmentation bacteria culture. If additional injections are warranted, WDNR approval of the quantities and volumes of the proposed chemical amendments will be sought in advance. Safety Data Sheets (SDS) for the remediation materials are provided in Appendix A of the Underground Injection Control Approval Request.

DISCHARGE MANAGEMENT PLAN

The following outlines the scope of work and methodology prior to and during injection activities.

Environmental Monitoring

Groundwater elevations will be collected prior to and periodically during injection activities from existing monitoring wells (or installed injection wells) installed near the injection locations. These observations will be used to identify adequate delivery and distribution of injected material in the groundwater aquifer. Groundwater elevations will be collected with a Heron electronic water level sensor, model ET-94 (accuracy 0.01 foot) or similar equipment.

Surface material (e.g., asphalt and vegetation) will be visually monitored during injection activities. If remediation material is observed to daylight at the surface of the injection site, the injection process will be immediately stopped. After pressures in injection lines have decreased, the

injection will resume. If remediation material is continuously observed during injection activities, the injection will cease.

Subsurface verification of injection placement and radius of influence will be conducted through the semi-annual groundwater monitoring program and evaluation of the laboratory analytical data.

Utilities

Prior to performance of the injection activities existing utilities will be located by a private utility locator and the Wisconsin Digger's hotline (811) will be notified. Injection locations will avoid utilities during installation. The injection process will be occurring at depths from 12 to 35 ft-bgs. It is anticipated that utilities will not be disturbed during injection activities due to the depth of material application.

Pre-Injection Vapor Screening and Ambient Air Monitoring

During implementation of the *in-situ* groundwater pre-design and remediation activities, pre-injection vapor screening and ambient air monitoring activities will not be performed. All remediation activities will be conducted in closed environments (e.g., mixing of remediation materials in closed tanks) or will be injected underground at depths greater than 12 feet below ground surface. Additionally, remediation materials are non-reactive (carbon amendment, iron filings, quartz sand, and non-pathogenic microbial cultures) and applied in an aqueous solution. Therefore, fugitive emissions are not expected to be present during injection activities.

TABLE 1
Summary of CVOCs Detected in March 2020 (Soil and Groundwater)

Table 1: Summary of CVOCs Detected in March 2020 (Soil)
Former One-Hour Valet Dry Cleaners
1214 West Wells Street, Milwaukee, Wisconsin
Ramboll Project No. 1690005819

Parameters	Soil RCLs			BTV	C1 (20-21)	C1 (26-28)	C2 (17-18)	C2 (29-30)	C3 (15-16)	C3 (18-19)	C4 (14-15)	C4 (18-19)	C5 (12-13)	C5 (14-15)
	Non-Industrial Direct Contact	Industrial Direct Contact	Groundwater Pathway		3/9/2020	3/9/2020	3/9/2020	3/9/2020	3/9/2020	3/9/2020	3/9/2020	3/9/2020	3/9/2020	3/9/2020
VOCs (µg/kg)														
Benzene	1,600	7,070	5.1	--	<5000	<5000	**63.5 J C**	<200	<25.0	<50.0	<100	<25.0	**51.9 J C**	<125
cis-1,2-Dichloroethene	156,000	2,340,000	41.2	--	**12000 J C**	**31300 C**	**1100 C**	**2200 C**	<25.0	**1950 C**	**4720 C**	**394 C**	<25.0	**264 J C**
Ethylbenzene	8,020	35,400	1,570	--	<5000	<5000	59.7 J	<200	<25.0	<50.0	<100	<25.0	43.3 J	<125
Tetrachloroethene	33,000	145,000	4.54	--	**1940000 C**	**3000000 C**	**10100 C**	**59500 C**	**668 C**	**9500 C**	**23500 C**	**6320 C**	**599 C**	**42300 C**
Toluene	818,000	818,000	1,107.2	--	<5000	<5000	81.2	<200	<25.0	<50.0	<100	<25.0	74.0	<125
Trichloroethene	1,300	8,410	3.6	--	**104000 C**	**24700 C**	**713 C**	**6900 C**	**40.3 J C**	**1160 C**	**1450 C**	**51.4 J C**	<25.0	**3390 C**
o-Xylene	434,000	434,000	--	--	<5000	<5000	34.1 J	<200	<25.0	<50.0	<100	<25.0	<25.0	<125
m-&p-Xylene[1]	388,000	388,000	--	--	<10000	<10000	138 J	<400	<50.0	<100	<200	<50.0	62.8 J	<250
Xylenes, total	260,000	260,000	3,960	--	<15000	<15000	172 J	<600	<75.0	<150	<300	<75.0	<75.0	<375

Notes:
VOCs = Volatile Organic Compounds
BTV = Background Threshold Value
µg/kg = micrograms per kilogram
[1] Direct Contact RCL listed is for the more stringent m-Xylene.
C Parameter exceeds NR 720 RCL for Groundwater Pathway.
J Estimated concentration at or above the LOD and below the LOQ.
-- No RCL or Surficial BTV established.
Direct contact RCL exceedances apply to soil from 0 to 4 feet below ground surface.
Soil RCLs and surficial BTVs established by the WDNR RR program using the EPA's RSL web-calculator with WAC NR 720 default parameters (WDNR PUB-RR-890, June 2014 - updated RCL spreadsheet, December 2018).

Table 1: Summary of CVOCs Detected in March 2020 (Groundwater)

Former One-Hour Valet Dry Cleaners
1214 West Wells Street, Milwaukee, Wisconsin
Ramboll Project No. 1690005819

Analyte[1]		Benzene	Chloroform	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	Trichloroethene	1,2,4-Trimethylbenzene	Vinyl chloride	Xylenes, total
CAS		71-43-2	67-66-3	75-35-4	156-59-2	156-60-5	100-41-4	75-09-2	127-18-4	108-88-3	79-01-6	95-63-6	75-01-4	1330-20-7
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5	6	7	70	100	700	5	5	800	5	480	0.2	2000
NR 140 PAL		0.5	0.6	0.7	7	20	140	0.5	0.5	160	0.5	96	0.02	400
MW-4	3/10/2020	<0.25	<1.3	<0.24	<0.27	<1.1	<0.32	<0.58	**57.0**	<0.27	0.47 J	<0.84	<0.17	<1.5
MW-5	3/10/2020	<0.25	<1.3	<0.24	*14.1*	<1.1	<0.32	<0.58	**23.8**	<0.27	**5.0**	<0.84	**2.2**	<1.5
MW-6	3/10/2020	<0.25	<1.3	<0.24	**239**	6.8	<0.32	<0.58	<0.33	<0.27	**13.5**	<0.84	**11.5**	<1.5
PZ-1R	3/10/2020	<123	<637	<122	**36400**	<545	<159	<290	**23200**	<135	**9060**	<420	**2630**	<750
PZ-2R	3/10/2020	<0.25	<1.3	<0.24	*33.9*	<1.1	<0.32	<0.58	<0.33	<0.27	<0.26	<0.84	**11.3**	<1.5
PZ-4	3/10/2020	<0.25	<1.3	<0.24	1.4	<1.1	<0.32	<0.58	**16.0**	<0.27	<0.26	<0.84	**1.7**	<1.5

Notes:
VOCs = Volatile Organic compounds
All results reported in micrograms per Liter (ug/L)
ES = Enforcement Standard
PAL = Preventive Action Limit
Bold value = NR 140 Enforcement Standard (ES) Exceedance
Italic Value = NR 140 Preventive Action Limit (PAL) Exceedance
J = Estimated concentration. Laboratory results reported between the limit of detection and limit of quantification.
[1] Analytical results are displayed for detected parameters only.

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Notice: Use this form to request **a written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This from should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do not use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf"

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name		
Smullen	Joel		Marquette University		
Mailing Address			City	State	ZIP Code
517 North 14th Street			Milwaukee	WI	53233
Phone # (include area code)	Fax # (include area code)		Email		
(414) 288-4620			Joel.Smullen@marquette.edu		

The requester listed above: (select all that apply)

- ☒ Is currently the owner
- ☐ Is considering selling the Property
- ☐ Is renting or leasing the Property
- ☐ Is considering acquiring the Property
- ☐ Is a lender with a mortgagee interest in the Property
- ☐ Other. Explain the status of the Property with respect to the applicant:

Contact Information (to be contacted with questions about this request)

☐ Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name		
Petrofske	Susan		Ramboll US Corporation		
Mailing Address			City	State	ZIP Code
175 North Corporate Drive, Suite 160			Brookfield	WI	53045
Phone # (include area code)	Fax # (include area code)		Email		
(262) 901-3501			spetrofske@ramboll.com		

Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name		
Tarvin	Jeanne		Ramboll US Corporation		
Mailing Address			City	State	ZIP Code
175 North Corporate Drive, Suite 160			Brookfield	WI	53045
Phone # (include area code)	Fax # (include area code)		Email		
(262) 901-0085			jtarvin@ramboll.com		

Section 2. Property Information

Property Name			FID No. (if known)		
Former One Hr Valet (Former Taxman Investments Co)			241086120		
BRRTS No. (if known)			Parcel Identification Number		
02-41-152248			3910218000 and 3910219100		
Street Address			City	State	ZIP Code
1214 W Wells Street			Milwaukee	WI	53223
County	Municipality where the Property is located		Property is composed of:		Property Size Acres
Milwaukee	◉ City ○ Town ○ Village of		○ Single tax parcel ◉ Multiple tax parcels		

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

◯ No ◉ Yes

Date requested by: 06/23/2020

Reason: Contractor scheduled to conduct field work during week of June 29, 2020, when Marquette University and associated parking lot is closed.

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

◉ No. **Include the fee that is required for your request in Section 3, 4 or 5.**

◯ Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:
Section 3. Technical Assistance or Post-Closure Modifications;
Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: **[Numbers in brackets are for WI DNR Use]**

☐ No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of $350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.

☐ Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of $700.**

☐ Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of $1050.**

☐ Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of $1050.**

☐ Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of $1050.**

☐ Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of $1050.**

☐ Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of $350**

☐ Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of $425.**

☐ Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of $425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

☐ Schedule a Technical Assistance Meeting - **Include a fee of $700.**

☐ Hazardous Waste Determination - **Include a fee of $700.**

☒ Other Technical Assistance - **Include a fee of $700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

☐ Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of $1050, and:**

☐ Include a fee of $300 for sites with residual soil contamination; and

☐ Include a fee of $350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/lgu.html#tabx4.

☐ Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

- ❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description.

☐ Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

- ❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description.

☐ Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

- ❖ **Include a fee of $1400, and the information listed below:**

(1) a draft schedule for remediation; and,
(2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

☐ Phase I Environmental Site Assessment Report - Date: _____
☐ Phase II Environmental Site Assessment Report - Date: _____
☐ Legal Description of Property (required for all liability requests and specialized agreements)
☐ Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

☐ Groundwater ☐ Soil ☐ Sediment ☐ Other medium - Describe: _____

Date of Collection: _____

☐ A copy of the closure letter and submittal materials
☐ Draft tax cancellation agreement
☐ Draft agreement for assignment of tax foreclosure judgment
☒ Other report(s) or information - Describe: Underground Injection Control Approval Request

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

◯ Yes - Date (if known): _____
◯ No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Section 7. Certification by the Person who completed this form

☐ I am the person submitting this request (requester)
☒ I prepared this request for: Joel Smulle (Marquette University)
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Jeanne M. Ta

Signature

May 27, 2020

Date Signed

Principal

Title

(262) 901-0085

Telephone Number (include area code)

Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a DNR regional brownfields specialist with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf.

DNR NORTHERN REGION
Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

DNR SOUTH CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

DNR WEST CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702

Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer	Comments		
Fee Enclosed? ◯ Yes ◯ No	Fee Amount $	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		