

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

Form 4400-237 (R 9/15)

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### 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<br>Dukatt                           | First<br>Steven | MI                        | Organization/ Business Name<br>Carol Investment Corporation |
| Mailing Address<br>1410 South Clinton Street  |                 |                           | City<br>Chicago   |
|   |                 |                           | State<br>IL   |
|   |                 |                           | ZIP Code<br>60607   |
| Phone # (include area code)<br>(773) 227-6500 |                 | Fax # (include area code) | Email<br>awgreen1410@sbcglobal.com                          |

The requester listed above: (select all that apply)

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Is currently the owner  | <input type="checkbox"/> Is considering selling the Property   |
| <input type="checkbox"/> Is renting or leasing the Property                                       | <input type="checkbox"/> Is considering acquiring the Property |
| <input type="checkbox"/> Is a lender with a mortgagee interest in the Property                    |  |
| <input type="checkbox"/> Other. Explain the status of the Property with respect to the applicant: |  |

RECEIVED

MAY 29 2018

BY:

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

Select if same as requester

|  |                    |   |  |
|--|--------------------|---|--|
| Contact Last Name<br>DePaul                    | First<br>F. Thomas | MI  | Organization/ Business Name<br>DAI Environmental, Inc. |
| Mailing Address<br>27834 North Irma Lee Circle |                    |   | City<br>Lake Forest                                    |
|  |                    |   | State<br>IL  |
|  |                    |   | ZIP Code<br>60045                                      |
| Phone # (include area code)<br>(847) 573-8900  |                    | Fax # (include area code)<br>(847) 573-8953 | Email<br>depaul@daienv.com                             |

#### Environmental Consultant (if applicable)

|  |                      |   |  |
|--|----------------------|---|--|
| Contact Last Name<br>Cailles                   | First<br>Christopher | MI  | Organization/ Business Name<br>DAI Environmental, Inc. |
| Mailing Address<br>27834 North Irma Lee Circle |                      |   | City<br>Lake Forest                                    |
|  |                      |   | State<br>IL  |
|  |                      |   | ZIP Code<br>60045                                      |
| Phone # (include area code)<br>(847) 573-8900  |                      | Fax # (include area code)<br>(847) 573-8953 | Email<br>cailles@daienv.com                            |

### Section 2. Property Information

|   |   |
|---|---|
| Property Name<br>Sunrise Shopping Center                        | FID No. (if known)<br>241828620   |
| BRRTS No. (if known)<br>02-41-576336 & 02-41-579429             | Parcel Identification Number<br>77-69-994001  |
| Street Address<br>2410-2424 10th Avenue & 1009 Marquette Avenue | City<br>South Milwaukee   |
|   | State<br>WI   |
|   | ZIP Code<br>53172   |
| County<br>Milwaukee   | Municipality where the Property is located<br><input checked="" type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village of South Milwaukee |
|   | Property is composed of:<br><input checked="" type="radio"/> Single tax parcel <input type="radio"/> Multiple tax parcels                                       |
|   | Property Size Acres<br>3  |

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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: 07/01/2018

Reason: Tenant space is presently vacant, but owner is working on coordinating occupancy.

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 4. Request for Liability Clarification**

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. **[Numbers in brackets are for DNR Use]**

"Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the real Property, and/or the personal Property and fixtures;
- (2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;
- (3) the date the environmental assessment was conducted by the lender;
- (4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.
- (5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.
- (6) a copy of the Property deed with the correct legal description; and,
- (7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).
- (8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292.21(1)(c)2., h.-i., Wis. Stats.:
  - h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.
  - i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

"Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the Property;
- (2) the date of Property acquisition by the representative;
- (3) the means by which the Property was acquired;
- (4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;
- (5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and
- (6) a copy of the Property deed with the correct legal description.

Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

- hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];
- Perceived environmental contamination - [649];
- hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or
- solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of \$700, a summary of the environmental liability clarification being requested, and the following:**

- (1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).
- (2) current and proposed ownership status of the Property;
- (3) date and means by which the Property was acquired by the LGU, where applicable;
- (4) a map and the ¼, ¼ section location of the Property;
- (5) summary of current uses of the Property;
- (6) intended or potential use(s) of the Property;
- (7) descriptions of other investigations that have taken place on the Property; and
- (8) (for solid waste clarifications) a summary of the license history of the facility.

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**Section 4. Request for Liability Clarification (cont.)**

Lease liability clarification - s. 292.55, Wis. Stats. [646]

❖ **Include a fee of \$700 for a single Property, or \$1400 for multiple Properties and the information listed below:**

- (1) a copy of the proposed lease;
- (2) the name of the current owner of the Property and the person who will lease the Property;
- (3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;
- (4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;
- (5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and
- (6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

❖ **Include a fee of \$700 and an adequate summary of relevant environmental work to date.**

No Action Required (NAR) - NR 716.05, [682]

❖ **Include a fee of \$700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

❖ **Include a fee of \$700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

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Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

**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/Igu.html#tabx4](http://dnr.wi.gov/topic/Brownfields/Igu.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; and,
    - (3) a draft 75.105 agreement based on the DNR's model ([dnr.wi.gov/topic/brownfields/documents/mod75-105agrmt.pdf](http://dnr.wi.gov/topic/brownfields/documents/mod75-105agrmt.pdf)).
  
- 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; and,
    - (3) a draft 75.105 agreement based on the DNR's model ([dnr.wi.gov/topic/brownfields/documents/mod75-106agrmt.pdf](http://dnr.wi.gov/topic/brownfields/documents/mod75-106agrmt.pdf)).
  
- 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.

**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: Infiltration and Injection 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](http://dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf).

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**Section 7. Certification by the Person who completed this form**

I am the person submitting this request (requester)

I prepared this request for: Steven Dukatt

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.

Christopher Gailles, P.E.  
Signature

5/23/18  
Date Signed

Project Engineer  
Title

847-573-8900  
Telephone Number (include area code)

May 23, 2018

Mr. Riley Neumann  
Wisconsin Department of Natural Resources  
2300 North Dr. Martin Luther King, Jr. Drive  
Milwaukee, Wisconsin 53212-3128

**Re: *Request for Approval of NR 140.28 Exemption and NR 812.05 Variance  
(Chemical injection pilot test remedial activities)  
BRRTS #: 02-41-576336 & 02-41-579429  
FID #: 241828620  
Sunrise Shopping Center  
2410-2424 10<sup>th</sup> Avenue & 1009 Marquette Avenue  
South Milwaukee, Wisconsin 53172***

Mr. Neumann

A *Remedial Actions Options Report/Design Report* (RAOR/Design Report) dated April 2, 2018, was submitted to the Wisconsin Department of Natural Resources (WDNR) proposing remedial actions to be undertaken to address subsurface contamination at the Sunrise Shopping Center facility (Site). The RAOR/Design Report proposed using chemical injection to reduce contaminant concentrations in the soil and groundwater. The chemical injections were to be performed in two (2) phases; first a pilot scale study needed to acquire certain information as needed for a full-scale design, then the full-scale design and implementation. Per a telephone discussion of May 10, 2018, it is understood that the WDNR has provided preliminary approval for the proposed remedial actions based upon two (2) conditions:

- The chemical injection activities currently proposed are intended to be conducted as a pilot test to evaluate feasibility and effectiveness, with a more detailed “Remedial Action Plan” to be submitted; and
- A request to perform the intended pilot-scale chemical injection must be submitted and approved prior to performing the proposed testing.

As required by NR 140.28(5)(b), a request for a temporary exemption must be submitted to the WDNR when intending to perform infiltration or injection as a remedial action to address groundwater contamination. Additionally, a variance from NR 812.05 must be approved by the WDNR. Therefore, DAI Environmental, Inc., has prepared this *Request for Approval of NR 140.28 Exemption and NR 812.05 Variance* on behalf of the Responsible Party, Carol Investment Corporation. This exemption and variance request is submitted seeking approval for the use of in-situ chemical injection as a remedial method to address chlorinated Volatile Organic Compounds and petroleum contamination in the subsurface soil and groundwater.

An *Inventory of Injection Wells* Form (3300-253) was previously provided in Appendix C.6.2 of the RAOR/Design Report and is included here as Attachment 1 to this submission. A copy of the Wisconsin Pollutant Discharge Elimination System (WPDES) permit application that is being submitted concurrent to this request is provided as Attachment 2. Other pertinent information on the planned injection activities is included as Attachment 3.

If you have any questions or require additional information in regards to this request, please contact me at 847-573-8900 extension 580. Thank you for your time and assistance.

Sincerely,  
**DAI Environmental, Inc.**



Christopher Cailles, P.E.  
Project Engineer

Attachments

cc: Steven Dukatt – Carol Investment Corporation (w/attachments)



**ATTACHMENT 1**  
**INVENTORY OF INJECTION WELLS**

This information is collected under the authority of the Safe Drinking Water Act.

**Notice:** Code of Federal Regulations (40 CFR 144.26 Inventory Requirements): owners or operators of all injection wells authorized by rule shall submit inventory information to an approved State Underground Injection Control Program. Personal information collected on this form will be used for inventory purposes. Information will be made accessible to requesters under Wisconsin's Open Records laws (s. 19.32 to 19.39, Wis. Stats.) and requirements.

|   |  |   |
|---|--|---|
| Date Prepared (Year, Month, Day)<br><b>2018/03/30</b> | Facility ID Number<br><b>241828620</b> | Transaction Type (Please check one of the following)<br><input type="checkbox"/> Deletion <input type="checkbox"/> Entry Change <input checked="" type="checkbox"/> First Time Entry <input type="checkbox"/> Replacement |
|---|--|---|

**Facility Name and Location**

|   |       |    |                            |                             |
|---|-------|----|----------------------------|-----------------------------|
| Last Name<br><b>Sunrise Shopping Center</b> | First | MI | Latitude: DEG MIN SEC<br>N | Longitude: DEG MIN SEC<br>W |
|---|-------|----|----------------------------|-----------------------------|

|   |                        |                      |                      |                                 |
|---|------------------------|----------------------|----------------------|---------------------------------|
| Street Address / Route Number<br><b>2410-2424 10th Avenue &amp; 1009 Marquette Avenue</b> | Township<br><b>5 N</b> | Range<br><b>22 E</b> | Section<br><b>11</b> | ¼ Section<br><b>SE &amp; SW</b> |
|---|------------------------|----------------------|----------------------|---------------------------------|

|                                       |                    |                          |                            |   |
|---------------------------------------|--------------------|--------------------------|----------------------------|---|
| City / Town<br><b>South Milwaukee</b> | State<br><b>WI</b> | ZIP Code<br><b>53172</b> | County<br><b>Milwaukee</b> | Tribal Land <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
|---------------------------------------|--------------------|--------------------------|----------------------------|---|

**Legal Contact**

|   |                            |                        |    |                                    |
|---|----------------------------|------------------------|----|------------------------------------|
| Type<br><input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator | Last Name<br><b>Dukatt</b> | First<br><b>Steven</b> | MI | Telephone Number (incl. area code) |
|---|----------------------------|------------------------|----|------------------------------------|

|   |  |
|---|--|
| Organization<br><b>Carol Investment Corporation</b> | Ownership<br><input checked="" type="checkbox"/> Private <input type="checkbox"/> County / Local Government<br><input type="checkbox"/> State <input type="checkbox"/> Federal<br><input type="checkbox"/> Specify Other _____ |
|---|--|

|   |  |
|---|--|
| Street / P.O. Box<br><b>1410 South Clinton Street</b> |  |
|---|--|

|                               |                    |                          |  |
|-------------------------------|--------------------|--------------------------|--|
| City / Town<br><b>Chicago</b> | State<br><b>IL</b> | ZIP Code<br><b>60607</b> |  |
|-------------------------------|--------------------|--------------------------|--|

**Well Information**

| WELL CLASS | WELL TYPE | TOTAL NUMBER OF WELLS | WELL OPERATION STATUS |    |    |    |    | KEY:   |
|------------|-----------|-----------------------|-----------------------|----|----|----|----|--|
|            |           |                       | UC                    | AC | TA | PA | AN |  |
| V          | see below | 23                    | X                     |    |    |    |    | <b>KEY:</b><br>DEG = Degree<br>MIN = Minute<br>SEC = Seconds<br>SECT = Section<br>¼ SECT = Quarter Section<br>AC = Active<br>UC = Under Construction<br>PA = Permanently Abandoned and Approved by State<br>AN = Permanently Abandoned and Not Approved by State<br>TA = Temporarily Abandoned and Not Approved by State |
|            |           |                       |                       |    |    |    |    |  |
|            |           |                       |                       |    |    |    |    |  |
|            |           |                       |                       |    |    |    |    |  |
|            |           |                       |                       |    |    |    |    |  |

Comments (Optional):

The above injection wells are proposed to be utilized for injection of a chemical oxidant during soil and groundwater remediation activities. The wells will consist of injection through direct-push drilling rods or 1-in PVC wells. The exact number of injection points may be modified based upon the ability to deliver the appropriate volume of chemical into the subsurface.

**ATTACHMENT 2  
WPDES APPLICATION**

**Request for Coverage Under  
Wisconsin Pollutant Discharge Elimination System (WPDES)  
Wastewater Discharge Permit (WI-0046566-06) for  
Contaminated Groundwater from Remedial Action Operations**  
(Revised 8 / 2012)

Please type or print required information, except for the signature.

**I. GENERAL INFORMATION**

| <b>A: FACILITY LOCATION INFORMATION</b>   |   |   |
|---|---|---|
| Name of Facility / Project<br><b>Sunrise Shopping Center</b>  | Official Representative Onsite<br><b>Daniel Traen</b><br><b>DAI Environmental, Inc.</b> | Title<br><b>Project Geologist</b>   |
| (Address or Highway / Road with Distance and Direction from nearest City)<br><b>2410-2424 10th Avenue &amp; 1009 Marquette Avenue</b> | Telephone No.:<br><b>(847) 343-3551</b>   | Fax #   |
| City, State, Zip Code<br><b>South Milwaukee, WI 53172</b>   | County<br><b>Milwaukee</b>  | Email Address<br><b>traen@daienv.com</b><br><b>cc: cailles@daienv.com</b> |

| <b>B: Individual, parent company, or organization with direct control over the facility.</b> Enter full official legal name of the owner or parent company, if there is one, the mailing address, and the name and title of the official representative (responsible party) signing this application <u>if he/she is located at address of parent company.</u> |   |       |
|--|---|-------|
| Parent Company/Owner<br><b>Carol Investment Corporation</b>  | Company Contact<br><b>Steven Dukatt</b>           | Title |
| Mailing Address - PO Box, Street, or Route<br><b>1410 South Clinton Street</b>   | Telephone No.:<br><b>(773) 227-6500</b>           | Fax # |
| City, State, Zip Code<br><b>Chicago, IL 60607</b>  | Email Address<br><b>awgreen1410@sbcglobal.com</b> |       |

| <b>C: Consulting Firm for Groundwater</b>  |  |                                |
|--|--|--------------------------------|
| Company Name<br><b>DAI Environmental, Inc.</b>                                   | Company Contact<br><b>F. Thomas DePaul</b> | Title<br><b>President</b>      |
| Mailing Address - PO Box, Street, or Route<br><b>27834 North Irma Lee Circle</b> | Telephone No.:<br><b>(847) 573-8900</b>    | Fax #<br><b>(847) 573-8953</b> |
| City, State, Zip Code<br><b>Lake Forest, IL 60045</b>                            | Email Address<br><b>depaul@daienv.com</b>  |                                |

**D. Name of Person to Receive Discharge Monitoring Report Forms** from Department:  
**Christopher Cailles, DAI Environmental, Inc.**

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**E. Any Other Necessary Contact Person** (name, phone, email)

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**F. DNR Environmental Response & Repair Project Number, and DNR Project Manager name:**  
**Sunrise Shopping Center, BRRTS: 02-41-576336 & 02-41-579429, PM: Riley Neumann**

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**II. SPECIFIC INFORMATION ON PROJECT**

**A. Pollutants**

1. The suspected **sources of the pollutants** (estimate of material release quantity and contributing activities)  
 Former dry cleaner operations - Tetrachloroethene and Trichloroethene  
 Former heating oil UST - Polynuclear Aromatic Hydrocarbons

2. Check **all fuel and waste types** suspected in the contamination at this site:

- |   |  |                                      |
|---|--|--------------------------------------|
| <input type="checkbox"/> Unleaded Gasoline      | <input type="checkbox"/> Jet Fuel            | <input type="checkbox"/> Pesticides  |
| <input type="checkbox"/> Leaded Gasoline        | <input type="checkbox"/> Waste Oil           | <input type="checkbox"/> Fertilizers |
| <input type="checkbox"/> Diesel Fuel            | <input checked="" type="checkbox"/> Solvents |                                      |
| <input checked="" type="checkbox"/> Heating Oil | <input type="checkbox"/> Other:              |                                      |

3. Check **all pollutants identified at this site**:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> BETX (Benzene, Ethylbenzene, Toluene, Xylene) | <input type="checkbox"/> Pesticides/Fertilizers   |
| <input checked="" type="checkbox"/> PAHs (Polynuclear aromatic hydrocarbons)      | <input type="checkbox"/> Total Recoverable Lead * |
| <input checked="" type="checkbox"/> VOCs (Volatile Organic Chemicals)             | <input type="checkbox"/> Other _____              |

\* Include upstream receiving water hardness analysis if lead is detected.

**B. Treatment**

1. **Describe the existing treatment system:**

Proposed: in-situ chemical oxidation via injection into direct-push drilling rods and/or 1-in PVC wells. Presently, injection is proposed as a pilot test for site-specific evaluation of feasibility and effectiveness. Injection is planned within three (3) isolated areas into a total of 23 injection locations at a depth interval of 2-ft to 8-ft or 12-ft (approximately). No treatment system is proposed.

| Treatment Techniques Used   |
|---|
| <input type="checkbox"/> Pump & Treat   |
| <input type="checkbox"/> Air stripping  |
| <input type="checkbox"/> GAC (Granular Activated Carbon)  |
| <input type="checkbox"/> Augmented Insitu Bioremediation<br>(with chemicals or nutrient addition) |
| <input checked="" type="checkbox"/> Other (describe)  |

2. **If any cleaning, softening or descaling of the treatment system**

a. Identify any additives that are proposed or being used for cleaning, softening, or descaling of the treatment system. Provide Material Safety Data Sheets, and describe dosage.

Not Applicable

b. Describe what is done to clean, soften or descale, and how often it is done.

Not Applicable

c. Where is the reject water from cleaning and descaling discharged?

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> same discharge point as treated effluent | <input type="checkbox"/> sanitary sewer | <input type="checkbox"/> other (please describe) |
|---|---|--|
- Not Applicable

3. **Anticipated operating schedule** during the new permit term (2012 – 2017)

Injection schedule during pilot testing is not anticipated to exceed 1-wk. An extended schedule of remedial actions will be determined if testing shows feasible and effective remediation.

4. **Anticipated flowrate** (in gpm), and total volume of treated water to be discharged per month:

Not Applicable - the proposed chemical injection does not include any discharge operations

5. **Effluent discharge point location:**

Not Applicable

6. Is an **air permit** from the DNR air management program required? If not, why not

No, no emissions to the atmosphere are associated with the proposed in-situ chemical oxidation

### III. DISCHARGE MANAGEMENT PLAN UPDATE

Include the following information:

1. A **summary** of analytical results for contaminants **detected** at the site.  
See summary tables in Attachment 1
2. Results from the most recent **volatile organic compounds (VOC) scan**, including methods used and detection levels. See summary tables in Attachment 1

3. Results from an analysis of the **poly-nuclear aromatic hydrocarbons (PAHs)** shown on the right, including methods used and detection levels (unless PAH data are already submitted)

|                      |                        |
|----------------------|------------------------|
| benzo(a)anthracene   | dibenzo(a,h)anthracene |
| benzo(a)pyrene       | fluoranthene           |
| benzo(b)fluoranthene | indeno(1,2,3-cd)pyrene |
| benzo(g,h,i)perylene | naphthalene            |
| benzo(k)fluoranthene | phenanthrene           |
| chrysene             | pyrene                 |

The lab needs to reach the lowest detection level achievable for each parameter because of the low limit for total PAHs. EPA test method SW-846 8310 is recommended.

See summary tables in Attachment 1

4. **Contaminants proposed for periodic monitoring** and demonstration of why any monitoring required in the permit should be exempted due to low level of contaminants in the wastewater discharge.

No discharge; soil/groundwater monitoring for VOCs or PAHs (area dependent) to evaluate effectiveness.

5. **Information to support request for any alternate effluent limit** for discharges to groundwater (Part 5 of permit) or request for temporary exemption for in-situ discharges (Part 6 of permit).

Temporary exemption per NR140.28(5) requested; submitted to WDNR concurrent to this application

6. **Plans and specifications for the proposed treatment system** identifying sampling points. For supplier furnished package treatment units, only a flow diagram, design summary, and unit sizing calculations are required. No treatment system proposed; attached figure provides proposed in-situ injection locations for chemical oxidant. Injectate volume, concentration, etc. to be determined during pilot test.
7. **General description of operations**, identifying operational tasks, who is responsible to do that task, and how frequently the task is done (particularly needed at pump & treat systems).

Trained/experienced environmental field personnel to prepare, inject, and clean during all injection activities.

8. A **site plan** that identifies general land uses, underground storage tanks and pipelines, groundwater monitoring and recovery wells, contaminant plume definition and zone of influence, other known spills in the area, septic tanks and drain fields, separation distances to potable water supply wells and residences, and other pertinent information. See Attachment 2 for figures

9. A **detailed map** of the discharge location, showing if discharge is direct or via a storm sewer or other conveyance. Indicate distance from site to discharge location and other impacted water bodies or wetlands.

- If a city storm sewer is used, approval from the municipality is required.
- If a new outfall structure is proposed, the plans should identify the outfall and incorporate appropriate erosion control methods. A permit for riprapp projects (available at most DNR offices) should be obtained.
- Wetland discharges are not allowed unless they meet wetland protection requirements of Ch. NR 103, Wis. Admin. Code.

Not Applicable - no discharge proposed; remedial actions only consist of in-situ chemical oxidation

**III. SIGNATURES**

A. Signature of person completing the form, attesting to the accuracy and completeness of the statements made.

|                             |                         |                                 |
|-----------------------------|-------------------------|---------------------------------|
| <u>Christopher Cailles</u>  | Senior Project Engineer | <u>5/23/18</u>                  |
| <small>Name</small>         | <small>Title</small>    | <small>Date Signed</small>      |
| 27834 North Irma Lee Circle | cailles@daienv.com      | (847) 573-8900                  |
| <small>Address</small>      | <small>Email</small>    | <small>Telephone Number</small> |

B. This application must be signed by the official representative of the permitted facility (responsible party) who is: the owner, the sole proprietor for a sole proprietorship, a general partner for a partnership, or by a ranking elected official or other duly authorized representative for a unit of government, or an executive officer of at least the level of vice president for a corporation, having overall responsibility for the operation of the facility. If the application is not signed, or is found to be incomplete, it will be returned.

|  |                            |
|--|----------------------------|
| <u>Steven Dukat</u>  | <u>President</u>           |
| <small>Typed or Printed Name of Official Representative</small>                                | <small>Title</small>       |
| <u> Prns.</u> | <u>5-23-2018</u>           |
| <small>Signature of Official Representative</small>  | <small>Date Signed</small> |

Submit this General Permit Request for Coverage:

Department of Natural Resources,  
Water Permits Central Intake - WT/3,  
P.O. Box 7185,  
Madison, WI 53707-7185.

The decision on whether to cover this discharge under the remediation general permit will be made by regional DNR wastewater staff. Upon receipt in Madison, this application will be forwarded to the appropriate regional staff person.

A copy of the submittal should also be sent to the Department Remediation & Redevelopment Project Manager.  
Watershed Central:\General Permits\Reissue Docs\Grw Remediation\Request For Coverage 2012.doc

**ATTACHMENT 1**  
**TABLES**





**Table A.1.A (Continued). Groundwater Analytical Table  
for Volatile Organic Compounds (mg/L)  
(Quarterly Groundwater Sampling Wells)**

| Volatile Organic Compound   | Sample Location<br>(Sample Date) |                    |                    |                    |                    |                    | PAL <sup>1</sup> | ES <sup>2</sup> |
|-----------------------------|----------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|-----------------|
|                             | TW-2<br>(11/12/14)               | MW-5<br>(01/27/15) | MW-5<br>(02/23/16) | MW-5<br>(05/30/17) | MW-5<br>(01/05/18) | MW-5<br>(04/07/18) |                  |                 |
| p-Isopropyltoluene          | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.0005            | <0.0005            | NL               | NL              |
| Methylene chloride          | <0.00023                         | <0.00023           | <0.00023           | <0.00023           | <0.00023           | <0.00023           | 0.0005           | 0.005           |
| Methyl tertiary-butyl ether | <0.00017                         | <0.00017           | <0.00017           | <0.00017           | <0.00017           | <0.00017           | 0.012            | 0.06            |
| Naphthalene                 | <0.0025                          | <0.0025            | <0.0025            | <0.0025            | <0.0025            | <0.0025            | 0.01             | 0.1             |
| n-Propylbenzene             | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.0005            | <0.0005            | NL               | NL              |
| Styrene                     | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.0005            | <0.0005            | 0.01             | 0.1             |
| 1,1,1,2-Tetrachloroethane   | <0.00018                         | <0.00018           | <0.00018           | <0.00018           | <0.00018           | <0.00018           | 0.007            | 0.07            |
| 1,1,2,2-Tetrachloroethane   | <0.00025*                        | <0.00025*          | <0.00025*          | <0.00025*          | <0.00025*          | <0.00025*          | 0.00002          | 0.0002          |
| Tetrachloroethene           | <b>0.0026</b>                    | <b>0.0026</b>      | <b>0.0083</b>      | <b>0.0124</b>      | <b>0.0181</b>      | <b>0.0203</b>      | 0.0005           | 0.005           |
| Toluene                     | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.0005            | <0.0005            | 0.16             | 0.8             |
| 1,2,3-Trichlorobenzene      | <0.0021                          | <0.0021            | <0.0021            | <0.0021            | <0.0021            | <0.0021            | NL               | NL              |
| 1,2,4-Trichlorobenzene      | <0.0022                          | <0.0022            | <0.0022            | <0.0022            | <0.0022            | <0.0022            | 0.014            | 0.07            |
| 1,1,1-Trichloroethane       | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.00057           | 0.000897           | 0.04             | 0.2             |
| 1,1,2-Trichloroethane       | <0.00016                         | <0.0002            | <0.0002            | <0.0002            | <0.0002            | <0.0002            | 0.0005           | 0.005           |
| Trichloroethene             | <0.00033                         | <0.00033           | <0.00033           | <0.00033           | <0.00033           | <0.00033           | 0.0005           | 0.005           |
| Trichlorofluoromethane      | <0.00017                         | <0.00018           | <0.00018           | <0.00018           | <0.00018           | <0.00018           | 0.7              | 3.5             |
| 1,2,3-Trichloropropane      | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.0005            | <0.0005            | 0.012            | 0.06            |
| 1,2,4-Trimethylbenzene      | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.0005            | <0.0005            | 0.096            | 0.48            |
| 1,3,5-Trimethylbenzene      | <0.0005                          | <0.0005            | <0.0005            | <0.0005            | <0.0005            | <0.0005            |                  |                 |
| Vinyl chloride              | <0.00018                         | <0.00018           | <0.00018           | <0.00018           | <0.00018           | <0.00018           | 0.4              | 2               |
| Xylenes (total)             | <0.0015                          | <0.0015            | <0.0015            | <0.0015            | <0.0015            | <0.0015            | 3.96             | 260             |

<sup>1</sup> – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

<sup>2</sup> – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

**Bold** – Concentration exceeds the PAL

Underlined – Concentration exceeds the PAL and the ES

\* – Limit of detection reported greater than most stringent applicable standard; “non-detect” concentration not taken as exceedance per NR140.14(3)(a)

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

NL – Not Listed in NR 140

VOCs via USEPA Method SW8260

NOTE – MW-5 generally duplicated TW-2

**Table A.1.B. Groundwater Analytical Table for Polynuclear Aromatics (mg/L)  
(Quarterly Groundwater Sampling Wells)**

| Polynuclear Aromatic   | Sample Location<br>(Sample Date) |                     |                    |                    |                    |                     | PAL <sup>1</sup> | ES <sup>2</sup> |
|------------------------|----------------------------------|---------------------|--------------------|--------------------|--------------------|---------------------|------------------|-----------------|
|                        | TW-6<br>(11/13/14)               | MW-4<br>(01/27/15)  | MW-4<br>(02/23/16) | MW-4<br>(05/30/17) | MW-4<br>(01/05/18) | MW-4<br>(04/07/18)  |                  |                 |
| Acenaphthene           | 0.00049                          | 0.0000039 (J)       | 0.00056            | 0.0386             | 0.0246             | 0.0031              | NL               | NL              |
| Acenaphthylene         | 0.00012                          | 0.000084            | 0.000073           | 0.0166             | 0.0083             | 0.00073             | NL               | NL              |
| Anthracene             | 0.00006                          | 0.00006             | 0.00011            | 0.0018 (J)         | 0.0019             | 0.00051             | 0.6              | 3               |
| Benzo(a)anthracene     | 0.000013 (J)                     | <0.0000032          | 0.0000082 (J)      | 0.00044 (J)        | <0.00014           | 0.000012 (J)        | NL               | NL              |
| Benzo(a)pyrene         | 0.0000053 (J)                    | 0.000017 (J)        | 0.000006 (J)       | <b>&lt;0.00049</b> | <b>&lt;0.0002</b>  | <0.0000095          | 0.00002          | 0.0002          |
| Benzo(b)fluoranthene   | 0.0000093 (J)                    | <b>0.000043 (J)</b> | 0.000014 (J)       | <b>&lt;0.00027</b> | <b>0.00022 (J)</b> | 0.0000096 (J)       | 0.00002          | 0.0002          |
| Benzo(g,h,i)perylene   | 0.0000071 (J)                    | 0.000025 (J)        | 0.0000081 (J)      | <0.00031           | <0.00013           | <0.0000061          | NL               | NL              |
| Benzo(k)fluoranthene   | <0.000005                        | 0.000021 (J)        | <0.0000051         | <0.00035           | <0.00014           | <0.0000068          | NL               | NL              |
| Chrysene               | <b>0.000021 (J)</b>              | <b>0.000042 (J)</b> | 0.000017 (J)       | <b>0.0018 (J)</b>  | <b>0.001 (J)</b>   | <b>0.000031 (J)</b> | 0.00002          | 0.0002          |
| Dibenzo(a,h)anthracene | <0.0000035                       | <0.0000033          | <0.0000051         | <0.00046           | <0.00019           | <0.000009           | NL               | NL              |
| Fluoranthene           | 0.00004 (J)                      | 0.000049            | 0.00003 (J)        | 0.0037             | 0.0046             | 0.0001              | 0.08             | 0.4             |
| Fluorene               | 0.00061                          | 0.000031 (J)        | 0.00051            | 0.0759             | 0.0504             | 0.0053              | 0.08             | 0.4             |
| Indeno(1,2,3-cd)pyrene | 0.0000044 (J)                    | 0.000017 (J)        | 0.0000056 (J)      | <0.00082           | <0.00033           | <0.000016           | NL               | NL              |
| 1-Methylnaphthalene    | 0.0087                           | 0.000076            | 0.0041             | 0.357              | 0.183              | 0.0109              | NL               | NL              |
| 2-Methylnaphthalene    | 0.0065                           | 0.000066            | 0.000037 (J)       | 0.0747             | 0.0126             | 0.00026             | NL               | NL              |
| Naphthalene            | 0.0022                           | 0.00027             | 0.00017            | <b>0.0243</b>      | <b>0.0151</b>      | 0.0022              | 0.01             | 0.1             |
| Phenanthrene           | 0.00062                          | 0.000033 (J)        | 0.00029            | 0.165              | 0.102              | 0.0033              | NL               | NL              |
| Pyrene                 | 0.00006                          | 0.0001              | 0.000081           | 0.0165             | 0.0102             | 0.00032             | 0.05             | 0.25            |

<sup>1</sup> – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

<sup>2</sup> – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

**Bold** – Concentration exceeds the PAL

Underlined – Concentration exceeds the PAL and the ES

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

NL – Not Listed in Wisconsin Administrative Code

PNAs via USEPA Method SW8270SIM

NOTE – MW-4 installed to duplicate TW-6

**Table A.2.A. Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |               |                |                 |                 |                 |                 | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|---------------|----------------|-----------------|-----------------|-----------------|-----------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-3<br>(8-10)                    | GP-4<br>(2-4) | GP-4<br>(8-10) | GP-5<br>(14-15) | GP-6<br>(14-15) | GP-7<br>(14-15) | GP-12<br>(8-10) |                     |                                       |                                   |
| Benzene                     | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0051              | 1.6                                   | 7.07                              |
| Bromobenzene                | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 342                                   | 679                               |
| Bromochloromethane          | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 216                                   | 906                               |
| Bromodichloromethane        | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0003              | 0.418                                 | 1.83                              |
| Bromoform                   | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0023              | 25.4                                  | 113                               |
| Bromomethane                | <0.0699*                          | <0.0713*      | <0.0699*       | <0.0699*        | <0.0699*        | <0.0699*        | <0.0713*        | 0.0051              | 9.6                                   | 43                                |
| n-Butylbenzene              | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 108                                   | 108                               |
| sec-Butylbenzene            | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 145                                   | 145                               |
| tert-Butylbenzene           | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 183                                   | 183                               |
| Carbon tetrachloride        | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0039              | 0.916                                 | 4.03                              |
| Chlorobenzene               | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.1358              | 370                                   | 761                               |
| Chloroethane                | <0.067                            | <0.0684       | <0.067         | <0.067          | <0.067          | <0.067          | <0.0684         | 0.2266              | NL                                    | NL                                |
| Chloroform                  | <0.0464*                          | <0.0474*      | <0.0464*       | <0.0464*        | <0.0464*        | <0.0464*        | <0.0474*        | 0.0033              | 0.454                                 | 1.98                              |
| Chloromethane               | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0155              | 159                                   | 669                               |
| 2-Chlorotoluene             | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 907                                   | 907                               |
| 4-Chlorotoluene             | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 253                                   | 253                               |
| Dibromochloromethane        | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.32                | 8.28                                  | 38.9                              |
| 1,2-Dibromo-3-chloropropane | <0.0912*                          | <0.0931*      | <0.0912*       | <0.0912*        | <0.0912*        | <0.0912*        | <0.0931*        | 0.0002              | 0.008                                 | 0.092                             |
| 1,2-Dibromoethane (EDB)     | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0000282           | 0.05                                  | 0.221                             |
| Dibromomethane              | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 34                                    | 143                               |
| 1,2-Dichlorobenzene         | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 1.168               | 376                                   | 376                               |
| 1,3-Dichlorobenzene         | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 1.1528              | 297                                   | 297                               |
| 1,4-Dichlorobenzene         | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.144               | 3.74                                  | 16.4                              |
| Dichlorodifluoromethane     | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 3.0863              | 126                                   | 530                               |
| 1,1-Dichloroethane          | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.4834              | 5.06                                  | 22.2                              |
| 1,2-Dichloroethane          | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0028              | 0.652                                 | 2.87                              |
| 1,1-Dichloroethene          | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.005               | 320                                   | 1,190                             |
| cis-1,2-Dichloroethene      | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.0412              | 156                                   | 2,340                             |
| trans-1,2-Dichloroethene    | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.0626              | 1,560                                 | 1,850                             |
| 1,2-Dichloropropane         | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0033              | 3.4                                   | 15                                |
| 1,3-Dichloropropane         | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 1,490                                 | 1,490                             |
| 2,2-Dichloropropane         | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 191                                   | 191                               |
| 1,1-Dichloropropene         | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025*         | <0.025*         | <0.0255         | NL                  | NL                                    | NL                                |
| 1,3-Dichloropropene (c&t)   | <0.05*                            | <0.051*       | <0.05*         | <0.05*          | <0.05           | <0.05           | <0.051*         | 0.0003              | 2,720                                 | 2,720                             |
| Diisopropyl ether           | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 2,260                                 | 2,260                             |
| Ethylbenzene                | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 1.57                | 8.02                                  | 35.4                              |
| Hexachloro-1,3-butadiene    | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 1.63                                  | 7.19                              |
| Isopropylbenzene            | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | NL                                    | NL                                |

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |               |                |                 |                 |                 |                 | GW RCL <sup>1</sup> | Non-Industrial DC RCL <sup>2</sup> | Industrial DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|---------------|----------------|-----------------|-----------------|-----------------|-----------------|---------------------|------------------------------------|--------------------------------|
|                             | GP-3<br>(8-10)                    | GP-4<br>(2-4) | GP-4<br>(8-10) | GP-5<br>(14-15) | GP-6<br>(14-15) | GP-7<br>(14-15) | GP-12<br>(8-10) |                     |                                    |                                |
| p-Isopropyltoluene          | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 162                                | 162                            |
| Methylene chloride          | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0026              | 61.8                               | 1,150                          |
| Methyl tertiary-butyl ether | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.027               | 63.8                               | 282                            |
| Naphthalene                 | <0.04                             | <0.0409       | <0.04          | <0.04           | <0.04           | <0.04           | <0.0409         | 0.6582              | 5.52                               | 24.1                           |
| n-Propylbenzene             | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 264                                | 264                            |
| Styrene                     | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.22                | 867                                | 867                            |
| 1,1,1,2-Tetrachloroethane   | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.0534              | 2.78                               | 12.3                           |
| 1,1,2,2-Tetrachloroethane   | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0002              | 0.81                               | 3.6                            |
| Tetrachloroethene           | <0.025*                           | <b>0.81</b>   | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0045              | 33                                 | 145                            |
| Toluene                     | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 1.1072              | 818                                | 818                            |
| 1,2,3-Trichlorobenzene      | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | NL                  | 62.6                               | 934                            |
| 1,2,4-Trichlorobenzene      | <0.0476                           | <0.0485       | <0.0476        | <0.0476         | <0.0476         | <0.0476         | <0.0485         | 0.408               | 24                                 | 113                            |
| 1,1,1-Trichloroethane       | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.1402              | 640                                | 640                            |
| 1,1,2-Trichloroethane       | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0032              | 1.59                               | 7.01                           |
| Trichloroethene             | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0036              | 1.3                                | 8.41                           |
| Trichlorofluoromethane      | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 4.4775              | 1,230                              | 1,230                          |
| 1,2,3-Trichloropropane      | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 0.0519              | 0.005                              | 0.109                          |
| 1,2,4-Trimethylbenzene      | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         | 1.3821              | 219                                | 219                            |
| 1,3,5-Trimethylbenzene      | <0.025                            | <0.0255       | <0.025         | <0.025          | <0.025          | <0.025          | <0.0255         |                     | 182                                | 182                            |
| Vinyl chloride              | <0.025*                           | <0.0255*      | <0.025*        | <0.025*         | <0.025*         | <0.025*         | <0.0255*        | 0.0001              | 0.067                              | 2.08                           |
| Xylenes (total)             | <0.075                            | <0.0765       | <0.075         | <0.075          | <0.075          | <0.075          | <0.075          | 3.96                | 260                                | 260                            |

<sup>1</sup> – Soil Residual Contaminant Levels (RCLs) based on protection of groundwater (GW) and a dilution factor of 2 taken from the Soil RCL spreadsheet (December 2017 update) generated by the Wisconsin Department of Natural Resources (WDNR) Remediation and Redevelopment Program in compliance with Chapter NR 720 of the Wisconsin Administrative Code

<sup>2</sup> – Soil RCL for Direct Contact (DC) based upon Non-Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

<sup>3</sup> – Soil RCL for DC based upon Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

**Bold** – Concentration exceeds the most stringent applicable RCL (GW RCL or Non-Industrial DC RCL)

Underlined – Concentration exceeds the Non-Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone

*Italics* – Concentration exceeds the Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone (property is commercial but industrial exposure route assessed for completeness of evaluation)

\* – Limit of detection reported greater than most stringent applicable standard; “non-detect” concentration not taken as exceedance per NR 720.07(2)(d)(1)

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

NL – Not Listed

VOCs via USEPA Method SW8260B/5035

Samples collected on November 12-13, 2014

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                 |                 |                 |                 |                  | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-----------------|-----------------|-----------------|-----------------|------------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-103<br>(12-14)                 | GP-112<br>(2-4) | GP-113<br>(2-4) | GP-114<br>(2-4) | GP-115<br>(2-4) | GP-115<br>(8-10) |                     |                                       |                                   |
| Benzene                     | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0051              | 1.6                                   | 7.07                              |
| Bromobenzene                | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 342                                   | 679                               |
| Bromochloromethane          | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 216                                   | 906                               |
| Bromodichloromethane        | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0003              | 0.418                                 | 1.83                              |
| Bromoform                   | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0023              | 25.4                                  | 113                               |
| Bromomethane                | <0.117*                           | <0.0699*        | <0.0699*        | <0.0699*        | <0.0785*        | <0.0804*         | 0.0051              | 9.6                                   | 43                                |
| n-Butylbenzene              | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 108                                   | 108                               |
| sec-Butylbenzene            | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 145                                   | 145                               |
| tert-Butylbenzene           | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 183                                   | 183                               |
| Carbon tetrachloride        | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0039              | 0.916                                 | 4.03                              |
| Chlorobenzene               | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.1358              | 370                                   | 761                               |
| Chloroethane                | <0.112                            | <0.067          | <0.067          | <0.067          | <0.0753         | <0.077           | 0.2266              | NL                                    | NL                                |
| Chloroform                  | <0.0774*                          | <0.0464*        | <0.0464*        | <0.0464*        | <0.0522*        | <0.0534*         | 0.0033              | 0.454                                 | 1.98                              |
| Chloromethane               | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0155              | 159                                   | 669                               |
| 2-Chlorotoluene             | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 907                                   | 907                               |
| 4-Chlorotoluene             | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 253                                   | 253                               |
| Dibromochloromethane        | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.32                | 8.28                                  | 38.9                              |
| 1,2-Dibromo-3-chloropropane | <0.152*                           | <0.0912*        | <0.0912*        | <0.0912*        | <0.103*         | <0.105*          | 0.0002              | 0.008                                 | 0.092                             |
| 1,2-Dibromoethane (EDB)     | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0000282           | 0.05                                  | 0.221                             |
| Dibromomethane              | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 34                                    | 143                               |
| 1,2-Dichlorobenzene         | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 1.168               | 376                                   | 376                               |
| 1,3-Dichlorobenzene         | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 1.1528              | 297                                   | 297                               |
| 1,4-Dichlorobenzene         | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.144               | 3.74                                  | 16.4                              |
| Dichlorodifluoromethane     | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 3.0863              | 126                                   | 530                               |
| 1,1-Dichloroethane          | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.4834              | 5.06                                  | 22.2                              |
| 1,2-Dichloroethane          | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0028              | 0.652                                 | 2.87                              |
| 1,1-Dichloroethene          | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.005               | 320                                   | 1,190                             |
| cis-1,2-Dichloroethene      | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.0412              | 156                                   | 2,340                             |
| trans-1,2-Dichloroethene    | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.0626              | 1,560                                 | 1,850                             |
| 1,2-Dichloropropane         | <0.0417*                          | <0.025*         | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0033              | 3.4                                   | 15                                |
| 1,3-Dichloropropane         | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 1,490                                 | 1,490                             |
| 2,2-Dichloropropane         | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 191                                   | 191                               |
| 1,1-Dichloropropene         | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | NL                                    | NL                                |
| 1,3-Dichloropropene (c&t)   | <0.0834*                          | <0.05*          | <0.05*          | <0.05*          | <0.0562*        | <0.0574*         | 0.0003              | 2,720                                 | 2,720                             |
| Diisopropyl ether           | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 2,260                                 | 2,260                             |
| Ethylbenzene                | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | 1.57                | 8.02                                  | 35.4                              |
| Hexachloro-1,3-butadiene    | <0.0417                           | <0.025          | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 1.63                                  | 7.19                              |

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                   |                 |                 |                 |                  | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-------------------|-----------------|-----------------|-----------------|------------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-103<br>(12-14)                 | GP-112<br>(2-4)   | GP-113<br>(2-4) | GP-114<br>(2-4) | GP-115<br>(2-4) | GP-115<br>(8-10) |                     |                                       |                                   |
| Isopropylbenzene            | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | NL                                    | NL                                |
| p-Isopropyltoluene          | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 162                                   | 162                               |
| Methylene chloride          | <0.0417*                          | <0.025*           | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0026              | 61.8                                  | 1,150                             |
| Methyl tertiary-butyl ether | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281*        | <0.0287          | 0.027               | 63.8                                  | 282                               |
| Naphthalene                 | <0.0667                           | <0.04             | <0.04           | <0.04           | <0.045          | <0.046           | 0.6582              | 5.52                                  | 24.1                              |
| n-Propylbenzene             | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 264                                   | 264                               |
| Styrene                     | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.22                | 867                                   | 867                               |
| 1,1,1,2-Tetrachloroethane   | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.0534              | 2.78                                  | 12.3                              |
| 1,1,2,2-Tetrachloroethane   | <0.0417*                          | <0.025*           | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0002              | 0.81                                  | 3.6                               |
| Tetrachloroethene           | <0.0417*                          | <b>0.0475 (J)</b> | <0.025*         | <b>3.86</b>     | <b>2.79</b>     | <0.0287*         | 0.0045              | 33                                    | 145                               |
| Toluene                     | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | 0.0372 (J)       | 1.1072              | 818                                   | 818                               |
| 1,2,3-Trichlorobenzene      | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | NL                  | 62.6                                  | 934                               |
| 1,2,4-Trichlorobenzene      | <0.0793                           | <0.0476           | <0.0476         | <0.0476         | <0.0534         | <0.0547          | 0.408               | 24                                    | 113                               |
| 1,1,1-Trichloroethane       | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.1402              | 640                                   | 640                               |
| 1,1,2-Trichloroethane       | <0.0417*                          | <0.025*           | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0032              | 1.59                                  | 7.01                              |
| Trichloroethene             | <0.0417*                          | <0.025*           | <0.025*         | <b>0.0751</b>   | <0.0281*        | <0.0287*         | 0.0036              | 1.3                                   | 8.41                              |
| Trichlorofluoromethane      | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | 4.4775              | 1,230                                 | 1,230                             |
| 1,2,3-Trichloropropane      | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | 0.0519              | 0.005                                 | 0.109                             |
| 1,2,4-Trimethylbenzene      | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          | 1.3821              | 219                                   | 219                               |
| 1,3,5-Trimethylbenzene      | <0.0417                           | <0.025            | <0.025          | <0.025          | <0.0281         | <0.0287          |                     | 182                                   | 182                               |
| Vinyl chloride              | <0.0417*                          | <0.025*           | <0.025*         | <0.025*         | <0.0281*        | <0.0287*         | 0.0001              | 0.067                                 | 2.08                              |
| Xylenes (total)             | <0.125                            | <0.075            | <0.075          | <0.075          | <0.0843         | <0.0862          | 3.96                | 260                                   | 260                               |

<sup>1</sup> – Soil Residual Contaminant Levels (RCLs) based on protection of groundwater (GW) and a dilution factor of 2 taken from the Soil RCL spreadsheet (December 2017 update) generated by the Wisconsin Department of Natural Resources (WDNR) Remediation and Redevelopment Program in compliance with Chapter NR 720 of the Wisconsin Administrative Code

<sup>2</sup> – Soil RCL for Direct Contact (DC) based upon Non-Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

<sup>3</sup> – Soil RCL for DC based upon Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

**Bold** – Concentration exceeds the most stringent applicable RCL (GW RCL or Non-Industrial DC RCL)

Underlined – Concentration exceeds the Non-Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone

*Italics* – Concentration exceeds the Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone (property is commercial but industrial exposure route assessed for completeness of evaluation)

\* – Limit of detection reported greater than most stringent applicable standard; “non-detect” concentration not taken as exceedance per NR 720.07(2)(d)(1)

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

NL – Not Listed

VOCs via USEPA Method SW8260B/5035

Samples collected on January 6, 2015

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                 |                  |                  |                 |                  | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-----------------|------------------|------------------|-----------------|------------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-202<br>(2-4)                   | GP-212<br>(2-4) | GP-306<br>(8-10) | GP-307<br>(8-10) | GP-308<br>(2-4) | GP-308<br>(8-10) |                     |                                       |                                   |
| Benzene                     | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0051              | 1.6                                   | 7.07                              |
| Bromobenzene                | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 342                                   | 679                               |
| Bromochloromethane          | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 216                                   | 906                               |
| Bromodichloromethane        | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0003              | 0.418                                 | 1.83                              |
| Bromoform                   | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0023              | 25.4                                  | 113                               |
| Bromomethane                | <0.35*                            | <0.0699*        | <0.0699*         | <0.076*          | <0.0736*        | <0.0699*         | 0.0051              | 9.6                                   | 43                                |
| n-Butylbenzene              | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 108                                   | 108                               |
| sec-Butylbenzene            | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 145                                   | 145                               |
| tert-Butylbenzene           | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 183                                   | 183                               |
| Carbon tetrachloride        | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0039              | 0.916                                 | 4.03                              |
| Chlorobenzene               | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.1358              | 370                                   | 761                               |
| Chloroethane                | <0.335                            | <0.067          | <0.067           | <0.0728          | <0.0705         | <0.067           | 0.2266              | NL                                    | NL                                |
| Chloroform                  | <0.232*                           | <0.0464*        | <0.0464*         | <0.0505*         | <0.0489*        | <0.0464*         | 0.0033              | 0.454                                 | 1.98                              |
| Chloromethane               | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0155              | 159                                   | 669                               |
| 2-Chlorotoluene             | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 907                                   | 907                               |
| 4-Chlorotoluene             | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 253                                   | 253                               |
| Dibromochloromethane        | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.32                | 8.28                                  | 38.9                              |
| 1,2-Dibromo-3-chloropropane | <0.456*                           | <0.0912*        | <0.0912*         | <0.0992*         | <0.096*         | <0.0912*         | 0.0002              | 0.008                                 | 0.092                             |
| 1,2-Dibromoethane (EDB)     | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0000282           | 0.05                                  | 0.221                             |
| Dibromomethane              | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 34                                    | 143                               |
| 1,2-Dichlorobenzene         | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 1.168               | 376                                   | 376                               |
| 1,3-Dichlorobenzene         | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 1.1528              | 297                                   | 297                               |
| 1,4-Dichlorobenzene         | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.144               | 3.74                                  | 16.4                              |
| Dichlorodifluoromethane     | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 3.0863              | 126                                   | 530                               |
| 1,1-Dichloroethane          | <0.125*                           | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.4834              | 5.06                                  | 22.2                              |
| 1,2-Dichloroethane          | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0028              | 0.652                                 | 2.87                              |
| 1,1-Dichloroethene          | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.005               | 320                                   | 1,190                             |
| cis-1,2-Dichloroethene      | <0.125*                           | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.0412              | 156                                   | 2,340                             |
| trans-1,2-Dichloroethene    | <0.125*                           | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.0626              | 1,560                                 | 1,850                             |
| 1,2-Dichloropropane         | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0033              | 3.4                                   | 15                                |
| 1,3-Dichloropropane         | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 1,490                                 | 1,490                             |
| 2,2-Dichloropropane         | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 191                                   | 191                               |
| 1,1-Dichloropropene         | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | NL                                    | NL                                |
| 1,3-Dichloropropene (c&t)   | <0.25*                            | <0.05*          | <0.05*           | <0.0544*         | <0.0526*        | <0.05*           | 0.0003              | 2,720                                 | 2,720                             |
| Diisopropyl ether           | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 2,260                                 | 2,260                             |
| Ethylbenzene                | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 1.57                | 8.02                                  | 35.4                              |
| Hexachloro-1,3-butadiene    | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 1.63                                  | 7.19                              |



**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                 |                  |                  |                 |                  | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-----------------|------------------|------------------|-----------------|------------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-202<br>(2-4)                   | GP-212<br>(2-4) | GP-306<br>(8-10) | GP-307<br>(8-10) | GP-308<br>(2-4) | GP-308<br>(8-10) |                     |                                       |                                   |
| Isopropylbenzene            | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | NL                                    | NL                                |
| p-Isopropyltoluene          | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 162                                   | 162                               |
| Methylene chloride          | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0026              | 61.8                                  | 1,150                             |
| Methyl tertiary-butyl ether | <0.125*                           | <0.025          | <0.025           | <0.0272*         | <0.0263         | <0.025           | 0.027               | 63.8                                  | 282                               |
| Naphthalene                 | <0.2                              | <0.04           | <0.04            | <0.0435          | <0.0422         | <0.04            | 0.6582              | 5.52                                  | 24.1                              |
| n-Propylbenzene             | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 264                                   | 264                               |
| Styrene                     | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.22                | 867                                   | 867                               |
| 1,1,1,2-Tetrachloroethane   | <0.125*                           | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.0534              | 2.78                                  | 12.3                              |
| 1,1,2,2-Tetrachloroethane   | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0002              | 0.81                                  | 3.6                               |
| Tetrachloroethene           | <b>28.4</b>                       | <0.025*         | <0.025*          | <0.0272*         | <b>0.371</b>    | <0.025*          | 0.0045              | 33                                    | 145                               |
| Toluene                     | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 1.1072              | 818                                   | 818                               |
| 1,2,3-Trichlorobenzene      | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | NL                  | 62.6                                  | 934                               |
| 1,2,4-Trichlorobenzene      | <0.238                            | <0.0476         | <0.0476          | <0.0517          | <0.0501         | <0.0476          | 0.408               | 24                                    | 113                               |
| 1,1,1-Trichloroethane       | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.1402              | 640                                   | 640                               |
| 1,1,2-Trichloroethane       | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0032              | 1.59                                  | 7.01                              |
| Trichloroethene             | <b>0.334 (J)</b>                  | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0036              | 1.3                                   | 8.41                              |
| Trichlorofluoromethane      | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 4.4775              | 1,230                                 | 1,230                             |
| 1,2,3-Trichloropropane      | <0.125*                           | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 0.0519              | 0.005                                 | 0.109                             |
| 1,2,4-Trimethylbenzene      | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           | 1.3821              | 219                                   | 219                               |
| 1,3,5-Trimethylbenzene      | <0.125                            | <0.025          | <0.025           | <0.0272          | <0.0263         | <0.025           |                     | 182                                   | 182                               |
| Vinyl chloride              | <0.125*                           | <0.025*         | <0.025*          | <0.0272*         | <0.0263*        | <0.025*          | 0.0001              | 0.067                                 | 2.08                              |
| Xylenes (total)             | <0.375                            | <0.075          | <0.075           | <0.0815          | <0.0789         | <0.075           | 3.96                | 260                                   | 260                               |

<sup>1</sup> – Soil Residual Contaminant Levels (RCLs) based on protection of groundwater (GW) and a dilution factor of 2 taken from the Soil RCL spreadsheet (December 2017 update) generated by the Wisconsin Department of Natural Resources (WDNR) Remediation and Redevelopment Program in compliance with Chapter NR 720 of the Wisconsin Administrative Code

<sup>2</sup> – Soil RCL for Direct Contact (DC) based upon Non-Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

<sup>3</sup> – Soil RCL for DC based upon Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

**Bold** – Concentration exceeds the most stringent applicable RCL (GW RCL or Non-Industrial DC RCL)

Underlined – Concentration exceeds the Non-Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone

*Italics* – Concentration exceeds the Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone (property is commercial but industrial exposure route assessed for completeness of evaluation)

\* – Limit of detection reported greater than most stringent applicable standard; “non-detect” concentration not taken as exceedance per NR 720.07(2)(d)(1)

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

NL – Not Listed

VOCs via USEPA Method SW8260B/5035

Samples collected on December 11, 2015, or February 19, 2016

Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                  |                 |                  |                 |                  | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|------------------|-----------------|------------------|-----------------|------------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-309<br>(2-4)                   | GP-309<br>(8-10) | GP-310<br>(2-4) | GP-310<br>(8-10) | GP-311<br>(2-4) | GP-311<br>(8-10) |                     |                                       |                                   |
| Benzene                     | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0051              | 1.6                                   | 7.07                              |
| Bromobenzene                | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 342                                   | 679                               |
| Bromochloromethane          | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 216                                   | 906                               |
| Bromodichloromethane        | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0003              | 0.418                                 | 1.83                              |
| Bromoform                   | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0023              | 25.4                                  | 113                               |
| Bromomethane                | <0.0721*                          | <0.0699*         | <0.0699*        | <0.0699*         | <0.0744*        | <0.0706*         | 0.0051              | 9.6                                   | 43                                |
| n-Butylbenzene              | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 108                                   | 108                               |
| sec-Butylbenzene            | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 145                                   | 145                               |
| tert-Butylbenzene           | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 183                                   | 183                               |
| Carbon tetrachloride        | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0039              | 0.916                                 | 4.03                              |
| Chlorobenzene               | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 0.1358              | 370                                   | 761                               |
| Chloroethane                | <0.0691                           | <0.067           | <0.067          | <0.067           | <0.0713         | <0.0677          | 0.2266              | NL                                    | NL                                |
| Chloroform                  | <0.0479*                          | <0.0464*         | <0.0464*        | <0.0464*         | <0.0494*        | <0.0469*         | 0.0033              | 0.454                                 | 1.98                              |
| Chloromethane               | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0155              | 159                                   | 669                               |
| 2-Chlorotoluene             | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 907                                   | 907                               |
| 4-Chlorotoluene             | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 253                                   | 253                               |
| Dibromochloromethane        | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 0.32                | 8.28                                  | 38.9                              |
| 1,2-Dibromo-3-chloropropane | <0.0941*                          | <0.0912*         | <0.0912*        | <0.0912*         | <0.0971*        | <0.0922*         | 0.0002              | 0.008                                 | 0.092                             |
| 1,2-Dibromoethane (EDB)     | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0000282           | 0.05                                  | 0.221                             |
| Dibromomethane              | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 34                                    | 143                               |
| 1,2-Dichlorobenzene         | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 1.168               | 376                                   | 376                               |
| 1,3-Dichlorobenzene         | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 1.1528              | 297                                   | 297                               |
| 1,4-Dichlorobenzene         | 0.0337 (J)                        | <0.025           | <0.025          | <0.025           | <0.0266         | 0.0372           | 0.144               | 3.74                                  | 16.4                              |
| Dichlorodifluoromethane     | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 3.0863              | 126                                   | 530                               |
| 1,1-Dichloroethane          | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 0.4834              | 5.06                                  | 22.2                              |
| 1,2-Dichloroethane          | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0028              | 0.652                                 | 2.87                              |
| 1,1-Dichloroethene          | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.005               | 320                                   | 1,190                             |
| cis-1,2-Dichloroethene      | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 0.0412              | 156                                   | 2,340                             |
| trans-1,2-Dichloroethene    | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 0.0626              | 1,560                                 | 1,850                             |
| 1,2-Dichloropropane         | <0.0258*                          | <0.025*          | <0.025*         | <0.025*          | <0.0266*        | <0.0253*         | 0.0033              | 3.4                                   | 15                                |
| 1,3-Dichloropropane         | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 1,490                                 | 1,490                             |
| 2,2-Dichloropropane         | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 191                                   | 191                               |
| 1,1-Dichloropropene         | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | NL                                    | NL                                |
| 1,3-Dichloropropene (c&t)   | <0.0516*                          | <0.05*           | <0.05*          | <0.05*           | <0.0532*        | <0.0506*         | 0.0003              | 2,720                                 | 2,720                             |
| Diisopropyl ether           | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 2,260                                 | 2,260                             |
| Ethylbenzene                | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | 1.57                | 8.02                                  | 35.4                              |
| Hexachloro-1,3-butadiene    | <0.0258                           | <0.025           | <0.025          | <0.025           | <0.0266         | <0.0253          | NL                  | 1.63                                  | 7.19                              |

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                   |                  |                  |                 |                  | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-------------------|------------------|------------------|-----------------|------------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-309<br>(2-4)                   | GP-309<br>(8-10)  | GP-310<br>(2-4)  | GP-310<br>(8-10) | GP-311<br>(2-4) | GP-311<br>(8-10) |                     |                                       |                                   |
| Isopropylbenzene            | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | NL                  | NL                                    | NL                                |
| p-Isopropyltoluene          | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | NL                  | 162                                   | 162                               |
| Methylene chloride          | <0.0258*                          | <0.025*           | <0.025*          | <0.025*          | <0.0266*        | <0.0253*         | 0.0026              | 61.8                                  | 1,150                             |
| Methyl tertiary-butyl ether | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | 0.027               | 63.8                                  | 282                               |
| Naphthalene                 | <0.0413                           | <0.04             | <0.04            | <0.04            | <0.0426         | <0.0404          | 0.6582              | 5.52                                  | 24.1                              |
| n-Propylbenzene             | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | NL                  | 264                                   | 264                               |
| Styrene                     | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | 0.22                | 867                                   | 867                               |
| 1,1,1,2-Tetrachloroethane   | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | 0.0534              | 2.78                                  | 12.3                              |
| 1,1,2,2-Tetrachloroethane   | <0.0258*                          | <0.025*           | <0.025*          | <0.025*          | <0.0266*        | <0.0253*         | 0.0002              | 0.81                                  | 3.6                               |
| Tetrachloroethene           | <b>0.108</b>                      | <b>0.0341 (J)</b> | <b>0.046 (J)</b> | <0.025*          | <b>1.89</b>     | <b>0.0284</b>    | 0.0045              | 33                                    | 145                               |
| Toluene                     | 0.0351 (J)                        | <0.025            | <0.025           | <0.025           | <0.0266         | 0.0312           | 1.1072              | 818                                   | 818                               |
| 1,2,3-Trichlorobenzene      | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | NL                  | 62.6                                  | 934                               |
| 1,2,4-Trichlorobenzene      | <0.049                            | <0.0476           | <0.0476          | <0.0476          | <0.0506         | <0.048           | 0.408               | 24                                    | 113                               |
| 1,1,1-Trichloroethane       | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | 0.1402              | 640                                   | 640                               |
| 1,1,2-Trichloroethane       | <0.0258*                          | <0.025*           | <0.025*          | <0.025*          | <0.0266*        | <0.0253*         | 0.0032              | 1.59                                  | 7.01                              |
| Trichloroethene             | <0.0258*                          | <0.025*           | <0.025*          | <0.025*          | <0.0266*        | <0.0253*         | 0.0036              | 1.3                                   | 8.41                              |
| Trichlorofluoromethane      | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | 4.4775              | 1,230                                 | 1,230                             |
| 1,2,3-Trichloropropane      | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | 0.0519              | 0.005                                 | 0.109                             |
| 1,2,4-Trimethylbenzene      | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          | 1.3821              | 219                                   | 219                               |
| 1,3,5-Trimethylbenzene      | <0.0258                           | <0.025            | <0.025           | <0.025           | <0.0266         | <0.0253          |                     | 182                                   | 182                               |
| Vinyl chloride              | <0.0258*                          | <0.025*           | <0.025*          | <0.025*          | <0.0266*        | <0.0253*         | 0.0001              | 0.067                                 | 2.08                              |
| Xylenes (total)             | <0.0773                           | <0.075            | <0.075           | <0.075           | <0.0798         | <0.0758          | 3.96                | 260                                   | 260                               |

<sup>1</sup> – Soil Residual Contaminant Levels (RCLs) based on protection of groundwater (GW) and a dilution factor of 2 taken from the Soil RCL spreadsheet (December 2017 update) generated by the Wisconsin Department of Natural Resources (WDNR) Remediation and Redevelopment Program in compliance with Chapter NR 720 of the Wisconsin Administrative Code

<sup>2</sup> – Soil RCL for Direct Contact (DC) based upon Non-Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

<sup>3</sup> – Soil RCL for DC based upon Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

**Bold** – Concentration exceeds the most stringent applicable RCL (GW RCL or Non-Industrial DC RCL)

Underlined – Concentration exceeds the Non-Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone

*Italics* – Concentration exceeds the Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone (property is commercial but industrial exposure route assessed for completeness of evaluation)

\* – Limit of detection reported greater than most stringent applicable standard; “non-detect” concentration not taken as exceedance per NR 720.07(2)(d)(1)

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

NL – Not Listed

VOCs via USEPA Method SW8260B/5035

Samples collected on February 19, 2016

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                 |                 |                 |                 |                 |                 | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-401<br>(0-2)                   | GP-401<br>(6-8) | GP-402<br>(0-2) | GP-403<br>(0-2) | GP-403<br>(6-7) | GP-404<br>(2-4) | GP-404<br>(6-8) |                     |                                       |                                   |
| Benzene                     | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0051              | 1.6                                   | 7.07                              |
| Bromobenzene                | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 342                                   | 679                               |
| Bromochloromethane          | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 216                                   | 906                               |
| Bromodichloromethane        | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0003              | 0.418                                 | 1.83                              |
| Bromoform                   | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0023              | 25.4                                  | 113                               |
| Bromomethane                | <0.0699*                          | <0.0699*        | <1.4*           | <0.0699*        | <0.0699*        | <0.0699*        | <0.0699*        | 0.0051              | 9.6                                   | 43                                |
| n-Butylbenzene              | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 108                                   | 108                               |
| sec-Butylbenzene            | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 145                                   | 145                               |
| tert-Butylbenzene           | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 183                                   | 183                               |
| Carbon tetrachloride        | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0039              | 0.916                                 | 4.03                              |
| Chlorobenzene               | <0.025                            | <0.025          | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025          | 0.1358              | 370                                   | 761                               |
| Chloroethane                | <0.067                            | <0.067          | <1.34*          | <0.067          | <0.067          | <0.067          | <0.067          | 0.2266              | NL                                    | NL                                |
| Chloroform                  | <0.0464*                          | <0.0464*        | <0.929*         | <0.0464*        | <0.0464*        | <0.0464*        | <0.0464*        | 0.0033              | 0.454                                 | 1.98                              |
| Chloromethane               | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0155              | 159                                   | 669                               |
| 2-Chlorotoluene             | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 907                                   | 907                               |
| 4-Chlorotoluene             | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 253                                   | 253                               |
| Dibromochloromethane        | <0.025                            | <0.025          | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025          | 0.32                | 8.28                                  | 38.9                              |
| 1,2-Dibromo-3-chloropropane | <0.0912*                          | <0.0912*        | <1.82*          | <0.0912*        | <0.0912*        | <0.0912*        | <0.0912*        | 0.0002              | 0.008                                 | 0.092                             |
| 1,2-Dibromoethane (EDB)     | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0000282           | 0.05                                  | 0.221                             |
| Dibromomethane              | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 34                                    | 143                               |
| 1,2-Dichlorobenzene         | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | 1.168               | 376                                   | 376                               |
| 1,3-Dichlorobenzene         | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | 1.1528              | 297                                   | 297                               |
| 1,4-Dichlorobenzene         | <0.025                            | <0.025          | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025          | 0.144               | 3.74                                  | 16.4                              |
| Dichlorodifluoromethane     | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | 3.0863              | 126                                   | 530                               |
| 1,1-Dichloroethane          | <0.025                            | <0.025          | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025          | 0.4834              | 5.06                                  | 22.2                              |
| 1,2-Dichloroethane          | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0028              | 0.652                                 | 2.87                              |
| 1,1-Dichloroethene          | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.005               | 320                                   | 1,190                             |
| cis-1,2-Dichloroethene      | <0.025                            | <0.025          | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025          | 0.0412              | 156                                   | 2,340                             |
| trans-1,2-Dichloroethene    | <0.025                            | <0.025          | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025          | 0.0626              | 1,560                                 | 1,850                             |
| 1,2-Dichloropropane         | <0.025*                           | <0.025*         | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*         | 0.0033              | 3.4                                   | 15                                |
| 1,3-Dichloropropane         | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 1,490                                 | 1,490                             |
| 2,2-Dichloropropane         | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 191                                   | 191                               |
| 1,1-Dichloropropene         | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | NL                                    | NL                                |
| 1,3-Dichloropropene (c&t)   | <0.05*                            | <0.05*          | <0.1*           | <0.05*          | <0.05*          | <0.05*          | <0.05*          | 0.0003              | 2,720                                 | 2,720                             |
| Diisopropyl ether           | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 2,260                                 | 2,260                             |
| Ethylbenzene                | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | 1.57                | 8.02                                  | 35.4                              |
| Hexachloro-1,3-butadiene    | <0.025                            | <0.025          | <0.5            | <0.025          | <0.025          | <0.025          | <0.025          | NL                  | 1.63                                  | 7.19                              |

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                   |                 |                 |                 |                 |                   | GW RCL <sup>1</sup> | Non-Industrial DC RCL <sup>2</sup> | Industrial DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-------------------|-----------------|-----------------|-----------------|-----------------|-------------------|---------------------|------------------------------------|--------------------------------|
|                             | GP-401<br>(0-2)                   | GP-401<br>(6-8)   | GP-402<br>(0-2) | GP-403<br>(0-2) | GP-403<br>(6-7) | GP-404<br>(2-4) | GP-404<br>(6-8)   |                     |                                    |                                |
| Isopropylbenzene            | <0.025                            | <0.025            | <0.5            | <0.025          | <0.025          | <0.025          | <0.025            | NL                  | NL                                 | NL                             |
| p-Isopropyltoluene          | <0.025                            | <0.025            | <0.5            | <0.025          | <0.025          | <0.025          | <0.025            | NL                  | 162                                | 162                            |
| Methylene chloride          | <0.025*                           | <0.025*           | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*           | 0.0026              | 61.8                               | 1,150                          |
| Methyl tertiary-butyl ether | <0.025                            | <0.025            | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025            | 0.027               | 63.8                               | 282                            |
| Naphthalene                 | <0.04                             | <0.04             | <0.801*         | 0.0535 (J)      | <0.04           | <0.04           | <0.04             | 0.6582              | 5.52                               | 24.1                           |
| n-Propylbenzene             | <0.025                            | <0.025            | <0.5            | <0.025          | <0.025          | <0.025          | <0.025            | NL                  | 264                                | 264                            |
| Styrene                     | <0.025                            | <0.025            | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025            | 0.22                | 867                                | 867                            |
| 1,1,1,2-Tetrachloroethane   | <0.025                            | <0.025            | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025            | 0.0534              | 2.78                               | 12.3                           |
| 1,1,2,2-Tetrachloroethane   | <0.025*                           | <0.025*           | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*           | 0.0002              | 0.81                               | 3.6                            |
| Tetrachloroethene           | <b>0.0446</b>                     | <b>0.0934 (J)</b> | <b>142</b>      | <b>1.75</b>     | <b>0.0994</b>   | <0.025*         | <b>0.0303 (J)</b> | 0.0045              | 33                                 | 145                            |
| Toluene                     | <0.025                            | <0.025            | <0.5            | 0.0711          | <0.025          | <0.025          | <0.025            | 1.1072              | 818                                | 818                            |
| 1,2,3-Trichlorobenzene      | <0.025                            | <0.025            | <0.5            | <0.025          | <0.025          | <0.025          | <0.025            | NL                  | 62.6                               | 934                            |
| 1,2,4-Trichlorobenzene      | <0.0476                           | <0.0476           | <0.951*         | <0.0476         | <0.0476         | <0.0476         | <0.0476           | 0.408               | 24                                 | 113                            |
| 1,1,1-Trichloroethane       | <0.025                            | <0.025            | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025            | 0.1402              | 640                                | 640                            |
| 1,1,2-Trichloroethane       | <0.025*                           | <0.025*           | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*           | 0.0032              | 1.59                               | 7.01                           |
| Trichloroethene             | <0.025*                           | <0.025*           | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*           | 0.0036              | 1.3                                | 8.41                           |
| Trichlorofluoromethane      | <0.025                            | <0.025            | <0.5            | <0.025          | <0.025          | <0.025          | <0.025            | 4.4775              | 1,230                              | 1,230                          |
| 1,2,3-Trichloropropane      | <0.025                            | <0.025            | <0.5*           | <0.025          | <0.025          | <0.025          | <0.025            | 0.0519              | 0.005                              | 0.109                          |
| 1,2,4-Trimethylbenzene      | <0.025                            | <0.025            | <0.5            | <0.025          | <0.025          | <0.025          | <0.025            | 1.3821              | 219                                | 219                            |
| 1,3,5-Trimethylbenzene      | <0.025                            | <0.025            | <0.5            | <0.025          | <0.025          | <0.025          | <0.025            |                     | 182                                | 182                            |
| Vinyl chloride              | <0.025*                           | <0.025*           | <0.5*           | <0.025*         | <0.025*         | <0.025*         | <0.025*           | 0.0001              | 0.067                              | 2.08                           |
| Xylenes (total)             | <0.075                            | <0.075            | <1.5            | 0.0397 (J)      | <0.075          | <0.075          | <0.075            | 3.96                | 260                                | 260                            |

<sup>1</sup> –Soil Residual Contaminant Levels (RCLs) based on protection of groundwater (GW) and a dilution factor of 2 taken from the Soil RCL spreadsheet (December 2017 update) generated by the Wisconsin Department of Natural Resources (WDNR) Remediation and Redevelopment Program in compliance with Chapter NR 720 of the Wisconsin Administrative Code

<sup>2</sup> – Soil RCL for Direct Contact (DC) based upon Non-Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

<sup>3</sup> – Soil RCL for DC based upon Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

**Bold** – Concentration exceeds the most stringent applicable RCL (GW RCL or Non-Industrial DC RCL)

Underlined – Concentration exceeds the Non-Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone

*Italics* – Concentration exceeds the Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone (property is commercial but industrial exposure route assessed for completeness of evaluation)

\* – Limit of detection reported greater than most stringent applicable standard; “non-detect” concentration not taken as exceedance per NR 720.07(2)(d)(1)

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

NL – Not Listed

VOCs via USEPA Method SW8260B/5035

Samples collected on September 8, 2016

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                 |                 |                 |                 |                 | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-405<br>(0-2)                   | GP-405<br>(6-8) | GP-406<br>(2-4) | GP-406<br>(6-8) | GP-407<br>(0-2) | GP-407<br>(6-8) |                     |                                       |                                   |
| Benzene                     | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0051              | 1.6                                   | 7.07                              |
| Bromobenzene                | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 342                                   | 679                               |
| Bromochloromethane          | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 216                                   | 906                               |
| Bromodichloromethane        | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0003              | 0.418                                 | 1.83                              |
| Bromoform                   | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0023              | 25.4                                  | 113                               |
| Bromomethane                | <35*                              | <1.75*          | <0.0699*        | <0.0699*        | <2.8*           | <0.28*          | 0.0051              | 9.6                                   | 43                                |
| n-Butylbenzene              | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 108                                   | 108                               |
| sec-Butylbenzene            | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 145                                   | 145                               |
| tert-Butylbenzene           | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 183                                   | 183                               |
| Carbon tetrachloride        | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0039              | 0.916                                 | 4.03                              |
| Chlorobenzene               | <12.5*                            | <0.625*         | <0.025          | <0.025          | <1*             | <0.1            | 0.1358              | 370                                   | 761                               |
| Chloroethane                | <33.5*                            | <1.68*          | <0.067          | <0.067          | <2.68*          | <0.268*         | 0.2266              | NL                                    | NL                                |
| Chloroform                  | <23.2*                            | <1.16*          | <0.0464*        | <0.0464*        | <1.86*          | <0.186*         | 0.0033              | 0.454                                 | 1.98                              |
| Chloromethane               | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0155              | 159                                   | 669                               |
| 2-Chlorotoluene             | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 907                                   | 907                               |
| 4-Chlorotoluene             | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 253                                   | 253                               |
| Dibromochloromethane        | <12.5*                            | <0.625*         | <0.025          | <0.025          | <1*             | <0.1            | 0.32                | 8.28                                  | 38.9                              |
| 1,2-Dibromo-3-chloropropane | <45.6*                            | <2.28*          | <0.0912*        | <0.0912*        | <3.65*          | <0.365*         | 0.0002              | 0.008                                 | 0.092                             |
| 1,2-Dibromoethane (EDB)     | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0000282           | 0.05                                  | 0.221                             |
| Dibromomethane              | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 34                                    | 143                               |
| 1,2-Dichlorobenzene         | <12.5*                            | <0.625          | <0.025          | <0.025          | <1              | <0.1            | 1.168               | 376                                   | 376                               |
| 1,3-Dichlorobenzene         | <12.5*                            | <0.625          | <0.025          | <0.025          | <1              | <0.1            | 1.1528              | 297                                   | 297                               |
| 1,4-Dichlorobenzene         | <12.5*                            | <0.625*         | <0.025          | <0.025          | <1*             | <0.1            | 0.144               | 3.74                                  | 16.4                              |
| Dichlorodifluoromethane     | <12.5*                            | <0.625          | <0.025          | <0.025          | <1              | <0.1            | 3.0863              | 126                                   | 530                               |
| 1,1-Dichloroethane          | <12.5*                            | <0.625*         | <0.025          | <0.025          | <1*             | <0.1*           | 0.4834              | 5.06                                  | 22.2                              |
| 1,2-Dichloroethane          | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0028              | 0.652                                 | 2.87                              |
| 1,1-Dichloroethene          | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.005               | 320                                   | 1,190                             |
| cis-1,2-Dichloroethene      | <12.5*                            | <0.625*         | <0.025          | <0.025          | <1*             | <0.1*           | 0.0412              | 156                                   | 2,340                             |
| trans-1,2-Dichloroethene    | <12.5*                            | <0.625*         | <0.025          | <0.025          | <1*             | <0.1*           | 0.0626              | 1,560                                 | 1,850                             |
| 1,2-Dichloropropane         | <12.5*                            | <0.625*         | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0033              | 3.4                                   | 15                                |
| 1,3-Dichloropropane         | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 1,490                                 | 1,490                             |
| 2,2-Dichloropropane         | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 191                                   | 191                               |
| 1,1-Dichloropropene         | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | NL                                    | NL                                |
| 1,3-Dichloropropene (c&t)   | <25*                              | <1.25*          | <0.05*          | <0.05*          | <2*             | <0.2*           | 0.0003              | 2,720                                 | 2,720                             |
| Diisopropyl ether           | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 2,260                                 | 2,260                             |
| Ethylbenzene                | <12.5*                            | <0.625          | <0.025          | <0.025          | <1              | <0.1            | 1.57                | 8.02                                  | 35.4                              |
| Hexachloro-1,3-butadiene    | <12.5                             | <0.625          | <0.025          | <0.025          | <1              | <0.1            | NL                  | 1.63                                  | 7.19                              |

**Table A.2.A (Continued). Soil Analytical Results Table for Volatile Organic Compounds (mg/kg)**

| Volatile Organic Compound   | Sample Location<br>(Sample Depth) |                  |                 |                 |                 |                 | GW RCL <sup>1</sup> | Non-Industrial<br>DC RCL <sup>2</sup> | Industrial<br>DC RCL <sup>3</sup> |
|-----------------------------|-----------------------------------|------------------|-----------------|-----------------|-----------------|-----------------|---------------------|---------------------------------------|-----------------------------------|
|                             | GP-405<br>(0-2)                   | GP-405<br>(6-8)  | GP-406<br>(2-4) | GP-406<br>(6-8) | GP-407<br>(0-2) | GP-407<br>(6-8) |                     |                                       |                                   |
| Isopropylbenzene            | <12.5                             | <0.625           | <0.025          | <0.025          | <1              | <0.1            | NL                  | NL                                    | NL                                |
| p-Isopropyltoluene          | <12.5                             | <0.625           | <0.025          | <0.025          | <1              | <0.1            | NL                  | 162                                   | 162                               |
| Methylene chloride          | <12.5*                            | <0.625*          | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0026              | 61.8                                  | 1,150                             |
| Methyl tertiary-butyl ether | <12.5*                            | <0.625*          | <0.025          | <0.025          | <1*             | <0.1*           | 0.027               | 63.8                                  | 282                               |
| Naphthalene                 | <20*                              | <1*              | <0.04           | <0.04           | <1.6*           | <0.16           | 0.6582              | 5.52                                  | 24.1                              |
| n-Propylbenzene             | <12.5                             | <0.625           | <0.025          | <0.025          | <1              | <0.1            | NL                  | 264                                   | 264                               |
| Styrene                     | <12.5*                            | <0.625*          | <0.025          | <0.025          | <1*             | <0.1            | 0.22                | 867                                   | 867                               |
| 1,1,1,2-Tetrachloroethane   | <12.5*                            | <0.625*          | <0.025          | <0.025          | <1*             | <0.1*           | 0.0534              | 2.78                                  | 12.3                              |
| 1,1,2,2-Tetrachloroethane   | <12.5*                            | <0.625*          | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0002              | 0.81                                  | 3.6                               |
| Tetrachloroethene           | <b>3,750</b>                      | <b>157</b>       | <b>3.72</b>     | <b>0.64</b>     | <b>435</b>      | <b>19.3</b>     | 0.0045              | 33                                    | 145                               |
| Toluene                     | <12.5*                            | <0.625           | <0.025          | <0.025          | <1              | <0.1            | 1.1072              | 818                                   | 818                               |
| 1,2,3-Trichlorobenzene      | <12.5                             | <0.625           | <0.025          | <0.025          | <1              | <0.1            | NL                  | 62.6                                  | 934                               |
| 1,2,4-Trichlorobenzene      | <23.8*                            | <1.19*           | <0.0476         | <0.0476         | <1.9*           | <0.19           | 0.408               | 24                                    | 113                               |
| 1,1,1-Trichloroethane       | <12.5*                            | <0.625*          | <0.025          | <0.025          | <1*             | <0.1            | 0.1402              | 640                                   | 640                               |
| 1,1,2-Trichloroethane       | <12.5*                            | <0.625*          | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0032              | 1.59                                  | 7.01                              |
| Trichloroethene             | <u>&lt;12.5</u>                   | <b>&lt;0.625</b> | <0.025          | <0.025          | <b>1.35 (J)</b> | <0.1*           | 0.0036              | 1.3                                   | 8.41                              |
| Trichlorofluoromethane      | <12.5*                            | <0.625           | <0.025          | <0.025          | <1              | <0.1            | 4.4775              | 1,230                                 | 1,230                             |
| 1,2,3-Trichloropropane      | <12.5*                            | <0.625*          | <0.025          | <0.025          | <1*             | <0.1*           | 0.0519              | 0.005                                 | 0.109                             |
| 1,2,4-Trimethylbenzene      | <12.5*                            | <0.625           | <0.025          | <0.025          | <1              | <0.1            | 1.3821              | 219                                   | 219                               |
| 1,3,5-Trimethylbenzene      | <12.5*                            | <0.625           | <0.025          | <0.025          | <1              | <0.1            |                     | 182                                   | 182                               |
| Vinyl chloride              | <12.5*                            | <0.625*          | <0.025*         | <0.025*         | <1*             | <0.1*           | 0.0001              | 0.067                                 | 2.08                              |
| Xylenes (total)             | <62.5*                            | <1.875           | <0.075          | <0.075          | <3              | <0.3            | 3.96                | 260                                   | 260                               |

<sup>1</sup> – Soil Residual Contaminant Levels (RCLs) based on protection of groundwater (GW) and a dilution factor of 2 taken from the Soil RCL spreadsheet (December 2017 update) generated by the Wisconsin Department of Natural Resources (WDNR) Remediation and Redevelopment Program in compliance with Chapter NR 720 of the Wisconsin Administrative Code

<sup>2</sup> – Soil RCL for Direct Contact (DC) based upon Non-Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

<sup>3</sup> – Soil RCL for DC based upon Industrial property classifications taken from the WDNR Soil RCL spreadsheet (December 2017 update)

**Bold** – Concentration exceeds the most stringent applicable RCL (GW RCL or Non-Industrial DC RCL)

Underlined – Concentration exceeds the Non-Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone

*Italics* – Concentration exceeds the Industrial DC RCL in soil sample collected within the 0-ft to 4-ft DC zone (property is commercial but industrial exposure route assessed for completeness of evaluation)

\* – Limit of detection reported greater than most stringent applicable standard; “non-detect” concentration not taken as exceedance per NR 720.07(2)(d)(1)

(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification

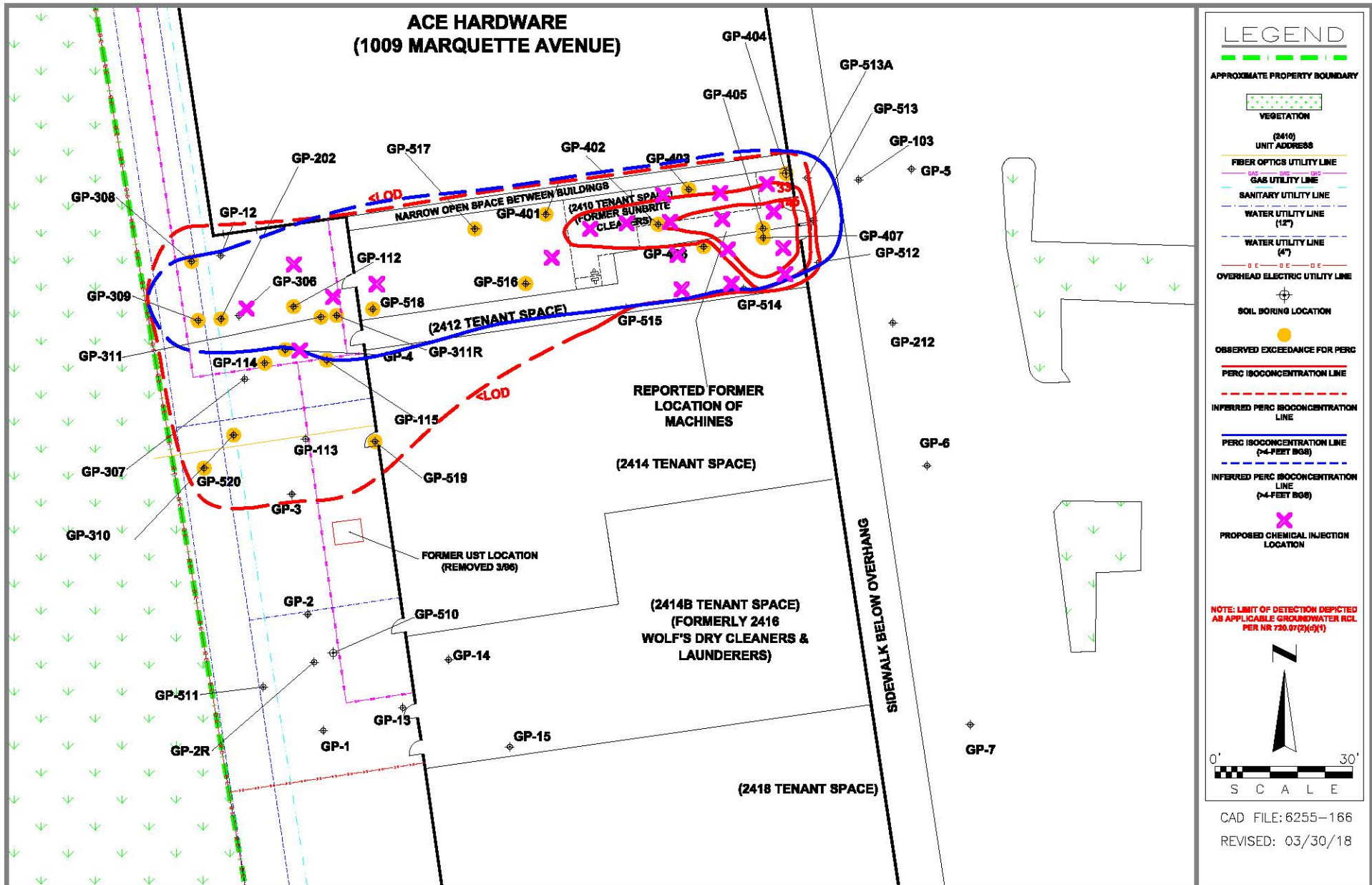
NL – Not Listed

VOCs via USEPA Method SW8260B/5035

Samples collected on September 8, 2016

**ATTACHMENT 2**  
**FIGURES**

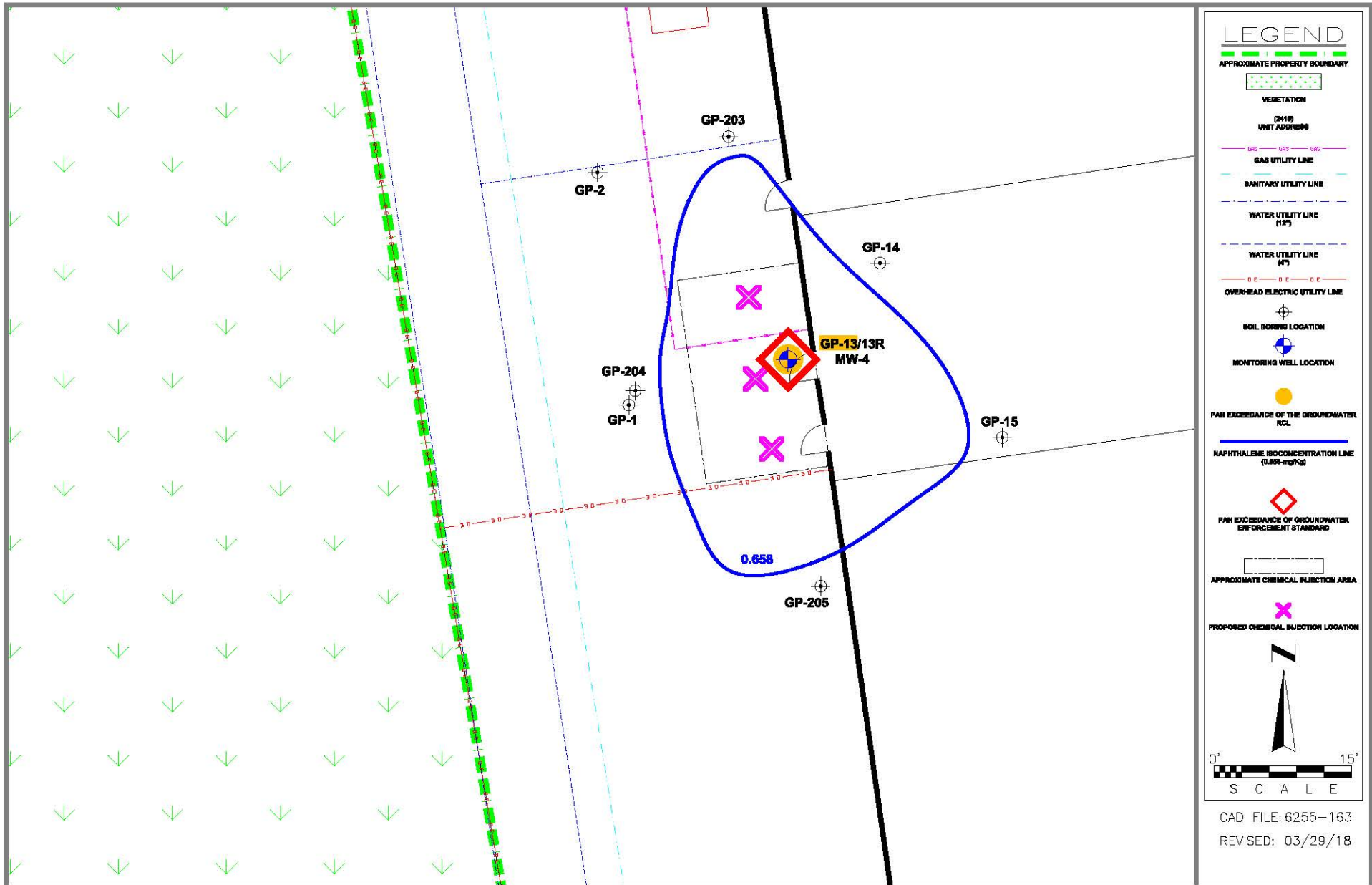




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**SUNRISE SHOPPING CENTER  
2410-2424 10TH AVENUE  
1009 MARQUETTE AVENUE  
SOUTH MILWAUKEE, WISCONSIN**

**FIGURE C.6.a  
PROPOSED CHEMICAL INJECTION  
(FORMER DRY CLEANER)**



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**FIGURE C.6.b  
PROPOSED CHEMICAL INJECTION  
(FORMER HEATING OIL UST)**

**ATTACHMENT 3**  
**INJECTION PLAN INFORMATION**

## INTRODUCTION

DAI Environmental, Inc., (DAI) has been engaged by the Carol Investment Corporation to obtain a Case Closure letter from the Wisconsin Department of Natural Resources (WDNR) for the Sunrise Shopping Center Property located at 2410-2424 10<sup>th</sup> Avenue and 1009 Marquette Avenue in South Milwaukee, Wisconsin (Site). The Site name, current property owner, and current Responsible Party are provided below.

**Site:** Sunrise Shopping Center  
2410-2424 10<sup>th</sup> Avenue and 1009 Marquette Avenue  
South Milwaukee, Wisconsin 53172  
Parcel Identification No. 7769994001  
WDNR BRRTS Activity #02-41-576336 & 02-41-579429  
WDNR FID #241828620

**Property Owner/  
Responsible Party:** Carol Investment Corporation  
1410 South Clinton Street  
Chicago, Illinois 60607

**Consultant:** DAI Environmental, Inc.  
27834 North Irma Lee Circle  
Lake Forest, Illinois 60045  
(847) 573-8900

**WDNR R&R:** Mr. Riley Neumann, Project Manger  
Wisconsin Department of Natural Resources  
2300 North Dr. Martin Luther King, Jr. Drive  
Milwaukee, Wisconsin 53212-3128  
(414) 263-8699

## REGULATORY REPORTING

**Notifications:** A *Notification For Hazardous Substance Discharge (Non-Emergency Only)* form 4400-225 was submitted to the WDNR on October 22, 2015. Subsequently at the request of WDNR, a second notification was submitted on May 16, 2017 in order to separate the

contamination at the Site into two (2) separate BRRTS numbers. The Volatile Organic Compound (VOC) contamination was assigned the BRRTS number (02-41-576336) and the Polynuclear Aromatic Hydrocarbon (PAH) contamination was later assigned BRRTS number 02-41-579429.

**Site Investigations:** A *Site Investigation Report Amendment* dated September 18, 2017, and a *Supplemental Information to Site Investigation Report Amendment* dated November 16, 2017, were submitted to WDNR between November 2014 and May 2017. Additional Site Investigations activities were then conducted in January 2018 in response to WDNR's letter dated December 5, 2017. The results of the January 2018 sampling and other additionally requested information were provided in the *Site Investigation Report Amendment Addendum* dated February 28, 2018. In a letter dated April 24, 2018, WDNR determined that Site Investigation activities had been completed in compliance with NR 716 requirements.

**Remedial Actions:** A *Remedial Actions Options Report/Design Report (RAOR/Design Report)* dated April 2, 2018, was submitted to WDNR proposing a combination of active remediation and implementation of institutional controls to address the on-site contamination. The proposed pilot scale testing for chemical injection is to be performed in two (2) separate areas of the Site. WDNR provided preliminary approval of the pilot scale testing plan in a telephone conversation of May 10, 2018, provided a formal full-scale Design Report be submitted at the conclusion of the pilot-scale testing.

## **REMEDIAL STRATEGY**

**Injection Overview:** As proposed in the RAOR/Design Report, in-situ chemical oxidation will be used to address both soil and groundwater contamination. The primary goal of the chemical oxidation is to reduce the concentrations of chlorinated VOCs, specifically Tetrachloroethene (Perc) and Trichloroethene (TCE), in the area of the former dry cleaners and neighboring spaces (2410 and 2412). A second smaller injection area behind the 2414B tenant space will be targeted for PAH remediation.

The chemical treatment will be accomplished using a commercially available product manufactured by Carus Corporation under the trade name RemOx®. RemOx® is a strong oxidant consisting of >98.8% Potassium permanganate, specifically formulated for use in soil and groundwater remediation. A solution of RemOx® powder and water (obtained from the municipal supply provided to the shopping mall) will be injected into the subsurface using high pressure pumps. A combination of direct-push rods and 1-in PVC injection wells (i.e., Class V underground injection control wells) will be used.

**Preliminary Injection Plan/Pilot Test:** Due to a number of unknowns and other site complexities, a full and detailed Remedial Action Plan (RAP) cannot be provided at this time. Unknown factors such as the effective soil permeability and ease of distributing the injectate through the observed clayey soils, degree of naturally occurring chemical oxidant demand, delivery pressure required, and overall chemical effectiveness need to be determined before a final RAP can be proposed.

The intent of this submission is to inform WDNR of the proposed pilot scale activities and obtain approval by WDNR to test one (1) chemical oxidant, Potassium permanganate, in a field setting. The quantity of Potassium permanganate injected will be approximately 1,000-lbs, although the final injectate strength and quantity of liquid that can be injected is the subject of the pilot testing. The Potassium permanganate will be injected using 1-in PVC injection wells and/or through direct-push sampling rods. The quantity of injectate and delivery pressure will be monitored at each injection point. The overall effectiveness of the chemical injections will be determined by confirmatory soil sampling conducted approximately 1-wk later. Quarterly groundwater sampling due to be performed in July will also be utilized for confirmation of post-injection progress/effectiveness.

**Injection Locations:** Figures C.6.a and C.6.b of the Design Report included anticipated injection locations. Based upon the extent and magnitude of chlorinated VOCs observed at the 2410-2412 tenant spaces, the chemical treatment zone will target the two (2) higher concentration source areas within the larger soil contaminant plume. Figure C.6.a shows a total of 20 anticipated injection points, 15 within the front of the 2410-2412 tenant spaces and five (5) to the rear of the spaces within the vicinity of MW-5. The injection points nearest the front of the 2410-2412 tenant space

are intended to address the location of highest observed contaminant concentrations and reduce the potential for vapor intrusion and contaminant leaching into groundwater, while the “rear” injection points are intended to reduce soil and groundwater contaminant concentrations that are resulting in exceedances of the groundwater Enforcement Standard for Perc in monitoring well MW-5.

In addition to the primary injection area, Figure C.6.b shows three (3) injections points within the former underground storage tank (UST) excavation behind the 2414B tenant space. This smaller injection is designed to address PAH contamination.

The pilot testing will include injection of chemical oxidant into both the front and back areas depicted in Figure C.6.a, as well as the former UST area shown in Figure C.6.b. The justification for multiple pilot test areas is as follows:

- Front of 2410-2412: Evaluation of oxidant effectiveness in area of highest chlorinated VOC concentrations and evaluation of feasibility within the area where spatial limitations and tight subsurface stratigraphy are anticipated to be of greatest interference;
- Back of 2410-2412: Evaluation of effectiveness in area of lower soil concentrations and higher subsurface permeability (as a result of historical excavation activities), and with the intent to at least initiate Perc concentration reductions in groundwater; and
- 2414B: Evaluation of oxidant effectiveness on PAH contamination or possibly the completion of remediation within the area based upon the limited contamination (recent quarterly groundwater sampling only indicates a minor PAL exceedance for Chrysene, and isolated Naphthalene soil contaminant extent.

During the pilot testing, chemical oxidant is proposed to be introduced to as many of the injection points depicted in Figures C.6.a-C.6.b as possible. Injections inside the 2410-2412 tenant spaces are to be performed from just below the building slab to the deepest possible depth achievable with a hand-cart Geoprobe® direct-push unit, 0.5-ft below ground surface (bgs) to approximately 9-ft bgs. Injections behind the 2410-2412 tenant spaces will be performed between approximately 2-ft and 12-ft bgs (groundwater typically observed in MW-5 around 6-ft bgs). Based upon vertical delineation of soil at 8-ft bgs and the likely construction of the former UST, injection activities behind 2414B will be conducted between 2-ft and 8-ft bgs (depth to groundwater in MW-4

generally observed around 7-ft bgs). While not all locations may be able to be completed, all 23 proposed injection points are included in the *Inventory of Injection Wells* Form (3300-253) provided in Attachment 1.

**Injection Safety Considerations:** There are no potable water supply wells or body of surface water within the vicinity of the Site that could be adversely impacted by the proposed chemical injection. The proposed injection points have been selected to be protective of the underground utilities that are located along the western property boundary. All injection activities are proposed within or behind vacant tenant spaces, essentially eliminating any potential concern of exposure to the oxidant chemical by anyone other than properly experienced personnel.

**Schedule:** The pilot testing is intended to be performed as soon as possible, pending WDNR approval. A tentative date of July 18, 2018, has been scheduled in anticipation of WDNR's approval, with post-injection soil and groundwater sampling to be performed approximately 1-wk later. The tenant spaces where the remediation is to occur are currently vacant, but the property owner wishes to lease the space as soon as the remedial actions can be completed.

### **NR 140.28 EXEMPTION REQUEST**

When a groundwater PAL or Enforcement Standard are exceeded, response actions must be performed in compliance with NR 140.24 (PAL) and NR 140.26. An exemption from those requirements may be granted per Chapter NR 140.28(5) if infiltration/injection remedial actions are intended to be performed in an effort to reduce groundwater concentrations to below the applicable standards. This exemption request is submitted to WDNR as required by NR 140.28(5)(b) and includes below a demonstration of compliance with the requirements of NR 140.28(5)(c)-(d) that must be met in order to receive approval of the exemption.

**NR 140.28(5)(c)(1) – Reasonable Time Period:** Chemical treatment of contamination is often highly effective in a short time period when suitable distribution and contact are achieved in the subsurface. However, because of the low permeability of the subsurface soils, a pilot test injection is proposed to evaluate the ability to achieve adequate subsurface chemical distribution. The results



of the pilot testing will be used to assess the feasibility of chemical injection and the number of rounds of injection that may be necessary to achieve the desired contaminant reduction. If these data indicate that compliance with NR 140.28(5)(c)(1) cannot be met, then alternative remedial methods will be considered.

**NR 140.28(5)(c)(2) – Injectate Minimization:** The volume of injectate required to be utilized is unknown at this time. The purpose of the pilot study is intended to be determine the effectiveness of the chemical injection and better estimate the volume of chemical necessary for remediation. All efforts will be made to minimize the volume (and overall cost) of chemical to be injected into the subsurface.

**NR 140.28(5)(c)(3) – Public Health/Welfare:** As previously noted, the injection activities are to be performed inside and around vacant tenant spaces. There is little to no concern to the public. The only individuals that should be exposed to the chemical oxidant will be trained, experienced environmental personnel.

**NR 140.28(5)(c)(4) – Injection Where Free-Product is Present:** No free-product petroleum or chlorinated solvent was observed during any of the Site Investigation activities. Therefore, compliance with the requirement to exclude injection from locations where free-product is present is met.

**NR 140.28(5)(c)(5) – Expansion of Contamination:** The injection of the chemical oxidant is intended to decrease the extent and magnitude of the subsurface contamination. The volume of liquid injected into the subsurface will be controlled so as not to spread contamination. The volume and injection pressure will be monitored during the pilot and full-scale testing to ensure plume expansion will not occur as a result of injection actions.

**NR 140.28(5)(c)(6) – Permits/Licenses:** Attachment 1 of this submission includes an *Inventory of Injection Wells* Form (3300-253), and Attachment 2 includes an application for the WPDES Permit WI-0046566-6 (remedial action groundwater treatment permit).

**NR 140.28(5)(d)(1) – Monitoring Procedures:** Post-injection soil and groundwater sampling will be performed to evaluate the effectiveness of the chemical injection pilot test and any progress made in contaminant reduction. More formal monitoring procedures will be established and detailed in an Operation, Monitoring, and Maintenance (OM&M) meeting the requirements of NR 724.13 that is to be submitted with the RAP. The OM&M Plan will also include procedures for evaluating compliance with the requirements of this exemption.

**NR 140.28(5)(d)(2) – Pre-treatment of Contaminated Groundwater:** The chemical injection activities do not include the recovery and re-injection of contaminated groundwater sampling. No pre-treatment activities are required. Therefore, this requirement is not applicable.

**NR 140.28(5)(d)(3) – Proposed Injectate:** The chemical to be injected is a strong oxidant consisting of >98.8% Potassium permanganate manufactured by Carus Corporation under the trade name RemOx<sup>®</sup>. The injectate will be a liquid solution of RemOx<sup>®</sup> powder and water.

**NR 140.28(5)(d)(4) – Injection Parameters:** The pilot testing activities and post injection sampling results will be used to develop a more formal injection scope that includes injection rate, operating pressure, and injectate concentration and volume per injection location.

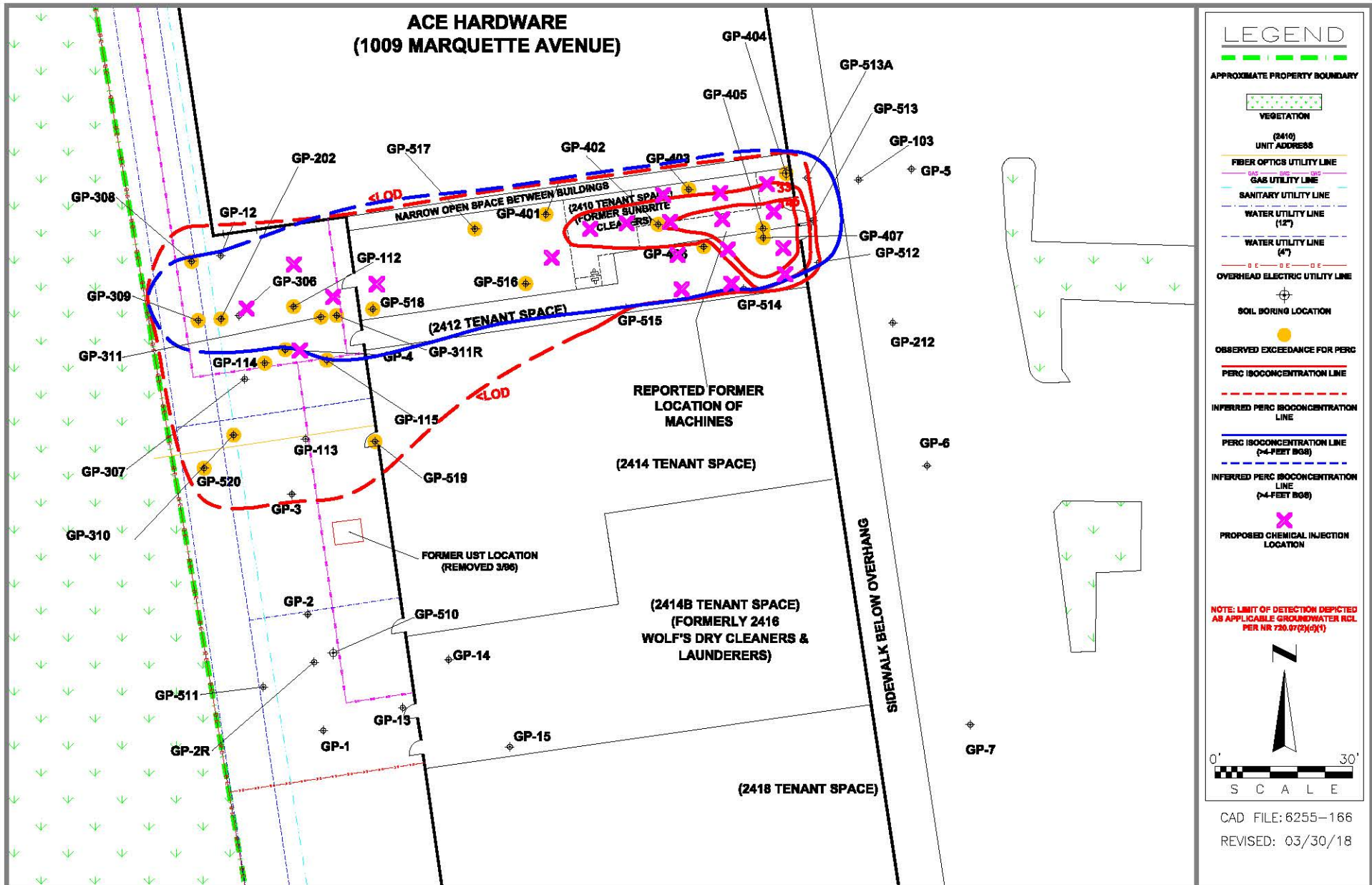
**NR 140.28(5)(d)(5) – Injection Locations:** The injection points are depicted in Figures C.6.a-C.6.b (see Attachment 4). Figure C.6.a shows injection points inside the front of 2410-2412 tenant spaces, as well as in the back of the building near monitoring well MW-5. Figure C.6.b shows the three (3) injection points within the former UST behind the 2414B tenant space. During the pilot scale testing, chemical oxidant is proposed to be introduced to as many of the injection points as possible.

### **NR 812.05 VARIANCE REQUEST**

Under NR 812.05(2)(a)(3), the use of any well, drill hole, or water system for the placement of any waste, surface or subsurface water, or any substance underground is prohibited unless the placement is approved by the WDNR for the remediation of contaminated soil, groundwater, or

an aquifer. DAI requests approval of the injection of the chemical oxidant into the subsurface for the purposes of soil and groundwater remediation. Injection activities will not include any waste, surface water, or recovered and re-injected groundwater.

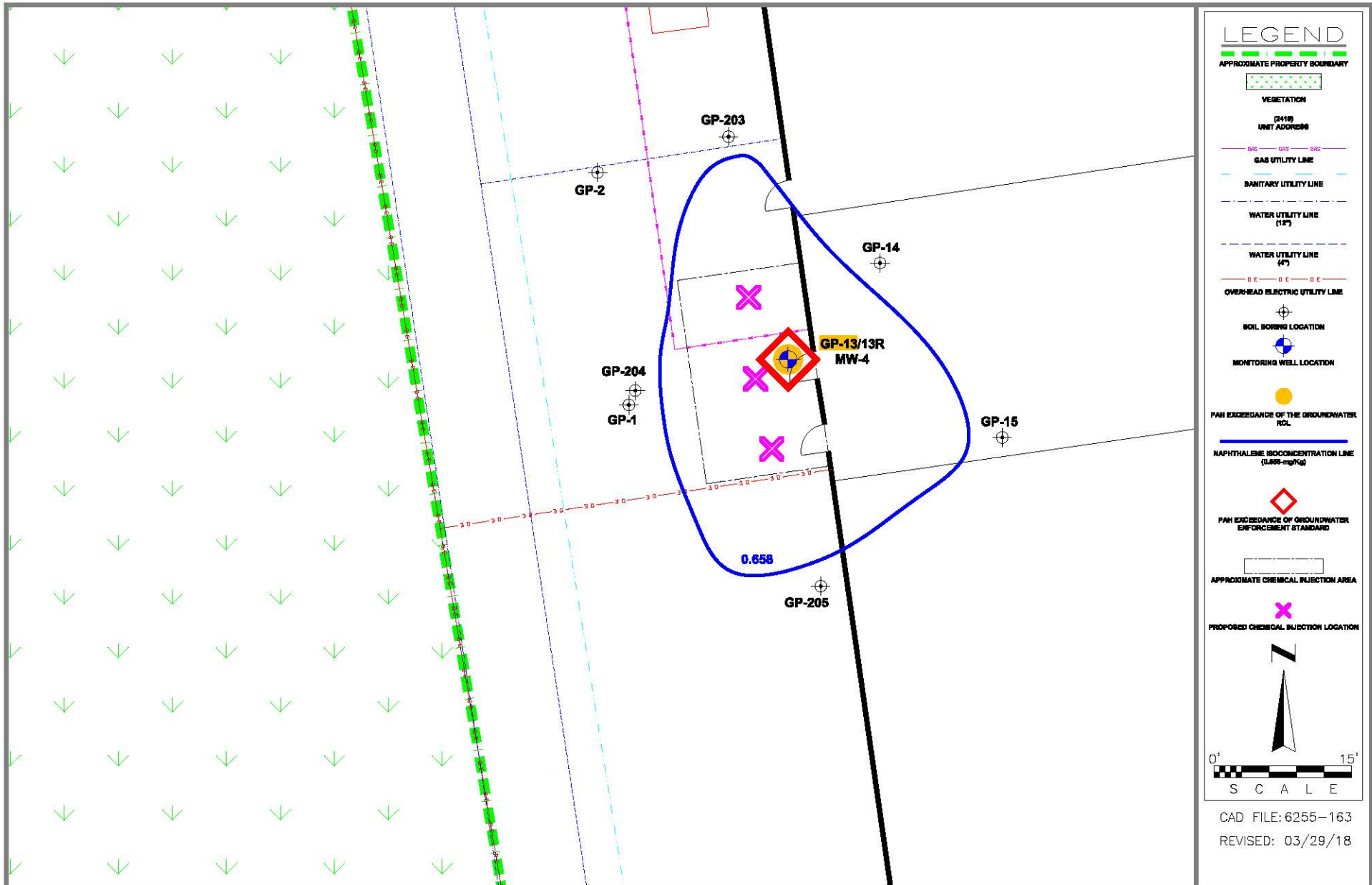
**ATTACHMENT 4  
INJECTION FIGURES**



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**SUNRISE SHOPPING CENTER  
2410-2424 10TH AVENUE  
1009 MARQUETTE AVENUE  
SOUTH MILWAUKEE, WISCONSIN**

**FIGURE C.6.a  
PROPOSED CHEMICAL INJECTION  
(FORMER DRY CLEANER)**



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**SUNRISE SHOPPING CENTER  
2410-2424 10TH AVENUE  
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**FIGURE C.6.b  
PROPOSED CHEMICAL INJECTION  
(FORMER HEATING OIL UST)**