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April 15, 2021

Bill Fitzpatrick, P.E., P.G.  
Water Resources Engineer  
Remediation & Redevelopment Program  
Wisconsin Department of Natural Resources  
101 S. Webster Street  
P.O. Box 7921  
Madison, WI 53707-7921

**[sent electronically]**

**Re: Natural Recovery Monitoring Plan for Surface Water and Sediment  
Hayton Area Remediation Project  
BRRTS 02-08-281506**

Dear Mr. Fitzpatrick:

On behalf of Tecumseh Products Company ("Tecumseh"), enclosed is a *Natural Recovery Monitoring Plan* ("NRMP") for surface water and sediment for the above-referenced Site.

The NRMP was prepared in accordance with Sec. III (M) of the Negotiated Agreement (BRRTS #02-08-281506) ("Negotiated Agreement") between WDNR, TRC and Tecumseh entered in November 2018.

Tecumseh respectfully requests a review of this NRMP in accordance with the attached *Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request Form* (Form 4400-237). The specified review fee of \$425 is attached.

In addition, Tecumseh respectfully requests that WDNR establish a new BRRTS tracking number for the Long-Term Monitoring project as required by the Negotiated Agreement. Pursuant to Sec. IV (A) of the Negotiated Agreement, WDNR "...shall establish two new BRRTS tracking numbers in its statewide database titled "HARP Site Long-Term Monitoring" and "HARP Downstream of the Hayton Millpond Dam".

If you have any questions, please contact me at 312.800.5910 or via e-mail at [charvey@trccompanies.com](mailto:charvey@trccompanies.com).

Sincerely,

TRC

Chris Harvey, PE  
Principal

cc: S. Jason Smith/Tecumseh Products Co. – Paris, TN  
Curtis Toll/Greenberg Traurig LLP – Philadelphia, PA  
Marc Faecher/TRC – New Providence, NJ  
Ronald Bock/TRC – Irvine, CA  
John Rice/TRC – Madison, WI  
David Crass/Michael Best & Friedrich LLP – Madison, WI

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

### Definitions

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

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

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

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

### Select the Correct Form

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

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

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

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

**All forms, publications and additional information are available on the internet at:** [dnr.wi.gov/topic/Brownfields/Pubs.html](http://dnr.wi.gov/topic/Brownfields/Pubs.html).

### Instructions

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

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

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

Form 4400-237 (R 12/18)

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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	First	MI	Organization/ Business Name
Smith	Jason		Tecumseh Products Company
Mailing Address			City
2700 West Wood Street			Paris
			State
			TN
			ZIP Code
			38242
Phone # (include area code)	Fax # (include area code)	Email	
(731) 644-8127	(731) 644-8156	jason.smith@tecumseh.com	

The requester listed above: (select all that apply)

- |  |  |
|--|--|
| <input 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 checked="" type="checkbox"/> Other. Explain the status of the Property with respect to the applicant: |  |

Responsible Party

### Contact Information (to be contacted with questions about this request) Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
Smith	Jason		Tecumseh Products Company
Mailing Address			City
2700 West Wood Street			Paris
			State
			TN
			ZIP Code
			38242
Phone # (include area code)	Fax # (include area code)	Email	
(731) 644-8127	(731) 644-8156	jason.smith@tecumseh.com	

### Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name
Harvey	Chris		TRC Environmental Corporation
Mailing Address			City
230 West Monroe St., Suite 630			Chicago
			State
			IL
			ZIP Code
			60606
Phone # (include area code)	Fax # (include area code)	Email	
(312) 800-5910	(312) 578-0877	charvey@trccompanies.com	

### Property Owner (if different from requester)

Contact Last Name	First	MI	Organization/ Business Name
NA			
Mailing Address			City
			State
			ZIP Code
Phone # (include area code)	Fax # (include area code)	Email	

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

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## Section 2. Property Information

Property Name Hayton Area Remediation Project		FID No. (if known) WID006116529	
BRRTS No. (if known) 02-08-281506		Parcel Identification Number	
Street Address 3755 Weeks Road	City Chilton	State WI	ZIP Code 53014
County Calumet	Municipality where the Property is located <input type="radio"/> City <input checked="" type="radio"/> Town <input type="radio"/> Village of Charlestown	Property is composed of: <input type="radio"/> Single tax parcel <input checked="" type="radio"/> Multiple tax parcels	Property Size Acres 266

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: \_\_\_\_\_

Reason:

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).

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

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

**Section 5. Request for a Specialized Agreement**

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

- Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]
  - ❖ **Include a fee of \$700, and the information listed below:**
  - (1) Phase I and II Environmental Site Assessment Reports,
  - (2) a copy of the Property deed with the correct legal description.
  
- Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]
  - ❖ **Include a fee of \$700, and the information listed below:**
  - (1) Phase I and II Environmental Site Assessment Reports,
  - (2) a copy of the Property deed with the correct legal description.
  
- Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]
  - ❖ **Include a fee of \$1400, and the information listed below:**
  - (1) a draft schedule for remediation; and,
  - (2) the name, mailing address, phone and email for each party to the agreement.

**Section 6. Other Information Submitted**

Identify all materials that are included with this request.

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

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

- Phase I Environmental Site Assessment Report - Date: \_\_\_\_\_
- Phase II Environmental Site Assessment Report - Date: \_\_\_\_\_
- Legal Description of Property (required for all liability requests and specialized agreements)
- Map of the Property (required for all liability requests and specialized agreements)
- Analytical results of the following sampled media: Select all that apply and include date of collection.
  - Groundwater     Soil     Sediment     Other medium - Describe: \_\_\_\_\_
- Date of Collection: \_\_\_\_\_
- A copy of the closure letter and submittal materials
- Draft tax cancellation agreement
- Draft agreement for assignment of tax foreclosure judgment
- Other report(s) or information - Describe: Natural Recovery Monitoring Plan for Surface Water and Sediment

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).

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

- I am the person submitting this request (requester)
- I prepared this request for: Tecumseh Products Company  
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.

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

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CDH  
Signature

4/15/2021  
Date Signed

Principal  
Title

(312) 800-5910  
Telephone Number (include area code)

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

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## Section 8. DNR Contacts and Addresses for Request Submittals

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

### DNR NORTHERN REGION

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

### DNR NORTHEAST REGION

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

### DNR SOUTH CENTRAL REGION

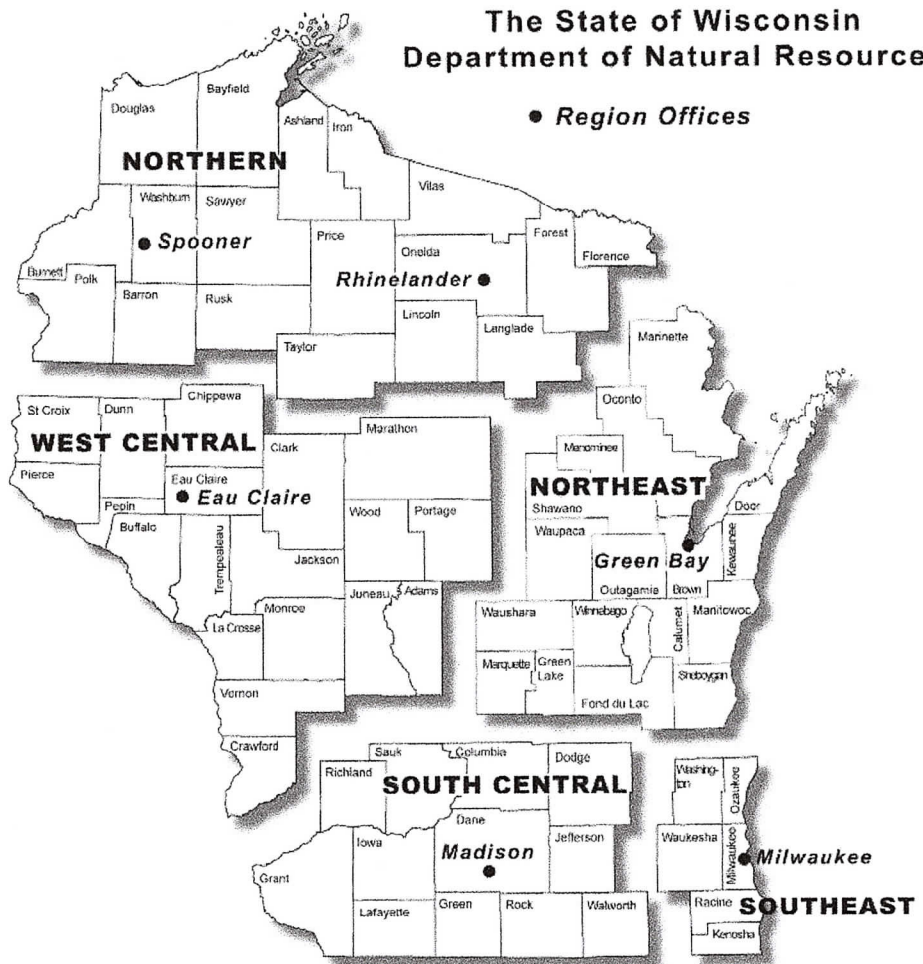
Attn: RR Program Assistant  
 Department of Natural Resources  
 3911 Fish Hatchery Road  
 Fitchburg WI 53711

### DNR SOUTHEAST REGION

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

### DNR WEST CENTRAL REGION

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



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

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer		Comments	
Fee Enclosed? <input type="radio"/> Yes <input type="radio"/> No	Fee Amount \$	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		



# Natural Recovery Monitoring Plan for Surface Water and Sediment

**Hayton Area Remediation Project  
Chilton, Wisconsin**

April 2021  
Revision 1

**BRRTS No. 02-08-281506**

**Prepared For:**

Tecumseh Products Company

**Prepared By:**

TRC Environmental Corporation  
230 W. Monroe Street, Suite 630  
Chicago, IL 60606





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### FIGURES

Figure 1: Site Location Map

Figure 2: Surface Water and Sediment Monitoring Locations

## 1.0 Professional Certification

Consistent with NR 712.09(1) Wis. Adm. Code that submittals prepared by, or under the supervision of, a professional engineer, a hydrogeologist or a scientist shall be dated and certified by the professional engineer, hydrogeologist or scientist using the appropriate certification:

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



Meredith Westover, P.G. #1205



(SEAL)

## 2.0 Project Management Plan

Consistent with NR 724.05(2)(e) Wis. Adm. Code, the following information is provided:

### 1. Site Address and Location:

- Street Address: 3755 Weeks Road, Chilton, Wisconsin 53014
- Quarter-Quarter Section, Township, Range, and County: SE ¼ of SW ¼ of Section 16, SW ¼ and SE ¼ and NE ¼ of SE ¼ of Section 16, SE ¼ of NE ¼ of Section 16, SW ¼ and SE ¼ of NW ¼ of Section 15 of Township 18 North, Range 20 East, Calumet County
- NR 716.15 (5) (d) Location Information: Refer to **Figure 1**
- Latitude and Longitude: 88°07'06.40"W, 44°01'29.00"N
- Wisconsin Transverse Mercator (WTM) Coordinates: 1,300,324.49342 U.S. ft. N, 2,200,751.36494 U.S. ft. E

### 2. Responsible Party:

- Tecumseh Products Company (Tecumseh)  
5683 Hines Drive  
Ann Arbor, MI 48108  
  
Ms. Carrie Williamson, General Counsel  
(734) 585-9616 direct  
[carrie.williamson@tecumseh.com](mailto:carrie.williamson@tecumseh.com)

### 3. Name of the Consultant Involved with the Project:

- TRC Environmental Corporation  
230 West Monroe Street, Suite 630  
Chicago, IL 60606  
  
Mr. Chris Harvey, P.E.  
[charvey@trccompanies.com](mailto:charvey@trccompanies.com)  
(312) 909-0043 cell

### 3.0 Introduction

Consistent with NR 724.05(2)(e) Wis. Adm. Code, the following applicable information is provided.

#### 3.1 Overview

The purpose of this Natural Recovery Monitoring Plan (NRMP) for the Hayton Area Remediation Project (HARP) is to present TRC's proposed approach to perform long-term natural recovery monitoring of the Site via surface water and sediment consistent with and as required by Sec. III(M) of the 2018 Negotiated Agreement (BRRTS #02-08-281506) (Negotiated Agreement).

#### 3.2 Site History and Background

The Site is located just north of New Holstein and east of Chilton, Wisconsin, and includes the HARP and areas downstream of the dam at the Hayton Millpond (WDNR, 2018).

From 1956 to 2006, Tecumseh previously owned and operated a small engine manufacturing facility located at 1604 Michigan Avenue, New Holstein, Wisconsin (TRC, 2021). The property consists of approximately 39 acres (8 total parcels) that includes a developed section and an undeveloped lot. The former manufacturing building occupies approximately 404,700 square feet, and there are several outbuildings along the western portion of the property (TRC, 2021). Immediately north of the property is the storm water drainage ditch/outfall and agricultural fields. The storm sewer discharges to drainage ditches adjacent to the facility, which flow into Jordan Creek, Pine Creek, the Hayton Millpond, and the South Branch Manitowoc River (downstream of the dam).

HARP is divided into four Operable Units: OU1, OU2, OU3, and OU4. Figure 1 shows the extent of HARP and each Operable Unit. OU1 and OU2 Upper (OU2/Upper) extend from drainage ditches feeding into Jordan Creek northeast of New Holstein down to the intersection of Pine Creek and Danes Road. OU2/Lower and OU3 extend from Danes Road to Quarry Road. OU4/Upper is defined as Quarry Road to a point approximately 750 feet upstream from the farm bridge south of Calumet Street (U.S. Route 151) (see Figure 1). OU4/Lower includes the Millpond and the backwater effected area of Pine Creek that is created by the Hayton Dam. The south branch of the Manitowoc River enters the Millpond from the northwest, and Pine Creek enters from the south. The south branch of the Manitowoc River extends downstream of the Hayton Dam.

Significant risk reduction has been achieved by the remedial activities completed in HARP. The remediation activities resulted in significant polychlorinated biphenyl (PCB) source removal (greater than 96% mass removal) and restoration efforts have been completed in HARP OU1 through OU4/Lower between 2001 and 2020. The WDNR-approved remedial actions were completed by removing in-channel sediment and overbank soil in the dry. The excavated material was stabilized and disposed at a nearby landfill. More than 140,000 tons of sediment and soil was removed and disposed. All operable units have received No Further Action ("NFA") letters. The remediation areas were successfully restored to approximately pre-existing conditions.

In November 2018, Wisconsin Department of Natural Resources (WDNR), Tecumseh, and TRC executed a Negotiated Agreement (BRRTS #02-08-281506) (Negotiated Agreement), in which Tecumseh agreed to certain response actions and obligations (WDNR, 2018). This NRMP was prepared in accordance with Sec. III (M) of the Negotiated Agreement.

### 3.3 Purpose

As required by the Negotiated Agreement, Tecumseh will complete natural recovery monitoring of surface water, sediment, and fish tissue at the HARP Site, including areas downstream of the Millpond dam.

The purpose of this NRMP is to address the Wis. Adm. Code NR 724 requirements to submit a long-term monitoring plan to conduct the WDNR requested natural recovery monitoring for surface water and sediment. Fish tissue monitoring will be addressed in a separate long-term monitoring plan as required by Sec. III.L and Exhibit G of the Negotiated Agreement.

---

## 4.0 Sampling and Analysis Plan

Consistent with NR 724.17(2)(a) through (d) Wis. Adm. Code, this section provides information on the proposed sampling and analysis strategy.

### 4.1 Scope of Work

Pursuant to the Negotiated Agreement, the monitoring program in this NRMP includes the following tasks:

- **Surface Water Sampling**
  - One surface water sample will be collected at each of six sampling transect locations shown on Figure 2.
  - At each transect, the water sample will be collected from the approximate midpoint of the water column in the thalweg of the creek/river.
  - A total of six surface water samples will be processed for laboratory analysis, one from each of the sampling transects shown on Figure 2.
- **In-Channel Sediment Sampling**
  - During the initial monitoring event, a rod-probe survey will be conducted at each of the six transect locations shown on Figure 2. Three locations along each transect will be probed to determine the greatest thickness of sediment; one location within 10 feet of the left bank (looking downstream), one location within 10 feet of the right bank, and the approximate center of the channel.
  - One sediment core will be collected from each transect at the location determined to have the greatest thickness of sediment during the rod probe survey. Each recovered sediment core will be physically logged.
  - One sediment sample from each of the sediment cores will be processed for laboratory analysis.
  - During each subsequent monitoring event, one sediment core will be collected at each of the six sampling transect locations. The core location will target the sampled location from the initial monitoring event.

Surface water and sediment monitoring will be conducted every three years, as described in Section 5. The rationale for sample locations is described in the following Section 4.2.

### 4.2 Sample Location Rationale

The surface water and sediment sampling transect locations were selected to generally coincide with the fish tissue monitoring locations specified in the Negotiated Agreement (Exhibit G) as well as historic WDNR fish tissue sampling locations where appropriate (TRC, 2017). The sampling locations are shown on Figure 2 and are defined as follows:

- One location within each HARP Operable Unit (OU1, OU2, OU3, and OU4, including the Hayton Millpond)

- South Branch of the Manitowoc River downstream of the Hayton Dam near the Bonlander Farm.
- South Branch of the Manitowoc River at Lemke Road.

The following Sections describe the surface water and in-channel sediment sampling methods in more detail.

### **4.3 Sampling Locations**

Prior to mobilizing to the field for each event, the site will be cleared through Digger's Hotline and identified underground utilities that cross the river will be marked. Riparian landowners whose land will be accessed along the investigation area will be contacted prior to the initiation of field activities.

For the initial monitoring event, the locations of the proposed surface water and sediment sampling transects will be pre-loaded into a global positioning system (GPS) receiver capable of sub-meter accuracy (Trimble Geoexplorer handheld GPS unit, Juniper Geode bluetooth GPS, or equivalent). The GPS unit will be used to navigate as close as practicable to each target transect location. The field technician will access the sampling locations either by wading or by boat, depending on field conditions. Surface water sampling will be conducted in the thalweg of the creek/river prior to performing a rod probe survey or collecting sediment samples. Once the surface water sampling is complete, the technician will perform a rod probe survey at three locations along each transect, one within 10 feet of the left bank of the river (looking downstream), one near the approximate center of the river, and one core from within 10 feet of the right bank of the river. At the location with greatest thickness of soft sediment, one sediment core will be collected. The final locations of each sediment core will be recorded with the GPS unit.

The locations of the sample cores selected for laboratory analysis during the initial monitoring event will be used as target locations for each subsequent monitoring event. The final location of each sample core collected will be recorded with the GPS unit.

### **4.4 Surface Water Sample Collection**

Surface water samples will be collected from the approximate midpoint of the water column in the thalweg of the creek/river channel at each transect location. Water samples will be collected either by direct filling of the sample container (for unpreserved aliquots only); direct filling a transfer container to use to fill laboratory sample containers (preserved or unpreserved); or by peristaltic pump, depending on the field conditions at the sampling location. To collect the sample by direct filling of the sample container, the field technician will invert the sample container, lower it to the sampling depth, right the container, and seal the container with the lid prior to removing the bottle from the water column. Only unpreserved sample containers or transfer containers will be used for direct filling. Aliquots collected for dissolved phase analysis and/or requiring field preservation (e.g., dissolved organic carbon) will be direct filled into a transfer container, and transported to shore for field filtration using a peristaltic pump and an in-line filter and transfer to the appropriate sample containers.

If the surface water sample is to be collected with a peristaltic pump, as may be necessary when sampling from a boat, a weighted piece of low density polyethylene (LDPE) tubing (or equivalent) will be lowered to the approximate midpoint of the water column. The sample will then be pumped directly into the laboratory sample containers using an in-line filter to field filter aliquots for dissolved phase analysis.

The sample containers will be placed on ice and shipped to Pace Analytical Laboratories in Green Bay, Wisconsin for PCB (USEPA Method 8082-WIS), total organic carbon (TOC) (USEPA Method 5310C), and dissolved organic carbon (DOC) (field-filtered, USEPA Method 5310C).

Excess surface water from transfer containers, if any, will be returned to the creek, discharged to the ground surface adjacent to the creek, or combined with decontamination fluids and managed as investigation-derived waste (IDW) as described in Section 4.10.

## **4.5 In-Channel Sediment Sample Collection**

This section describes the sampling equipment and methodology for the collection of sediment samples from the locations described above.

### **4.5.1 Rod Probe Survey**

During the initial monitoring event, a rod probe survey will be conducted at each transect location as described in Section 4.3. The rod probe will consist of a length of core tube, pipe, conduit, or grounding rod made of PVC, aluminum, galvanized steel, or other equivalent material that has been measured and marked in increments of feet and tenths of feet. The material and size of the rod will be determined based on field conditions (e.g., water depth, mode of access, and sediment type). At each probe location, the probe will be lowered through the water column until in contact with the sediment surface, and the water depth, estimated to the nearest 0.1 foot, will be recorded. The probe will then be pushed by hand through the thickness of soft sediment until refusal is encountered. The penetration depth will be recorded.

### **4.5.2 Sediment Sample Collection**

Consistent with the sample methodology implemented throughout this project, sediment core samples will be collected using a manually driven coring device such as a piston core sampler, or a push tube. Cores will be collected in clear plastic (PVC, lexan, polycarbonate, or equivalent) core tubes approximately 2-inches in diameter. The actual diameter of the core may vary between 1.5 inches and 2.75 inches in diameter, depending on the device employed. At each location, the coring device will be lowered through the water column until in contact with the sediment surface, and the water depth, estimated to the nearest 0.1 foot, will be recorded. The coring device will then be pushed by hand through the entire thickness of soft sediment and into the underlying soil until refusal is encountered, or to a maximum of 3 feet below the sediment/surface water interface. The penetration depth will be recorded. The sample core will be extracted from the sediment, capped, labeled, maintained in a vertical orientation, and transported to shore for processing. If soft sediment is not present; or the core recovery at the time of retrieval is less than 12 inches and does not appear representative of sediment conditions, up to three attempts may be made to collect a representative core sample at the sample location.



Physical data collected at each location will include the following:

- The water depth;
- The distance that the core is pushed into the sediment;
- The thickness of soft sediment;
- The conditions of refusal (physical impediment or resistance);
- The visual description of the deposit; and
- The recovery length.

### **4.5.3 Sediment Sample Processing**

Sediment cores will be processed at a designated location on shore, at the Millpond Building, or at the TRC office in Madison, Wisconsin. Standing water in the core tubes will be carefully removed using a suction pump equipped with low-density polyethylene (LDPE) tubing. New, clean tubing will be used for each core, and care will be taken to preserve any fine material at the top of the sediment surface. After removing the standing water, each core tube will be cut lengthwise and the core will be split to allow for visual logging and sample preparation. The cores will be described in accordance with the Unified Soil Classification System (USCS) and core logs will be prepared.

If 12 inches or more of soft sediment are recovered at a sample location, the upper 12 inches of the sediment core will be placed in a homogenization vessel (e.g. steel bowl, foil pan, or equivalent). If less than 12 inches of soft sediment are recovered at a sample location, the full thickness of the soft sediment will be placed in a homogenization vessel. Once the sample material has been selected and segregated, it will be thoroughly homogenized and placed into the laboratory sample container. The sample containers will be placed on ice and shipped to Pace Analytical Laboratories in Green Bay, Wisconsin for PCB analysis (USEPA Method 8082-WIS).

Excess sediment material, if any, will be placed in 5-gallon buckets, sealed, and managed as IDW in accordance with Section 4.10. Sample processing equipment may be new, single-use, and disposable; or may be re-used at the discretion of the field crew, if these materials can be adequately decontaminated following use. All non-dedicated, non-disposable sampling equipment will be decontaminated in accordance with Section 4.9 prior to collecting or processing the next sample.

## **4.6 Surface Water and Sediment Sample Identification**

The sample identification format for the natural recovery monitoring program has been designed to uniquely identify each sample from each sampling event. Samples will be assigned a unique alpha-numeric sample descriptor identifying the program, sample location, and media type. Each sample will be labeled as follows:

[program] – [location] – [sample type][channel position (if applicable)] – [date]

The following sections describe the numbering system in greater detail and includes examples of sample identification (ID) numbers for representative sample types.

#### **4.6.1 Monitoring program**

All samples collected for natural recovery monitoring will be given the program designation of “NR”.

#### **4.6.2 Sample Location**

The sample location code will correspond to the sample locations indicated on Figure 2, and include the following:

- Operable Unit samples OU1, OU2, OU3, and OU4;
- Downstream samples DS1 (South Branch Manitowoc River near the Bonlander Farm) and DS2 (South Branch Manitowoc River at Lemke Road);
- Field duplicate samples (for surface water) will have a location identifier “DUP”; and
- Equipment blanks, if applicable, will have a location identifier “EB”.

#### **4.6.3 Sample Type**

The sample type code identifies the sample media. For the purposes of this NRMP, the media types are as follows:

- IC = in-channel sediment sample
- SW = surface water sample

For field Quality Assurance/Quality Control (QA/QC) samples such as field duplicates and field blanks, the type code of the media associated with the blank or duplicate will be assigned. For example, a duplicate surface water sample will use “SW”, and an equipment blank collected from a mixing bowl used during sediment sampling will use “IC”.

#### **4.6.4 Channel Position**

For samples collected within the creek channel, an additional modifier will be added to identify the relative position of the sample within the channel. A “C” will be added for the center of the channel, “L” will be added for the left side of the channel (looking downstream), and “R” will be added for the right side of the channel.

#### **4.6.5 Sample Date**

The sample date (month and year) will be appended to every sample collected. The date will be added with the format “yyymm”.

#### 4.6.6 Example Sample Names

The following are examples of sample IDs generated for natural recovery monitoring samples:

- “NR-IC-OU3R-202204” represents an in-channel sediment sample collected from the right bank at the OU3 location in April 2022.
- “NR-SW-DS1-202204” represents a surface water sample collected at the downstream location DS1 in April 2022.
- “NR-SW-DUP1-202204” represents a duplicate surface water sample collected in April 2022.
- “NR-IC-EB1-202204” represents an equipment blank sample collected during sediment sampling in April 2022.

#### 4.7 Surface Water and Sediment Sample Shipment and Laboratory Analysis

The analytical matrices, methods, sample containers, and sample preservation requirements are summarized in Table 1. Samples for chemical analysis will be placed on ice immediately after collection for transport to Pace Analytical Laboratories in Green Bay, Wisconsin.

#### 4.8 Surface Water and Sediment Quality Assurance/Quality Control (QA/QC) Samples

In accordance with NR 724.17(2) and NR 716.13 (6), the following QA/QC samples will be collected:

- **Field Duplicates:** Blind field duplicate samples, prepared by splitting a single sample into two separate containers, will be used to evaluate sampling precision. Points where duplicate samples are to be collected will be selected by the field technician and the samples will be submitted as single-blind duplicates to the laboratory. Field duplicates will be collected at a rate of one for every 10 (or fewer) primary samples for the surface water matrix. No duplicate samples will be collected for the sediment matrix.
- **Equipment Blanks:** Equipment (rinsate) blanks are analyzed to check for contamination related to equipment decontamination procedures. Equipment blanks are collected by rinsing a piece of field-cleaned equipment with deionized water and collecting the rinsate in the sample container. Equipment blanks will only be collected if non-disposable, non-dedicated sampling equipment is used. If applicable, equipment blanks will be collected at a frequency of one for every 10 (or fewer) primary samples that are collected with the non-dedicated, non-disposable equipment.
- **Temperature Blanks:** The condition of each cooler will be evaluated upon receipt at the laboratory. Samples received on ice are considered preserved at the correct temperature (4°C, ± 2°). Temperature blanks may also be analyzed to assess whether the sample temperature was maintained during sample transport, especially in the case that the ice has all melted. Temperature blanks consist of a sample container, generally polyethylene, filled with tap water. One temperature blank will be transported with each cooler containing sample containers.

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## **4.9 Equipment Decontamination**

### **4.9.1 Single-Use Sampling Equipment**

To the extent practicable, single-use sampling equipment and materials will be used for the collection of samples. The materials used will be new and clean, and will be placed in plastic for transport to the site. Once used, single-use equipment will be placed in plastic bags and managed as IDW material. Single-use equipment may include, but is not limited to, the following:

- Disposable foil pans
- PVC, polycarbonate, acrylic (or similar material) core barrel liners
- Polyethylene (or similar) core tube caps
- Polyethylene and silicone tubing

### **4.9.2 Non-dedicated Sampling Equipment**

Non-dedicated equipment used for sample collection or sample processing will be new or cleaned before its initial use in the field, and cleaned again before use at each subsequent sampling site (and between sample intervals). Equipment subject to this decontamination procedure includes, but is not limited to, the following:

- Coring tools (e.g., pistons or core barrels)
- Scoops, spatulas, and mixing bowls (if re-used)

The general procedure for decontaminating field equipment is as follows:

- Scrape off as much loose material as possible.
- Disassemble the equipment, as appropriate.
- Wash with detergent/potable water solution.
- Rinse thoroughly with distilled or deionized (DI) water.
- Allow equipment to air dry prior to next use.
- Wrap equipment for transport with inert material (aluminum foil or plastic wrap) to prevent direct contact with potentially contaminated material.

Field decontamination of sampling equipment will take place at a designated location on-site. Decontamination will be performed in 5-gallon buckets, and managed as IDW (Section 4.10). Decontamination water will be changed out for new, clean solutions at a minimum of once per sampling day.

## **4.10 Surface Water and Sediment Sampling Investigation Derived Waste (IDW)**

IDW streams generated during this investigation are expected to include excess sediment sample material, decontamination fluids, and general refuse (e.g., used personal protective equipment,

single-use sampling equipment, and trash). If sediment and soil sample processing occurs at the site, excess sample material and decontamination water will be sealed in 5-gallon buckets, labeled with the date and contents, and left on site for future characterization and disposal.

If processing is performed at the TRC office, excess sample material will be sealed in 5-gallon buckets, labeled, and held in a secure location at the TRC office until they are transported back to the site for disposal. Decontamination fluid generated at the Madison office will be discharged to the sanitary sewer. General refuse will be collected in sealed trash bags and placed in a waste dumpster at the TRC office.

#### **4.11 Sediment and Soil Sample Results Data Management and Validation**

Laboratory data generated under the sampling described in this NRMP will be subject to Level II data reporting, which includes the following:

- Cover letter
- Analytical results
- Analytical batch QA/QC results (e.g., surrogate recoveries, method blanks, laboratory control samples, MS/MSDs, as appropriate)
- Summary of nonconformances
- Laboratory copies of the Chain-of-Custody forms

TRC will maintain the analytical data in a project database. Prior to importing the laboratory data into the database, TRC will review the analytical data reports for usability. If data completeness or usability is uncertain, TRC will attempt to resolve conflicts with the laboratory and obtain a revised analytical report.

#### **4.12 Other Procedures for Site Management - HASP**

The sampling activities will adhere to the Health and Safety Plan (HASP) that was developed by TRC for sediment sampling activities (TRC, 2015). The HASP includes safety precaution information and emergency procedures. The HASP is updated as needed based on the work to be performed. The HASP is incorporated into this NRMP by reference.

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## 5.0 Monitoring Schedule and Reporting

Consistent with NR 724.17(3m) Wis. Adm. Code, this section provides information on the proposed schedule and reporting, as follows:

### 5.1 Schedule

According to the Negotiated Agreement, “beginning the year following completion of the OU4 Lower SOW and receipt of the Department’s no further action letters specified in this Agreement, Tecumseh shall perform or cause to be performed fish tissue monitoring on an every three-year basis until the Wis. Admin. Code ch. NR 726 and the Fish Consumption Response Action Goal is met for the Site.” The fish tissue monitoring plan will be submitted under a separate document per the Negotiated Agreement (Section III.L). In accordance with the Item 21 of Exhibit G of the Negotiated Agreement, Tecumseh proposes to complete the surface water and sediment sampling at the time of the fish sampling. The surface water and sediment sampling will be completed on an every three-year basis consistent with the fish sampling to better correlate and evaluate data and data trends. The surface water and sediment monitoring will be timed within the year to occur during periods representative of typical flow conditions (e.g., not during or immediately after a flooding event, or during a drought or low-flow).

NFA letters for each of the OUs have been received as of February 2021. Pending WDNR approval of this NRMP, the investigation activities are scheduled to start in 2022 at the time of the fish sampling.

### 5.2 Reporting

In accordance with NR 724.17(2)(3m), sample results will be reported to the WDNR within 10 business days of receiving the sample results.

Within 6 months of completing the long-term monitoring and receipt of laboratory analytical results, the data will be compiled, analyzed, and incorporated into a monitoring report. The report will document the long-term monitoring activities conducted and will describe the methods employed during the sampling. The report will include a base map that shows the sampling locations. The analytical and physical results will be presented on figures and tables attached to the report. The logs for sediment sampling locations, as well as laboratory analytical reports, will be appended to the report. In addition, other appropriate data collected during the long-term monitoring will be appended to document the quality of work performed.

The surface water and sediment data will be evaluated in conjunction with the fish tissue monitoring data to monitor the long-term reduction in PCB concentrations and improvement in the HARP natural recovery. The surface water sampling data will be compared to background levels. The surface water concentrations of PCBs at each sampling location will be tabulated and summarized. Results will be plotted against time. The trend in the data will be evaluated by fitting the data using the least squares method. Different trend line methods (e.g. linear, log, and/or exponential) will be evaluated to determine the best fit for illustrating the trend in surface water concentrations. The concentration of each downstream sampling location will also be compared against the upstream locations.

All data will be evaluated in accordance with the Negotiated Agreement.

## **6.0 Technical Review Request**

Pursuant to NR 749.02, Wis. Adm. Code, TRC requests a technical review response from WDNR of this NRMP. TRC will provide a \$425 review fee.

## 7.0 References

- TRC. 2015. Site-Specific Health and Safety Plan. Sediment Investigations. South Branch of the Manitowoc River, Downstream of the Hayton Millpond, Calumet County, Wisconsin. June 2015.
- TRC. 2017. Natural Recovery Monitoring Scope of Work. Hayton Area Remediation Project. August 25, 2017.
- TRC. 2021. Site Investigation Work Plan. Additional Investigation Sampling Plan, Downstream Hayton Millpond Dam, Chilton, Wisconsin. January 2021.
- WDNR, Tecumseh Products, and TRC. 2018. Negotiated Agreement; BRRTS #02-08-281506.



**Table 1: Sample Container, Preservation and Holding Time Requirements  
HARP - Sediment Investigation Work Plan**

Analyte	CAS Number	Matrix	Analytical Method	Sample Container	Preservation	Maximum Holding Time
Total PCB	NA	Solid	USEPA SW-846 Method 8082	2 oz. wide mouth glass jar	4° ± 2°C	The laboratory recognizes the SW846 Chapter 4 hold time of none, and uses a 1 year hold time for extraction and extracts
PCB-1016 (Aroclor 1016)	12674-11-2					
PCB-1221 (Aroclor 1221)	11104-28-2					
PCB-1232 (Aroclor 1232)	11141-16-5					
PCB-1242 (Aroclor 1242)	53469-21-9	Water	USEPA SW-846 Method 8082	(2) 1 L amber glass bottles	4° ± 2°C	
PCB-1248 (Aroclor 1248)	12672-29-6					
PCB-1254 (Aroclor 1254)	11097-69-1					
PCB-1260 (Aroclor 1260)	11096-82-5					
Total Organic Carbon as NPOC	N/A	Water	SM 5310C	(1) 125 mL amber glass jar	H <sub>2</sub> SO <sub>4</sub> to pH < 2 SU, 4° ± 2°C	28 days
Dissolved Organic Carbon as NPOC	N/A	Water	SM 5310C	(1) 125 mL amber glass jar	Field filter, H <sub>2</sub> SO <sub>4</sub> to pH < 2 SU, 4° ± 2°C	28 days

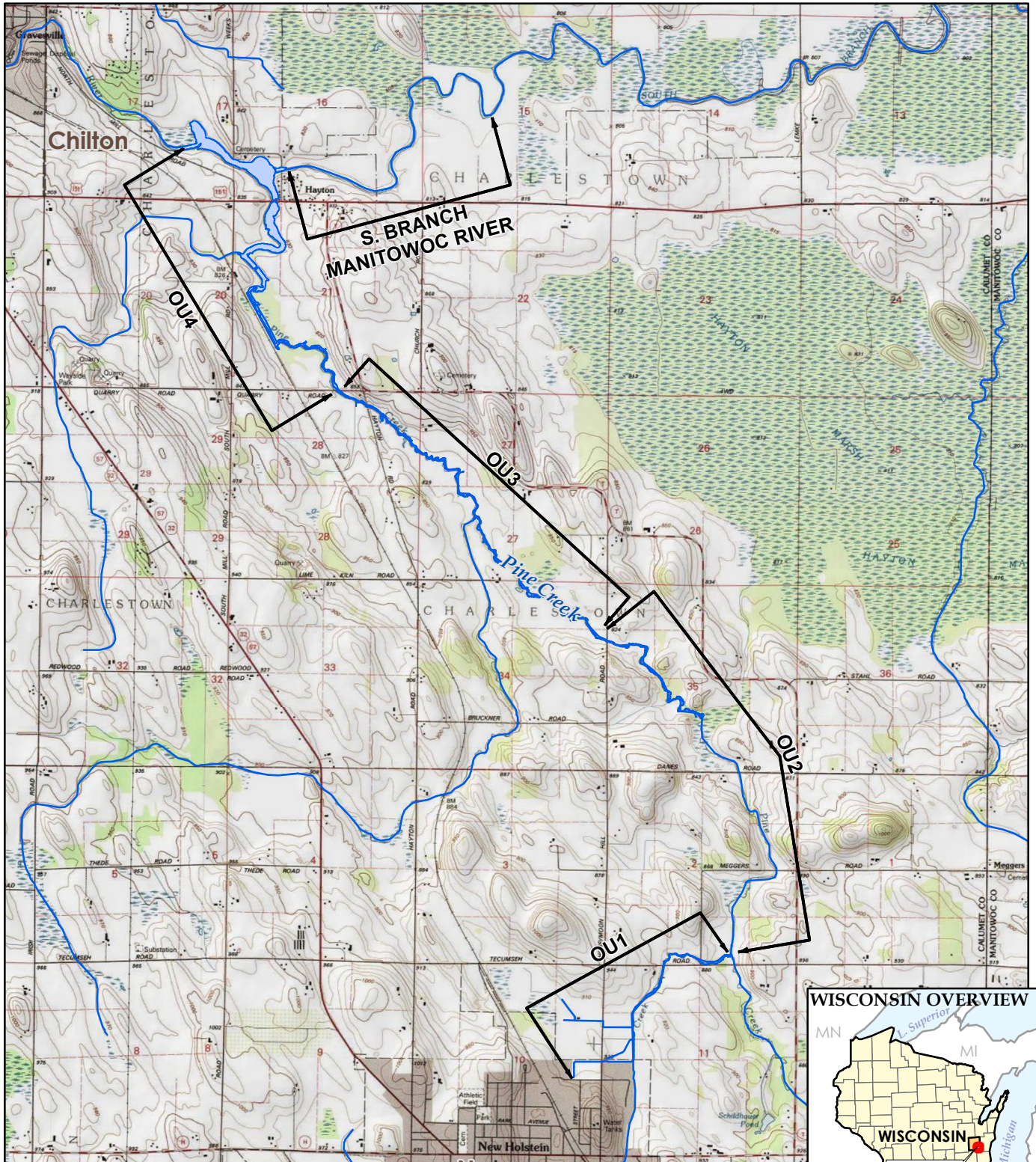
Notes:

PCB = polychlorinated biphenyl

NPOC = non-purgeable organic matter

SM = Standard Methods for the Examination of Water and Wastewater

SW-846 = USEPA Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES (1992-1993).



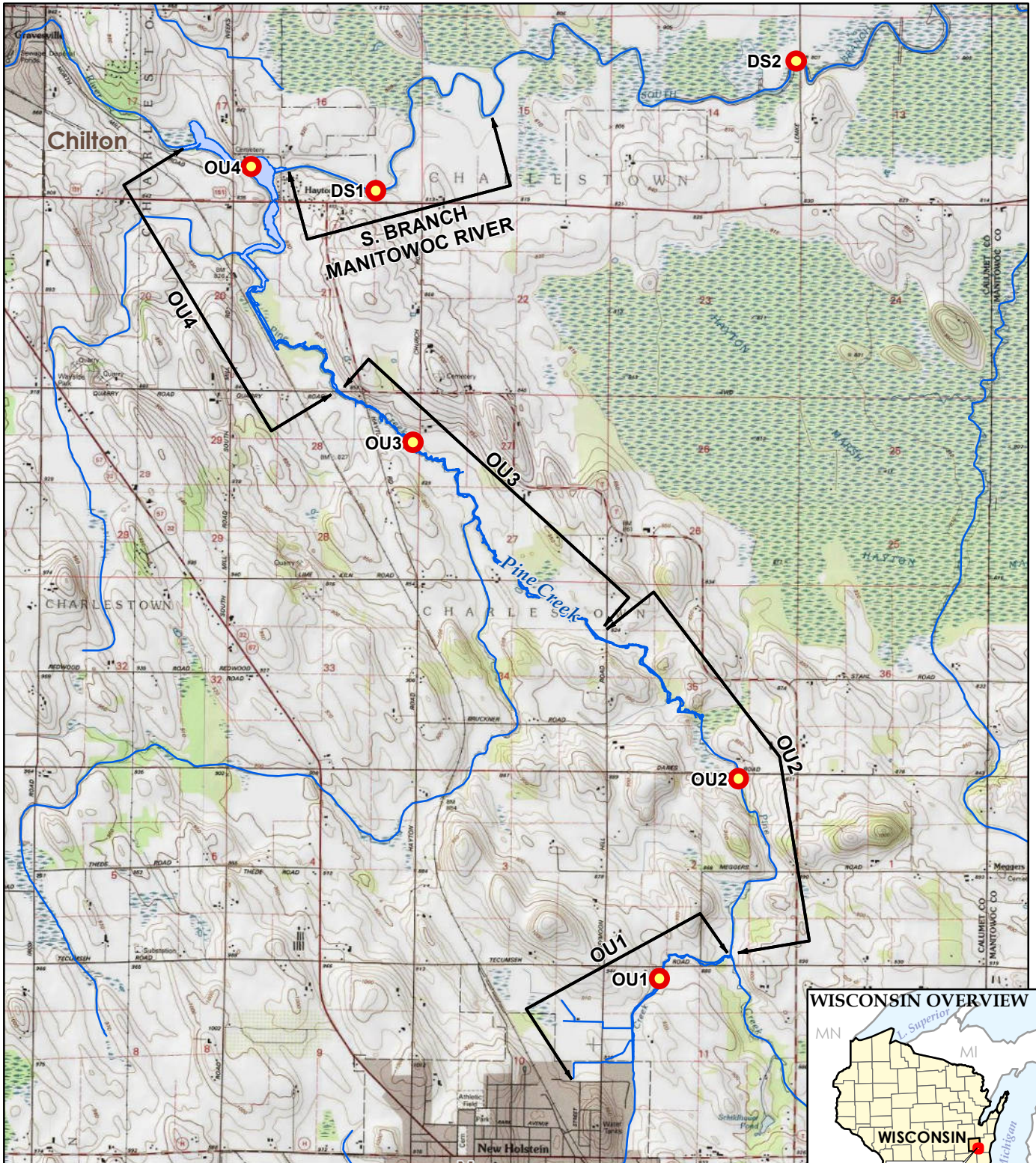
230 West Monroe St.  
 Suite 630  
 Chicago, IL 60606  
 Phone: 312.578.0870

**HARP POST-REMEDATION  
 NATURAL RECOVERY MONITORING PLAN**

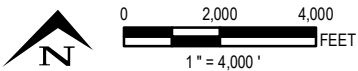
**SITE LOCATION MAP**

DRAWN BY:	R. SUENICHT
APPROVED BY:	C. HARVEY
PROJECT NO:	107927-9300
FILE NO.	197927-9300-037slm.mxd
DATE:	MARCH 2021


**FIGURE 1**



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES (1992-1993).



**LEGEND**

 SURFACE WATER AND SEDIMENT SAMPLING LOCATION



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**HARP POST-REMEDATION  
NATURAL RECOVERY MONITORING PLAN**

**SURFACE WATER AND SEDIMENT  
MONITORING LOCATIONS**

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APPROVED BY:	C. HARVEY
PROJECT NO:	107927-9300
FILE NO.	197927-9300-038.mxd
DATE:	MARCH 2021

**FIGURE 2**