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December 18, 2024

Kevin McKnight
Hydrogeologist – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
625 E CTY Y, Suite 700
Oshkosh, WI 54901

Subject: TRC Response and Investigation Work Plan – WDNR Comments on *Case Closure Request Tecumseh Products Co. (Former) – Chromium Line*
1604 Michigan Avenue, New Holstein, Wisconsin
BRRTS #: 02-08-363333

Dear Mr. McKnight:

On behalf of Tecumseh Products Company, LLC (Tecumseh), TRC Environmental Corporation (TRC) reviewed the Wisconsin Department of Natural Resource's (WDNR's) comments, dated November 6, 2024, regarding the Tecumseh Products Co. (Former) – Chromium Line Case Closure Request submitted in August 2024. Although we were somewhat surprised to receive these recent requests for additional work, particularly given that these matters were resolved some years ago and have been settled for quite some time, TRC has provided responses to WDNR's comments below. Following the comment-response section of the letter, TRC has included the Site Investigation Work Plan (SIWP).

1. **Additional groundwater monitoring is needed to establish compliance with the closure criteria of Wis. Admin. Code § NR 726.05 (6). If monitored natural attenuation is to be used as a remedial action, two additional rounds of groundwater sampling at a minimum from monitoring wells TEC-3, MW-A, and MW-E (at minimum) for total and hexavalent chromium are required. This additional work is needed to demonstrate stable or decreasing contaminant trends for the chromium release. in compliance with Wis. Admin. Code §§ NR 726.05 (6) (a) 6., (b), (c) and (d). Groundwater sampling results may be submitted to the DNR after each event for evaluation.**

   Response: Tecumseh will conduct two rounds of groundwater sampling in 2025 from monitoring wells TEC-3, MW-A, and MW-E for total and hexavalent chromium. These events will be conducted in different seasons, and details are discussed in the additional SIWP at the end of this document.

2. **Additional soil sampling is needed to define the degree and extent of contamination per Wis. Admin. Code § NR 716.11. Based on the available soil sampling results at sampling location PB-1, chromium and lead soil contamination extends onto Fannin Oil parcel # 18566 at levels above the groundwater pathway and non-industrial direct contact residual contaminant levels (RCLs). Additional delineation of lead and chromium is also needed:**

   - **In the vicinity of soil sample MW-E on parcel #18568 which is part of the original Tecumseh property**
   - **On the west side of the railroad right-of-way (ROW) since the only samples (MW-F, MW-G, MW-H) in the area exceed RCLs for lead and chromium. TRC Environmental Corporation, the environmental consultant, notes that this may be due to soil fill since the exceedances are primarily shallow.**

Response: TRC has reconfigured the sample labels on the soil contamination figures to better show that MW-B is to the west of PB-1. Analytical results from MW-B show that lead and chromium have been defined to non-industrial RCLs to the west. Three soil borings are proposed to the south of MW-B and west of GP-16 and GP-17, west of GP-18, and north of PB-1 to better define the extent of lead and chromium in soil.

Tecumseh proposes to install four soil borings northwest, west, south, and east of MW-E to define the extents of lead and chromium in the southern portion of the former Tecumseh property.

Tecumseh does not propose further soil investigation west of the railroad tracks (around locations MW-H, MW-G, and MW-F) as the lead and chromium soil impacts west of the tracks are not attributable to operations associated with the former Tecumseh facility.

- As stated in TRC's *Site Investigation Report: Former Tecumseh Products Former Plating Line New Holstein, Wisconsin*, "Lead concentrations in shallow soil samples, typically 0-2 feet, are elevated most noticeably at locations MW-E and MW-G. No correlation between chromium and lead impacts is evident and given the general lack of chromium soil impacts, lead occurrences are likely related to other sources, most likely associated with former railroad operations or associated industries like a metals recycling facility that once operated on the west side of the railroad line. No evidence is present linking lead occurrences to the former chromium plating activities." This SIR was approved by WDNR on September 28, 2009 (WDNR letter attached as Attachment 1).
- There is no correlation between chromium and lead impacts between the potential source area and across the railroad ROW. Soil concentrations are higher near the former plating line then decline to the west, mostly below the non-industrial RCLs at MW-C, MW-B, MW-A, and MW-E, and then have higher concentrations further west across the railroad ROW (MW-H, MW-G, and MW-F).
- The former plating line located inside the former manufacturing facility building is the alleged potential source of lead and chromium contamination west of the railroad tracks. That alleged potential source has, of course, already been remediated and addressed by Tecumseh. Furthermore, the area between the former building and the property boundary is capped with asphalt and concrete and is a significant distance away from the railroad ROW. Given these Site conditions and the configuration of surface structures, it is unreasonable to conclude that shallow impacts from the Site migrated over 120 feet across the railroad ROW.
- This area is characterized by light to heavy industrial uses and a history of diverse industries, including manufacturing, railroad operations, oil storage and distribution, livestock feed supply, a waste transfer station, and a scrap metals recycling facility. It is far more plausible that these off-Site sources are the source of lead and chromium contamination in this location.

3. Additional remedial action may be necessary to comply with the closure criteria of Wis. Admin. Code ch. NR 726. Chromium above both industrial and non-industrial contact RCLs is present off-site and in the railroad ROW. Capping or removal of soils above

industrial and non-industrial contact RCLs should be considered. Re-sampling in these areas to confirm initial sampling results and further defining extent of remaining soil contamination requiring remedial action is recommended. Typically, the DNR does not require capping of railroad rights-of-ways but may require action based on degree and extent of contamination and likely exposure pathways. Contact your DNR project manager once the evaluation of this area is complete for further direction.

Response: Tecumseh disagrees that additional remedial action may be necessary (see above response). The Site was remediated with in-situ injections, and residual contamination has been addressed with a cap that is being inspected annually and maintained as necessary.

Additional Site Investigation Work Plan (SIWP)

Background

The former manufacturing facility is located at 1604 Michigan Avenue in New Holstein in the southeast quarter of Section 10, T. 17 North, R. 20 East, Calumet County, Wisconsin (the Site, BRRTS 02-08-363333). The approximately 38-acre, triangular piece of property is zoned heavy industrial and is located north of Michigan Avenue between Jefferson Street on the east and the Canadian National Railway (CN) to the west/southwest. The Site previously contained a one-story 910,000 square foot building with parking areas located to the north and south of the facility building. A narrow strip of property owned by Fannin Oil is present between the facility and the railroad ROW. Originally, a location of bulk oil storage, the Fannin property now remains vacant. Zoning around the site includes heavy industrial to the north, heavy industrial/multi-family to the east, heavy industrial/commercial to the south, and heavy/light industrial to the west.

Tecumseh manufactured small engines at the site until 2006. For an approximately 10-year period in the 1960s and 1970s, manufacturing activities involved the use of two chromium plating lines. The "former northern plating line" was centrally located near the western portion of the facility building, and the "former plating line" was located near the southwest corner of the facility building. The plating lines were no longer used after this period. After Tecumseh ceased operations in the 2006, manufacturing and production activities continued at the site under the ownership of Heus Manufacturing. All manufacturing operations at the Site concluded in 2009.

Hexavalent and trivalent chromium are the primary constituents of concern (COC) at the Site. The source of impacts relates to the two former chromium plating lines. The hexavalent chromium is present in soil near the former plating line and has converted to trivalent chromium away from the plating lines. Lead over 800 mg/kg was detected in one soil boring on the Fannin Oil property and arsenic was detected over the default background level of 8 mg/kg in one soil boring under the building. These impacts are not related to the release from the Tecumseh site and are not COCs related to the former chromium line.

After groundwater monitoring annually for the past 15 years, completing a soil excavation in 2011, and conducting soil injections and soil blending remedial actions in 2021, TRC submitted a Case Closure Request to WDNR in August 2024. WDNR provided comments to the Case Closure Request on November 6, 2024. The proposed SIWP responds to the WDNR comments (see above).

Scope of Work

TRC will perform the following scope of work as part of the proposed Site Investigation to address WDNR comments:

- Update the site-specific Health and Safety Plan for TRC on-Site personnel.
- Groundwater Sampling:
  - Two rounds of groundwater sampling will be completed at three existing monitoring wells (TEC-3, MW-A, and MW-E). Each well will be properly purged prior to sampling according to NR 141.21 Wis. Adm. Code, and the depth to groundwater will be measured and recorded prior to purging.
  - Groundwater samples will be analyzed for dissolved chromium and dissolved hexavalent chromium. Laboratory-provided sample containers will be placed on ice immediately after sample collection for transport to Pace Analytical Laboratories in Green Bay, Wisconsin for dissolved chromium and dissolved hexavalent chromium analysis (USEPA Method 6010 and USEPA Method SM 3500-CR-B, respectively).
- Soil Sampling:
  - Seven proposed additional soil borings will be installed at locations shown in Figure 1. These borings will be direct push borings approximately 8 feet in depth.
  - Up to two samples will be collected at each location based on historic soil analytical results and field screening (PID readings, staining, olfactory signs, etc.) to horizontally and vertically delineate lead, hexavalent chromium, and total chromium. The following table outlines the proposed soil sampling locations:

Boring ID	Sample Interval(s) [ft bgs]	Analyses
GP-100	0-1, 1-3, 3-5*	Hexavalent chromium
GP-101	3-5, 5-7, 7-8*	Hexavalent chromium
GP-102	3-5, 5-7, 7-8*	Hexavalent chromium
GP-103	0-2, 2-4, 4-6	Hexavalent chromium
GP-104	0-2, 2-4	Lead
GP-105	0-2, 2-4	Lead
GP-106	0-2, 2-4	Lead
GP-104	4-6, 6-8*	Hexavalent chromium
GP-105	4-6, 6-8*	Hexavalent chromium
GP-106	4-6, 6-8*	Hexavalent chromium

* If these intervals are unsaturated, the samples will be held by the laboratory until other sample intervals are analyzed first.

  - Laboratory-provided sample containers will be placed on ice immediately after sample collection for transport to Pace Analytical Laboratories in Green Bay, Wisconsin for lead (USEPA Method 6010), hexavalent chromium (USEPA Method 7199), and for total chromium (USEPA Method 6010).
  - Each location will be logged and mapped through a global positioning system (GPS) once the boring is completed.

- IDW streams generated during this investigation are expected to include soil cuttings/excess sample material, decontamination fluids, monitoring well purge water, and general refuse (e.g., used personal protective equipment, single-use sampling equipment, and trash). Soil cuttings, excess sample material, decontamination fluids, and monitoring well purge water will be containerized, labeled with the date and contents, left on site, and will be disposed by Reworld. General refuse will be collected in trash bags and placed in a waste dumpster.

Scheduling/Reporting

The proposed schedule and reporting are as follows:

- Groundwater sampling will be conducted in Spring and Fall 2025.
- Soil sampling will be conducted in Spring 2025.
- Sample results will be submitted to the WDNR within 10 business days of receiving the sample results.
- Following the field investigation and receipt of laboratory analytical results for all sampling rounds, the data will be compiled, analyzed, and incorporated into a Case Closure Request form. The report will document all investigative activities conducted at the Site.

Please contact Chris Harvey at (312) 909-0043 with any questions or if you wish to discuss this letter.

Sincerely,

TRC Environmental Corporation

Chris Harvey, P.E.
VP – Complex Projects

Steve Sellwood, P.G.
Senior Hydrogeologist

Attachments: Figure 1 - Site Map
Attachment 1 - WDNR SIR Approval Letter – September 28, 2009

Figure 1

Site Map

NH-44 (3/12/2012)	
Depth (ft-bgs)	**0-2**
Chromium	21.8
Lead	81.3

NH-7 (3/12/2012)	
Depth (ft-bgs)	**4-8**
Chromium	24.1
Lead	114

NH-10 (3/12/2012)	
Depth (ft-bgs)	**8-10**
Chromium	15.9
Lead	66.5

NH-60 (3/12/2012)		
Depth (ft-bgs)	**0-4**	**4-6**
Chromium	23.1	20.2
Lead	171	116

FANNIN OIL COMPANY INC. PARCEL ID: 18566

FORMER TECUMSEH PRODUCTS FACILITY

MW-H (6/1/2009)		
Depth (ft-bgs)	**0-2**	**2-4**
Chromium	25.5	14.6
Chromium (VI)	6.4	<2.6
Lead	27	131

GB-14 (11/13/2023)	
Depth (ft-bgs)	**2**
Chromium	12
Chromium (VI)	0.664 J

GB-15 (11/13/2023)	
Depth (ft-bgs)	**2**
Chromium	14.4
Chromium (VI)	0.658 J

FORMER NORTHERN PLATING LINE

MW-G (6/1/2009)		
Depth (ft-bgs)	**0-2**	**2-4**
Chromium	15.5	25.1
Chromium (VI)	<2.8	4.5
Lead	1180	20.4

SEE INSET MAP

FORMER PLATING LINE/ SOIL MIXING AREA

MW-A (5/23/2007)	
Depth (ft-bgs)	**-**
Chromium	31
Chromium (VI)	1.3

MW-E (6/1/2009)	
Depth (ft-bgs)	**0-2**
Chromium	11.7
Chromium (VI)	<2.6
Lead	539

MW-F (6/1/2009)		
Depth (ft-bgs)	**0-2**	**2-4**
Chromium	12.2	23.8
Chromium (VI)	7.3	8
Lead	74.3	10

Plymouth Subdivision

INSET MAP

PAVED EXTERIOR

FORMER PLANT BUILDING

FORMER PLATING LINE/ SOIL MIXING AREA

1 " = 20 '

20 FEET

GB-6 (11/13/2023)	
Depth (ft-bgs)	2.5
Chromium	346
Chromium (VI)	21.1

GB-12 (11/13/2023)	
Depth (ft-bgs)	3.5
Chromium	49
Chromium (VI)	8.34

GB-7 (11/13/2023)	
Depth (ft-bgs)	3.5
Chromium	859
Chromium (VI)	15.6

GB-13 (11/13/2023)	
Depth (ft-bgs)	2
Chromium	22.3
Chromium (VI)	0.561 J

GB-8 (11/13/2023)	
Depth (ft-bgs)	2.5
Chromium	761
Chromium (VI)	13.1

GP-16 (9/22/2003)	
Depth (ft-bgs)	3-5
Chromium	46
Chromium (VI)	2.8

GB-9 (11/13/2023)	
Depth (ft-bgs)	2.5
Chromium	481
Chromium (VI)	61

GP-17 (9/22/2003)	
Depth (ft-bgs)	3-5
Chromium	34
Chromium (VI)	3.8

GB-10 (11/13/2023)	
Depth (ft-bgs)	2.5
Chromium	258
Chromium (VI)	13.6

GP-18 (9/22/2003)	
Depth (ft-bgs)	3-5
Chromium	480
Chromium (VI)	8.2

GB-11 (11/13/2023)	
Depth (ft-bgs)	2.5
Chromium	979
Chromium (VI)	0.937 J

PB-1 (5/1/2011)	
Depth (ft-bgs)	-
Chromium	16.5
Chromium (VI)	2.1

NOTES

1. BASE MAP IMAGERY FROM CALUMET COUNTY, 2021.
2. THE INDUSTRIAL DIRECT CONTACT RCL FOR HEXAVALENT CHROMIUM IS 6.36 MG/KG AND THE NON-INDUSTRIAL DIRECT CONTACT RCL FOR HEXAVALENT CHROMIUM IS 0.301 MG/KG.
3. THE INDUSTRIAL DIRECT CONTACT RCL FOR LEAD IS 800 MG/KG, THE NON-INDUSTRIAL DIRECT CONTACT RCL FOR LEAD IS 400 MG/KG, AND THE GROUNDWATER PATHWAY RCL FOR LEAD IS 27 MG/KG (BTV = 52 MG/KG).
4. THE INDUSTRIAL DIRECT-CONTACT RCL FOR ARSENIC IS 3 MG/KG (BTV = 8 MG/KG).

LEGEND

- PARCEL BOUNDARY
- SAMPLE LOCATIONS (FADED WHERE NO SOIL DATA AVAILABLE)
- MONITORING WELL (TRC)
- MONITORING WELL (R.E. LEE)
- SOIL BORING
- PROPOSED SOIL BORING LOCATION
- GB POINT (TRC, 2021)
- GB POINT (TRC, 2023)
- MONITORING WELL (TRC) - ABANDONED/MISSING
- MONITORING WELL (R.E. LEE) - ABANDONED/MISSING
- SOIL BORING - ABANDONED/MISSING
- SOIL EXCAVATION AREA (CLEAN BACKFILL)
- HEXAVALENT CHROMIUM INDUSTRIAL DIRECT CONTACT RCL EXCEEDANCE
- HEXAVALENT CHROMIUM NON-INDUSTRIAL DIRECT CONTACT RCL EXCEEDANCE (DASHED WHERE INFERRED)
- LEAD GROUNDWATER PATHWAY RCL EXCEEDANCE (DASHED WHERE INFERRED)
- LEAD INDUSTRIAL DIRECT CONTACT RCL EXCEEDANCE
- LEAD NON-INDUSTRIAL DIRECT CONTACT RCL EXCEEDANCE

0 60 Feet

1 " = 60 '

1:720

PROJECT: **BRRTS #02-08-363333**

FORMER TECUMSEH PRODUCTS CO- NEW HOLSTEIN NEW HOLSTEIN, WISCONSIN

SHEET TITLE:

PROPOSED SOIL BORING LOCATIONS

DRAWN BY:	A. FOJTIK	SCALE: 1: 720	PROJ. NO. 471202
CHECKED BY:	M. WAGLER		FILE NO. 471202_Fig1_PSBL.mxd
APPROVED BY:	B. WACHHOLZ	DATE PRINTED:	**FIGURE 1**
DATE:	DECEMBER 2024		

TRC

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Saved By: AFOJTIK on 12/17/2024, 13:56:40 PM
Path: E:\Tecumseh\NH_CrLine\2024_471202\MXD\471202_Fig1_PSBL.mxd

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 0

TRC - GIS

Attachment 1

WDNR SIR Approval Letter – September 28, 2009

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Ronald W. Kazmierczak, Regional Director

Northeast Region Headquarters
2984 Shawano Ave.
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September 28, 2009

Mr. Christopher Harvey, P.E.
TRC
230 West Monroe Street
Suite 510
Chicago, Illinois 60606

Subject: Review of *Site Investigation Report*, Former Tecumseh Products, Former Plating Line, New Holstein, Wisconsin BRRTS #: 02-08-363333

Dear Mr. Harvey:

The Department has completed its review of the above report dated August 2009 and submitted by TRC. This report was received on August 20th, 2009. On September 1st, 2009, I requested additional information from you; the NewFields' January 2004 report titled *Supplemental Site Investigation For Chromium Contamination,* Tecumseh Products Company, New Holstein, Wisconsin. That report was received on September 10, 2009. Thank you for sending that report. The Department has the following comments regarding this case.

If you have a figure that shows the locations of all current and former groundwater monitoring points including TW-1 through TW-10, please provide it to the Department. Figure 3-2 in the August 2009 report, only shows the locations of TW-1, TW-2, and TW-10.

If you have a figure that shows the locations of all soil sampling points including GP-1 through GP-18, please provide it to the Department.

The August 2009 report referenced but did not provide all historical groundwater data. For all future reports, please provide all historical groundwater data, preferably in one table.

For closure of this case, the Department will need to be provided with documentation of the proper disposal of all drill cuttings, development, purge and wash water.

Please make one more attempt to locate monitoring wells MW-3 and MW-7. At the time of closure, all lost monitoring wells will need to have the proper GIS documentation.

The August 2009 report recommended that quarterly groundwater sampling of all monitoring points should continue. The Department is in agreement with this recommendation, please proceed.

The Department will require an environmental investigation around the second chrome plating line at the site (i.e. the plating line to the north of the first plating line). The investigation by NewFields in 2003 (January 2004 report) did not include this second plating line. In 2004, the Department had requested a copy of the NewFields' report from Tecumseh, but did not receive it. Because the Department did not receive a copy of the NewFields' 2004 report until several weeks ago, it was not aware that this second plating line had not received any investigation. From the current data, it would appear that the major source of the chromium contamination is from the first plating line. This second plating line may only need a minimal amount of investigation.

Please proceed with the additional investigation of this site. If you have any questions regarding this letter or this case, please contact me at the address above, by calling 920-662-5161, by fax at 920-662-5197, or email at alan.nass@wisconsin.gov . Thank you for your continued cooperation.

Yours truly,

Alan Thomas Nass, P.G., P.S.S.
Hydrogeologist

Cc: Jason Smith, Tecumseh Products Company, 2700 West Wood Street, Paris Tennessee 38242