



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

April 6, 2021

REPLY TO THE ATTENTION OF:
SR-6J

MEMORANDUM

SUBJECT: Engineering Evaluation/Cost Analysis Approval Memorandum for a Proposed Non-Time Critical Removal Action at the Former Tecumseh Products Company Property - Sheboygan Harbor and River Superfund Site, Sheboygan Falls, Wisconsin

FROM: David Franc, Remedial Project Manager

THRU: Jennifer Elkins, Chief
Remedial Response Section 6

Joan Tanaka, Chief
Remedial Response Branch 1

TO: Douglas Ballotti, Director
Superfund & Emergency Management Division

The purpose of this memorandum is to request approval to proceed with an Engineering Evaluation/Cost Analysis (EE/CA) for a non-time critical removal action (NTCRA) to address contaminated soils at the former Tecumseh Products Company (Tecumseh) property in Sheboygan Falls, Wisconsin. The Tecumseh property was the primary source of polychlorinated biphenyls (PCBs) to the Sheboygan Harbor and River Superfund Site (the Site). At this time, the United States Environmental Protection Agency (EPA) expects Pollution Risk Services (PRS) to prepare the EE/CA and design and implement the selected removal activities with EPA oversight. EPA has consulted and will continue to consult with the Wisconsin Department of Natural Resources (WDNR).

PRS is currently conducting post-Remedial Action monitoring under the terms of a 2003 Consent Decree (CD). It is anticipated that PRS will perform NTCRA work under the Additional Work provisions of the CD.

I. Site Background

The Sheboygan River and Harbor Site was listed on the National Priorities List (NPL) on June 10, 1986. Impacted resources included PCB-contaminated sediment in the river and harbor, floodplain soils, and soil and groundwater at the Tecumseh property. The Site includes the lower 14 miles of the river from the Sheboygan Falls Dam downstream to, and including, the Inner Harbor.

The primary contaminants of concern for the Site were determined to be PCBs, polycyclic aromatic hydrocarbons (PAHs), and several heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc). The PCB contamination was the primary driver of risk, and, as a result, the cleanup was primarily focused on removing PCB-contaminated sediments and soils.

The primary source of PCB contamination was in the Upper River area at the former Tecumseh plant in Sheboygan Falls. Tecumseh was a manufacturer of refrigeration and air conditioning compressors and gasoline engines. The company's Diecast Division manufacturing processes used PCB-containing hydraulic fluids which were discharged via sewer lines to the river. Erodible PCB-contaminated soils along the riverbank were also a source of PCBs to the river. Tecumseh closed the plant in 2003. Structures at the facility have since been demolished. The property is currently vacant, and much of the property is fenced to restrict access. The property lies within a FEMA AE flood zone, indicating a 1% annual chance of flooding. The future use of the property is unknown. While property use has historically been industrial, an adjacent property is a city park and the City of Sheboygan Falls has a high level of interest in expanding the park to include the former Tecumseh property.

In August 1990, EPA and Tecumseh entered into an Administrative Order on Consent (AOC) to conduct interim actions to address imminent risks at the Site. In response, Tecumseh removed approximately 6,000 cubic yards (cy) of contaminated sediment that was stored in two containment facilities at Tecumseh's Sheboygan Falls plant. In addition, Tecumseh capped or "armored" approximately 1,200 square yards of highly contaminated sediment to keep contaminated sediment from eroding further down river and to reduce ecological risks associated with elevated PCBs in surface sediment.

EPA issued a Record of Decision (ROD) for the Site on May 12, 2000. The remedy outlined specific actions to address PCB-contaminated sediment, PCB-contaminated floodplain soil, and groundwater contamination. The ROD identified cleanup requirements for the Upper, Middle, and Lower River sections, the Inner Harbor, and floodplain soils. Portions of the selected remedy relevant to the Tecumseh property include the following:

- Investigation and mitigation of potential groundwater contamination and possible continuing sources at the former Tecumseh Plant in Sheboygan Falls.
- Placement of institutional controls (ICs) to limit access to Tecumseh's Sheboygan Falls plant groundwater as a drinking water source.

The ROD identified three primary Remedial Action Objectives (RAOs) and provided information about how the selected remedy would achieve the RAOs. RAO language potentially applicable to the Tecumseh property is excerpted below:

- a. Protect human health and the environment from imminent and substantial endangerment due to PCBs attributed to the site.

“...For PCB-contaminated floodplain areas, this remediation objective will be achieved by removing sufficient contaminated soil to reach an average PCB soil concentration of 10 ppm or less. The areas of soil remediation will be backfilled to its previous grade and re-vegetated to prevent future soil erosion and siltation in the river. With respect to PCB-contaminated groundwater or other potential sources near Tecumseh’s Sheboygan Falls plant, the remediation objective will be to investigate and stop all additional PCB sources to the river system.

“With respect to PCB-contaminated groundwater or other potential sources near Tecumseh's Sheboygan Falls plant, the remediation objective is to investigate and stop all additional PCB sources to the river system.”

- b. Mitigate potential PCB sources to the Sheboygan River/Harbor system and reduce PCB transport within the river system.

“Additional investigations will occur to determine the effects of PCB-contaminated groundwater or possible additional PCBs sources from Tecumseh’s Sheboygan Falls plant...”

- c. Remove and dispose of Confined Treatment Facility (CTF)/Sediment Management Facility (SMF) sediments and previously armored/capped PCB-contaminated soft sediment deposits.

In 2003, Tecumseh entered into a CD with EPA for Phase I and II work, which addressed the Tecumseh property and the Upper River portion of the Site. On March 25, 2003, Tecumseh and PRS entered into a “Liability Transfer and Assumption Agreement” under which PRS assumed specified obligations and liabilities for remediation of the Site and associated costs for which Tecumseh is responsible under the Upper River CD, which included the obligation to perform Phase I and II work under the CD.

PRS performed the remedial design/remedial action for the Tecumseh plant facility area and the Upper River area. Following completion of the remedial design, the remedial action was implemented in two phases from September 2004 to October 2007. The final Site inspection of the remedial action was conducted on November 7, 2007. EPA and WDNR determined that the following remedial action activities were completed according to the 2000 ROD and design specifications for the Tecumseh property and the Upper River area. Work completed at the Tecumseh property included:

- Construction and installation of a Groundwater Monitoring/ Interceptor Trench (GMIT), which was required by the ROD if it was determined that groundwater under the Tecumseh plant could discharge to the river;
- Excavation of source materials and riverbank areas;
- Removal of preferential pathways which included the removal of soil in a 10-foot radius from two outfall locations at the former Tecumseh plant that could pose a threat of continued PCB loadings to the river system; and
- Installation of monitoring wells.

In addition, as part of the Phase I and II work, the Tecumseh property was used for sediment dewatering of Upper River dredged sediments. Sediment filter bags (widely known under the Geotube product name) were placed on the foundation of the former Tecumseh manufacturing building. There were reportedly several bag breaks during the course of the project.

On October 6, 2009, PRS entered into an AOC with EPA to perform recharacterization and remedial design activities for the Middle River, Lower River, Inner Harbor, and floodplain soils.

On December 15, 2010, EPA issued an Explanation of Significant Differences (ESD) to adjust the estimate of the volume of contaminated sediment to be removed from the river, the areas from which those sediments would be removed, and the estimated cost of the modified remedy. The changes enacted in the ESD had no impact on the work to be performed at the Tecumseh property.

In 2011, a CD was entered between PRS and the United States requiring PRS to implement the Phase III cleanup work, and dredging began that same year. Phase III cleanup work was completed in 2012.

In 2016, EPA required PRS to perform sampling to determine if releases from breaks in dewatering tubes at the Tecumseh property (and at a downriver location used for Phase III dredging work) had adversely impacted soils. PRS conducted Phase II Environmental Site Assessments (ESAs) in 2016 to review both locations. For the Tecumseh property, instead of finding the low-level contamination that would be expected from sediment dewatering activities, the investigation found significant PCB and PAH contamination, more consistent with impacts from past manufacturing operations. Additional investigations in 2018 found extensive soil contamination around the foundation of the former plant building. Of most concern is the PCB-contaminated soil, which was found impacted at levels (maximum = 15,200 parts per million [ppm], average = 965 ppm, 95% upper confidence level [UCL] = 1,124 ppm) that exceed the Principal Threat Waste threshold for PCBs.

Because the concentrations of PCBs found in the soil at the Tecumseh facility exceed the Principal Threat Waste threshold, the RPM consulted with the EPA Region 5 Emergency Response Section responsible for the State of Wisconsin to ensure that no time-critical removal actions were required to address an imminent threat to human health or the

environment. Based on a joint Remedial / Emergency Response Site inspection conducted on June 16, 2020, it was determined that there are currently no complete pathways for human exposure that warrant a time-critical emergency response. The portion of the property with elevated PCB contamination is fenced, and access is restricted. Concrete and vegetation currently provide sufficient cover to limit erosion of contaminated soils under current conditions.

At EPA's request, PRS has submitted a Data Gap Analysis to assess past characterization efforts and to identify areas where surface and subsurface soil data are not available or are inadequate. PRS identified multiple areas of the Tecumseh property and the adjacent public park as areas where additional investigation is warranted.

EPA's Fields Team is developing a sampling strategy for the Tecumseh property and adjacent park. PRS has indicated that they will perform sampling as designed by the Fields Team; however, there has been some recent resistance regarding sampling in the park. Discussions with PRS are continuing as the technical approach for sampling is firmed up.

II. Threat to Public Health, Welfare, or the Environment

In order for EPA to determine that a removal action is warranted, there must be an imminent and substantial danger to public health or the environment from the release or threatened release of hazardous substances, pollutants, or contaminants. EPA will formally document this determination in the NTCRA Action Memorandum (issued after development of, and public comment on, the EE/CA).

As discussed above in Section I, significant PCB contamination (and to a lesser extent, PAH contamination) has been found at the Tecumseh property. While concentrations don't warrant a time-critical removal action (TCRA) given property fencing and the current vegetative cover, the presence of such high levels of PCBs in the soil pose a potential ecological risk. Additionally, the Tecumseh property is within a zone AE floodplain. Should flooding occur, there would be a potential for contaminant transport to the Sheboygan River.

Beyond the known contamination surrounding the site of the former Tecumseh manufacturing facility, there are questions concerning the potential for PCB contamination on the adjacent park property. Surface soil (0" to 6") samples were taken during the course of the RI, and PCB concentrations were low (generally under 1 ppm). No deeper soil data is available. However, samples collected in the late 1970s from a public garden that was previously located in the park showed PCB contamination in soil up to 8 ppm and detectable levels of PCBs in garden vegetables. While the soil concentrations seen in the 1970s were not high, they could indicate that deeper (below 6") samples have been impacted. Historic aerial photographs show activity in the area but are not clear enough to show what activities could have resulted in PCBs within the park. It's important to know whether PCBs are present in subsurface soils to ensure that park activities are not exposing PCBs.

In addition to questions about the extent of PCB contamination, the PRS Data Gap Analysis also disclosed that Tecumseh used to burn PCB waste and dispose of the ash on Site. No dioxin/furan

data is currently available. The EE/CA investigation would include dioxin/furan analyses to evaluate whether these contaminants are present and evaluate human and ecological risks posed by them.

III. Factors for Determining Appropriateness of a Removal Action

Section 300.415(b)(2) of the NCP provides factors for determining the appropriateness of a removal action. The factor most applicable to current conditions at the Tecumseh property is actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants. Other NCP factors that may be applicable include high levels of hazardous substances or pollutants or contaminants within Sheboygan River floodplain soils largely at or near the surface that may migrate and weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released (i.e., periodic flooding events).

IV. Determining the Appropriateness of the NTCRA Process

Criteria established in *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*, OSWER 9360.0-32, August 1993, and *Use of Non-Time-Critical Removal Authority in Superfund Response Actions*, OSWER 9360.0-40P, February 2000, and other considerations were evaluated relative to the conditions at the Tecumseh property. As EPA's guidance outlines, it has been a central feature of EPA's Superfund program philosophy to integrate the removal and remedial programs in order to achieve the greatest human health and environmental protection in the most efficient fashion. Superfund decision makers have been urged to broadly use the CERCLA removal authority to achieve timely and protective results. However, due to process and statutory differences between the requirements applicable to removal actions and remedial actions, the determination of which program is most appropriate for a response action is made by EPA on a case-by-case basis.

In order for EPA to determine that a removal action is warranted, there must be an imminent and substantial danger to public health or the environment from the release or threatened release of hazardous substances, pollutants, or contaminants (discussed in Sections II, III, and V). Additionally, the following response-specific factors should be evaluated (OSWER 9360.0-40P): time-sensitivity of the response; the complexity of both the problems to be addressed and the action to be taken; the comprehensiveness of the likely action(s); and the potential cost of the action.

- Time Sensitivity

Previous remedial actions at the Tecumseh property were thought to have mitigated human health and ecological risks and addressed potential transport of contaminants to the Sheboygan River. However, the 2016 and 2018 data and the PRS Data Gap Analysis demonstrate that there is significant contamination remaining at the property and that questions remain concerning the extent of contamination and the potential for dioxin/furan contamination.

In accordance with § 300.415(b)(4) of the NCP, EPA's implementing regulations for CERCLA, EPA has determined that a planning period of at least six months exists before activities at the Tecumseh property could be initiated. The determination that a six month planning period is available is based on analysis of the time-sensitivity, the need for careful planning, and scope of the potential response actions for the Tecumseh property, as well as the desire to conduct outreach to the City of Sheboygan falls and nearby residents.

Overall, EPA believes that there is a potential threat to human health or the environment that, though not time-critical, is nonetheless sufficiently serious and imminent that the added time needed for the remedial process is unacceptable.

- Complexity

Complexity considers both the problem(s) to be addressed and the action(s) to be taken. Based on available data, the problem is moderate in scale and includes heavily contaminated soils in the immediate area of the former Tecumseh manufacturing building. However, additional sampling will be performed to resolve data gaps associated with other areas of the Tecumseh property and with the adjacent park. The entire area to be investigated is approximately 30 acres, with 17 acres at the Tecumseh property and 13 acres in the southern section of Rochester Park. The extent of contamination is not currently known.

The problem to be addressed is not especially complex – response actions need to address unacceptable direct contact and ecological risks associated with contaminated soil and to mitigate any future flood-related transport of contaminated soil to the Sheboygan River. The three options being considered will include land use management (including institutional controls), soil capping or cover, and soil removal and disposal. A mixed approach combining the options may provide the best balance among the tradeoffs. None of these response options is particularly complex.

Based on existing data, prospective response options for the Tecumseh property are anticipated to be implementable but will require careful planning and scheduling prior to construction. Upfront input, and subsequent planning and coordination with the City of Sheboygan Falls will be especially important, and essential to increase acceptance and participation.

- Comprehensiveness

The PRS Data Gap Analysis provided a thorough assessment of available data and comprehensively identified areas where additional investigation is necessary. The involvement of the Region 5 Fields Team will ensure that EE/CA data to be collected will sufficiently characterize the Tecumseh property and the southern portion of the adjacent park with a high level of certainty.

Any response actions at the Tecumseh property that would be conducted through a NTCRA are anticipated to be the final action at the property. EPA will maintain close coordination with WDNR to ensure that there is consensus that all unacceptable risks will be addressed.

It is important to note that the PRS Data Gap Analysis stated that Tecumseh historically sent PCB wastes to a city landfill that was located on an adjacent property, which is now the northern portion of the city park. Neither EPA nor WDNR were previously aware of the landfill, and no closure information is available. Based on discussions within EPA Region 5, the EE/CA will not include the old city landfill, as the scope of such a project would not directly fit within the definition of the Sheboygan Harbor and River Superfund Site. EPA will request that WDNR take the lead on the landfill assessment.

- Cost

Cost is discussed in Section VI, below. Regardless of whether the removal or remedial process is used, the costs of the cleanup work are unlikely to be significantly different.

The factors discussed above indicate that it is appropriate to conduct the Tecumseh investigation and response actions under a NTCRA. EPA and WDNR also believe that a NTCRA will help to achieve additional human health and environmental protection in the most cost-efficient fashion.

V. Statutory Basis for Action

The information presented in this memorandum and the Administrative Record indicates that actual or threatened releases of hazardous substances, pollutants, or contaminants at the Tecumseh property may present an imminent and substantial endangerment to public health or the environment.

VI. Enforcement/Proposed Actions/Cost Estimates

As noted previously in Section I, EPA and Tecumseh entered into a CD in 2003 for Phase I and II of the Remedial action. This work included the Tecumseh property and the Upper River. That same year, PRS assumed Tecumseh's liability for performance of the work. PRS has maintained compliance with the terms of the CD. They completed their remedial action responsibilities and are currently performing O&M sampling to evaluate the long-term effectiveness of previous cleanup work.

EPA believes that the most efficient enforcement approach for the EE/CA and NTCRA would be under the Additional Work provision of the CD. PRS has indicated its general willingness to perform the work; although there is some reticence regarding sampling in the park area, despite the fact that they were the entity that brought the issue to EPA's attention.

With approval of this memorandum, EPA will formally notice PRS of our intent to require an EE/CA under the Additional Work provision of the CD.

EPA anticipates that the potential removal response options will include the following: land use management (including institutional controls); soil capping or cover; soil removal and disposal; soil removal and thermal treatment of heavily impacted soils; or a combination of approaches. EPA cannot estimate the cost of the potential removal response actions until the extent of contamination and the scope of work are determined. However, PRS had previously estimated the cost for containment in the immediate area of the former Tecumseh manufacturing building at less than \$500,000, assuming they would be allowed to construct a simple concrete cap to extend the extend of the current building foundation. PRS estimated the cost for excavation and off-site disposal of contaminated soils at more than \$10,000,000; however, it should be noted that no detail was provided to support the estimate.

With the uncertainty regarding the extent of contamination beyond the immediate area of the former Tecumseh manufacturing building, it is possible that response costs could exceed \$6,000,000.

VII. Regional Consultation with Headquarters

EPA's guidance (OSWER 9360.0-40P) states: *“For non-time-critical removal actions where the cost of the selected removal action could exceed \$6 million, the Region must consult with the Director of OERR¹ prior to signing the EE/CA Approval Memorandum (or its equivalent). This consultation requirement applies both to fund-lead actions and those actions to be performed by PRPs.”* As discussed above, EPA cannot estimate the cost of the potential removal response until the response action(s) and scope of work are determined. However, as discussed in Section VI, Region 5 anticipates that the cost of the NTCRA for the former Tecumseh property and the adjacent Rochester Park area (if found to be impacted) could exceed \$6,000,000. As such, consultation between Region 5 and EPA Headquarters (HQ) was conducted prior to the submittal of this EE/CA Approval Memorandum into sign-off. A draft of the EE/CA Approval Memorandum was sent to HQ on January 21, 2021. The substantive comments raised by HQ have been addressed in this EE/CA Approval Memorandum. In addition, Region 5 briefed the Director of OSRTI on March 1, 2021. The Director of OSRTI verbally approved moving forward.

According to both Directive 9360.0-19, *Superfund Removal Guidance for Preparing Action Memoranda*, September 2009 and *Timing and Procedures for Review of Certain Time-Critical Removal Actions by EPA Headquarters Offices*, February 26, 2013, EPA HQ consultation must occur prior to conducting removal actions at sites that are not listed on the NPL where taking that removal action may be nationally-significant or precedent-setting. The Directive at Section IV identifies as nationally-significant or precedent-setting *“Removal actions at sites involving any form of dioxin when it is one of the principal contaminants of concern. Rationale: HQ concurrence will ensure national consistency in dioxin cleanup. Headquarters must review all dioxin removal actions to verify the proposed action will provide an acceptable level of protection from dioxin exposure.”* Further, the OSWER memorandum dated December 13, 1996,

¹ The previous HQ OERR is now known as the Office of Superfund Remediation and Technology Innovation (OSRTI).

titled “Headquarters Consultation for Dioxin Sites,” requests that the Regions consult with HQ where remediation goals are to be developed for dioxin in soil. While the Sheboygan Site is on the NPL, Region 5 will consult with HQ should dioxin be found during the EE/CA investigation. The initial consultation will include the scope of the response action and dioxin cleanup goals. The Region will continue to consult with HQ prior to signing any NTCRA Action Memorandum for dioxin-contaminated soil.

VIII. Public Involvement

EPA, in consultation with WDNR, will conduct enhanced, early public involvement as the EE/CA process moves forward. EPA will notify nearby residents and local governments when field sampling is underway, and detailed outreach will be conducted to explain the results of the investigation and discuss the EE/CA cleanup options. As noted previously, the City of Sheboygan Falls has a high level of interest in the Tecumseh property, as they hope to secure the property to expand Rochester Park. Residents who use Rochester Park will be interested in data from the park area and will want information regarding past and current potential exposure pathways. Concerns from residents, local governments, and media are expected to be more urgent should dioxin be found at the Site. Further, it is anticipated that questions will be raised about why the contamination at the Tecumseh property is only now being investigated, when the Sheboygan Site cleanup was supposedly complete.

In addition to early, informal feedback, and consistent with the NCP, EPA will take formal public comment on the EE/CA before selecting the Tecumseh soil remedy. EPA expects to propose a cleanup plan and issue an EE/CA for public comment in early 2022. However, if the contamination is found to be limited to the immediate area around the former Tecumseh manufacturing building, that schedule could be accelerated.

IX. Environmental Justice Analysis

To identify Region 5’s potential Environmental Justice (EJ) areas of concern, Region 5 uses the EJSCREEN Environmental Justice Screening and Mapping Tool. EJSCREEN provides environmental and demographic information, with data reported on eleven critical environmental indicators. As part of the preparation of any NTCRA Action Memorandum, EPA will determine if the Tecumseh and Rochester Park areas meet the Region’s EJ criteria and will take EJ information into consideration in outreach and decision making.

X. Approval/Disapproval

The conditions in soil at the Tecumseh property portion of the Sheboygan Harbor and River Superfund Site meet the NCP criteria for a removal action. Therefore, I am requesting approval to proceed with an EE/CA. Your approval or disapproval should be indicated below:

4/6/2021

Approve:

X 

Douglas Ballotti, Director
Superfund & Emergency Management Division
Signed by: DOUGLAS BALLOTTI

Disapprove:

X

Douglas Ballotti, Director
Superfund & Emergency Management Division