Five-Year Review Report

First Five-Year Review Report
For
The Sheboygan River and Harbor Superfund Site

Sheboygan, Wisconsin

September 2009

Prepared By:
The United States Environmental Protection Agency
Region 5
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Approved by: Date:

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9-1-09

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Five-Year Review Report

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List of Acronyms

Agencies	Wisconsin Department of Natural Resources and United States Environmental Protection Agency
AOC	Administrative Order on Consent
ARAR	Applicable or relevant and appropriate requirement
ASRI	Alternative Specific Remedial Investigation
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
C&NW	Chicago & Northwestern
EPA	United States Environmental Protection Agency
ES	enforcement standard
GMIT	Groundwater Monitoring/ Interceptor Trench
ICs	Institutional Controls
ICP	Institutional Controls Plan
ICWP	Institutional Controls Work Plan
lbs	pounds
MCL	maximum contaminant level
NCP	National Contingency Plan
NPL	National Priorities List
OMP	Operation and Monitoring Plan
PAHs	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated biphenyl
ppb	parts per billion
ppm	parts per million
PRP	Potentially Responsible Party
PRS	Pollution Risk Services
RA	Remedial Action
RAOs	Remedial Action Objectives
RI	Remedial Investigation
RI/FS	Remedial Investigation/ Feasibility Study
RMU	Remedial management unit
ROD	Record of Decision
Site	Sheboygan River and Harbor Superfund Site
SWAC	Surface Weighted Average Concentration
Tecumseh	Tecumseh Products Company
UCL	upper confidence level
µg/L	micrograms per liter
USACE	U.S. Army Corps of Engineers
UU/UE	unlimited use or unrestricted exposure
VOCs	Volatile Organic Compounds
WDNR	Wisconsin Department of Natural Resources

Executive Summary

The Sheboygan River and Harbor Superfund Site (Site) includes the lower 14 miles of the Sheboygan River from the Sheboygan Falls Dam downstream to, and including, the Inner Harbor. In addition to polychlorinated biphenyl (PCB)-contaminated sediment in the river and harbor, some floodplain soils are contaminated with PCBs, and groundwater and additional PCB sources associated with the former Tecumseh Products Company (Tecumseh) Plant are also part of the Site. Site risks include risks to humans and ecological receptors via consumption of PCB-contaminated fish, and fish and waterfowl consumption advisories have been in effect since 1987.

The response actions at the Site are being led by a potentially responsible party (PRP) with oversight by the United States Environmental Protection Agency (EPA). A Record of Decision (ROD) was issued on May 12, 2000, for dredging/disposal of PCB-contaminated sediments.

There have been three PRPs identified. The PRPs are Tecumseh, Kohler Company, and Thomas Industries. In 2003, Tecumseh entered into a Consent Decree (CD) with EPA. Tecumseh transferred the Site liability to Pollution Risk Services (PRS) and funded an insurance policy for the work to be performed at the Site in 2004. As a result, EPA initiated a modification of the 2003 CD to include PRS as the PRP performing the work. The amended CD was finalized in 2006. This Consent Decree was for the work to be performed in the Upper River, the former Tecumseh plant and the floodplains. In 2009 PRS entered into an Administrative Order on Consent (AOC) with EPA to perform characterization and remedial design activities for the Middle River, Lower River, and Inner Harbor.

In 2004, PRS started the cleanup at the Site. Cleanup actions included construction and installation of a groundwater monitoring/ interceptor trench (GMIT), excavation of source materials, river bank excavation, removal of preferential pathways, and installation of monitoring wells. These activities took place at the former Tecumseh Plant location in Sheboygan Falls. In 2006 and 2007, PRS performed dredging of PCB-contaminated sediment in the Upper River. Remedial design activities are currently ongoing at the remainder of the Site (Middle River, Lower River, and Inner Harbor).

The remedial action being implemented at the Sheboygan River and Harbor Site is expected to be protective, although it may take some time after completion of remedial action construction activities for the Site to achieve the Site-wide surface weighted average concentration (SWAC) specified in the ROD and for fish tissue concentrations to decrease. It is expected that site-wide remediation activities will be completed in 2014. Following the completion of the remedial

action and after evaluation of additional information, including the results of long-term monitoring, EPA will make a site-wide protectiveness determination.

Long-term protectiveness of the remedy will require compliance with effective Institutional Controls (ICs). Compliance with effective ICs will be ensured through implementing effective ICs and conducting long-term stewardship by maintaining, monitoring and enforcing effective ICs as well as maintaining the site remedy components.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: SHEBOYGAN RIVER AND HARBOR SUPERFUND SITE		
EPA ID *(from WasteLAN)*: WID980996367		
Region: 5	**State:** Wisconsin	**City/County:** Sheboygan / Sheboygan
SITE STATUS		
NPL status: : X Final __Deleted __Other (specify)		
Remediation status (choose all that apply): X Under Construction __Operating __Complete		
Multiple OUs?* __YES X NO	**Construction completion date:** Not Complete	
Has site been put into reuse? __ YES X NO __ Portions		
REVIEW STATUS		
Lead agency: X EPA __State __Tribe __Other Federal Agency		
Author name: Pablo N. Valentín		
Author title: Remedial Project Manager	**Author affiliation:** EPA, Region 5	
Review period:** 10/24/2008 to September 2009		
Date(s) of site inspection: 05/14/2009		
Type of review: X Post-SARA __Pre-SARA __NPL-Removal only __Non-NPL Remedial Action Site __NPL State/Tribe-lead __Regional Discretion)		
Review number: : X 1 (first) __2 (second) __3 (third) __Other (specify)		
Triggering action: X Actual RA On-site Construction at OU #__ __Actual RA Start at OU# ___ __Construction Completion __Previous Five-Year Review Report __Other (specify)		
Triggering action date *(from WasteLAN)*: 09/07/2004		
Due date *(five years after triggering action date)*: 09/07/2009		

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

Remedy is not yet complete.

Long-term monitoring of fish and soft sediment needs to be conducted to evaluate remedy protectiveness and environmental recovery.

Existing ICs have not been formally evaluated and some required ICs have not been implemented.

Recommendations and Follow-up Actions:

Complete remedial actions and conduct follow-up construction confirmation monitoring.

Conduct long-term monitoring of fish and soft sediment.

Develop an Institutional Controls Work Plan (ICWP), or Institutional Controls Plan (ICP) if necessary, to ensure long-term stewardship.

Protectiveness Statement(s):

The remedial action being implemented at the Sheboygan River and Harbor Site is expected to be protective, although it may take some time after completion of remedial action construction activities for the Site to achieve the Site-wide surface weighted average concentration (SWAC) specified in the ROD and for fish tissue concentrations to decrease. It is expected that site-wide remediation activities will be completed in 2014. Following the completion of the remedial action and after evaluation of additional information, including the results of long-term monitoring, EPA will make a site-wide protectiveness determination.

Long-term protectiveness of the remedy will require compliance with effective ICs. Compliance with effective ICs will be ensured through implementing effective ICs and conducting long-term stewardship by maintaining, monitoring and enforcing effective ICs as well as maintaining the site remedy components.

Other Comments: none.

Fill in the data below:

Date of last Regional review of Human Exposure Indicator (from WasteLAN): 04/30/2009
Human Exposure Survey Status (from WasteLAN): Current Human Exposure Not Controlled
Date of last Regional review of Groundwater Migration Indicator (from WasteLAN): 05/27/2009
Groundwater Migration Survey Status (from WasteLAN): Contaminated Groundwater Migration Under Control
Ready for Reuse Determination Status (from WasteLAN): N/A

Five-Year Review Report

I. Introduction

The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings and conclusions of such reviews are documented in site-specific five-year review reports. In addition, five-year review reports identify issues or deficiencies, if any, found during the review process for the site and provide recommendations to address or correct them.

The United States Environmental Protection Agency (EPA) prepared this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with Section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

EPA has now conducted the first five-year review of the remedial actions being implemented at the Sheboygan River and Harbor Superfund Site (the Site) located in Sheboygan, Wisconsin. The review was conducted for this Site from October 2008 through September 2009 by the EPA Remedial Project Manager. This report documents the results of the review. As part of this review, the Remedial Project Manager determined that no additional data collection was necessary to evaluate the current Site status, since regular monitoring and data reporting is required by the Operation and Monitoring Plan (OMP) for the Site.

This is the first five-year review for the Sheboygan River and Harbor Site which was triggered by the start of on-site construction on September 7, 2004. This five-year review is required due to the fact that hazardous substances, pollutants or contaminants will remain at the Site above levels that allow for unlimited use and unrestricted exposure once all of the remedial action work required by the May 2000 Record of Decision for the Site has been implemented.

II. Site Chronology

Table 1: Chronology of Site Events

EVENT	DATE
Sheboygan Harbor constructed at mouth of the river	Early 1920's
Lower Sheboygan River (channel upstream of Eighth Street Bridge) added as a portion of Sheboygan Harbor for maintenance dredging	1954
404,000 cubic yards of sediment dredged by the U.S. Army Corps of Engineers (USACE) downstream of Eighth Street Bridge	1956 through 1969
USACE disposes of dredged material from harbor in deep water disposal area in Lake Michigan	Prior to 1969
Tecumseh voluntarily excavates and replaces a dike constructed prior to issuance of PCB governing regulations with PCB contaminated soils	Late 1970's
USACE sediment sampling indicates moderate to high levels of lead, zinc, PCBs, and chromium as well as moderate levels of arsenic	1979
Examination of sediment profile samples collected by the USACE shows presence of PCBs in surface of harbor sediments	December 1982
EPA places Sheboygan River and Harbor Site on the National Priorities List (NPL)	1986
EPA requests that Tecumseh conduct actions to remove about 5,000 cubic yards of contaminated sediments	1989 and 1990
Remedial Investigation completed	05/31/1990
Feasibility Study completed	01/11/1999
EPA issues Site-Wide ROD	May 2000
EPA enters into CD with Tecumseh for the Upper River	May 2004
Tecumseh transfers liability to PRS and funds insurance policy	May 2004
PRS starts Phase I of Upper River cleanup	September 2004
Upper River CD is amended to include PRS as responsible party	2006
PRS starts Phase II of Upper River Cleanup by initiating dredging in Upper River	May 15, 2006

EVENT	DATE
PRS concludes Phase II of Upper River Cleanup by finalizing dredging in Upper River	October 2007
EPA enters into AOC with PRS for recharacterization and Remedial Design of Middle River, Lower River, and Inner Harbor	February 2009
First Five-Year Review Site Inspection	May 2009

III. Background

Physical Characteristics

The Sheboygan River and Harbor Site is located on the western shore of Lake Michigan approximately 55 miles north of Milwaukee, Wisconsin, in Sheboygan County (see Figure 1 below).

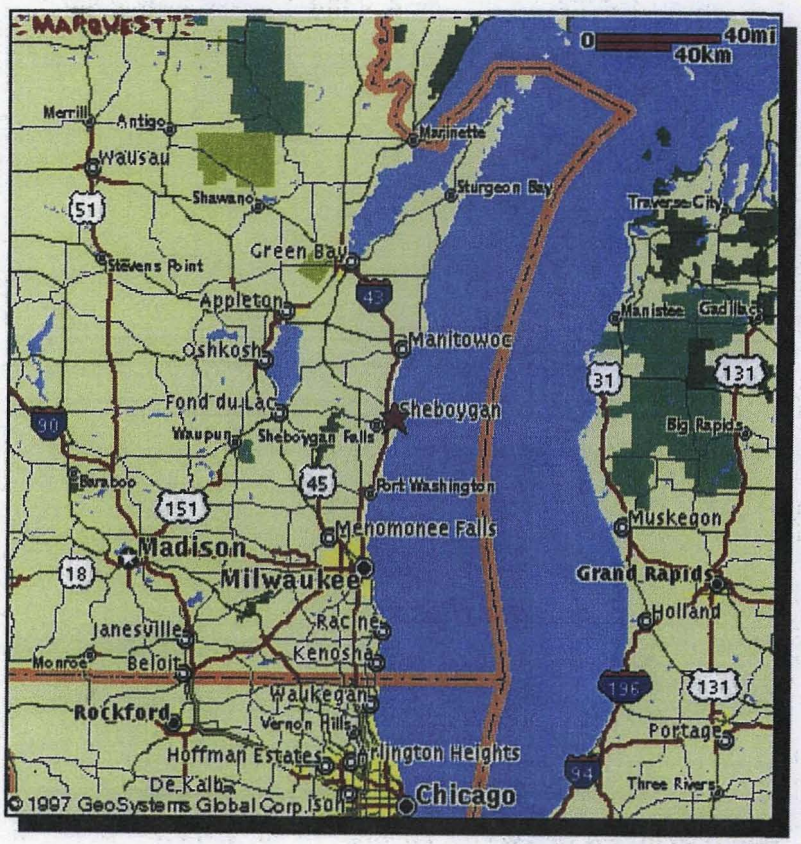

Figure 1 - Location Map

The Sheboygan River and Harbor Site includes the lower 14 miles of the river from the Sheboygan Falls Dam downstream to, and including, the Inner Harbor (see Figure 2, Site Map). This segment of the river flows through Sheboygan

Falls, Kohler, and Sheboygan before entering Lake Michigan. The Sheboygan River runs from west to east through east central Wisconsin, emptying into Lake Michigan.

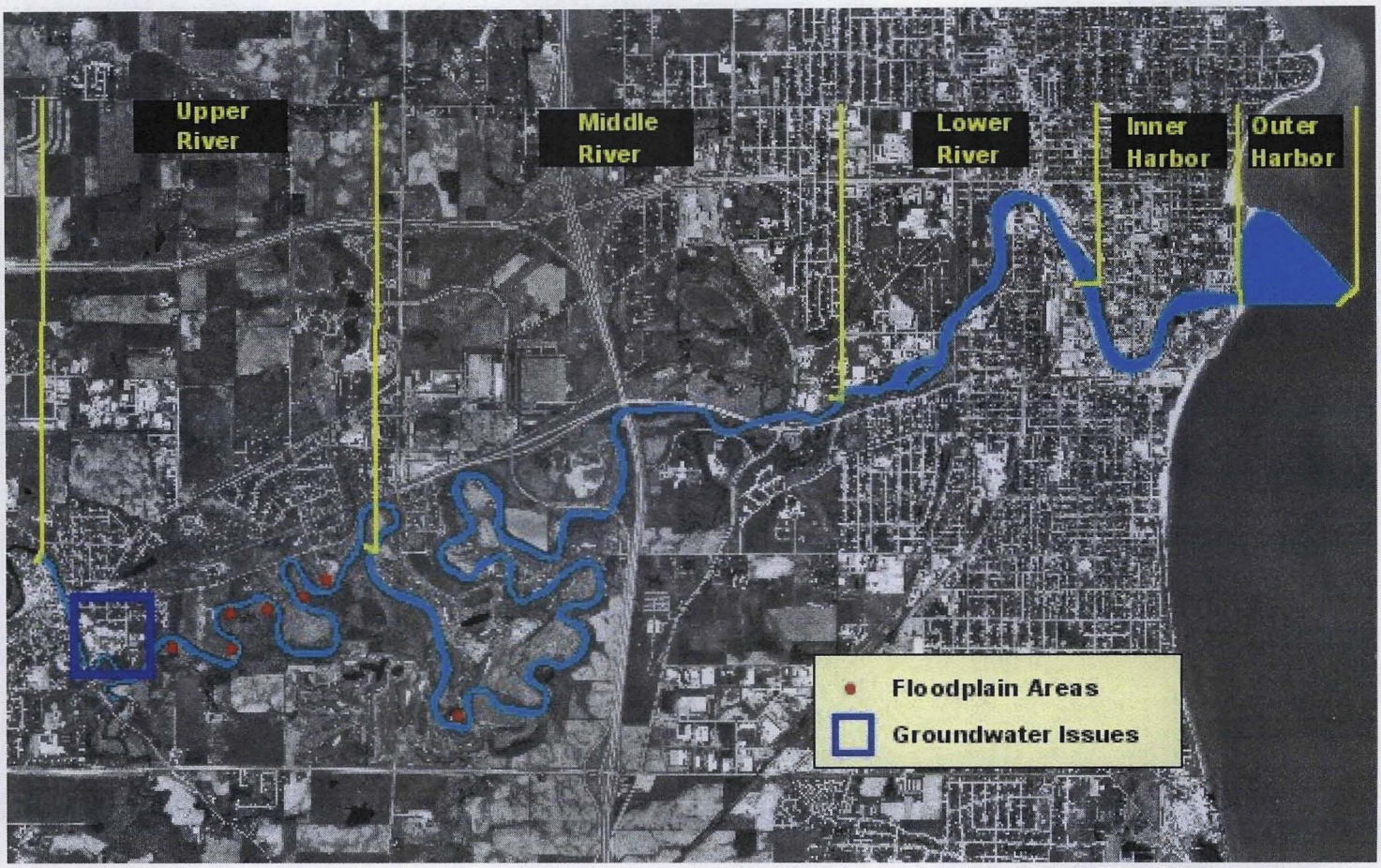

Figure 2 - Site Map

EPA divided the river into three sections during the remedial investigations (RI) based on physical characteristics such as average depth, width, and level of polychlorinated biphenyl (PCB) sediment contamination. The Upper River extends from the Sheboygan Falls Dam downstream 4 miles to the Waelderhaus Dam in Kohler. The Middle River extends 7 miles from the Waelderhaus Dam to the former Chicago & Northwestern (C&NW) railroad bridge. The Lower River extends 3 miles from the C&NW railroad bridge to the Pennsylvania Avenue Bridge in downtown Sheboygan. The Inner Harbor includes the Sheboygan River from the Pennsylvania Avenue Bridge to the river's outlet to the Outer Harbor. The Outer Harbor is defined as the area formed by the two break-walls.

The river is generally characterized by fast, rocky stretches in the upper reaches and slower, more sediment-laden stretches in the lower reaches. The width of the Upper River averages 120 feet and the depth ranges from 1 to 4 feet. The river widens as it approaches the harbor. Harbor water quality is a combination of near-shore lake water and water from the Sheboygan River.

Land Use and Resources

Land Uses

Land use along the Upper River is industrial, residential and recreational in Sheboygan Falls. The Kohler Company owns land adjacent to the Middle River in the Village of Kohler. Land use in the Middle River consists of a horse farm, tree nursery, the company's historic River Bend property and the Black Wolf Run golf course. The 800-acre, Kohler-owned River Wildlife Area is on the south side of the river adjacent to the Upper and Middle River. The wildlife area is used as a private hunting and fishing club. Land use adjacent to the Lower River and Inner Harbor is recreational, commercial and industrial with some residential areas. The City of Sheboygan's central business district is on the north bank of the river in the harbor area. The City has revitalized the harbor area. Offices, restaurants, marinas, parks and a boardwalk are located within this area.

Surface Water / Groundwater Uses

There are no public beaches along the river or harbor. The Lower River and Harbor are navigable, but the Upper and Middle River traffic is typically restricted to smaller craft (i.e. canoes and kayaks) which can be portaged around the dams in Kohler and Sheboygan Falls, as well as shallow areas. Public and recreational boat access is available at a number of locations within the city of Sheboygan in the Lower River and Harbor. There is considerable seasonal fishing in the Middle River, Lower River and Inner Harbor. Fishing is more limited in the Upper River. According to Wisconsin Department of Natural Resources (WDNR) surveys, most fishing occurs during spring and fall salmon and trout runs. A fish consumption advisory is in effect for Sheboygan River and Lake Michigan fish.

The Sheboygan River is not used as a public water supply, but it drains into Lake Michigan which is used as a drinking water source by Sheboygan, Sheboygan Falls, and Kohler. The three cities regularly test the public water and it is safe to drink. Contaminated groundwater near the Tecumseh Products Company's (Tecumseh's) Sheboygan Falls Plant is not used as a drinking water source.

History of Contamination

The Sheboygan Harbor was constructed at the mouth of the Sheboygan River in the early 1920's. In 1954, the lower Sheboygan River, namely the channel upstream of the Eighth Street Bridge, was added as a portion of the Sheboygan Harbor for USACE maintenance dredging. Between 1956 and 1969, a total of 404,000 cubic yards of sediment were dredged downstream of the Eighth Street Bridge. The channel above Eighth Street has not been dredged since it was first dredged in 1956.

Prior to 1969, the USACE disposed of the dredged material from the harbor in an authorized deep water disposal area in Lake Michigan. However, there has been no dredging within the Sheboygan Harbor since EPA and WDNR determined that the sediment was unsuitable for open-water disposal. Sediment sampling done by the USACE in 1979 indicated moderate to high levels of lead, zinc, PCBs, and chromium and moderate levels of arsenic present in sediment at all locations sampled. The USACE routinely removed lake sand from a sandbar that forms at the outer entrance of the harbor. The USACE last dredged the harbor mouth in the fall of 1991. In June 1979, the USACE collected 11 sediment cores from the harbor area ranging in depth from 1.5 to 9 feet. The USACE analyzed samples for lead, zinc, copper, chromium, and PCBs. The study revealed greater PCB and metal levels in the sediment of the Inner Harbor than in sediment from the Outer Harbor. In October 1979, the USACE collected a second round of samples consisting of 21 sediment cores. The USACE's analysis of these cores generally indicated an increase in PCB concentrations with the distance upstream from the harbor and with the depth of the sediment. The Sheboygan River and Harbor are both located within the Sheboygan River Area of Concern, so designated by the International Joint Commission on the Great Lakes due to impairment of the beneficial uses of the waterway.

Examination of 98 sediment profile samples collected by the USACE from the Sheboygan Harbor in December 1982 indicated the presence of PCBs in the surface sediment of the harbor.

Tecumseh, a manufacturer of refrigeration and air conditioning compressors and gasoline engines, was located adjacent to the Sheboygan River in Sheboygan Falls. Tecumseh is considered a potentially responsible party (PRP) because PCBs were found in sewer lines that lead to the river from the former Tecumseh facility and in hydraulic fluids used in Tecumseh's Die Cast Division manufacturing processes. The contamination level was high in the sediments immediately surrounding the former Tecumseh Plant, but decreased in concentration downstream. Tecumseh, prior to the issuance of regulations governing PCBs, used PCB-contaminated soils to construct a dike located along the river downstream of the Sheboygan Falls Dam. Tecumseh voluntarily excavated and replaced the dike following the EPA's issuance of regulations governing PCBs in the late 1970's. Tecumseh undertook cleanup actions, but not before PCBs were released into the Sheboygan River.

In 1978, the WDNR conducted a survey that found numerous industries that discharge contaminants to the Sheboygan River. A handful had some level of PCB discharge to the river. A number of industries had heavy metals in their discharge. While heavy metals were an environmental concern, PCBs were a more significant problem and any PCB-driven cleanup would likely also address the heavy metals in the river.

Initial Response

EPA placed the Sheboygan River and Harbor site on the NPL in 1986.

In 1989 and 1990, EPA requested that Tecumseh conduct actions to remove about 5,000 cubic yards of contaminated sediment. This sediment was stored in two containment facilities at Tecumseh's Sheboygan Falls Plant. In addition, approximately 1,200 square yards of highly contaminated sediment were capped or "armored" in place to prevent contaminants in the sediment from entering the river. Information developed during these activities is described in a document called an Alternative Specific Remedial Investigation (ASRI) report.

Basis for Taking Remedial Action

Investigations performed by Tecumseh between 1987 and 1990 defined the nature and extent of contamination at the Site and described the extent of the threat that contaminants pose to human health and the environment. Tecumseh obtained additional data in June 1999. The primary compounds of concern were determined to be PCBs and several heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc). (See Table 2 for a list of heavy metals contamination.) The PCB contamination drove the risk and, therefore, the cleanup, which primarily focused on removing PCB-contaminated sediments and soils. However, metals, volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs) were also detected at varying concentrations. Over the course of the investigations, Tecumseh, WDNR and the National Oceanic and Atmospheric Administration have all collected samples from the Sheboygan River.

Table 2 - Metals Contamination (ppm)

	Upper, Middle and Lower River		Inner Harbor	
	Minimum	Maximum	Minimum	Maximum
Arsenic	1.2	16	0.7	20.4
Cadmium	ND*	3.1	ND	3.7
Chromium	ND	143	2.2	414
Copper	ND	102	ND	140
Lead	3.6	293	1.1	783
Mercury	ND	0.3	ND	0.1
Nickel	ND	90	ND	354
Zinc	ND	300	ND	369

*ND – Not Detected

Eight metals including cadmium, chromium, copper, lead, mercury, nickel and zinc were targeted as part of the RI. Generally, the metals occurred at relatively low concentrations in the upstream sediments and increased in the downstream sediments.

Common natural elements such as aluminum, calcium, iron, magnesium, potassium and sodium were also present.

Sampling detected five VOCs, including methylene chloride, acetone, chloroform, methyl ethyl ketone, and toluene, in the river sediments. VOCs were generally found in low concentrations in the river sediment. However, acetone was detected at levels up to 270 parts per billion (ppb), while toluene was detected at levels up to 740 ppb.

PAHs are commonly associated with petroleum products, waste oil, and coal tars. During the RI the total estimated PAH concentrations were at or below 2.0 parts per million (ppm) for nine of the ten river samples obtained. The tenth sample had a PAH concentration of 4 ppm. In 1998, PAH sampling conducted by the Wisconsin Public Service Corporation for a project managed by WDNR showed total PAH concentrations from non-detect to 9,294 ppm near the former Manufactured Gas Plant site in the Lower River, just upstream of the Pennsylvania Avenue Bridge. Additional investigations and future potential remediation of PAH-contaminated sediments related to that effort is being managed separately by EPA and was not a part of the May 2000 Record of Decision (ROD) for the Sheboygan River and Harbor Site.

No pesticides or dioxin/dibenzofurans were detected in the river sediments.

Figure 3 shows the potential exposure pathways for the Site.

PCB-Contaminated Sediment

Upper River

PCB sampling results from the Upper River in 1989 and 1990 showed concentrations ranging from 1.4 to 4,500 ppm. Tecumseh removed PCB-contaminated sediment near its facility in 1990 and 1991. PCB sampling conducted in December 1997 from the same soft sediment areas sampled in 1989 and 1990 showed concentrations ranging from non-detect to 170 ppm. Soft sediment sampling in 1999 near Tecumseh's Sheboygan Falls Plant revealed PCB concentrations as high as 840 ppm. River bank sampling in 1999 near Tecumseh's Sheboygan Falls Plant revealed PCB concentrations as high as 1,100 ppm. PCB-contaminated sediment in this segment of the river migrates downstream due to the dynamic nature of this river reach.

Middle River

Information obtained from the Middle River during the RI showed PCB concentrations ranging from non-detect to 8.8 ppm. WDNR sediment trap data showed PCB concentrations ranging from 1.4 to 3.0 ppm. The WDNR obtained sediment trap data between 1990 and 1996. Samples obtained in 1997 by WDNR show PCB concentrations ranging from 0.6 ppm to 37 ppm. Like the

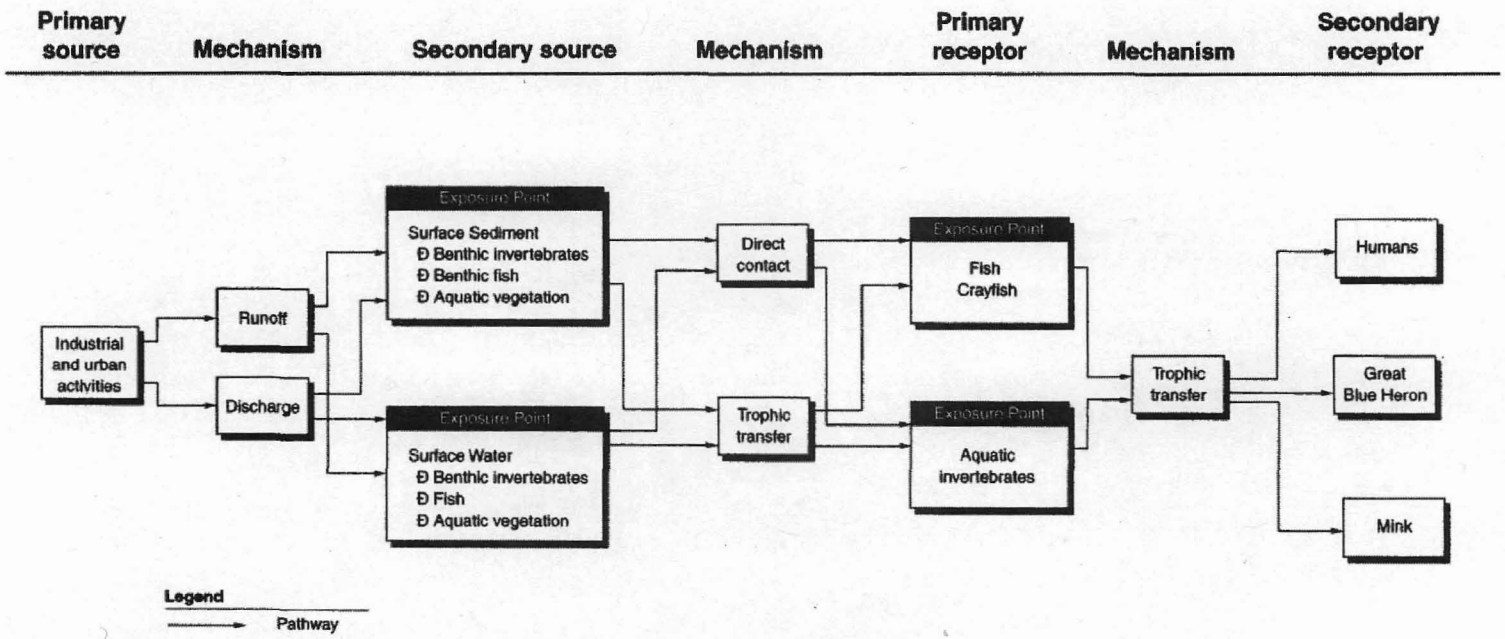

Figure 3. Sheboygan River and Harbor Potential exposure pathways

Upper River, sediment in the Middle River is likely to be disturbed due to the dynamic nature of this river reach.

Lower River

During the original site investigations, sampling in the Lower River showed PCB concentrations as high at 67 ppm in the Camp Marina area just a couple of feet below the sediment surface. Contaminated sediments within the top two feet may be disturbed by high flow events and/or boating. WDNR sediment trap data collected from 1994 to 1996 showed PCB concentrations ranging from 1.9 to 4.2 ppm in the Lower River.

Inner Harbor

RI sampling detected PCB concentrations as high as 220 ppm in the Inner Harbor, however these levels were detected in 1979 and remain many feet below the surface. PCB surface sampling results (from the top 6 inches of sediment) in 1987 ranged from 0.17 to 5.8 ppm. PCB surface sampling results in 1999 ranged from 0.38 to 5.3 ppm. Table 3 shows the average, minimum and maximum concentration of PCBs in the top 6 feet of sediment based on all sediment data adjusted to the 1999 bathymetry and extrapolated by Earth Vision software.

Table 3 – Inner Harbor Sediment PCB Concentrations (ppm)

Sediment Depth	Average	Minimum	Maximum
Top 1 foot	5.6	ND	117.4
1 to 2 feet	7.9	ND	89.1
2 to 4 feet	10.7	ND	103.2
4 to 6 feet	13.6	ND	82.49

As a general rule, PCB concentrations increase with depth between the 8th Street Bridge and the Inner Harbor mouth. This, however, is not the case for certain areas between the Pennsylvania Avenue and 8th Street Bridges.

Soil

Tecumseh collected soil samples from within the 10-year floodplain of the Sheboygan River during the investigation phase of the project. Floodplain samples collected in 1990 showed PCB concentrations ranging from non-detect to 71 ppm. In 1990 and 1992, Tecumseh took additional rounds of samples as part of the Alternative Specific Remedial Investigation. PCB concentrations exceeded 50 ppm in two samples and 10 ppm in six samples. Sampling in floodplain area 11 showed a concentration of 220 ppm. Floodplain area 11 was resampled in 1992 and showed PCB concentrations of 330 and 320 ppm. Due to disturbances of the floodplain caused by golf course construction by the land

owner, PCB concentrations have decreased in floodplain area 11 since the ASRI sampling.

Surface Water

PCB concentrations were detected in surface water prior to, during and after implementation of the PCB removal action in 1989 and 1990. The results are shown in Table 4 below.

Table 4 - PCB Concentrations in Surface Water

	PCB Concentration (ppb)	
	Minimum	Maximum
April 1989	0.044	0.127
July 1989	< 0.05	0.52
November 1990	< 0.05	0.77
April 1991	< 0.05	0.08
July 1991	< 0.05	0.32
September 1991	< 0.05	0.22
October 1991	< 0.05	< 0.05
April 1992	< 0.05	< 0.05
July 1992	< 0.05	0.36
October 1992	< 0.05	0.13
May 1993	< 0.05	0.08

Groundwater

PCB contamination was also present in groundwater at the former Tecumseh plant. Groundwater sampling conducted in September 1992 and May 1993 by Tecumseh indicated that PCBs were locally present in the groundwater at Tecumseh's former Sheboygan Falls Plant in concentrations that ranged from 0.10 micrograms per liter (µg/L) to 7.4 µg/L in unfiltered samples, and from below the detection limit (0.05 µg/L) to 0.98 µg/L in filtered samples. These concentrations are above the 0.03 µg/L WDNR enforcement standard (ES) for groundwater.

IV. Remedial Actions

Remedy Selection

EPA issued a 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 major components of the selected remedy included:

- Upper River sediment characterization, removal of approximately 20,774 cubic yards of PCB-contaminated sediment to achieve a soft sediment surface weighted average concentration (SWAC) of 0.5 ppm in the Upper River, and fish and sediment sampling to document natural processes and ensure that over time the entire river will reach an average PCB sediment concentration of 0.5 ppm or less.

- Middle River sediment characterization, removal of sediment if necessary to achieve a soft sediment SWAC of 0.5 ppm in the Middle River, and fish and sediment sampling to document natural processes and ensure that over time the entire river will reach an average PCB sediment concentration of 0.5 ppm or less.

- Lower River sediment characterization, removal of sediment if necessary to achieve a soft sediment SWAC of 0.5 ppm in the Lower River, annual bathymetry surveys to identify areas susceptible to scour, and fish and sediment sampling to document natural processes and ensure that over time the entire river will reach an average PCB sediment concentration of 0.5 ppm or less.

- Inner Harbor sediment characterization, removal of approximately 53,000 cubic yards of PCB-contaminated sediment to achieve a SWAC of 0.5 ppm in the Inner Harbor, annual bathymetry surveys to identify areas susceptible to scour, fish and sediment sampling to document natural processes and ensure that over time the entire river will reach an average PCB sediment concentration of 0.5 ppm or less, and maintenance of the outer harbor break-walls.

- Removal of floodplain soils containing PCB concentrations above 10 ppm.

- 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 remedy consists of three primary Remedial Action Objectives (RAOs):

1. Protect human health and the environment from imminent and substantial endangerment due to PCBs attributed to the Site. To achieve this remediation objective, PCB-contaminated soft sediment will be removed so that the entire river will reach an average PCB sediment concentration of 0.5 ppm or less over time. An average PCB sediment concentration of 0.5 ppm

results in an excess human health carcinogenic risk of 1.0×10^{-4} or less over time through the consumption of PCB-contaminated fish.

Based on site-specific biota to sediment accumulation factors, the corresponding PCB tissue levels for resident fish are:

Sport Fish		Bottom Feeders	
Small Mouth Bass	0.31 ppm	Carp	2.58 ppm
Walleye	0.63 ppm	Catfish	2.53 ppm
Trout	0.09 ppm		

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.

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

3. Remove and dispose of Confined Treatment Facility/Sediment Management Facility sediments and previously armored/capped PCB-contaminated soft sediment deposits.

Remedy Implementation

A Consent Decree (CD) between the United States and Tecumseh for the Upper River portion of the remedy was entered and became effective on May 12, 2004. Pursuant to the Upper River CD, Tecumseh's alleged liability was resolved for a portion of the Site. Under the terms of the Upper River CD, Tecumseh was required to: 1) implement EPA's selected remedy for the cleanup of the Upper River section of the Site; 2) pay at least $2.1 million toward EPA's past response costs; and 3) pay all Upper River future response costs incurred by the United States. 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 the Upper River work under the CD. PRS performed the remedial design/remedial action for the Upper River. Following completion of the remedial design, the remedial action for the Upper River was implemented in two phases from September 2004 to October 2007. The final site inspection of the Upper River Phase II remedial action was conducted on November 7, 2007. The floodplain soil removal work which also was required under the Upper River CD is not completed yet; EPA is in the process of negotiating with the adjacent property owner for access to the floodplains for remediation.

EPA and WDNR determined that the following remedial action activities were completed according to the ROD and design specifications:

- Construction and Installation of Groundwater Monitoring/ Interceptor Trench (GMIT);
- Excavation of source materials;
- Riverbank excavation;
- 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;
- Installation of monitoring wells;
- Removal of 20,727 cubic yards of sediment which included 552.45 pounds of PCBs from the upper portion of the Sheboygan River from the Sheboygan Falls Dam down to Waelderhaus Dam; and
- Site restoration.

Currently, PRS is under an Administrative Order on Consent (AOC) with EPA to perform recharacterization and remedial design activities for the Middle River, Lower River, and Inner Harbor. The AOC became effective February 6, 2009. There is not yet an enforcement instrument in place for the remediation of the Middle River, Lower River, and Inner Harbor, but based on the current schedule for remedial design activities, EPA currently anticipates that cleanup activities in those areas of the site are likely to be completed by 2014.

Institutional Controls

Institutional Controls are required to ensure the protectiveness of the remedy as described in the ROD and summarized below. ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE).

The May 2000 ROD specifically required that ICs be implemented to limit access to Tecumseh's Sheboygan Falls plant groundwater as a drinking water source. Also, there are requirements to maintain the Inner Harbor break-walls as part of the remedy. Additionally, the ROD requires that fish and waterfowl advisories be

maintained throughout the river to ensure the public is aware of the concern for ingesting fish and waterfowl.[1]

The table below summarizes institutional controls for these restricted areas.

Table 5 - Institutional Controls Summary Table

Media, Engineered Controls, & Areas that Do Not Support UU/UE Based on Current Conditions	IC Objective	Title of Institutional Control Instrument Implemented (note if planned)
Former Tecumseh Sheboygan Falls Plant Location	Prohibit interference with GMIT, prohibit groundwater consumption, and prohibit inconsistent uses	Unknown – to be determined. ICWP being developed.
Upper River, Middle River, Lower River, and Inner Harbor	Limit fish and waterfowl consumption	Fish and water fowl advisories (in place; effectiveness under review)
Upper River, Middle River, Lower River, and Inner Harbor	Restrictions on dredging in federal navigational channels	Clean Water Act Permits (401/404) (required for navigational dredging)
Lower River and Inner Harbor	Prohibit interference with covered area and prohibit inconsistent uses	Unknown – to be determined. ICWP being developed.
Outer Harbor Break-walls	Maintain and prohibit inconsistent uses	Unknown – to be determined. ICWP being developed.

Besides the fish and waterfowl consumption advisories, the required ICs have not been implemented as the remedy is not yet complete. However an Institutional Controls Work Plan (ICWP), or Institutional Controls Plan (ICP) if necessary, will be developed and will be implemented upon construction completion. The ICWP will be submitted to EPA and WDNR for review and approval. The ICWP will specify the types and details for the ICs including a schedule for implementation and will include a monitoring plan to ensure long-term stewardship. Additionally, fish advisories and water fowl advisories, which are in place, would likely be required until contaminant concentrations in fish are reduced such that unrestricted consumption would not present a risk. The effectiveness of the fish and waterfowl advisories will be reviewed in the ICWP along with any recommendations to ensure that the advisories are noticed by the general public. Compliance with ICs will be required to assure long-term protectiveness for any areas which do not allow for UU/UE to assure the remedy continues to function as intended. Once effective ICs are implemented, long-term stewardship procedures will be developed to ensure that the ICs are maintained, monitored and enforced. The long-term stewardship plan will be included in the ICWP. The plan should include regular inspections of the engineering and access controls at the Site and review of the ICs for the Site.

[1] The ROD, p. 11, states "fish taken from the Sheboygan River between the Sheboygan Falls dam and the mouth of the river fall into the "do not eat" consumption advisory category, and waterfowl consumption advisories are in place for some waterfowl species from the Sheboygan River below Sheboygan Falls dam to the Sheboygan harbor. PCB concentrations in wild birds collected between 1976 and 1980 ranged from 2 to 213 ppm. In 1985 and 1986, Tecumseh monitored wildlife again for PCBs including several species of waterfowl. These analyses resulted in consumption advisories for mallards and lesser scaup in the Sheboygan River area of concern in 1987. Fish and waterfowl advisories are for the entire 14-mile stretch from Sheboygan Falls to Lake Michigan. "

For example, the plan should include a requirement for an annual certification to EPA that ICs are in place and effective. Finally, development of a communications plan and use of the State's one call system shall be explored.

Operation and Monitoring

After construction completion and verification that the Upper River Phase I and Phase II construction activities were completed, groundwater monitoring of the GMIT was initiated and a Long-Term OMP was developed by PRS. Fish tissue and soft sediment will also be monitored for PCB concentrations as part of the Long-Term OMP, as required by the 2000 ROD. In 2008, PRS performed the initial baseline fish monitoring event for the Upper River as well as for the Middle River, Lower River, and Inner Harbor. The baseline fish monitoring event for the Upper River took place in 2008 after the dredging of the soft sediment deposits had been completed.

V. Progress Since the Last Five-Year Review

This is the first five-year review for the Site. The triggering action was the initiation of the remedial action on September 7, 2004, the start of the Phase I Upper River construction activities. Since 2004, 20,727 cubic yards of PCB-contaminated sediment have been removed from the Site and 552.45 pounds of PCBs have been removed from the Upper River. During the Phase I activities construction and installation of the GMIT was accomplished, source materials were excavated from the former Tecumseh Sheboygan Falls plant, and upper riverbank excavation, removal of preferential pathways, and installation of monitoring wells were all completed in 2005. In 2006 and 2007, dredging of PCB-contaminated sediments took place in the Upper River as part of the Phase II Upper River construction activities. This five-year review is required because hazardous substances, pollutants, or contaminants will remain above levels that allow for unlimited use and unrestricted exposure.

VI. Five-Year Review Process

Administrative Components

During October 2008, EPA notified the PRPs that it was undertaking a five-year review. EPA also sent a letter to WDNR to notify the state agency that EPA was initiating a five-year review.

From October 2008 to May 2009, the EPA Remedial Project Manager established a review schedule whose components included:

- Community Involvement;
- Document Review;

- Data Review;
- Site Inspection; and
- Five-Year Review Report Development and Review.

Community Involvement

Activities to involve the community in the five-year review were initiated with a public notice prepared by the EPA and published in The Sheboygan Press newspaper on October 24, 2008, informing people that a five-year review was to be conducted at the Sheboygan River and Harbor Superfund Site (see Attachment 9). The notice informed members of the public about the initiation of the five-year review process and provided the opportunity to request additional information from or provide information to EPA. There were no information requests about the five-year review process, and no one provided information to EPA.

Since the issuance of the 2000 ROD, staff from EPA and WDNR have also made presentations at or attended several meetings or community events to discuss Site cleanup progress, restoration or other Site-relate issues, as requested by local officials, citizen groups, and universities.

Further information regarding recent Site construction and remediation-related activities can be found at the following website, maintained and updated by Region 5's Community Involvement Section:
http://www.epa.gov/region5/sites/sheboygan/index.html

Document Review

This five-year review consisted of a review of relevant documents including O&M records and monitoring data. Applicable groundwater cleanup standards, as listed in the May 2000 ROD, also were reviewed. A comprehensive list of documents reviewed is included as Attachment 2.

Data Review

Groundwater Monitoring

Groundwater sampling completed in September 1992 and May 1993 indicated that PCBs were locally present in the groundwater at Tecumseh's former Sheboygan Falls Plant. Unfiltered concentrations ranged from 0.10 ppb or µg/L to 7.4 ppb. Filtered concentrations ranged from below the detection limit (0.05 ppb) to 0.98 ppb. Although low, these concentrations were above the 0.03 ppb WDNR enforcement standard for PCBs in groundwater. It should be noted that the ES is less than the method detection limit achievable with current technology.

The Design Basis for the Phase I Design was to remove additional source material from the former Tecumseh Sheboygan Falls plant site and construct a GMIT. The GMIT was designed to collect and intercept dissolved phase PCBs in groundwater from the former Tecumseh facility to the Sheboygan River. The GMIT was not designed to remediate existing PCB-impacted groundwater that may be present and/or located between the GMIT and the river. PRS decided to proceed directly with the construction of the GMIT and forego the groundwater flux study for monitored natural attenuation.

The monitoring wells located downgradient of the GMIT are required to be sampled semi-annually for the first five years to measure the overall efficiency of the former Tecumseh plant site source removal. If the sample results for the downgradient wells indicate that dissolved phase PCB concentrations in groundwater are decreasing, the GMIT will not be operated. If dissolved phase PCB concentrations in groundwater are increasing (two consecutive statistically significant monitoring events), then the GMIT will be operated until sample results for any given well continue to decrease.

A PCB baseline sampling event of all site monitoring wells (see Attachment 1 for Site Monitoring Well locations) was performed in 2004. PCB and water level data has been collected in 6 monitoring wells (MW-9, MW-10, MW-12, MW-13, MW-16, and MW-17) for 8 semi-annual monitoring events that have occurred between November 2004 and May 2008. Based upon the GMIT operation rules (statistical increase in PCB concentrations over two semi-annual sampling events), there have been no qualifying trigger events to operate the GMIT.

All monitoring wells have concentrations above the ES of 0.03ug/L. Wells MW-10, MW-12 and MW-13 have Upper Confidence Levels (UCLs) above the Maximum Contaminant Level (MCL) of 0.5 µg/L. These monitoring wells are located near the central part of the GMIT. The maximum PCB total concentration is 2.8 µg/L in MW-13 (UCL= 2.17 µg/L) which is located just south of the former Tecumseh facility building. There is no significant concentration trend observed and one of the monitoring wells (MW-12) indicates an improvement compared to baseline. See Attachment 10 for a summary of the groundwater data review.

Upper River Sediment Removal

PCB-contaminated soft sediment deposits were removed to obtain a minimum of 88% mass removal in the Upper River. PCB-contaminated floodplain soil may act as a future source to the river during high flow events; therefore, PCB-contaminated soils may need to be removed in seven areas.

During the 2006 and 2007 seasons, sediment was removed from nine armored area Remedial Management Units (RMUs) and 122 soft sediment deposit RMUs. The soft sediment RMUs and armored areas removed in 2006 and 2007 contained the majority of the PCB mass within the Upper River. A total of 94.1%

of the PCB mass was removed from the river in 2006 and 2007. All activities were performed in compliance with the approved Remedial Action Work Plan and addendum.

During 2006, a total of 2,227.96 cubic yards of sediment and 332.20 lbs (56.6%) of PCBs were removed from the armored areas. In addition, 6,424.40 cubic yards of sediment and 151.42 lbs (25.8%) of PCBs were removed from soft sediment RMU deposits. During 2007, a total of 12,075.41 cubic yards of sediment and 68.83 lbs (11.7%) of PCBs were removed from soft sediment RMU deposits. Combining 2006 and 2007, the remedial action removed 20,727.77 cubic yards of sediment and 552.45 lbs of PCBs for a total removal percentage of 94.1%. This left 13,474.42 cubic yards and 34.56 lbs (5.9%) of PCBs remaining in the upper portion of the Sheboygan River. Please see Attachment 3 for a figure showing sediment deposits and percentage mass removals per RMU. The ROD requires sediment concentrations to be monitored at least once every five years and to remove at least 88% of the soft sediment in the Upper River in order to achieve a 0.5 ppm SWAC over time. At the completion of the sediment dredging activities in the Upper River, PRS performed confirmatory sampling with EPA oversight. See Attachment 4 for tables that contain a summary of PCB concentrations per sediment deposit and a table that estimates the SWAC for the Upper River at the completion of the dredging activities. The estimated SWAC in the Upper River at the completion of dredging was 1.96 ppm. The ROD requires the Upper River to achieve a SWAC of 0.5 ppm over time.

Baseline Fish Monitoring

Smallmouth bass, carp, walleye, and catfish were selected for monitoring as they have assigned target goals in the ROD. According to the ROD, smallmouth bass and carp are the more contaminated resident fish species at the site and EPA selected these fish to determine cleanup goals believing that if these fish met the goals, the lesser contaminated species such as walleye, trout, salmon, and steelhead would also be protected. Therefore, the monitoring included smallmouth bass and carp as well as walleye and catfish. Walleye and smallmouth bass will also help evaluate risk reduction for sport fishermen while carp and catfish will help evaluate risk reduction for sustenance fishermen. Rock bass and longnose dace were added because catfish and walleye are rarely caught, according to WDNR. Juvenile carp and white suckers also were added at the suggestion of the WDNR.

Collection of fish for the baseline monitoring event began in the Upper River reach before generally proceeding to the Lower River, Inner Harbor, and finally, the Middle River reaches. Due to an inability to initially collect Longnose Dace and juvenile species, the Upper and Middle River reaches were revisited. The fish collection occurred between August 19, 2008, and September 17, 2008.

Generally, the results showed decreasing concentrations moving from the Upper River to the Inner Harbor. In almost every case, the PCB concentrations were higher in the Lower River reach than the Middle River 2 site. This would correspond to the increase in PCBs in the sediment in the Lower River and Inner Harbor due to the identified sources in these reaches. Adult carp tended to have the highest mean PCB concentrations of the fish species sampled, although for the few caught, catfish had the highest mean concentration. These are bottom feeders and the results are not unexpected compared to the sport fish. While the carp had the highest mean concentration (Upper River), this was the only fish caught that had many of the individual results less than the ROD goal. EPA and WDNR are currently reviewing the results of the baseline fish monitoring event. Please see Attachment 5 for a table summarizing baseline fish collection quantities and figures showing fish collection areas in the river reaches. Attachment 6 contains tables showing fish tissue sample results.

Site Inspection

EPA has assumed the primary oversight role at the Site with cooperation from the WDNR. The most recent Site inspection was conducted on May 14, 2009, specifically for the purpose of the five-year review. The Site inspection began with an interview of the Site Manager, Ken Aukerman of PRS. Information from the interview has been incorporated into this report and also in Attachment 7, the Site inspection checklist. The inspection covered the entire Site, including the GMIT located at the former Tecumseh Sheboygan Falls plant, with a walk along the entire former plant perimeter and fence. Additionally, a walk-through was conducted along the 14 miles of river that comprise the Site. Photographs were taken of all significant site features and are included as Attachment 8.

No significant issues have been identified regarding the GMIT. Based on the groundwater monitoring reports there is an indication that there might be a need to operate the GMIT into the future.

There have been no incidences of trespassing, vandalism or other external problems. No complaints from nearby residents have been received by the Site Manager, the WDNR Site Coordinator or the EPA Remedial Project Manager.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The remedy is not yet completed. The remedial action activities that have occurred to date (Upper River) have been constructed in accordance with the requirements of the ROD and the design specifications. The remedy is expected to be protective after it is completed, although it may take some time after completion of remedial construction activities for the Site to achieve the Site-wide

SWAC specified in the ROD and for fish tissue concentrations to decrease. Upon completion of the remedial action, long-term monitoring of fish and soft sediment will be conducted to determine if the remedy is functioning as intended and described in the decision documents. Fish and waterfowl consumption advisories and restrictions on dredging in federal navigational channels and dredging as required by the Clean Water Act permits (401/404) are governmental restrictions that are already in place. However, an ICWP will be developed to further evaluate necessary ICs.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes. Site conditions are relatively unchanged and there are no new promulgated standards applicable to the Site.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. At this time, nothing has come to light that would call into question the protectiveness of the remedy.

Technical Assessment Summary

Implementation of the remedy is not yet complete. The remedial action activities that have been conducted to date (Upper River) have been constructed in accordance with the requirements of the ROD and design specifications. The remedy is expected to be protective after it is completed, although it may take some time after completion of remedial construction activities for the Site to achieve the Site-wide SWAC specified in the ROD and for fish tissue concentrations to decrease. EPA will determine whether the remedy is functioning as intended once the remedial action is completed. A determination about long-term protectiveness will be made after evaluating the results of long-term monitoring of fish and soft sediment.

VIII. Issues

Construction of the remedy, long-term monitoring, and final determination of ICs have not been completed. Completion of the remedy includes confirmation monitoring to demonstrate that the remedy was constructed in accordance with design specifications. Long-term monitoring of fish and soft sediment needs to be conducted to evaluate remedy protectiveness and environmental recovery. Additionally, the existing ICs have not been formally evaluated, and some of the required ICs have not been implemented. A review of the institutional controls is needed to assure that the remedy is functioning as intended with regard to ICs

and to ensure that effective procedures are in place for long-term stewardship at the Site. Table 6 summarizes these issues.

Table 6 – Issues

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Remedy is not yet complete	Y	Y
Long-term monitoring of fish and soft sediment needs to be conducted to evaluate remedy protectiveness and environmental recovery	N	Y
Existing ICs have not been formally evaluated and some required ICs have not been implemented	N	Y

IX. Recommendations and Follow-up Actions

The following actions are recommended to address the issues identified in Section VIII above.

Table 7 - Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Remedy is not yet complete	Complete remedial actions and conduct follow-up construction confirmation monitoring	PRPs	EPA and WDNR	2014[1]	Y	Y
Long-term monitoring of fish and soft sediment needs to be conducted	Conduct long-term monitoring of fish and soft sediment	PRPs	EPA and WDNR	2009[2]	N	Y
Existing ICs have not been formally evaluated and some required ICs have not been implemented	Develop an ICWP, or ICP if necessary, to ensure long-term stewardship	PRPs	EPA and WDNR	Within 12 months of completion of this five-year review (2010)	N	Y

[1] All remaining areas of the Site (Middle River, Lower River and Inner Harbor) are anticipated to have remedial actions completed by 2014.
[2] Long-term monitoring will begin in 2009 for the Upper River, in 2011 for the Middle River, and 2015 for the Lower River and Inner Harbor.

X. Protectiveness Statement

The remedial action being implemented at the Sheboygan River and Harbor Site is expected to be protective, although it may take some time after completion of remedial action construction activities for the Site to achieve the Site-wide SWAC specified in the ROD and for fish tissue concentrations to decrease. It is expected that site-wide remediation activities will be completed in 2014. Following the completion of the remedial action and after evaluation of additional information, including the results of long-term monitoring, EPA will make a site-wide protectiveness determination.

Long-term protectiveness of the remedy will require compliance with effective ICs. Compliance with effective ICs will be ensured through implementing effective ICs and conducting long-term stewardship by maintaining, monitoring and enforcing effective ICs as well as maintaining the site remedy components.

XI. Next Review

The next five-year review for the Sheboygan River and Harbor Site is required within five years of the signature date of this review.