

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

<i>Project Name</i>	<i><u>FOX RIVER - PROJECT 2 (Deposit N)</u></i>	<i>ProjectID:</i> 05-20
<i>Last Updated:</i>	01/16/03	
<i>City:</i>	Kimberly	
<i>County:</i>	Outagamie	
<i>State:</i>	WI	
<i>Country:</i>	USA	
<i>Bodies of Water:</i>	Lower Fox River	
<i>US EPA Region:</i>	V	
<i>Status (Active, Complete, or Monitoring Only):</i>	Complete	
<i>Date On NPL:</i>	N/A	
<i>ROD/ESD Date:</i>	N/A	
<i>Operable Unit:</i>	N/A	
<i>Areas of Concern (length or acres):</i>	Deposit N: An approximate 3-acre area in the Fox River located near the Villages of Kimberly and Little Chute, WI, just upstream of Cedars Dam.	
<i>Other Characteristics of Water Body:</i>	Deposit N water depths are generally 8 ft. deep.	
<i>Contaminants of Concern:</i>	Mainly PCBs (1242); metals (mercury) to a lesser extent.	
<i>Source of Contamination:</i>	Production of carbonless copy paper, wastepaper recycling, and other sources.	
<i>Contaminated Area</i>	<p>The Fox River contains approximately 35 soft sediment deposits from Lake Winnebago to DePere (32 miles) containing an estimated PCB mass of 4,200 kg (4.63 tons) in a sediment volume of 2.4 million m³ (3.1 million cy). Sediment in the lower 7 miles (below De Pere Dam) contains an estimated 26,500 kg (29.2 tons) of PCBs in 6 million m³ (7.8 million cy of sediment). PCB concentrations below DePere have been shown to range from non-detectable to 400 ppm. More recent sampling showed a maximum PCB concentration as high as 710 ppm, which is located at the Sediment Management Unit 56/57 site.</p> <p>Deposit N is a 3-acre area in the Lower Fox River, is located within the city limits of the Village of Kimberly, WI and is adjacent to the Interlake Papers facility on the south side of the river. Deposit N has an average sediment thickness of 2 feet (3 feet maximum) that overlays bedrock and an average water depth of 8 feet. The total PCB mass was originally estimated to be 350-414 lbs; PCB concentrations averaged 45 ppm with a maximum of 186 ppm; mercury concentrations were found as high as 8 ppm. Deposit N consists of a silty/clay western lobe with typical PCB concentrations from 50 to 100 ppm and a sandy eastern lobe with typical PCB concentrations from 1 to 10 ppm. The estimated volume of PCB contaminated sediment to be removed from Deposit N was 12,000 cy.</p>	
<i>Physical Characteristics:</i>		
<i>Type of Regulatory Action:</i>	Part of a Cooperative Agreement between the Fox River Group and the State of Wisconsin.	
<i>Overall Status Summary:</i>	A voluntary cooperative coalition provided funding for studies of the Deposit N area. Pilot dredging projects were proposed for Deposit N and Sediment Management Unit 56/57 for the removal of 12,000 cy and up to 92,000 cy of PCB-contaminated sediment, respectively. The removal of PCB-contaminated sediment from these areas was anticipated to result in the removal of approximately 10% of the total mass of PCBs in the entire river system. The State reached an agreement with seven of the paper mills for a \$10 million lump sum and a moratorium on litigation, beginning January 31, 1997, until work under the agreement was completed. The status of the agreement and moratorium remain in place.	

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Last Updated: 01/16/03

In the January 1997 Agreement between the State of Wisconsin and the FRG (Fox River Group), the FRG agreed to fund monitoring of the Deposit N dredging demonstration. WDNR and the FRG jointly developed a monitoring plan to assess dredging effectiveness. The WDNR retained Foth and Van Dyke, Green Bay, WI, working with Malcolm Pirnie and Superior Special Services (a marine contractor) for design and bid specification work and Koester Environmental to perform dredging, dewatering, and water treatment.

Site preparation work began October 1998. An area located adjacent to the river on the opposite side of the river from Deposit N was available to locate land-based facilities to support dredging activities. Sediments with 50 ppm or greater PCBs were disposed of at Wayne Disposal (MI) (TSCA); sediments with < 50 ppm PCBs were disposed at the Winnebago County landfill for a quoted tipping fee of \$58 per ton. The local populace was unsupportive of the plan for local disposal. Resolution of disposal issues with the Winnebago County Solid Waste Board was required prior to implementation of the planned remedial action.

Dredging of the Western Lobe of Deposit N began in late November 1998 and ended on December 31, 1998 due to cold and icing conditions (Phase I). Reportedly about 3,800 cy of sediment containing 95 pounds of PCBs were removed. Dredging resumed in the Eastern Lobe (Phase II) on August 20, 1999 and ended October 14, 1999, resulting in the removal of an additional 2,980 cy from this area of Deposit N. An additional 135 cy of sediment was removed from the Western Lobe during this time that was not included in the original scope of work (Phase III). Reportedly, dredging resulted in the removal of 114 of the estimated pre-project 142 pounds of PCBs from Deposit N. Following dredging in Deposit N, dredging was performed in Deposit O, across the river from Deposit N, resulting in removal of 1,000 cy of sediment from Deposit O (Phase IV).

Remedial Action Planned: ☒

Risk Assessment: ☐

Remedial Action Implemented: ☒

Status of Dredging ☐

PRPs: ☒

Contacts: ☒

References: ☒

Modeling: ☐

Fishing Advisory: ☒

Key Conditions: commercial landfill, dredging, Great Lakes AOC, pilot/demonstration test, water handling limitations

REMEDIAL ACTION PLANNED

Project Name	<u>FOX RIVER - PROJECT 2 (Deposit N)</u>	ProjectID: 05-20
Last Updated:	03/17/99	
Target Sediment Cleanup Standards (TSCS):	None; strictly mass removal and demonstration testing. Reportedly, the target was to remove sediments down to an underlying hard-pan base.	
How TSCS Established:	Refer to "Agency Position on Sediment Removal"	
Target Bank and Floodplain Cleanup Levels (if applicable):	N/A	
Other Target:	N/A	
Environmental Sample Data References:	<ul style="list-style-type: none">• Sediment:• Water:• Fish:	
Estimated Target Volume:	12,000 cy	
Planned Disposal Method:	Sediments with 50 ppm or greater PCBs are to be sent to Wayne Disposal (MI) (TSCA Landfill) and sediments with < 50 ppm PCBs are to be disposed at the Winnebago County Landfill.	
Estimated Calendar Time to Implement Remedy:	Dredging originally targeted to begin September 1998 and end by December 1998. Site preparation activities began in October 1998; dredging began in late November 1998 and is targeted for completion by end-of-year 1998.	
Estimated Time to Implement Remedy:	Approximately 6 weeks	
Estimated Cost to Implement Remedy:	\$4 million	
Stated Remedial Action Objectives (and Source):	<p>(Source: Reference B-380)</p> <p>The objectives of this remediation demonstration project are the removal and disposal of sediments from Deposit N, resulting in a mass removal of PCBs from the Fox River, and evaluation of a remedial design. The elements of the remedial design needing evaluation included:</p> <ul style="list-style-type: none">• Remove sediment by hydraulic dredging.• Minimize resuspension and off-site loss of sediment, PCBs, and other constituents to the river.• Protect water quality, including the industrial water intake at the InterLake Papers paper mill.• Remove as much PCB-contaminated sediment from the deposit as is practicable within the confines of the project budget and while being protective of human health and the environment.• Utilize on-shore dewatering of the sediments.• Dispose sediments in in-state landfills (if possible).• Sediment clean-up goal of residual PCB concentrations consistent with expected levels from future upstream sediment transport and deposition at Deposit N.• Treat carriage water to WPDES standards.• Perform the project while maintaining good relations with local government, citizens, business and industry.	

REMEDIAL ACTION PLANNED

Project Name	<u>FOX RIVER - PROJECT 2 (Deposit N)</u>	ProjectID: 05-20
Last Updated:	03/17/99	
Measures of Success to be Used:	Not identified	
Planned Monitoring and Restoration:	Water monitoring to be performed continuously at several locations upstream, downstream, and adjacent to the project area. A silt barrier made of high-density polyethylene is to be installed around the perimeter of Deposit N to prevent sediments from flowing downstream with the current during removal operations.	
Agency Position on Sediment Removal (and Source):	(Source: Reference B-380): Studies have identified 34 PCB sediment deposits in the 32-mile stretch of the Fox River upstream of DePere. Several factors make Deposit N a good location for a cleanup demonstration project. First, is the size of the deposit. At nearly three acres, Deposit N is small enough to clean-up in a relatively short time, yet large enough to yield good information that can be applied to other deposits. Second, the deposit is isolated from underwater and land-based obstacles that would make the removal process more difficult. Third, the deposit has one of the highest average concentrations of PCB sediments in the river, about 45 parts per million. Removing the deposit will have a positive impact on the health of the river.	

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>FOX RIVER - PROJECT 2 (Deposit N)</u>	ProjectID: 05-20
Last Updated:	12/31/03	
Physical Target:	Approximately 12,000 cy of PCB-contaminated sediment was originally targeted for removal. The volume of sediment to be removed was subsequently reduced to 11,000 cy by WDNR in their final report (Reference A-584). The final report further states, "Of the 11,000 cu yd in Deposit N about 65% of the volume was designed (sic) and targeted for removal due to bedrock conditions at the site. Approximately 8,200 cu yd of sediment was removed generating 6,500 tons of dewatered sediment, containing 112 total pounds of PCBs. Of the total sediment volume removed during the entire project, about 1,000 cu yd was obtained from Deposit O, another contaminated sediment deposit adjacent to Deposit N."	
Goals:	Use hydraulic dredging to remove sediment; evaluate capability for precision dredging; minimize resuspension and downstream loss of sediments, PCBs, and other constituents; protect water quality in the surrounding area; use on-shore dewatering; and dispose of sediments (including TSCA sediments) in an in-state landfill.	
Primary Contractor:	Construction: Koester Environmental Services	
Other Contractors:	Design: Foth & Van Dyke; Malcolm-Pirnie Dredging: Superior Special Services; Morgan & Myers; and Vijay and Associates.	
Generic Remediation Method:	Hydraulic dredging	
Equipment:	<p>1998 Dredging: Eight-inch diameter Moray/Ultra hydraulic cutterhead dredge with a swinging ladder configuration pumping through an 8-inch diameter HDPE pipeline (the 8-inch diameter pipe was encased inside an 18-inch diameter HDPE pipeline for added protection against leakage or rupture); surrounding the cutterhead with a shroud that contained water jets for creating vacuum at the pump intake mouth for added resuspension control; resuspension controls consisting of: perimeter barrier of 80 mil HDPE, silt curtain deployed around the dredge sub-areas, 200 foot-long HDPE "deflection" barrier around an industrial water intake, and double-cased dredge discharge line; dewatering process equipment; water treatment process equipment.</p> <p>1999 Dredging: Similar equipment to that used in 1998 was used except for reduction of the resuspension control system to a silt curtain surrounding the dredge sub-areas and a 20 foot-long HDPE "deflection" barrier around the industrial water intake.</p>	
Material Handling:	<p>1998 Dredging: Dredged material was pumped from the dredge through an 8-inch floating HDPE pipeline to the on-shore treatment facility. A shaker screen was used to remove gravel-sized stones and debris followed by hydrocyclones to remove +200 sieve material. Polymer was added to the sediment slurry in four 20,000-gallon mixing tanks to increase the percent solids in the finished filter cake. The sediment slurry was then filtered using two 200-cu ft. filter presses loaded to a pressure of 200 psi. Filter cake (~45% solids) was stockpiled and tested for PCBs, mercury, free water, and percent solids prior to shipment to landfills.</p> <p>1999 Dredging: Similar to material handling performed in 1998. In an attempt to remove additional sediment at the bedrock interface during final dredge passes, the dredgehead was modified by extending the suction pipe mouth inside the cutterhead. This reportedly reduced the area of the suction pipe mouth opening by 15% and resulted in an increase in vacuum pressure of similar magnitude.</p>	
Volume Removed:	1998 Dredging: Designated as Phase I and resulted in an estimated 3,800 cy of material removed (all from the Western Lobe), representing approximately 35% of the total in situ volume of Deposit N. Reportedly, this is based on pre- and post-dredging poling survey measurements and was verified using estimates of the percent solids being removed by the dredge operators. Removal was	

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>FOX RIVER - PROJECT 2 (Deposit N)</u>	ProjectID: 05-20
Last Updated:	12/31/03	
	<p>accomplished by operating the dredge for only 15 to 20 minutes per 2 hour period, 24 hours per day, at a flow rate of from 3.5 to 5.3 cu ft. per second (280,000-430,000 gal per day, or about 1,600-2,400 gpm). Dredge operation was severely limited due to the unavailability of accessible property space for providing sufficient dewatering capacity to process the quantity of sediment slurry generated by the dredge.</p> <p>During 1998, Deposit N sediments (in situ moisture content estimated to be 20-25%) were removed down to an underlying sloped hard pan base; precision dredging was evaluated against the ability of the dredge to remove sediment using the following removal criteria: (1) for the Western Lobe, remove all sediment to an average thickness of 3 inches or less above the hard pan and a maximum thickness of 6 inches at any one location, and (2) for the Eastern Lobe, remove all sediment to an average thickness of 6 inches or less above the hard pan and a maximum thickness of 12 inches at any one location.</p> <p>1999 Dredging: Designated as Phase II (Eastern Lobe); Phase III (redredging of a portion of the Western Lobe); and Phase IV (Deposit O). Approximately 3,000 cy were removed from the Eastern Lobe and 135 cy from the Western Lobe of Deposit N. An additional 1,000 cy were removed from Deposit O.</p> <p>Note: A variance between the sum of individual phases (about 7,935) and the total removal volume (about 8,200 cy) is noted by Foth and Van Dyke (Reference A-908) due to the location and timing of the several sediment volume or poling surveys.</p>	
Calendar Time:	<p>Phase I: November 26 through December 21, 1998 and December 28 through December 31, 1998. The majority of dredging took place between November 26 and December 20, with periodic dredging taking place between December 20 and 31.</p> <p>Phase II: August 20 through October 4, 1999.</p> <p>Phase III: October 5 through October 14, 1999.</p> <p>Phase IV: October 15 to November 3, 1999.</p>	
Time To Implement:	<p>Phase I: Four weeks to remove Western Lobe sediments working 24 hours per day.</p> <p>Phase II, III, and IV: about 2.5 months working 12 hours per day.</p>	
Total Cost:	\$4.3 million (\$525 per cy, based on removal of about 8,200 cy of sediment) (includes removal costs for Deposits N and O)	
Dredging Cost:	Not determined.	
Disposal of Sediment:	<p>1998 Dredging: An estimated 2,540 tons of dewatered sediment and filter media were generated (<1% was filter media); approximately 905 tons were sent to Winnebago County Landfill (WI), located 28 miles from the site (<50 ppm PCBs) (tipping fee: \$58/ton) and about 1,632 tons were sent to E.Q. Landfill (MI) (50 ppm or greater PCBs).</p> <p>1999 Dredging: An estimated 3,930 tons of dewatered sediment were removed from Deposits N and O. Disposal of sediment by PCB concentration was similar to 1998 except that 2,400 tons of sediment containing low levels of PCBs were disposed of in the Wayne Disposal facility when the original non-TSCA contractor withdrew its services from the project.</p>	
Volume of Water:	Not determined.	

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>FOX RIVER - PROJECT 2 (Deposit N)</u>	ProjectID: 05-20
Last Updated:	12/31/03	
Method of Water Treatment:	Filtrate from presses was pumped through (in sequence) bag filters, sand filters, and carbon adsorbers prior to discharge back to Fox River (minimum required effluent discharge velocity was 10 ft/s).	
Water Discharge Limit:	1.2 ppb PCBS (analytical testing conducted daily).	
Air Monitoring During Remediation:	Air monitoring was performed near the on-shore treatment site using four real-time monitors during 1998 dredging. Air data reportedly indicated that the site air standard for total particulates (96 ug/cu meter) was consistently met. No monitoring was performed for airborne PCBs.	
Water Monitoring During Remediation:	Six turbidity meters were placed in the river and inside InterLake Papers to generate data on an hourly average basis during 1998 dredging. A significant wind storm on November 10, 1998 (sustained winds >50 mph) resulted in consistently high turbidity levels in the river prior to beginning dredging. During 1998, downgradient turbidity levels averaged slightly below background levels; during 1999, five turbidity meters were used and downgradient turbidity levels averaged slightly above background levels.	
Outcome:	<p>About 60% (7,200 cy) of the original targeted volume of 12,000 cy was removed from Deposit N during two separate dredging operations, with about 3,800 cy removed in Phase I (1998) and about 3,120 cy during Phase II and III (1999). Another 1,000 cy was removed from nearby Deposit O. (Note: A variance between the sum of individual phases and the total removal volume is noted by Foth and Van Dyke [Reference A-908] due to the location and timing of the several sediment volume or poling surveys.)</p> <p>Dredging in 1998 reportedly resulted in the removal of 95 pounds of PCBs from the river. The total mass of PCBs removed from Deposit N for Phases I, II, and III was reportedly 114 pounds with an additional 0.4 pound removed from Deposit O.</p> <p>Verification sampling was performed during Phase I. (Details not obtained for Phase II.) Sediment sampling was conducted by the USGS before and after the project to evaluate its effectiveness at removing PCB mass and reducing the availability of PCBs for uptake in the food web. Pre-dredge bottom sediment samples were collected at 29 locations within Deposit N using either a sediment coring tube or a ponar grab sampler. Depth intervals varied, with surface samples being 0-6" or 0-4" and the deepest depth interval being 24-35". Post-dredge bottom sediment samples were collected with the assistance of divers using either a coring tube or by manual diver collection into a sample bottle. The post-dredge samples were from 31 locations, most coincident with the pre-dredge sample locations. Pre- and post-dredging bottom sediment sample results are summarized in Table 1 and shown on Figure 1 of Reference M-84. While pre-dredging concentrations in surface sediments ranged from 0.08 to 72 ppm PCBs, post-dredging concentrations ranged from 0.04 to 43 ppm PCBs in the dredged area. Sixteen of the 19 post-dredging samples exhibited PCB concentrations greater than 2 ppm. The median value increased from 10 ppm to 12 ppm. Moreover, in 13 out of 21 sampling locations, the post-dredging surficial PCB concentration exceeded the pre-dredging concentration.</p> <p>Following completion of the dredging in 1999, sediment samples were collected and compared to pre-dredge samples that had been collected between 1989 to 1998. Five measurements calculated from the pre-dredge sample results are: (1) volume (cu yd): 8,500 (1994) - 16,010 (1989); (2) PCB mass (lbs): 142 (1998) - 352 (1989); (3) maximum PCB concentration (ppm): 61 (1997) - 186 (1994); (4) average PCB concentration (ppm): 16 (1998) - 130 (1992); and (5) maximum surface PCB concentration (ppm): 61 (1997) - 186 (1994). For comparison, 1999 post-project results for the same measurements were: (1) volume remaining (cu yd) - 3,840; (2) PCB mass remaining (lbs): 31; (3) maximum PCB concentration (ppm): 130; (4) average PCB concentration (ppm): 14; and (5) maximum surface PCB concentration (ppm): 130. (Reference A-584.)</p>	

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>FOX RIVER - PROJECT 2 (Deposit N)</u>	ProjectID: 05-20
Last Updated:	12/31/03	

Restoration and Post-Monitoring: Sediment and caged fish sampling. One pre-dredge and two during-dredging caged fish sampling events were conducted for Phase I, and are reported in Reference M-84. The data do not show an increase in the bioavailable PCB levels in fish during dredging activities. All pre-dredge caged fish results show higher levels of PCBs than during-dredging caged fish data, regardless of whether the cages were placed upstream or downstream of the sediment deposit. This may be due to the lower water temperatures and lower metabolism rates of the during-dredging caged fish sampling events (December and January) compared to the pre-dredging caged fish sampling event period (October). Additionally, lower PCB transport has been shown to occur during winter months.

Site-Specific Difficulties:

- Contractor was not able to achieve full dredging capacity during Phase 1 due to insufficient sediment dewatering capacity, severely limiting dredge operation to only 15 to 20 minutes per 2 hour operating period.
- Also during Phase 1, WDNR and the contractor were in negotiations on loading and hauling fees; contractor was charging WDNR \$22 per ton to load and haul dewatered sediments to landfills; WDNR believed \$9-\$15 per ton to be appropriate.
- Removal of sediment overlying bedrock to design elevations was difficult. The dredge was modified by extending the suction intake line inside the cutterhead and by reducing the suction intake diameters by 15%. Reportedly, following these modifications, sediment was able to be removed down to an average remaining thickness of 3 inches or less.

Monitoring Data

References:

- **Sediment**
- **Water:**
- **Fish:**

POTENTIALLY RESPONSIBLE PARTIES

Project Name FOX RIVER - PROJECT 2 (Deposit N)

ProjectID: 05-20

PRP Name: PRP INFORMATION NOT RELEASED

PRPID:

Street Address:

City:

State:

KEY CONTACTS

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Last Name: KEY CONTACT INFORMATION NOT RELEASED

Contact ID:

First Name:

Title:

Company:

Address:

City:

State:

Postal Code:

Work Phone # :

Other Phone #:

Fax # :

Email Address:

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: A

ReferenceID: 355

Title: ***Fox River Deposit N Removal Project, Engineering Services Proposal - Deposit N***

Location: BBL

Category: Engineering Services

Prepared by/Author: Foth & Van Dyke & Associates, Inc.

Preparer/Author Address: Green Bay, WI

Prepared For: Fox River Group and WDNR

Date Published: October 1997

Key Words and Phrases:

Reference Type: A

ReferenceID: 356

Title: ***Sediment Removal - Deposit N Fox River***

Location: AEM

Category: Dredging: Contaminated

Prepared by/Author: Foth & Van Dyke & Associates, Inc.

Preparer/Author Address: Green Bay, WI

Prepared For: WDNR

Date Published: May 24, 2001

Key Words and Phrases:

Reference Type: A

ReferenceID: 390

Title: ***Fact Sheet: PCBs: Lower Fox River Impacts***

Location: AEM

Category: Site Update

Prepared by/Author: US EPA Region V

Preparer/Author Address: 77 West Jackson Blvd.
Chicago, IL 60604

Prepared For: General Public

Date Published: July 1998

Key Words and Phrases:

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: A

ReferenceID: 519

Title: ***Fact Sheet (Pamphlet): Fox River Deposit N Removal***

Location: AEM

Category: Site Update

Prepared by/Author: Wisconsin Department of Natural Resources

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: August 1999

**Key Words and
Phrases:**

Reference Type: A

ReferenceID: 584

Title: ***Summary Report - Fox River Deposit N
Scope ID: 97W027, Division Project No. 97746***

Location: AEM

Category: Close-Out Report

Prepared by/Author: Foth & Van Dyke & Associates, Inc.

**Preparer/Author
Address:** Green Bay, WI

Prepared For: Wisconsin Department of Administration and
Wisconsin Department of Natural Resources

Date Published: April 2000

**Key Words and
Phrases:**

Reference Type: A

ReferenceID: 908

Title: ***Fox River Deposit N Appendix to Summary Report -- Final Report***

Location: AEM

Category: Close-Out Report

Prepared by/Author: Foth & Van Dyke and Associates, Inc.

**Preparer/Author
Address:**

Prepared For: Wisconsin Department of Administration;
Wisconsin Department of Natural Resources

Date Published: April 2001

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: B

ReferenceID: 215

Title: ***Dredging Resumes at Deposit N and Begins at SMU 56/57***

Location: AEM

Category: Site Update

Prepared by/Author: Kelly Mella and Corinne Billings

Preparer/Author

Address:

Prepared For: Fox River Current

Date Published: November / December 1999

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 360

Title: ***Results of Deposit N Project are Encouraging***

Location: AEM

Category: Site Update

Prepared by/Author: Greg Swanson

Preparer/Author

Address:

Prepared For: Fox River Current

Date Published: May / June 2000

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 380

Title: ***Fox River Deposit N Removal Project***

Internet:

<http://www.dnr.state.wi.us/org/water/wm/lowerfox/sediment/depositn.html>

Location: AEM

Category: Site Update

Prepared by/Author: Wisconsin Department of Natural Resources

Preparer/Author

Address:

Prepared For: General Public

Date Published: June 8, 1998

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: B

ReferenceID: 384

Title: ***Fox River Current: Frequently Asked Questions about PCBs in a river vs a landfill***

Location: AEM

Category: Site Update

Prepared by/Author: Lower Fox River Intergovernmental Partnership

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: 1998 Fall

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 385

Title: ***Fox River Deposit N: Interim Project Report***

Internet:

<http://www.dnr.state.wi.us/org/water/wm/lowerfox/sediment/depositnreport.html>

Location: AEM

Category: Site Update

Prepared by/Author: Wisconsin Department of Natural Resources

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: January 1999

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 431

Title: ***FRG Issues Report on SMU 56/57 and Deposit N***

Location: AEM

Category: Site Update

Prepared by/Author: Fox River Group

**Preparer/Author
Address:** www.foxrivergroup.org

Prepared For:

Date Published: April 4, 2000

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: B

ReferenceID: 432

Title: ***Report on the Results of Dredging at Deposit N and SMU 56/57***

Location: AEM

Category: Site Update

Prepared by/Author: Fox River Group

**Preparer/Author
Address:** www.foxrivergroup.org

Prepared For:

Date Published: April 4, 2000

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 436

Title: ***Deposit N dredging a success***

Location: AEM

Category: Site Update

Prepared by/Author: Wisconsin Department of Natural Resources

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: April 20, 2000

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 471

Title: ***Fox River Pilot Projects Wind Down***

Location: AEM

Category: Site Update

Prepared by/Author: Greg Swanson

**Preparer/Author
Address:** Wisconsin DNR

Prepared For: Fox River Current, Vol. 3, No. 1

Date Published: January / February 2000

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: B

ReferenceID: 835

Title: ***Realizing Remediation II - Updated Summary:
Fox River - Deposit N (Fox River - Project 2)
(see Reference A-907)***

Location: AEM

Category: Dredging: Remedial (Contaminated Sediments)

Prepared by/Author: US EPA Great Lakes National Program Office (GLNPO)

**Preparer/Author
Address:** 77 West Jackson Boulevard (G-17J)
Chicago, IL 60604

Prepared For: General Public

Date Published: July 2000

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 527

Title: ***PCB-Contaminated Sediments Successfully Removed from Site in
Fox River***

Location: AEM

Category: Site Update

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: Contaminated Sediment News (CSN), No. 23

Date Published: 1999 Spring

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 856

Title: ***Navigating the bureaucracy of river recovery***

Location: AEM

Category: Miscellaneous

Prepared by/Author: Sara Scharpf

**Preparer/Author
Address:** Oshkosh, WI

Prepared For: PIMA's PAPERMAKER

Date Published: July 2000

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type:

D

ReferenceID: 8

Title:

Environmental groups suggest way to destroy PCBs

Location:

AEM

Category:

Site Update

Prepared by/Author:

Doug Erickson

Preparer/Author

Address:

Prepared For:

The Sheboygan (WI) Press

Date Published:

February 9, 1999

**Key Words and
Phrases:**

Reference Type:

D

ReferenceID: 47

Title:

PCB-contaminated soil from Fox Valley headed for Michigan landfill

Location:

AEM

Category:

Site Update

Prepared by/Author:

Doug Erickson

Preparer/Author

Address:

The Sheboygan Press

Prepared For:

The Sheboygan (WI) Press

Date Published:

October 17, 1998

**Key Words and
Phrases:**

Reference Type:

D

ReferenceID: 51

Title:

Cleanup under way on polluted Fox River

Location:

AEM

Category:

Site Update

Prepared by/Author:

Associated Press

Preparer/Author

Address:

Prepared For:

The Milwaukee (WI) Journal Sentinal

Date Published:

November 24, 1998

**Key Words and
Phrases:**

REFERENCES

Project Name FOX RIVER - PROJECT 2 (Deposit N)

ProjectID: 05-20

Reference Type: D

ReferenceID: 52

Title: *PCB suit to halt PCB disposal lifted, tainted dredged spoils may be trucked to landfill as soon as Monday.*

Location: AEM

Category: Site Update

Prepared by/Author: Ed Lowe

Preparer/Author Address: Post-Crescent Staff Writer

Prepared For: The Sheboygan (WI) Post-Crescent

Date Published: December 6, 1998

Key Words and Phrases:

Reference Type: D

ReferenceID: 53

Title: *Order could add \$1 million to Fox dredging*

Location: AEM

Category: Site Update

Prepared by/Author: Associated Press

Preparer/Author Address:

Prepared For: The Milwaukee (WI) Journal Sentinel

Date Published: December 5, 1998

Key Words and Phrases:

Reference Type: D

ReferenceID: 54

Title: *PCB contract details may change*

Location: AEM

Category: Site Update

Prepared by/Author: Ed Lowe

Preparer/Author Address: Post-Crescent Staff Writer

Prepared For: The Sheboygan (WI) Post-Crescent

Date Published: December 7, 1998

Key Words and Phrases:

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: D

ReferenceID: 61

Title: ***Brown County may fill PCB void***

Location: AEM

Category: Site Update

Prepared by/Author: Ed Lowe

**Preparer/Author
Address:** Post-Crescent Staff Writer

Prepared For: The Sheboygan (WI) Post-Crescent

Date Published: January 12, 1999

**Key Words and
Phrases:**

Reference Type: D

ReferenceID: 64

Title: ***State says dredging of Fox River to remove PCBs went well***

Location: AEM

Category: Site Update

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: The Milwaukee (WI) Journal Sentinel

Date Published: February 9, 1999

**Key Words and
Phrases:**

Reference Type: D

ReferenceID: 66

Title: ***Pollution Dredge Called a Success***

Location: AEM

Category: Site Update

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: The Chicago (IL) Tribune

Date Published: February 9, 1999

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type:

D

ReferenceID: 127

Title:

DNR: State-run dredging project near Kimberly is success

Location:

AEM

Category:

Site Update

Prepared by/Author:

Susan Campbell

Preparer/Author

Press Gazette

Address:

Prepared For:

The Green Bay (WI) Press Gazette

Date Published:

April 21, 2000

**Key Words and
Phrases:**

Reference Type:

D

ReferenceID: 129

Title:

Memo re: Panel of experts says dredging project successful

Location:

AEM

Category:

Site Update

Prepared by/Author:

Susan Campbell

Preparer/Author

Press Gazette

Address:

Prepared For:

The Green Bay (WI) Press-Gazette

Date Published:

July 12, 2000

**Key Words and
Phrases:**

Reference Type:

D

ReferenceID: 176

Title:

***Next Door to Dredging - Small project in Wisconsin didn't disturb
neighbors***

Location:

AEM

Category:

Site Update

Prepared by/Author:

Thom Randall

Preparer/Author

Address:

Prepared For:

The Glens Falls (NY) Post Star

Date Published:

December 10, 2000

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: D
Title: ***Pollution remedy has mixed record***
Location: AEM
Category: Site Update
Prepared by/Author: Alex Nussbaum
Preparer/Author Address:
Prepared For: The Hackensack (NJ) Record
Date Published: August 27, 2001
Key Words and Phrases:

ReferenceID: 267

Reference Type: E
Title: ***Lower Fox River Dredging Demonstration Projects***
Location: AEM
Category: Site Update
Prepared by/Author: Unknown
Preparer/Author Address:
Prepared For: Poster Session: BBL Sediment Management Seminar, Tampa, FL
Date Published: February 2000
Key Words and Phrases:

ReferenceID: 116

Reference Type: E
Title: ***Remediation of Contaminated Sediment Sites: Engineering for Implementation with Pilot Projects***
Location: AEM
Category: Site Update
Prepared by/Author: (1) George L. Hicks, (2) Richard P. Traver
Preparer/Author Address: (1) Shaw Environmental & Infrastructure, Inc.
100 South Wacker, Suite #1130
Chicago, IL 60606
(2) Shaw Environmental & Infrastructure, Inc.
200 Horizon Center Boulevard
Trenton, NJ 08691
Prepared For: WEDA XXIII Conference, Chicago, IL
Date Published: June 10-13, 2003
Key Words and Phrases: Eddy Pump

ReferenceID: 224

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: G

ReferenceID: 53

Title: ***PCB Releases During Environmental Dredging of Contaminated Sediments in the Fox River, WI
(for complete presentation see Reference G-41)***

Location: AEM

Category: Resuspension

Prepared by/Author: (1) Douglas B. McLaughlin, (2) Dongson Pham, (3) Victor L. Menting

Preparer/Author Address: (1), (2), (3) Blasland, Bouck & Lee, Inc.

Prepared For: EPA Forum on Managing Contaminated Sediments at Hazardous Waste Sites

Date Published: May 30 - June 1, 2001

Key Words and Phrases:

Reference Type: L

ReferenceID: 197

Title: ***Update on Three High-Profile Sites***

Location: AEM

Category: Site Update

Prepared by/Author: AEM, Inc.

Preparer/Author Address: Malvern, PA 19355

Prepared For: Distribution

Date Published: March 18, 1999

Key Words and Phrases:

Reference Type: L

ReferenceID: 198

Title: ***Conversation with Bill Fitzpatrick, WDNR, RE Fox River Deposit N Sediment Removal Project***

Location: AEM

Category: Site Update

Prepared by/Author: AEM, Inc.

Preparer/Author Address: Malvern, PA 19355

Prepared For: Internal file

Date Published: March 17, 1999

Key Words and Phrases:

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: L

ReferenceID: 208

Title: ***Results of Research for Short-Term Impacts on Sediment and Fish PCB Concentrations Due to Sediment Removal***

Location: AEM

Category: Fish/Biota

Prepared by/Author: AEM, Inc.

**Preparer/Author
Address:**

Prepared For: File

Date Published: March 19, 2001

**Key Words and
Phrases:**

Reference Type: M

ReferenceID: 82

Title: ***Excerpt (Pages 133-135) from "Comments of Fox River Group" (Reference M-79)***

Location: AEM

Category: Response Comments

Prepared by/Author: Fox River Group

**Preparer/Author
Address:**

Prepared For: Public Comments

Date Published: April 12, 1999

**Key Words and
Phrases:**

Reference Type: M

ReferenceID: 84

Title: ***Deposit N Dredging Demonstration Project: Preliminary Summary of Monitoring Data Received To-Date (Item 35 from Volume 10 of Reference M-79)***

Location: AEM

Category: Monitoring, Remediation (Pre- and during)

Prepared by/Author: Fox River Group

**Preparer/Author
Address:**

Prepared For: Public Comments Document

Date Published: March 17, 1999

**Key Words and
Phrases:**

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: M

ReferenceID: 199

Title: **Table 3-3. Lower Fox River - Discharge Results: Rapide Croche Gauging Station**

Location: AEM

Category: Miscellaneous

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: Unknown

Date Published: March 12, 1999

**Key Words and
Phrases:**

Reference Type: M

ReferenceID: 259

Title: **Environmental Dredging: An Evaluation of Its Effectiveness in Controlling Risks**

Location: AEM

Category: Contaminated Sediments: Overview of Issues

Prepared by/Author: Blasland, Bouck & Lee, Inc.

**Preparer/Author
Address:** 6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214

Prepared For: General Electric Company

Date Published: August 2000

**Key Words and
Phrases:**

REFERENCES

Project Name FOX RIVER - PROJECT 2 (Deposit N)

ProjectID: 05-20

Reference Type: M

ReferenceID: 335

Title: *A Multimedia Model for Assessing Chemical Fate During Dredging of Contaminated Bed-Sediment*

Location: AEM

Category: Modeling

Prepared by/Author: Fabian F. Sanchez

Preparer/Author Address: Louisiana Tech University
Currently with Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, WA 98102

Prepared For: Graduate Faculty of the Louisiana State University
The Department of Chemical Engineering

Date Published: December 2001

Key Words and Phrases: Fox River SMU 56/57, Bayou Bonfouca, Grasse River Hot Spot

Reference Type: M

ReferenceID: 422

Title: *Results of Contaminated Sediment Cleanups Relevant to the Hudson River:
Lower Fox River, Wisconsin; Deposit N (Fox River - Deposit N)*

Location: AEM

Category: Contaminated Sediments: Overview of Issues

Prepared by/Author: Joshua Cleland

Preparer/Author Address:

Prepared For: Scenic Hudson
9 Vassar Street
Poughkeepsie, NY 12601

Date Published: October 2000

Key Words and Phrases:

REFERENCES

Project Name **FOX RIVER - PROJECT 2 (Deposit N)**

ProjectID: 05-20

Reference Type: M

ReferenceID: 429

Title: ***Evaluation of the Effectiveness of Remediation Dredging: The Fox River Deposit N Demonstration Project***

Location: AEM

Category: Dredging: Remedial (Contaminated Sediments)

Prepared by/Author: Water Resources Institute

Preparer/Author Address: University of Wisconsin-Madison
1975 Willow Drive
Madison, WI

Prepared For: Fox River Remediation Advisory Team
Madison, WI

Date Published: June 2000

Key Words and Phrases:

FISH ADVISORIES

Project Name ***FOX RIVER - PROJECT 2 (Deposit N)***

ProjectID: 05-20

Advisory: Fox River, Lower

AdvisoryID: 409

Extent: From Little Lake Butte des Morts to the dam at DePere
Refer to "Fox River, Lower" fish advisories under Project ID 05-27, Fox River
PROJECT 3 (Lower River)

Pollutant:

Species:

Population:

Population Definition:

Advisory Type:

Advisory Number:

***Status (Active or
Rescinded):***

Date Rescinded:

Contact Name: Ref: 05-20 Project 2

Contact Number: