

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

Project Name	<u>BLACK RIVER</u>	ProjectID: 05-02
Last Updated:	08/11/98	
City:	Lorain	
County:	Lorain	
State:	OH	
Country:	USA	
Bodies of Water:	Black River; Lake Erie	
US EPA Region:	V	
Status (Active, Complete, or Monitoring Only):	Complete	
Date On NPL:	N/A	
ROD/ESD Date:	N/A	
Operable Unit:	NA; NA	
Areas of Concern (length or acres):	Two hotspots (8 acres total) in a sector about 5 miles upstream of Lake Erie.	
Other Characteristics of Water Body:	Water depth typically 10 feet in center.	
Contaminants of Concern:	metals; PAHs	
Source of Contamination:	USX (US Steel) facility.	
Contaminated Area Physical Characteristics:	Two sectors of the Black River, five miles upstream from Lake Erie; one 3 acre sector, 700' long and one 5 acre sector, 2000' long.	
Type of Regulatory Action:	1985 Consent Decree between US EPA and US Steel Corporation, lodged in US District Court - Northern District of Ohio. The Consent Decree was issued to deal with violations of the Clean Air Act, but included several supplementary environmental requirements, one of which was the dredging of the PAH-contaminated sediment.	
Overall Status Summary:	USX dredged 60,000 cy from two sectors of the river, one 700' and one 2000' long; disposal was into a project - specific landfill on the PRP site. Project had been delayed 5 years pending selection of a disposal site. Project completed in Dec 1990 with difficulties, which included switching between a clamshell and hydraulic cutter (too much debris), cave-in of wall of landfill, and difficulty meeting TDS discharge limit.	
Remedial Action Planned:	<input checked="" type="checkbox"/>	
Risk Assessment:	<input type="checkbox"/>	
Remedial Action Implemented:	<input checked="" type="checkbox"/>	
Status of Dredging	<input type="checkbox"/>	
PRPs:	<input checked="" type="checkbox"/>	
Contacts:	<input checked="" type="checkbox"/>	
References:	<input checked="" type="checkbox"/>	
Modeling:	<input type="checkbox"/>	

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

<i>Project Name</i>	<u>BLACK RIVER</u>	<i>ProjectID:</i> 05-02
<i>Last Updated:</i>	08/11/98	
<i>Fishing Advisory:</i>	<input checked="" type="checkbox"/>	
<i>Key Conditions:</i>	dedicated landfill or CDF, extended (>1 mile) river, dredging, Great Lakes AOC, fish spawning limitations	

REMEDIAL ACTION PLANNED

Project Name	<u>BLACK RIVER</u>			ProjectID: 05-02
Last Updated:	08/11/98			
<hr/>				
Target Sediment Cleanup Standards (TSCS):	None			
How TSCS Established:	N/A			
Target Bank and Floodplain Cleanup Levels (if applicable):	None			
Other Target:				
Environmental Sample Data References:				
	• Sediment:	Not available		
	• Water:	Not available		
	• Fish:	Not available		
Estimated Target Volume:	46,500 cy			
Planned Disposal Method:				
Estimated Calendar Time to Implement Remedy:	Not available. The Consent Decree mandated that the dredging be completed not later than three years after the Consent Decree was lodged (Sep. 5, 1985).			
Estimated Time to Implement Remedy:	Not available. The Consent Decree mandated that the dredging be completed not later than three years after the Consent Decree was lodged (Sep. 5, 1985).			
Estimated Cost to Implement Remedy:	\$1.5 million			
Stated Remedial Action Objectives (and Source):	Undertake a program to remove contaminated sediments (contaminants were PAHs and metals) from the Black River from a point approximately 500 feet upstream of US Steel's No. 002 outfall to the turning basin downstream. The dredging was mandated to be performed utilizing a covered clamshell bucket to minimize spillage of dredged material. The final disposal site was mandated as the D-2 landfill on US Steel property adjacent to the Black River. 46,500 cy were targeted for removal (Source: 1985 Consent Decree). Although not stated in the Consent Decree, Reference M-58 reports that the primary objective was removal of sediment to "hard bottom" or bedrock. No quantitative environmental targets or endpoints were established.			
Measures of Success to be Used:	River profiling survey over the dredged area before and after to assure that the proper sediment was removed. Water samples from upstream and downstream locations once every three days for a period of two weeks following dredging.			
Planned Monitoring and Restoration:	None identified. Reference M-58 presented a brief summary of pre- and post-dredging sediment levels (depth of sample not defined). 1980 is during coke plant operations. 1984 is after coke plant closed. 1992 is post-dredging. Results are as follows (ppm):			
	PAH compound	1980	1984	1992
	Phenanthrene	390	52	2.6
	Fluoranthrene	220	33	3.7
	Benzo(a)anthracene	51	11	1.6
	Benzo(a)pyrene	43	8.8	1.7

REMEDIAL ACTION PLANNED

Project Name **BLACK RIVER**

ProjectID: 05-02

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***Agency Position on Sediment
Removal (and Source):***

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>BLACK RIVER</u>	ProjectID: 05-02
Last Updated:	08/11/98	
Physical Target:	Sediments in two hot spots in the Black River.	
Goals:	Remove sediments to natural till layer (shown by sampling to be relatively uncontaminated).	
Primary Contractor:		
Other Contractors:	Killam Associates, DLA Division (Consultant)	
Generic Remediation Method:	Hydraulic and mechanical dredging	
Equipment:	Hydraulic cutter and mechanical clamshell; including switching from hydraulic cutter to clamshell (too much debris).	
Material Handling:	Both dredges discharged into rolloff boxes either on barges or on shore.	
Volume Removed:	60,000 cy from two sectors of the river comprising 8 acres.	
Calendar Time:	Landfill construction completed in Nov. 1989. Dredging performed from December 1989 into December 1990.	
Time To Implement:	5.5 months of dredging time; 12 months calendar time; shutdowns for winter, to rectify cave-in of a wall of the landfill, and to resolve difficulties meeting the TDS discharge limit. Project delayed 5 years pending identifying disposal site. Dredging halted during spawning season May 1 through July 1.	
	Dredging schedule: one week, Dec. 1989 and one week July 10-16, 1990 (one shift); shutdown July 17 through Aug. 2, 1990; dredging one shift, 5-6 days per week Aug. 3 thru mid-Sep. 1990, then 7 day per week, 24-hour per day operation from then through completion on Dec. 13, 1990.	
Total Cost:	Reportedly \$5 million; \$83 per cy.	
Dredging Cost:	Not available.	
Disposal of Sediment:	Permanent disposal into a project-specific landfill on the PRP site, located about one river mile upstream from the targeted sectors.	
Volume of Water:	Not available	
Method of Water Treatment:	Dedicated wastewater treatment facility at landfill; treated water discharged to the river.	
Water Discharge Limit:	Unknown	
Air Monitoring During Remediation:	Unknown	
Water Monitoring During Remediation:	Water samples were obtained from the Black River to monitor water quality during the dredging operations. A sample was obtained from the upstream sampling point and the downstream sampling point prior to dredging and for two weeks after dredging. In addition to the upstream and downstream samples, variable point samples were taken immediately downstream (200 yards) of each dredge during sediment removal operations. Sample analysis consisted of total suspended solids, total cyanide, oil and grease, total cadmium, turbidity, and Polynuclear Aromatic Hydrocarbons (PAH). The analytical results were forwarded to the OEPA and the US EPA during dredging operations. The results along with a description of the sampling method are presented in "raw" tabular form in reference A-172, but no summary or conclusions are presented.	

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>BLACK RIVER</u>	ProjectID: 05-02
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Outcome:	Post-dredging soundings used, to compare vs. pre-dredging soundings, which had determined the depth of the original river bottom. Achieved removal to natural till, within an accuracy of 0.5 - 1 foot, except in several areas of rocks and clay.	
Restoration and Post-Monitoring:	<p>Extensive long-term fish sampling performed by National Biological Survey and Ohio EPA both pre- and post-dredging. Monitoring entire river impacts, not just dredging area. Annual sampling conducted from 1992-1995. Decline in fish tumors observed through 1980s, after closure of certain industries. High tumor frequencies in fish and increased PAHs in surface sediments observed in early 1990s, after dredging. Tumor frequency again dropping based on 1994 data (Reference M-38).</p> <p>As summarized in Reference A-194: "Based upon sampling data from 1982, 1987 and 1992 the Black River mainstem and near shore area indicate a history of fish tumor and other deformities. Studies conducted by Dr. Paul Baumann of Ohio State University and Ohio Sea Grant beginning in early 1980s established a link between high PAH(s) in Black river mainstem sediment and liver cancers in bullhead. Further research documented a decline in PAH(s) in sediment and subsequent decline in fish tumors coincident with the closure of the USS/KOBE coking facility on the river. Residue levels in fish are available for at least three years in the early 1980s. Liver tumor frequency was last studied at two through four years post-dredging (1992, 1993, 1994), revealing a very high cancer prevalence in 1992 and 1993 with a sharp decline in 1994 centered in the youngest age group studied (age three). The 1992 and 1993 numbers represented a large increase in tumor prevalence over the 1987 survey. The 1987 survey was four years after the coke plant closure but prior to dredging."</p>	
Site-Specific Difficulties:	Project had been delayed 5 years pending identifying disposal site. Project completed in December 1990 with difficulties, which included (1) switching from clamshell to hydraulic cutter due to debris; (2) cave-in of wall of landfill, and (3) difficulty meeting TDS discharge limit. The hydraulic dredge was used to complete the project and the clamshell was abandoned due to its inability to maintain bucket closure due to debris. No dredging allowed during spawning season, May through July. An increase in fish deformities noted downstream of dredging areas one or two years later.	
Monitoring Data	Reference M-58	
References:	<ul style="list-style-type: none">• <i>Sediment</i>• <i>Water:</i>• <i>Fish:</i>	

POTENTIALLY RESPONSIBLE PARTIES

Project Name **BLACK RIVER**

ProjectID: 05-02

PRP Name: PRP INFORMATION NOT RELEASED

PRPID:

Street Address:

City:

State:

KEY CONTACTS

Project Name **BLACK RIVER**

ProjectID: 05-02

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 **BLACK RIVER**

ProjectID: 05-02

Reference Type: A

ReferenceID: 172

Title: ***Black River Sediment Removal Completion Report***

Location: AEM

Category: Contaminated Sediments: Remediation Final Report

Prepared by/Author:

Preparer/Author

Address:

Prepared For: USX Corporation - USS Division

Date Published: January 1991

**Key Words and
Phrases:**

Reference Type: A

ReferenceID: 194

Title: ***Fact Sheet: Black River Area of Concern***

Location: AEM

Category: Site Update

Prepared by/Author: US EPA Region V

Preparer/Author <http://www.epa.gov/grtlakes/aoc/blackriver.html>

Address:

Prepared For: General Public

Date Published: October 22, 1997

**Key Words and
Phrases:**

Reference Type: A

ReferenceID: 234

Title: ***Biological and Water Quality Study of the Black River (with
selected tributaries) and Beaver Creek***

Location: AEM

Category: Site Update

Prepared by/Author: Ohio Environmental Protection Agency

Preparer/Author Columbus Ohio

Address:

Prepared For:

Date Published: November 1993

**Key Words and
Phrases:**

REFERENCES

Project Name **BLACK RIVER**

ProjectID: 05-02

Reference Type: A

ReferenceID: 707

Title: ***First Amendment to Consent Decree***

Location: AEM

Category: Legal

Prepared by/Author: US of America on behalf of US EPA

**Preparer/Author
Address:**

Prepared For: US District Court for the Northern District of Ohio Eastern Division

Date Published: September 5, 1985

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 224

Title: ***Black River Remedial Action Plan Stage One Report -
Impairments of Beneficial Uses and Sources of Pollution in the
Black River Area of Concern***

Location: AEM

Category: Site Update

Prepared by/Author: Black River Remedial Action Plan Coordinating Committee

**Preparer/Author
Address:**

Prepared For:

Date Published: December 1993

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 778

Title: ***Realizing Remediation I - Great Lakes Contaminated Sediments
Black River - USX/Kobe Steel Company
(see Reference A-905)***

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: August 1, 2002

**Key Words and
Phrases:**

REFERENCES

Project Name BLACK RIVER

ProjectID: 05-02

Reference Type: B

ReferenceID: 832

Title: *Realizing Remediation II - Updated Summary:
Black River - USS/ Kobe Steel Company
(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: 579

Title: *Sediment Remediation Can Improve Great Lakes Water Quality*

Location: AEM

Category: Miscellaneous

Prepared by/Author: (1) John H. Hartig, (2) Lisa Maynard, (3) Michael A. Zarull, (4) Gail Krantzberg

**Preparer/Author
Address:** (1) Greater Detroit American Heritage River Institute
Detroit, MI

(2) International Joint Commission
Windsor, Ontario, Canada

(3) National Water Research Institute
Burlington, Ontario, Canada

(4) Ontario Ministry of Environment

Prepared For: Water Environment & Technology (WE&T)

Date Published: October 1999

**Key Words and
Phrases:**

REFERENCES

Project Name **BLACK RIVER**

ProjectID: 05-02

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: 271

Reference Type: E
Title: *Remediation of Sediments by Dredging: Methods and Case Histories*
Location: AEM
Category: Dredging: Remedial (Contaminated Sediments)
Prepared by/Author: Bradford S. Cushing
Preparer/Author Address: AEM, Inc.
Prepared For: WODCON XV Conference, Las Vegas, NV
Date Published: June 28 - July 2, 1998
Key Words and Phrases:

ReferenceID: 242

Reference Type: J
Title: *Subject: Sediment Removal Projects - Black River (see M-58), Waukegan Harbor (see M-59), Collingwood Harbour (see M-60)*
Location: AEM
Category: Miscellaneous
Prepared by/Author: General Electric Co.
Preparer/Author Address:
Prepared For:
Date Published: April 16, 1998
Key Words and Phrases:

ReferenceID: 9

REFERENCES

Project Name **BLACK RIVER**

ProjectID: 05-02

Reference Type: L

ReferenceID: 203

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: 38

Title: ***Effect of Remedial Dredging on Bullhead Tumor Frequency in a Recovering River. (Abstract only)***

Location: AEM

Category: Fish/Biota

Prepared by/Author: Paul C. Baumann

**Preparer/Author
Address:**

Prepared For:

Date Published: 1995 circa

**Key Words and
Phrases:**

REFERENCES

Project Name BLACK RIVER

ProjectID: 05-02

Reference Type: M

ReferenceID: 39

Title: *Decline in Liver Neoplasms in Wild Brown Bullhead Catfish after Coking Plant Closes and Environmental PAHs Plummet.*

Location: AEM

Category: Fish/Biota

Prepared by/Author: (1) Paul C. Baumann and (2) John C. Harshbarger

Preparer/Author Address: (1) National Biological Survey
LSC Field Research Station
Ohio State University
Columbus, OH 43210
(2) Registry of Tumors in Lower Animals
National Museum of Natural History
Smithsonian Institution
Washington, DC 20560

Prepared For: Environmental Health Perspectives Vol. 103, No. 2

Date Published: February 1995

Key Words and Phrases:

Reference Type: M

ReferenceID: 58

Title: *PAH Contaminated Sediment Remediation in the Main Stem, Black River (C/L B-201)*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author Address:

Prepared For: Great Lakes International Joint Commission

Date Published: April 14, 1998

Key Words and Phrases:

REFERENCES

Project Name **BLACK RIVER**

ProjectID: 05-02

Reference Type: M

ReferenceID: 173

Title: *Pathological and Serum Chemistry Profiles of Brown Bullheads from the Black River and Old Woman Creek, Ohio (Abstract only)*

Location: AEM

Category: Fish/Biota

Prepared by/Author: Folmar, F.C., J. Harshbarger, P.C. Baumann, G. Gardner and S. Bonomelli

**Preparer/Author
Address:**

Prepared For: Bull. Environ. Contam. Toxicol. 54(1):50-59

Date Published: 1995

**Key Words and
Phrases:**

Reference Type: M

ReferenceID: 250

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 BLACK RIVER

ProjectID: 05-02

Reference Type: M

ReferenceID: 276

Title: *Health of Bullhead in an Urban Fishery After Remedial Dredging - Final Report*

Location: AEM

Category: Monitoring, Post

Prepared by/Author: Paul C. Baumann

Preparer/Author Address: U.S. Geological Survey
Field Research Station
Ohio State University
2021 Coffey Road
Columbus, OH 43210

Prepared For: US EPA, GLNPO, Chicago, IL

Date Published: January 31, 2000

Key Words and Phrases:

Reference Type: M

ReferenceID: 320

Title: *Assessment of Sediment Quality in the Black River Watershed - Final Report*

Location: AEM

Category: Monitoring, Post

Prepared by/Author: Wright State University; Ohio EPA; Dr. Paul Bauman

Preparer/Author Address:

Prepared For: US EPA Great Lakes National Program Office

Date Published: August 4, 1999

Key Words and Phrases:

Reference Type: M

ReferenceID: 344

Title: *Memo re: Summary of the Impacts of Remedial Dredging*

Location: AEM

Category: Miscellaneous

Prepared by/Author: Quantitative Environmental Analysis, LLC.

Preparer/Author Address:

Prepared For: Internal Distribution

Date Published: February 27, 2001

Key Words and Phrases:

REFERENCES

Project Name **BLACK RIVER**

ProjectID: 05-02

Reference Type: M

ReferenceID: 350

Title: ***Memo re: The Impacts of Source Control, Natural Recovery and Dredging in the Black River***

Location: AEM

Category: Dredging: Remedial (Contaminated Sediments)

Prepared by/Author: Quantitative Environmental Analysis, LLC.

**Preparer/Author
Address:**

Prepared For: Internal Distribution

Date Published: March 9, 2001

**Key Words and
Phrases:**

Reference Type: M

ReferenceID: 413

Title: ***Results of Contaminated Sediment Cleanups Relevant to the Hudson River:
Black River, Ohio***

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 **BLACK RIVER**

ProjectID: 05-02

Reference Type: R

ReferenceID: 14

Title: ***Letter to PRP re: Case Histories: Contaminated Sediment Sites
(with response from USX/Kobe Steel Company)***

Location: AEM

Category: Site Update

Prepared by/Author: AEM, Inc. with response from USX/Kobe Steel Company

***Preparer/Author
Address:*** Malvern, PA 19355

Prepared For: USX/Kobe Steel Company, submitted to

Date Published: August 14, 1998

***Key Words and
Phrases:***

FISH ADVISORIES

Project Name ***BLACK RIVER***

ProjectID: 05-02

Advisory: Black River

AdvisoryID: 170

Extent: 31st Street Bridge, Sheffield to Lake Erie

Pollutant: PAHs

Species: all fish

Population: NCGP

Population Definition: No Consumption-General Population: Advise against consumption by the general population.

Advisory Type: River

Advisory Number: 781

Status (Active or Rescinded): Rescinded

Date Rescinded:

Contact Name: Robert Johnson

Contact Number: 614-644-6447
