

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

Project Name	<u>RUCK POND (Cedar Creek)</u>	ProjectID: 05-13
Last Updated:	03/26/99	
City:	Cedarburg	
County:	Ozaukee	
State:	WI	
Country:	USA	
Bodies of Water:	Impoundment on Cedar Creek - tributary of Milwaukee River	
US EPA Region:	V	
Status (Active, Complete, or Monitoring Only):	Complete	
Date On NPL:	N/A	
ROD/ESD Date:	N/A	
Operable Unit:	N/A	
Areas of Concern (length or acres):	800 to 1,000 foot-long by 75 to 100 foot-wide impoundment in Cedar Creek.	
Other Characteristics of Water Body:	Scenic impoundment in an urban environment (75-100 feet wide); flows through the center of town; shallow bedrock. Normal creek flow is approximately 40 cfs.	
Contaminants of Concern:	PCBs (1248/1260)	
Source of Contamination:	Reportedly a result of industrial activities (Strand, 1992); from a die-casting plant operated by Mercury Marine, and reportedly other upstream sources.	
Contaminated Area Physical Characteristics:	Refer to "Other Characteristics of Water Body"	
Type of Regulatory Action:	State-lead (Wisconsin). Final.	
Overall Status Summary:	Completed 1994. Approximately 1000' section of creek drained after temporary dam installed and flow bypassed by a four-barrel siphon. Removed 7,730 cy (12,300 tons) of sediments and minimal soil by dry excavation over a 5-month period. Approximately 30% disposed at TSCA landfill, 70% at non-TSCA landfill.	
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 checked="" type="checkbox"/>	
Fishing Advisory:	<input checked="" type="checkbox"/>	
Key Conditions:	commercial landfill, hydrodynamic modeling, post monitoring, rail transport for disposal	

REMEDIAL ACTION PLANNED

Project Name	<u>RUCK POND (Cedar Creek)</u>	ProjectID: 05-13
Last Updated:	08/11/98	
Target Sediment Cleanup Standards (TSCS):	None. Removal of all soft sediment containing PCBs to the underlying firm material to the extent practicable using conventional earth-moving equipment.	
How TSCS Established:	N/A	
Target Bank and Floodplain Cleanup Levels (if applicable):	5 ppm PCBs	
Other Target:	None	
Environmental Sample Data References:	<ul style="list-style-type: none">• Sediment:• Water:• Fish:	
Estimated Target Volume:	Removal of all soft sediment to the extent practicable (7,500 cy as determined by BBL probing). Note: WDNR originally estimated 3,000 ± 500 cy of sediment present in Ruck Pond. (Reference: Final Draft of Cedar Creek Mass Balance Report, June 18, 1993).	
Planned Disposal Method:		
Estimated Calendar Time to Implement Remedy:		
Estimated Time to Implement Remedy:	Approximately 3.5 months per Ruck Pond Sediment Removal Action Work Plan, dated March 1994.	
Estimated Cost to Implement Remedy:	Not available	
Stated Remedial Action Objectives (and Source):	Remove sediments to the maximum extent practicable, based on visual observations (WDNR Environmental Repair Contract No: SF-94-01; dated July 11, 1994). These sediments were considered to be a major upstream source. PCB levels in the thousands of ppm, with a reported maximum measurement of 150,000 ppm (Strand, 1992).	
Measures of Success to be Used:	Visual observation (i.e., remove all sediment to the extent practicable).	
Planned Monitoring and Restoration:	No monitoring planned by PRP. Restoration to be performed in areas disturbed by remediation, as appropriate.	
Agency Position on Sediment Removal (and Source):	Sediments in Ruck Pond were an upstream source and needed to be addressed through a removal action. Agency wanted sediments removed to the maximum extent practicable.	

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>RUCK POND (Cedar Creek)</u>	ProjectID: 05-13
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Physical Target:	"All sediment" within a 1000-foot section of Cedar Creek called Ruck Pond impoundment between two dams (on Cedar Creek).	
Goals:	Remove "all" sediment down to bedrock to the extent practicable.	
Primary Contractor:	McMullen & Pitz Construction	
Other Contractors:	Blasland, Bouck & Lee (consultant); STS Consultants; Superior Environmental Services; RMT, Inc.	
Generic Remediation Method:	Dry excavation	
Equipment:	Approximately 1000' section of creek was drained after a temporary dam was installed and flow was bypassed using a 4-foot barrel siphon. The siphon was designed to handle a 10-year storm. Sediments were excavated using a large backhoe, D-7 and D-8 dozers, ultimately small dozers with squeegees, and a "supersucker" (vacuum truck).	
Material Handling:	The sediment was removed by dry excavation and stockpiled and worked in the river bed to maximize solids content. Material was conveyed out of the target area into lined, gasketed (bentonite bags in tailgate) trucks. Grizzlies were used to separate debris from the sediment. Material was transported 20 miles to the Mercury Marine facility in Hartford, WI where more area was available for management of the material. Material was offloaded into a below-ground steel pit, manipulated with a backhoe, stabilized by adding fly ash or lime kiln dust from a silo, and sent via conveyor belt to a pug mill. Stabilized TSCA material was loaded into rail cars for transport to USPCI in Utah. A total of fifty-five rail cars were required.	
Volume Removed:	7,730 cy sediment and soil (minimal soil) (12,300 tons).	
Calendar Time:	Sediment removal was completed in 1994; field effort was from June 9 to November 8, 1994, with site restoration completed by Fall 1995.	
Time To Implement:	5 months	
Total Cost:	Approximately \$7.5 million; \$970 per cy.	
Dredging Cost:	N/A	
Disposal of Sediment:	30% disposed at TSCA landfill (railcar to USPCI); 70% disposed at non-TSCA in-state landfill; TSCA transport and disposal cost about \$160 per ton.	
Volume of Water:	1.7 million gallons (despite dry excavation).	
Method of Water Treatment:	FRAC tanks for O/W separation, bag filters, sand filters, carbon.	
Water Discharge Limit:	Water samples were analyzed for TSS, oil and grease, metals, bis(2-ethylhexyl)phthalate and various PAHs, and PCBs. Discharge limit for PCBs is what was achievable using best available technology.	
Air Monitoring During Remediation:	For PCBs and dust (particulates)	
Water Monitoring During Remediation:	Flow, TSS, oil and grease monitored daily; arsenic, total chromium, chromium VI, copper, lead, aluminum, zinc, iron, bis(2-ethylhexyl)phthalate, fluoranthene, benzo[a]pyrene, and Total PAHs monitored weekly. Total PCBs were monitored to determine the performance of the wastewater	

REMEDIAL ACTION IMPLEMENTED

Project Name: **RUCK POND (Cedar Creek)**

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treatment system. Whole effluent toxicity monitoring was performed to determine the potential impact of effluent discharge on aquatic organisms.

Outcome:

Based on visual observation, sediment remained, despite a substantial removal effort. WDNR claims success from a "mass removal" standpoint. Post-removal PCB concentrations in residual sediment, based on 7 samples analyzed by the PRP, were 8.3-280 ppm (avg. of 84 ppm). Portions of creek bottom were covered with clean fill remaining from temporary access roads prior to rerouting water back into the impoundment.

Characterization of the next five miles of Cedar Creek sediment (downstream of Ruck Pond) is currently in progress (Project ID 05-22).

Restoration and Post-Monitoring:

Soft sediment was removed to the extent practicable (i.e., removed great majority of the visual sediments). Samples of the residual sediments analyzed by WDNR measured 8.3-280 ppm (avg. of 84 ppm). Long-term water column/biota monitoring reportedly being performed by WDNR. Areas disturbed by remediation were restored (i.e., banks, walkway and parking lot constructed, revegetation, and landscaping).

Site-Specific Difficulties:

Siphon was designed for 10-year flow event (was not a problem except for the risk of a higher flow rate); couldn't get the drained sector completely dry, typically a 4-inch layer of water remained, chopped out 3 or 4 "sumps" with pumps in bedrock to provide for more effective draining; irregularities in bedrock surface precluded removal of all water/sediments; offensive odors emanated from the drained area (which was located within the town's business district). High water pH due to lime and kiln dust needed neutralizing.

Monitoring Data

References:

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

POTENTIALLY RESPONSIBLE PARTIES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

PRP Name: PRP INFORMATION NOT RELEASED

PRPID:

Street Address:

City:

State:

KEY CONTACTS

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

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 **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type:

A

ReferenceID: 216

Title:

**Construction Documentation Report Ruck Pond Sediment
Removal Action**

Location:

BBL

Category:

Contaminated Sediments: Remediation Final Report

Prepared by/Author:

Blasland, Bouck & Lee, Inc.

Preparer/Author

6723 Towpath Road

Address:

P.O. Box 66

Syracuse, NY 13214

Prepared For:

WDNR, on behalf of Mercury Marine

Date Published:

August 1995

**Key Words and
Phrases:**

Reference Type:

A

ReferenceID: 262

Title:

**Final Report: Milwaukee River PCB Mass Balance (two pages
only)**

Location:

AEM

Category:

Mass Balance

Prepared by/Author:

Baird & Associates

Preparer/Author

Madison, WI

Address:

Prepared For:

WDNR

Date Published:

September 4, 1997

**Key Words and
Phrases:**

Reference Type:

A

ReferenceID: 282

Title:

Final Report: Milwaukee River PCB Mass Balance Project

Location:

BBL

Category:

Mass Balance

Prepared by/Author:

Baird & Associates

Preparer/Author

Madison, WI

Address:

Prepared For:

WDNR

Date Published:

September 4, 1997

**Key Words and
Phrases:**

REFERENCES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type: A
Title: ***Cedar Creek PCB Investigation (Final Report)***
Location: BBL
Category: Contaminated Sediments: Investigation/Delineation
Prepared by/Author: Strand Associates, Inc.
Preparer/Author Address: Madison, WI
Prepared For: WDNR
Date Published: May 1992
Key Words and Phrases:

ReferenceID: 283

Reference Type: A
Title: ***Distribution of Polychlorinated Biphenyls in Cedar Creek Sediments at Cedar Creek, Ozaukee County, WI***
Location: BBL
Category: Contaminated Sediments: Investigation/Delineation
Prepared by/Author: W. Wawrzyn and R. Wakeman
Preparer/Author Address: Madison, WI
Prepared For: WDNR
Date Published: 1986
Key Words and Phrases:

ReferenceID: 284

Reference Type: A
Title: ***Cedar Creek PCB Mass Balance: Part I - Data Summary and Analysis, Final Draft***
Location: BBL
Category: Mass Balance
Prepared by/Author: S. Westenbroek
Preparer/Author Address: Madison, WI
Prepared For: WDNR
Date Published: June 1993
Key Words and Phrases:

ReferenceID: 285

REFERENCES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type: B

ReferenceID: 781

Title: ***Realizing Remediation I - Great Lakes Contaminated Sediments
Ruck Pond
(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:**

Reference Type: B

ReferenceID: 837

Title: ***Realizing Remediation II - Updated Summary:
Milwaukee Estuary AOC: Ruck Pond
(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:**

REFERENCES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type: C

ReferenceID: 585

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 (1) Greater Detroit American Heritage River Institute

Address: 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:**

Reference Type: E

ReferenceID: 46

Title: ***Remediation of Sediments Using Surface Water Diversion /Dry
Excavation at Ruck Pond, Cedarburg, Wisconsin***

Location: AEM

Category: Site Update

Prepared by/Author: Thomas Praeger

Preparer/Author (formerly with) Mercury Marine

Address: Fond du Lac, WI

Prepared For: Sediment Management Seminar 1996

Date Published: 1996

**Key Words and
Phrases:**

REFERENCES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type:

E

ReferenceID: 110

Title:

An Overview of Wisconsin's Sediment Management Program

Location:

AEM

Category:

Contaminated Sediments: Management Issues

Prepared by/Author:

William P. Fitzpatrick

Preparer/Author

Wisconsin Department of Natural Resources

Address:

P.O. Box 7921
Madison, WI 53707-7921

Prepared For:

Cooperative Programs for Sediment Management, NJ Maritime Resources,
Newark, NJ

Date Published:

February 10, 1997

**Key Words and
Phrases:**

Reference Type:

E

ReferenceID: 125

Title:

Sediment Management Seminar 2000 Proceedings (Reference E-121)

Location:

AEM

Category:

Dredging: Remedial (Contaminated Sediments)

Prepared by/Author:

Blasland, Bouck & Lee, Inc.

Preparer/Author

6723 Towpath Road

Address:

P.O. Box 66
Syracuse, NY 13214

Prepared For:

Attendees

Date Published:

February 10-11, 2000

**Key Words and
Phrases:**

Reference Type:

G

ReferenceID: 14

Title:

Dredging Successes

Location:

AEM

Category:

Dredging: Remedial (Contaminated Sediments)

Prepared by/Author:

Jim Hahnenberg

Preparer/Author

US EPA Region V

Address:

Chicago, IL

Prepared For:

Fox River PRPs

Date Published:

November 13, 1997

**Key Words and
Phrases:**

REFERENCES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type: M

ReferenceID: 255

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:

Reference Type: M

ReferenceID: 346

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:

Reference Type: M

ReferenceID: 352

Title: ***Memo re: Additional analysis of dredging impacts at the Ruck Pond, Wisconsin dredge site***

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:

REFERENCES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type: M

ReferenceID: 417

Title: ***Results of Contaminated Sediment Cleanups Relevant to the Hudson River: Ruck Pond, Wisconsin***

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:

Reference Type: M

ReferenceID: 426

Title: ***Memo re: Sediment Removal in Ruck Pond, Wisconsin***

Location: AEM

Category: Site Update

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

Preparer/Author Address:

Prepared For: Distribution

Date Published: January 10, 2001

Key Words and Phrases:

REFERENCES

Project Name RUCK POND (Cedar Creek)

ProjectID: 05-13

Reference Type: M

ReferenceID: 427

Title: *Remediation of PCB-Containing Sediments Using Surface Water Diversion "Dry Excavation": A Case Study*

Location: AEM

Category: Contaminated Sediments: Remedial Options/Guidance

Prepared by/Author: (1) Thomas H. Praeger, (2) Stuart D. Messur, (3) Richard P. DiFiore

Preparer/Author Address: (1) Mercury Marine
W6250 Pioneer Road
P.O. Box 1939
Fond du Lac, WI 54936-1939
(2), (3) Blasland, Bouck & Lee, Inc.
6723 Towpath Road
Box 66
Syracuse, NY 13214-9966

Prepared For: Water Science Technology, Vol. 33, No. 6

Date Published: 1996

Key Words and Phrases:

Reference Type: R

ReferenceID: 11

Title: *Letter to PRP re: Case Histories: Contaminated Sediment Sites*

Location: AEM

Category: Site Update

Prepared by/Author: AEM, Inc.

Preparer/Author Address: Malvern, PA 19355

Prepared For: Mercury Marine, submitted to

Date Published: August 14, 1998

Key Words and Phrases:

REFERENCES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Reference Type: R

ReferenceID: 31

Title: ***Letter to PRP re: Case Histories: Contaminated Sediment Sites
(with response from Mercury Marine)***

Location: AEM

Category: Site Update

Prepared by/Author: AEM, Inc. with response from Mercury Marine

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

Prepared For: Mercury Marine, submitted to

Date Published: May 13, 1999

**Key Words and
Phrases:**

MODELING

Project Name: RUCK POND (Cedar Creek)

ProjectID: 05-13

Last Updated: 08/11/98

Modeling Performed: PCB mass transport modeling.

Modeling Objectives: Assess contaminant transport.

Modeling Description: Site-specific data were collected and hand calculations performed to estimate PCB transport within and from the Cedar Creek system. This included the potential transport of PCBs from Ruck Pond to downstream reaches. Select sediment samples were analyzed for combinations of PCBs, TOC, porosity, bulk density, percent solids, and particle size distribution. Water column samples were analyzed for total PCBs (particulate and dissolved), total suspended solids, organic carbon (total, dissolved and particulate), temperature and flow. Simple mass balance hand calculations were performed for each impoundment and took PCB partitioning, volatilization, settling, resuspension and advection into account (Westenbroek, 1993).

Company Performing Modeling: WDNR

Modeling Status: Complete

Modeling Summary: Results contested by PRPs. WDNR results are provided below:

PCB loading to the Milwaukee River: Between 4 and 38 kilograms of PCB left Cedar Creek and entered the Milwaukee River during the period of field study (November, 1990-October, 1991) and Cedar Creek is a source of PCBs to the Milwaukee River system.

Water column PCB concentration trends: The average PCB concentration in the water column and the average daily mass of PCB transported through each impoundment increase as one moves farther downstream. During the summertime, the highest concentrations of PCBs in the water column (over 200 ng/L) was found in Columbia Pond, which is immediately downstream from Ruck Pond.

Significance of storm and seasonal events: Although the Ruck impoundment contained some extremely high sediment PCB concentrations, the water column concentrations rarely showed it to make much of a contribution. Under one high flow event, however, a significant concentration of PCBs appeared to be leaving Ruck Pond.

Ruck Pond contains the largest mass of PCB in the Cedar Creek system. The calculated mass of PCB present in Ruck Pond is greater than that of any other impoundment in the Cedar Creek system. The next pond downstream, Columbia Pond, ranks a close second in terms of total PCB mass contained in the sediments.

Cedar Creek water exceeds established water quality criteria: 96% of water column PCB samples exceeded the Wild and Domestic Animal water quality criteria established in Administrative Rule NR 105. The criteria value is 3 ng/L of total PCB.

Differences in PCB types detected in the water column: No statistically significant differences could be found between the types of PCB homologs detected in the water column from site to site. Although PCB Aroclor 1260 has been identified in this study and others as the prime constituent in water and sediment, the data also indicate that lesser chlorinated mixtures (such as Aroclor 1242 or Aroclor 1248) were seemingly discharged at some point.

FISH ADVISORIES

Project Name **RUCK POND (Cedar Creek)**

ProjectID: 05-13

Advisory: Cedar Creek ***AdvisoryID:*** 221
Extent: Milwaukee River upstream to Cedarburg including Zeunert Pond
Pollutant: PCBs (total)
Species: all fish
Population: NCGP
Population Definition: No Consumption-General Population: Advise against consumption by the general population.

Advisory Type: River ***Advisory Number:*** 896

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

Contact Name: Candy Schrank ***Contact Number:*** 608-267-7614

Advisory: Cedar Creek ***AdvisoryID:*** 222
Extent: Milwaukee River upstream to Cedarburg including Zeunert Pond
Pollutant: PCBs (total)
Species: all fish
Population: NCSP
Population Definition: No Consumption-Subpopulation(s): Advises against consumption for populations that are potentially at greater risk, e.g., pregnant or nursing women, and small children.

Advisory Type: River ***Advisory Number:*** 896

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

Contact Name: Candy Schrank ***Contact Number:*** 608-267-7614

Advisory: Cedar Creek ***AdvisoryID:*** 520
Extent: Above Cedarburg, including Cedarburg Pond
Pollutant: PCBs (total)
Species: carp
Population: RGP
Population Definition: Restricted Consumption-General Population: Advises the general population to restrict the size of the organisms and/or the frequency of meals consumed.

Advisory Type: River ***Advisory Number:*** 4254

Status (Active or Rescinded): Rescinded ***Date Rescinded:*** 00/00/02

Contact Name: Candy Schrank ***Contact Number:*** 608-267-7614

FISH ADVISORIES

Project Name ***RUCK POND (Cedar Creek)***

ProjectID: 05-13

Advisory: Cedar Creek

AdvisoryID: 521

Extent: Above Cedarburg, including Cedarburg Pond

Pollutant: PCBs (total)

Species: carp

Population: RSP

Population Definition: Restricted Consumption-Subpopulation(s): Advises subpopulations potentially at greater risk, e.g., pregnant or nursing women, and/or small children, to restrict the size of the organism and/or frequency of meals consumed.

Advisory Type: River

Advisory Number: 4254

Status (Active or Rescinded): Rescinded

Date Rescinded: 00/00/02

Contact Name: Candy Schrank

Contact Number: 608-267-7614
