GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

Project Name	***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)***	***ProjectID:*** 05-26
Last Updated:	04/10/02	

City:	St. Louis
County:	Gratiot
State:	MI
Country:	USA
Bodies of Water:	Pine River; St. Louis Impoundment; Chippewa River
US EPA Region:	V
Status (Active, Complete, or Monitoring Only):	Complete
Date On NPL:	1983
ROD/ESD Date:	N/A
Operable Unit:	N/A
Areas of Concern (length or acres):	The 25-acre sector of the Pine River between the M-46 bridge and the Mill Street Bridge (part of the St. Louis Impoundment); a time-critical removal action targeted a three-acre hot spot within the 25 acres.
Other Characteristics of Water Body:	The Pine River is impounded in St. Louis, MI by the St. Louis Dam, which is immediately downstream of the site. All of the targeted contamination is within this St. Louis Impoundment.
Contaminants of Concern:	DDT, hexabromobenzene (HBB), polybrominated biphenyl (PBB)
Source of Contamination:	Runoff from the 52-acre Velsicol Chemical property; majority from discharges of chemicals from the site to the Pine River. The plant site was closed by 1978, and by 1986 was capped.
Contaminated Area Physical Characteristics:	Contamination is concentrated in the 25-acre dammed section of river (for the full width of the dammed section, ranging from 400-700 feet wide by 2000-3000 ft. long). Dammed area of river typically ranges 3-12 ft. deep. Sediments contain total DDT concentrations as high as 32,600 ppm.
Type of Regulatory Action:	Superfund. Interim. Time-critical removal action.
Overall Status Summary:	EPA recommended dredging of sediments in Pine River as a result of persistently high levels of DDT in fish. Contamination is concentrated in a 2,000-3,000 ft. long dammed section of the river, called the St. Louis Impoundment. Carp fillet tissue concentrations in 1997 averaged 34.5 ppm in the impoundment with a maximum level recorded at 90 ppm. The maximum carp fillet tissue concentration measured below the impoundment was 27 ppm. The proposed plan targeted removal of 260,000 cy of DDT-contaminated bottom material at a cost of $20.1 to $34.1 million. The variability in cost was due to the uncertainty in the volumes that would be disposed at municipal vs. hazardous waste landfills. The target cleanup goal was 5 ppm total DDT. EPA presented its recommendation to the National Remedy Review Board on March 31, 1998. A Proposed Plan for the removal of the 260,000 cy was issued for public comment in early September 1998. The ROD was issued in February 1999 (Project 05-17). Prior to a full remedy, EPA targeted a three-acre hot spot within the impoundment adjacent to the former plant site containing DDT levels of 3,000 ppm and above. EPA issued an Action Memorandum requesting the hot spot be removed under a time-critical removal action. Installation of sheetpile around the hot spot commenced in August 1998 and was completed before year end. Sediment removal began in Spring 1999. EPA estimated that 21,500 cy would be removed from the hot spot and disposed off-site, for $6 million. EPA equated the three-acre hot spot to 80% of the DDT mass in the area of the St. Louis Impoundment (430,000 pounds of

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the estimated total 534,000 pounds of DDT in the St. Louis Impoundment).

The time-critical removal action was performed from April to October 1999 and resulted in the removal of approximately 30,000 cy of in-situ sediment (stabilized volume was about 35,000 cy) by dry excavation. Stabilization was accomplished in-situ using powdered lime, and subsequently Calciment (pelletized lime). A total of 31,625 tons of stabilized sediments were disposed at the Envirosafe Landfill, Oregon, OH.

Remedial Action Planned:	☑
Risk Assessment:	☐
Remedial Action Implemented:	☑
Status of Dredging	☐
PRPs:	☑
Contacts:	☑
References:	☐
Modeling:	☐
Fishing Advisory:	☑

Key Conditions: commercial landfill, solidification/stabilization

REMEDIAL ACTION PLANNED

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Target Sediment Cleanup Standards (TSCS): 3,000 ppm DDT

How TSCS Established: Remove proportionately the most DDT for the least volume; removal of the > 3,000 ppm DDT levels in the hot spot will remove 80 % of the DDT in the St. Louis Impoundment.

Target Bank and Floodplain Cleanup Levels (if applicable): N/A

Other Target: N/A

Environmental Sample Data References:

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

Estimated Target Volume: 21,500 cy in 3-acre hot spot >3,000 ppm DDT.

Planned Disposal Method: Off-site commercial Subtitle D landfills. Reportedly, US EPA has had some difficulty finding a landfill which is willing to accept the contaminated sediment, which US EPA interprets to be a nonhazardous waste. Also, reportedly there was considerable disagreement between US EPA headquarters and Region 5 over the issue of whether the contaminated sediment was a hazardous waste, with Region 5's interpretation prevailing. Region 5's interpretation is that the DDT was not a RCRA hazardous waste, because it was deposited into the river through an NPDES discharge, and became subject to an exclusion to the definition of solid waste at the point of discharge. In the ARAR section of the ROD, US EPA Region 5 states:

"Contaminated sediments were tested by the TCLP (Toxicity Characteristic Leaching Procedure) and determined not to be RCRA characteristic. US EPA will continuously characterize the stockpiled sediments prior to disposal, typically every 200 cubic yards. The contaminated sediments are not considered to be RCRA listed waste because the contamination occurred primarily from the direct discharge of DDT process wastewaters to the Pine River. See 40 CFR Section 261.33 (d) comment."

Estimated Calendar Time to Implement Remedy: Interim Measure: Originally August to December 1998. Now, removal postponed until Spring 1999.

Estimated Time to Implement Remedy: Interim Measure: 120 working days

Estimated Cost to Implement Remedy: $6 million for the 3 acre hot spot

Stated Remedial Action Objectives (and Source): Remove contaminated sediments from river to reduce levels in carp to 1.7 ppm DDT, the concentration in carp fillet considered acceptable to human health. As stated in the Action Memorandum: "The primary purpose of cleaning up DDT contaminated sediment in Pine River is to reduce the maximum amount of risk (mainly cancer) to human health and the environment that is practicably achievable." The time critical removal action. ". . . will prevent the further downstream movement and uptake of highly contaminated DDT sediment."

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Measures of Success to be Used:

Verification sampling before backfilling (for interim measure).

Planned Monitoring and Restoration:

Source: Reference B-289: Turbidity will be measured during remediation. Two times background will be considered unacceptable, established based on the criteria EPA is using at the Manistique River. Air monitoring will be with a "dust meter" (monitoring kiln dust which will be mixed in-situ)

Agency Position on Sediment Removal (and Source):

Source: Reference B-289: "EPA's current plan is to place temporary sheet piling using pontoons. This will not require a significant drawdown of the Pine River. If some drawdown is implemented, EPA will monitor upstream conditions. If upstream sediments become exposed and there appears to be problems with sediment drying or scour, EPA will discontinue with the drawdown."

"Heavy equipment will drive into the river bed, cement kiln dust (or another stabilizing agent) will be mixed with sediments in-situ (probably using a backhoe) and then the stabilized sediment will be excavated from the river bed, transported up to the main plant site (via truck), and unloaded onto the staging pad. The sediments will remain on the staging pad for approximately 1 to 3 days while gravity drains more water from the sediments. A sump will collect all drained water and the water will be pumped to the water treatment plant. After 1 to 3 days on the staging pad, the sediments will be loaded onto trucks. The trucks will be decontaminated using a high pressure wash before leaving the main plant site. The trucks will then transport the sediments to a landfill (which has not been selected yet)."

"EPA would like to remove 500-800 cy per day. The amount removed per day will vary."

Source: Reference D-44: The sheetpile around the 3-acre hot spot will narrow the river to about one-half of its width. Concerns have been expressed by the public regarding scour in the now narrow channel during Spring flood flows. MI DEQ is apparently analyzing options for avoiding this potential problem.

REMEDIAL ACTION IMPLEMENTED

Project Name:	***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26
Last Updated:	04/10/02
Physical Target:	Removal of sediments with concentrations greater than 3,000 ppm DDT from a 3-acre "hot spot" area.
Goals:	5 ppm total DDT (Source: Reference A-302)
Primary Contractor:	Environmental Quality Management, Inc.
Other Contractors:	National Environmental Services, Kentucky (installation of sheetpile); CH2M Hill (prime remediation contractor).
Generic Remediation Method:	Dry excavation
Equipment:	Excavators; articulating dump trucks; sheetpile; silt curtains
Material Handling:	Silt curtains were installed around the hot spot area to minimize the migration of sediment disturbed during sheetpile installation. Two sheetpile walls were then installed, one to enclose the three-acre hot spot and the second to isolate a one-half-acre area within the hot spot for use as an equalization basin. Water was first removed from the one-half-acre equalization basin by pumping to the 2.5-acre area and bottom materials were then removed. The bottom of the equalization basin was then covered with compacted clay prior to removal starting in the remaining 2.5 acres. Prior to removal, in-situ sediments were mixed with stabilizing agents (first lime dust and later Calciment [pelletized lime]) using excavators; the stabilizing agents were delivered daily in bulk quantity and kept covered to minimize impacts of rain and humidity; stabilized sediments were loaded into articulating dump trucks and transferred to an onsite staging area where they remained for 2-3 days to allow further dewatering (water was collected and routed to the WWTP); the stabilized sediments were then transferred to lined dump trucks for transport to the landfill.
Volume Removed:	~35,000 cy of stabilized sediments
Calendar Time:	Construction began on the WWTP in Fall 1998; mobilization of other equipment began 4/5/99; site demobilization began on 10/20/99 following completion of the hot spot removal project.
Time To Implement:	7 months (sediment removal)
Total Cost:	$7.8 million (~$246 per ton; ~$223 per cy); includes ~$750k for installation of sheetpile, ~$600k for infrastructure, ~$83 per ton for transportation to the landfill and tipping fees, and $2.2 million for WWT amortized over 3 construction phases (~$1 million for hot spot removal).
Dredging Cost:	N/A
Disposal of Sediment:	31,625 tons of stabilized material was disposed at the Envirosafe Landfill, Oregon, OH (Subtitle C Landfill).
Volume of Water:	40 million gallons; ~ 410,000 gallons per day (six to seven days per week) were removed to maintain the 2.5 acre work area in a dewatered condition and allow removal of sediment.
Method of Water Treatment:	The 3-acre removal area was divided into two sheetpile cofferdam cells, a one-half-acre cell for use as an equalization basin and a 2.5-acre cell. Water from the 2.5-acre cell was pumped to the one-half-acre equalization basin prior to treatment. The water was then pumped from the equalization basin to the wastewater treatment system. The treatment system consisted of the following operations, in order of flow through the system: coagulant and polymer addition (to promote flocculation); dissolved air flotation units; holding tank; 25 µm oil coalescing filters; 5 µm auto backwash filters; carbon filters; 0.5 µm final polishing filters; discharge back to the river.

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Water Discharge Limit:

0.01 ppb DDT (the detection limit); the discharge limit was specified in a site-specific Substantive Requirements Document (SRD) issued by Michigan DEQ and used by MDEQ in lieu of an NPDES permit for temporary discharges. Mean discharge concentrations were 0.4 µg/L DDT and 0.03 µg/L for PBB with discharge concentrations ranging from 0.01 to 3.81µg/L for DDT and 0.1 to 0.19 for PBB. Reportedly, the wastewater treatment system performed with a 96% removal efficiency based on DDT removal, releasing 55 grams of DDT back to the river out of a total input of 1,450 grams.

Air Monitoring During Remediation:

A total of 110 whole-air samples were collected during the remediation effort from five to six offsite monitoring stations located at both upwind and downwind locations. Included were High Vol, PUF, and SUMMA canister samplers; samples were analyzed for VOCs, semi-VOCs, and particulates, along with DDT and breakdown products. Maximum allowable particulate concentration was 150 µg/m3.

DDT was detected in air samples collected at downwind locations from the project area. The project team surmised that the detection of DDT was a result of exothermic reactions resulting from the mixing of a lime-based stabilizing agent (in fine powder form) with wet sediments. To reduce the possibility of offsite airborne releases of DDT during sediment stabilization, the stabilizing agent was changed from lime dust to Calciment (pelletized lime), the method of mixing the stabilizing agent with the sediment was modified, and industrial sprayers were placed along the downwind perimeter of the work area in an attempt to control the offsite migration of fugitive dust.

Water Monitoring During Remediation:

Discrete water samples were collected monthly, at a minimum, and analyzed for site COCs. These results were then compared to pre-remediation river water sample results. Reportedly, no increase in water level concentrations were observed to indicate the remedial activities were impacting water quality. Instream water monitoring for turbidity was performed at least once per day (more often depending on site activities and during sheetpile installation) for the duration of the project. Turbidity monitoring was performed at up to 10 locations, both upstream and downstream of the removal activities and near the water treatment discharge point. Reportedly, results of the monitoring did not indicate any impacts from the remedial activities. The limit was 20 NTU above background.

Outcome:

The remediation was completed within the anticipated time frame and cost. The top 3-4 feet of sediment was of a light, fluffy consistency; total depth of excavation was 10-12 feet in some areas with removal generally to native soils. A large fraction of oil was found intermixed with the deeper sediments; reportedly oil was used during the manufacture of DDT as an intermixed carrier because of DDT's high solubility in oil. However, sediment samples collected upstream of the St. Louis Impoundment have indicated that at least some of the oily sludge may have originated from the oil refining plant up river at Alma.

The primary goal of achieving 5 ppm total DDT or less was accomplished in most of the 3-acre hot spot. Reportedly, the average DDT concentration following remediation was 0.54 ppm.

Restoration and Post-Monitoring:

To be performed as part of the restoration and post-monitoring following remediation of the St. Louis Impoundment.

Site-Specific Difficulties:

- Michigan's Verification of Soil Remediation Guidance was used to locate grid points for verification sampling (50 random verification sampling points were used) and to establish a verification sampling protocol; reportedly, many areas required excavation of an additional one to two feet (at times using multiple passes) as a result of exceeding the target level of 5 ppm total DDT following initial removal efforts. Additionally, at five of the verification sample locations near the slurry wall surrounding the original plant site, 5 ppm total DDT was not reached due to contaminated sediment being left in place. The average of the results from the remaining 45 verification sample locations was 0.65 ppm total DDT.

- The water discharge limit of 0.01 ppb DDT was routinely exceeded during the project; in response, Michigan DEQ is requiring modifications to be made to the WWTP prior to the start of remediation of the St. Louis Impoundment (Project ID 05-17); suggested modifications include moving the 0.5 µm filter upstream of the carbon filters and adding a polishing step using diatomaceous earth.

- Excavation was not completed up to the outside face of the existing slurry wall that surrounds the site (as originally planned); it was indeterminate if the slurry wall would be structurally stable if all sediment from one side were removed; excavation was therefore stopped prior to reaching the slurry wall, resulting in a 10 ft. thick wall of contaminated sediment remaining in place. These materials were eventually covered with 5,000 cy of clay and 1,800 tons of gravel.

- During routine air monitoring, DDT was detected at the downwind location prompting an investigation into the source. It was surmised that the releases were occurring as a result of exothermic reactions between the lime-based stabilization agent and wet sediment along with uncontrolled mixing of the stabilizing agent and sediment (resulting in offsite release of the stabilizing agent in the form of fugitive dust). To reduce these releases, the stabilizing agent was changed from a lime-based agent (fine powder form) to Calciment (pelletized form), thereby allowing more control over the exothermic reaction, and using industrial fine-mist sprayers positioned along the downwind perimeter of the site to assist in controlling the offsite migration of fugitive emissions.

- Note that the cy to ton conversion actually was about 0.9 vs. the 0.65 tons/cy assumed for the full remediation project.

Monitoring Data References:

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

POTENTIALLY RESPONSIBLE PARTIES

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

PRP Name: **PRP INFORMATION NOT RELEASED** ***PRPID:***

Street Address:

City:

State:

KEY CONTACTS

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

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:

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

ReferenceID: 302

Reference Type:	A
Title:	***Action Memorandum: Request for a Time-Critical Removal Action at the Velsicol Chemical Company Site, St. Louis, Gratiot County, Michigan (Site ID #0532)***
Location:	AEM
Category:	ROD/Proposed Plan/Action Memo/Decision Document
Prepared by/Author:	US EPA Region V
Preparer/Author Address:	Emergency Response Section II Chicago, IL
Prepared For:	David Ullrich, Acting Regional Administrator
Date Published:	June 9, 1998
Key Words and Phrases:	

ReferenceID: 791

Reference Type:	A
Title:	***Removal Summary Report for Velsicol/Pine River***
Location:	AEM
Category:	Close-Out Report
Prepared by/Author:	ecology and environment, inc.
Preparer/Author Address:	33 North Dearborn Street Chicago, IL 60602
Prepared For:	US EPA Region V
Date Published:	July 27, 2000
Key Words and Phrases:	

ReferenceID: 797

Reference Type:	A
Title:	***Administrative Records Remedial Documents (to February 1998) (CD-ROM)***
Location:	AEM
Category:	Miscellaneous
Prepared by/Author:	US EPA Region V
Preparer/Author Address:	
Prepared For:	Distribution
Date Published:	April 24, 2000
Key Words and Phrases:	

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

Reference Type: A ***ReferenceID:*** 801

Title: ***Streamlined Remedial Investigation/Feasibility Study Report (selected pages) (Complete document on CD ROM - Reference A-797)***

Location: AEM

Category: RI/FS

Prepared by/Author: US EPA Region V

Preparer/Author Address:

Prepared For:

Date Published: August 1998

Key Words and Phrases:

Reference Type: B ***ReferenceID:*** 285

Title: ***Letter: Dave Camp (U.S. House of Representatives) to Dr. Edward C. Lorenz, Chairman, Pine River Citizens Action Group***

Location: AEM

Category: Miscellaneous

Prepared by/Author: Dave Camp, U.S. Representative

Preparer/Author Address: US Congress
(4th District, Michigan)
Washington, D.C.

Prepared For: Pine River Citizens Action Group

Date Published: August 4, 1998

Key Words and Phrases:

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

Reference Type: B ***ReferenceID:*** 286

Title: ***Minutes for the Meeting of June 17, 1998 (Pine River Superfund Citizen Task Force)***

Location: AEM

Category: Site Update

Prepared by/Author: Jim Vyskocil, Secretary

Preparer/Author Address: Pine River Superfund Citizen Task Force of Gratiot County Michigan

Prepared For: General Public

Date Published:

Key Words and Phrases:

Reference Type: B ***ReferenceID:*** 287

Title: ***Minutes for the Meeting of July 22, 1998 (Pine River Superfund Citizen Task Force)***

Location: AEM

Category: Site Update

Prepared by/Author: Jim Vyskocil, Secretary

Preparer/Author Address: Pine River Superfund Citizen Task Force of Gratiot County Michigan

Prepared For: General Public

Date Published:

Key Words and Phrases:

Reference Type: B ***ReferenceID:*** 288

Title: ***Letter re: Pine River Committee Concerns / Questions***

Location: AEM

Category: Dredging: Remedial (Contaminated Sediments)

Prepared by/Author: Barb Strum and Jim Hall, Co-Chairs

Preparer/Author Address: Pine River Committee

Prepared For: Beth Reiner, Epa Project Manager

Date Published: July 29, 1998

Key Words and Phrases:

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

Reference Type: B ***ReferenceID:*** 289

Title: ***Letter re: Responding to Pine River Committee Questions / Concerns***

Location: AEM

Category: Dredging: Remedial (Contaminated Sediments)

Prepared by/Author: Beth Reiner and Sam Borries

Preparer/Author Address: US EPA Region V
77 Jackson Boulevard
Chicago, IL 60604-3590

Prepared For: Pine River Committee

Date Published: August 3, 1998

Key Words and Phrases:

Reference Type: B ***ReferenceID:*** 290

Title: ***Invitation to a Native American Pipe Ceremony for the Pine River Sediment Removal Project***

Location: AEM

Category: Miscellaneous

Prepared by/Author: Saginaw Chippewa Tribe

Preparer/Author Address:

Prepared For: General Public

Date Published: August 1998

Key Words and Phrases:

Reference Type: B ***ReferenceID:*** 366

Title: ***Minutes for the Meeting of December 16, 1998 (Pine River Superfund Citizen Task Force)***

Location: AEM

Category: Site Update

Prepared by/Author: Jim Vyskocil, Secretary

Preparer/Author Address: Pine River Superfund Citizen Task Force of Gratiot County Michigan

Prepared For: General Public

Date Published:

Key Words and Phrases:

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

Reference Type: B ***ReferenceID:*** 788

Title: ***Realizing Remediation I - Great Lakes Contaminated Sediments Pine River - Velsicol Chemical (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: C ***ReferenceID:*** 320

Title: ***EPA Proposing $20-34M Remedy, $6M Removal at Velsicol Chemical***

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author Address:

Prepared For: Superfund Week

Date Published: September 4, 1998

Key Words and Phrases:

Reference Type: C ***ReferenceID:*** 523

Title: ***After Its Award at Velsicol, CH2M Hill Bidding $16.9M Sediment Excavation***

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author Address:

Prepared For: Superfund Week

Date Published: May 21, 1999

Key Words and Phrases:

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

Reference Type: C ***ReferenceID:*** 557

Title: ***Removal Action Initiated on Pine River to Address DDT Contamination***

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: D ***ReferenceID:*** 10

Title: ***EPA, state at odds over river cleanup***

Location: AEM

Category: Site Update

Prepared by/Author: David Poulson

Preparer/Author Address:

Prepared For: Gazette Lansing Bureau

Date Published: August 24, 1999

Key Words and Phrases:

Reference Type: D ***ReferenceID:*** 44

Title: ***Pine River DDT cleanup plan parsed***

Location: AEM

Category: Site Update

Prepared by/Author: Carrie Spencer

Preparer/Author Address:

Prepared For: The Saginaw (MI) News

Date Published: September 17, 1998

Key Words and Phrases:

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

ReferenceID: 34

Reference Type:	G
Title:	***Poster Session: Sediment Removal at the Pine River Superfund Site, St. Louis, Michigan***
Location:	AEM
Category:	Site Update
Prepared by/Author:	Stu Messur and Eric Anderson
Preparer/Author Address:	Blasland, Bouck & Lee, Inc.
Prepared For:	BBL Sediment Management Seminar 2002
Date Published:	February 2002
Key Words and Phrases:	

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

Advisory:	Pine River	***AdvisoryID:***	1090
Extent:	St. Louis impoundment and downstream		
Pollutant:	DDT		
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:***	283
Status (Active or Rescinded):	Active	***Date Rescinded:***	
Contact Name:	David R. Wade	***Contact Number:***	517-335-8834

Advisory:	Pine River	***AdvisoryID:***	1091
Extent:	St. Louis impoundment and downstream		
Pollutant:	PBB		
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:***	283
Status (Active or Rescinded):	Active	***Date Rescinded:***	
Contact Name:	David R. Wade	***Contact Number:***	517-335-8834

Advisory:	Pine River	***AdvisoryID:***	406
Extent:	St. Louis impoundment and downstream		
Pollutant:	PBB		
Species:	all fish		
Population:	NCGP		
Population Definition:	No Consumption-General Population: Advise against consumption by the general population.		
Advisory Type:	River	***Advisory Number:***	283
Status (Active or Rescinded):	Active	***Date Rescinded:***	
Contact Name:	David R. Wade	***Contact Number:***	517-335-8834

Project Name ***VELSICOL CHEMICAL - PROJECT 2 (Pine River Hot Spot)*** ***ProjectID:*** 05-26

Advisory:	Pine River	***AdvisoryID:***	407
Extent:	St. Louis impoundment and downstream		
Pollutant:	DDT		
Species:	all fish		
Population:	NCGP		
Population Definition:	No Consumption-General Population: Advise against consumption by the general population.		
Advisory Type:	River	***Advisory Number:***	283
Status (Active or Rescinded):	Active	***Date Rescinded:***	
Contact Name:	David R. Wade	***Contact Number:***	517-335-8834