

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

Project Name	<u>CROTTY STREET CHANNEL</u>	ProjectID: 05-32
Last Updated:	01/25/00	
City:	Bay City	
County:	Bay	
State:	MI	
Country:	USA	
Bodies of Water:	Crotty Street Channel; Saginaw River	
US EPA Region:	V	
Status (Active, Complete, or Monitoring Only):	Active	
Date On NPL:	N/A	
ROD/ESD Date:	N/A	
Operable Unit:	N/A	
Areas of Concern (length or acres):	The channel is approximately 950 ft. long x 105 ft. wide (avg.)	
Other Characteristics of Water Body:	<p>The Crotty Street Channel (CSC) is located adjacent to and west of the General Motors Power Train (GMPT) Plant. The channel is oriented north-south and varies in width from 150 feet near the Saginaw River to 60 feet further to the south near shore. Water depth in the channel varies with the stage of the Saginaw River, but is generally shallow. During the collection of sediment core samples in Fall 1997, water depths ranged from approximately 5 feet near the river, to 1.75 feet at the southern extent. In the area north of the CSC, the Saginaw River is approximately 500 feet wide and 10 to 30 feet deep. Approximately 4 miles downstream from the CSC, the Saginaw River discharges to Saginaw Bay, which is an embayment on Lake Huron.</p>	
Contaminants of Concern:	PCBs	
Source of Contamination:	<p>Historically, General Motors, Inc. (GM) has been opposed to dealing with the CSC as part of the on-site RAP given that the source of the PCBs has not been established and because the area is outside the scope of the GMPT (General Motors Power Train) plant on-site Consent Judgment.</p> <p>Conditions in the CSC indicate that GM is not solely responsible for PCBs in the channel. Notwithstanding historical source and liability issues, GM is willing to proceed with the CSC RAP as presented (RAP, June 1999).</p>	
Contaminated Area Physical Characteristics:	<p>Twenty-six sediment cores up to 1.8 meter long were collected from the CSC in November 1997. The concentrations of total PCBs in the cores ranged from below detectable levels to 11,000 ppm. Surface (between surface and 9 to 30 cm deep) concentrations range from 3 to 280 ppm (median: 16 ppm) with the highest concentrations being from samples collected near the south end of the channel. The lowest surface concentrations were from samples near the confluence with the Saginaw River.</p> <p>A discrete subsurface sediment layer (between 9 and 64 cm deep) with higher total PCB concentrations was present at nearly all of the stations. The PCB concentrations within this sediment layer range from 5.3 ppm to 11,000 ppm (median: 2,850 ppm), with the highest PCB concentrations being recorded in this layer in all but 2 of the 26 core samples. This layer is fairly thin (average thickness: 44 cm) and is positioned between sediment layers with total PCB concentrations one or more orders of magnitude lower than this discrete layer. This layer was also found to be consistently dark gray in color and composed of fine-grained silt with a strong petroleum odor.</p>	

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Samples collected from the deepest interval (between 64 and 183 cm deep) exhibited PCB concentrations ranging between below method detective limits to 1,280 ppm (median: 2.8 ppm).

Type of Regulatory Action: Voluntary Agreement. Final

Overall Status Summary: The Crotty Street Channel target area is 950 ft. long by 105 ft. wide (about 2.3 acres). The channel lies adjacent to the General Motors Power Train (GMPT) facility in Bay City, Michigan and flows into the Saginaw River. Surface concentrations of PCBs range from 3 to 280 ppm, while concentrations at depth range up to 11,000 ppm.

The proposed remedial measure for the Crotty Street Channel (CSC) includes installation of a sheetpile wall across the mouth of the channel, down the west side of the channel, turning east at the south end of the channel, and connecting to an existing deep soil mixing wall around the machine storage area. As a result, the sheetpile wall identified in the GMPT Plant onsite RAP will not be installed along the east side of the CSC. The sheetpile wall for the GMPT Plant onsite RAP will extend across the north side of the lagoon area and machine storage area and then tie into the sheetpile wall across the mouth of the CSC. Two stormwater discharges to the CSC will be permanently abandoned. The channel will be dewatered, the sediment will be stabilized in-situ using lime, fly ash, or other suitable material, groundwater collection sumps will be installed, and the channel will be backfilled with fill material (stockpiled soil) from the Bay City Belinda Street stockpile. Surface water removed from the channel prior to backfilling will be treated at the GMPT onsite treatment plant and will be discharged to Bay City or to the river in accordance with applicable requirements. Final handling and permitting requirements of the treated water discharge will be determined during the final design stage. An engineered cap will be placed over the area of the channel and will consist of the following layers, from bottom to top: a) grading layer, b) 6-inch sand bedding layer, c) 40-mil HDPE liner, d) Geonet layer, e) filter fabric, f) 12-inch soil layer, and g) 6-inch layer of top soil, vegetated. The cap will be graded to direct stormwater runoff into the MSA stormwater collection system.

In Fall 1999, the remedy was implemented. Sheetpile was installed and the water was removed from the CSC. The removed water was treated at the GMPT onsite water treatment plant for use in the production facility or for discharge to the Saginaw River under an NPDES permit. Sediments were then stabilized and covered with soil (from Bay City) and sand. Remedial operations ceased for the winter to allow the installed cap materials to settle and stabilize. When weather permits, the in-place cap materials will be regraded and the remaining cap components installed. Anticipated completion is Spring 2000. GM has accepted responsibility for long-term monitoring and maintenance of the containment structure.

Remedial Action Planned: ☒

Risk Assessment: ☐

Remedial Action Implemented: ☒

Status of Dredging ☐

PRPs: ☒

Contacts: ☒

References: ☒

Modeling: ☒

Fishing Advisory: ☒

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<i>Project Name</i>	<i><u>CROTTY STREET CHANNEL</u></i>	<i>ProjectID:</i> 05-32
<i>Last Updated:</i>	01/25/00	
<i>Key Conditions:</i>	capping, post monitoring	

REMEDIAL ACTION PLANNED

Project Name	<u>CROTTY STREET CHANNEL</u>	ProjectID: 05-32
Last Updated:	01/25/00	
Target Sediment Cleanup Standards (TSCS):	N/A	
How TSCS Established:	N/A	
Target Bank and Floodplain Cleanup Levels (if applicable):	N/A	
Other Target:	MDEQ's Limited Industrial Cleanup Category	
Environmental Sample Data References:		
	<ul style="list-style-type: none">• Sediment: A-473• Water:• Fish:	
Estimated Target Volume:	At least 22,000 cy (950 ft. x 105 ft. x 6 ft. deep)	
Planned Disposal Method:	None (target area will be capped)	
Estimated Calendar Time to Implement Remedy:		
Estimated Time to Implement Remedy:	By year end 1999	
Estimated Cost to Implement Remedy:	\$9.6 million	
Stated Remedial Action Objectives (and Source):	(Source: Reference A-473) "PCBs are present in sediment above generic industrial direct contact criteria. The response action proposed will isolate the substances from migratory and exposure pathways and environmental receptors."	
Measures of Success to be Used:	Long-term monitoring of the groundwater extraction system to ensure that groundwater migration will be inward across the sheetpile containment system.	
Planned Monitoring and Restoration:	Static water level monitoring will be performed from proposed wells in and adjacent to the channel to monitor the effectiveness of the groundwater extraction system to contain the groundwater plume. Monitoring is scheduled to take place every 6 months for 5 years beginning immediately after project completion and continuing annually for 25 years.	
Agency Position on Sediment Removal (and Source):		

REMEDIAL ACTION IMPLEMENTED

Project Name:	<u>CROTTY STREET CHANNEL</u>	ProjectID: 05-32
Last Updated:	02/08/00	
Physical Target:	A 2.3 acre PCB-contaminated sector of the Crotty Street Channel located adjacent to the GM Bay City Power Train facility.	
Goals:		
Primary Contractor:		
Other Contractors:		
Generic Remediation Method:	Capping	
Equipment:		
Material Handling:		
Volume Removed:	N/A	
Calendar Time:	Fall 1999 - Spring 2000 (in progress)	
Time To Implement:	4 months (in progress)	
Total Cost:	Unknown	
Dredging Cost:	N/A	
Disposal of Sediment:	N/A	
Volume of Water:		
Method of Water Treatment:	General Motors Bay City Power Train (GMPT) facility onsite water treatment system.	
Water Discharge Limit:	NPDES permit limits for onsite water treatment system for discharge of treated water to the Saginaw River; much of the treated water from the treatment system is recycled through the production facility.	
Air Monitoring During Remediation:		
Water Monitoring During Remediation:	N/A	
Outcome:	Installation of a water-tight sheetpile barrier, removal of channel water for treatment at the GMPT facility onsite water treatment system, sediment stabilization, and installation of base-soil and sand components of the engineered cap across about 2.3 acres of channel were completed in Fall 1999. Regrading of installed cap materials and placement of remaining cap components will be completed in Spring 2000.	
Restoration and Post-Monitoring:		
Site-Specific Difficulties:		
Monitoring Data		
References:		

REMEDIAL ACTION IMPLEMENTED

Project Name: **CROTTY STREET CHANNEL**

ProjectID: 05-32

Last Updated: 02/08/00

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

POTENTIALLY RESPONSIBLE PARTIES

Project Name **CROTTY STREET CHANNEL**

ProjectID: 05-32

PRP Name: PRP INFORMATION NOT RELEASED

PRPID:

Street Address:

City:

State:

KEY CONTACTS

Project Name **CROTTY STREET CHANNEL**

ProjectID: 05-32

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 **CROTTY STREET CHANNEL**

ProjectID: 05-32

Reference Type: A

ReferenceID: 472

Title: ***Technical Memorandum - Modeling of Potential PCB Transport from Crotty Street Channel Sediments Following Remediation***

Location: AEM

Category: Modeling

Prepared by/Author: Exponent

Preparer/Author Address: 4940 Pearl East Circle, Suite 300
Boulder, CO 80301

Prepared For: General Motors Corporation

Date Published: September 1998

Key Words and Phrases:

Reference Type: A

ReferenceID: 473

Title: ***Draft Remedial Action Plan (RAP)***

Location: AEM

Category: Remedial Action Plan/Work Plan

Prepared by/Author: Conestoga-Rovers & Associates

Preparer/Author Address: 651 Colby Drive
Waterloo, Ontario N2V 1C2

Prepared For:

Date Published: June 1999

Key Words and Phrases:

Reference Type: A

ReferenceID: 721

Title: ***Staff Report: PCB Concentrations in the Vicinity of Crotty Street - Saginaw River***

Location: AEM

Category: Contaminated Sediments: Investigation/Delineation

Prepared by/Author: Dreas Nielsen

Preparer/Author Address: Exponent
15375 SE 30th Place, Suite 250
Bellevue, WA 98007

Prepared For: Stuart Hersh, Esq

Date Published: November 18, 1998

Key Words and Phrases: Saginaw River

REFERENCES

Project Name **CROTTY STREET CHANNEL**

ProjectID: 05-32

Reference Type: A
Title: ***Crotty Street Channel Sediment Investigation***
Location: AEM
Category: Contaminated Sediments: Investigation/Delineation
Prepared by/Author: PTI Environmental Services
Preparer/Author Address: 15375 SE 30th Place, Suite 250
Bellevue, WA 98007
Prepared For: GM Corporation
Date Published: January 1998
Key Words and Phrases:

ReferenceID: 722

Reference Type: B
Title: ***State of Michigan DEQ - Press Release***
Location: AEM
Category: Site Update
Prepared by/Author: Michigan Department of Environmental Quality
Preparer/Author Address:
Prepared For: General Public
Date Published: October 28, 1999
Key Words and Phrases:

ReferenceID: 305

Reference Type: C
Title: ***General Motors to Spend \$9.6 Million to Clean up PCBs in Channel Near Factory***
Location: AEM
Category: Site Update
Prepared by/Author: Paul Connolly
Preparer/Author Address:
Prepared For: Hazardous Waste Law
Date Published: November 3, 1999
Key Words and Phrases:

ReferenceID: 524

REFERENCES

Project Name **CROTTY STREET CHANNEL**

ProjectID: 05-32

Reference Type: H
Title: ***Crotty Street Channel***
Location: AEM
Category: Miscellaneous
Prepared by/Author: Exponent
Preparer/Author Address:
Prepared For:
Date Published: Undated
Key Words and Phrases: Taken from Reference S-5

ReferenceID: 14

Reference Type: L
Title: ***Sediment Remediation Projects in the U.S. Using Capping or Burial***
Location: AEM
Category: Capping/Placement
Prepared by/Author: AEM, Inc.
Preparer/Author Address:
Prepared For: Distribution
Date Published: September 25, 2001
Key Words and Phrases:

ReferenceID: 113

MODELING

Project Name: CROTTY STREET CHANNEL

ProjectID: 05-32

Last Updated: 01/25/00

Modeling Performed: Groundwater transport of PCBs

Modeling Objectives: To determine if, following isolation of PCB contaminated sediments in the Crotty Street Channel, the potential exists for PCBs to migrate from the channel to the Saginaw River.

Modeling Description: To model the potential indirect exposure pathway involving the migration of PCBs from Crotty Street Channel sediment by groundwater flowing through the fill and discharging to the CSX Slip, and subsequently to the Saginaw River. The one-dimensional analytical solute transport model SEMINF was used to perform the analysis.

Company Performing Modeling: Exponent, 4940 Pearl East Circle, Boulder CO 80301

Modeling Status:

Modeling Summary: (Source: Reference A-472)

"The results of this analysis demonstrate that, following implementation of the proposed remedial measure, PCBs in the capped Crotty Street Channel sediments will be essentially immobile. The remedial measure will substantially limit any sources of water to the capped sediments, and groundwater flow from the sediments to the channel will be very limited, and perhaps negligible. Model results demonstrate that, should limited groundwater flow occur following implementation of the remedial measure, it will take on the order of thousands to tens of thousand of years for PCBs to reach the river at concentrations above the GSI criterion of 2×10^{-5} ug/L (45,000 years under the most reasonable conditions). It is probable that some decay of PCB, a factor that was not included in the model simulations, will take place over these time frames. In addition, the model simulations were conservative, because the model used the shortest transport distance to the Saginaw River, and did not include the effects of transverse and lateral dispersion, factors that would otherwise lead to even longer PCB transport times to the river. Furthermore, the model predictions conservatively did not account for sorption to organic-rich sediments in the CSX Slip. Accordingly, based on the results of this modeling, the proposed remedy will effectively eliminate the migration of PCBs from the Crotty Street Channel sediment."

FISH ADVISORIES

Project Name **CROTTY STREET CHANNEL**

ProjectID: 05-32

Advisory: Saginaw River ***AdvisoryID:*** 782
Extent: Entire length
Pollutant: PCBs (total)
Species: all fish except banned species
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:*** 268

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

Contact Name: David R. Wade ***Contact Number:*** 517-335-8834

Advisory: Saginaw River ***AdvisoryID:*** 783
Extent: Entire length
Pollutant: PCBs (total)
Species: all fish except banned species
Population: RSP
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:*** 268

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

Contact Name: David R. Wade ***Contact Number:*** 517-335-8834

Advisory: Saginaw River ***AdvisoryID:*** 784
Extent: Entire length
Pollutant: PCBs (total)
Species: carp-common
Population: NCGP
Population Definition: No Consumption-General Population: Advise against consumption by the general population.

Advisory Type: River ***Advisory Number:*** 268

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

Contact Name: David R. Wade ***Contact Number:*** 517-335-8834

FISH ADVISORIES

Project Name **CROTTY STREET CHANNEL**

ProjectID: 05-32

Advisory: Saginaw River

AdvisoryID: 785

Extent: Entire length

Pollutant: PCBs (total)

Species: catfish-channel

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: 268

Status (Active or Rescinded): Active

Date Rescinded:

Contact Name: David R. Wade

Contact Number: 517-335-8834
