Ten-Mile Drain Superfund Site

St. Clair Shores, Michigan

Interim Record of Decision

Prepared by
U.S. Environmental Protection Agency
Region 5

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LIST OF ACRONYMS OF ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental, Response, Compensation and Liability Act
CERCLIS	CERCLA Information System
CIPP	Cured-In-Place Pipe
COC	Contaminant of Concern
ECT	Environmental Consulting & Technology
EPA	U.S. Environmental Protection Agency
ERRS	Emergency Response and Removal Services
MDCH	Michigan Department of Community Health
MDEQ	Michigan Department of Environmental Quality
MCPWCO	Macomb County Public Works Commissioners Office
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OMB	Office of Management and Budget
PCB	Polychlorinated Biphenyl
ppm	parts per million
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
TSCA	Toxic Substances Control Act
ug/kg	micrograms per kilogram
ug/L	micrograms per liter
USACE	U.S. Army Corps of Engineers

This Record of Decision (ROD) documents the interim remedy selected for the Ten-Mile Drain Site in St. Clair Shores, Macomb County, Michigan. The interim ROD is organized in three sections: Part I contains the *Declaration* for the ROD and Part II contains the *Decision Summary*. The *Responsiveness Summary* is included in Part III.

PART I: DECLARATION

This section summarizes the information presented in the interim ROD and includes the authorizing signature of the United States Environmental Protection Agency (EPA) Region 5 Superfund Division Director.

SITE NAME AND LOCATION

The Ten-Mile Drain Site is located northeast of the City of Detroit and on the western shores of Lake St. Clair in St. Clair Shores, Macomb County, Michigan. As of the 2010 Census, St. Clair Shores had a total population of 59,715. The site includes a portion of the Ten Mile drain storm sewer system, which consists of the concrete sewer pipes and soil surrounding the pipes in an underground storm utility corridor. The site currently encompasses a several block area bounded by Bon Brae Street on the north, Harper Avenue on the west, Ten Mile Road on the south, and Jefferson Avenue on the east, and is in a mixed commercial/residential area (Figure 1). The CERCLIS ID for the site is MIN000510063.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected interim remedy for the Ten-Mile Drain Site, which was chosen in accordance with the Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. § 9601 *et seq.* and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision is based on the Administrative Record file for this site. The Administrative Record Index identifies each of the items comprising the Administrative Record upon which the selection of the interim remedial action is based.

The State of Michigan has indicated its intention to concur with the selected remedy. The State's concurrence letter will be added to the Administrative Record upon receipt.

ASSESSMENT OF SITE

The response action selected in this interim ROD is necessary to mitigate the continued migration of contaminants and prevent further environmental degradation from actual or threatened releases of hazardous substances into the environment. Such releases or threat of releases may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF SELECTED REMEDY

The selected interim action addresses the accumulation of polychlorinated biphenyl (PCB) contamination behind weirs that were installed in the Ten Mile drain storm sewer system and associated risks to human health and the environment. The selected interim remedy for the Ten-Mile Drain Site includes the following interim source control activities:

- **Monitoring and Sampling:** Monthly monitoring of sediment and oil behind the seventeen weirs near the Bon Brae and Harper intersection and at the sediment trap located at the outfall of the Ten Mile drain will be conducted. Sediment samples will be collected using a stainless steel Ponar sampler or similar device capable of collecting submerged sediment samples with minimal disturbance and/or resuspension of sediments. Visual observations will be made of the collected materials to determine the presence of oil. EPA will evaluate the effectiveness of its sediment collection method and adjust it as deemed necessary. EPA may also adjust the frequency of the monitoring and sampling events as deemed necessary;
- **Removal of Sediment:** Sediment removal will generally be conducted behind any weir or at the outfall sediment trap if the depth of the sediment is sufficient that it is recoverable from the drain. Sediment removal will be conducted using the same device used in the sediment monitoring activities or by another method deemed appropriate by EPA. Sediment removal will generally be conducted concurrent with the sampling effort. If sample results later show that the sediments that were removed were not contaminated with PCBs, and if this trend continues for more than one month, then EPA may decide during subsequent events to leave sediments in place behind the weirs and/or at the outfall sediment trap until sample results are received that confirm the presence of PCBs.
- **Removal of Oil:** If visual observation reveals the presence of oil behind the weirs, absorbent snares will be used to wipe up and absorb the oil and the soiled snares removed. After the oil is removed, clean absorbent snares will be placed in the drain directly upgradient of the selected weir or the sediment trap at the outfall. The snares will be attached to a weighted chain to hold them at the bottom of the drain. During each monitoring event absorbent snares will be removed and inspected. If the absorbent snares appear stained or statured with oil they will be replaced.
- **Disposal of Saturated Snares and PCB-Contaminated Sediment:** PCB-contaminated sediment and saturated snares will be placed in Michigan Department of Transportation-approved 55-gallon drums, transported and disposed at an approved disposal facility.

The source control activities selected in this ROD are interim measures to prevent the further migration of PCB contamination to the canals, while EPA continues through the remedial process and until a final long-term remedial action is selected and implemented at the site.

STATUTORY DETERMINATIONS

This action is intended to provide interim source control measures to mitigate the discharge of PCB contamination to the Lange and Revere canals. This action is a protective interim action that provides adequate steps to reduce the volume of PCBs discharged into the canals until a final remedy addressing all site risk is implemented; it complies with those federal and state requirements that are applicable or relevant and appropriate for this limited-scope action; and it is cost effective.

This action is an interim solution only and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this interim measure. Subsequent actions will address the remaining threats posed by the conditions at the site. Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted every five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment. Because this is an interim ROD, review of this site and remedy will be ongoing as EPA continues to develop remedial alternatives for the site.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record for this site.

- Contaminants of concern (COCs) and their respective concentrations (See Section 2).
- Risk presented by the COCs. A baseline risk assessment was not conducted for this interim action due to the immediate need to take action.
- Whether source materials constituting principal threats are found at the site (See Section 11).
- Cleanup levels established for the COCs and the basis for these levels. Cleanup levels are not appropriate for this interim remedy, which is monitoring, removal and proper disposal of PCB contamination that has accumulated behind the weirs in the drain. The site cleanup levels will be determined in the final selected remedy.
- Current and future land use assumptions (See Section 6).
- Potential land and ground water use that will be available at the site as a result of the selected remedy. As a result of the selected interim remedy there will not be any change from current land use and groundwater is not addressed in this interim action. However, Section 6 describes the current and reasonably anticipated future land uses.
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (See Section 13).
- Key factors that led to selecting this interim remedy (See Section 10).

SUPPORT AGENCY ACCEPTANCE

The State of Michigan has indicated that it will concur with the selected interim remedy. The State of Michigan's concurrence letter will be added to the Administrative Record upon receipt.

AUTHORIZING SIGNATURE

Richard C. Karl, Director
Superfund Division
U.S. Environmental Protection Agency
Region 5

9-27-11
Date

PART II: DECISION SUMMARY

1.0 Site Name, Location, and Description

The Ten-Mile Drain Site (MIN000510063) is located northeast of the City of Detroit and on the western shores of Lake St. Clair in St. Clair Shores, Macomb County, Michigan.

The site is located in a mixed commercial/residential area and is near the intersection of Bon Brae Street and Harper Avenue. It includes a portion of the Ten-Mile drain storm sewer system, which consists of concrete sewer pipes and soil surrounding the pipes in a utility corridor 15 feet underground. The site covers several blocks where polychlorinated biphenyls or PCBs have been found in the storm sewer system in significant concentrations. The PCBs are moving into the storm sewer, which empties into two canals connected to Lake St. Clair (Figure 1). The canals, which provide recreational boating access to Lake St. Clair for approximately 125 homes, are private property and are used for recreational boating, swimming, and fishing.

In September 2010, the Ten-Mile Drain Site was added to the National Priorities List (NPL). EPA is currently in the early stages of a fund-lead remedial investigation/ feasibility study (RI/FS), with a focus on identifying the source of the PCBs. EPA is the lead agency for this site and the Michigan Department of Environmental Quality (MDEQ) is the support agency.

2.0 Site History and Enforcement Activities

Over the past ten years, several removal actions and associated investigations have taken place since PCBs were discovered in the drain in 2001. This section of the interim ROD provides the history of the site and a brief discussion of the various removal, remedial, and enforcement activities and associated investigations that have been conducted at the site.

2.1 History of Removal Activities and Investigations (2001-2006)

In July 2001, sediment samples were collected by the Macomb County Public Works Commissioners Office (MCPWCO) as part of a permit application process for a proposed dredging project in the Lange and Revere Street canals. The analytical results were submitted to the U.S. Army Corps of Engineers (USACE) and based on the elevated levels of PCBs in the sediment, USACE notified MDEQ. In December 2001, MDEQ conducted an investigation of the Ten Mile drain storm sewer system and confirmed there was an upstream source of PCB contamination in the drain. As a result of MDEQ's investigation, the MCPWCO sampled and confirmed the presence of PCBs in both the Lange and Revere Street canals and Ten Mile drain storm sewer drainage system.

The EPA removal program initiated a time-critical removal action in August 2002 and completed work at the site on July 16, 2004. During this time frame, high concentrations of PCB-contaminated sediments were removed from the Ten Mile drain storm system,

the Revere canal, and the connecting channel between the Revere and Lange Street canals. All waste was transported for disposal at approved off-site facilities. Specifically, the following activities were completed:

- Developed and implemented a site-specific Health and Safety Plan and an Air Monitoring Plan;
- Developed and implemented a Site Security Plan which included guard services, installation of signs on gates and temporary fencing;
- Dewatered the Ten Mile Storm Drainage System and removed all sediments via confined space entry and high-pressure Jet-vacuum truck;
- Constructed an on-site water treatment system and treated approximately 2.5 million gallons of contaminated water. Water treatment operation included the dewatering of the Wahby Park Pond and sampling of the sediments;
- Installed sheet piling to create excavation cells. In addition, replaced any sections of sea walls that failed after dewatering due to removal activities;
- Excavated all sediments contaminated with PCBs at levels exceeding 10 ppm, the performance standard for this removal action, from the Revere canal and the connecting channel between the Lange and Revere Street canals. The performance standard goal for this removal action was an average of 1 ppm;
- Developed and implemented a confirmation sampling plan during the excavation phase of the project. In the event that the confirmatory sampling demonstrated that the performance standard goal of 1 ppm was not met, additional excavation and confirmatory sampling was required;
- Disposed off-site all PCB-contaminated sediments and any other hazardous substances or pollutants or contaminants at a EPA-approved disposal facility in accordance with the EPA Off-Site Rule (40 CFR § 300.440);
- Restored any areas damaged due to EPA's actions.

In total, EPA disposed of approximately 5,900 tons of PCB-contaminated materials and 18,000 tons of non-hazardous materials. Post-removal site controls were agreed to by the MCPWCO. In April 2004, MCPWCO completed the re-cleaning of the drain and the outfall area where the sewer lines emptied into the canal.

In June 2004, MCPWCO initiated quarterly PCB sampling in the drain. Based on the results, PCBs were present at levels as high as 1,300 micrograms per liter or ug/L (equivalent to 1.3 parts per million or ppm) in the drain water and at the time were believed to be residual contamination. In July 2004, MCPWCO initiated a Phase I-type assessment of the Harper Avenue and Bon Brae Street area. In September 2004,

MCPWCO completed the second round of quarterly PCB sampling and detected PCBs in sediment at the outfall of the drain at 770 ppm. In December 2004, MCPWCO conducted the third round of PCB sampling in the drain and detected PCBs at levels as high as 17,000 ppm in the drain. After this round of sampling, MCPWCO initiated soil boring sampling of the backfill surrounding the drain to attempt to determine if a source of PCBs was re-contaminating the drain. Results indicated that PCBs were present in backfill surrounding the drain at levels as high as 41,000 ppm. In January 2005, MCPWCO collected sediment samples from the drain near the intersection of Harper Avenue and Bon Brae Street and detected PCBs at extremely high levels, up to 200,000 ppm.

In May 2005, EPA and MDEQ installed 64 additional soil borings in the suspected source area to attempt to better define the extent of PCB contamination in this area. PCBs were detected in the sand and gravel backfill surrounding the drain and appeared centered in the area near the intersection of Harper Avenue and Bon Brae Street. The May 2005 investigation also revealed one surface soil area contaminated with PCBs at approximately 800 ppm. In the spring and summer of 2006, EPA conducted another removal action to address this area of contamination. Specifically, the following activities were completed:

- Removal and restoration of shallow surface soils containing low-level PCB concentrations;
- Repair of sea walls;
- Removal of sediment from a portion of the sewer system;
- Installation of monitoring wells and a large trap to collect contaminated sediment in the drain at the outfall;
- A portion of the sewers along Bon Brae Street and Harper Avenue were lined with cured-in-place pipe (CIPP) to attempt to impede PCB infiltration into the sewers.

2.2 City of St. Clair Shores and EPA Removal Activities (2007-2011)

In the fall of 2007, MDEQ provided a $500,000 grant to the City of St. Clair Shores for further investigation and cleanup efforts. The City of St. Clair Shores hired Environmental Consulting & Technology (ECT) as its contractor for this work. Four main tasks were performed under this grant: environmental sampling to monitor the conditions in and around the drain; installation and maintenance of monitoring wells along the drain; cleaning contaminated sediment from portions of the drain; and installation of two weirs within the drain to slow the migration of PCBs to Lake St. Clair. As shown in Figure 2, weirs are half-circle metal structures approximately two feet high that act like small dams to collect PCB oil and contaminated sediment before the contaminants move into the canals.

In late 2009, inside the CIPP-lined portion of the sewer located at the Bon Brae Street and Harper Avenue intersection, ECT discovered oil that contained more than 80 percent PCBs (more than 800,000 ppm). The City of St. Clair Shores and ECT asked for

assistance from EPA in addressing this almost pure chemical waste in the drain. EPA and the City of St. Clair Shores identified immediate concerns and time-critical concerns to eliminate the potential for PBCs to migrate down the storm sewer and threaten the Lange and Revere Street canals. On March 8, 2010, EPA mobilized its WESTON START and Emergency Response and Removal Services (ERRS) contractors to the site to initiate removal action activities, which included the following:

- Dewatering and high-pressure jet-vacuuming of the sewer along Bon Brae Street and down Harper and Jefferson Avenues to remove PCB oil and sediment;
- Stabilization, transportation, and disposal of the PCB-contaminated materials;
- Installation of temporary weir structures in 15 manhole locations to allow sediment collection points (Figure 3). The 15 weirs joined the two weirs previously installed in the drain system by the City of St. Clair Shores;
- A geophysical survey of the area near the sewer where contamination was present, and advancement of soil borings and collection of soil samples from suspected source areas.

EPA proposed the site for the NPL in March 2010 and finalized the site on the NPL in September 2010.

After the aforementioned removal activities, the City of St. Clair Shores continued to conduct environmental sampling to monitor conditions behind the seventeen weirs in the drain. Sampling results indicated that high levels of PCB contamination continued to infiltrate into the drain and accumulate behind the weirs from an unknown source.

Based on the sampling results, EPA conducted another removal action at the site on February 26, 2011, to remove PCB oil from the drain. Absorbent snares were used to swipe and soak up the oil that had collected behind the weirs. A total of six of the seventeen weir locations required cleanout. Clean snares were then attached to weighted chains and left directly upgradient of selected weirs to allow any new incoming oil to collect on them and to support future sample collection and removal efforts. Clean snares were placed at four locations along Bon Brae Street (see manhole locations on Figure 4 labeled M7179, M4335, M7183, and M4334). One 55-gallon drum of soiled absorbent snares was collected for disposal. Because PCB oil continued to infiltrate the drain, in April 2011 the City of St. Clair Shores, as a part of their environmental monitoring activities, inspected absorbent snares, removed soiled snares and placed clean snares behind the weirs where needed. MDEQ's grant to fund the City of St. Clair Shores' investigations and cleanup efforts at the Ten-Mile Drain Site expires in September 2011.

2.3 Enforcement Activities

EPA has been unable to identify a Potentially Responsible Party (PRP) linked to the PCB contamination at the site. Initially the source of the PCB release to the drain system was believed to be a midnight dumping scenario. In 2002, a task force of federal, state, and local officials investigated potential sources and established a call-in line for tips. Agents

from the Federal Bureau of Investigation, EPA's Criminal Investigation Division, Macomb County Sheriff's Department, and Deputies from the Macomb County Prosecutor's Office were assigned to determine either the identity of the midnight dumper or the source of the persistent PCB release in the area of the site. The task force conducted door-to-door interviews of businesses operating within the area and reviewed county and city documents.

Between 2002 and 2005, EPA conducted various civil investigations using the information gathered by the criminal investigation and responses to information requests, locating and interviewing individuals, reviewing documents, plats, aerial overviews, building permits, and on-line databases. EPA sent an information request letter to DTE Energy on October 16, 2003, as a part of the PRP search. A follow-up information request letter to DTE Energy was sent on May 13, 2011. EPA also conducted public meetings to encourage the public to come forward with valuable information.

The search for a PRP for the Ten-Mile Drain Site is ongoing along with source investigation activities. EPA continues to request that residents provide valuable tips and leads for follow-up by EPA civil investigators.

3.0 Community Participation

The Proposed Plan and other relevant and supporting documents for the Ten-Mile Drain Site, including the interim action measures technical memorandum, weir sampling results, and removal reports, were made available to the public in July 2011. Copies of all the documents supporting the interim remedy outlined in the Proposed Plan and contained in the Administrative Record file were made available to the public at the St. Clair Shores Library, where an information repository has been set up. A notice of the availability of these documents was published in the St. Clair Shores Sentinel, a weekly newspaper, on July 13, 2011. A 30-day public comment period was held from July 6 to August 6, 2011. EPA held a public meeting on July 26, 2011, to present the Proposed Plan to community members. At this meeting, representatives from EPA and MDEQ answered questions about the remedial alternatives and problems at the site and solicited community input on the proposed interim source control activities. EPA also used this meeting to renew its request for information from residents on tips and leads about the source of the PCB contamination. EPA's responses to the comments received during the public comment period are included in the Responsiveness Summary, which is included in Part III of this ROD.

4.0 Scope and Role of Operable Units

This interim action is intended to address the PCB contamination that is expected to continue to accumulate behind the weirs located within the Ten Mile drain storm sewer system and to mitigate discharge of that contamination into the canals until such time as EPA selects and implements a final remedy for the site. EPA is currently in the early stages of a fund-lead RI/FS with a focus on identifying the source of the PCBs. This

interim action will neither be inconsistent with, nor preclude, implementation of the final remedy.

5.0 Site Characteristics

This section provides a brief yet comprehensive overview of the site and summarizes the most current information available. Because EPA is currently in the early stages of the RI/FS, the sources of contaminants of concern, nature and extent of contamination, potential transport pathways, and environmental receptors are unknown and have not been fully characterized for the site. This information will be provided in and be the focus of the remedial investigation report for the site.

5.1 Physical Characteristics

The Ten-Mile Drain Site is located 13 miles northeast of downtown Detroit in St. Clair Shores, Michigan. The site includes a portion of the Ten Mile drain storm sewer system near the intersection of Bon Brae Street and Harper Avenue where elevated levels of PCB contaminated have been documented in the drain and the soil surrounding the drain since 2001. The Ten Mile storm sewer drain, located approximately 15 feet under the ground, is a network of storm sewers and catch basins that collect and manage storm water runoff. The drain pipe is an average of 6 feet wide (8 feet wide at the outfall) and empties into the Lange and Revere Street canals, which are connected to Lake St. Clair. In 2010, a series of 15 weirs were installed at selected manhole locations along Bon Brae Street and Harper Avenue, bringing the total number of weirs installed in the drain to seventeen. The weirs are half-circle metal structures approximately two feet high that act like small dams to collect PCB oil and contaminated sediment before the contaminants move into the canals.

5.1.1 Site Geology

Available information indicates the primary presence of fine grained deposits with interbedded lenses of coarser grained materials comprising the native soils surrounding the Ten Mile drain utility corridor. Geological materials around the drain are comprised of sand, clay, silty clay, sandy clay, and clayey sand zones extending to a depth of approximately 15 feet. In general, the Ten Mile storm drain utility corridor is set within the native clay soils and is comprised of an enclosed concrete storm sewer system set within fill materials of varying composition.

5.1.2 Hydrological Conditions

Groundwater monitoring wells were installed during the 2005 removal program site investigation and focused feasibility study and as a part of the City of St. Clair Shores' environmental monitoring plans. However, the hydrogeologic setting of the site remains largely uncharacterized. Available information indicates that hydrogeologic materials are comprised of fine grained aquitard materials with poorly connected, interbedded water bearing coarse grained units encountered at varying depths.

5.1.3 Groundwater Flow

The occurrence and movement of groundwater within native soils at the site is largely uncharacterized at the Ten-Mile Drain Site. Based on available data it is assumed that no substantial aquifer exists within the upper 20 feet and that groundwater (where present) migrates to and from the Ten Mile drain storm corridor via fractures/void spaces in clayey units, interbedded sand seams, and adjacent utility corridors. Surface water runoff is collected via storm sewers and catch basins that are associated with the Ten Mile drainage system. Based on information obtained from the City's monitoring wells set within the Ten Mile drain utility corridor it appears that groundwater is transmitted primarily through fill materials surrounding the Ten Mile drain concrete piping.

5.1.4 Surface Water Hydrology

The Ten-Mile Drain Site property and area surrounding the site are relatively flat. Due to the impermeable nature of the clayey soils in the area, the surface runoff in the area near the site drains into the Ten Mile drainage system. The storm sewer empties into the Lange Street canal which is connected to Revere Street canal, and both of these canals empty into Lake St. Clair. Water depth inside the drain ranges from three to four feet, never completely emptying out. The flow direction and water depth in the drain vary depending on Lake St. Clair water levels. Prior to construction of the Ten Mile Drain drainage system, surface runoff near the site drained into the former Martin Drain (see Figure 5), which was an above-ground open drain that emptied into Lake St. Clair in the area where the Lakecrest Street canal now exists.

5.2 Nature and Extent of Contamination

The nature and extent of contamination at the site has been studied during several investigations conducted by EPA, MDEQ, MCPWCO, and the City of St. Clair Shores. This section of the ROD summarizes the historical and current information available from these investigations, including the type of contamination that have been found at the site; known or suspected sources of contamination; affected media; and the extent of the contamination. Much more information about the nature and extent of contamination will be gained as EPA progresses further with the remedial investigation.

5.2.1 Contaminants of Concern

The known COC is PCBs, which are a group of fabricated chemicals originally used in industrial processes and products such as coolants and lubricants. In 1977, PCB production was banned in the United States, but PCB mixtures remain in old electrical equipment and other items. There is also substantial historical PCB contamination of landfills and rivers. PCBs can pose potential health risks through the ingestion of contaminated food, soil or water, through direct contact, or through breathing PCB-contaminated air or particles. PCBs remained stored in the fatty tissues and can

accumulate in living organisms over time. EPA considers PCBs as possible cancer-causing chemicals.

5.2.2 Source of Contamination

PCB contamination continues to infiltrate the Ten Mile drain storm sewer system from an unknown source area. PCB oil and contaminated sediments have been found in the storm sewer in significant concentrations. A potential residual source of PCBs is likely the fill materials/native soils surrounding the Ten Mile drain concrete piping near selected manhole locations along Bon Brae Street and Harper Avenue.

5.2.3 Nature and Extent of PCB contamination

Limited information is available regarding the nature and extent of soil, sediment and groundwater contamination at the site. PCBs are entering into the storm sewer from an unknown source area, and the storm sewer empties into two canals connected to Lake St. Clair.

As shown in Figure 6, PCB results from the City of St. Clair Shores' storm water samples collected at the outfall structure ranged from 0.17 ug/L (.00017 ppm) to 9.5 ug/L (.0095 ppm).[1] The groundwater samples from wells installed within and adjacent to the drain ranged from 0.84 ug/L (.00084 ppm) to 3,800 ug/L (3.8 ppm).

After the additional weirs were installed in the drain in 2010, the City of St. Clair Shores monitored sediment and oil conditions behind the seventeen weirs. The sampling results showed the continued presence of PCB oil with concentrations as great as 240,000 ppm near the Bon Brae Street and Harper Avenue intersection (see Figure 4 for manhole location M7179). PCB concentrations in the drain are several orders of magnitude higher than PCB concentrations found in groundwater and surface water samples. As shown in Figure 4, all oil samples that were collected have contained PCBs. Similarly, when there has been sufficient sediment to sample, those sediment samples all have contained PCBs.

Based on the hydrophobic nature of PCBs (PCBs bind very strongly to soil particles) and available stratigraphic information indicating predominantly low permeability soils at the site, the expected PCB migration rates and concentrations in groundwater outside of the Ten Mile storm sewer drain's concrete piping would be very low in comparison to PCBs in both soil and sediment samples collected from inside and outside of the piping.

The following information summarizes the total volume of PCB hazardous waste characterized and removed by EPA's past removal actions. EPA's 2002 time-critical removal action removed and disposed of approximately 5,900 tons of PCB-contaminated materials and 18,000 tons of non-hazardous materials. During the 2006 removal action, EPA performed excavation work at eight residential properties resulting in the disposal of 540 tons of non-hazardous waste and 68,150 kilograms of hazardous waste, which

[1] The data from the storm water samples collected at the outfall structure are summarized in a box on Figure 6 entitled "Outfall Structure (Water)."

included excavated residential soil and sediment removed from the Ten Mile drain storm sewer. At the completion of the April 2010 removal action, a total of five roll-off boxes of PCB-contaminated sediment (approximately 46.03 tons) were transported off site for disposal. In February 2011, EPA cleaned PCB contaminated material from behind six weirs resulting in one 55-gallon drum of soiled absorbent snares for disposal.

6.0 Current and Potential Future Site and Resource Uses

The Ten-Mile Drain Site is located in a mixed commercial/residential area. The site includes a portion of the Ten Mile drainage system, which consists of concrete sewer pipes and soil surrounding the pipes in an underground storm utility corridor. It is anticipated that the land usage in the immediate vicinity of the site will remain unchanged for the foreseeable future. Ground water is not within the scope of this interim remedy and will be discussed and addressed, as needed, in a future decision document.

7.0 Summary of Site Risks

This is an interim action taken early in the remedial investigation process to institute temporary measures and prevent further migration of site contaminants and environmental degradation. Neither a formal RI/FS report nor a human health or ecological risk assessment are available. Ecological and human health risks associated with the site, as well as the ultimate cleanup objectives, will be further evaluated and addressed in a future decision document. PCB contamination continues to infiltrate the Ten Mile drainage system from an unknown source. PCBs can pose potential health risks through incidental ingestion of contaminated soil or water, consumption of contaminated fish, by direct skin contact, or through breathing PCB-contaminated air or particles.

As shown in Figure 4, monitoring data collected behind the seventeen weirs between May 2010 and April 2011 tracked sediment concentrations and tested for the presence of PCB oil. If either sediment or oil was present, it was sampled and analyzed for PCBs, and all samples contained PCBs. Average PCB concentrations found in the sediment ranged from less than 10 ppm in manholes along Harper Avenue south of Lakeland Street, to an average of 14,000 ppm in a manhole at the intersection of Bon Brae Street and Harper Avenue. Overall, less than two inches of sediment has accumulated behind the weirs since the April 2010 removal activities. The PCB oil caught behind the weir at the Bon Brae and Harper manhole tested as high as 240,000 ppm. PCB oil is consistently found at six weirs along Bon Brae Street and Harper Avenue.

There is no current human exposure to PCB oil or contaminated sediment in the drain system, which is located approximately 15 feet under the ground. However, sediments in the canal are believed to be contaminated with PCBs from past releases into the canal from the drain. EPA does not know the current concentration of PCBs in the sediments of the canals or whether there are unacceptable risks for humans from recreational use of the canals; this will be investigated during the RI.

In May 2011, the Michigan Department of Community Health (MDCH) issued a "do not eat" advisory for fish taken from the Lange and Revere canals. As a further precaution, MDCH recommends that no one eat carp or catfish caught from Lake St. Clair. These advisories are listed in the *2011 Michigan Fish Advisory and can be accessed at www.michigan.gov/eatsafefish*. PCBs are a concern because they concentrate in the environment and the food web chain resulting in health hazards to humans, fish and wildlife.

7.1 Basis for Interim Response Action

The focus of this interim remedial action is to provide interim source control measures to mitigate the discharge of PCB contamination to the Lange and Revere canals. This action includes periodic monitoring, removal and proper disposal of the PCB-contaminated sediments and oil accumulating behind the weirs, and the installation of absorbent snares to further inhibit the movement of contamination. The potential release of PCB contamination from the drain to the environment may present an imminent and substantial endangerment to the public health, welfare, or the environment.

As noted above, 2010 weir sampling results showed PCB concentrations as high as 240,000 ppm, which is several orders of magnitude higher than the federal Toxic Substances Control Act (TSCA) Subpart D Cleanup Standard of 1,000 micrograms per kilogram (µg/kg, equivalent to 1 ppm), the EPA Region 5 RCRA Ecological Screening Levels for sediments of 59.8 µg/kg (.0598 ppm), and the TSCA Waste Characterization Level of 50 ppm. The seventeen weirs installed at manhole locations in the drain along Bon Brae Street and Harper Avenue serve to pinpoint what section of the drain the contamination is re-entering and to act as collection points, slowing the migration of PCB oil and contaminated sediment through the drain. It is important to implement an interim source control plan to monitor and periodically clean out the contamination that has accumulated behind the weirs to prevent further migration to the canals, while EPA conducts source investigation activities and considers long-term, permanent cleanup options for the site.

8.0 Remedial Action Objectives

Based on the PCB oil and contaminated sediment concentrations within the drain the following remedial action objective was identified for this interim remedial action:

- Prevent further environmental degradation by mitigating the discharge of PCB contaminants from the Ten Mile drain storm sewer system to the Lange and Revere Street canals.

This remedy is termed an interim remedial action under CERCLA because EPA has not fully determined the nature and extent of contamination at the site. This interim action is necessary to prevent further PCB migration to the Lange and Revere Street canals. Periodic removal of contamination from within the drain will achieve the goal of mitigating the discharge of PCB contamination into the canals and the environment and

preventing further environmental degradation while the RI/FS for the final remedial solution is completed and the final remedy is selected and implemented.

9.0 Description of Alternatives

This section provides a narrative summary of each alternative evaluated to address the high concentrations of PCBs accumulating behind the weirs in the Ten Mile drain storm sewer system. An interim remedial action was determined necessary to implement interim source control activities to mitigate the discharge of PCB contamination to the canals. Reflecting the limited scope and purpose of interim remedial actions, three or fewer remedial alternatives are typically developed and evaluated. The following two alternatives were evaluated and compared to specifically address the PCB contamination behind the weirs in the drain.

Alternative 1: No Action

EPA always includes a "no action" alternative as a basis for comparison with other cleanup options. Under this alternative, the PCB oil and contaminated sediment would not be periodically removed from the storm sewer system and would likely discharge to the Lange and Revere Street canals. Cost – $0

Alternative 2: Interim Source Control Activities; Monitor, Remove and Properly Dispose of PCB Oil and Contaminated Sediment behind Weirs

This option includes interim source control activities that would handle the accumulation of PCB contamination behind the weirs at the Ten-Mile Drain Site. Source control activities would include monitoring, placement of absorbent snares to soak up oil and slow or stop the movement of contamination, and periodic removal and proper disposal of saturated snares and PCB-contaminated sediment.

Under this option, monthly monitoring of sediment and oil behind the seventeen weirs installed in the drain and at the sediment trap at the drain outlet at the outfall would be conducted. Sediment would be collected using a device capable of collecting submerged samples with minimal disturbance and/or resuspension of sediments. Visual observations would be made of collected materials to determine the presence of oil. EPA would evaluate the effectiveness of its sediment collection method and adjust it as necessary. EPA would also adjust the frequency of the monitoring and sampling events as deemed necessary.

Sediment removal generally would be conducted behind any weir or at the outfall sediment trap if the depth of the sediment is sufficient that it is recoverable from the drain. Sediment removal would generally occur at the same time as the sampling effort because, as discussed earlier, all sediment samples collected for analysis from the drain to date have contained PCBs. If sample results later showed that the sediments did not contain PCBs, and if this trend continued for more than one month, then EPA could decide during subsequent events to leave sediments in place behind the weirs and/or at

the outfall sediment trap until sample results were received that confirmed the presence of PCBs.

If visual observations reveal the presence of oil behind the weirs, absorbent snares would be used to wipe up and absorb the oil and the soiled snares removed. After removing the oil, clean absorbent snares would be placed in the drain directly upgradient of the selected weir or the sediment trap at the outfall. The snares would be attached to a weighted chain to hold them at the bottom of the drain. During each monitoring event absorbent snares would be removed and inspected. Snares that appear stained or saturated with oil would be replaced.

After removal, PCB-contaminated sediment and snares would be placed in Michigan Department of Transportation approved 55-gallon drums. Drums containing contaminated sediment would be mixed with sawdust or another approved drying material to stabilize the sediment for disposal. All sediment and snare material removed would be transported and disposed at approved off-site disposal facilities.

The estimated cost of this alternative is $232,150 per year for monthly interim source control activities, with a total present value over a five-year period of $1,131,338.

10.0 Summary of Comparative Analysis of Alternatives

Section 121(b)(1) of CERCLA presents several factors that EPA is required to consider in its assessment of alternatives. Building upon these specific statutory mandates, the NCP articulates nine evaluation criteria to be used in assessing the individual remedial alternatives. The purpose of this evaluation is to promote consistent identification of the relative advantages and disadvantages of each alternative, thereby guiding selection of remedies offering the most effective and efficient means of achieving site cleanup goals. While all nine criteria are important, they are weighed differently in the decision-making process depending on whether they evaluate protection of human health and the environment or compliance with Federal and State requirements, standards, criteria, and limitations (threshold criteria); consider technical or economic merits (primary balancing criteria); or involve the evaluation of non-EPA reviewers that may influence an EPA decision (modifying criteria). Each of these nine criteria are described below.

Threshold Criteria

1. **Overall Protection of Human Health and the Environment** addresses whether a remedy provides adequate protection of human health and the environment and describes how risks posed by the site are eliminated, reduced or controlled through treatment, engineering, or institutional controls.
2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** addresses whether a remedy will meet the applicable or relevant and appropriate requirements.

Primary Balancing Criteria

3. **Long-Term Effectiveness and Permanence** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met.
4. **Reduction of Toxicity, Mobility, or Volume Through Treatment** addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility or volume of the hazardous substances as their principal element. This preference is satisfied when treatment is used to reduce the principal threats at the site through destruction of toxic contaminants, reduction of the total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.
5. **Short-Term Effectiveness** addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community and the environment during construction of the remedy until cleanup levels are achieved. This criterion also considers the effectiveness of mitigative measures and time until protection is achieved through attainment of the remedial action objectives.
6. **Implementability** addresses the technical and administrative feasibility of a remedy from design through construction, including the availability of services and materials needed to implement a particular option and coordination with other governmental entities.
7. **Cost** includes estimated capital costs, annual operation and maintenance costs and net present value of capital and operation and maintenance costs, including long-term monitoring.

Modifying Criteria

8. **State Agency Acceptance** considers whether the State support agency concurs with the selected remedy for the site.
9. **Community Acceptance** addresses the public's general response to the remedial alternatives and the preferred alternative presented in the Proposed Plan.

Each of the nine evaluation criteria are discussed below with respect to the alternatives under consideration for this interim action.

10.1 Overall Protection of Human Health and the Environment

Alternative 1, No Action, is not protective of human health or the environment because it continues to allow releases of high concentrations of PCBs from the drain into the canals. In terms of this limited interim action, Alternative 2 provides interim protective source control measures to mitigate the discharge of PCB contamination to the Lange and Revere canals. Alternative 2 is an interim action only and will provide adequate steps to

reduce the volume of PCBs discharged into the canals until a final remedy is implemented.

10.2 Compliance with Applicable or Relevant and Appropriate Requirements

Section 121(d) of CERCLA requires that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and State requirements, standards, criteria, and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA section 121(d)(4). Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or State environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances found at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or State environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. Only those State standards that are identified in a timely manner, and are more stringent than federal requirements, may be relevant and appropriate.

In accordance with the NCP (40 CFR 300.430(f)(l)(ii)(C)(l), interim actions such as this are not required to comply with ARARs as long as the final remedial action at the site will attain them. Alternative 1 does not meet ARARs. Alternative 2 will comply with the state and federal ARARs that are specific to the limited scope of this action, including federal TSCA regulations. Upon the completion of the RI/FS, EPA will propose a remedial action to address the entire site. This interim remedial action may become part of the site-wide remedial action, which will attain ARARs.

10.3 Long-Term Effectiveness and Permanence

Long-term effectiveness will be addressed primarily through the final site remedy. Alternative 2 will contribute toward long-term effectiveness in a way that will be consistent with the final site remedy. Alternative 1 does not achieve or contribute to long-term effectiveness and permanence. Because this is an interim remedial action and the RI/FS has not yet been completed, this criterion will be further evaluated as part of the final remedy for this site.

10.4 Reduction in Toxicity, Mobility, or Volume through Treatment

Neither alternative utilizes treatment to reduce the toxicity, mobility or volume of the contaminants. Treatment of PCB oil and sediment is not practical in this interim action because of the immediate nature of the action and the small quantity of PCBs that will be removed from the drain under Alternative 2. Prior to disposal in a landfill, further characterization will be required to determine if the sediments would be characterized as

TSCA waste. Oil and/or sediment with PCB contamination greater than 50 ppm will be transported to a TSCA regulated hazardous waste landfill and total PCB concentrations less than 50 ppm will be transported to a Type II landfill. A more permanent solution will be addressed in the long-term final cleanup plan.

10.5 Short-Term Effectiveness

Alternative 1 has no action associated with it so would have no associated impacts. Alternative 2 could be implemented immediately and would not increase the short-term risks to the community or the environment since the alternative has no construction phase. During source control activities manhole covers at the street level will be removed to provide access to the drain; traffic patterns might be slightly disrupted by the measures required to protect the safety of the workers.

10.6 Implementability

Alternative 1 has no actions that would be implemented. Alternative 2 has no construction phase and is technically implementable. Sampling equipment, absorbent snares and necessary personnel services and materials are readily available for Alternative 2.

10.7 Cost

In accordance with EPA guidance, cost estimates are expected to be accurate within a range of +50 to -30 percent. This interim action will be implemented over a period of time, and factors influencing the overall economy may affect actual cost. Alternative 1 has no cost. Alternative 2 has costs associated with the following activities: monitoring and sampling, removal, transportation and disposal, as well as analytical support, data evaluation and preparation of reports. Alternative 2 has an annual cost of $232,150 assuming that the interim source control activities are conducted on a monthly basis. Assuming that the activities will be conducted for a period of five years, and using a discount rate of 1.3%[2], the total present value of Alternative 2 is $1,131,338.

10.8 State Acceptance

The MDEQ has indicated its intention to concur with the selection of Alternative 2 as an interim remedy. MDEQ's concurrence letter will be added to the Administrative Record upon receipt.

10.9 Community Acceptance

During the public comment period the community expressed support for Alternative 2. EPA has prepared a Responsiveness Summary that summarizes the public comments and

[2] The February 2011 Office of Management and Budget (OMB) Memorandum entitled *2011 Discount Rates for OMB Circular No. A-94* was used as guidance for selecting the discount rate for this cost estimate.

EPA's responses to those comments. The Responsiveness Summary is included in Part III of this ROD.

11.0 Principal Threat Waste

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site, wherever practical. The principal threat concept is applied to the characterization of "source material" at a Superfund site. Source material is material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contaminants to ground water, surface water or air, or acts as a source for direct exposure. EPA has defined principal threat wastes as those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.

PCB oil and the PCB-contaminated sediments with high concentrations that have been found within the Ten Mile drain system are considered principal threat wastes. PCB oils are dense non-aqueous phase liquids, are highly mobile, and are considered a highly hazardous substance.

This interim action does not use treatment to address the principal threat wastes at the site. PCB oil and the PCB-contaminated sediments with high concentrations will be removed, transported, and disposed at approved off-site TSCA disposal facilities. A more permanent solution for the principal threat wastes at the site will be evaluated in the long-term final cleanup plan for the site. The small volume of principal threat waste managed in the selected alternative does not make it practicable for treatment.

12.0 Selected Remedy

EPA is selecting Alternative 2 as the interim remedy to address PCB-contaminated materials accumulating behind the weirs within the Ten Mile drain system, to mitigate the further migration of these materials into the Lange and Revere Street canals.

12.1 Summary of Rationale for the Selected Remedy

The selected remedy is considered an interim remedial action for the site. This limited-scope action is intended only to address the PCB contamination behind the seventeen weirs and sediment trap at the outfall installed within the Ten Mile storm drainage system.

Based on the information available, the selected remedy satisfies the following statutory requirements of CERCLA section 121(b): (1) it is protective of the human health and environment, (2) it complies with ARARs specific to the limited scope of the interim action, (3) it is cost effective, and (4) it satisfies the preference for treatment as a principal element, or explain why the preference for treatment will not be met. Unacceptable short-term impacts are not expected to occur.

The selected remedy is intended to provide interim source control measures to mitigate the discharge of PCB contamination to the Lange and Revere Street canals. This action is a protective interim action that provides adequate steps to reduce the volume of PCBs discharged into the canals. A final response action to fully address the threats posed by Ten-Mile Drain Site will be taken upon completion of the RI/FS and selection of a final remedy for the site.

12.2 Description of Remedial Components

The selected interim action addresses the accumulation of PCB contamination behind weirs that were installed in the Ten Mile drain storm sewer system. The selected interim remedy includes the following source control activities:

- **Monitoring and Sampling:** Monthly monitoring of sediment and oil behind the seventeen weirs near the Bon Brae and Harper intersection and at the sediment trap located at the outfall of the Ten Mile drain will be conducted. Sediment samples will be collected using a stainless steel Ponar sampler or similar device capable of collecting submerged sediment samples with minimal disturbance and/or resuspension of sediments. Visual observations will be made of the collected materials to determine the presence of oil. EPA will evaluate the effectiveness of its sediment collection method and adjust it as deemed necessary. EPA may also adjust the frequency of the monitoring and sampling events as deemed necessary;
- **Removal of Sediment:** Sediment removal will generally be conducted behind any weir or at the outfall sediment trap if the depth of the sediment is sufficient that it is recoverable from the drain. Sediment removal will be conducted using the same device used in the sediment monitoring activities or by another method deemed appropriate by EPA. Sediment removal will generally be conducted concurrent with the sampling effort. If sample results later show that the sediments that were removed were not contaminated with PCBs, and if this trend continues for more than one month, then EPA may decide during subsequent events to leave sediments in place behind the weirs and/or at the outfall sediment trap until sample results are received that confirm the presence of PCBs.
- **Removal of Oil:** If visual observation reveals the presence of oil behind the weirs, absorbent snares will be used to wipe up and absorb the oil and the soiled snares removed. After the oil is removed, clean absorbent snares will be placed in the drain directly upgradient of the selected weir or the sediment trap at the outfall. The snares will be attached to a weighted chain to hold them at the bottom of the drain. During each monitoring event absorbent snares will be removed and inspected. If the absorbent snares appear stained or statured with oil they will be replaced.
- **Disposal of Saturated Snares and PCB-Contaminated Sediment:** PCB-contaminated sediment and saturated snares will be placed in Michigan

Department of Transportation-approved 55-gallon drums, transported and disposed at an approved disposal facility.

The source control activities selected in this ROD are interim measures to prevent the further migration of contamination to the canals, while EPA continues through the remedial process and until a final long-term remedial action is selected and implemented at the site.

12.3 Summary of Estimated Remedy Costs

Cost estimates can be found in Table 1. The information in the cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

12.4 Expected Outcome(s) of the Selected Remedy

This interim action for the Ten-Mile Drain Site monitors and removes PCB contamination from the drain and prevents its further migration to the canals, thereby preventing further environmental degradation.

13.0 Statutory Determinations

Under CERCLA section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, attain Federal and State requirements that are applicable or relevant and appropriate for this remedial action (or invoke an appropriate waiver), are cost-effective, and utilize permanent solutions and alternative treatment technologies (or resource recovery) to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against off-site disposal of untreated wastes. The following sections discuss how the selected remedy addresses these statutory requirements.

13.1 Protection of Human Health and the Environment

The selected remedy is a protective interim action only and is not intended to be protective of human health and the environment for all site risks. The selected remedy will provide adequate steps to reduce the volume of PCBs discharged into the canals until a final remedy is implemented. The selected interim source control activities will monitor and reduce the volume of PCB oil and contaminated sediment in the drain, and abate the potential risk of further migration to the canals. The selected remedy will not pose unacceptable short-term risk or cross-media impacts.

13.2 Compliance with ARARs

The selected remedy is expected to comply with the state and federal ARARs that are specific to the limited scope of this interim action, including federal TSCA regulations. Upon the completion of the RI/FS, EPA will propose a remedial action to address the entire site. This interim remedial action may become part of the site-wide remedial action, which will attain ARARs. The ARARs for this interim action are listed in Tables 2 and 3. All federal and any more stringent State ARARs identified for this interim remedial action will be met, unless, due to the interim nature of this remedy, they cannot be met.

13.3 Cost-Effectiveness

EPA has determined that the selected remedy is cost-effective and represents a reasonable level of protectiveness (in this case, prevention of further environmental degradation) for the money to be spent, especially considering the objectives of the interim action. In making this determination the following definition was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness." (NCP Section 300.430(f)(1)(ii)(D)). "Overall effectiveness" was evaluated by assessing three of the five balancing criteria (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of this interim remedial action was determined to be proportional to its costs and hence the remedy represents a reasonable level of protectiveness for the money spent. The estimated cost of the selected interim remedial action is $232,150 per year, with a total present value over five years of $1,131,338.

13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

This interim action uses permanent solutions and treatment to the maximum extent practicable. The low volume and nature of the waste generated for off-site disposal does not make treatment practicable. A more permanent solution is anticipated in the long-term final cleanup plan.

13.5 Preference for Treatment as a Principal Element

This selected interim action does not satisfy the statutory preference for treatment. Treatment of PCB oil and sediment is not practical in this interim action because of the immediate nature of the action and the small quantity of PCBs that will be removed from the drain.

13.6 Five-Year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a

statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

14.0 Documentation of Significant Changes

The Proposed Plan for the Ten-Mile Drain Site identified Alternative 2 as the preferred interim remedial action alternative for the Ten-Mile Drain Site. The Proposed Plan public comment period ran from July 6, 2011, through August 6, 2011. CERCLA 117(b) and NCP 300.430(f)(5)(iii) requires an explanation of significant changes from the remedy presented in the Proposed Plan that was published for public comment. Upon review of all written and verbal comments submitted during the public comment period, EPA determined that a significant change to the remedy as identified in the proposed plan was necessary.

The proposed plan discussed activities that would handle the accumulation of PCB contamination behind the weirs and at the outfall sediment trap, and stated that sediment removal generally would be conducted if more than six inches of sediment were found with PCB concentrations greater than 50 ppm. During public comment period, concerns were raised that the trigger for the removal of sediment should be more stringent than 50 ppm, as that trigger could imply that EPA is willing to allow PCBs at 49 ppm or less to migrant to the canals. This was not EPA's intent. The ultimate goal of this interim action is to minimize the migration of PCBs to the canals, so the selected action clarifies this intent. Additionally, based on the historical presence of PCBs in all sediment and oil samples collected from the drain to date, EPA believes it is appropriate to remove all recoverable sediment (and oil) from the drain without first waiting to receive the analytical results of the samples collected during each monitoring and sampling event. Therefore, the ROD clarifies that sediment removal will be conducted behind any weir or at the outfall trap if the depth of the sediment is sufficient that it is recoverable from the drain. If the sample results later show that the sediments that were removed were not contaminated with PCBs, and if this trend continues for more than one month, then EPA may decide during subsequent events to leave sediments in place until receiving sample results that confirm the presence of PCBs.

PART III: RESPONSIVENESS SUMMARY

In accordance with CERCLA Section 117, 42 U.S.C. Section 9617, EPA released the Proposed Plan and Administrative Record on July 6, 2011, and the public comment period ran through August 6, 2011, to allow interested parties to comment on the Proposed Plan for this site. EPA held an open house and public meeting regarding the Proposed Plan on July 26, 2011, at the Blossom Heath Inn, St. Clair Shores, Michigan, and approximately 25 people attended the meeting. Representatives from EPA, MDEQ, Macomb County Health Department, City of St. Clair Shores, Macomb County Public Works, and Congressman Levin's Office were present at the public meeting.

This Responsiveness Summary provides both a summary of the public comments EPA received regarding the Proposed Plan for the Ten-Mile Drain Superfund Site and EPA's responses to those comments. EPA received written comments (via fax, regular and electronic mail) and verbal comments (at the public meeting) during the public comment period. Copies of all the comments received (including the verbal comments reflected in the transcript of the public meeting) are included in the Administrative Record for the site. EPA, in consultation with MDEQ, carefully considered all comments prior to selecting the interim remedy documented in this ROD. A complete copy of the Proposed Plan, Administrative Record, and other pertinent documents are available at the St. Clair Shores Public Library, 22500 E 11 Mile Road, St. Clair Shores, Michigan.

EPA received comments from the general public, the Michigan Department of Community Health, and the City of St. Clair Shores. For purposes of this responsiveness summary, the comments are summarized and similar comments may have been consolidated or grouped by the issue raised. Comments in their entirety can be found in the Administrative Record.

The comments are categorized as follows:

- Comments from the General Public;
- Comments from the City of St. Clair Shores;
- Comments from the Michigan Department of Community Health.

Comments from the General Public:

Comment:

One commenter recently moved to an assisted living facility in St. Clair Shores near the intersection of Bon Brae Street and Harper Avenue (the location of the Ten-Mile Drain Site). The commenter was concerned about the very strong taste and odor of their drinking water and asked if this could be caused by the site.

Response:

Lake St. Clair is the main source of drinking water for the City of St. Clair Shores. The majority of St. Clair Shores' residents, if not all, are connected to a public water supply. For this reason, exposure to PCB contamination from the site via drinking water is not likely.

Comment:

A commenter suggested that EPA direct the water from the Ten Mile drain storm sewer system to the existing water treatment plant for processing. The commenter adds that this would be less expensive than the cost of Alternative 2 and provide immediate results.

Response:

The selected interim remedial action does not address surface water, but is intended to provide interim source control measures to mitigate the discharge of PCB contamination to the Lange and Revere canals and address the accumulation of PCB contamination behind the weirs until a final remedy is implemented. EPA is currently in the early stages of a fund-lead remedial investigation/feasibility study, with a focus on identifying the source of the PCBs. The final remedy will fully consider surface water issues and address any unacceptable surface water contamination.

Comment:

The commenter agreed with the Alternative 2 source control plan and asked if high PCB concentrations have been found why they were not cleaned up.

Response:

EPA appreciates the support for Alternative 2. EPA conducted a removal action at the site on February 26, 2011, to remove PCB oil from the drain. The interim source control activities include not only periodic monitoring but removal of PCB oil and contaminated sediment that has accumulated behind the weirs. EPA has not yet identified the source of the PCB contamination and will not be able to select and implement a final cleanup plan for the site until it completes the remedial investigation and feasibility study.

Comment:

The commenter suggested sealing off the pipes from Bon Brae Street and Harper Avenue and running a new pipe down Bon Brae Street, and added that this would save the federal government money. The commenter also indicated that there should be records of transformer storage yards or where transformers were buried and EPA should look for the source on Harper Avenue.

Response:

Sealing off the Ten Mile drain storm sewer system, installing new storm sewer lines, or conducting other construction activities are outside the scope of this interim action. The purpose of the selected interim action is to provide interim source control measures to mitigate the discharge of PCB contamination to the canals from the drain while EPA continues its remedial investigation and until a final cleanup plan is selected for the site.

Between 2002 and 2005, EPA conducted various civil investigations using the information gathered by the criminal investigation and responses to information requests, locating and interviewing individuals, reviewing documents, plats, aerial overviews, building permits, and on-line databases. The search for a party (or parties) responsible for the PCB contamination at the Ten-Mile Drain Site is ongoing. EPA continues to request that residents provide valuable tips and leads for follow-up by EPA civil investigators. In addition, in late April 2011 EPA collected 90 samples near the intersection of Bon Brae Avenue and Harper Street in an effort to identify the source of the PCBs.

Comment:

The commenter suggested that EPA collect soil borings around the contaminated area, remove contaminated soils and replace with clean soil, and monitor the drain for 12 months. In addition, the commenter suggested that EPA acquire ownership of any private property exhibiting the presence of PCB oil.

Response:

EPA is currently in the early stages of its remedial investigation/feasibility study, with a focus on identifying the source of the PCBs. EPA recently conducted additional sampling activities around the contaminated area (near the intersection of Bon Brae and Harper Avenue) and, after evaluating those results, may conduct additional sampling before making a final site-wide cleanup decision. EPA will continue to work closely with all affected and nearby property owners in St. Clair Shores throughout the remedial process, but EPA has no plans to acquire ownership of any private property.

Comment:

The commenter is concerned about watering vegetable gardens and the grass.

Response:

According to the Michigan Department of Community Health, PCBs tend to stick to sediment rather than float in the water so concentrations would be much lower in the water. Nevertheless, MDCH suggests that residents wait until the source is located and secured before using canal water in yards.

Comments from City of St. Clair Shores:

Bryan Babcock from the City of St. Clair Shores' Public Works Department submitted oral comments at the public hearing. He thanked EPA, expressed support for Alternative 2, and said that the City appreciates all the work by EPA to keep the contamination out of the canals. The City also submitted the following written comments by mail:

1. The City requested, as part of the interim cleanup plan, that EPA clean out the storm water treatment devices or catch basins annually to reduce the amount of PCB-contaminated material that builds up in the drain.
2. The City requested monthly interim reports.
3. The City asked how and at what locations the depth of the sediment in the outlet structure would be determined.
4. The City requested a water sample be collected at the outlet on a monthly or quarterly basis.
5. The City suggested that an additional groundwater monitoring well with a vertical sump be installed near M7179 at the soil boring location where high PCB concentrations were found by EPA contractors in 2011.

Responses:

EPA appreciates the support for Alternative 2. The selected source control activities are interim measures to mitigate the discharge of PCB contamination to the Lange and Revere canals from the drain while EPA continues its remedial investigation and until a final long-term cleanup plan is selected and implemented at the site. The objective of the interim remedy is to prevent further environmental degradation by mitigating the migration of PCB contaminants from traveling to the canals. As discussed below, the City's comments 1, 4, and 5 are outside the limited scope of the interim action and were therefore not included in the source control activities selected in this ROD.

1. Cleaning out the City's catch basins is outside the scope of this interim action. Catch basins serve to prevent large objects and debris from falling into the storm sewer system. The catch basins do not appear to be contributing to ongoing PCB recontamination of the storm drainage system. The focus of EPA's interim action is to address the accumulation of PCBs contamination behind the weirs that were previously installed in the Ten Mile drain storm sewer system. Therefore, EPA did not include annual clean-out of catch basins in the source control activities selected in this ROD.
2. EPA will provide the City of St. Clair Shores with monthly reports as available.
3. EPA intends to determine the sediment depth in the drain by inserting a polyvinyl chloride or similar type probe into the accumulated sediment on the upstream side of the weir plate. The "offset distance" from the top of the suspected sediment to the concrete flow channel will be measured to the nearest half inch and recorded.

The same approach will be used to determine the sediment depth at the outlet structure.

4. EPA's selected interim action does not address surface water, but as previously stated focuses on the PCB contamination in oil and sediment accumulating behind the weirs and mitigation measures to prevent the discharge of that contamination to the canals. The remedial investigation and final remedy will fully consider surface water issues and address any unacceptable surface water contamination.
5. The selected interim action does not address groundwater, but groundwater issues will be considered during the remedial investigation and addressed as needed in the final remedial action. If additional groundwater monitoring wells are needed as part of the remedial investigation or final remedial action they will be installed at that time.

Comments from the Michigan Department of Community Health:

1. The City of St. Clair Shores conducts quarterly sampling behind the weirs. MDCH supports the increase in frequency of sampling and recommends that EPA employ methods that will minimize disturbing and resuspension of the sediment.
2. MCDH recommends that EPA set more stringent criteria [than described in the Proposed Plan] when determining the point at which contaminated sediment will be removed.

Responses:

1. EPA appreciates the support for Alternative 2. EPA has included in the ROD language that specifies that sediment samples will be collected using a stainless steel Ponar sampler or similar device capable of collecting submerged sediment samples with minimal disturbance and resuspension of sediments. EPA will evaluate the effectiveness of its sediment collection method and adjust it as necessary.
2. As discussed in the ROD (see Section 14, Documentation of Significant Changes), the recommendation to set more stringent criteria for triggering the removal of sediment was considered and addressed. EPA agrees that the trigger for removal of sediment from the drain should be more stringent than what was described in the Proposed Plan. Accordingly, reference to a PCB trigger concentration of 50 ppm has been removed and is not part of the selected interim action.

FIGURES

FIGURE 1
Site Location Map

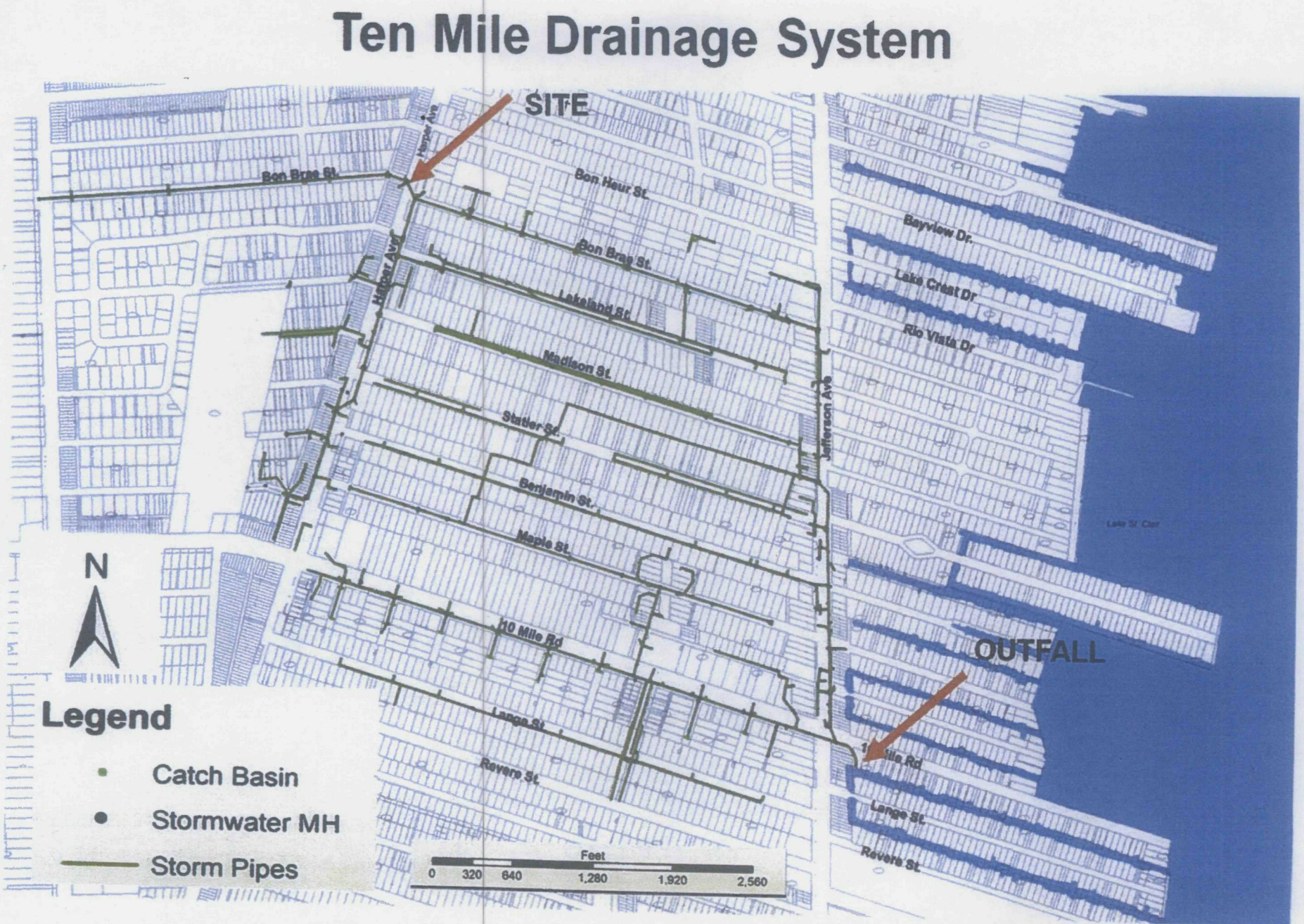
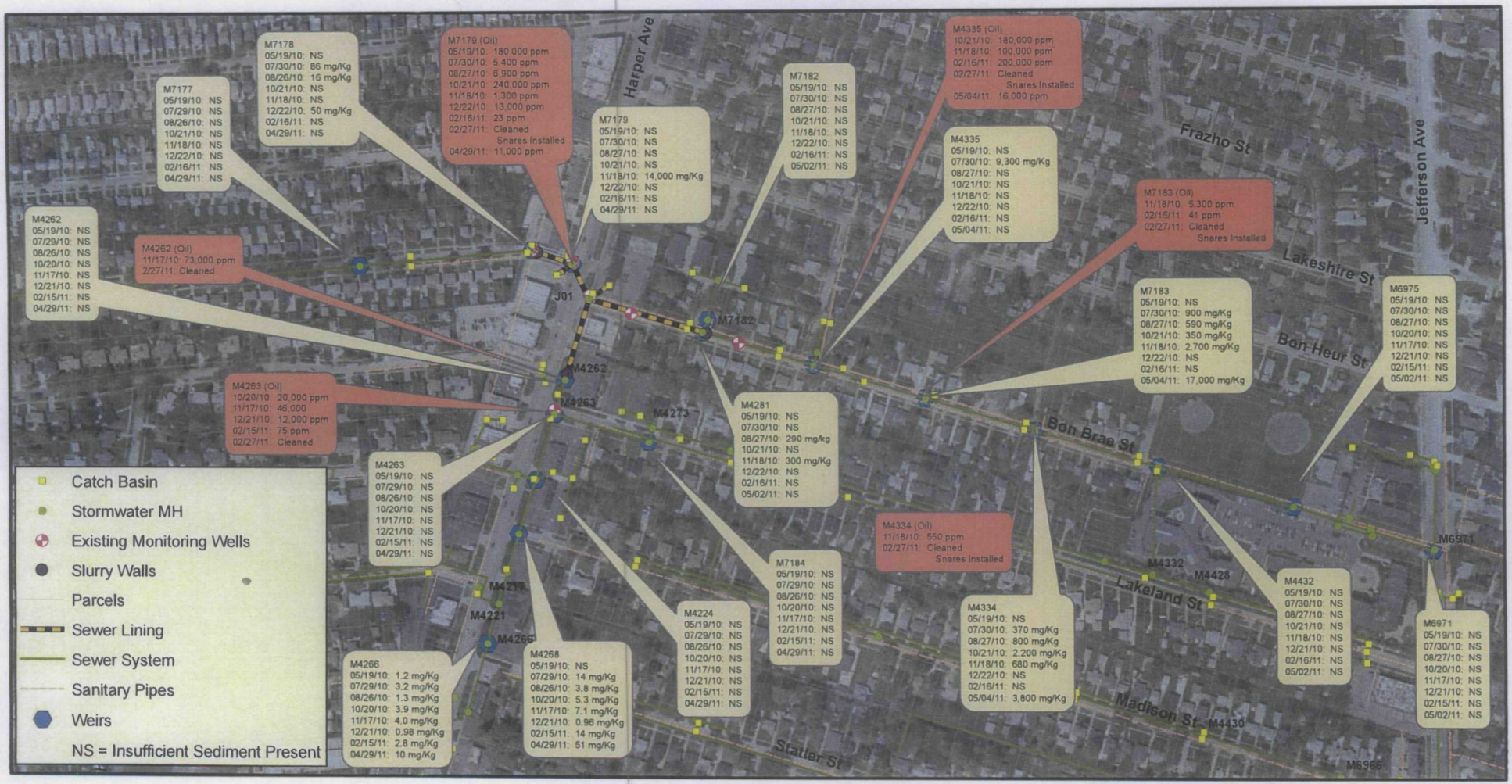


FIGURE 2
Example of a Weir

FIGURE 3
Weir Location Map

Figure 4: Ten Mile Drain
Sediment Results Total PCBs



FIELDS

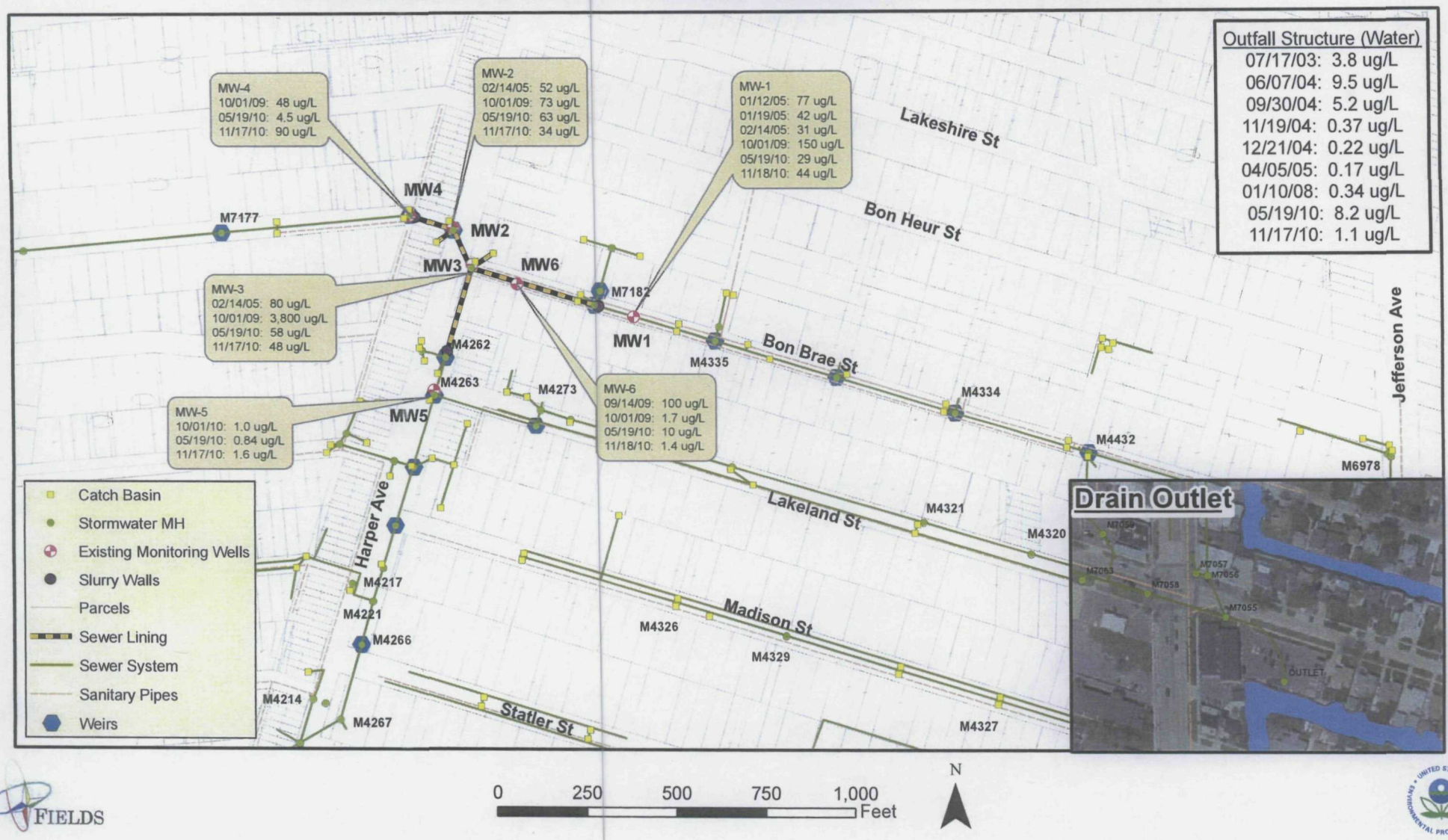
0 350 700 1,050 1,400 Feet

N

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FIGURE 5
Site Location Map
(Location of Former Martin Drain)

Figure 6: Ten Mile Drain
Ground and Storm Water Results Total PCBs



FIELDS

TABLES

TABLE 1
Preliminary Cost Estimate for Source Control Activities

United States Environmental Protection Agency
Ten Mile Drain - St. Clair Shores, Macomb County, Michigan
Source Control Activities - Rough Order of Magnitude Cost Estimate for PCB Oil/Sediment (Monitoring, Sampling, Removal and Disposal Activities)

Site: Ten Mile Drain
Location: St. Clair Shores, MI

Description: Source Activities Detailed Costing

Assumptions:
1. Sediment Monitoring is performed at 17 weir locations and Ten Mile Drain Outfall
2. Sediments can be moved by man powered mechanical methods
3. Labor Rate of $120 for all personnel
4. No pumps will be used to transfer, relocate water or dewater storm sewers, manholes or Ten Mile Drain

Task 1	PCB Oil/Sediment Monitoring and Sampling	QTY	UNIT	UNIT COST	TOTAL	NOTES
	Work Planning and Coordination	16	Hours	$120	$1,920	
	Monthly Monitoring and Sampling Labor	480	Hours	$120	$57,600	*Assume 2 person, 20 hour sampling events each, includes travel to and from the project site*
	Sampling Equipment, Supplies, Containers, Coolers, PPE	1	Lump Sum	$2,500	$2,500	*Assume Ponar sampler, Tyveks, Nitrile Gloves, 24 Coolers, Misc. Equipment*
	Adsorbent Snares	36	Bale	$200	$7,200	*Assume 3 bales per monthly sampling/monitoring event*
	Analytical Laboratory	180	Samples	$150	$27,000	*If EPA lab is utilized, no charge to project. (Sample Analysis is for PCB's).*
	Travel, Meals, Lodging	24	Sampling Event	$250	$6,000	*Assume hotel fee $100, meals $100, gas/travel $50*
	Postage/Shipping	1	Lump Sum	$1,500	$1,500	
	Health and Safety	1	Lump Sum	$2,000	$2,000	
	Project Management	72	Hours	$120	$8,640	*Coordination, reporting, communications*
	Sub-total Sediment Monitoring and Sampling Activities				$114,360	
	25% Contingency				$28,590	
	Total Sediment Monitoring and Sampling Activities				**$142,950**	
Task 2	**Sediment Removal**	**QTY**	**UNIT**	**UNIT COST**	**TOTAL**	**NOTES**
	Subcontractor Procurement, Evaluation	20	Hours	$120	$2,400	
	Subcontractor Sediment Removal Assistance - Labor	120	Hours	$75	$9,000	*Assume 1 Subcontractor Staff, (12) 10 hour sampling events*
	Subcontractor Sediment Removal Assistance - Equipment	12	Day	$500	$6,000	*Assume flat bed truck with hydraulic or mechanical lift, traffic control devices and misc equipment*
	Subcontractor Sediment Removal Assistance - Per Diem	12	Day	$50	$600	*Assume meals $50*
	Sediment Removal Equipment, Supplies, Drums, Containers, PPE	1	Lump Sum	$2,500	$2,500	*Assume Ponar sampler, Tyveks, Nitrile Gloves, (50) 55 gal. drums, Misc. Equipment*
	Subcontractor Management	12	Hours	$120	$1,440	
	Sub-total Sediment Removal Activities				$21,940	
	25% Contingency				$5,485	
	Total Sediment Removal Activities				**$27,425**	
Task 3	**Sediment Transportation and Disposal**	**QTY**	**UNIT**	**UNIT COST**	**TOTAL**	**NOTES**
	Work Planning and Coordination	16	Hours	$120	$1,920	
	Subcontractor Procurement, Evaluation	20	Hours	$120	$2,400	*Prepare SOW, H&S and Submittal Approvals*
	Sampling Disposal Activities - Labor	48	Hours	$120	$5,760	*Assume 1 person, (6) 8 hour events, includes travel to and from the project site*
	Subcontractor Sediment Disposal - Wayne Disposal - Labor, disposal costs	60	Drums	$200	$12,000	*Assume 5 drums per month - $200/drum disposal costs*
	Subcontractor Disposal - Wayne Disposal - Equipment & Transportation	6	Removal Event	$500	$3,000	
	Travel, Meals, Lodging	6	Removal Event	$50	$300	*Assume meals $50*
	Subcontractor Management	12	Hours	$120	$1,440	
	Health and Safety	1	Lump Sum	$1,000	$1,000	
	Project Management	24	Hours	$120	$2,880	
	Sub-total Sediment Transportation and Disposal Activities				$30,700	
	25% Contingency				$7,675	
	Total Sediment Transportation and Disposal Activities				**$38,375**	
Task 4	**Analytical Support, Date Evaluation, Annual Interim Action Report Preparation**	**QTY**	**UNIT**	**UNIT COST**	**TOTAL**	**NOTES**
	Data Support, Management, and Review	96	Hours	$120	$11,520	
	Annual Interim Action Report	60	Hours	$120	$7,200	
	Sub-total Analytical Support, Data Validation and Data Evaluation Activities				$18,720	
	25% Contingency				$4,680	
	Total Analytical Support, Data Validation and Data Evaluation Activities				**$23,400**	
	Total Annual Rough Order of Magnitude Cost Estimate				**$232,150**	

TABLE 1

Preliminary Cost Estimate for Source Control Activities

PRESENT VALUE ANALYSIS (5-year)		Discount Rate = 1.3%		
End Year	COST TYPE	TOTAL O&M COST/YEAR	DISCOUNT FACTOR	PRESENT VALUE
0	ANNUAL COST - Source Control Activities	$232,150	1.000	$ 232,150
1	ANNUAL COST - Source Control Activities	$232,150	0.987	$ 229,171
2	ANNUAL COST - Source Control Activities	$232,150	0.974	$ 226,230
3	ANNUAL COST - Source Control Activities	$232,150	0.962	$ 223,327
4	ANNUAL COST - Source Control Activities	$232,150	0.950	$ 220,461
		TOTAL PRESENT VALUE OF 5 YEAR O&M		$ 1,131,338

The enclosed pricing is a rough order of magnitude Cost Estimate with an accuracy level of (+50% to -30%), and only an estimate of possible costs for budgeting purposes. This estimate is limited to the conditions existing at its issuance and is not a guaranty of actual price or cost. Uncertain market conditions such as, but not limited to: local labor or contractor availability, wages, other work, material market fluctuations, price escalations, force majeure events, and developing bidding conditions etc may affect the accuracy of this estimate. CH2M HILL is not responsible for any variance from this estimate or actual prices and conditions obtained.

TABLE 2
Federal ARARS
Ten-Mile Drain Superfund Site

Regulation/Citation	Description	Rationale
Toxic Substances Control Act (TSCA)/ 15 USC §§2601 to 2692	TSCA addresses the production, importation, use, and disposal of specific chemicals including PCBs.	PCBs are the major contaminate at the site
TSCA Polychlorinated Biphenyls (PCB) Regulations 40 CFR 761	This regulation establishes prohibitions of, and requirements for, the manufacture, processing, distribution in commerce, use, disposal, storage, and marking of PCBs and PCB Items.	Provides clean up levels and disposal requirements at Superfund sites with PCBs.
Criteria for Classification of Solid Waste Disposal Facilities and Practices/ (RCRA Regulations) 40 CFR 257	Establishes standards for the management and disposal of solid waste, including: 1) Facility or practices in floodplains will not restrict the flow of base flood, reduce the temporary water storage capacity of the floodplain, or otherwise result in a washout of solid waste; 2) Facility or practices shall not cause discharge of dredged or fill material into waters of the United States; 3) Facility or practice shall not allow uncontrolled public access so as to expose the public to potential health and safety hazards; 4) Covers groundwater monitoring and corrective action requirements under Subpart E and closure and post closure care under Subpart F	May be considered as it offers guidance on management of waste.
Resource Conservation and Recovery Act (RCRA) (see Solid Waste Disposal Act)/ 42 USC §§ 6901 to 6992k	RCRA addresses solid wastes and hazardous wastes in or on the land; requires the conversion of existing open dumps to facilities which do not pose a danger to the environment or to health.	Provides guidance on management of solid waste.
USDOT Placarding and Handling 40 CFR 264.227 49 CFR 171	Transportation and handling requirements for materials containing PCBs with concentrations of 20 mg/kg or more.	This would apply to transportation of PCB contamination removed from the drain.
Occupational Safety and Health Act – Hazardous Waste Operations and Emergency Response 29 CFR 1910.120	Establishes health and safety requirements for cleanup operations at sites on the National Priorities List.	Applies to any action alternative for protection of onsite workers.

TABLE 3
Michigan ARARs
Ten-Mile Drain Superfund Site

Regulation/Citation	Description	Rationale
Michigan Occupational Safety and Health Act (MIOSHA) Public Act 154 of 1974, as amended. Michigan Administrative Code: • Safety Standards for General Industry; • Health Standards for General Industry; • Safety Standards for Construction; • Health Standards for Construction; • Administrative Rules for General Industry, Construction Health, and Agricultural Operations (R 408.1001-1094).	Occupational safety and health standards adopted to provide safe and healthful employment or places of employment, which may include medical monitoring. Provides safety standards for hazards, air contaminants, physical hazards, health hazard control measures, illumination, sanitation, employee right-to-know, and others. Regulations containing worker health and safety standards for construction and general industry operations and requirements for worker training specifically "Hazardous Waste Operations and Emergency Response (HAZWOPER)." This is the statute adopted by Michigan from the Federal OSHA. Rules contain a list of permissible exposure limits in the work place for more than 600 chemical compounds.	On-site remedial actions have the potential to expose workers to contaminants found in affected media, i.e., soil, air and water. Construction, excavation and other site actions may present potential health hazards to nearby workers. Human labor will likely be required to construct remedial systems as well as provide long-term routine/non-routine maintenance on the systems. Such activities are governed by worker safety and health standards under this act and are applicable to all site actions and activities.
Michigan Motor Carrier Safety Act of 1963 Public Act 181 of 1963, as amended. (MCL 480.11, et seq.) Michigan Administrative Code: Transportation of Hazardous Materials (R 480.11-25).	Rules governing the transportation of hazardous materials.	Used to protect the public, first responders to hazardous incidents and the environment from hazardous materials.
Part 17, Michigan Environmental Protection Act, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.1701, et seq.) Michigan Administrative Code: R 324.1701, et. seq. Formerly known as Act 127 (1970)	Provides for the protection of natural resources. The protection of state resources prohibits any action that pollutes, impairs, or destroys the state's natural resources, due to any activities conducted at a site of environmental contamination.	Applied in remedial investigation, remedial design, response activity and remedial action activities.

TABLE 3
Michigan ARARs
Ten-Mile Drain Superfund Site

Regulation/Citation	Description	Rationale
Part 31, Water Resources Protection, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.3104, et seq.) Michigan Administrative Code: R 324.3103, et. seq. • Part 1: General provisions provide purpose, i.e., implementation of the act and definitions (R 323.1001, et. seq.); • Part 4: Michigan water quality standards for surface waters to protect public health and welfare, enhance and maintain water quality, and protect the state's natural resources (R 323.1041-1117); • Part 5: Spillage of oil and polluting materials addresses spill containment, prevention, clean-up, and reporting (R 323.1158, et. seq.); • Part 6: Cleaning agents and water conditioners (R 323.1171, et. seq.); • Part 8: Water quality based effluent limits for toxic chemicals (R 323.1201-1221); • Part 9: Wastewater Reporting (R 299.9001, et. seq.); • Part 10: Treatment plant operators; • Part 21: Wastewater discharge permits identifies NPDES and State groundwater discharge requirements, including procedures for permit application, permit issuance, and denial (R 323.2106, R 323.2108-9, R 323.2114, R 323.2117-2119, R 323.2128, R 323.2136, R 323.2145, R 323.2149-2151, R 323.2154-2155, R 323.2162-2164, and R 323.2190-2192); • Part 22: Groundwater quality rules R 323.2201-2240); and • Part 23: Pretreatment (R 323.2301 et. seq.). Formerly known as Act 245 (1929)	These rules address discharges to both surface waters and groundwater of the State. Part 31 prohibits direct or indirect discharge to ground or surface waters of the state that are or may become injurious to the environment or public health. Regulates water and wastewater discharges with standards for discharge to groundwater. Defines effluent guidelines based on actual water quality, receiving stream properties, and other appropriate water quality criteria. Provides criteria and standards for the National Pollutant Discharge Elimination System (NPDES) and effluent standards for toxic pollutants. This is the implementing statute for the federally delegated NPDES program.	Remedial action may result in the discharging of remediated and unremediated contaminated groundwater into waters of the state, i.e., groundwater, surface water, or any other water course. Applicable for remedial alternatives which will treat and/or discharge wastewater to surface waters of the state. Cites specific requirements for the discharge of bioaccumulative chemicals. Discharge requirements can be identified through a substantive requirements document (SRD). Prevents concentrations in surface water of taste and odor producing substances. Prevents acutely and chronically toxic substances from entering surface water based on the LC50 toxicity criteria. Prevents degradation of water quality. Restricts levels of turbidity, color, oil films, floating solids, foams, settling and suspended solids, and deposits.
Part 115, Solid Waste Management, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.115, et seq.) Michigan Administrative Code: R 324.11501, et. seq. Formerly known as Act 641 (1978)	Addresses solid waste management including general landfill design requirements as promulgated in the administrative rules of the Michigan Solid Waste Management Regulations. Regulates the construction and operation of sanitary landfills, solid waste transfer facilities, and solid waste processing plants. Specifies liner and capping requirements for solid waste landfills. Requirements for the operation and closure of non-hazardous waste treatment, storage, and disposal and groundwater quality performance standards. Also imposes geographic limitations on where non-hazardous solid waste can be disposed.	Regulates the disposal of non-hazardous solid waste. Provides requirements for closure and post-closure of non-hazardous solid waste treatment, storage, and disposal facilities. Provides groundwater quality performance standards. Remedial action may produce non-hazardous solid waste, which must be disposed of in accordance with Part 115. Used for determining the process and type of disposal facility that solid waste or contaminated media may be removed to. May apply to closure (capping) of a landfill. May serve as a basis of design for containment of non-hazardous solid waste on-site.

TABLE 3
Michigan ARARs
Ten-Mile Drain Superfund Site

Regulation/Citation	Description	Rationale
Part 121, Liquid Industrial Wastes, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.121, et seq.) Michigan Administrative Code: R 324.12101, et. seq. Formerly known as Act 136 (1969)	Regulates liquid industrial waste generators, transporters and designated facilities. Transporters are required to be registered and permitted in accordance with the hazardous materials transportation act. Requires a registered and permitted liquid industrial waste transporter to remove any liquid waste off-site. Records are required to be kept by those who generate such waste, under Section 3a. Liquid industrial waste is defined as "any liquid waste, other than unpolluted water."	Remedial action may require the storage, transportation and disposal of liquid industrial wastes. Applies to the on and off-site management of liquid industrial wastes.
Part 201, Environmental Remediation, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.201, et seq.) Michigan Administrative Code: R 299.5511(3)(d), et. seq. Formerly known as Act 307 (1982)	In part, protects the environment and natural resources of the state; regulates the discharge of certain substances into the environment; regulates the use of certain lands, waters, and other natural resources of the state; and prescribes the powers and duties of certain state and local agencies and officials.	Establishes cleanup criteria for sites of environmental contamination based on current and future land use. Regulates cleanup of releases of hazardous substances in concentrations that constitute a facility as that term is defined in Section 20101(o) of Act 451 to soil and groundwater.
Part 327, Great Lakes Preservation, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.327, et seq.) Michigan Administrative Code: R 324.32701, et. seq.	The waters of the state are valuable public natural resources held in trust by the state, and the state has a duty as trustee to manage its waters effectively for the use and enjoyment of present and future residents and for the protection of the environment. The waters of the Great Lakes within the boundaries of this state shall not be diverted out of the drainage basin of the Great Lakes.	May be applied to site remediation that would affect the diversion or consumptive use of waters of the Great Lakes.
Part 329, Great Lakes Protection, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.329, et seq.) Michigan Administrative Code: R 324.32901, et. seq.	Careful management of the Great Lakes will permit the rehabilitation and protection of the lakes, their waters, and their ecosystems, while continuing and expanding their use for industry, food production, transportation, and recreation.	May be applied to site remediation that would affect the Great Lakes.
Part 401, Wildlife Conservation, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.401, et seq.) Michigan Administrative Code: R 324.40102, et. seq.	Regulates wildlife conservation.	May be applied to identifying wildlife habitat near environmental sites of contamination where an ecological risk assessment(s) may be conducted. May be used in conjunction with the Michigan Features Inventory List to identify habitat where an environmental site of contamination may impact wildlife.
Part 411, Protection and Preservation of Fish, Game, and Birds, of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.411, et seq.) Michigan Administrative Code: R 324.41101, et. seq.	Regulates the protection and preservation of fish, game, and birds.	May be applied to site remediation to protect and preserve fish, game and birds.

APPENDIX A

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
TEN MILE DRAIN SITE
ST. CLAIR SHORES, MACOMB COUNTY, MICHIGAN

SUPPLEMENT TO THE ADMINISTRATIVE RECORD
SEPTEMBER 21, 2011

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	07/00/11	U.S. EPA	Public	Fact Sheet: EPA Proposes Interim Cleanup Plan for PCB Contamination for the Ten Mile Drain Site	8
2	07/07/11	Concerned Citizen	McSeveney, M., U.S. EPA	Public Comment Sheet re: Comments on the Proposed Interim Cleanup Plan for the Ten Mile Drain Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	2
3	07/09/11	Concerned Citizen	McSeveney, M., U.S. EPA	Public Comment Sheet re: Comments on the Proposed Interim Cleanup Plan for the Ten Mile Drain Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	2
4	07/11/11	Concerned Citizen	McSeveney, M., U.S. EPA	Public Comment Sheet re: Comments on the Proposed Interim Cleanup Plan for the Ten Mile Drain Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	2
5	07/12/11	Concerned Citizen	McSeveney, M., U.S. EPA	Public Comment Sheet re: Comments on the Proposed Interim Cleanup Plan for the Ten Mile Drain Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	2
6	07/15/11	Concerned Citizen	McSeveney, M., U.S. EPA	Public Comment Sheet re: Comments on the Proposed Interim Cleanup Plan for the Ten Mile Drain Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	2
7	07/26/11	Smith, K., Tappert Court Reporting Service	U.S. EPA	Transcript: July 26, 2011 Public Meeting for U.S. EPA Proposal on Interim Cleanup Plan for PCB Contamination at the Ten Mile Drain Site	

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
8	08/04/11	Babcock, B., City of St. Clair Shores	Moynihan, C., U.S. EPA	Letter re: City of St. Clair Shores Comments on the Interim Cleanup Plan for the Ten Mile Drain Site	2
9	08/05/11	Bush, C., MDCH	McSeveney, M., U.S. EPA	FAX Transmission re: MDCH Comments on the Proposed Interim Cleanup Plan for the Ten Mile Drain Site	3

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
TEN MILE DRAIN SITE
ST. CLAIR SHORES, MACOMB COUNTY, MICHIGAN

ORIGINAL
JUNE 30, 2011
(SDMS ID: 405229)

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	2002-2003	U.S. EPA	Public	Administrative Record for Removal Action (Original-Update #4) at the Ten Mile Drainage System PCB Site (DOCUMENTS CONTAINED ON THE INDEX ARE INCORPORATED BY REFERENCE INTO THE REMEDIAL AR FOR THE TEN MILE DRAIN SITE) **(SDMS ID: 167738)**	3
2	02/01/06	U.S. EPA	Public	Administrative Record for Removal Action at the St. Clair Shores Drain Site (DOCUMENTS CONTAINED ON THE INDEX ARE INCORPORATED BY REFERENCE INTO THE REMEDIAL AR FOR THE TEN MILE DRAIN SITE) **(SDMS ID: 249256)**	1
3	12/03/09	MDEQ	File	Site Inspection Report for the St. Clair Shores Drain Site **(SDMS ID: 355378)**	387
4	03/00/10	U.S. EPA	File	HRS Documentation Record for the St. Clair Shores Drain Site **(SDMS ID: 355373)**	41
5	06/08/10	Kozel, L., Weston Solutions, Inc.	Kimble, J., U.S. EPA	Letter re: Bon Brae/ Harper Site Removal Action w/ Attachments **(SDMS ID: 405228)**	290
6	03/18/11	CH2M Hill	U.S. EPA	Technical Memorandum re: Interim Action Measures for PCB Oil/Sediment Monitoring and Removal **(SDMS ID: 405221)**	5
7	03/24/11	Environmental Consulting & Technology, Inc.	File	Maps: Sediment Sampling Results May 2010 - February 2011 **(SDMS ID: 394563)**	7

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
8	05/00/11	Environmental Consulting & Technology, Inc.	File	Map: Ten Mile Drain Sediment Results Total PCBs **(SDMS ID: 405227)**	1
9	05/03/11	DeMaria, A., Environmental Consulting & Technology, Inc.	Babcock, B., City of St. Clair Shores	Memorandum re: 10 Mile Drain Sampling Summary **(SDMS ID: 394565)**	22
10	06/09/11	DeMaria, A., Environmental Consulting & Technology, Inc.	Babcock, B., City of St. Clair Shores	Memorandum re: 10 Mile Drain Sampling Summary **(SDMS ID: 405220)**	19