FINAL
Assessment of Contaminated Sediments Mid/Lower Trenton Channel Area Site Characterization Report

Detroit River Area of Concern, Grosse Ile, Michigan

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	Degrees Celsius
µg/kg	Micrograms per kilogram
µmol	Micromole
AOC	Area of concern
AVS	Acid volatile sulfide
COC	Contaminant of concern
cy	Cubic yard(s)
DQO	Data quality objective
DRO	Diesel range organics
EA	EA Engineering, Science, and Technology (MI), PLC and its Affiliate EA Science and Technology
EC_{30}	Effect Concentration for 30 percent
EC_{50}	Effect Concentration for 50 percent
EPA	U.S. Environmental Protection Agency
ESB	Equilibrium Partitioning Sediment Benchmarks
ESBTU	Equilibrium Partitioning Sediment Benchmarks Toxicity Unit
FD	Field duplicate
FSP	Field Sampling Plan
ft	Foot (feet)
g_{oc}	Gram organic carbon
GLNPO	Great Lakes National Program Office
GPS	Global positioning system
LRROC	Lower Rouge River Old Channel (a Great Lakes Legacy Act site)
MDNR	Michigan Department of Natural Resources
mg/kg	Milligram(s) per kilogram
MLTC	Mid/Lower Trenton Channel
MS	Matrix spike
MSD	Matrix spike duplicate
ND	Not detected
ORO	Oil range organics
PAH	Polycyclic aromatic hydrocarbon

PCB	Polychlorinated biphenyl
PEC	Probable effects concentration
PEC-Q	Probable effects concentration quotient
PRG	Preliminary remediation goal
QAPP	Quality Assurance Project Plan
RAP	Remedial Action Plan
RL	Reporting limit
R/V	Research vessel
SCBA	Sediment Contaminant Bioavailability Alliance
SEM	Simultaneously extracted metals
SOP	Standard operating procedure
SQG	Sediment Quality Guidelines
SSRSL	Sample-specific risk screening level
TEC	Threshold effects concentration
TOC	Total organic carbon
TPH	Total petroleum hydrocarbons (sum of ORO and DRO)
WGS84	World Geodetic System 1984

EXECUTIVE SUMMARY

This report presents the characterization of contaminated sediments for the Mid/Lower Trenton Channel (MLTC) Area (site), located within the Detroit River Area of Concern (AOC), Grosse Ile, Michigan. This work was conducted by EA Engineering, Science and Technology, (MI) PLC and its affiliate EA Science and Technology (EA) and the U.S. Environmental Protection Agency's (EPA's) Great Lakes National Program Office (GLNPO) in accordance with the Quality Assurance Project Plan (QAPP) and the Field Sampling Plan (FSP) for the MLTC Area Site Characterization, Detroit River AOC, Grosse Ile, Michigan (EA 2014a and 2014b), finalized October 2014. To address the delisting criteria and allow for the eventual removal of the Degradation of Benthos beneficial use impairment, EPA's GLNPO, the Michigan Department of Environmental Quality, the Detroit River Public Advisory Committee, and Friends of Detroit River initiated an effort in 2012 to define the "known contaminated sediment sites" in the Detroit River. The partnership conducted a content analysis of a number of contaminant studies and established six sediment target sites. The MLTC area is one of the six target areas.

The purpose of this field investigation was to determine the nature and extent of chemical contamination in the areas of soft sediment deposition. This Site Characterization Report summarizes the findings from the field investigation, including data tables and maps, data interpretations, and findings of the investigation. The overall objective of this report is to identify priority areas within the MLTC area at which remediation efforts should be initiated or where further investigation should be conducted. This Executive Summary provides a summary of the findings of the Site Characterization Report. Details on the site background and methodology, and further detail on the findings and conclusions are presented in chapters 1 through 8 of the report.

E.1 SEDIMENT CHEMISTRY RESULTS

For reporting and visual presentation of the results of the sediment investigation, the MLTC area was divided into two separate areas. Area A, the northern portion of the site, extends from the Grosse Ile Toll Bridge south to Grosse Ile Parkway, and includes sample locations in Monguagon Creek, the Black Lagoon inlet (also known as Elias Cove), and the canal adjacent to Elizabeth Park. A federal navigation channel runs the length of the channel in Area A. Area B, the southern portion of the site, extends down the channel from Grosse Ile Parkway to just south of Calf Island, and includes sample locations in Humbug Marsh, Humbug Marina, and in the southern portion of the canal adjacent to Elizabeth Park. The federal navigation channel also extends into Area B, where it terminates ¼ mile south of the Grosse Ile Parkway.

Bulk Chemistry

In general, the highest concentrations of constituents were located along the western side of the channel in both Area A and Area B. The western side of the channel includes Monguagon Creek, Black Lagoon, Humbug Marsh, and Humbug Marina. Total polychlorinated biphenyls

(PCBs) exceedances, including concentrations elevated above the probable effects concentration (PEC), were detected in surface grab samples and at various depth intervals in the subsurface samples at multiple locations in both Area A and Area B. PCB concentrations did not exceed the PEC in samples on the eastern side of the channel in Area B. Concentrations of PCBs exceeding the PEC in subsurface samples in Area B were limited to those sampling locations in Humbug Marsh.

For total 17 polycyclic aromatic hydrocarbons (PAHs), the majority of sample locations along the western side of the channel in Area A had at least one interval with concentrations exceeding the PEC. No sample locations on the eastern side of the channel in Area A had concentrations exceeding the PEC. All sample locations in Monguagon Creek and the canal adjacent to Elizabeth Park had total 17 PAHs concentrations that exceeded the PEC. In Area B, concentrations exceeding the PEC were more common in surface samples, although results exceeding three times the PEC were detected at deeper intervals at locations MLTC14-31 (north of Humbug Marsh) and MLTC14-47 (Humbug Marina).

No surface samples in Area A had arsenic concentrations exceeding the PEC. Only one location in Area A (MLTC14-09), located on the western side of the channel, had subsurface samples with arsenic concentrations exceeding the PEC. Several locations in Area A did have surface and subsurface samples with arsenic concentrations exceeding the threshold effects concentration (TEC). Arsenic concentrations in Area B did not exceed the PEC, but several locations did have arsenic concentrations exceeding the TEC.

Cadmium concentrations in grab and core samples in Area A were elevated above the PEC at several locations on the western side of the channel, and at one location on the eastern side (MLTC14-10) in the subsurface samples. Every subsurface depth interval at MLTC14-04 was elevated three times the PEC. Several locations in Area B, primarily on the western side of the channel, had cadmium concentrations that exceeded the TEC; but, no locations in Area B had cadmium concentrations that exceeded the PEC. Concentrations of chromium exceeding the PEC were widespread through the sample intervals of locations on the western side of the channel in Area A. One location on the eastern side of the channel in Area A (MLTC14-10) also had subsurface samples with chromium concentrations exceeding the PEC. Only two locations in Area B had chromium concentrations that exceeded the PEC and exceedance at both were detected in subsurface samples (MLTC14-31 and -32).

Concentrations of copper exceeding the PEC were detected in both surface and subsurface samples in Area A, primarily at locations on the western side of the channel. Copper concentrations exceeding the PEC were more common at depths than in the surface samples. Several locations in Area B had copper concentrations that exceeded the TEC, but only two locations (MLTC14-31 and -47) had concentrations that exceeded the PEC; exceedances at both locations were detected in subsurface samples. The majority of locations on the western side of the channel in Area A had concentrations of iron exceeding the PEC in both surface and subsurface samples. Only one location on the eastern side of the channel in Area A (MLTC14-10) had iron concentrations that exceeded the PEC. Four locations in Area B had iron concentrations that exceeded the PEC (MLTC14-26, -31, -32, and -37). MLTC14-31, -32, and -37 are located just north of Humbug Marsh.

Concentrations of lead that exceeded the PEC were primarily located along the western side of the channel in Area A. Lead concentrations exceeding the PEC were detected in surface samples as well as subsurface samples at multiple depths. Only one location in Area A on the eastern side of the channel (MLTC14-10) had lead concentrations exceeding the PEC. Three locations in Area B, in the canal adjacent to Elizabeth Park and north of Humbug Marsh, had results exceeding the PEC (MLTC14-26, -31, and -32). Several locations in Area A had results with mercury concentrations that exceeded three times the PEC; all locations were along the western side of the channel. Mercury concentrations that exceeded three times the PEC were detected in both surface and subsurface samples. One location on the eastern side of the channel in Area A (MLTC14-10) had mercury concentrations that exceeded the PEC; in the subsurface samples. Concentrations of mercury did not exceed the PEC in the surface samples collected in Area B. Three locations in Area B, along the western side of the channel, had subsurface samples with mercury concentrations that exceeded the PEC (MLTC14-31, -32, and -47).

The majority of locations on the western side of the channel in Area A had concentrations of nickel that exceeded the PEC; both surface and subsurface samples. All subsurface samples at MLTC14-04 had nickel concentrations that exceeded three times the PEC, as did the majority of samples at MLTC14-08. One location on the eastern side of the channel in Area A (MLTC14-10) had concentrations of nickel that exceeded the PEC. No surface samples on the eastern side of the channel had nickel concentrations that exceeded the PEC. Three locations in Area B, along the western side of the channel, had subsurface samples with nickel concentrations that exceeded the PEC (MLTC14-31, -32, and -47). The majority of locations on the western side of the channel in Area A had concentrations of zinc that exceeded the PEC; both surface and subsurface samples. All subsurface samples at MLTC14-04 had zinc concentrations that exceeded two times the PEC. One location on the eastern side of the channel in Area A (MLTC14-10) had concentrations of zinc that exceeded the PEC. No surface samples on the eastern side of the channel had zinc concentrations that exceeded the PEC. Four locations in Area B, along the western side of the channel, had samples with zinc concentrations that exceeded the PEC (MLTC14-26, -31, -32, and -47).

Results for DRO and ORO are presented in Table 3-7. The highest concentration of DRO (C_{10}-C_{20}) was detected in the surface interval of location MLTC14-18 (3,300 mg/kg). The highest concentrations of ORO (C_{20}-C_{36}) was detected in the surface interval of MLTC14-08 (8,900 mg/kg).

DRO (C_{10}-C_{20}) and ORO (C_{20}-C_{36}) concentrations were summed (by location) to create a total petroleum hydrocarbon (TPH) concentration (TPH [DRO+ORO]) for each location. Figure 3-12 presents the distribution of TPH (DRO+ORO) results in Area A and Area B. There are no PECs for TPH (DRO + ORO), but for the purposes of this report TPH (DRO+ORO) was divided into ranges for comparison to previous studies. Three locations, all in Area A, had TPH (DRO+ORO) values greater than 10,000 mg/kg (MTLC14-08, -16, and -18).

E.2 EQUILIBRIUM PARTITIONING SEDIMENT BENCHMARK TOXIC UNITS AND PROBABLE EFFECT CONCENTRATION QUOTIENTS

Equilibrium Partitioning Sediment Benchmark Toxicity Units (ESBTUs) were calculated to estimate whether there is potential ecological risk associated with exposure to porewater that is in equilibrium with a measured concentration of the contaminant in the sediment. Typically, a PAH ESBTU less than or equal to 1 indicates that benthic organisms are not expected to be harmed by contamination present in the sediments (EPA 2003a). The samples with PAH ESBTUs greater than 1 may be toxic to aquatic life. Of the 192 sediment samples, 120 had a PAH ESBTU less than 1, and 72 samples had a PAH ESBTU equal to or greater than 1. Several ponar grab samples throughout Areas A and B had a PAH ESBTUs between 1 and 7.5. A PAH ESBTU equal to or exceeding 10 (≥10) was calculated for the ponar grab samples from locations MLTC14-01 and MLTC14-56 located in Monguagon Creek, as well as MLTC14-53 from the canal adjacent to Elizabeth Park; all in Area A. In the sediment core samples, PAH ESBTUs between 1 and 7.5 were calculated for samples from various depth intervals throughout Areas A and B. ESBTUs greater than 10 were calculated at two locations in Area A: MLTC14-47, 3-5 foot (ft) interval; and MLTC14-57, 1-3 ft interval.

Probable effect concentration quotients (PEC-Qs) are used to evaluate the combined effects of chemical mixtures on the toxicity of sediments to benthic organisms (Ingersoll et al. 2001). They use consensus-based freshwater sediment quality guidelines to calculate concentration quotients (or hazard quotients), defined as measured sediment concentrations divided by the specific sediment quality guideline for that particular chemical or metal. The principle of PEC-Qs is to calculate the geometric mean of all quotients for that particular sediment sample, including those for metals, PAHs, and PCBs. A benchmark PEC-Q of 0.5 was used because the proportion of organisms which show a toxic effect is in the range of 6 – 35 percent when a geometric mean of the PEC-Q of 0.5 is used; meaning that between 94 percent and 65 percent of organisms do not show a toxic effect when the PEC-Q is 0.5 (Ingersoll et. al. 2001). A single PEC-Q was determined for each sediment sample (named the mean PEC-Q) to provide an overall measure of chemical contamination and to support an evaluation of the combined potential effects of multiple constituents in the sediment collected from the site (EPA 2000).

Mean PEC-Qs at the MLTC area ranged from 0.03 at location MLTC14-06, to 19.45 at location MLTC14-53. The mean PEC-Q for each sediment sample was compared to benchmarks of 0.5 and 1. Nearly all locations on the western side of the channel in Area A had samples with PEC-Qs equal to or exceeding 1; including five locations (MLTC14-04, -08, -53, -56, and -58) with PEC-Qs equal to or exceeding 5.0 (Figure 5-1A). Only one location (MLTC14-10) on the eastern side of Area A had PEC-Qs greater than 0.5. Although the majority of locations in Area B had PEC-Qs equal to or exceeding 0.5, the majority of samples in Area B had PEC-Qs below 0.5 (Figure 5-1B). Ten surface samples had PEC-Qs between 0.5 and 1 (MLTC14-32, -34, -36, -39, -41, -42, -43, -46, -47, and -50), and three surface samples had PEC-Qs between 1 and 5 (MLTC14-26, -35, and -37). Five locations in Area B had sub-surface samples with PEC-Qs greater than 0.5 (MLTC14-25, -31, -32, -35, -47).

E.3 SPATIAL ANALYSIS

To determine the location of hot spots within the MLTC area all individual constituents with concentrations exceeding their respective PEC in sediment samples, the calculated PAH ESBTUs, and the calculated PEC-Qs were spatially interpolated using the kriging method. Although ESBTUs were also calculated for metals, this data was not included in the spatial analysis because all metal ESBTUs fell below the EPA guidance concentration for risk of adverse biological effects. Determination of hot spots allows priority areas to be targeted for further investigation or remediation. Nine hot spots in the study area where one or more analytes were present in concentrations exceeding the PEC have been identified. The nine identified hot spot areas were prioritized for further investigation and potential remediation efforts by taking into consideration the results of the spatial analysis of PAH ESBTUs and PEC-Qs. Hot spots were categorized as Level 1, 2, or 3, with Level 1 hot spots having the highest impact and Level 3 hot spots having the lowest impact and lowest priority for further investigation.

To be considered Level 1, hot spots must have a contaminant result that is equal to or greater than three times its PEC, a PEC-Q value equal to or greater than 5, or an ESBTU equal to or greater than 7.5. Hot Spots 1, 2, 3, 4, 5, 7, and 9 have at least one COC result that is equal to or greater than three times its PEC and therefore meet the Level 1 criteria. Hot Spots 1, 2, and 5 also have at least one PEC-Q equal to or greater than 5, and Hot Spots 1, 5, and 9 also have at least one ESBTU result equal to or greater than 7.5.

Hot Spot 1 includes a portion of Monguagon Creek and the area adjacent to the southwest of the Grosse Ile Toll Bridge in Area A (sample locations: MLTC14-01, -56, -57, and -58). The COCs in Hot Spot 1 are total PCBs, total 17 PAHs, and six metals (chromium, copper, lead, mercury, nickel, and zinc). The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs; which exceeded three times the PEC at MLTC14-01, -56, and -57. Sample locations MLTC14-01, -56, and -57 had ESBTUs greater than 15. Sample locations MLTC14-56 and -58 had PEC-Qs greater than 5 (7.38 and 5.40, respectively). Hot Spot 2 is located along the western side of the channel in Area A (sample locations: MLTC14-04, -07, -08, and -09). The COCs in Hot Spot 2 are total PCBs, total 17 PAHs, and nine metals (arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The predominant constituent contributing to elevated concentrations above the PEC is total PCBs; which exceeded three times the PEC at MLTC14-04, -07, -08, and -09. Two sample locations in Hot Spot 2 had PEC-Qs greater than 5 (7.24 and 8.17, respectively). Hot spots 2 and 4 are separated by locations MLTC14-11 and -12, which did not have PEC exceedances.

Hot Spot 3 is located on the eastern side of channel (the western shore of Grosse Ile, Michigan) in Area A (sample location: MLTC14-10). The COCs in Hot Spot 3 are total PCBs, cadmium, chromium, copper, iron, lead, mercury, nickel and zinc. Concentrations of total PCBs exceeded three times the PEC in Hot Spot 3. ESBTUs did not equal or exceed 1 at MLTC14-10 in Hot Spot 3, and MLTC14-10 had a PEC-Q of 1.66. Hot Spot 4 is located on the western side and middle of the channel towards the center of Area A, and includes Black Lagoon (sample locations: MLTC14-12, -13, -14, -15, -16, -17, -48, -49, and -55). The COCs at Hot Spot 4 are total 17 PAHs, total PCBs, and eight metals (cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The predominant constituent contributing to elevated concentrations above the PEC is mercury; which exceeded three times the PEC at MLTC14-14, -16, -17, and -48. Seven of the nine sample locations in Hot Spot 4 also had ESBTUs greater than 1 (MLTC14-14, -15, -16, -17, -48, -49, and -55), but none exceeded 7.5. No sample location in Hot Spot 4 had a PEC-Q exceeding 5. Sample location MLTC14-15 had the highest PEC-Q in Hot Spot 4, at 2.68.

Hot Spots 4 and 5 are separated geographically, with Hot Spot 5 being limited to the canal adjacent to Elizabeth Park in the southern portion of Area A and the northern portion of Area B (sample locations: MLTC14-18, -26, -53, and -54). The COCs at Hot Spot 5 are total 17 PAHs, total PCBs, and eight metals (cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs; which exceeded three times the PEC at MLTC14-53 and -54. ESBTUs exceeded 10 at sample location MLTC14-53 (30.06). All four sample locations in Hot Spot 5 had PEC-Qs greater than 0.5. Sample locations MLTC14-53 had a PEC-Q of 19.45.

Hot Spot 7 is located in Area B on the western side of the channel, and includes Humbug Marsh and portions of the channel on the eastern and southern sides of Humbug Island (sample locations: MLTC14-31, -32, -35, -36, -37, -41, -42, and -50). The COCs for Hot Spot 7 are total 17 PAHs, total PCBs, and eight metals (cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The predominant constituent contributing to elevated concentrations above the PEC is Mercury; which exceeded three times the PEC at MLTC14-31 and -32. Sample location MLTC14-31, north of Humbug Marsh, had the highest ESBTU in Hot Spot 7 at 2.93. The highest PEC-Q in Hot Spot 7 was 2.32 at MLTC14-31 Hot Spot 9 is located in Area B on the western side of the channel, and includes Humbug Marina (sample location: MLTC14-47). The COCs for Hot Spot 9 are total PAHs, cadmium, copper, lead, mercury, nickel, and zinc. The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs; which exceeded three times PEC at MLTC14-47. MLTC14-47 in Hot Spot 9 had an ESBTU of 11.8, and a PEC-Q of 2.75.

To be considered Level 2, hot spots must have a contaminant result that is equal to or greater than three times its PEC, a PEC-Q value equal to or greater than 1, or an ESBTU equal to or greater than 7.5. Sample location MLTC14-25 in Hot Spot 6 had a PEC-Q of 1.25 and meets the Level 2 criteria. Hot Spot 6 is located on the eastern side of the channel in Area B. The COC for this hot spot area is 17 PAHs; which exceeded two times the PEC at MLTC14-25. MLTC14-25 had an ESBTU of 1.88, and a PEC-Q of 1.25.

To be considered Level 3, hot spots must have a contaminant result that is equal to or greater than three times its PEC, a PEC-Q value equal to or greater than 0.5, or an ESBTU equal to or greater than 1. Sample location MLTC14-39 in Hot Spot 8 had a PEC-Q of 0.64 and an ESBTU of 1.22, and thus meets the Level 3 criteria. Hot Spot 8 is located on the eastern side of the channel towards the middle of Area B, and includes sample location MLTC14-39. The COC for this hot spot area is total 17 PAHs.

E.4 CONCLUSIONS

Based on the data collected during the MLTC area sediment characterization, the Level 1 (highest impact) hot spot areas with elevated concentrations of constituents are: Hot Spot 1 (Monguagon Creek and the area adjacent to the southwest of the Grosse Ile Toll Bridge in Area A); Hot Spot 2 (located along the western side of the channel in the northern portion of Area A); Hot Spot 3 (located on the eastern side of the channel in Area A); Hot Spot 4 (located along the western side and to the middle of the channel in Area A); Hot Spot 5 (located in the canal adjacent to Elizabeth park in both Area A and Area B); Hot Spot 7 (located on the western side of the channel in Area B and includes portion of Humbug Marsh and the channel on the eastern and southern sides of Humbug Island); and Hot Spot 9 (located on the western side of the channel in Area B and includes part of Humbug Marina. The model estimated that these seven high impact hot spots have an estimated total of 1,983,800 cubic yards (cy) of sediment with constituent concentrations exceeding the PEC.

Although all the hot spot areas identified in the MLTC area should be considered for further investigation, at least the seven high impact Level 1 hot spot areas in the MLTC area should be considered a priority for further investigation and potential remediation efforts in the MLTC area. Model results indicated that each of these areas has a large volume of sediment with elevated concentrations of constituents exceeding two or three times the PEC. Modeling of the PAH ESBTUs and the PEC-Qs also showed elevated values within the high impact hot spot areas that were identified when modeling all constituents with concentrations above the PEC. Further delineation of the extent of sediment with elevated concentrations of constituents is recommended.

The potential might exist for elevated concentrations further north of Level 2 Hot Spot 6; additional sampling would assist in determining the impact of outfalls located north of sample location MLTC14-25.

1. INTRODUCTION

This report presents the contaminated sediments assessment site characterization for the Mid/Lower Trenton Channel (MLTC) Area (the site), located within the Detroit River Area of Concern (AOC), Grosse Ile, Michigan (Figure 1-1). This work was conducted by EA Engineering, Science, and Technology, (MI) PLC and its affiliate EA Science and Technology (EA) and the U.S. Environmental Protection Agency's (EPA's) Great Lakes National Program Office (GLNPO) in accordance with the Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP) for the MLTC Area Site Characterization, Detroit River AOC, Grosse Ile, Michigan finalized October 2014 (EA 2014a and 2014b).

1.1 WORK SCOPE AND OBJECTIVES

1.1.1 Project Objectives

The purpose of the field investigation was to determine the nature and extent of chemical contamination in the areas of soft sediment deposition. Primary objectives were to determine depth and areal extent of contamination, provide information about depositional areas, and identify high priority areas for remediation or for further investigation in the MLTC area.

1.1.2 Objectives of the Site Characterization Report

This site characterization report summarizes the findings from the field investigation, including data tables and maps, data interpretation, and findings of the investigation. The results of this site characterization were evaluated to assess the sediment quality of the MLTC area. The overall objectives of this report are to define the spatial extent of constituents and soft sediment, develop a preliminary estimate of volume of sediment with elevated concentrations of constituents, and identify priority areas within the MLTC area at which remediation efforts should be initiated.

1.2 SITE LOCATION AND HISTORY

The Detroit River is part of the international connecting waterway—consisting of the St. Clair River, Lake St. Clair, and the Detroit River—that links Lake Erie to the upper Great Lakes. A 32-mile strait, the Detroit River drains approximately 700 square miles of land in Michigan and Ontario, as well as the 946 square mile City of Detroit "sewershed" (Figure 1-1). The mean discharge of the Detroit River into Lake Erie is 185,000 cubic feet per second. Its velocity is 1 to 3 feet (ft)/second, and the average time for water to pass through the river is about 21 hours. It has five tributaries, although more than 95 percent of its total flow comes from Lake Huron via the St. Clair River and Lake St. Clair. The MLTC area is located in the Trenton Channel in the lower Detroit River (Figure 1-2).

The Detroit River has a past and present use as an industrial and drinking water source. Very little history exists documenting the nature and extent of contamination. The river is heavily industrialized and has been for nearly 100 years. Under the Great Lakes Water Quality Agreement, a Detroit River Stage 1 Remedial Action Plan (RAP) was completed in 1991. The Stage 1 RAP described the river's use and conditions, and identified 11 beneficial use impairments (BUIs) for the Detroit River AOC (Michigan Department of Natural Resources [MDNR] 1991). Known causes of the impairments include urban and industrial development in the watershed, bacteria, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals, and oils and greases. Combined sewer overflows and municipal and industrial discharges are major sources of contaminants within the AOC. Stormwater runoff and discharge from tributaries in Michigan are also major sources of contaminants. The following BUIs were identified in the Stage 1 RAP:

1. Restrictions on fish and wildlife consumption
2. Tainting of fish and wildlife flavor
3. Restrictions on drinking water consumption, or taste and odor
4. Degradation of fish and wildlife populations
5. Beach closings
6. Fish tumors or other deformities
7. Degradation of aesthetics
8. Bird or animal deformities or reproduction problems
9. Degradation of benthos
10. Restriction on dredging activities
11. Loss of fish and wildlife habitat.

At the time the Stage 1 RAP was drafted, six municipal drinking water intakes serving approximately 4.1 million people in nearly 100 communities and approximately 25 industries withdrew water from the Detroit River. As a receiving water, approximately 30 industries and power plants discharged cooling water and/or process water, and 10 municipal wastewater treatment plants discharged industrial and domestic wastewater. The principal industrial discharges were on the Michigan shoreline along the lower 15 miles of the river from Zug Island downstream through the Trenton Channel to the mouth of Lake Erie. Major industries included steel mills, petroleum refineries, electrical power generating plants, chemical manufacturing plants, and automotive part manufacturers. The largest discharger to the river was the Detroit Water and Sewerage Department, which discharged an average of 700 million gallons per day, including waste from more than 700 industrial users. An additional 46 facilities discharged to Detroit River tributaries. The river also received urban and industrial runoff directly and through its tributaries and storm sewer systems (MDNR 1991).

Use of the river today is similar to 1991 except that there are fewer industries and wastewater treatment plants. Currently in the United States, there are four municipal drinking water intakes serving about 4.2 million people in nearly 127 communities. Approximately 20 industries and power plants discharge cooling water and/or process water to the river, and about 29 additional facilities discharge to the tributaries. There are five municipal wastewater treatment plants. Detroit Water and Sewerage Department is still the largest discharger, discharging an average of

710 million gallons per day, including waste from about 400 significant industrial users (EPA 2014).

The Stage 1 RAP and subsequent studies found that sediment contaminant concentrations in the Detroit River are generally much greater along the Michigan shoreline compared to the mid-river and Ontario shoreline (EPA 2014). The Michigan shoreline from the Rouge River downstream through the mouth of the Trenton Channel appears to be the most impacted. Contaminant distributions in sediment are reflective of a combination of historical point sources and hydrological effects.

Because there is little lateral mixing in the Detroit River, contaminants in sediment are believed to deposit according to long-shore water flow following a longitudinal vector. This has resulted in high contaminant levels in near shore zones, particularly downstream of point sources and tributaries, while large areas of the Detroit River exhibit moderate to low levels of contamination further away from the Michigan shore (MDNR 1991).

To address the delisting criteria and allow for the eventual removal of the degradation of benthos BUI, EPA GLNPO, Michigan Department of Environmental Quality, Detroit River Public Advisory Committee, and Friends of Detroit River initiated an effort in 2012 to define the “known contaminated sediment sites” in the Detroit River. The group conducted a content analysis of a number of contaminant studies and established six sediment target sites. The MLTC area is one of the six target areas (EPA 2014).

2. MID/LOWER TRENTON CHANNEL AREA SITE INVESTIGATION

The purpose of this field investigation was to determine the nature and extent of chemical contamination in the areas of soft sediment deposition. Primary objectives were to determine depth and areal extent of contamination, provide information about depositional areas, and identify high priority areas for remediation or for further investigation in the MLTC area.

The MLTC area site characterization was conducted in coordination with EPA. The investigations, including all sampling activities and analytical testing methods, were carried out in accordance with procedures outlined in the FSP and QAPP (EA 2014a and 2014b).

2.1 SAMPLING PROGRAM DESIGN AND RATIONALE

The site-specific QAPP details the project data quality objectives (DQOs) and outlines how the sample collection program fulfills the project objectives (EA 2014a). Sampling was conducted to delineate the nature and extent of sediment contamination in the MLTC area of the Detroit River AOC.

2.1.1 Sample Locations

The sample locations for the MLTC area site characterization were chosen based on historical sampling data, location of historic and current outfalls (Figure 1-2), water depth, proximity to the navigation channel, and input from MDEQ and the Detroit Riverkeeper was also received prior to finalization of sample locations. Additional information regarding the analytical program is included in the QAPP (EA 2014a).

Fifty locations within the MLTC area were originally chosen for sample collection using a vibracoring system and ponar grab sampler onboard the GLNPO *Research Vessel (R/V) Mudpuppy II*. During the field sampling event 11 locations were moved, 10 locations were abandoned after probing or after unsuccessful coring attempt, and 8 locations were added. One core and one ponar grab sample were collected from 39 locations for physical and chemical analysis; ponar samples only were collected at 9 locations due to poor core recovery or no core attempt made given probing results(Figure 2-1A and Figure 2-1B, Appendix A). The onboard Global Positioning System (GPS) of the *R/V Mudpuppy II* was used to navigate to each location. Target coordinates for each subsurface sediment sample location were provided to EA by the EPA. Variance from these coordinates was calculated and documented; actual coordinates are provided in Table 2-1. Sample locations that had to be moved or abandoned in the field are described in Section 2.8.

2.1.2 Number of Samples

Sediment core samples were collected from 39 sample locations, and ponar grabs only were collected at 9 locations. Deviation from the 50 target sample locations is described in Section 2.8. Cores were typically divided into four sampling intervals at each location. The sampling interval depths were as follows: 0-1 ft, 1-3 ft, and 2 ft thereafter until refusal. Sediment from each interval was homogenized prior to collection in individual containers for submittal to the laboratory. Sediment cores varied in length from 0.5-11.1 ft (Table 2-2). A total of 124 sediment samples from collected cores (not including quality control samples) were submitted for analysis (Table 2-3).

A surface sample of the top 6 inches (0-0.5 ft) of sediment was also collected with a ponar grab/dredge sampler at 48 of the proposed coring locations to provide sufficient sample volume to support analysis of the uppermost interval. A total of 48 surface grab samples (not including quality control samples) were submitted for analysis.

2.2 NAVIGATION AND SURVEY

The *R/V Mudpuppy II* navigated to each proposed sampling location using GPS with sub-meter accuracy. The onboard GPS of the *R/V Mudpuppy II* utilized the World Geodetic System 1984 (WGS84) to navigate and record each individual sampling location. The unit was checked daily for accuracy prior to use in accordance with the EPA's *Interim Guidance for Developing Global Positioning System Data Collection Standard Operating Procedures and Quality Assurance Project Plans* (EPA 2008) and the procedures outlined in the QAPP (EA 2014a). The sample locations are presented in Table 2-1. Once the vessel navigated to the sample location, the sampling team visually confirmed that the proximal location or surroundings matched the proposed location as shown on the proposed sample location map (Figure 2-1A and Figure 2-1B) prior to sampling.

2.3 SEDIMENT SAMPLING

Mobilization for the MLTC area sediment sampling commenced on 13 October 2014. Sample collection was initiated on 14 October and continued through 23 October 2014. Staging for the field effort took place at the EPA Large Lakes Research Station in Grosse Ile, Michigan. Modified Level D personal protective equipment (i.e., Saranex-coated Tyvek, safety glasses, work boots, and Nitrile gloves) were worn during core collection as necessary (EA 2014b). In addition, all personnel aboard the *R/V Mudpuppy II* had a respirator fit test within the last year, and respirators were onboard for each individual. EA standard operating procedures (SOPs) 016 and 059 for maintaining field logbooks (Attachment A of the FSP) were followed throughout sample collection and processing.

2.3.1 Vibracore Sampling

A total of 39 subsurface sediment cores were collected using a vibracoring system onboard the GLNPO *R/V Mudpuppy II*. The onboard GPS of the *R/V Mudpuppy II* was used to navigate to each location. The vibracoring system consisted of a core liner with an inside diameter of 4 inches. A core liner with a length of 5, 7.5, or 10 ft was fitted into the vibracoring unit with a one-way valve at the top to retain sediment during retrieval, and a plastic catcher inserted into the bottom of the core. Coring operations were conducted using an onboard crane, winch, and generator.

To obtain sediment samples, a dedicated, decontaminated cellulose acetate butyrate core liner was inserted directly into the vibracore unit and secured. The core was penetrated to the depth of refusal and then retrieved using the winch system. The core liner was removed from the vibracore unit and excess liner was cut to the sediment interface with an electric saw. The core was capped at both ends, sealed, and measured. Each core was labeled with the location number, date and time of collection, and direction of top and bottom of core.

Following collection, sediment cores were transferred to a refrigeration truck (cooled to 4 degrees Celsius [°C]) at the on-shore staging area. The cores were stored in the secured refrigeration truck until they could be processed. Appropriate holding times were maintained for all samples. Field books and sample collection data sheets were prepared in accordance with the procedures outlined in the FSP (EA 2014b). A log of coring activities, sampling locations, water depths, and core recoveries was recorded in permanently bound logbooks in indelible ink. Personnel names, local weather conditions, and other information that impacted the field sampling program were also recorded. Each page of the logbook was numbered and dated by the personnel entering information. Copies of the field logbooks are provided in Appendix A.

2.3.2 Ponar Grab Sampling

A total of 48 surface sediment samples (not including field duplicates) were successfully collected using a ponar sampler onboard the *R/V Mudpuppy II*. The ponar sampler was mechanically deployed and retrieved as described in Standard Operating Procedure MP102 (EA 2014b). The procedure included use of a davit to deploy the sampler off of the edge of the boat, retrieving the sampler to the boat deck, decanting water at the top of the sampler, and emptying the sediment into an appropriate pan. Decontaminated stainless-steel pans were used to capture the sediment as it was emptied from the ponar. Multiple deployments were sometimes necessary to collect sufficient volume.

Sediment for analysis of the ratio of simultaneously extracted metals (SEM) to acid volatile sulfide (AVS) was placed into a jar directly after the ponar sample was collected, and prior to homogenization of the material. Samples for SEM/AVS analysis were filled without headspace. Sediment for all other analyses was thoroughly homogenized and then placed into glass jars. The samples were transferred to the sample processing area located onshore and stored in a refrigeration truck (cooled to 4 °C) until transit to the laboratories facilities.

2.3.3 Sediment Core Processing

Core sediment sample processing was performed onshore at a temporary location at EPA’s Grosse Isle, Michigan facility; with the exception of cores from three locations (MLTC14-56, MLTC14-57, and MLTC14-58) which were processed onboard the *R/V Mudpuppy II* (Section 2.8). At the processing facility, cores were split lengthwise for examination and sampling. The cores were logged and photographed from the top of the core (sediment surface) to the bottom (recovery depth), representing a vertical profile of the soft sediment. Sediments were classified in general accordance with the Unified Soil Classification System under ASTM International

D2487-11. These sediment logging activities were performed in accordance with SOP 016 (Attachment A of the FSP).

After the log was completed, the sediment from each subsample interval was removed from the core or grab sampler with a decontaminated stainless-steel spatula or spoon and placed in a clean disposable aluminum try. Cores were subsampled at several depth intervals. Prior to collection, all material from a designated depth interval in a single core was homogenized by mixing until consistency was uniform. Sediment samples were packaged and shipped in accordance with EA SOPs (EA 2014b). Equipment that was re-used (e.g., cutting tools, broad knife, spatula, etc.) was decontaminated in accordance with the decontamination procedures described in Section 2.6. Lithologic and photographic logs of sediment cores are included in Appendices B and C, respectively.

2.4 ANALYTICAL PROGRAM

The analytical program is summarized in Table 2-3. Each sediment core sample and surface grab sample (172 total) underwent the following analyses:

- Total polychlorinated biphenyls (PCBs) (Aroclors)
- 34 polycyclic aromatic hydrocarbons (PAHs)
- Michigan 10 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc) plus iron and nickel
- Total organic carbon (TOC)
- Percent solids

In addition to the above analytical parameters, ponar grab sediment samples from the 0-0.5 ft interval were analyzed for:

- SEM/AVS
- Diesel range organics (DRO)
- Oil range organics (ORO)
- Grain size.

These analyses were only performed on ponar grab sediment samples because the data they yield are useful for assessing toxicity to organisms that typically contact only the surface sediments. Field duplicates were not collected for grain size analysis, and matrix spike (MS)/ matrix spike duplicate (MSD) samples were collected for percent solids or grain size.

2.5 SAMPLE HANDLING, CHAIN-OF-CUSTODY, AND QUALITY ASSURANCE/QUALITY CONTROL

2.5.1 Sample Handling, Chain-of-Custody, and Documentation

Sediment samples analyzed for: PCBs (Aroclors); PAHs; Michigan 10 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc) plus iron and nickel; TOC; percent solids; SEM/AVS; DRO; MRO; and grain size were shipped from the site to TestAmerica's laboratory in Burlington, Vermont. Samples were placed in the appropriate sample containers (obtained from TestAmerica), preserved, and labeled in accordance with the QAPP/FSP (EA 2014a and 2014b). With exception given to sediment collected for SEM/AVS analysis, sediments within an interval were mixed to uniform consistency to homogenize prior to placing in jars. Sediment sampled for SEM/AVS analysis was placed directly into jars after the ponar grab sample was collected, prior to homogenization. SEM/AVS samples were filled without head space. In preparation for shipment to the laboratories, all samples were packaged in accordance with the procedures outlined in the FSP (EA 2014b).

Sample labeling was performed in accordance with SOP 001 (Attachment A of the FSP). Individual sample containers were labeled with a unique designation that corresponded to the specific geographic location, year of collection, and subsample depth interval. The FSP (EA 2014b) outlines the specific sample identification procedures that were implemented. Sample identifications included the location (Mid/Lower Trenton Channel), the year of sampling (14), the location number, and either "-SURF" for surface samples or the interval from the core in feet. An example of a sample identifier is "MLTC14-22-0507;" which describes a sample collected at Mid/Lower Trenton Channel in 2014 at location 22 at the depth interval of 5-7 ft below the sediment surface. Sample depths were at intervals of 0-0.5 ft (SURF), 0-1 ft, and 2 ft thereafter. Field duplicates were designated by adding "FD" to the end of the sample identifier. MS)/MSDs were designated by adding "MS" or "MSD" to the end of the sample identifier. For example: MLTC14-22-0507FD or MLTC14-04-SURFMS.

Chain-of-custody forms were completed and used to track samples from the time of sampling to the arrival of samples at the laboratory. Completed chain-of-custody forms are provided in Appendix A of the Data Usability Assessment Report (EA 2015).

2.5.2 Quality Control

Throughout the project, various measures were implemented to ensure the overall quality and usability of the collected data. The field investigation activities included collection of additional quality control samples (e.g., duplicates, MS/MSD, etc.) sufficient to meet the requirements of the DQOs as defined in Section A.7 of the QAPP (EA 2014a). Duplicate samples were submitted as described in the FSP (EA 2014b), and field and laboratory quality control requirements were completed in accordance with Section B.5 of the QAPP. Deviations from the QAPP/FSP can be found in Section 2.8.

2.6 DECONTAMINATION

Decontamination procedures were implemented during the field investigation to prevent cross-contamination between sampling locations. During sampling activities, disposable or dedicated sampling tools and materials were utilized whenever possible to minimize the decontamination effort. Decontamination procedures were carried out in accordance with the SOPs presented in Attachment A of the FSP (EA 2014b).

2.7 INVESTIGATION-DERIVED WASTE

Following collection of the sediment samples, investigation-derived waste was managed in accordance with the procedures described in the SOPs presented in Attachment A of the FSP (EA 2014b). In general, residual sediments and decontamination water were returned to their respective sample location onsite. Disposable materials and personal protective equipment that came into contact with site sediments were bagged and disposed of as general municipal waste.

2.8 DEVIATIONS FROM THE QAPP AND FSP

2.8.1 Sampling Locations

Fifty sample locations within the MLTC area were originally chosen based on historical sampling data, location of historic and current outfalls, water depth, and input from MDEQ and the Detroit River Riverkeeper (Table 2-1).

A total of 11 of the target sample locations were moved during the field activities (Table 2-2). Seven locations (MLTC14-01, MLTC14-07, MLTC14-08, MLTC14-11, MLTC14-14, MLTC14-42 and MLTC14-55) were moved to locations of greater deposition. One location (MLTC14-16) was moved further south and into the marina to avoid utility lines. One location (MLTC14-04) was moved 15 to 20 ft away from the shoreline. One location (MLTC14-05) was moved about 330 ft west of the target location, closer to the shoreline. One location (MLTC14-10) was moved slightly due to its proximity to utilities.

A total of 10 locations were abandoned (MLTC14-02, MLTC14-20, MLTC14-23, MLTC14-24, MLTC14-27, MLTC14-28, MLTC14-29, MLTC14-30, MLTC14-33, and MLTC14-44) (Table 2-2). Five locations (MLTC14-20, MLTC14-28, MLTC14-30, MLTC14-33, and MLTC14-44) were abandoned without sampling attempt due to strong currents and/or a hard bottom surface revealed through probing with spuds. One location (MLTC14-23) was abandoned due to its proximity to utilities and a bridge. Four locations (MLTC14-02, MLTC14-24, MLTC14-27, and MLTC14-29) were abandoned after unsuccessful ponar and/or core attempts.

After unsuccessful core attempts, surface ponar samples only were collected at nine locations (MLTC14-01, MLTC14-21, MLTC14-22, MLTC14-26, MLTC14-34, MLTC14-38, MLTC14-39, MLTC14-42, and MLTC14-50). To account for abandoned target locations, a total of eight locations were added: MLTC14-51; MLTC14-52; MLTC14-53; MLTC14-54; MLTC14-55; MLTC14-56; MLTC14-57; and MLTC14-58.

Core penetration and recovery for each subsurface coring location were recorded in a field logbook and are presented in Table 2-2. Location moves, renaming, and abandonments were approved by EPA at the time of sampling.

2.8.2 Proposed Analytical Program

Table 2-3 compares the proposed and actual analytical program for the MLTC area. The QAPP and FSP proposed that five analytical samples would be collected from each location with matrix spike (MS)/matrix spike duplicates (MSDs) and field duplicates (FDs) submitted for 5 and 10 percent of total samples submitted, respectively. Therefore, it was proposed that a total of 250 samples would be submitted for PCB Aroclors, TOC, percent solids, 34 PAHs, and Michigan 10 metals plus iron and nickel. Fifty of the 250 samples (surface samples only) would also be submitted for DRO and MRO, SEM/AVS, and grain size. Actual core lengths varied (Table 2-2); the typical length was less than 10 ft. A total of 172 samples were submitted for PCB Aroclors, 34 PAHs, Michigan 10 metals (plus iron and nickel), TOC, and percent solids; 48 samples (surface samples only) were submitted for DRO and MRO, SEM/AVS, and grain size. Field duplicates and MS/MSDs were submitted for 5 and 10 percent of the samples submitted, respectively, with two exceptions: samples for field duplicate and MS/MSD analysis were not submitted for grain size, and samples for MS/MSD analysis were not submitted for percent solids, as specified in the QAPP/FSP (EA 2014a and 2014b).

2.8.3 Sample Processing

As stated in the QAPP and FSP (EA 2014a and 2014b) sediment cores were to be collected to refusal or a maximum depth of 10 ft. At one location (MLTC14-04) core collection went beyond the maximum 10 ft depth. The initial vibracore attempt with a 10 ft core liner at MLTC14-04 collected a 10 ft core (Core A) with ease. A second vibracore attempt was made using a 15 ft core liner, and provided an additional 11.08 ft of recovery (Core B). Refusal was not encountered, and both core liners moved easily through the sediment.

Cores from three locations (MLTC14-56, MLTC14-57, and MLTC14-58) were processed onboard the *R/V Mudpuppy II*. In accordance with the FSP and QAPP, cores were split, photographed, lithologically logged, and target depth intervals sampled (2014a and 2014b). The core was divided into designated depth intervals. Sediment from each interval was then placed into an aluminum pan and homogenized by mixing with a decontaminated stainless steel spoon until consistency was uniform.

3. RESULTS

3.1 DATA EVALUATION

The overall DQO for the project was to provide data of known and documented quality to characterize current site conditions at the MLTC area. Data collected from the MLTC area were validated by evaluating the completeness, correctness, and conformance of the data set against the method, SOP, or contract requirements documented in the QAPP/FSP (EA 2014a and 2014b). The data review and validation achieved the project goals. The overall data review and validation program attained the project objectives with no adverse effects on data quality or usability (EA 2015).

To address the goals of this assessment, the validated data collected under this investigation were compared to the consensus-based threshold effects concentrations (TECs) and the probable effects concentrations (PECs) of the Sediment Quality Guidelines (SQGs) where available (MacDonald et al. 2000, Persaud et al. 1993, EPA 2003b, EPA 2005). Contaminant concentrations exceeding the applicable sediment quality guidelines were identified. Figures have been prepared to visually present contaminant concentrations and identify potential hot spots or focus areas within the study area.

Detected values equal to or greater than the Method Detection Limit, but less than the laboratory Reporting Limit (RL), were J-qualified and are estimated. Analytes that were not detected were U-qualified. For samples submitted with field duplicates, the maximum concentration between the sample and its field duplicate was used in reporting the bulk chemistry and modeling results.

3.1.1 Comparison to Sediment Quality Guidelines

The SQGs were developed as informal (non-regulatory) guidelines for use in interpreting chemical data from analyses of sediments. Several biological-effects approaches have been used to assess freshwater sediment quality relative to the potential for adverse effects on benthic organisms, including the TEC/PEC (MacDonald et al. 2000) approach. The TEC and PEC levels were derived using concentrations with both effects and no observed effects (MacDonald et al. 2000). TECs typically represent concentrations below which adverse biological effects have been rarely observed, while PECs typically represent concentrations in the middle of the effects range and above which effects have been more frequently observed (MacDonald et al. 2000). Concentrations that are between the TEC and PEC represent the concentrations at which adverse biological effects occasionally occur. TEC and PEC levels for iron were not available from the MacDonald et al. document; iron concentrations in sediment from the MLTC area were compared to the iron TEC and PEC documented in the Ontario effect-based freshwater sediment quality guidelines (Persaud et al. 1993). This iron benchmark was also recommended for use by the Wisconsin Department of Natural Resources (WDNR 2003).

3.1.2 Calculation of Total Polycyclic Aromatic Hydrocarbons and Total Polychlorinated Biphenyls

When calculating total PAHs, results that were J-qualified were calculated using the result value, and results that were U-qualified were calculated using one-half the RL. Substituting one-half the RL (not detected [ND] = ½ RL) for each non-detect provides a conservative estimate of the concentration. This method, however, tends to produce results that are biased high, especially in data sets where many samples are non-detects. This overestimation is important to consider when comparing calculated total values to guidelines. Total PCBs concentrations were calculated by summing the concentrations of each PCB Aroclor with non-detects set equal to zero (ND=0).

3.1.3 Simultaneously Extracted Metals/Acid Volatile Sulfide Ratio

The bioavailability of divalent metals to aquatic organisms is influenced by presence of AVS. In low oxygenated environments (anaerobic), metals may precipitate with sulfides, making them unavailable for uptake by aquatic organisms. Using this method, six metals (cadmium, copper, lead, nickel, mercury, and zinc) were extracted, measured, and added together (including any values that were J-qualified). If a metal was not detected, it was considered a zero in the calculation. The mercury concentrations were very low and were not included in the calculation. The sum of the concentrations of the five other metals was then compared to the amount of AVS detected in the same sediment sample. If AVS was not detected in the sample, the SEM/AVS ratio was not calculated.

An SEM/AVS ratio less than 1 indicates a high degree of probability that the metals are bound to organic material and not bioavailable to aquatic organisms. If the SEM/AVS is greater than 1, then the metals in sediment exceed the sulfide binding ability and have a higher probability of being bioavailable to aquatic organisms.

3.1.4 Equilibrium Partitioning Sediment Benchmark Toxic Units and Probable Effect Concentration Quotients

Equilibrium Partitioning Sediment Benchmark Toxicity Units (ESBTUs) were utilized to estimate whether there is potential ecological risk associated with exposure to porewater that is in equilibrium with a measured concentration of a contaminant in the sediment. Typically, a PAH ESBTU less than or equal to 1 indicates that benthic organisms are not expected to be harmed by contamination present in the sediments (EPA 2003a). The PAH ESBTU benchmark of 7.5 is based on the preliminary remediation goal (PRG) for PAHs developed for the Lower Rouge River Old Channel (LRROC) Great Lakes Legacy Act site. The LRROC PRG is based on the Sediment Contaminant Bioavailability Alliance (SCBA) dataset (2010), which is a widely accepted sediment assessment tool comprised of 249 samples from 20 sediment sites where pyrogenic PAHs were the source of contamination. The dataset was used to evaluate risk to sensitive species (*Hyalella azteca*, freshwater amphipod) in the benthic community based on porewater exposure.

Eighty percent survivability is a typical level of acceptability for benthic organisms exposed to porewater from contaminated sediments. The LRROC PRG was established at 85 percent survivability based on SCBA toxicity results from the 28-day *Hyalella* test. Based on a correlation using the SCBA dataset, 85 percent survivability correlated with a level of 5 toxic units; however, most sediment chemistry samples are based on analysis of bulk sediments. For the LRROC site, in order to arrive at a bulk sediment toxic unit equal to 5 toxic units in porewater, a relationship was established between porewater and bulk sediment based on site specific PAH samples. The result was that a toxic unit of 7.5 in bulk sediments was found to be equal to 5 toxic units in porewater. Details of the ESBTU calculations and results are presented in Chapter 4.

Probable effect concentration quotients (PEC-Qs) were used to evaluate the combined effects of chemical mixtures on the toxicity of sediments to benthic organisms (Ingersoll et al. 2001). The PEC-Qs combine data from multiple constituents in sediments into one unit-less index, and thus are useful in comparing the quality of sediments from different locations and at different times (EPA 2000). A benchmark PEC-Q of 0.5 was used because the proportion of organisms that show a toxic effect drops to 6 – 35 percent when a geometric mean of the PEC-Q of 0.5 is used; meaning that between 94 percent and 65 percent of organisms do not show a toxic effect when the PEC-Q is 0.5 (Ingersoll et. al. 2001). Details of the PEC-Q calculations and results are presented in Chapter 5.

3.2 RESULTS FROM THE MLTC AREA SEDIMENT INVESTIGATION

For reporting and visual presentation of the results of the sediment investigation, the MLTC area was divided into two separate areas. Area A, the northern portion of the site, extends from the Grosse Ile Toll Bridge south to Grosse Ile Parkway, and includes sample locations in Monguagon Creek, the Black Lagoon inlet (also known as Elias Cove), and the canal adjacent to Elizabeth Park (Figure 2-1A). A federal navigation channel runs the length of the channel in Area A. Area B, the southern portion of the site, extends down the channel from Grosse Ile Parkway to just south of Calf Island, and includes sample locations in Humbug Marsh, Humbug Marina, and the southern portion of the canal adjacent to Elizabeth Park (Figure 2-1B). The federal navigation channel also extends into Area B, where it terminates ¼ mile south of the Grosse Ile Parkway.

3.2.1 Core Recovery

Cores were collected from 39 locations. Ten of the 50 planned locations a (MLTC14-02, MLTC14-20, MLTC14-21, MLTC14-23, MLTC14-24, MLTC14-27, MLTC14-28, MLTC14-29, MLTC14-30, MLTC14-33, and MLTC14-44) were abandoned (Table 2-2). Five locations (MLTC14-20, MLTC14-28, MLTC14-30, MLTC14-33, and MLTC14-44) were abandoned without sampling attempt due to strong currents and/or a hard bottom surface revealed through probing with spuds. One location (MLTC14-23) was abandoned due to its proximity to utilities and a bridge. Four locations (MLTC14-02, MLTC14-24, MLTC14-27, and MLTC14-29) were abandoned after unsuccessful ponar and/or core attempts. In addition to those locations abandoned entirely, cores were not collected at nine locations following unsuccessful attempts:

MLTC14-01; MLTC14-21; MLTC14-22; MLTC14-26; MLTC14-34; MLTC14-38; MLTC14-39; MLTC14-42; and MLTC14-50 (Table 2-2).

The cores were collected to a depth of 10 ft or refusal. Refusal was not met at locations MLTC14-03, MLTC14-04, MLTC14-06, MLTC14-09, and MLTC-43. Sediment recovery ranged from 0.5 ft (MLTC14-13) to 11.1 ft (MLTC14-04b) (Table 2-2). Detailed lithographic descriptions of the 39 collected cores are presented in Appendix B.

3.2.2 Lithology

The sediment cores collected within the MLTC area demonstrate a mixture of core profiles containing sediment types consistent with a fluvial system. Most cores were characterized by alternating layers of silt or sandy silt over clay. Native and non-native material such as shells, roots and organic material, and organic and hydrocarbon odors were observed within various sediment types and depths.

Complete core logs and photographs are included in Appendices B and C, respectively. A general description of cores collected during the investigation is included in the text that follows.

Area A

Cores collected in Area A showed varying lithology, but the majority of cores had layers of clayey silt. Several of the cores contained gravel (MLTC14-05; -09; -12; -13; -15; -17; -18; -49; -55; -57; and -58) and layers of sand (MLTC14-06; -09; -11; -13; -14; -16; -17; -18; -48; -49; -53; 54; -55; and -56). Three cores were comprised entirely of sand (MLTC14-11 [0-7.8 ft], MLTC14-13 [0-0.8 ft], and MLTC14-48 [0-1.8 ft]). Roots, organic material, and/or organic odors were present in cores: MLTC14-03; -04; -06; -10; -12; -13; -14; -15; -16; -18; -19; -48; -49; -53; -54; and -55. A hydrocarbon odor was noted in subsurface intervals in cores MLTC14-04; -07; -08; -10; -12; -14; -16; -17; -18; -48; -49; -53; -54; and -55. A chemical odor was noted in subsurface intervals in cores at locations in Monguagon Creek (MLTC14-56, -57, and -58) and one other location on the western side of the channel (MLTC14-09). Sheen was also noted in subsurface intervals in cores at locations in Monguagon Creek (MLTC14-56 and -58), one location in the canal adjacent to Elizabeth Park (MLTC14-54), one location in Black Lagoon (MLTC14-12) and one location on the western side of the channel (MLTC14-09).

Area B

The cores collected in Area B had varying lithology, although several were comprised of layers of silt or sandy silt over clay. Individual layers were typically less than 3 ft in thickness, with the exception of cores MLTC14-41 and MLTC14-43 which contained layers of clay 9.2 ft and 3.7 ft thick, respectively. Gravel and pebbles were encountered in several cores at subsurface depths (MLTC14-36, MLTC14-37, MLTC14-40, MLTC14-47, and MLTC14-51). The top 0.6 ft of MLTC14-31 was comprised of coarse sub-rounded gravel and small pebbles in silty sand. Roots and organic material were present in cores MLTC14-35, -40, -41, -43, -45, -46, -47, and -52 in the southern half of Area B. The surface layer (0-1.6 ft) of core MLTC14-40 (located in Humbug Marsh) was comprised of peaty silt. A hydrocarbon odor was noted for cores collected from Humbug Marsh (MLTC14-35), north of Humbug Marsh (MLTC14-31), and in Humbug

Marina (MLTC14-47). A chemical odor was noted in the clay layer from 0.6-1.5 ft of the core collected at MLTC14-35, located in Humbug Marsh.

3.2.3 Bulk Sediment Results

Twenty field duplicates and 172 sediment samples were submitted for PCB Aroclor, PAH, TOC, and Michigan 10 metals (plus iron and nickel) analysis; 48 sediment samples and 5 field duplicates were submitted for DRO, MRO, and SEM/AVS analysis; and 48 sediment samples were submitted for grain size analysis (Table 2-3). Table 3-2 summarizes the MLTC sediment results.

Analytical data were submitted to a subcontracted data validator, Meridian Consultant Group, Inc. (MCGI), to perform a 100 percent Tier I and 20 percent Tier II data validation as specified in the Great Lakes Legacy Act Data Reporting Standard (Version 1.0, March 2010). Chicago Bridge & Iron Company's (CB&I's) Quality Assurance Technical Support Program (QATS) was subcontracted by EPA to conduct a 100 percent Tier II data validation verification check for this project. The Tier I and Tier II reviews were performed according to the *National Functional Guidelines (NFG) for Superfund Organics Method Data Review* (EPA 2008) and *NFG for Inorganic Superfund Method Data Review* (EPA 2010). To assess compliance with the Laboratory Statement of Work, data validation included completeness and compliance checks, data assessment, and validation at Stage 2 following Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use (Office of Solid Waste and Emergency Response No. 9200.1-85, EPA 540-R-08-005, 13 January 2009).

3.2.3.1 Grain Size, Particle Size, and Density

Analytical results for grain size, particle size, and density are presented in Table 3-2. Of 48 submitted surface samples, 25 (52 percent) were primarily comprised (greater than 50 percent) of sand and gravel, and the remaining 23 samples (48 percent) were primarily comprised of silt and clay. Fourteen of the surface grab samples were comprised of at least 70 percent sand (MLTC14-01; -05; -06; -11; -13; -31; -34; -38; -42; -48; -50; -51; -52; and -53); with the highest percentage (95.0 percent) at MLTC14-06 . Surface grab samples with the highest percentage of silt (81.1 percent), clay (31.7), and gravel (20.8 percent) were collected at locations MLTC14-49, -45, and -15, respectively. Samples collected at Monguagon Creek (Area A) were primarily comprised of sand (locations MLTC14-01 and -56). Samples collected at or near Black Lagoon and at Elizabeth Park Marina were primarily comprised of silt and clay (locations MLTC14-12, -49, and -55, and MLTC14-21 and -22, respectively) (Figure 2-1A). Particle size distribution graphs for each sample are presented in Appendix D.

3.2.3.2 PCB Aroclors

PCB Aroclors data and total PCBs (ND=0) are presented in Table 3-3. Figure 3-1A and Figure 3-1B, show the distribution of total PCBs SQG exceedances in Areas A and B, respectively. Results from the surface grab samples (0-0.5 ft interval) are shown on the aerial photo and results from the core depth intervals are shown on the associated graphs. PCB Aroclors were detected in the surface grab samples at all locations. The most frequently detected Aroclors were Aroclor 1260 (124 detections in 172 samples), Aroclor 1254 (120 detections in 172 samples), and Aroclor 1242 (114 detections in 172 samples).

Area A

In Area A, all but one surface grab sample (MLTC14-06) had a concentration greater than the TEC (59.8 µg/kg). Ten surface grab samples had a concentration that exceeded the PEC (676 µg/kg) (MLTC14 -04, -07, -08, -14, -15, -17, -54, -56, -57, and -58). One sample had a result that exceeded twice the PEC (MLTC14-04), and four samples had a result that exceeded three times the PEC (MLTC14-07, -08, -17, and -58). In the core samples, total PCBs exceeded the PEC at locations along the western shore of the channel (MLTC14-04, -07, -08, -09, -14, -16, and -17), in Black Lagoon (MLTC14-12, -49, and -55), Monguagon Creek (MLTC14-58 and-57), the canal adjacent to Elizabeth Park (MLTC14-53 and -54), and at one location on the eastern shore (MLTC14-10) and one location towards the center of the channel (MLTC14-48). All core samples collected at locations MLTC14-04, -07, and -08 exceeded three times the PEC. All core samples collected at locations MLTC14-16, -48, -57, and -58 exceeded the PEC. The maximum total PCBs exceedance (14,500 µg/kg) was detected in the 0-1 ft interval at location MLTC14-08.

Area B

Total PCBs concentrations in surface samples in Area B also exceeded the TEC, with surface samples at five locations exceeding the PEC (MLTC14-32, -35, -37, -42, and -50). The total PCBs concentration in the surface grab sample from MLTC14-35 was twice the PEC. Core samples submitted from three locations in Area B had PCB concentrations that exceeded the PEC (MLTC14-31, -32, and -35).

3.2.3.3 Polycyclic Aromatic Hydrocarbons

PAH data and total 17 PAHs (ND=½ RL) are presented in Table 3-4. Total PAHs were calculated using both 17 individual PAHs and 34 individual PAHs; however, the total 17 PAHs were used as a comparison threshold to be consistent with the derivation of the TEC/PEC values. Figure 3-2A and Figure 3-2B show the distribution of total 17 PAH SQG exceedances in areas A and B, respectively. Results from the surface grab samples (0-0.5 ft interval) are shown on the aerial photo, and results from the subsurface depth intervals are shown on the associated graphs. PAHs were detected in the surface grab samples at all locations. Three individual PAHs routinely detected in the samples were benzo(a)anthracene, benzo(a) pyrene, and chrysene.

Area A

In Area A, all but two locations (MLTC14-06 and -11) had a surface grab sample with a total 17 PAH result greater than the TEC (1,610 µg/kg). All surface grab samples collected in Monguagon Creek (MLTC14-01, -56, -57, and -58) had a result that exceeded the PEC (22,800 µg/kg), with surface grab sample results from MLTC14-01 and -56 exceeding three times the PEC. Four locations on the western shore of the channel had a surface grab sample result that exceeded the PEC (MLTC14-09, -14, -15, and -17), with the surface grab sample result for total 17 PAHs from MLTC14-15 exceeding three times the PEC. One location in the canal adjacent to Elizabeth Park had a surface grab sample result that exceeded the PEC (MLTC14-18), and two locations had a surface grab sample result that exceeded three times the PEC (MLTC14-53 and -54). One location in Black Lagoon had a surface grab sample result that exceeded the PEC (MLTC14-55). In the core samples, total 17 PAHs were found to exceed the PEC at locations near the western shore (MLTC14-04, -09, 13, -14, -15, -16, and -17), in Monguagon Creek (MLTC14-56, -57, and -58), in the canal adjacent to Elizabeth Park (MLTC14-18, -53, and -54), and at one location towards the center of the channel (MLTC14-48). PEC exceedances occurred within the top 3 ft of the cores except at six locations where exceedances were found at deeper intervals (MLTC14-04 [9-11 ft], -09 [9-11 ft], -16 [5-7 ft], -17 [3-5 ft], -54 [5-7 ft], and -53 [5-7 ft]). The results of subsurface samples collected from locations along the eastern shore of the channel did not exceed the PEC (MLTC14-03, -06, -10, -19). The maximum total 17 PAH concentration (1,298,760 µg/kg) was detected in the surface interval at location MLTC14-53, located in the canal adjacent to Elizabeth Park.

Area B

All total 17 PAH concentrations in surface samples in Area B exceeded the TEC, with seven locations exceeding the PEC (MLTC14-26, -32, -36, -37, -39, -41, and -42). In the core samples, most total 17 PAH concentrations fell below the TEC, with the majority of subsurface samples collected in Area B having concentrations below the PEC (MLTC14-35, -36, -40, -41, -43, -45, -51, -52, and -56). Five locations in Area B had subsurface samples with concentrations exceeding the PEC (MLTC14-25, -31, -32, -37, and -47).

3.2.3.4 Total Organic Carbon

TOC results are provided in Table 3-5. In the surface grab samples, TOC ranged from 4,500 mg/kg at MLTC14-06, located near the eastern shore in Area A, to 230,000 mg/kg at location MLTC14-40, located in Humbug Marsh (Area B). In the core samples, both the highest and lowest TOC were found at location MLTC14-40 in the Humbug Marsh (Area B); with the lowest TOC result being 3,340 mg/kg at MLTC14-40 in the 1-3 ft interval, and the highest TOC result being 478,000 mg/kg at MLTC14-40 in the 0-1 ft interval.

3.2.3.5 Metals

Metals results were compared to respective TEC and PEC values and are presented in Table 3-5 (MacDonald et al. 2000 and Persaud et al. 1993). Of the 12 analyzed metals, 3 (barium, selenium, and silver) do not have TEC or PEC values; therefore, these metals are not discussed in this section and were not included in the spatial analysis for the site (Chapter 6).

The detected concentrations for each metal with TEC/PEC values at each location are displayed in the following figures: Figures 3-3A and 3-3B (arsenic), Figures 3-4A and 3-4B (cadmium), Figures 3-5A and 3-5B (chromium), Figures 3-6A and 3-6B (copper), Figures 3-7A and 3-7B (iron), Figures 3-8A and 3-8B (lead), Figures 3-9A and 3-9B (mercury), Figures 3-10A and 3-10B (nickel), and Figures 3-11A and 3-11B (zinc). Results from the surface grab samples (0- 0.5 ft interval) are shown on the aerial photo, and results from the vibracore depth intervals are shown on the associated graphs.

Arsenic

Figures 3-3A and 3-3B show the distribution of arsenic SQG exceedances in Area A and Area B, respectively. In Area A, the majority of surface grab samples had concentrations below the TEC (9.79 mg/kg). Concentrations exceeding the TEC, but below the PEC (33 mg/kg), were detected in surface grab samples at one location in the canal adjacent to Elizabeth Park (MLTC14-54), and at locations along the western side of the channel (MLTC14-04, -05, -07, -08, -09, -15, -16, -17, and -18). In the core samples, that majority of locations in Area A had at least one sample result that exceeded the TEC but was below the PEC (33 mg/kg) (MLTC14-04, -07, -08, -09, -10, -12, -14, -16, -17, -18, -49, -53, -54, and -58). Only one location (MLTC14-09) had subsurface sample results that exceeded the PEC. Location MLTC14-09 is located along the western side of the channel and the results exceeding the PEC were detected in the 3-5 ft interval and the 5-7 ft interval. Arsenic concentrations in surface samples from the majority of locations in Area B were below the TEC. Only one location in Area B had a surface sample arsenic concentration in exceedance of the TEC (MLTC14-37). No surface or subsurface sample concentrations in Area B exceeded the PEC. Subsurface samples from the majority of locations in Area B did not exceed the TEC. Six locations in Area B had subsurface sample concentrations that exceeded the TEC, but were below the PEC (MLTC14-31, -32, -35, -40, -45, and -51). The maximum arsenic concentration exceedance (38.2 mg/kg) was detected in the 3-5 ft interval at location MLTC14-09, on the western side of the channel in Area A.

Cadmium

Figures 3-4A and 3-4B show the distribution of cadmium SQG exceedances in Area A and Area B, respectively. In Area A, the majority of surface grab samples were greater than the TEC (0.99 mg/kg) with seven locations on the western side of the channel (MLTC14-04, -07, -08, -14, -16, -17, and -18) exceeding the PEC (4.98 mg/kg). In the subsurface samples, the majority of locations had cadmium concentrations that exceeded the PEC (MLTC14-09, -10, -14, 49, and -58), including concentrations more than twice the PEC at six locations (MLTC14-07, -08, -17, -18, -53, and -54) and concentrations more than three times the PEC at three locations (MLTC14-04, -12, and -16). Every subsurface sample at location MLTC14-04 (on the western side of the channel directly south of Monguagon Creek) had a cadmium concentration that exceeded three times the PEC, and the maximum cadmium concentration exceedance (35.4 mg/kg) was detected in the 0-1 ft interval there.

In Area B, surface samples from every location on the western side of the channel, and one location on the eastern side of the channel (MLTC14-25) had cadmium concentrations that exceeded the TEC. Seven locations in Area B had subsurface samples with cadmium concentrations that exceeded the TEC (MLTC14-25, -31, -32, -35, -40, -46, and -47). No cadmium concentrations detected in Area B (surface and subsurface) exceeded the PEC.

Chromium

Figures 3-5A and 3-5B show the distribution of chromium SQG exceedances in Area A and Area B, respectively. In Area A, the majority of locations had chromium concentrations in surface grab samples that were greater than the TEC (43.4 mg/kg), with six locations (MLTC14-04, -07, -08, -14, -16, -17, and -18) having a concentration that exceeded the PEC (111 mg/kg). Two locations (MLTC14-07 and -08) had surface grab sample chromium concentrations that exceeded three times the PEC. In the subsurface samples, chromium concentrations exceeded the PEC at 1 location on the eastern side of the channel (MLTC14-10), and 13 locations on the western side (MLTC14-04, -07, -08, -09, -12, -14, -16, -17, -18, -49, -53, -54, and -58). Six locations had subsurface sample chromium concentrations that exceeded twice the PEC (MLTC14-07, -09, -10, -16, -17, and -53), and two locations had subsurface sample concentrations that exceeded three times the PEC (MLTC14-04 and -08). Every subsurface sample at location MLTC14-04 (on the western side of the channel directly south of Monguagon Creek) had a chromium concentration that exceeded three times the PEC, and the maximum chromium concentration exceedance (873 mg/kg) was detected in the 5-7 ft interval there.

Eight locations in Area B, all on the western side of the channel, had surface grab samples with chromium concentrations that exceeded the TEC (MLTC14-26, -32, -35, -36, -37, -43, -46, and -47). No surface grab samples in Area B had a chromium concentration that exceeded the PEC. Three locations in Area B had subsurface samples with chromium concentrations that exceeded the TEC (MLTC14-25, -35, and -47), and two locations had core samples with chromium concentrations that exceeded the PEC (MLTC14-31 and -32).

Copper

Figures 3-6A and 3-6B show the distribution of copper SQG exceedances in Area A and Area B, respectively. In Area A, the majority of locations had surface grab samples with copper concentrations that were greater than the TEC (31.6 mg/kg), with copper concentrations exceeding the PEC (149 mg/kg) at four locations (MLTC14-08, -16, -17, and -56). In the core samples, copper concentrations exceeded the PEC at nine locations on the western side of the channel (MLTC14-04, -07, -08, -09, -14, -16, -17, -53, and -54), as well as one location on the eastern side of the channel (MLTC14-10). The maximum copper concentration (298 mg/kg) was detected at location MLTC14-04 in the 5-7 ft interval.

The majority of surface grab samples collected in Area B had copper concentrations that exceeded the TEC. No surface grab samples in Area B had copper concentrations that exceeded the PEC. One location on the eastern side of the channel in Area B (MLTC14-25), and five locations on the western side (MLTC14-32, -35, -40, -43, and -46) had subsurface samples with copper concentrations that exceeded the TEC. Two locations had subsurface samples with copper concentrations that exceeded the PEC (MLTC14-31 and -47).

Iron

Figures 3-7A and 3-7B show the distribution of iron SQG exceedances in Area A and Area B, respectively. In Area A, the majority of iron concentrations in surface grab samples were greater than the TEC (20,000 mg/kg). Iron concentrations in surface grab samples at nine locations along the western side of the channel in Area A exceeded the PEC (40,000 mg/kg) (MLTC14-08, -09, -15, -16, -17, -53, and -54. The iron concentration in one surface grab sample exceeded two times the PEC (MLTC14-09). Iron concentrations exceeded the PEC at only one location on the eastern side of the channel (MLTC14-10) in the 3-5 ft interval. Ten locations on the western side of the channel had iron concentrations in subsurface samples that exceeded the PEC (MLTC14-04, -08, -09, -12, -14, -16, -48, -49, -53, and -54). The 0-1 ft interval of MLTC14-53 had an iron concentration that exceeded three times the PEC. All of the subsurface samples at four locations

(MLTC14-04, -08, -09, and -48) had iron concentrations that exceeded the PEC, and intervals 0-1 ft, 1-3 ft, 3-5 ft, 5-7 ft at location MLTC14-09 exceeded three times the PEC. The maximum iron concentration (393,000 mg/kg) was detected in the 3-5 ft interval of location MLTC14-09.

The majority of surface grab samples in Area B had iron concentrations above the TEC. Three surface grab samples had iron concentrations that exceeded the PEC (MLTC14-26, -32, and -37). All but three locations (MLTC14-36, -41, and -46) had subsurface samples exceed the TEC. Two locations had subsurface samples with iron concentrations that exceeded the PEC (MLTC14-31 and -32).

Lead

Figures 3-8A and 3-8B show the distribution of lead SQG exceedances in Area A and Area B, respectively. In Area A, the majority of lead concentrations in surface grab samples were greater than the TEC (35.8 mg/kg), with lead concentrations exceeding the PEC (128 mg/kg) at nine locations on the western side of the channel, including Monguagon Creek and the canal adjacent to Elizabeth Park (MLTC14-04, -07, -08, -14, -16, -17, -18, -53, and -56). The surface grab sample collected at MLTC14-17 had a lead concentration that exceeded two times the PEC. One core collected on the eastern side of the channel (MLTC14-10) had subsurface samples that exceeded the TEC (1-3 ft interval) and the PEC (3-5 ft interval). The majority of locations on the western side of the channel in Area A had subsurface samples that exceeded the TEC, and 14 locations had subsurface samples that exceeded the PEC (MLTC14-04, -07, -08, -09, -12, -14, -16, -17, -18, -49, 53, -54, -56, and -58). Cores collected at MLTC14-08, -09, -12, -16, -17, and -56 had subsurface samples with lead concentrations that exceeded two times the PEC. Cores collected at MLTC14-04 and -53 had subsurface samples with lead concentrations that exceeded three times the PEC. The maximum lead concentration (452 mg/kg) was detected in the 0-1 ft interval of location MLTC14-04.

Lead concentrations in surface grab samples in Area B exceeded the TEC, but were below the PEC, at seven locations on the western side of the channel (MLTC14-32, -35, -36, -37, -43, -46, and -47). The lead concentration in one surface grab sample, located in the canal adjacent to Elizabeth Park, exceeded the PEC (MLT14-26). The majority of subsurface samples had lead concentrations below the TEC. Lead concentrations exceeded the TEC at one location on the eastern side of the channel (MLTC14-25); in all subsurface samples collected there. The 0-1 ft interval of the core collected at MLTC14-35 exceeded the TEC. Three locations in Area B had subsurface samples that exceeded the PEC (MLTC14-31, -32, and -47). The 3-5 ft interval at MLTC14-31 had a lead concentration that exceeded twice the PEC.

Mercury

Figures 3-9A and 3-9B show the distribution of mercury SQG exceedances in Area A and Area B, respectively. The majority surface grab samples at locations throughout Area A had mercury concentrations greater than the TEC (0.18 mg/kg), with mercury concentrations exceeding the PEC (1.06 mg/kg) at locations MLTC14-07, -08, -13, -16, -17, -18, -54, -55, -56, and -58. Mercury concentrations in the surface grab samples collected at MLTC14-13 and -56 exceeded two times the PEC, and mercury concentrations in the surface grab samples at MLTC14-07, -08, and -17 exceeded three times the PEC. In core samples, there were widespread concentrations that exceeded the PEC. On the eastern side of the channel, only location MLTC14-10 had subsurface samples with mercury concentrations that exceeded the PEC. On the western side of the channel, 3 locations had subsurface samples with mercury concentrations that exceeded two times the PEC (MLTC14-12, -49, and -18), and 11 locations with subsurface sample concentrations that exceeded three times the PEC (MLTC14-04, -07, -08, -09, -14, -16, -17, -48,-53, -54, and -58). All subsurface samples collected at MLTC14-07 and -08, and the majority of subsurface samples collected at MLTC14-16 (intervals 0-1 ft, 1-3 ft, 3-5 ft, and 5-7 ft) and MLTC14-53 (intervals 0-1 ft, 1-3 ft, 3-5 ft, and 5-7 ft) exceeded three times the PEC. The maximum mercury concentration (22.3 mg/kg) was detected in the 3-5 ft interval at location MLTC14-08.

The majority of surface grab samples in Area B had mercury concentrations that exceeded the TEC. Four locations in Area B had surface grab samples with mercury concentrations that exceeded the PEC (MLTC14-26, -32, -37, and -47). On the eastern side of the channel, only one location had subsurface samples with mercury concentrations that exceeded the TEC (MLTC14-25). Several cores collected on the western side of the channel had subsurface samples with mercury concentrations that exceeded the TEC. Four locations had subsurface samples with mercury concentrations that exceeded the PEC (MLTC14-31, -32, -35, and -47). Subsurface samples at MLTC14-31 and -32 had mercury concentrations that exceeded three times the PEC.

Nickel

Figures 3-10A and 3-10B show the distribution of nickel SQG exceedances in Area A and Area B, respectively. In Area A, the majority of nickel concentrations in surface grab samples were greater than the TEC (22.7 mg/kg). Eight surface grab samples had nickel concentrations above the PEC (48.6 mg/kg) (MLTC14-04, -09, -14, -15, -17, -18, -54, and -58), two surface grab samples had concentrations two times the PEC (MLTC14-07 and -16), and one surface grab sample had a nickel concentration that exceeded three times the PEC (MLTC14-08). The majority of locations had core samples with nickel concentrations that exceeded the TEC. Fourteen locations had subsurface samples with concentrations that exceeded the PEC (MLTC14-04, -07, -08, -09, -10, -12, -14, -16, -17, -48, -49, -53, -54, and -58). Five locations had subsurface samples with nickel concentrations exceeding two times the PEC (MLTC14-07, 09, -10, -16, and -53), and two locations had subsurface samples with nickel concentrations that exceeded three times the PEC (MLTC14-04 and -08). All subsurface samples collected at MLTC14-04 (intervals 0-1 ft, 1-3 ft, 3-5 ft, 5-7 ft, 7-9 ft, and 9-11 ft), and the majority of the subsurface samples at MLTC14-08 (intervals 0-1 ft and 3-5 ft) had concentrations that exceeded three times the PEC. The maximum nickel concentration (399 mg/kg) was detected in the 1-3 ft interval at location MLTC14-04.

Nickel concentrations in surface grab samples and in core samples in Area B were generally above the TEC, except for two surface grab samples collected on the eastern side of the channel (MLTC14-38 and -52), and the subsurface samples collected at MLTC14-41. No surface grab samples in Area B had nickel concentrations at or above the PEC. The majority of subsurface samples collected in Area B had nickel concentrations at or above the TEC. Subsurface samples collected at three locations (MLTC14-31, -32, and -47) contained nickel concentrations equal to or exceeding the PEC (≥PEC).

Zinc

Figures 3-11A and 3-11B show the distribution of zinc SQG exceedances in Area A and Area B, respectively. In Area A, the majority of surface grab samples had zinc concentrations that exceeded the TEC (121 mg/kg), with concentrations exceeding the PEC (459 mg/kg) at 12 locations (MLTC14-04; -07; -08; -09; -15; -16; -17; -18; -54; -53; -56; and -58). The zinc concentration in the surface grab sample collected at MLTC14-58 was more than two times the PEC. Six locations had subsurface samples with zinc concentrations exceeding two times the PEC. Zinc concentrations exceeded two times the PEC in every subsurface sample collected at MLTC14-04 (intervals 0-1 ft, 1-3 ft, 3-5 ft, 5-7 ft, 7-9 ft, and 9-11 ft). Two locations in Area A (MLTC14-12 and -58) had subsurface samples with zinc concentrations that exceeded three times the PEC. The maximum zinc concentration was detected in the 3-5 ft interval at MLTC14-12.

Zinc concentrations in surface grab samples in Area B were generally above the TEC. Subsurface samples from MLTC14-26, -32, and -37 had zinc concentrations that exceeded the PEC. In the subsurface samples, zinc concentrations exceeded the TEC at MLTC14-25, -31, -32, -35, -46, and -47. Zinc concentrations exceeded the PEC in subsurface intervals at locations MLTC14-31, -32, -35, and -47.

3.2.3.6 Simultaneously Extracted Metals to Acid Volatile Sulfide Ratio

A total of 48 surface grab samples and five field duplicates were submitted for the ratio of SEM to AVS analysis. Six samples from Area A (locations: MLTC14-04, MLTC14-07, MLTC14-08, MLTC14-53, MLTC14-54 [field duplicate]; and MLTC14-57) and five samples from Area B (MLTC14-32; MLTC14-32 [field duplicate]; MLTC14-37; MLTC14-38; and MLTC14-42) had a ratio greater than 1, with zinc as the dominant metal. This indicates that this metal is bioavailable and there is potential for toxicity to benthic organisms. All SEM/AVS results are presented in Table 3-6. These data were used for derivation of the ESBTUs presented in Chapter 5.

3.2.3.7 Petroleum Hydrocarbons

Results for DRO and ORO are presented in Table 3-7. The highest concentration of DRO (C_{10}-C_{20}) was detected in the surface interval of location MLTC14-18 (3,300 mg/kg). The highest concentration of ORO (C_{20}-C_{36}) was detected in the surface interval of MLTC14-08 (8,900 mg/kg).

DRO (C_{10}-C_{20}) and ORO (C_{20}-C_{36}) concentrations were summed (by location) to create a total petroleum hydrocarbon (TPH) concentration (TPH [DRO+ORO]) for each location. Figure 3-12 presents the distribution of TPH (DRO+ORO) results in Area A and Area B. For the evaluation purposes of this report, TPH (DRO+ORO) sample results were compared to values of 100 mg/kg, 1,000 mg/kg, 5,000 mg/kg, and 10,000 mg/kg. Three locations, all in Area A, had TPH (DRO+ORO) values greater than 10,000 mg/kg (MTLC14-08, -16, and -18).

DRO and ORO Results Compared to Sample-Specific Risk Screening Levels

At present, there are no recognized cleanup goals for petroleum in sediment that are protective of aquatic receptors. A report prepared for the Massachusetts Department of Environmental Protection – Office of Research and Standards, titled *Sediment Toxicity of Petroleum Hydrocarbon Fractions* (Battelle 2007), proposes an approach for the development of sediment benchmarks based on the equilibrium partitioning theory. This theory, "states that the toxicity of hydrocarbons in sediments to benthic organisms is caused by the hydrocarbons that partition from the organic fraction of sediment particles into porewater and from porewater into the tissues of sediment-dwelling organisms" (Battelle 2007). Equilibrium partitioning sediment benchmarks were derived for fractions (classes or groupings of compounds with similar chemical and toxicological properties) using the final chronic aquatic toxicity value, the sediment organic carbon/water partition coefficient, and the fraction of organic carbon in sediment. There are uncertainties in using the equilibrium partitioning theory to develop sediment benchmarks for petroleum such as the wide range of aromatic hydrocarbon toxicity data for both marine and freshwater species, as well as various test durations. Additionally, the aqueous solubility of hydrocarbons used in the DRO and ORO fractions are below the estimated acute toxicity values; the benchmarks are conservative. Where the benchmarks are exceeded, it is "difficult to distinguish between toxicological effects and potential physical impacts" and further site evaluation is necessary (Battelle 2007).

Sediment benchmarks were derived using the following equation:

$$\text{Sediment Benchmark (mg/kg)} = K_{oc} \text{ x FCV x } f_{oc} \text{ (0.001)}$$

Where:

K_{oc} = sediment organic carbon/water partition coefficient
FCV = final chronic value
f_{oc} = fraction of organic carbon in sediment. An foc of 0.1 percent (0.001) was used to give the most conservative estimated benchmark.

The sediment benchmarks presented in the following table were used to evaluate DRO and ORO results in the MLTC area:

Hydrocarbon Fraction	Geometric Mean Log K_{ow}	K_{oc}	Final Chronic Value (µg/L)	Sediment Benchmark (mg/kg oc)
$C_{13} – C_{18}$ (DRO)	8.57	1.10×10^{8}	0.05^{a}	5543
$C_{19} – C_{36}$ (ORO)	11.64	8.32×10^{10}	0.0001^{a}	9883

Source: Table 6, Sediment Toxicity of Petroleum Hydrocarbon Fractions (Battelle 2007)

Notes:
K_{ow}: octanol-water partition coefficient
K_{oc}: sediment organic carbon/water partition coefficient
f_{oc}: fraction of organic carbon in sediment
[a] The fraction is not likely toxic because the mean LC_{50} (lethal concentration required to cause mortality to 50 percent of test organisms) exceeds mean aqueous solubility.

Results from the Site were provided as DRO C_{10}-C_{20} and ORO C_{20}-C_{36}. Consequently for the purposes of the comparison of Site results with sample-specific risk screening values DRO C_{13}-C_{18} and ORO C_{19}-C_{36} were used, respectively.

The following equation was used to determine the sample-specific risk screening levels (SSRSLs):

$$\boxed{\text{SSRSL} = \text{Sediment Benchmark (mg/kg)} \times \text{Fraction of Organic Carbon in Sediment } (f_{oc})}$$

This example calculation uses the DRO (C_{10}-C_{20}) results of surface sample MLTC14-01:

MLTC14-01-SURF SSRSL = 5543 mg/kg (sediment benchmark) x 0.0253 (f_{oc} for MLTC14-01-SURF) = 140.2 mg/kg

Table 3-8 and Figures 3-13A and 3-13B (DRO) and 3-14A and 3-14B (ORO) present the comparison of results to the calculated DRO and ORO SSRSLs.

Area A

The majority of locations in Area A had DRO concentrations exceeding the SSRSL. Six locations (MLTC14-08; -14; -16; -17; -18; and -58) had DRO results equal to or exceeding three times the SSRSL (Figure 3-13A). The majority of locations in Area A also had ORO concentrations exceeding SSRSLs; including every location in Monguagon Creek, Black Lagoon, and the canal adjacent to Elizabeth Park. Fourteen locations (MLTC14-04; -07; -08; -14; -15; -16; -17; -18; -21; -22; -53; -56; -57; and -58) had ORO results equal to or exceeding three times their SSRSL (Figure 3-14A).

Area B

The majority of locations in Area B did not have DRO concentrations exceeding the SSRSL. The majority of locations in Area B had ORO concentrations exceeding SSRSL, including every location in Humbug Marsh. Three locations (MLTC14-38, -50, and -53 [also in Area A]) had ORO results equal to or exceeding three times the SSRSL (Figure 3-14B).

4. EQUILIBRIUM PARTITIONING SEDIMENT BENCHMARKS

PAH ESBTUs were calculated as an additional tool for evaluating potential risk associated with sediment contamination. ESBTUs are used to estimate whether there is potential ecological risk associated with exposure to porewater that is in equilibrium with a measured concentration of the contaminant in the sediment. Thus, ESBTUs are calculated using an assumed relationship for partitioning between sediment and water.

4.1.1 PAHs

ESBTUs for total 34 PAHs were calculated following the methods outlined in *Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures* (EPA 2003a). Based on this guidance, individual PAH concentrations in sediment were first divided by the fraction of organic carbon measured in the sediment sample, resulting in an organic carbon-based PAH concentration, or normalized concentration. This value was then compared to the maximum solubility of that PAH in sediment on an organic carbon basis. If the organic carbon normalized PAH concentration was greater than the maximum solubility concentration, then the maximum solubility concentration was used to calculate the PAH ESBTU instead of the normalized concentration. If the organic carbon normalized PAH concentration was less than the maximum solubility, the normalized concentration was used. This value was then divided by the individual PAH's effective concentration in sediment, defined as the product of its final chronic value and organic carbon-water partition coefficient (K_{oc}), resulting in an ESB for each individual PAH. The PAH ESBTU for a sediment sample is the sum of the 34 individual PAHs' ESBTUs (Table 4-1).

Typically, a PAH ESBTU less than or equal to 1 indicates that benthic organisms are not expected to be harmed by contamination present in the sediments (EPA 2003a). To better evaluate the results, the following PAH ESBTUs benchmarks were used: ESBTUs between 1 and 7.5, between 7.5 and 10, and equal to or greater than 10. Of the 192 sediment samples, 120 had a PAH ESBTU less than 1, and 72 samples had a PAH ESBTU equal to or greater than 1 (Table 4-1). Several surface grab samples in Areas A and B had a PAH ESBTU between 1 and 10 (Figures 4-1A and 4-1B). A PAH ESBTU of greater than 10 was calculated for the ponar grab samples from locations MLTC14-01 and MLTC14-56 located in Monguagon Creek, as well as MLTC14-53 from the canal adjacent to Elizabeth Park; in Area A (Figure 4-1A). In the subsurface samples, PAH ESBTUs between 1 and 10 were calculated for samples from various depth intervals throughout Areas A and B. ESBTUs greater than 10 were calculated in subsurface samples at two locations; in Area A at MLTC14-57 (Monguagon Creek) and in Area B at MLTC14-47 (Humbug Marina). The samples with PAH ESBTUs greater than 1 may be toxic to aquatic life.

4.1.2 Metals

Metal toxicity is evaluated through an indirect estimate of bioavailability based on the concentrations of AVS and SEM, and TOC in the sediments. Metal ESBTUs were calculated following the methods outlined in *Procedures for the Derivation of ESBs for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver, and Zinc)* (EPA 2005). The molar concentration of AVS was subtracted from the molar concentration of the sum of the SEM measured in each sediment sample, and the result was divided by the fraction of organic carbon, accounting for preferential sorption of metals to organic carbon. It should be noted that if the particular sample has excess AVS such that all SEM is accounted for, this value can be negative.

As presented in the EPA 2005 guidance, when metals ESBTUs are calculated using this method, a value less than 130 micromole (µmol) of residual SEM per gram organic carbon (g_{oc}) indicates that the sediment poses a low risk of adverse biological effects associated with metals. Values between 130 and 3,000 µmol/g_{oc} may have adverse effects, and values over 3,000 µmol/g_{oc} are expected to be associated with adverse effects. All ESBTU results for metals were below 130 µmol/g_{oc} (Table 4-2).

5. PROBABLE EFFECT CONCENTRATION QUOTIENTS

As described in the *Prediction of Sediment Toxicity Using Census-based Freshwater Sediment Quality Guidelines* (EPA 2000) guidance, PEC quotients (PEC-Qs) combine data from multiple constituents in sediments into one unitless index, and thus can be used in comparing the quality of sediments from different locations and at different times. As discussed in Ingersoll et.al. (2001) PEC-Qs are used to evaluate the combined effects of chemical mixtures on the toxicity of sediments to benthic organisms. They use consensus-based freshwater sediment quality guidelines to calculate concentration quotients (or hazard quotients) defined as measured sediment concentrations divided by the specific sediment quality guideline for that particular chemical or metal. The principle of PEC-Qs is to calculate the geometric mean of all quotients for that particular sediment sample including those for metals, PAHs, and PCBs.

When the geometric mean PEC-Q is regressed with the percent of toxicity found in that sample (typically growth or mortality), as shown in Ingersoll et.al. (2001), and the geometric mean of the PEC-Qs is approximately 1, between 30 percent and 50 percent of the organisms showed a toxic effect. This could be termed the Effect Concentration for 30 percent (EC_{30}) or 50 percent (EC_{50}) respectively. This means that between 70 percent and 50 percent of the organisms should **not** show an effect when the PEC-Q is 1. Examination of the proportion of toxicity when the PEC-Q is 0.5 shows that between 6 percent and 35 percent of the organisms showed a toxic effect, again meaning that between 94 percent and 65 percent of the organisms did **not** show a toxic effect when the PEC-Q was 0.5. The important aspects related to the use of PEC-Qs are:

1. The toxic endpoint is not necessarily lethality, but often the endpoint is a chronic endpoint such as growth.

2. The use of a PEC-Q of 1 does not imply that 100 percent of organisms exposed to those concentrations will show an effect (chronic or acute), rather that 30 – 50 percent of those organisms will show the effects, and the rest will not be impacted.

3. The proportion of organisms which show an effect drops to 6 – 35 percent when the PEC-Q of 0.5 is used.

Consensus-based PECs were used to predict the potential for toxicity in sediments collected from the MLTC Area. Mean PEC-Qs were calculated using the procedure that was established by EPA (2000) to determine the concentration of constituents above which adverse effects are likely to be observed to sediment-dwelling organisms. A PEC-Q was first determined for each metal (arsenic, cadmium, chromium, copper, lead, nickel, and zinc) for which a reliable PEC was available.

$$PEC - Qmetals = \frac{metal\ concentration\ (in\ dry\ weight)}{corresponding\ PEC\ value}$$

Then, an average PEC-Q for metals was calculated by summing the PEC-Qs of each metal and dividing by the number of metals that were included in the calculation (EPA 2000).

$$mean\ PEC - Qmetals = \frac{\sum individual\ metal\ PEC - Qs}{n}$$

where n = number of metals with reliable PECs for which sediment chemistry data are available.

PEC-Qs were also calculated for total 17 PAHs using a value equal to half the RL for non-detects (ND=1/2RL), and total PCBs using a value of zero for the non-detects (ND=0). Nine of the 17 PAHs have PEC values, and were used in the PEC-Q calculation: anthracene; benzo(a)anthracene; benzo(a)pyrene; chrysene; dibenzo(a,h)anthracene; fluoranthene; fluorene; naphthalene; phenanthrene; and pyrene.

$$PEC - Qtotal\ PAHs = \frac{total\ PAH\ concentraton\ (ND = \frac{1}{2RL})(in\ dry\ weight)}{corresponding\ PEC\ value}$$

$$PEC - Qtotal\ PCBs = \frac{total\ PCB\ concentraton\ (ND = 0)(in\ dry\ weight)}{corresponding\ PEC\ value}$$

A mean PEC-Q was calculated by summing the average PEC-Q for metals, the PEC-Q for PAHs, and the PEC-Q for PCBs.

$$mean\ PEC - Q = \frac{mean\ PEC - Qmetals + PEC - Qtotal\ PAHs + PEC - Qtotal\ PCBs}{n}$$

where n = number of sediment classes of chemicals for which sediment chemistry data are available.

A single PEC-Q was determined for each sediment sample (named the mean PEC-Q) to provide an overall measure of chemical contamination and to support an evaluation of the combined potential effects of multiple constituents in the sediment collected from the site (EPA 2000).

The mean PEC-Q values for each sample collected are summarized in Table 5-1. The mean PEC-Qs ranged from 0.03 at location MLTC14-06, to 19.45 at location MLTC14-53 (Figure 5-1A and Figure 5-1B). The mean PEC-Q for each sediment sample was compared to benchmarks of 0.5, 1, and 5. Nearly all locations on the western side of the channel in Area A had samples with PEC-Qs equal to or exceeding 1; including five locations (MLTC14-04, -08, -53, -56, and -58) with PEC-Qs equal to or exceeding 5 (Figure 5-1A). Only one location (MLTC14-10) on the eastern side of Area A had PEC-Qs greater than 0.5. Although the majority of locations in Area B had PEC-Qs equal to or exceeding 0.5, the majority of samples in Area B had PEC-Qs below 0.5 (Figure 5-1B). Ten surface samples had PEC-Qs between 0.5 and 1 (MLTC14-32, -34, -36, -39, -41, -42, -43, -46, -47, and -50), and three surface samples had PEC-Qs between 1 and 5

(MLTC14-26, -35, and -37). Five locations in Area B had sub-surface samples with PEC-Qs greater than 0.5 (MLTC14-25, -31, -32, -35, -47).

6. SPATIAL ANALYSIS TO DETERMINE HOT SPOTS WITHIN THE MLTC AREA

To determine the location of hot spots within the Detroit River AOC, three datasets were spatially interpolated to develop an estimate of the level and distribution of elevated concentrations of constituents across the study area: 1) all individual constituents (Section 3.2.3) with concentrations exceeding their respective PEC in sediment samples; 2) the calculated PAH ESBTUs (Section 4.1.1); and 3) the calculated PEC-Qs (Chapter 5). Hot spot determination allows for prioritizing areas to be targeted for further investigation or remediation.

Interpolation was performed by using a spatially explicit statistical method called kriging, as described in Section 6.1. Sections 6.2 and 6.3 describe the kriging analysis results for all constituents, Section 6.4 describes the kriging analysis results for PAH ESBTUs, and Section 6.5 describes the kriging analysis results for PEC-Qs.

6.1 METHODOLOGY

A three-dimensional model of each analyte measured in the sediment samples was constructed using the statistical interpolation method of kriging with C-Tech's Mining Visualization System (MVS) Version 9.89.

Input included each analyte's concentration at every location, and the results were combined to identify all areas with one or more detections above the respective PEC levels, two times above the PEC, and three times above the PEC levels. To further define the hot spot areas identified from modeling all constituents, additional inputs included the calculated PAH ESBTUs and PEC-Qs; these were modeled separately to identify areas with PAH ESBTUs of between 1 and 7.5, between 7.5 and 10, and equal to or greater than 10, and to identify areas with PEC-Qs between 0.5 and 1 and equal to or greater than 1 Although ESBTUs were also calculated for metals, this data was not included in the spatial analysis because all metals ESBTUs fell below the EPA guidance concentration for risk of adverse biological effects.

6.2 MODEL RESULTS FOR ALL CONSTITUENTS IN THE MLTC AREA

Concentrations of all individual constituents were input to the model, and the kriging analysis identified areas with PEC exceedances of total PCBs, total 17 PAHs, and/or each of the nine metals that have PECs. Nine hot spots were identified within the study area where one or more analytes were present in concentrations exceeding the PEC.

Figure 6-1A presents the results for all constituents exceeding their respective PECs in Area A, and Figure 6-1B presents the results for all constituents exceeding their respective PECs in Area B. These figures present the estimated volume of sediment with elevated concentrations of constituents for each hot spot along with the predominant constituent contributing to elevated concentrations. The volume estimates do not include contingency or overburden; however, they are subject to the uncertainties of the study design and modeling limitations. Figures 6-2 through 6-10 provide additional detail on each hot spot including sample locations and the maximum concentration of each constituent greater than the respective PEC. Separation of hot spots bordering one another (Hot Spots 2 and 4 and 4 and 5) is indicated by a light blue line in Figures 6-1A through 6-10. Hot Spots 2 and 4 are separated around sample locations MLTC14-11 and -12, which did not have PEC exceedances. Hot Spots 4 and 5 are separated geographically, with Hot Spot 5 being limited to the canal adjacent to Elizabeth Park.

- **Hot spot 1**: Hot Spot 1 includes a portion of Monguagon Creek and the area adjacent to the southwest of the Grosse Ile Toll Bridge within the northwestern portion of Area A (Figures 6-1A and 6-2). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 800 cubic yards (cy) (Figure 6-1A). The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs; which exceeded three times the PEC at MLTC14-01, -56, and -57 (Figure 6-2).

- **Hot Spot 2**: Hot Spot 2 is located along the western side of the channel, south of the Grosse Ile Toll Bridge, within Area A (Figure 6-1A). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 640,000 cy (Figure 6-1A). Nearly all of the maximum constituent concentrations identified in the MLTC area were detected in Hot Spot 2, including: cadmium, chromium, copper, lead, and nickel at MLTC14-04; mercury and PCBs at MLTC14-08; and arsenic and iron at MLTC14-09. The predominant constituent contributing to elevated concentrations above the PEC is total PCBs; which exceeded three times the PEC at MLTC14-04, -07, -08, and -09 (Figure 6-3).

- **Hot Spot 3**: Hot Spot 3 is located on the eastern side of the channel (the western shore of Grosse Ile, Michigan) in Area A (Figure 6-1A). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 300,000 cy (Figure 6-1A). The predominant constituent contributing to elevated concentrations above the PEC is total PCBs; which was three times the PEC at MLTC14-10 (Figure 6-4).

- **Hot Spot 4**: Hot Spot 4 is located on the western side and middle of the channel towards the center of Area A, and includes Black Lagoon (Figure 6-1A). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 750,000 cy (Figure 6-1A). The predominant constituent contributing to elevated concentrations above the PEC is mercury; which exceeded three times the PEC at MLTC14-14, -16, -17, and -48 (Figure 6-5).

- **Hot Spot 5**: Hot Spot 5 is located in the canal adjacent to Elizabeth Park in the southern portion of Area A and the northern portion of Area B (Figure 6-1A and Figure 6-1B). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 100,000 cy (Figure 6-1A and Figure 6-1B). The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs; which exceeded three times the PEC at MLTC14-53 and -54 (Figure 6-6).

- **Hotspot 6**: Hot Spot 6 is located on the eastern side of the channel in the northern half of Area B (Figure 6-1B). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 114,000 cy (Figure 6-1B). The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs; which exceeded two times the PEC at MLTC14-25 (Figure 6-7).

- **Hot Spot 7**: Hot Spot 7 is located in Area B on the western side of the channel, and includes Humbug Marsh and portions of the channel on the eastern and southern sides of Humbug Island (Figure 6-1B). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 180,000 cy (Figure 6-1B). The predominant constituent contributing to elevated concentrations above the PEC is Mercury; which exceeded three times the PEC at MLTC14-31 and -32 (Figure 6-8).

- **Hotspot 8**: Hot Spot 8 is located on the eastern side of the channel towards the middle of Area B (Figure 6-1B). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 25,000 cy (Figure 6-1B). The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs (Figure 6-9).

- **Hot Spot 9**: Hot Spot 9 is located in Area B on the western side of the channel, and includes Humbug Marina (Figure 6-1B). The estimated volume of sediment with constituent concentrations exceeding the PEC is approximately 13,000 cy (Figure 6-1B). The predominant constituent contributing to elevated concentrations above the PEC is total 17 PAHs; which exceeded three times PEC at MLTC14-47 (Figure 6-10).

6.3 MODEL RESULTS FOR EQUILIBRIUM PARTITIONING SEDIMENT BENCHMARK TOXIC UNITS FOR THE MLTC AREA

PAH ESBTUs were modeled at each location that had a sample with an ESBTU of equal to or greater than 1. The kriging analysis identified areas with PAH ESBTUs equal to or greater than 1 within some of the hot spot areas that were identified when all constituents were kriged (Section 6.2). Figure 6-11A presents the results for PAH ESBTUs exceeding 1 in Area A, Figure 6-11B presents the results for PAH ESBTUs exceeding 1 in Area B, and Figures 6-12A and 6-12B show the overlap of PAH ESBTUs exceeding 1 and identified hot spots in the MLTC area.

6.3.1 Spatial Analysis for ESBTUs in Area A

The spatial analysis for PAH ESBTUs in Area A identified six areas and 18 sample locations where sediment samples had PAH ESBTUs greater than 1. Figure 6-11A presents the areas identified along with the maximum PAH ESBTU at each sample location, and Figure 6-12A presents the overlap of the spatial analysis for PAH ESBTUs in Area A and identified hot spots.

Five of the areas with elevated PAH ESBTUs in Area A are in the same location as hot spot areas 1, 2, 4, and 5; as identified in Section 6.2 (Figures 6-1A and 6-11A). PAH ESBTUs between 1 and 7.5 or greater than 10 were calculated at sample locations MLTC14-58 and MLTC14-01, -56, and -57, respectively, within Hot Spot 1 (Figure 6-2 and 6-11A). PAH ESBTUs between 1 and 7.5 were calculated at sample locations MLTC14-04, -08, and -09 within Hot Spot 2 (Figures 6-3). PAH ESBTUs between 1 and 7.5 were also calculated at sample locations MLTC14-14, -15, -16, -17, -48, -49, and -55 within Hot Spot 4 (Figure 6-5). Locations MLTC14-18 and -54 in Hot Spot 5 had PAH ESBTUs between 1 and 7.5, and location MLTC14-53 had a PAH ESBTUgreater than 10 (30.06). Location MLTC14-19, located north of Hot Spot 6, had a PAH ESBTU between 1 and 7.5. The highest PAH ESBTU in Area A (30.06) was present in the 0-0.5 ft depth interval at location MLTC14-53 within Hot Spot 5 (the canal adjacent to Elizabeth Park).

There were no PAH ESBTUs greater than 1 within the area of Hot Spot 3.

6.3.2 Spatial Analysis for ESBTUs in Area B

The spatial analysis for PAH ESBTUs in Area B identified five areas, 11 sample locations, where sediment samples had PAH ESBTUs greater than 1. Figure 6-11B presents the areas identified along with the maximum PAH ESBTU at each sample location, and Figure 6-12B presents the overlap of the spatial analysis for PAH ESBTUs in Area B and identified hot spots.

All five of the areas with elevated PAH ESBTUs in Area B are in the same locations the identified hot spots in Area B (Figures 6-1B and 6-12B). PAH ESBTUs between 1 and 7.5 were calculated at sample locations MLTC14-31, -32, -37, -41, -42, and -50 within Hot Spot 7; at MLTC14-25 within Hot Spot 6; and at MLTC14-39 within Hot Spot 8. Although location MLTC14-38 is not included in Hot Spot 8, it does have a PAH ESBTU between 1 and 7.5 and is in the same elevated PAH ESBTU area as MLTC14-39, which is located within Hot Spot 8 (Figures 6-11B and 6-12B). Location MLTC14-47 within Hot Spot 9 had a PAH ESBTU greater than 10 (Figures 6-11B and 6-12B). The highest PAH ESBTU in Area B (11.8) was calculated at the 3-5 ft depth interval at location MLTC14-47 within Hot Spot 9.

6.4 MODEL RESULTS FOR PROBABLE EFFECT CONCENTRATION QUOTIENTS FOR THE MLTC AREA

In addition to all constituents and PAH ESBTUs, PEC-Qs were modeled at each location that had a sample with a PEC-Q equal to or greater than 0.5. The kriging analysis identified areas with PEC-Qs equal to or greater than 0.5 within some of the hot spot areas that were identified when all constituents were kriged (Section 6.2). Figure 6-13A presents the results for PEC-Qs exceeding 0.5 in Area A; Figure 6-13B presents the results for PEC-Qs exceeding 0.5 in Area B; and Figures 6-14A and 6-14B show the overlap of PEC-Qs exceeding 0.5 and identified hot spots in the MLTC area.

6.4.1 Spatial Analysis for PEC-Qs in Area A

The spatial analysis for PEC-Qs in Area A identified five areas, 23 sample locations, where sediment samples had PEC-Qs greater than 0.5. Figure 6-13A presents the areas identified in Area A and the maximum PEC-Q value at each sample location, and Figure 6-14A presents the overlap of the spatial analysis for PEC-Qs in Area A and identified hot spots.

Most of the areas with elevated PEC-Qs in Area A were in the same location as Hot Spots 1, 2, 3, 4, and 5 (Figure 6-14A). PEC-Qs between 0.5 and 1 were calculated at sample location MLTC14-13 in Hot Spot 4, as well as MLTC14-21 and -22; which are not located in an identified hot spot area. PEC-Qs greater than 1 were calculated at several sample locations including: MLTC14-18, -53, and -55 in Hot Spot 5; MLTC14-12, -14, -15, -16, -17, -48, -49, and -55 in Hot Spot 4; MLTC14-10 in Hot Spot 3; MLTC14-04, -07, -08, and -09 in Hot Spot 2; and MLTC14-01, -56, -57, and -58 in Hot Spot 1 (Figures 6-13A and 6-14A). The highest PEC-Q (19.45) was calculated in the 0-0.5 ft depth interval at location MLTC14-53 within the area of Hot Spot 5; in the canal adjacent to Elizabeth Park.

6.4.2 Spatial Analysis for PEC-Qs in Area B

The spatial analysis for PEC-Qs in Area B identified five areas, 18 sample locations, where sediment samples had PEC-Qs greater than 0.5. Figure 6-13B presents the areas identified in Area B and the maximum PEC-Q value at each sample location, and Figure 6-14B presents the overlap of the spatial analysis for PEC-Qs in Area B and identified hot spots.

All of the areas with elevated PEC-Qs in Area B overlapped with Hot Spots 5, 6, 7, 8, and 9 (Figure 6-14B). PEC-Qs between 0.5 and 1 were calculated at sample locations: MLTC14-34, -36, -41, -42, -43, and -50 within Hot Spot 7; at MLTC14-39 within Hot Spot 8; and at MLTC14-46 within Hot Spot 9. PEC-Qs greater than 1 were calculated at several sample locations, including: MLTC14-47 within Hot Spot 9; MLTC14-31, -32, -35, and -37 within Hot Spot 7; MLTC14-26 within Hot Spot 5 (which also extends into Area A); and at MLTC14-25 within Hot Spot 6. The highest PEC-Q (2.75) was calculated in the 3-5 ft depth interval at location MLTC14-47 within the area of Hot Spot 9.

6.5 DETERMINATION OF PREDOMINANT HOT SPOTS BASED ON ALL CONSTITUENTS IN THE MLTC AREA

The hot spot areas identified in Section 6.2 can be prioritized for further investigation and potential remediation efforts when considered with the results of the spatial analysis of PAH ESBTUs and PEC-Qs. Hot spots are further categorized as Level 1, Level 2, or Level 3 based on the following criteria:

Level 1 – highest impact
- Contaminant results are ≥ 3 x PEC **OR**
- PEC-Q ≥ 5, **OR**
- ESBTU ≥ 7.5.

Level 2
- Contaminant results are ≥ 3 x PEC **OR**
- PEC-Q ≥ 1, **OR**
- ESBTU ≥ 7.5.

Level 3 – lowest impact
- Contaminant results are ≥ 3 x PEC **OR**
- PEC-Q ≥ 0.5, **OR**
- ESBTU ≥ 1.

Level 1 hot spot areas have the largest estimated volumes of sediment with COCs exceeding the PEC. Level 3 hot spot areas have less elevated contaminant concentrations and, in some cases, smaller estimated sediment volumes exceeding the PEC. This section presents additional details on each of the nine hot spot areas, presented within their respective levels .

6.5.1 Level 1 Hot Spots

To be considered Level 1, hot spots must have a contaminant result that is equal to or greater than three times its PEC, a PEC-Q value equal to or greater than 5, or an ESBTU equal to or greater than 7.5. Hot Spots 1, 2, 3, 4, 5, 7, and 9 meet the Level 1 criteria.

6.5.1.1 Hot Spot 1

Hot Spot 1 includes sample locations MLTC14-01, -56, -57, and -58 (Figure 6-2). The COCs for this hot spot area are total PCBs, total 17 PAHs, and six metals (chromium, copper, lead, mercury, nickel, and zinc). The model estimates that 75 percent of the hot spot area has constituent concentrations exceeding three times the PEC.

Total PCBs concentrations exceeded the PEC at three of the four sample locations in Hot Spot 1. Concentrations of total PCBs exceeded three times the PEC at sample location MLTC14-58 and exceeded two times the PEC at sample location MLTC14-57 (Figure 6-2). Of the intervals analyzed, total PCBs concentrations above the PEC in Hot Spot 1 were present to a maximum depth interval of 1-3 ft (MLTC14-57 and -58). Total 17 PAHs concentrations exceeded the PEC at all four sample locations in Hot Spot 1. Total 17 PAHs concentrations exceeded two times the PEC at location MLTC14-58, and exceeded three times the PEC at locations MLTC14-57, -56, and -01. Of the intervals analyzed, total 17 PAHs concentrations above the PEC in Hot Spot 1 were present to a maximum depth interval of 1-3 ft (MLTC14-57).

No metals exceeded the PEC at MLTC14-01. Concentrations of four metals at MLTC14-56, one metal at MLTC14-57, and six metals at MLTC14-58 exceeded the PEC. Of the intervals analyzed, metals concentrations above the PEC in Hot Spot 1 were present to a maximum depth interval of 0-1 ft (MLTC14-57 and -58). Sample location MLTC14-58 had an ESBTU greater than 2. Sample locations MLTC14-01, -56, and -57 had ESBTUs greater than 15. Sample locations MLTC14-01 and -57 had PEC-Qs greater than 4 (4.42 and 4.45, respectively). Sample locations MLTC14-56 and -58 had PEC-Qs greater than 5 (7.38 and 5.40, respectively).

6.5.1.2 Hot Spot 2

Hot Spot 2 includes sample locations MLTC14-04, -07, -08, and -09 (Figure 6-3). The COCs for this hot spot area are total PCBs, total 17 PAHs, and nine metals (arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The model estimates that most of the hot spot area has constituent concentrations exceeding three times the PEC, while smaller portions of the area have constituent concentrations exceeding the PEC or two times the PEC.

Concentrations of total 17 PAHs exceeded the PEC at MLTC14-04 and -09. Concentrations of total PCBs exceeded the PEC at all four locations in Hot Spot 2. At locations MLTC14-04, -07, and -08, concentrations of total PCBs exceeded three times the PEC. Of the intervals analyzed, total 17 PAHs and total PCBs concentrations above the PEC in Hot Spot 2 were present to a maximum depth interval of 9-11 ft (MLTC14-04 and MLTC14-09 [PAHs only]).

Only one location, MLTC14-09, had an arsenic concentration that exceeded the PEC. Eight metals exceeded the PEC at MLTC14-04. The highest concentrations of cadmium, chromium, copper, lead, and nickel in the MLTC area were detected at MLTC14-04. Concentrations of eight metals at MLTC14-07, eight metals at MLTC14-08, and nine metals at MLTC14-09 exceeded the PEC. The highest concentrations of mercury and total PCBs in the MLTC area were detected at MLTC14-08, and the highest concentrations of arsenic and iron were detected at MLTC14-09. (Figure 6-3). Of the intervals analyzed, metals concentrations above the PEC in Hot Spot 2 were present to a maximum depth interval of 9-11 ft (detected at locations MLTC14-04 and -09).

Sample locations MLTC14-04, -08, and -09 had ESBTUs between 1 and 5; 1.57, 1.21, and 4.06, respectively. Four sample locations in Hot Spot 2 had PEC-Qs greater than 1 (MLTC14-04, -07, -08, and -09). MLTC14-04 and -08 had PEC-Qs greater than 5 (7.24 and 8.17, respectively).

6.5.1.3 Hot Spot 3

Hot Spot 3 includes sample location MLTC14-10 on the eastern side of the channel (Figure 6-4). The COCs for this hot spot area are total PCBs, cadmium, chromium, copper, iron, lead, mercury, nickel and zinc. The model estimates that a very small portion of the hot spot area immediately surrounding location MLTC14-10 has constituent concentrations exceeding three times the PEC, approximately half of the hot spot area has constituent concentrations exceeding the PEC, and half has constituent concentrations exceeding two times the PEC.

Concentrations of cadmium, copper, iron, lead, mercury, and zinc exceeded the PEC at MLTC14-10. Concentrations of total PCBs exceeded three times the PEC in Hot Spot 3. Of the intervals analyzed, total PCBs and metals concentrations above the PEC in Hot Spot 3 were present to a maximum depth interval of 3-5 ft (MLTC14-10).

ESBTUs did not equal or exceed 1 at MLTC14-10. Sample location MLTC14-10 had a PEC-Q of 1.66.

6.5.1.4 Hot Spot 4

Hot Spot 4 includes sample locations MLTC14-12, -13, -14, -15, -16, -17, -48, -49, and -55 (Figure 6-5). This hot spot includes the area of Black Lagoon (locations MLTC14-12, -49, and -55). The COCs for this hot spot area are total 17 PAHs, total PCBs, and eight metals (cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The model estimates that most of this hot spot area has constituent concentrations exceeding two or three times the PEC, while a small portion of the area has constituent concentrations exceeding the PEC.

Concentrations of total 17 PAHs exceeded the PEC at seven of the nine locations in Hot Spot 4 (MLTC14-13, -14, -15, -16, -17, -48, and -55), with the concentration at MLTC14-15 exceeding three times the PEC. Of the intervals analyzed, total 17 PAHs concentrations above the PEC in Hot Spot 4 were present to a maximum depth interval of 7-9 ft (MLTC14-17). Concentrations of total PCBs exceeded the PEC at locations MLTC14-12, -14, -15, -16, -17, -48, and -49. Concentrations of total PCBs exceeded two times the PEC at MLTC14-49 and -48, and three times the PEC at MLTC14-17, -12, and -16. Of the intervals analyzed, total PCBs concentrations above the PEC in Hot Spot 4 were present to a maximum depth interval of 5-7 ft (MLTC14-16).

Every sampling location in Hot Spot 4 had at least one metal concentration exceeding the PEC, including: seven metals at MLTC14-12 and -49; one metal at MLTC14-13 and -55; eight metals at MLTC14-14, -16, and -17; and three metals at MLTC14-15 and -48. Hot Spot 4 contained the highest exceedances of zinc at 2260 mg/kg (MLTC14-12 in the 3-5 ft interval). Of the intervals analyzed, metals concentrations above the PEC in Hot Spot 4 were present to a maximum depth interval of 5-7 ft (MLTC14-16).

Seven of the nine sample locations in Hot Spot 4 also had ESBTUs greater than 1 (MLTC14-14, -15, -16, -17, -48, -49, and -55). Sample location MLTC14-15 had the highest ESBTU in Hot Spot 4 at 5.05. All nine sample locations in Hot Spot 4 had PEC-Qs exceeding 0.5. Sample location MLTC14-15 had the highest PEC-Q in Hot Spot 4, at 2.68.

6.5.1.5 Hot Spot 5

Hot Spot 5 includes sample locations MLTC14-18, -26, -53, and -54 (Figure 6-6). This hot spot includes the canal adjacent to Elizabeth Park. The COCs for this hot spot area are total 17 PAHs, total PCBs, and eight metals (cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The model estimates that most of this hot spot area has constituent concentrations exceeding three times the PEC, while a small portion of the area has constituent concentrations exceeding the PEC.

Concentrations of total 17 PAHs exceeded the PEC at all four locations in Hot Spot 5, with the concentration at location MLTC14-26 exceeding two times the PEC and the concentrations at locations MLTC14-53 and -54 exceeding three times the PEC. Hot Spot 5 contained the highest exceedance of total 17 PAHs at 1,298,760 µg/kg (MLTC14-53 in the surface interval). Of the intervals analyzed, total 17 PAHs concentrations above the PEC in Hot Spot 5 were present to a maximum depth interval of 5-7 ft (MLTC14-53 and -54). Concentrations of total PCBs exceeded the PEC at location MLTC14-54, and two times the PEC at MLTC14-53. Of the intervals analyzed, total PCBs concentrations exceeding the PEC in Hot Spot 5 were present to a maximum depth interval of 3-5 ft (MLTC14-53).

Every sampling location in Hot Spot 5 had at least one metal concentration exceeding the PEC, including: six metals at MLTC14-18, four metals at MLTC14-26, seven metals at MLTC14-53, and eight metals at MLTC14-54. Of the intervals analyzed, metals concentrations above the PEC in Hot Spot 5 were present to a maximum depth interval of 5-7 ft (MLTC14-53).

ESBTUs exceeded 1 at sample locations MLTC14-18 (2.51), -53 (30.06), and -54 (5.18) in Hot Spot 5. Sample location MLTC14-54 had the highest ESBTU in Hot Spot 5 at 30.06. All four sample locations in Hot Spot 5 had PEC-Qs greater than 0.5. Sample locations MLTC14-18, -26, and -54 had PEC-Qs between 0.5 and 3, but MLTC14-53 had a PEC-Q of 19.45.

6.5.1.6 Hot Spot 7

Hot Spot 7 includes sample locations MLTC14-31, -32, -35, -36, -37, -41, -42, and -50 (Figure 6-8). Portions of Humbug Marsh and directly north of the marsh (locations MLTC14-31, -32, -35, -36, and -37) are included in this hot spot. The COCs for this hot spot area are total 17 PAHs, total PCBs, and eight metals (cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc). The model estimates that most of this hot spot area has constituent concentrations exceeding the PEC, with smaller portions in the northern half of the hot spot having constituent concentrations that exceed two or three times the PEC.

Concentrations of total 17 PAHs exceeded the PEC at six locations in Hot Spot 7 (MLTC14-31, -32, -36, -37, -41, and -42), with the concentrations at MLTC14-37 exceeding two times the PEC and the concentration at MLTC14-31 exceeding three times the PEC. Of the intervals analyzed, concentrations of total 17 PAHs exceeding the PEC in Hot Spot 7 were present to a maximum depth interval of 3-5 ft (MLTC14-31). Concentrations of total PCBs also exceeded the PEC at six locations (MLTC14-31, -32, -35, -37, -42, and -50), with the concentration at MLTC14-31 exceeding two times the PEC and the concentration at MLTC14-35 exceeding three times the PEC. Of the intervals analyzed, total PCBs concentrations exceeding the PEC in Hot Spot 7 were present to a maximum depth interval of 3-5 ft (MLTC14-31).

Concentrations of eight metals at MLTC14-31, seven metals at MLTC14-32, two metals at MLTC14-35, and three metals at MLTC14-37 exceeded the PEC. Of the intervals analyzed, metals concentrations exceeding the PEC in Hot Spot 7 were present to a maximum depth interval of 3-5 ft (MLTC14-31).

Six locations in Hot Spot 7 had ESBTUs equal to or exceeding 1 (MLTC14-31, -32, -37, -41, -42, and -50). Sample location MLTC14-31, north of Humbug Marsh, had the highest ESBTU in Hot Spot 7 at 2.93. Every sample location in Hot Spot 7 had a PEC-Q exceeding 0.5. The highest PEC-Q in Hot Spot 7 was 2.32 at MLTC14-31.

6.5.1.7 Hot Spot 9

Hot Spot 9 includes sample location MLTC14-47 (Figure 6-10). This hot spot includes portions of Humbug Marina. The COCs for this hot spot area are total 17 PAHs, cadmium, copper, lead, mercury, nickel, and zinc. The model estimates that most of the hot spot area has constituent concentrations exceeding three times the PEC, with smaller portions of the hot spot having constituent concentrations that exceed the PEC and two times the PEC.

Concentrations of total 17 PAHs exceeded three times the PEC at location MLTC14-47 in Hot Spot 9. The concentration of cadmium exceeded two times the PEC, and concentrations of copper, lead, mercury, nickel, and zinc exceed the PEC. Of the intervals analyzed, total 17 PAHs concentrations exceeding the PEC in Hot Spot 7 were present to a maximum depth interval of 5-7 ft, and metals concentrations exceeding the PEC were present to a maximum depth interval of 3-5 ft. MLTC14-47 had an ESBTU of 11.8, and a PEC-Q of 2.75.

6.5.2 Level 2 Hot Spots

To be considered Level 2, hot spots must have a contaminant result that is equal to or greater than three times its PEC, a PEC-Q value equal to or greater than 1, or an ESBTU equal to or greater than 7.5. Hot Spot 6 meets the Level 2 criteria.

6.5.2.1 Hot Spot 6

Hot Spot 6 includes sample location MLTC14-25 (Figure 6-7). This hot spot is located on the eastern side of the channel in Area B. The COC for this hot spot area is 17 PAHs. The model estimates that most of the hot spot area has constituent concentrations exceeding two times the PEC, with smaller portions of the hot spot, north and south of MLTC14-25, having constituent concentrations that exceed the PEC. MLTC14-25 had an ESBTU of 1.88, and a PEC-Q of 1.25.

6.5.3 Level 3 Hot Spots

To be considered Level 3, hot spots must have a contaminant result that is equal to or greater than three times its PEC, a PEC-Q value equal to or greater than 0.5, or an ESBTU equal to or greater than 1. Hot Spot 8 meets the Level 3 criteria.

6.5.3.1 Hot Spot 8

Hot Spot 8 is located on the eastern side of the channel towards the middle of Area B, and includes sample location MLTC14-39 (Figure 6-9). The COC for this hot spot area is total 17 PAHs. The model estimates that the entire area of the hot spot has constituent concentrations exceeding the PEC. Sample location MLTC14-39 had a PEC-Q of 0.64, and an ESBTU of 1.22.

7. SPATIAL ANALYSIS FOR SAMPLE RESULTS FROM THE AREA OF OVERLAP BETWEEN THE MLTC AREA AND CELERON ISLAND AREA

Sample location MLTC14-47 within Hot Spot 9, located within the Humbug Marina, is located directly north of Hot Spots 1 and 2 identified in the Celeron Island Area Site Characterization Report (EA 2014c). When the data from Hot Spot 9 (MLTC area) and the data from Hot Spots 1 and 2 (Celeron Island area) are kriged together, Hot Spot 9 and Hot Spot 2 are connected to depict the entire area located within the Detroit River channel between the mainland portion, the main island, and Edmond Island in the City of Gibraltar, Michigan. The estimated volume of sediment with constituent concentrations exceeding the PEC in this combination hot spot is approximately 57,000 cy (Figure 7-1). This chapter presents model results and spatial analysis of the data from this area of overlap between the MLTC area and the Celeron Island area (Figures 7-1 through 7-3).

7.1 MODEL RESULTS AND SPATIAL ANALYSIS FOR ALL CONSTITUENTS IN THE AREA OF OVERLAP BETWEEN THE MLTC AREA AND CELERON ISLAND AREA

The hot spot created by combining Hot Spot 9 (MLTC area) and Hot Spots 1 and 2 (Celeron Island area) includes sample locations MLTC14-47, and CI13-38, -39, -42, -43, -44, -45, -46, -48, and -49 (Figure 7-1). The combination hot spot area includes Humbug Marina and channels of the Detroit River located between the main island, Edmond Island, and the mainland in the City of Gibraltar, Michigan. The COCs for this combination hot spot area are 17 PAHs, total PCBs, cadmium, chromium, copper, lead, mercury, nickel, and zinc. The model estimates that most of the combination hot spot area has constituent concentrations exceeding three times the PEC, with smaller portions in the northwestern area and south/southeastern areas of hot spot having constituent concentrations that exceed the PEC and two times the PEC.

Concentrations of total PCBs exceeded three times the PEC at sample locations CI13-39, -42, -48, and -49 within Hot Spot 2. Total 17 PAHs concentrations exceeded the PEC at MLTC14-47, and CI13-39, -42, -43, -44, -46, and -49. Total 17 PAHs concentrations exceeded two times the PEC at CI13-46 and three times the PEC at sample locations MLTC14-47 and CI13-42, -43 and -44 within this hot spot.

At location MLTC14-47, the concentration of cadmium exceeded two times the PEC, and concentrations of copper, lead, mercury, nickel, and zinc exceeded the PEC. Concentrations of lead and nickel exceeded the PEC at CI13-39 and -49, while concentrations of other metals exceeded two times the PEC at these sample locations. At locations CI13-42 and -48, concentrations of copper exceeded the PEC and concentrations of nickel exceeded three times the PEC. Additionally, lead exceeded the PEC at location CI13-42 and two times the PEC at CI13-48, while mercury concentrations exceeded two times the PEC at location CI13-42 and three times the PEC at CI13-48. Zinc concentrations exceeded two times the PEC at both CI13-42 and -48.

7.2 MODEL RESULTS AND SPATIAL ANALYSIS FOR EQUILIBRIUM PARTITIONING SEDIMENT BENCHMARK TOXIC UNITS FOR THE AREA OF OVERLAP BETWEEN THE MLTC AREA AND CELERON ISLAND AREA

The spatial analysis for PAH ESBTUs in the area of overlap identified two areas and five sample locations where sediment samples had PAH ESBTUs equal to or greater than 1. Figure 7-2 presents the areas identified along with the maximum PAH ESBTU in each sample location.

PAH ESBTUs between 1 and 7.5 were calculated at sample location CI13-46. PAH ESBTUs greater than 10 were calculated at the four remaining sample locations (MLCT14-47 and CI13-42, -43, and -44). The highest PAH ESBTU in area of overlap (70.64) was present in the 3-5 ft depth interval at location CI13-43 within the Celeron Island area Hot Spot 2.

7.3 MODEL RESULTS AND SPATIAL ANALYSIS FOR PROBABLE EFFECT CONCENTRATION QUOTIENTS FOR THE AREA OF OVERLAP BETWEEN THE MLTC AREA AND CELERON ISLAND AREA

The spatial analysis for PEC-Qs in the area of overlap identified two areas, nine sample locations, where sediment samples had PEC-Qs equal to or greater than 0.5. Figure 7-3 presents the areas identified and the maximum PEC-Q value at each sample location.

PEC-Qs between 0.5 and 1 were calculated at sample location MLTC14-46, located north of Hot Spot 9 (MLTC area). PEC-Qs greater than 1 were calculated at several sample locations including: MLTC14-47 and CI13-39, -42, -43, -44, -45, -48, and -49. The highest PEC-Q (17.57) was calculated in the 3-5-ft depth interval at location CI13-43 in the channel south of Edmond Island.

8. CONCLUSIONS

Based on the data collected during the MLTC area sediment characterization, the Level 1 (highest impact) hot spot areas with elevated concentrations of constituents are: Hot Spot 1 (Monguagon Creek and the area adjacent to the southwest of the Grosse Ile Toll Bridge in Area A); Hot Spot 2 (located along the western side of the channel in the northern portion of Area A); Hot Spot 3 (located on the eastern side of the channel in Area A); Hot Spot 4 (located along the western side and to the middle of the channel in Area A); Hot Spot 5 (located in the canal adjacent to Elizabeth park in both Area A and Area B); Hot Spot 7 (located on the western side of the channel in Area B and includes portion of Humbug Marsh and the channel on the eastern and southern sides of Humbug Island); and Hot Spot 9 (located on the western side of the channel in Area B and includes part of Humbug Marina (Figures 6-2 through 6-6, 6-8, and 6-10). These high impact hot spots have an estimated total of 1,983,800 cy of sediment with constituent concentrations exceeding the PEC. When data from Hot Spots 1 and 2 in the Celeron Island area are combined with data from MLTC area Hot Spot 9, a high impact hot spot area becomes apparent in the area of overlap (Figure 7-1).

Although all the hot spots identified in the MLTC area should be considered for further investigation, the seven Level 1 hot spot areas in the MLTC area should be considered a priority. Model results indicated that each of these areas has a large volume of sediment with elevated concentrations of constituents exceeding two or three times the PEC. Modeling of the PAH ESBTUs and the PEC-Qs also showed elevated values within the hot spot areas. Further delineation of the extent of sediment with elevated concentrations of constituents is recommended.

The potential might exist for elevated concentrations further north of Level 2 Hot Spot 6, and additional sampling would assist in determining the impact of outfalls located north of sample location MLTC14-25 (Figure 6-7). The modeling results for all constituents elevated above two or three times the PEC, the PAH ESBTUs, and the PEC-Qs suggest that the hot spot areas should be considered for further investigation and potential remediation within the MLTC area. However, the limited number of samples results in significant uncertainty of the volume of sediment with elevated concentrations of constituents in the hot spot areas.

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Figures

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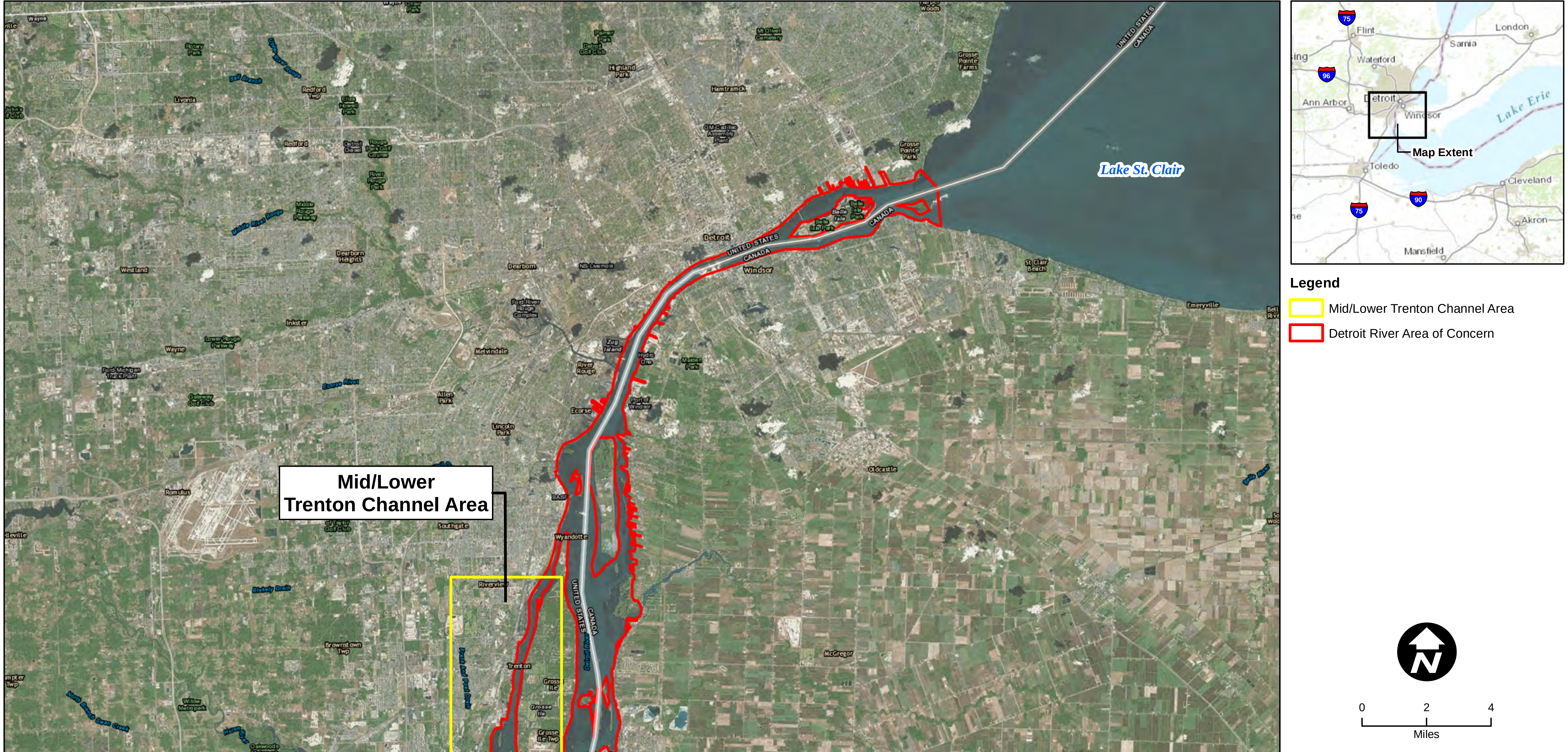

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 3/27/2015

FIGURE 1-1
Project Site Location
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

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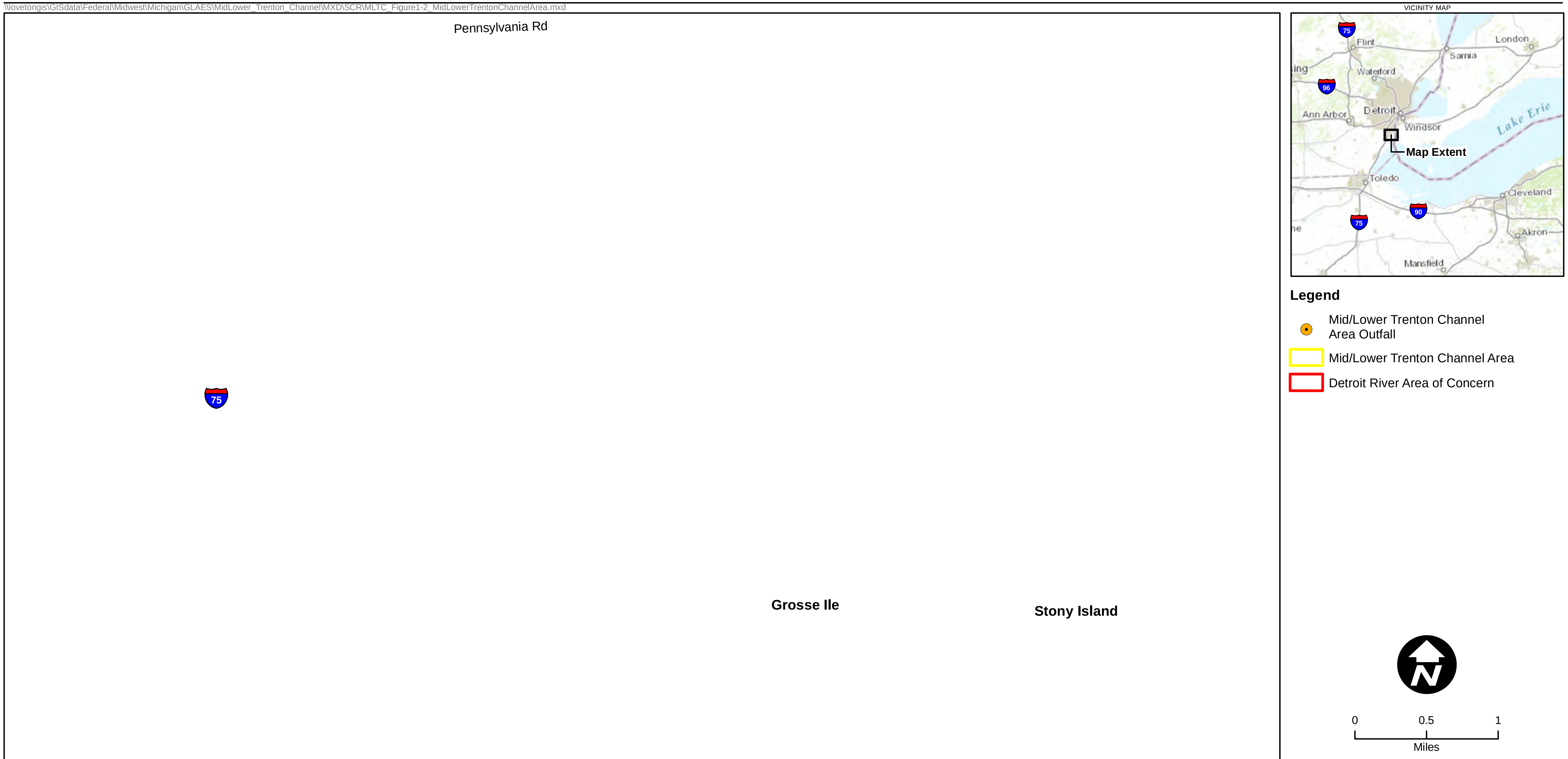

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 3/27/2015

FIGURE 1-2
Mid/Lower Trenton Channel Area
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

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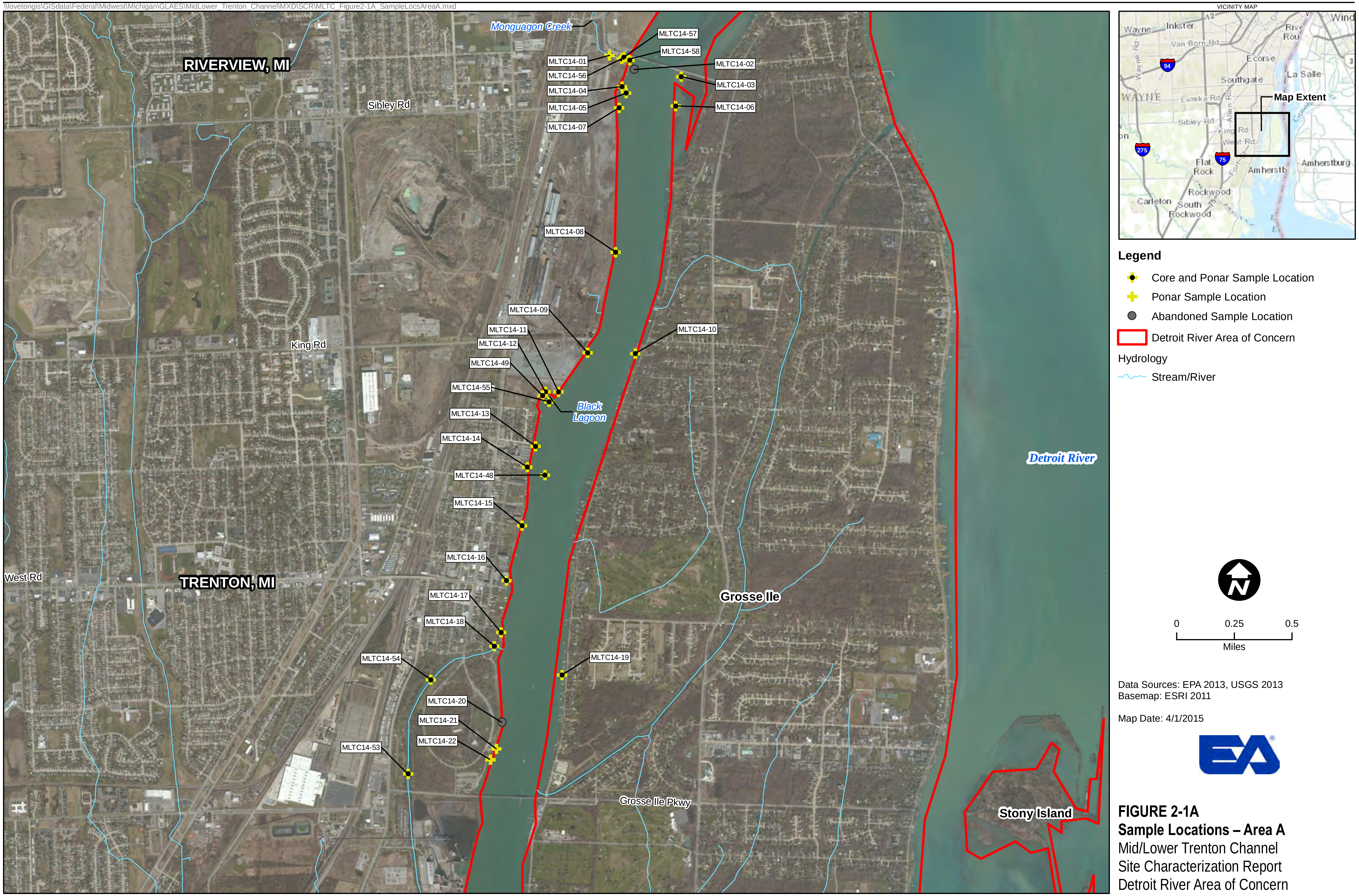

Legend

● Core and Ponar Sample Location

✚ Ponar Sample Location

● Abandoned Sample Location

🟥 Detroit River Area of Concern

Hydrology

〰 Stream/River

0 0.25 0.5
Miles

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 4/1/2015

FIGURE 2-1A
Sample Locations – Area A

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

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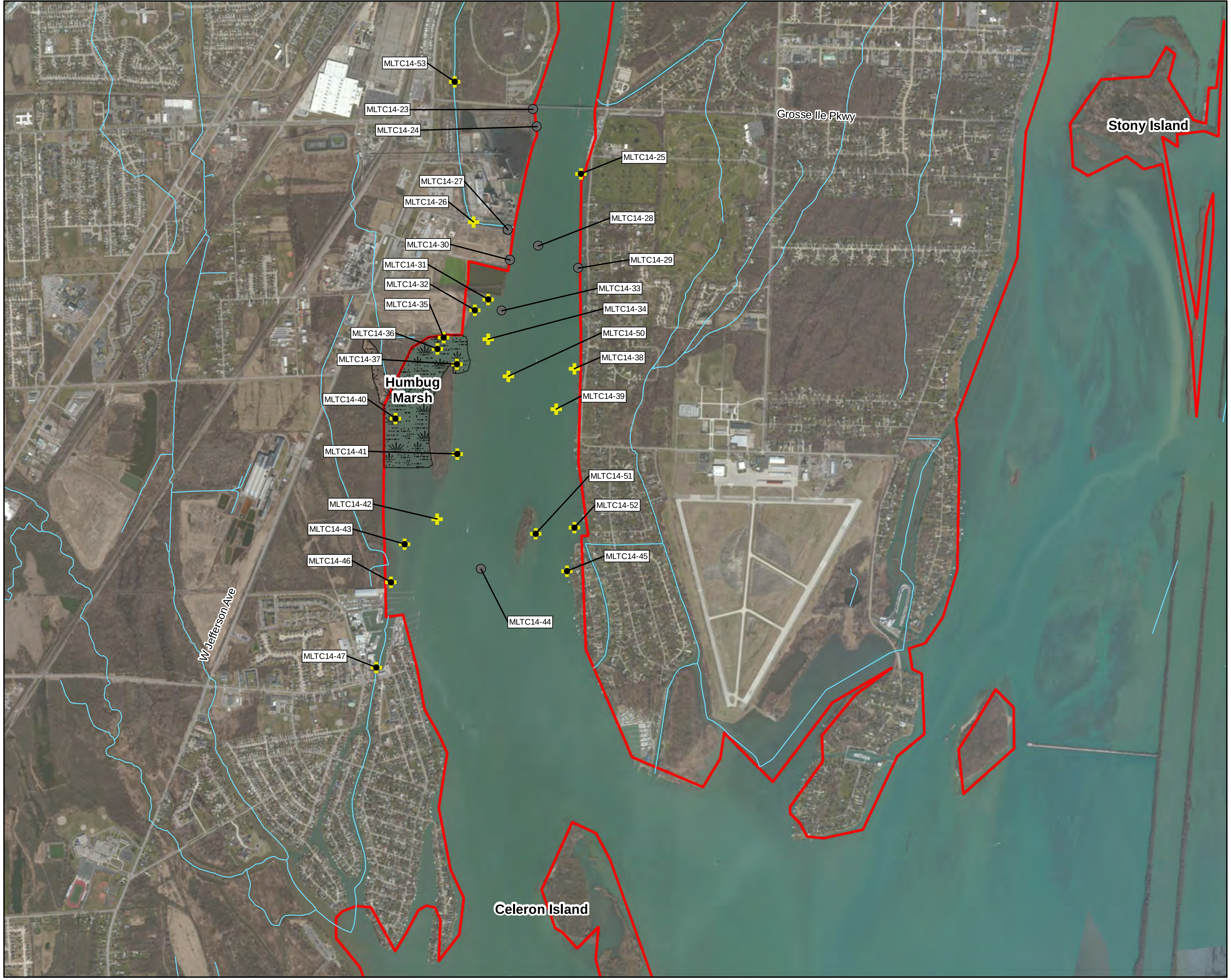

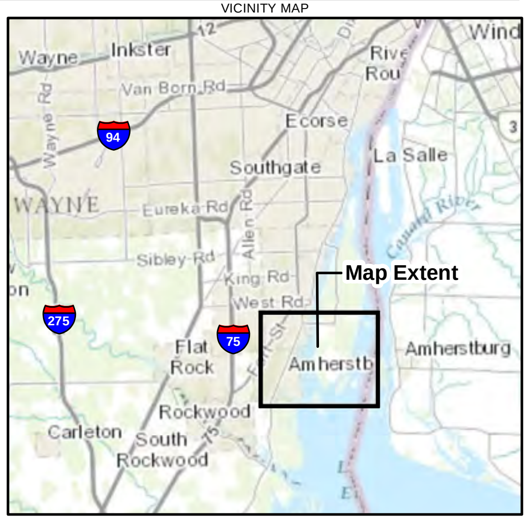

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● Core and Ponar Sample Location

✚ Ponar Sample Location

● Abandoned Sample Location

🟥 Detroit River Area of Concern

Hydrology

~ Stream/River

Humbug Marsh

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 4/1/2015

FIGURE 2-1B
Sample Locations – Area B
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

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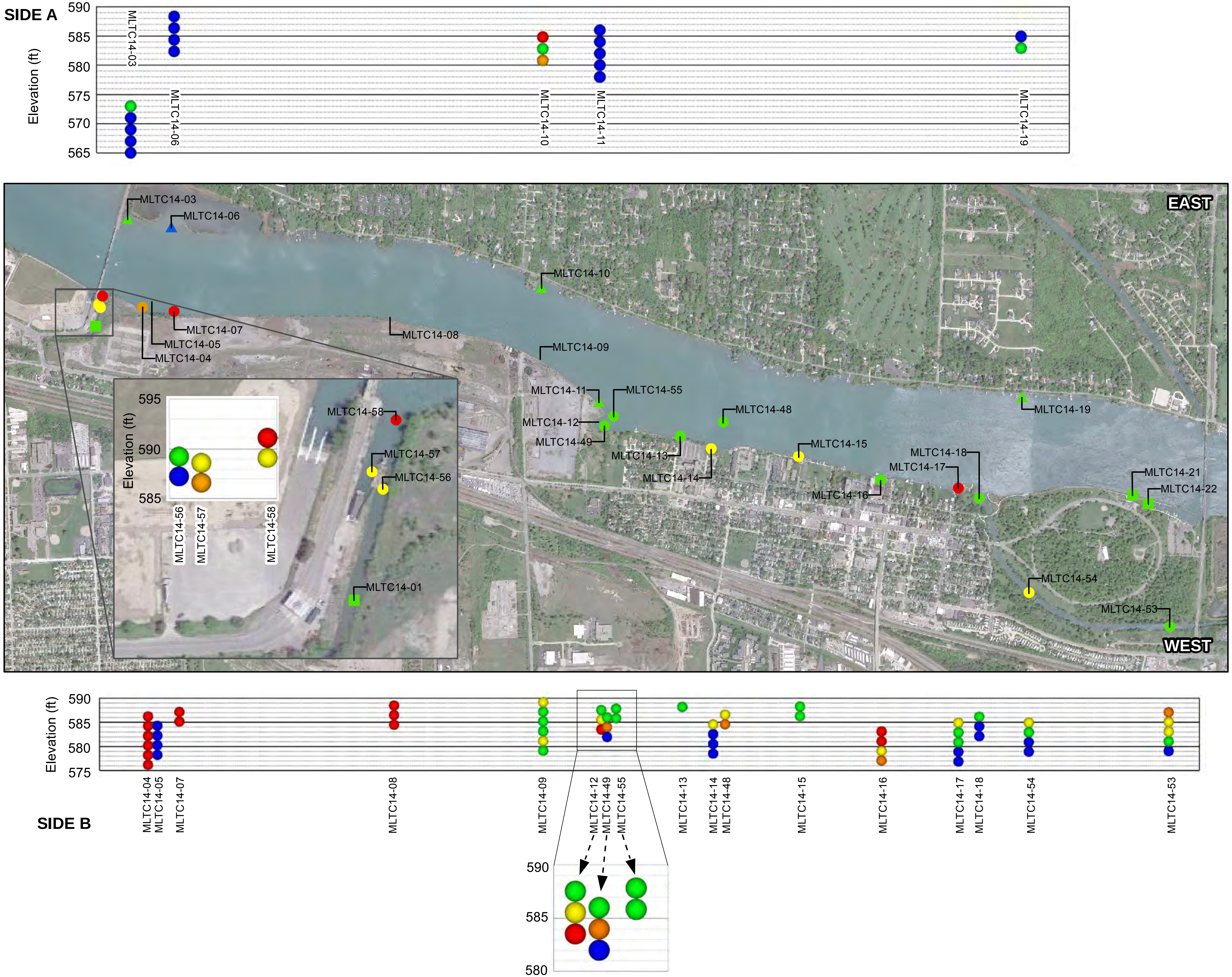
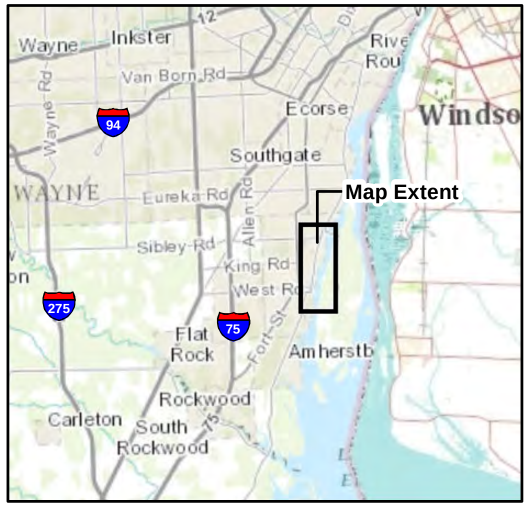




Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.

Vibracore sample results are shown on the graphs.

Locations are color coded based upon Total (ND = 0) PCB Aroclor results.

Total (ND = 0) PCB Aroclor Concentrations

🟥 ≥ 3x PEC (2,028 µg/kg)

🟧 ≥ 2x PEC (1,352 µg/kg)

🟨 ≥ PEC (676 µg/kg)

🟩 ≥ TEC (59.8 µg/kg)

🟦 < TEC

N

0 500 1,000 1,500 2,000

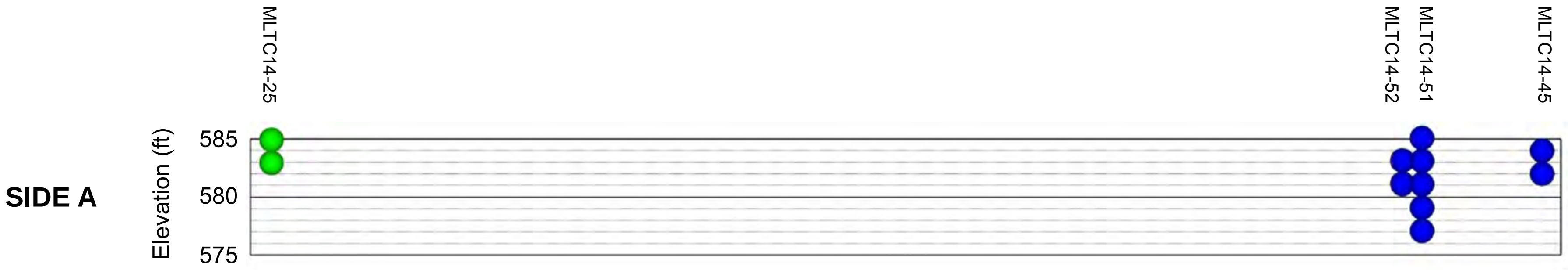
Feet

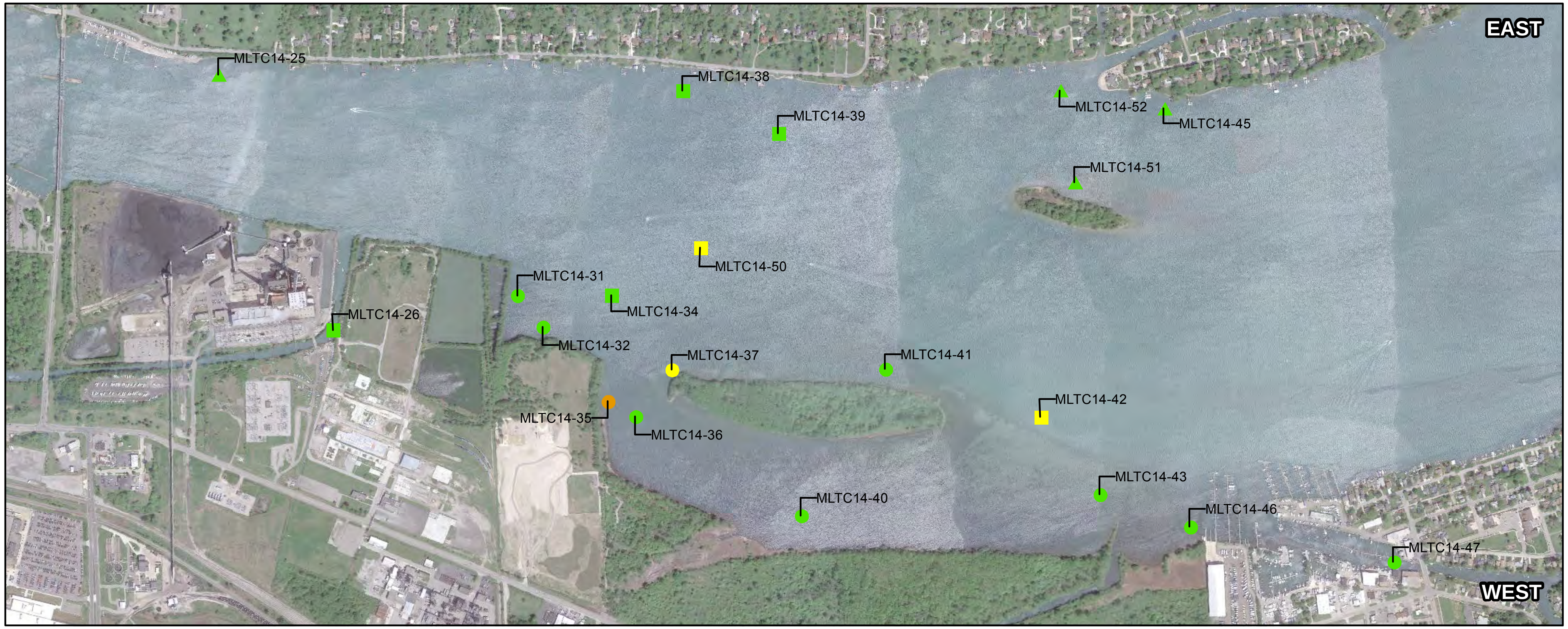
Map Date: 6/23/2015
Basemap: Google Earth 2010

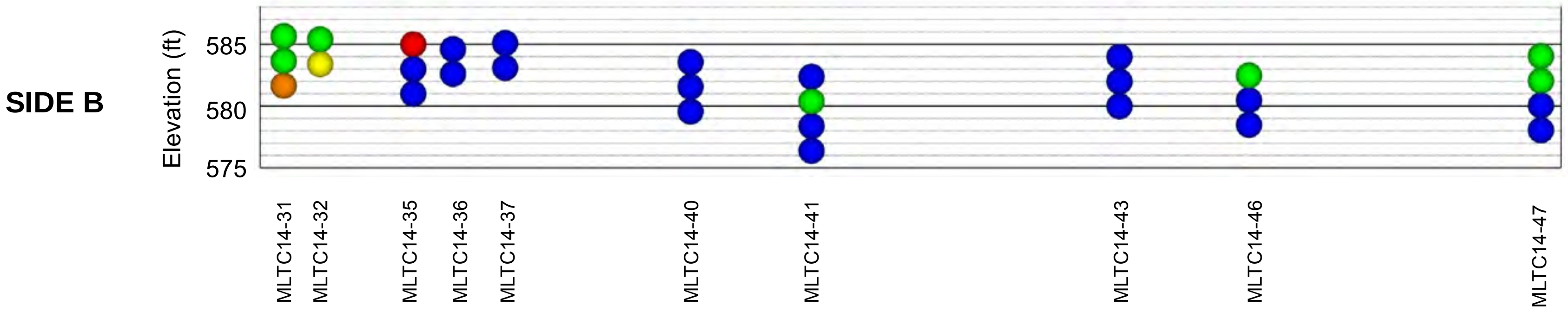
FIGURE 3-1A

Total (ND=0) PCB Aroclor Concentrations (µg/kg) Detected in Area A – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern







Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon Total (ND = 0) PCB Aroclor results.

Total (ND = 0) PCB Aroclor Concentrations

🟥 ≥ 3x PEC (2,028 μg/kg)
🟧 ≥ 2x PEC (1,352 μg/kg)
🟨 ≥ PEC (676 μg/kg)
🟩 ≥ TEC (59.8 μg/kg)
🟦 < TEC

0 500 1,000 1,500 2,000
Feet

Map Date: 6/23/2015
Basemap: Google Earth 2010

FIGURE 3-1B
Total (ND=0) PCB Aroclor Concentrations (μg/kg) Detected in Area B – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

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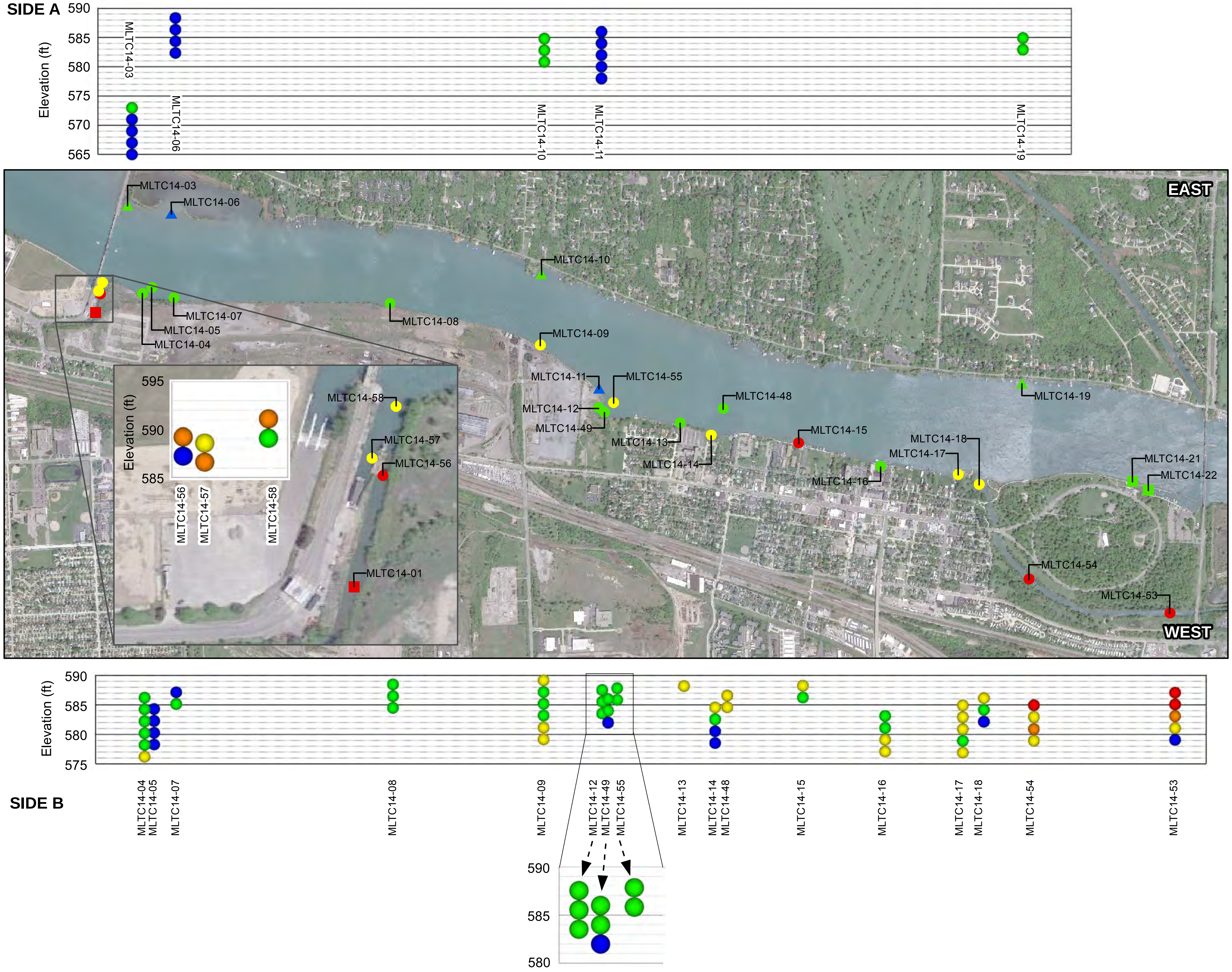

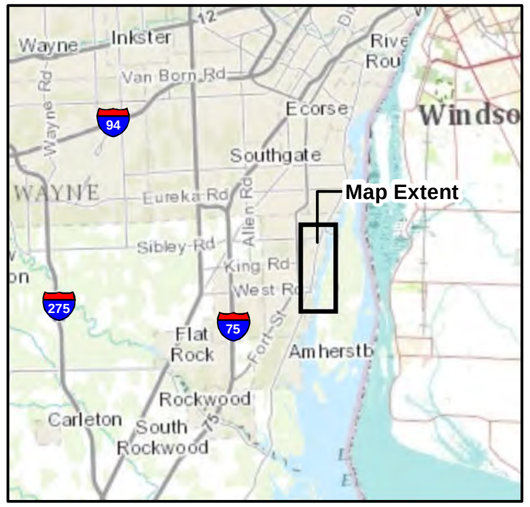

Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.

Vibracore sample results are shown on the graphs.

Locations are color coded based upon Total (ND = ½ RL) 17 PAHs results.

Total (ND = ½ RL) 17 PAHs Concentrations

🟥 ≥ 3x PEC (68,400 µg/kg)

🟧 ≥ 2x PEC (45,600 µg/kg)

🟨 ≥ PEC (22,800 µg/kg)

🟩 ≥ TEC (1,610 µg/kg)

🟦 < TEC

N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/23/2015
Basemap: Google Earth 2010

FIGURE 3-2A
Total (ND=1/2 RL) 17 PAHs Concentrations (µg/kg) Detected in Area A – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

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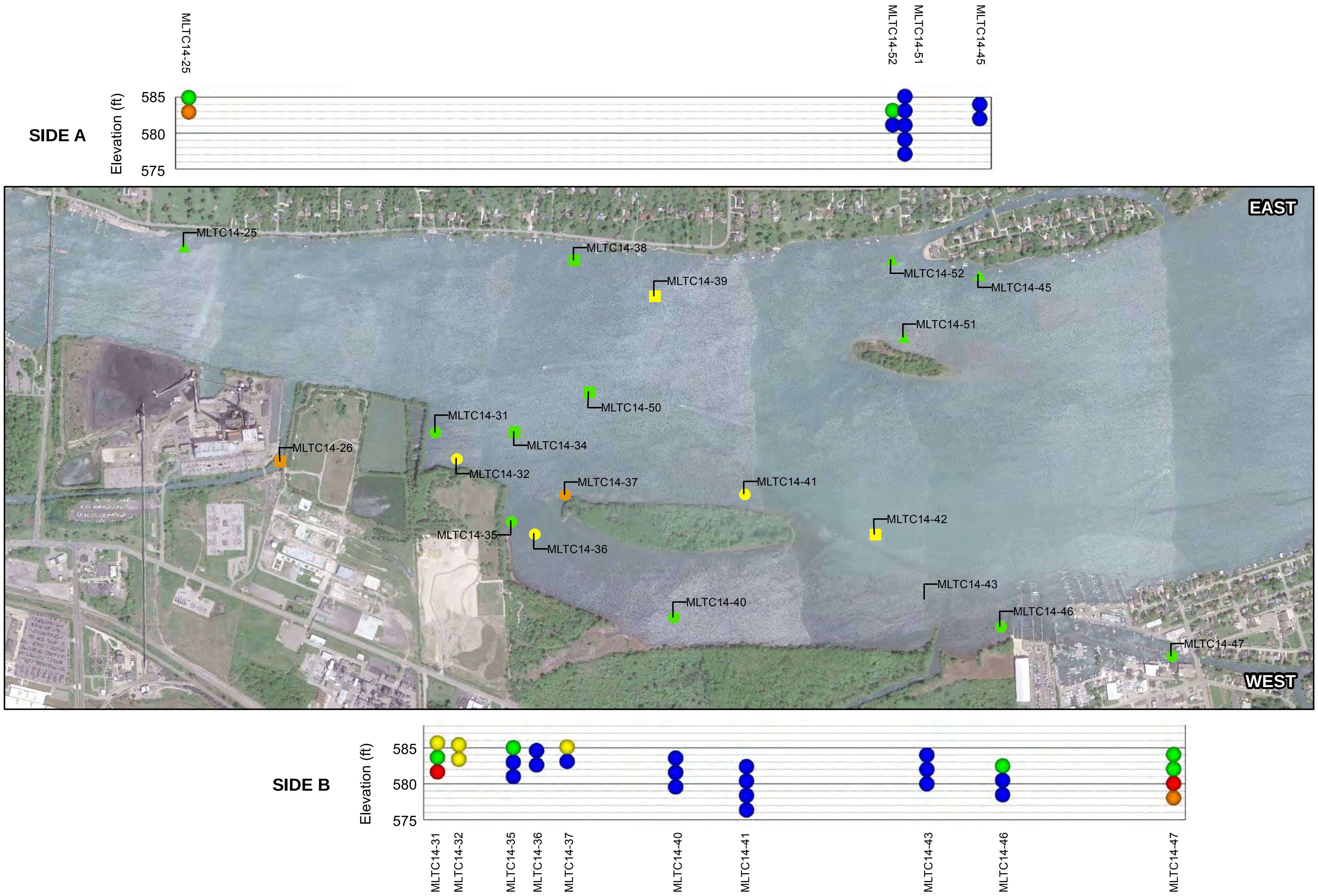

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▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.

Vibracore sample results are shown on the graphs.

Locations are color coded based upon Total (ND = ½ RL) 17 PAHs results.

Total (ND = ½ RL) 17 PAHs Concentrations

🟥 ≥ 3x PEC (68,400 µg/kg)

🟧 ≥ 2x PEC (45,600 µg/kg)

🟨 ≥ PEC (22,800 µg/kg)

🟩 ≥ TEC (1,610 µg/kg)

🟦 < TEC

0 500 1,000 1,500 2,000

Feet

Map Date: 6/23/2015

Basemap: Google Earth 2010

FIGURE 3-2B

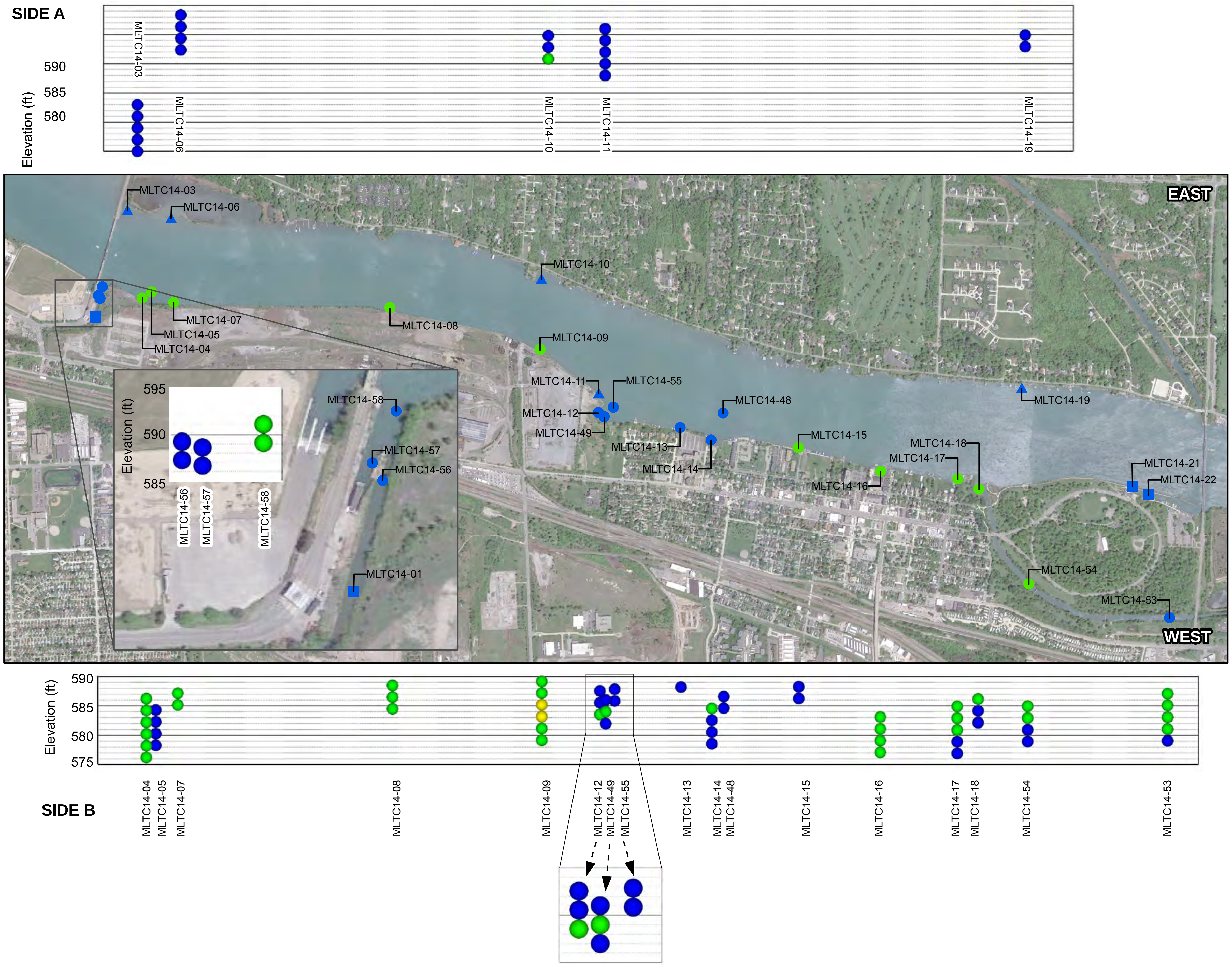
Total (ND=1/2 RL) 17 PAHs Concentrations (µg/kg) Detected in Area B – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments

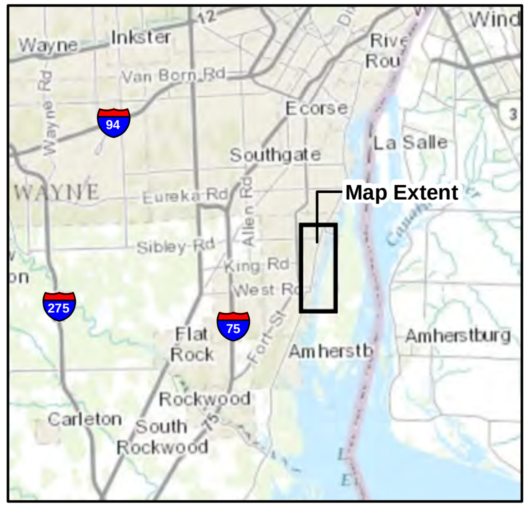
Mid/Lower Trenton Channel

Site Characterization Report

Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-3A_As_AreaA_North_0622.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon arsenic results.

Arsenic Concentrations

- 🟥 ≥ 3x PEC (99 mg/kg)
- 🟧 ≥ 2x PEC (66 mg/kg)
- 🟨 ≥ PEC (33 mg/kg)
- 🟩 ≥ TEC (9.79 mg/kg)
- 🟦 < TEC

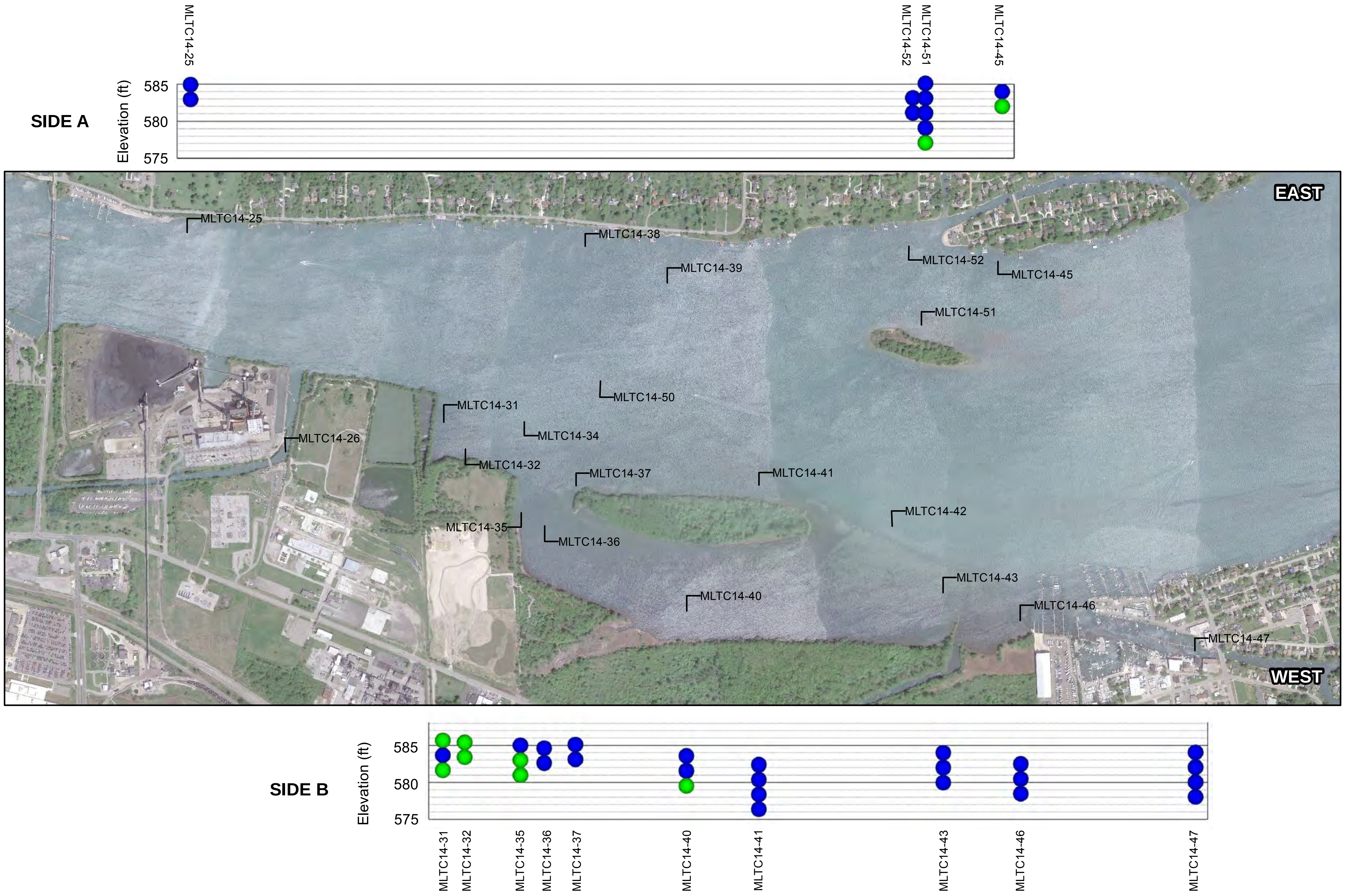
N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/23/2015
Basemap: Google Earth 2010

FIGURE 3-3A
Arsenic Concentrations (mg/kg) Detected in Area A – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-3B_As_AreaB_South_0622.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon arsenic results.

Arsenic Concentrations

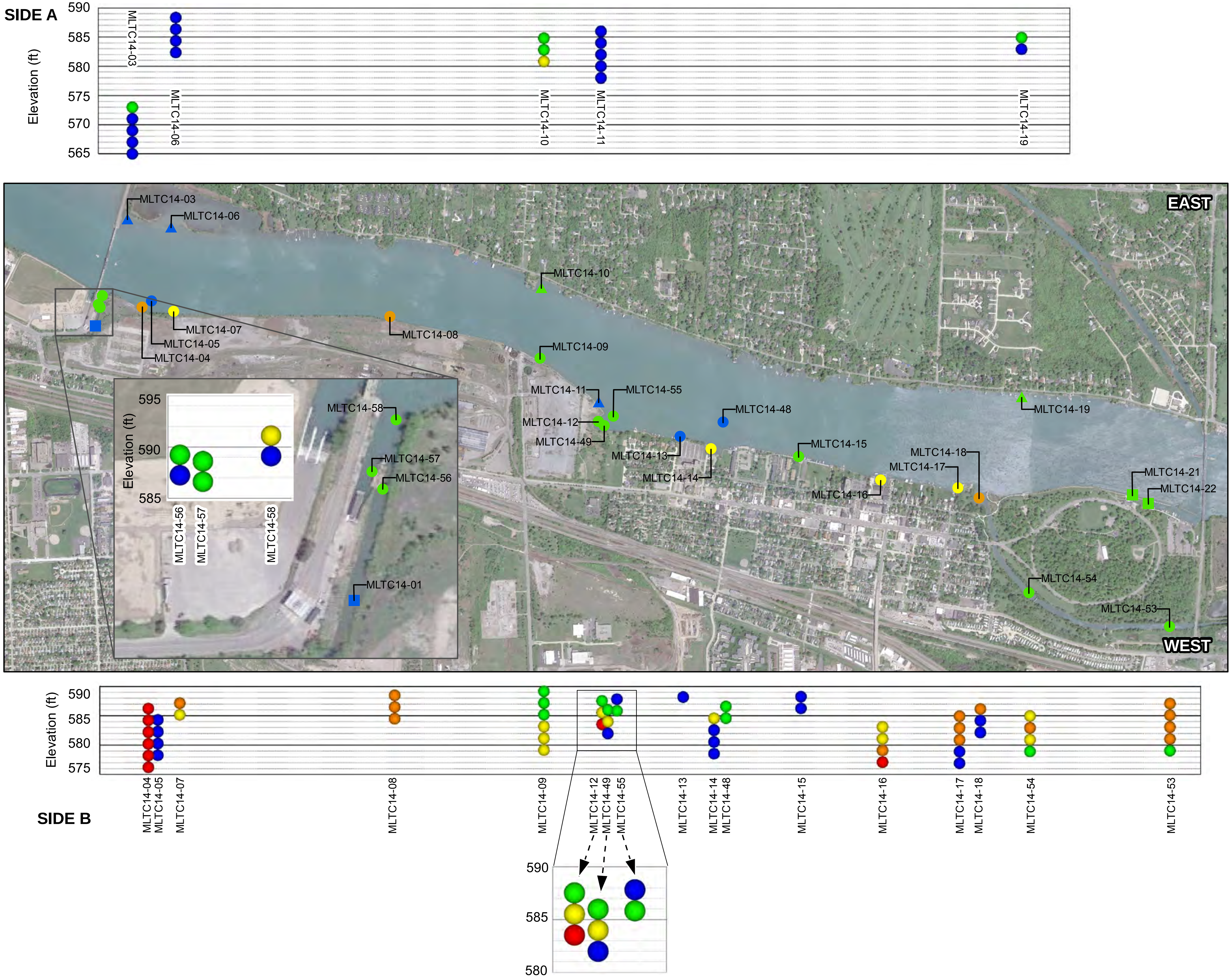
🟥 ≥ 3x PEC (99 mg/kg)
🟧 ≥ 2x PEC (66 mg/kg)
🟨 ≥ PEC (33 mg/kg)
🟩 ≥ TEC (9.79 mg/kg)
🟦 < TEC

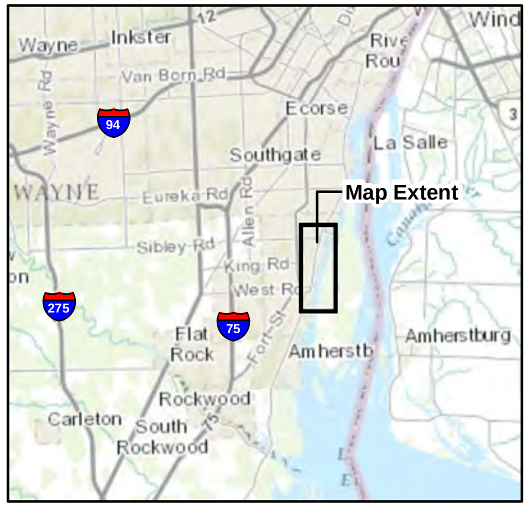
0 500 1,000 1,500 2,000
Feet

Map Date: 6/23/2015
Basemap: Google Earth 2010

FIGURE 3-3B
Arsenic Concentrations (mg/kg)
Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-4A_Cd_AreaA_North_0622.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon cadmium results.

Cadmium Concentrations

🟥 ≥ 3x PEC (14.94 mg/kg)
🟧 ≥ 2x PEC (9.96 mg/kg)
🟨 ≥ PEC (4.98 mg/kg)
🟩 ≥ TEC (0.99 mg/kg)
🟦 < TEC

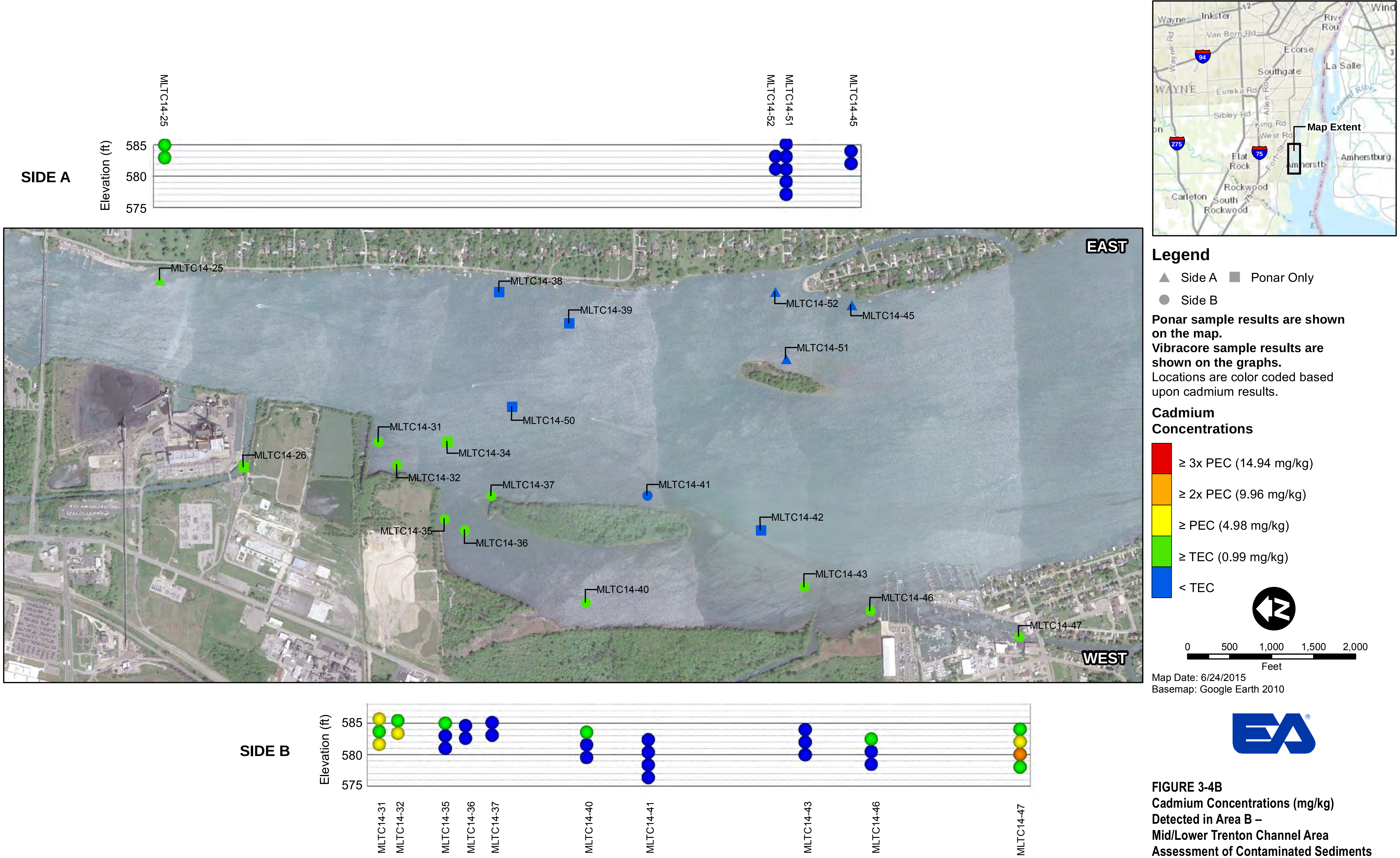
N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-4A
Cadmium Concentrations (mg/kg)
Detected in Area A –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-4B_Cd_AreaB_South_0622.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon cadmium results.

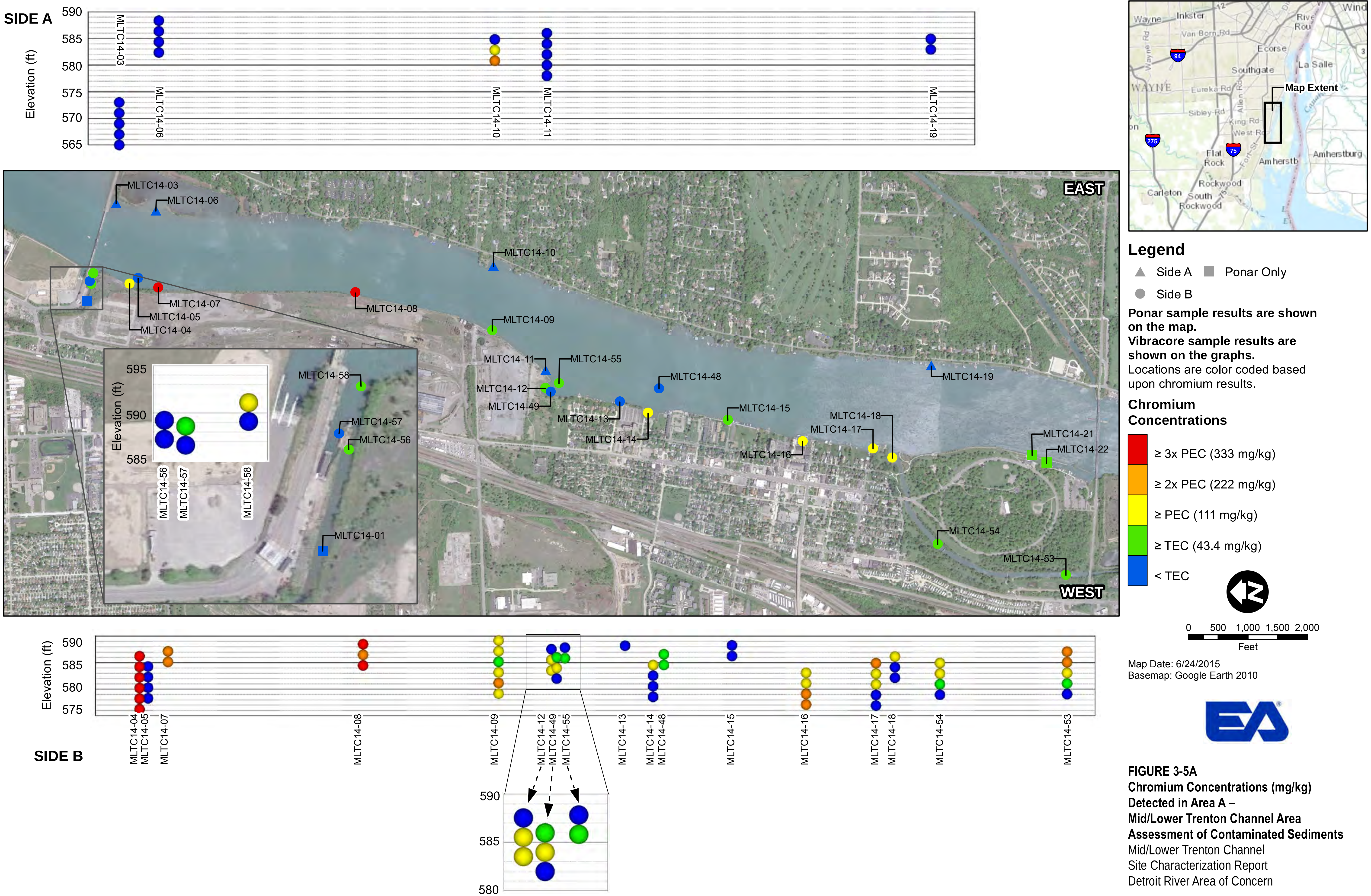
Cadmium Concentrations

🟥	≥ 3x PEC (14.94 mg/kg)
🟧	≥ 2x PEC (9.96 mg/kg)
🟨	≥ PEC (4.98 mg/kg)
🟩	≥ TEC (0.99 mg/kg)
🟦	< TEC

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-4B
Cadmium Concentrations (mg/kg)
Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-5A_Cr_AreaA_North_0622.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon chromium results.

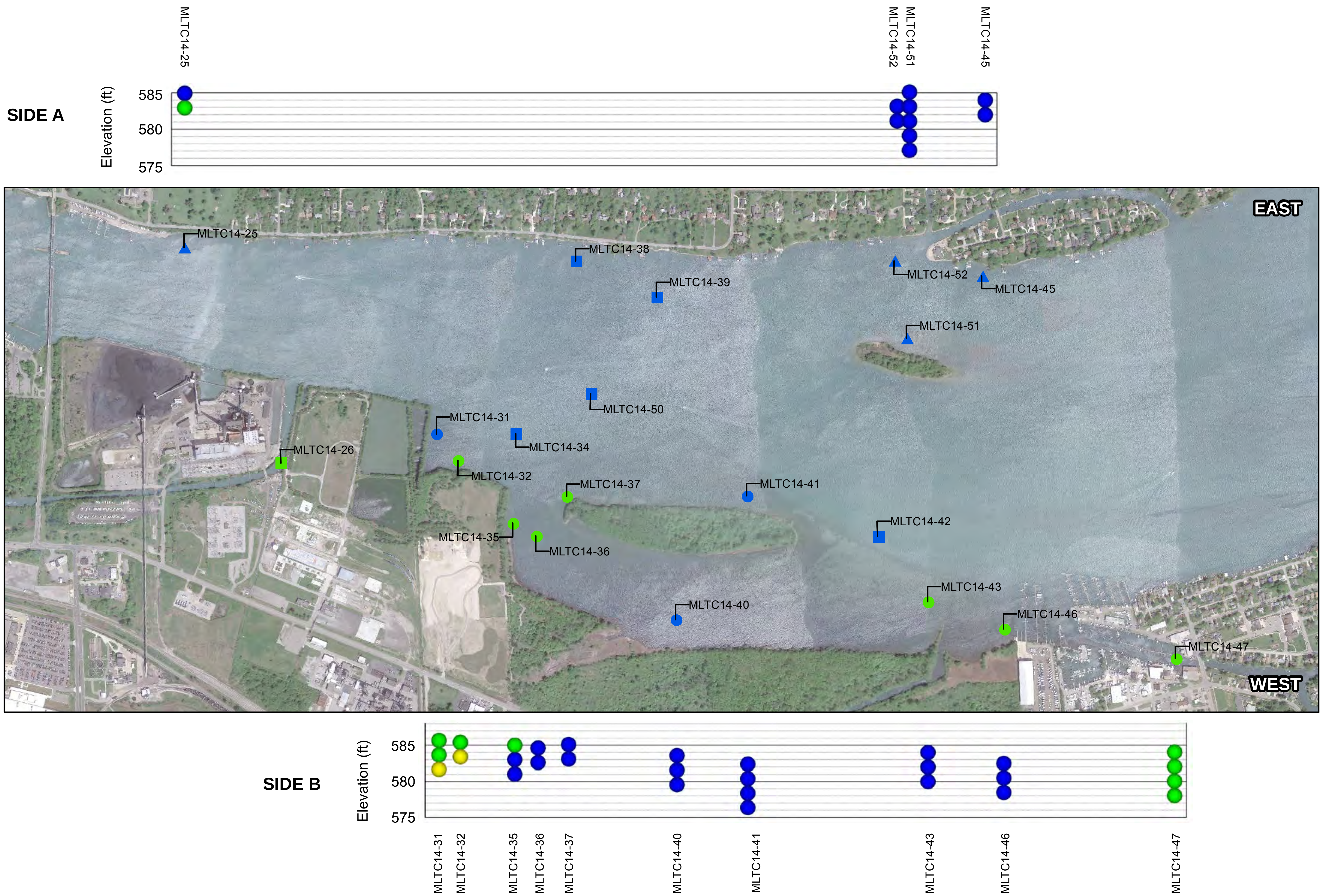
Chromium Concentrations

🟥 ≥ 3x PEC (333 mg/kg)
🟧 ≥ 2x PEC (222 mg/kg)
🟨 ≥ PEC (111 mg/kg)
🟩 ≥ TEC (43.4 mg/kg)
🟦 < TEC

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-5A
Chromium Concentrations (mg/kg)
Detected in Area A –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-5B_Cr_AreaB_South.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon chromium results.

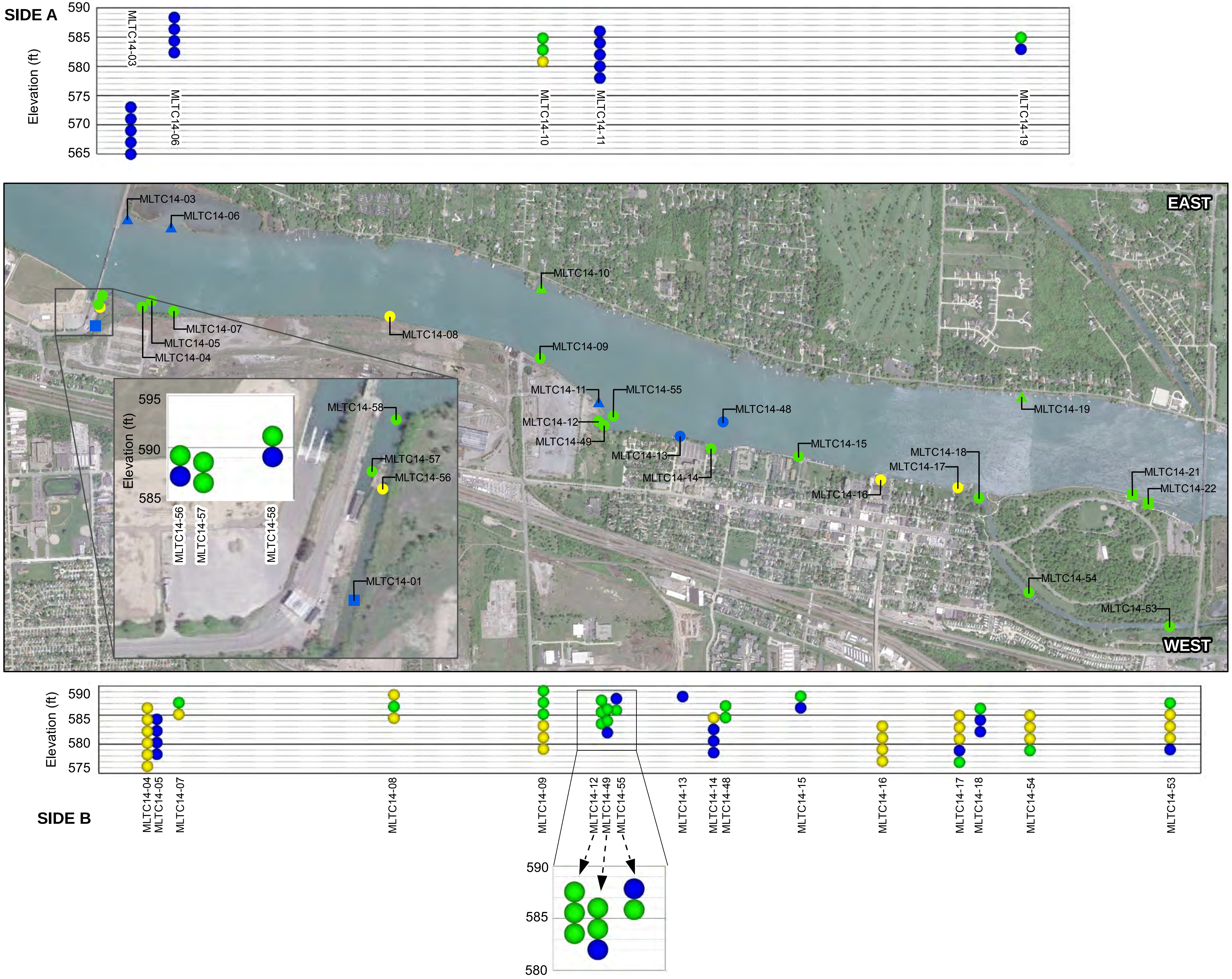
Chromium Concentrations

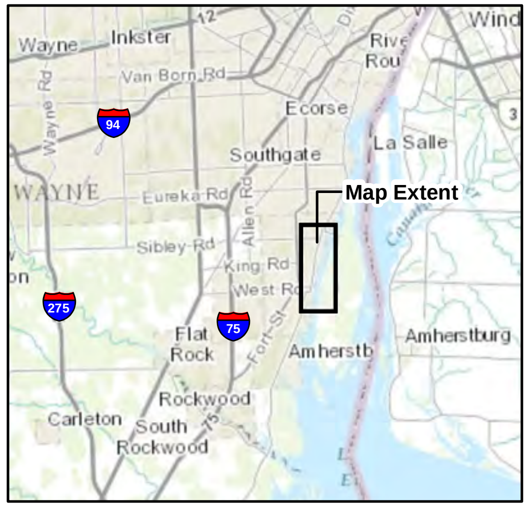
- 🟥 ≥ 3x PEC (333 mg/kg)
- 🟧 ≥ 2x PEC (222 mg/kg)
- 🟨 ≥ PEC (111 mg/kg)
- 🟩 ≥ TEC (43.4 mg/kg)
- 🟦 < TEC

Map Date: 6/23/2015
Basemap: Google Earth 2010

FIGURE 3-5B
Chromium Concentrations (mg/kg) Detected in Area B – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-6A_Cu_AreaA_North.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon copper results.

Copper Concentrations

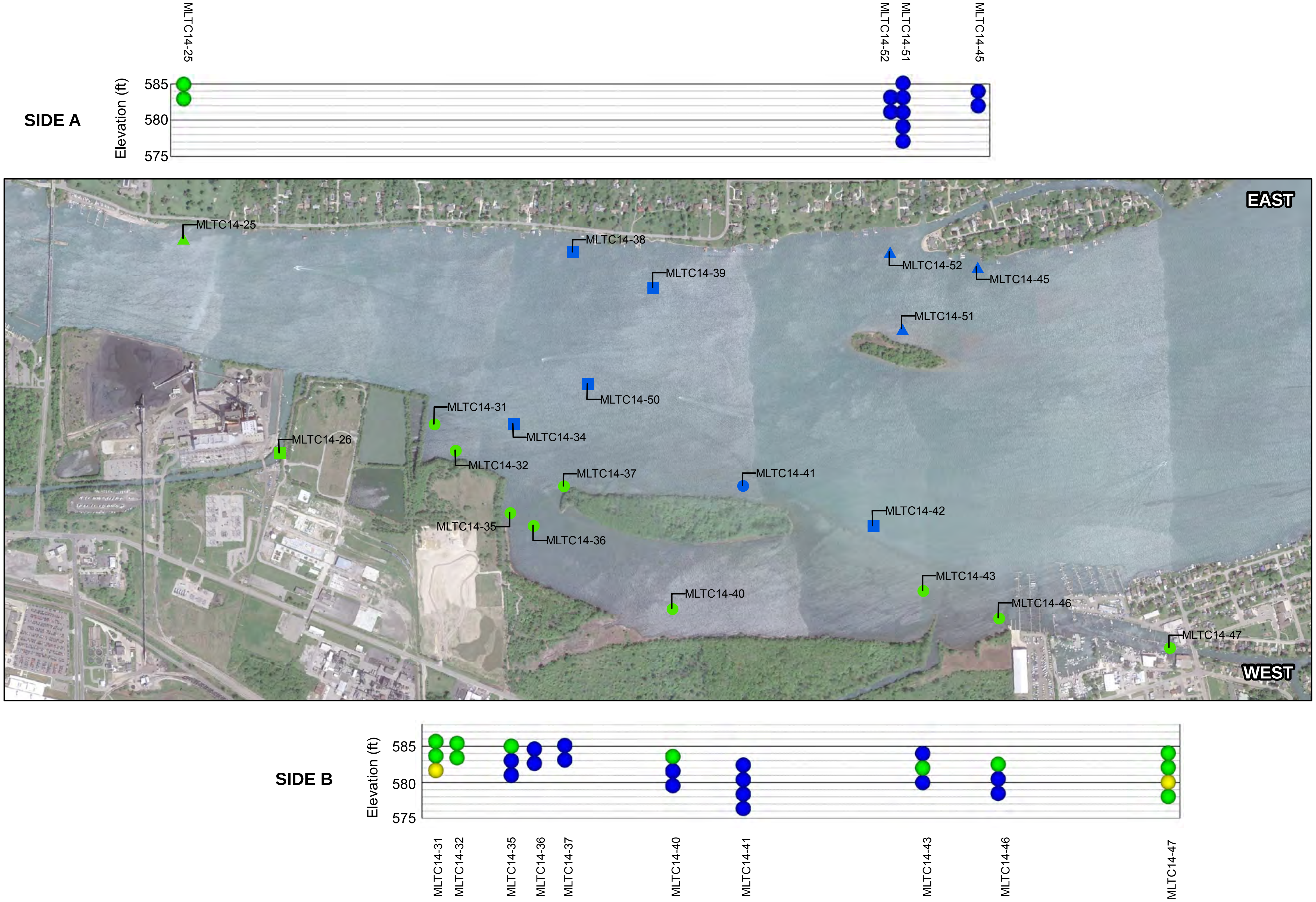
🟥	≥ 3x PEC (447 mg/kg)
🟧	≥ 2x PEC (298 mg/kg)
🟨	≥ PEC (149 mg/kg)
🟩	≥ TEC (31.6 mg/kg)
🟦	< TEC

N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-6A
Copper Concentrations (mg/kg) Detected in Area A – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon copper results.

Copper Concentrations

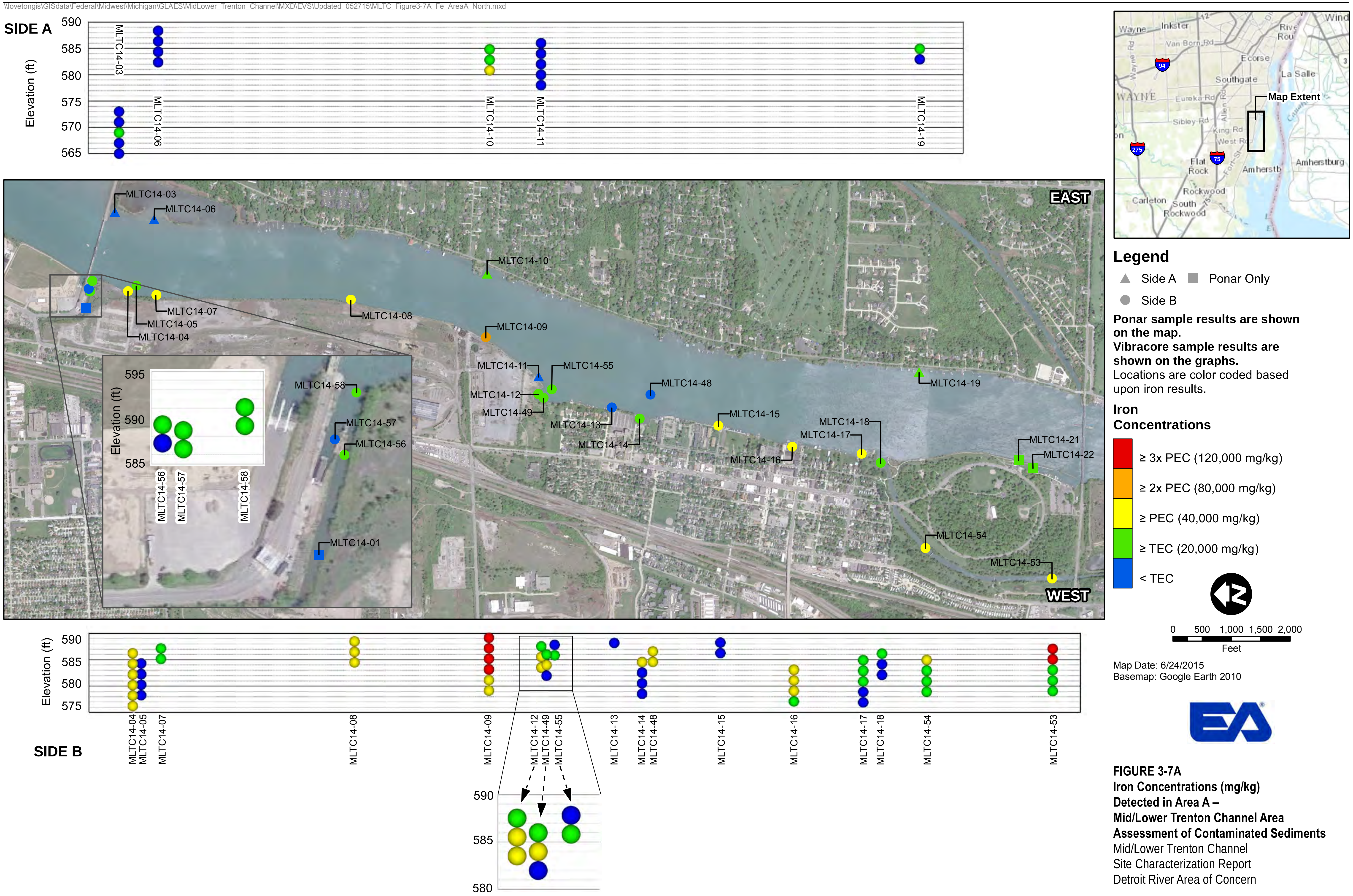
🟥 ≥ 3x PEC (447 mg/kg)
🟧 ≥ 2x PEC (298 mg/kg)
🟨 ≥ PEC (149 mg/kg)
🟩 ≥ TEC (31.6 mg/kg)
🟦 < TEC

N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-6B
Copper Concentrations (mg/kg)
Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon iron results.

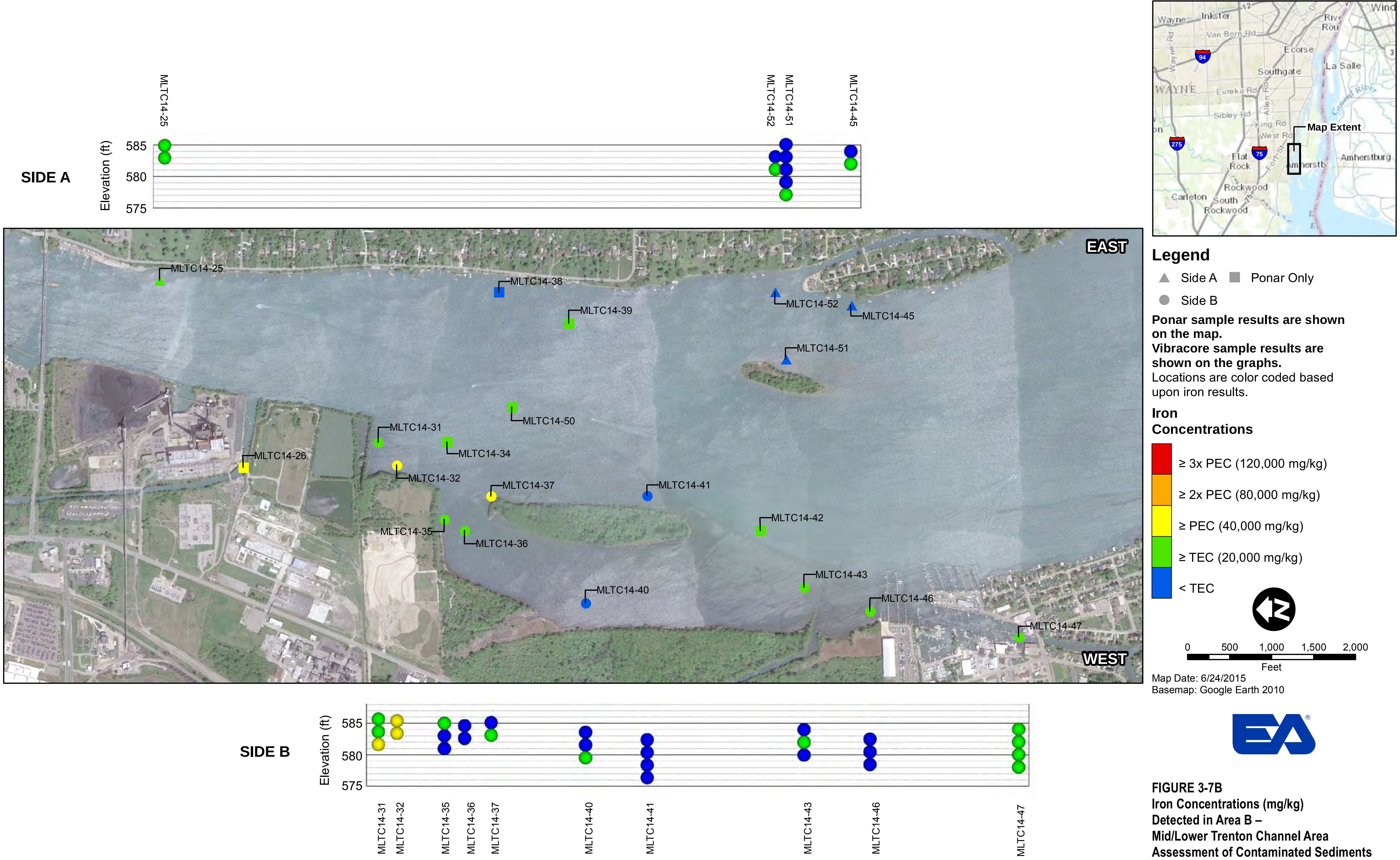
Iron Concentrations

🟥 ≥ 3x PEC (120,000 mg/kg)
🟧 ≥ 2x PEC (80,000 mg/kg)
🟨 ≥ PEC (40,000 mg/kg)
🟩 ≥ TEC (20,000 mg/kg)
🟦 < TEC

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-7A
Iron Concentrations (mg/kg)
Detected in Area A –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-7B_Fe_AreaB_South.mxd

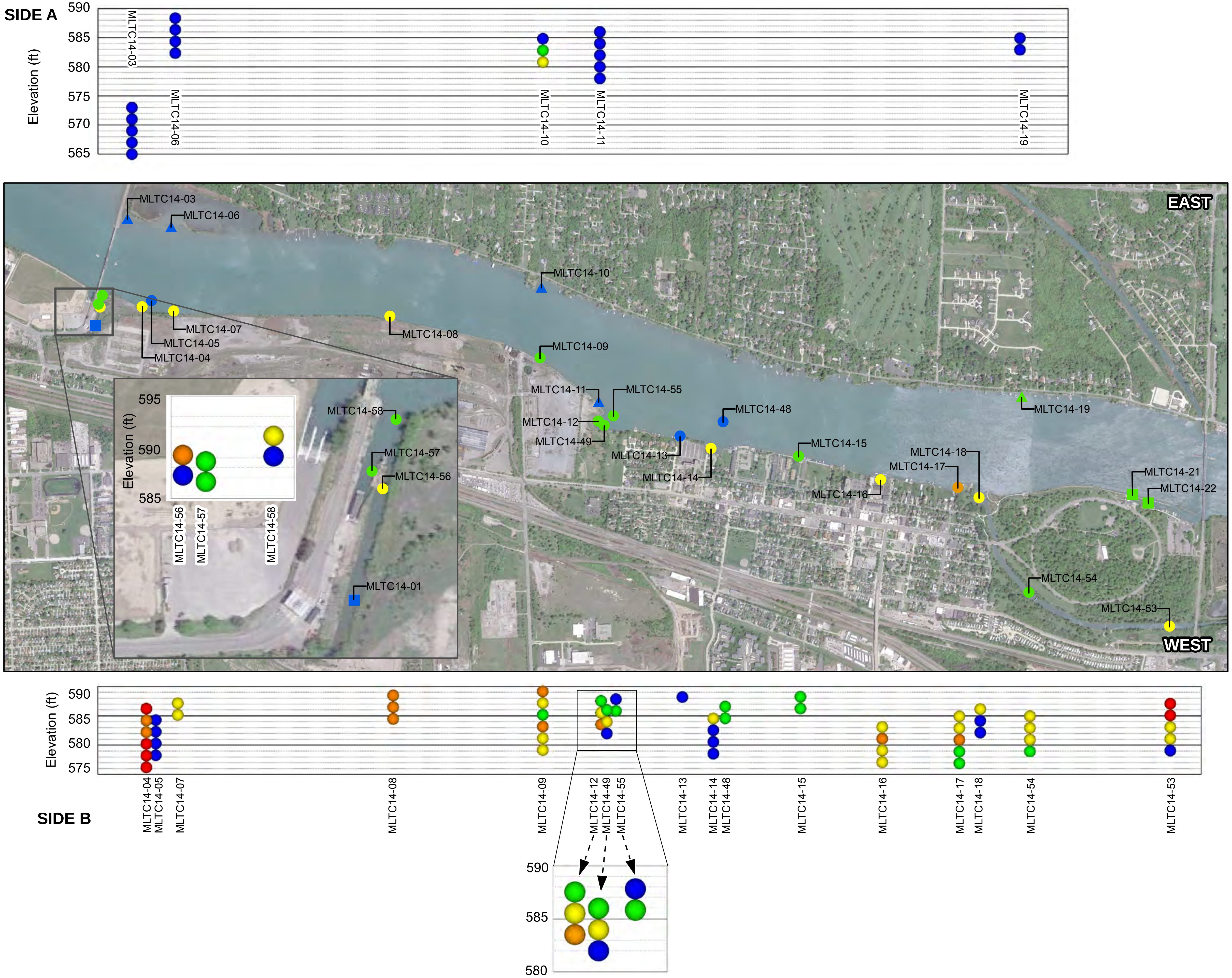


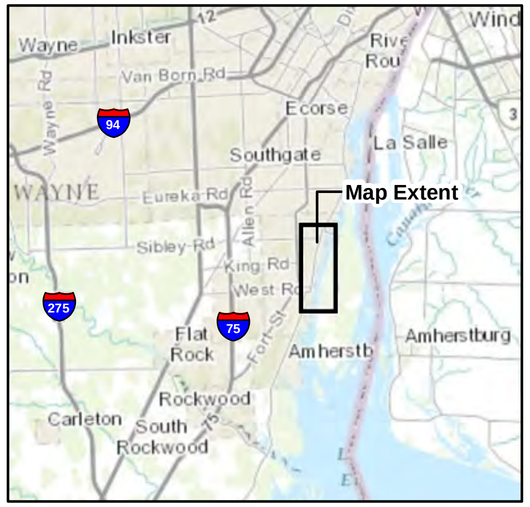
Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon iron results.

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-7B
Iron Concentrations (mg/kg)
Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-8A_Pb_AreaA_North.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.

Vibracore sample results are shown on the graphs.

Locations are color coded based upon lead results.

Lead Concentrations

🟥 ≥ 3x PEC (384 mg/kg)

🟧 ≥ 2x PEC (256 mg/kg)

🟨 ≥ PEC (128 mg/kg)

🟩 ≥ TEC (35.8 mg/kg)

🟦 < TEC

0 500 1,000 1,500 2,000

Feet

Map Date: 6/24/2015

Basemap: Google Earth 2010

FIGURE 3-8A

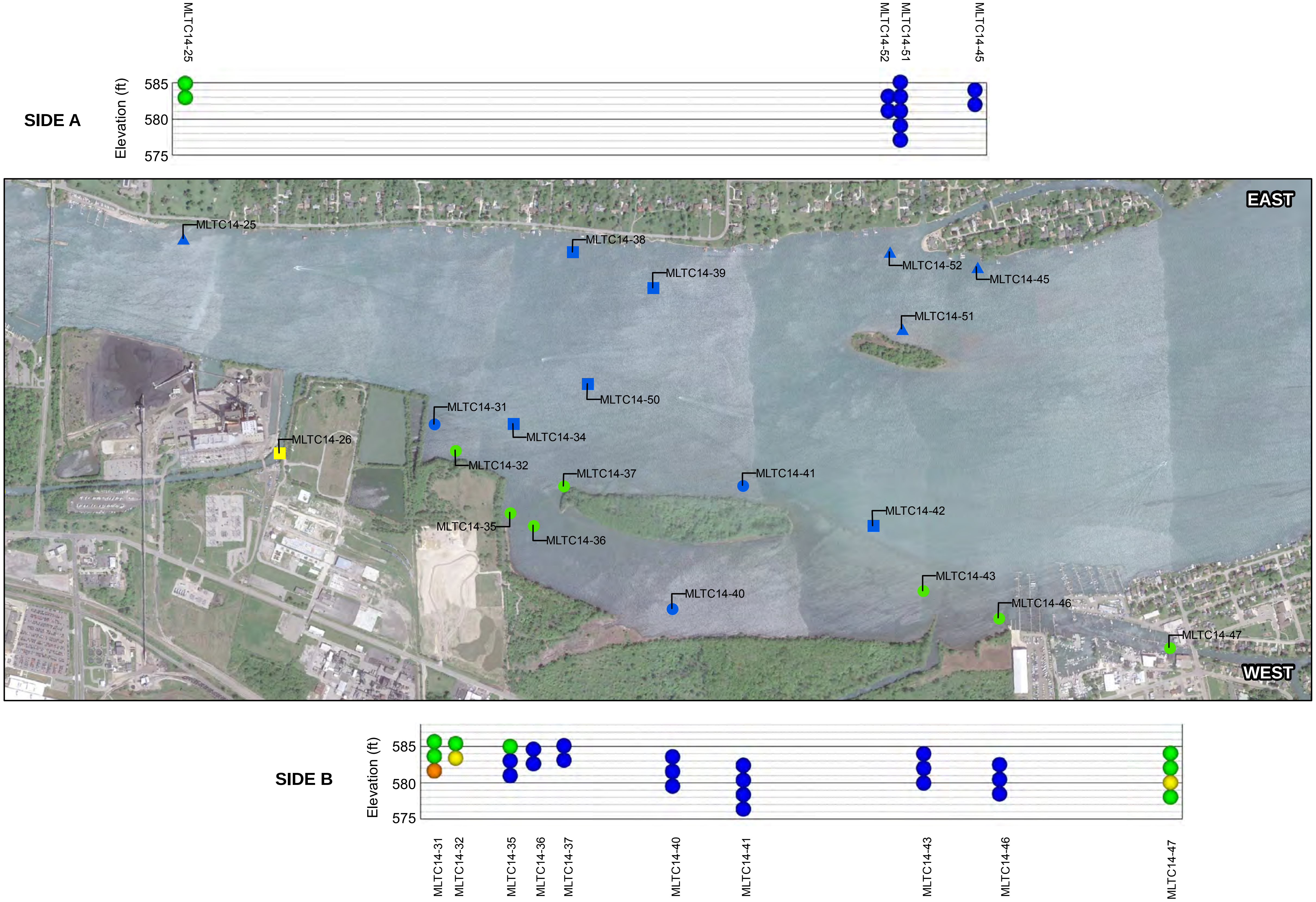
Lead Concentrations (mg/kg) Detected in Area A – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel

Site Characterization Report

Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-8B_Pb_AreaB_South.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon lead results.

Lead Concentrations

🟥 ≥ 3x PEC (384 mg/kg)

🟧 ≥ 2x PEC (256 mg/kg)

🟨 ≥ PEC (128 mg/kg)

🟩 ≥ TEC (35.8 mg/kg)

🟦 < TEC

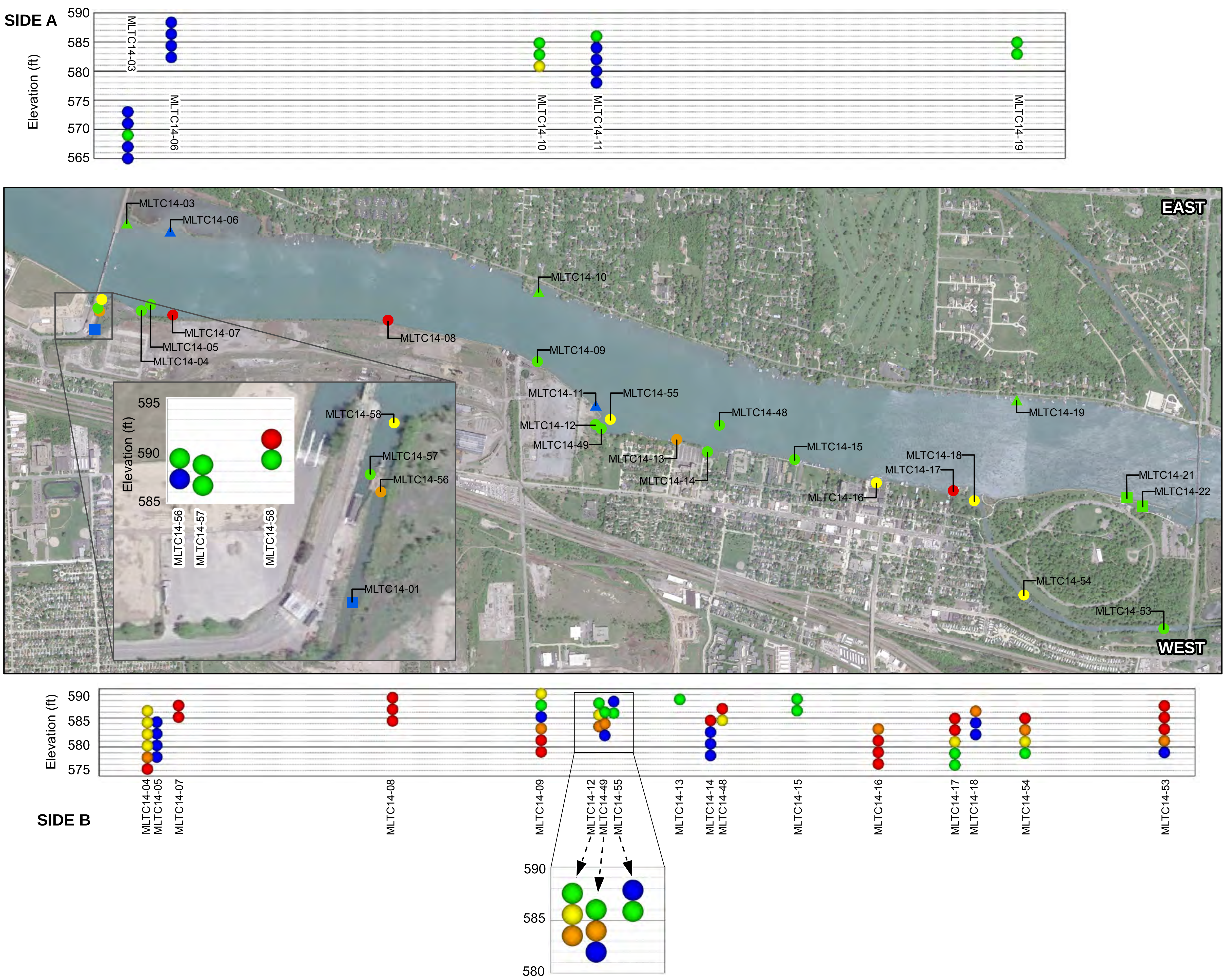
N

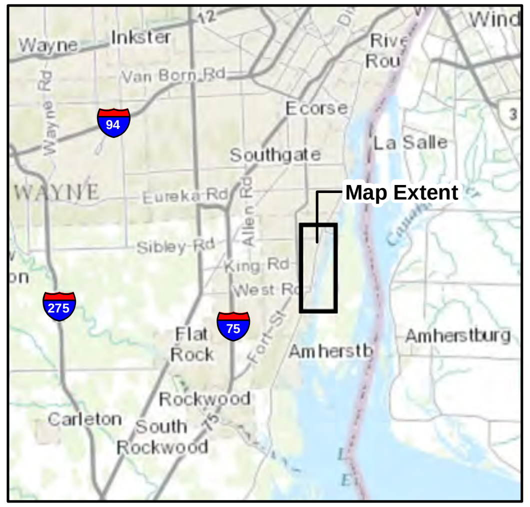
0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-8B
Lead Concentrations (mg/kg)
Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-9A_Hg_AreaA_North.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon mercury results.

Mercury Concentrations

🟥	≥ 3x PEC (3.18 mg/kg)
🟧	≥ 2x PEC (2.12 mg/kg)
🟨	≥ PEC (1.06 mg/kg)
🟩	≥ TEC (0.18 mg/kg)
🟦	< TEC

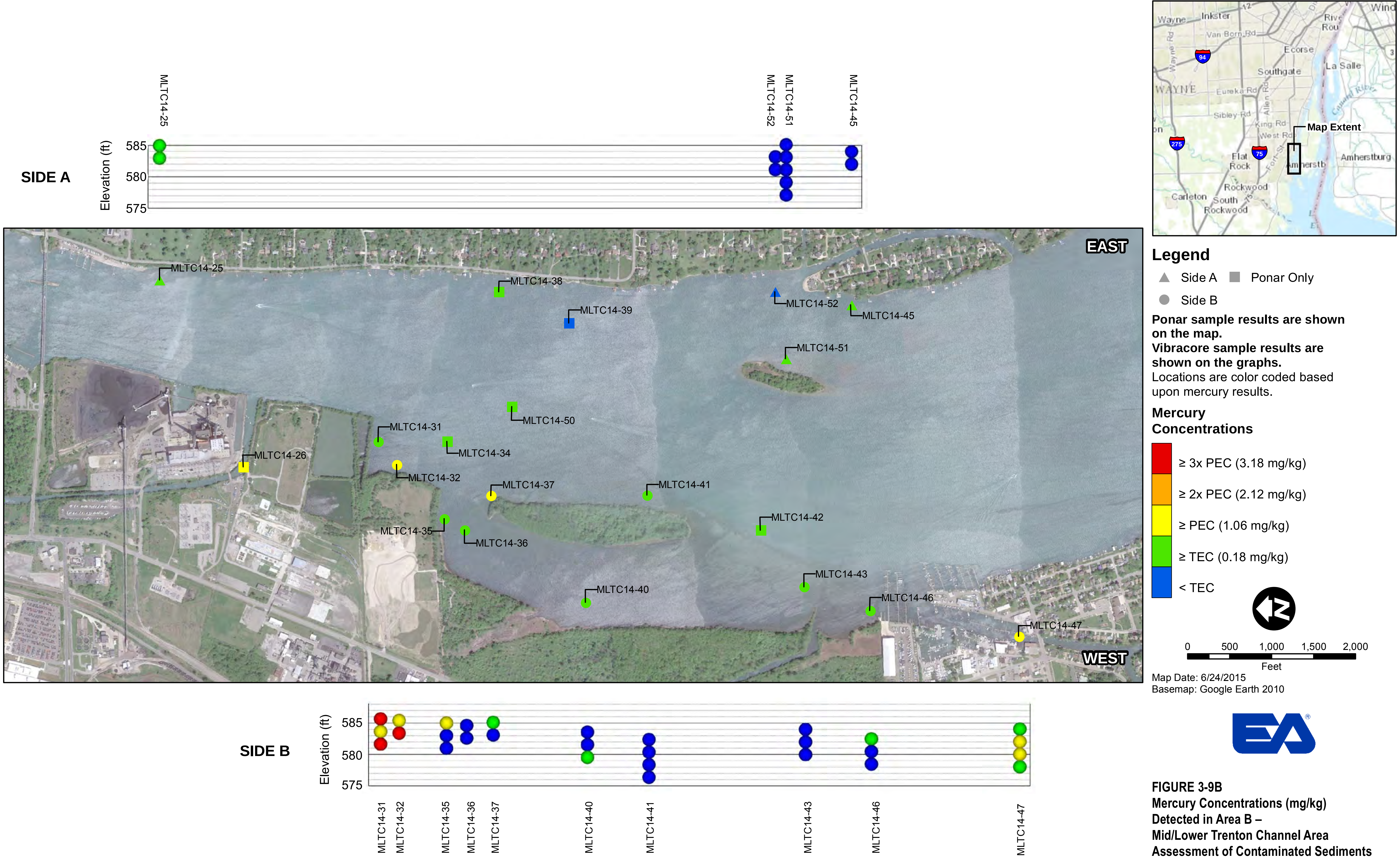
N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-9A
Mercury Concentrations (mg/kg) Detected in Area A – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-9B_Hg_AreaB_South.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon mercury results.

Mercury Concentrations

🟥 ≥ 3x PEC (3.18 mg/kg)

🟧 ≥ 2x PEC (2.12 mg/kg)

🟨 ≥ PEC (1.06 mg/kg)

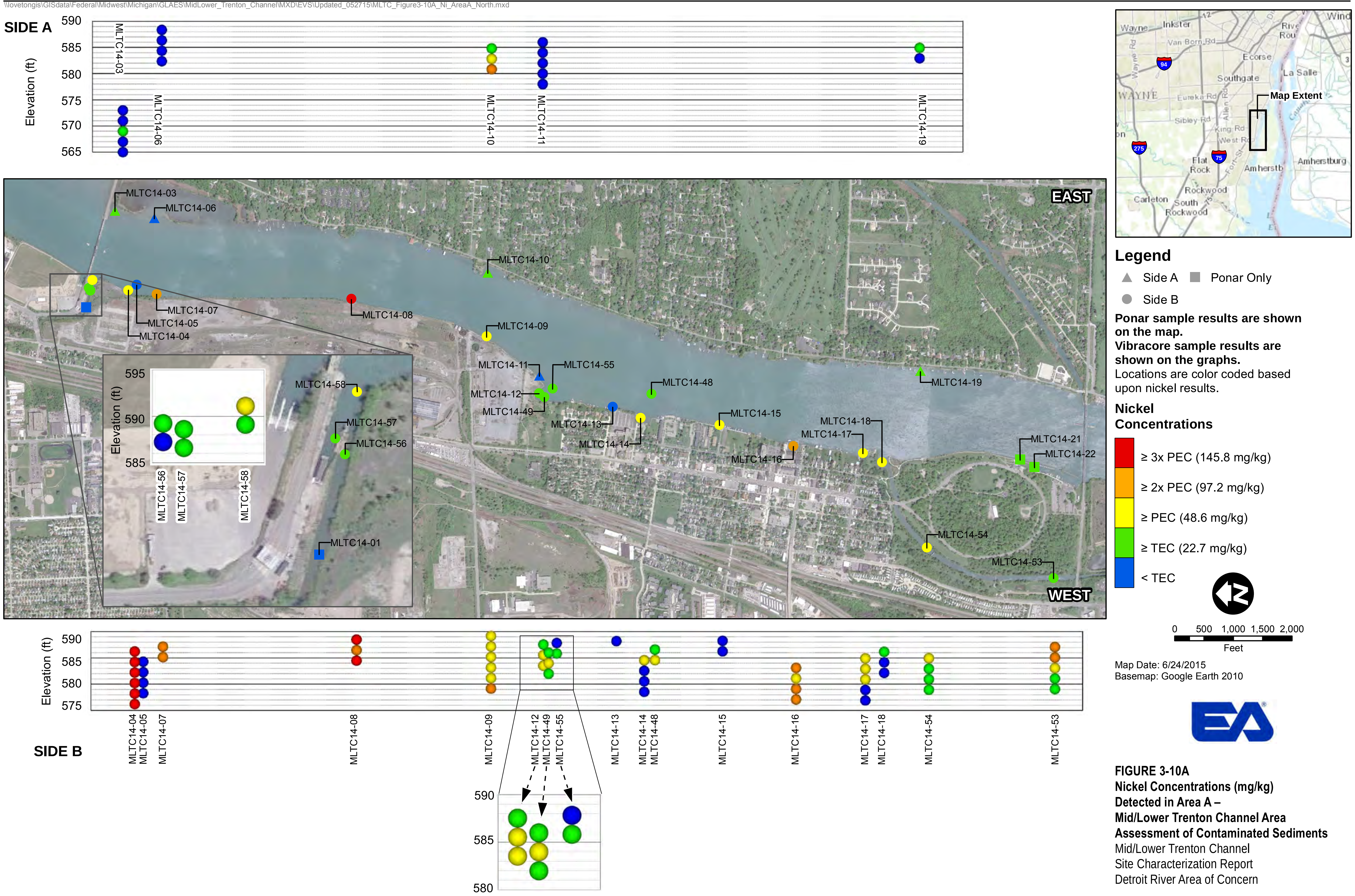
🟩 ≥ TEC (0.18 mg/kg)

🟦 < TEC

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-9B
Mercury Concentrations (mg/kg) Detected in Area B – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-10A_Ni_AreaA_North.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

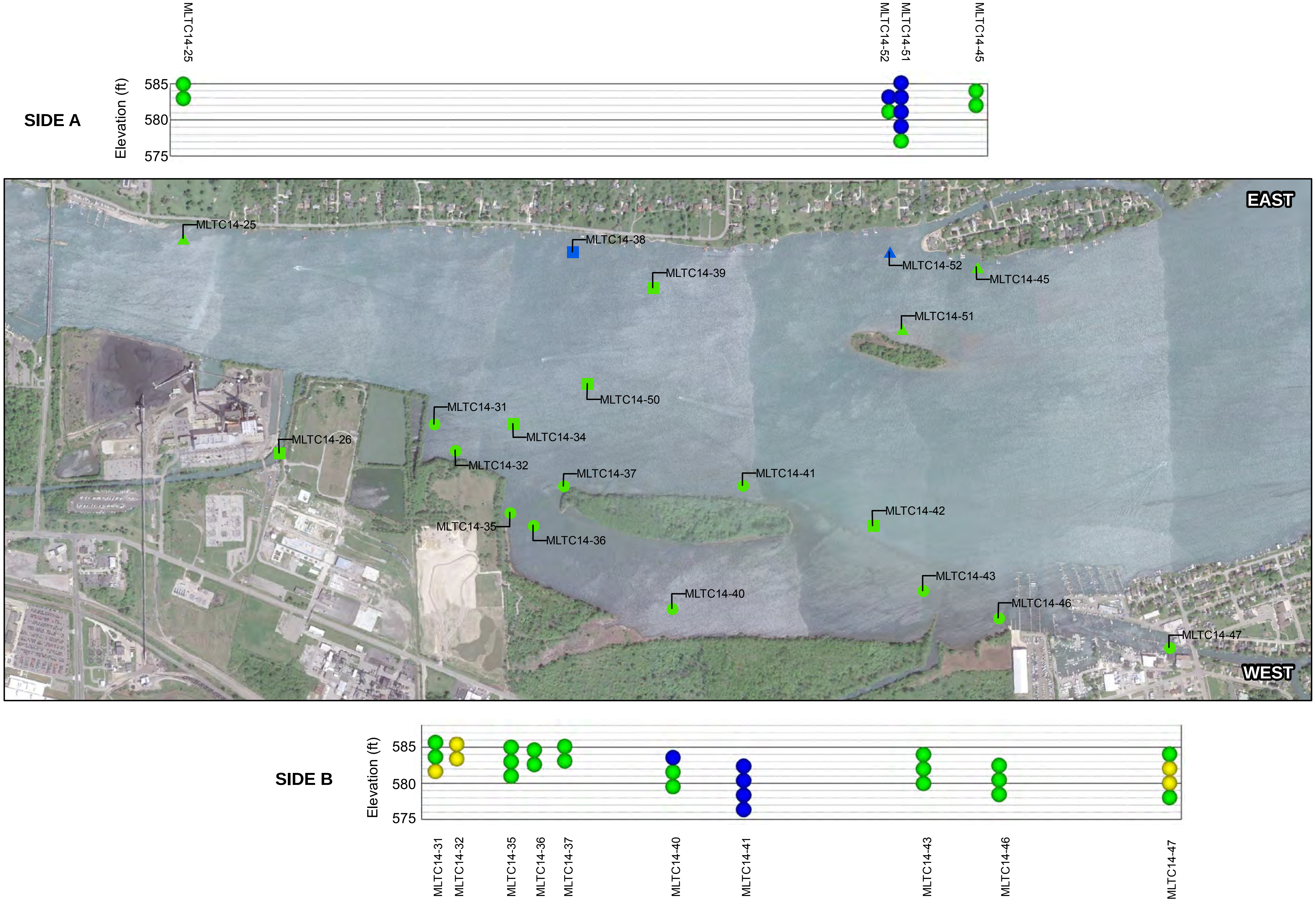
Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon nickel results.

Nickel Concentrations

🟥 ≥ 3x PEC (145.8 mg/kg)
🟧 ≥ 2x PEC (97.2 mg/kg)
🟨 ≥ PEC (48.6 mg/kg)
🟩 ≥ TEC (22.7 mg/kg)
🟦 < TEC

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-10A
Nickel Concentrations (mg/kg)
Detected in Area A –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon nickel results.

Nickel Concentrations

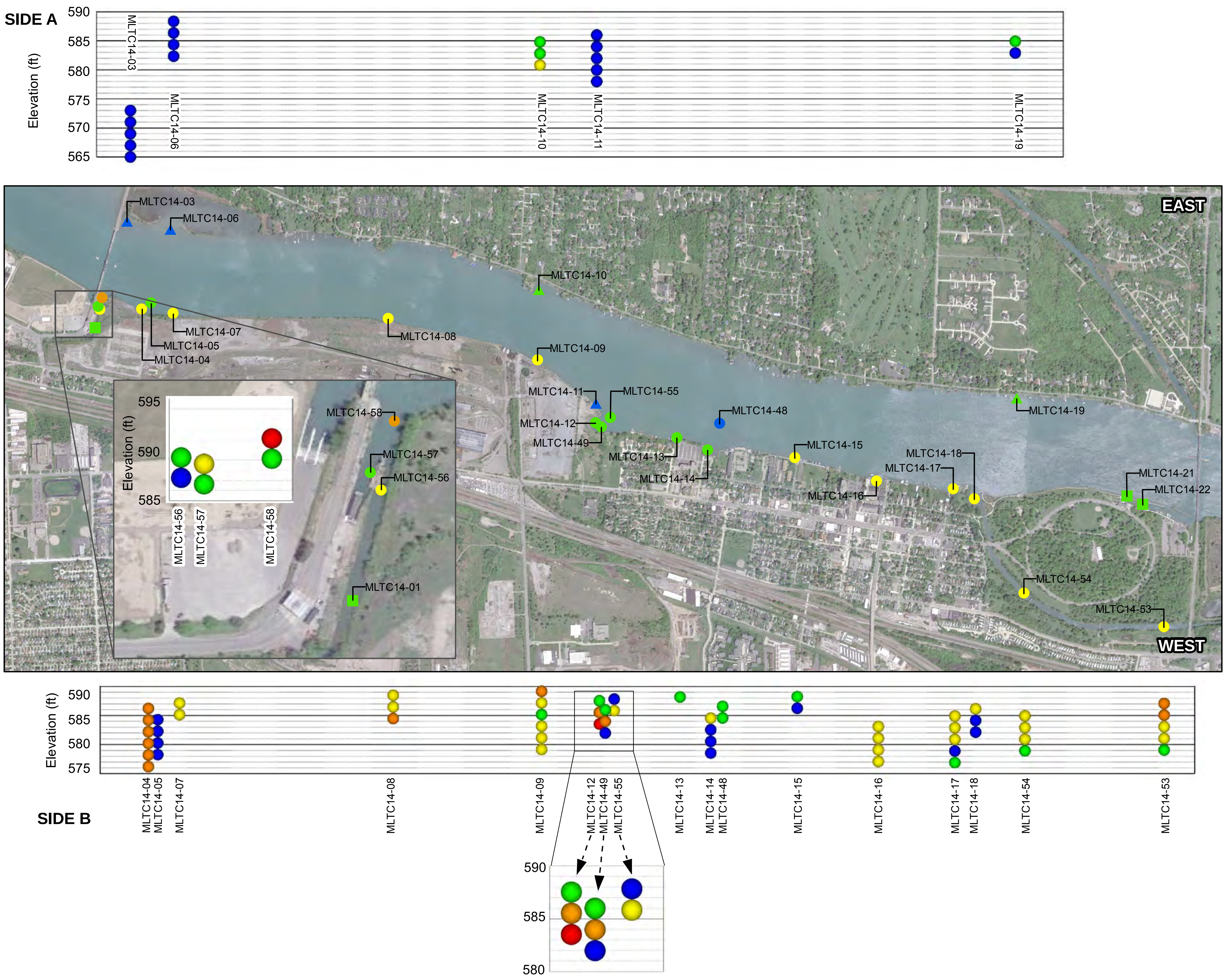
🟥 ≥ 3x PEC (145.8 mg/kg)
🟧 ≥ 2x PEC (97.2 mg/kg)
🟨 ≥ PEC (48.6 mg/kg)
🟩 ≥ TEC (22.7 mg/kg)
🟦 < TEC

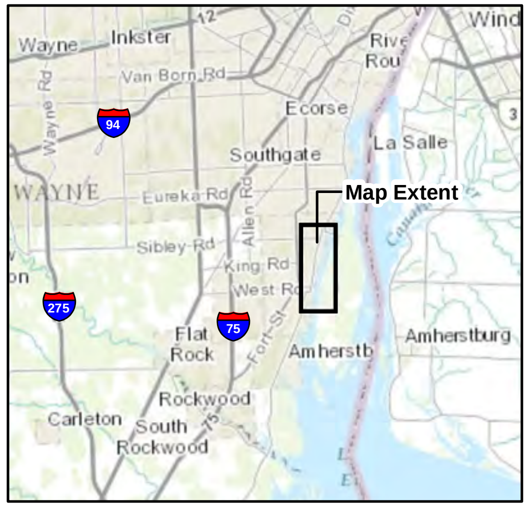
0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-10B
Nickel Concentrations (mg/kg)
Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-11A_Zn_AreaA_North.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon zinc results.

Zinc Concentrations

🟥 ≥ 3x PEC (1,377 mg/kg)
🟧 ≥ 2x PEC (918 mg/kg)
🟨 ≥ PEC (459 mg/kg)
🟩 ≥ TEC (121 mg/kg)
🟦 < TEC

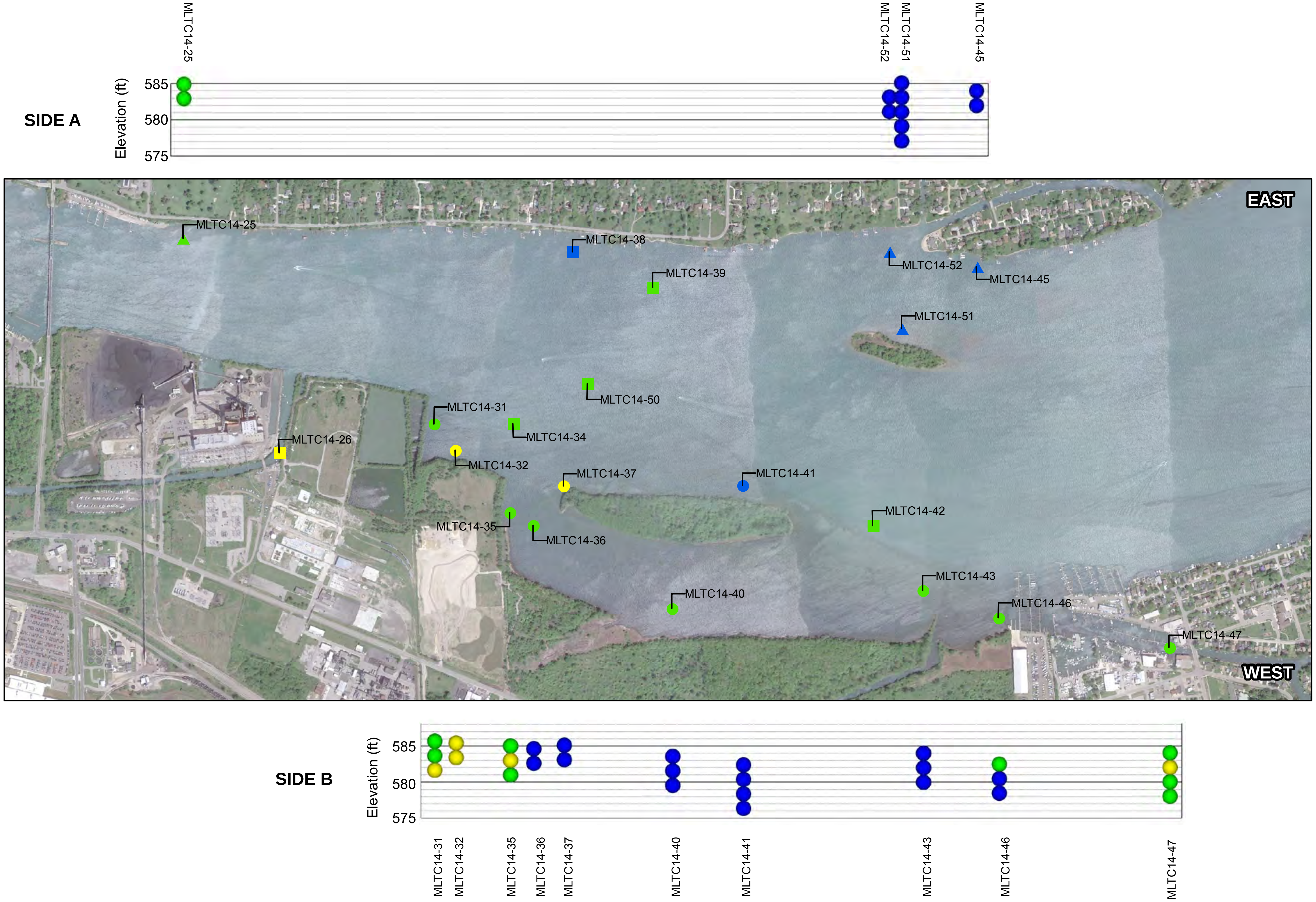
N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-11A
Zinc Concentrations (mg/kg)
Detected in Area A –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-11B_Zn_AreaB_South.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon zinc results.

Zinc Concentrations

- 🟥 ≥ 3x PEC (1,377 mg/kg)
- 🟧 ≥ 2x PEC (918 mg/kg)
- 🟨 ≥ PEC (459 mg/kg)
- 🟩 ≥ TEC (121 mg/kg)
- 🟦 < TEC

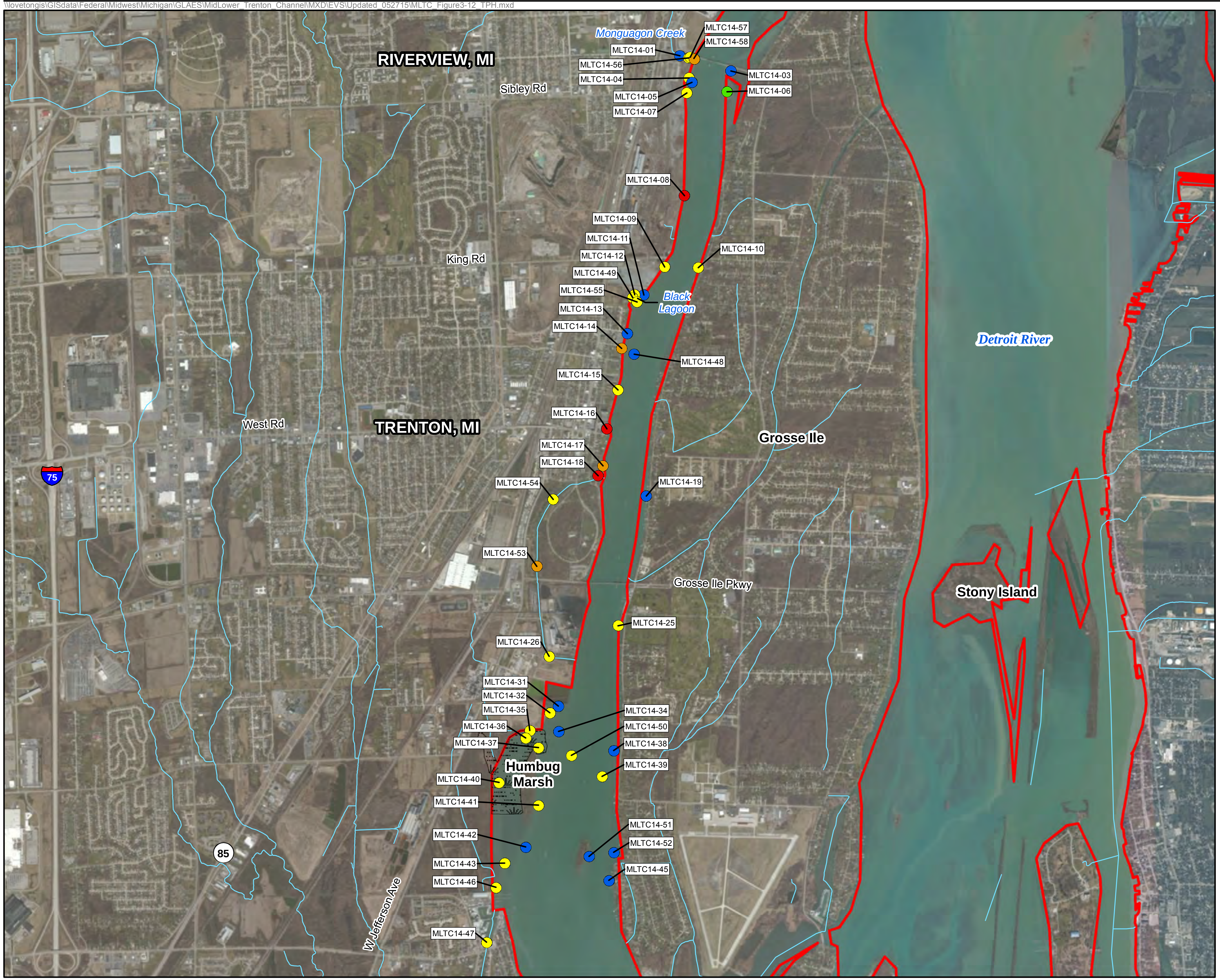
N

0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 3-11B
Zinc Concentrations (mg/kg)
Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-12_TPH.mxd



VICINITY MAP

Legend

TPH Concentrations

- 🟢 ≤ 100 mg/kg
- 🔵 ≤ 1,000 mg/kg
- 🟡 ≤ 5,000 mg/kg
- 🟠 ≤ 10,000 mg/kg
- 🔴 > 10,000 mg/kg

🟥 Detroit River Area of Concern

Hydrology

~ Stream/River

▨ Humbug Marsh

N

0 0.25 0.5

Miles

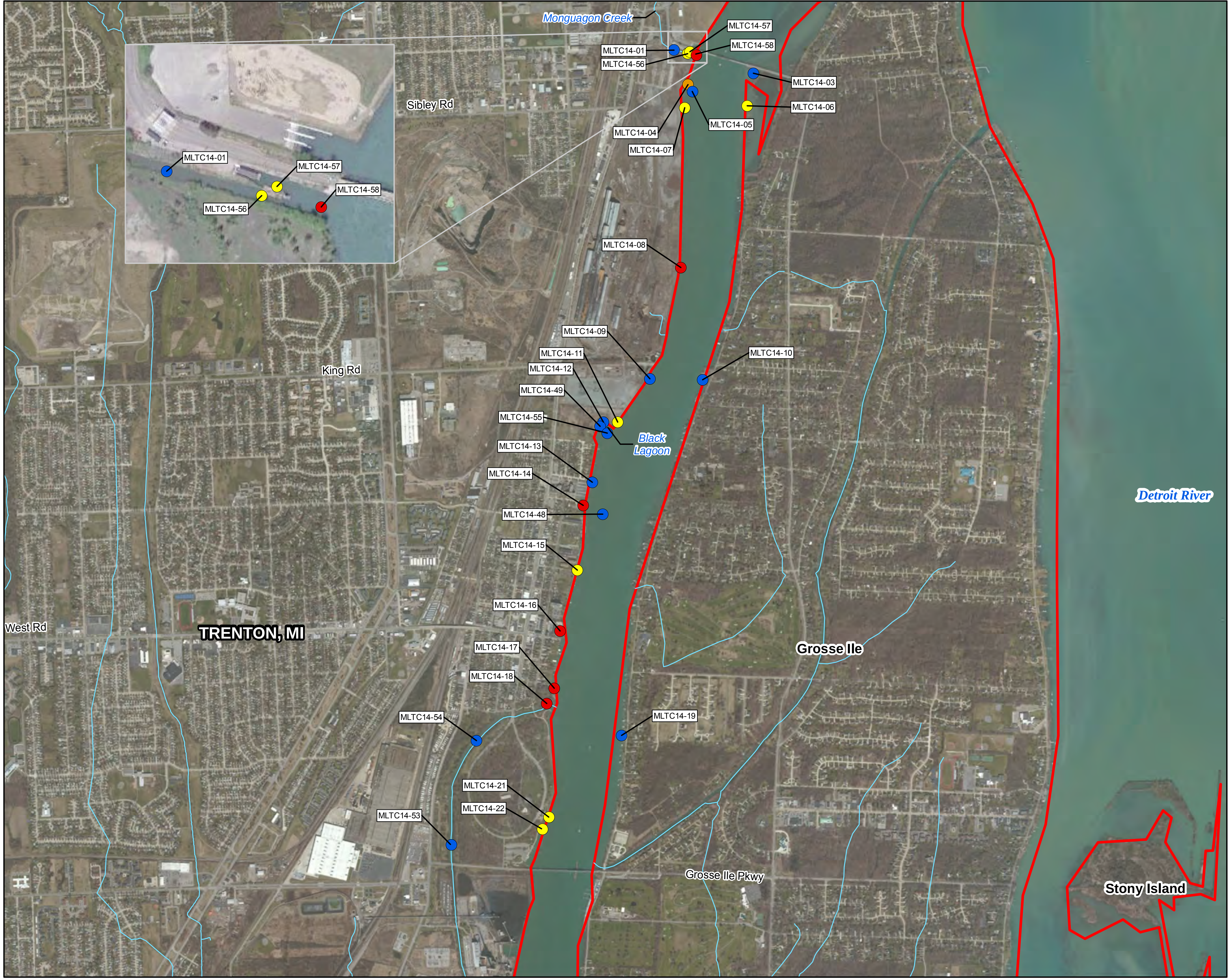
Note: Sample results and SSRSLs are displayed on Table 3-7

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

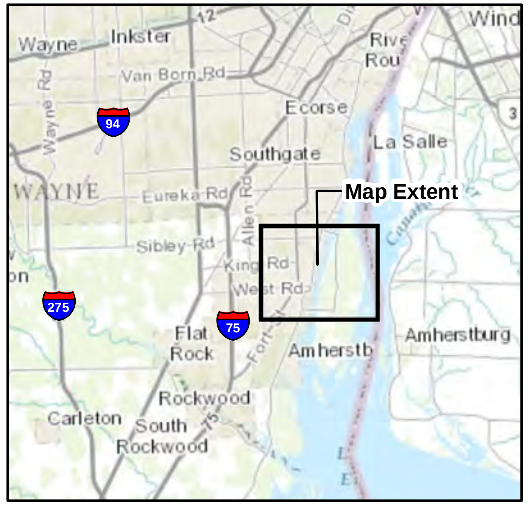
Map Date: 6/25/2015

FIGURE 3-12
Total Petroleum Hydrocarbon (ΣDRO+ORO) (mg/kg) Detected in the MLTC Area
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-13A_TPH-DRO_AreaA_0622.mxd



VICINITY MAP



Legend

● Sample Location

▭ Detroit River Area of Concern

Hydrology

〜 Stream/River

TPH-DRO Concentrations

🟥 ≥ 3x (Sample-Specific Risk Screening Level mg/kg)

🟧 ≥ 2x (Sample-Specific Risk Screening Level mg/kg)

🟨 ≥ 1x (Sample-Specific Risk Screening Level mg/kg)

🟦 Does Not Exceed SSRSL

N

0 0.25 0.5

Miles

Note: Sample results and SSRSLs are displayed on Table 3-7

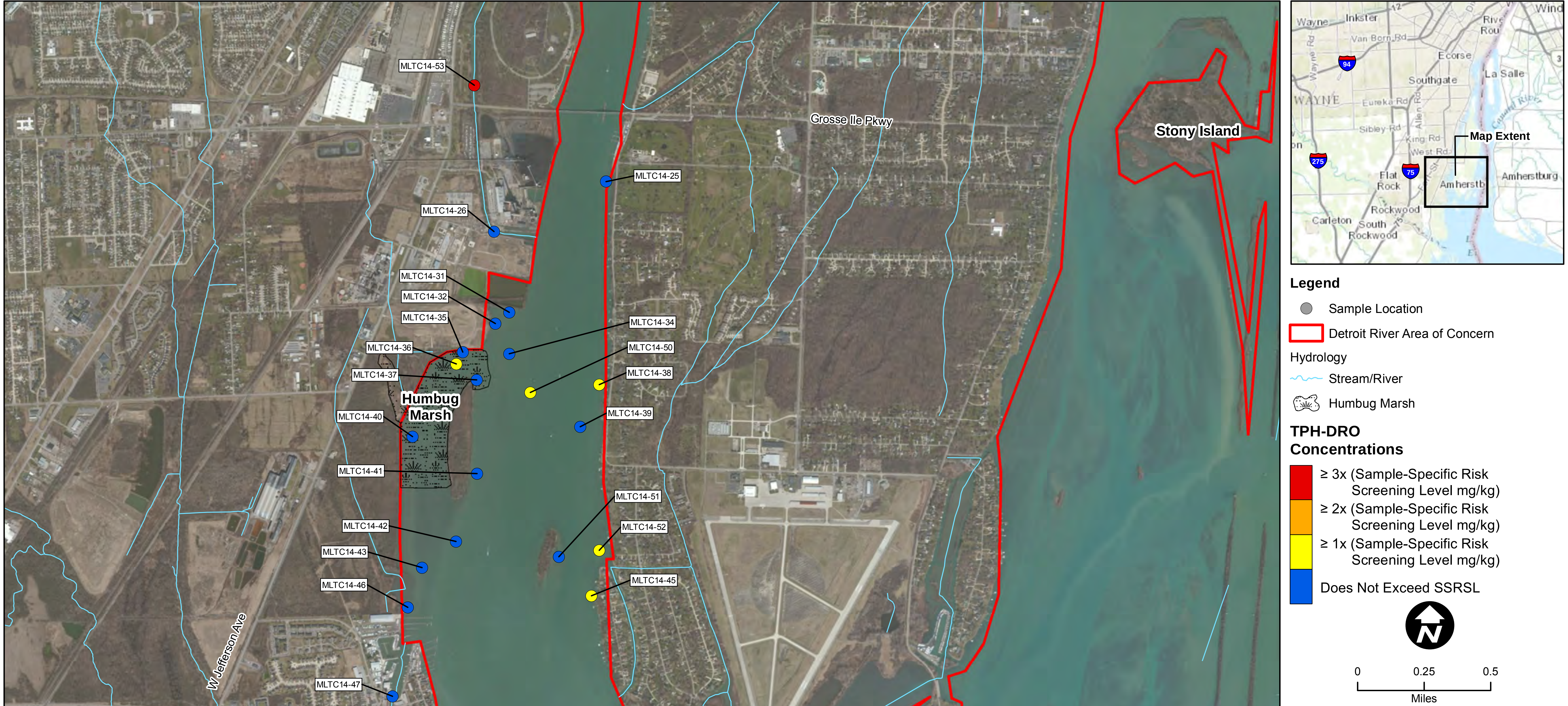
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

EA

FIGURE 3-13A
Diesel Range Organics (mg/kg) in Area A
Compared toSample-Specific Risk Screening Levels
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-13B_TPH-DRO_AreaB_0622.mxd



Legend

● Sample Location

🟥 Detroit River Area of Concern

Hydrology

Stream/River

Humbug Marsh

TPH-DRO Concentrations

🟥 ≥ 3x (Sample-Specific Risk Screening Level mg/kg)

🟧 ≥ 2x (Sample-Specific Risk Screening Level mg/kg)

🟨 ≥ 1x (Sample-Specific Risk Screening Level mg/kg)

🟦 Does Not Exceed SSRSL

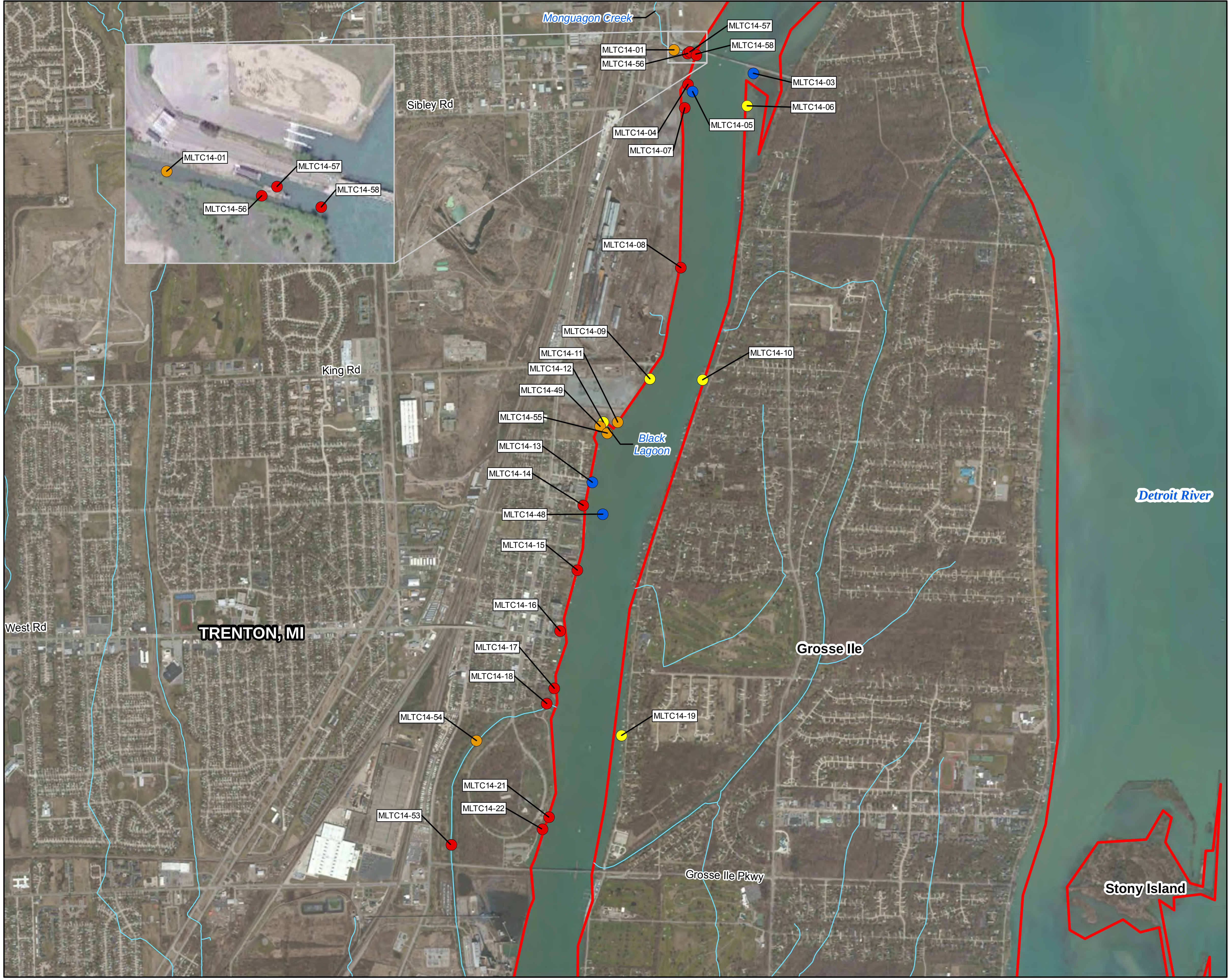
Note: Sample results and SSRSLs are displayed on Table 3-7

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

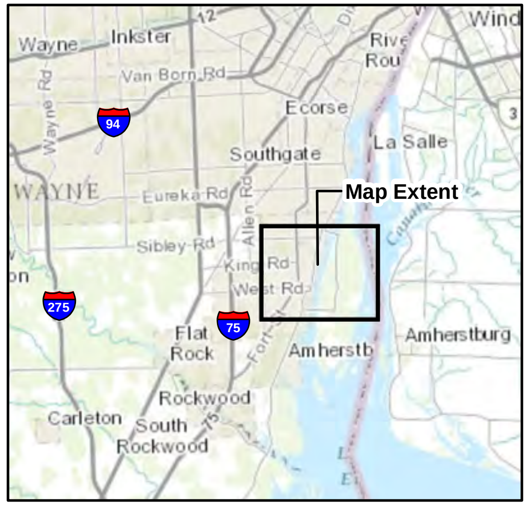
Map Date: 6/25/2015

FIGURE 3-13B
Diesel Range Organics (mg/kg) in Area B
Compared to Sample-Specific Risk Screening Levels
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-14A_TPH-ORO_AreaA_0622.mxd



VICINITY MAP



Legend

● Sample Location

▭ Detroit River Area of Concern

Hydrology

〜 Stream/River

TPH-ORO Concentrations

🟥 ≥ 3x (Sample-Specific Risk Screening Level mg/kg)

🟧 ≥ 2x (Sample-Specific Risk Screening Level mg/kg)

🟨 ≥ 1x (Sample-Specific Risk Screening Level mg/kg)

🟦 Does Not Exceed SSRSL

N

0 0.25 0.5
Miles

Note: Sample results and SSRSLs are displayed on Table 3-7

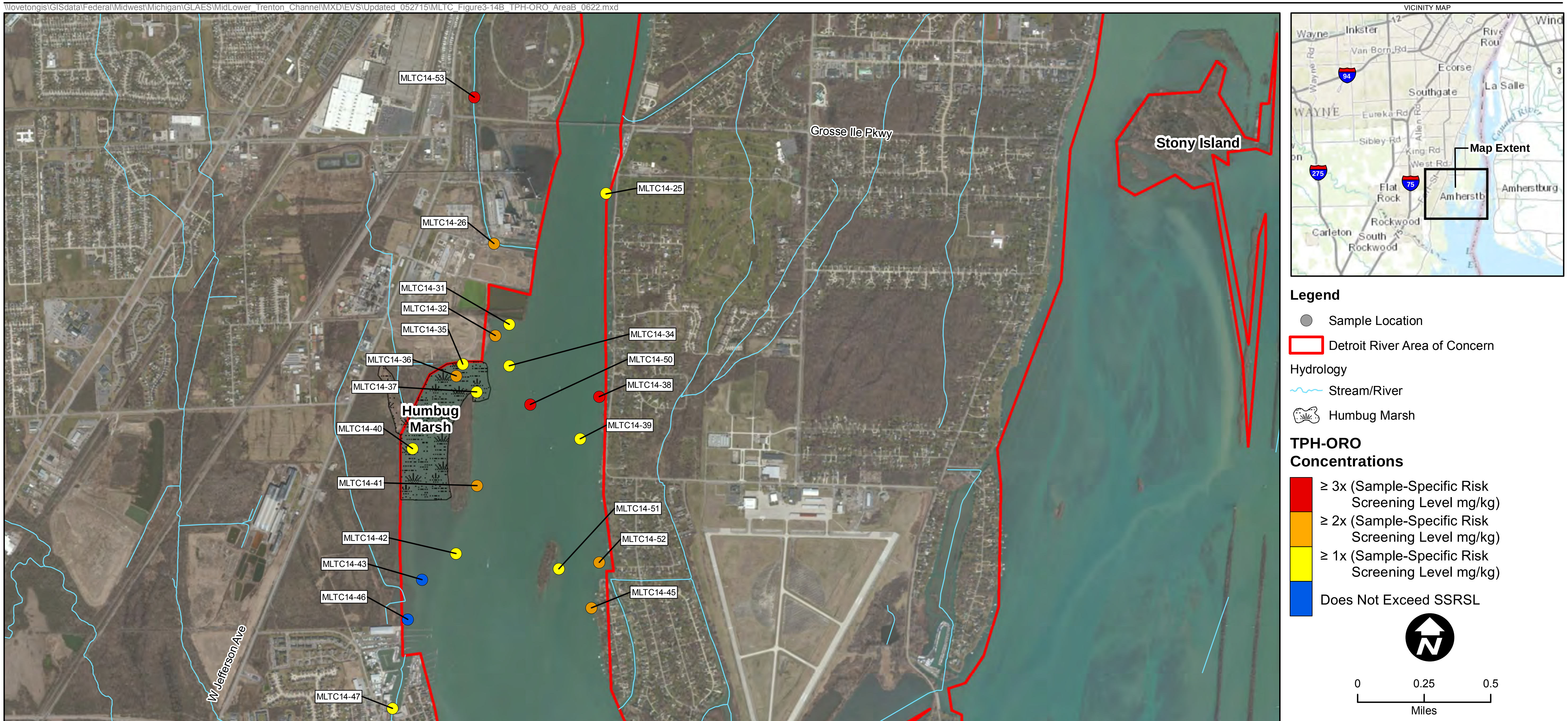
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

EA

FIGURE 3-14A
Oil Range Organics (mg/kg) in Area A
Compared to Sample-Specific Risk Screening Levels
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure3-14B_TPH-ORO_AreaB_0622.mxd



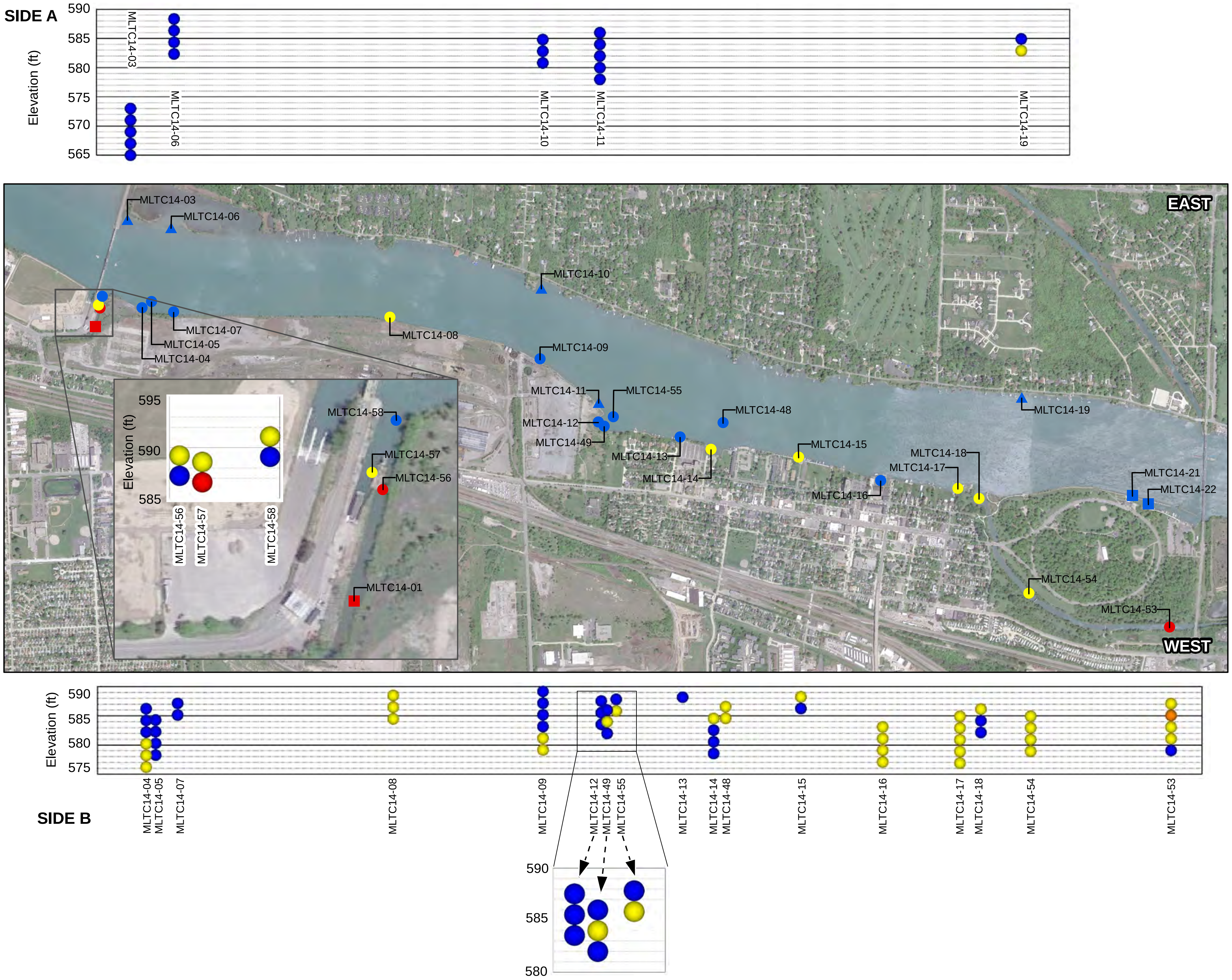
Note: Sample results and SSRSLs are displayed on Table 3-7

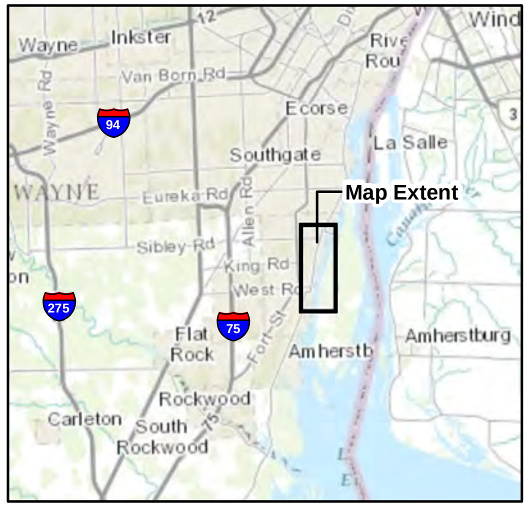
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/25/2015

FIGURE 3-14B
Oil Range Organics (mg/kg) in Area B
Compared to Sample-Specific Risk Screening Levels
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure4-1A_ESBTU_AreaA_North.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon ESBTU results.
ESBTUs were calculated using total 34 PAHs.

ESBTU

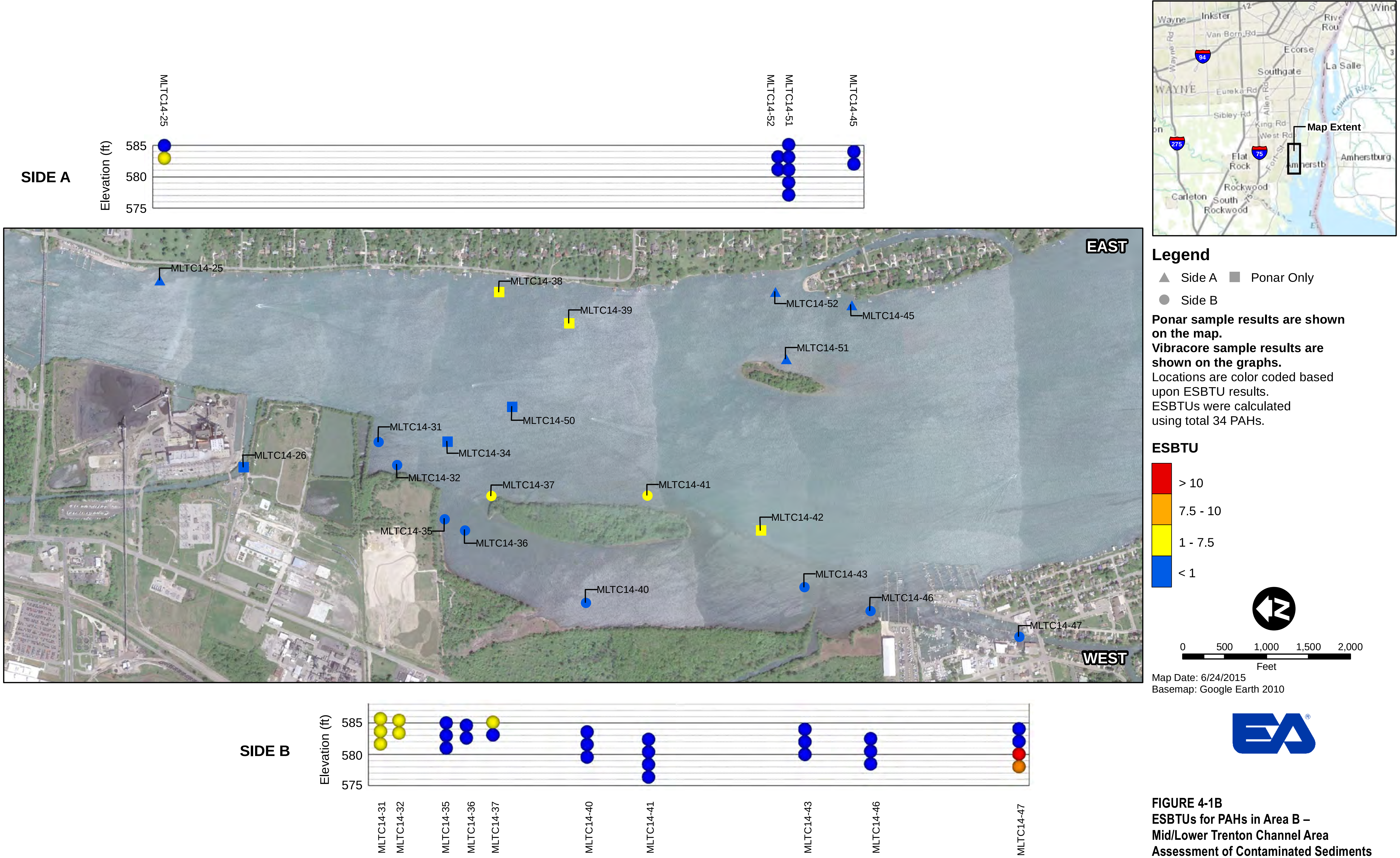
🟥 > 10
🟧 7.5 - 10
🟨 1 - 7.5
🟦 < 1

0 500 1,000 1,500 2,000
Feet

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 4-1A
ESBTUs for PAHs in Area A –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure4-1B_ESBTU_AreaB_South.mxd



Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon ESBTU results.
ESBTUs were calculated using total 34 PAHs.

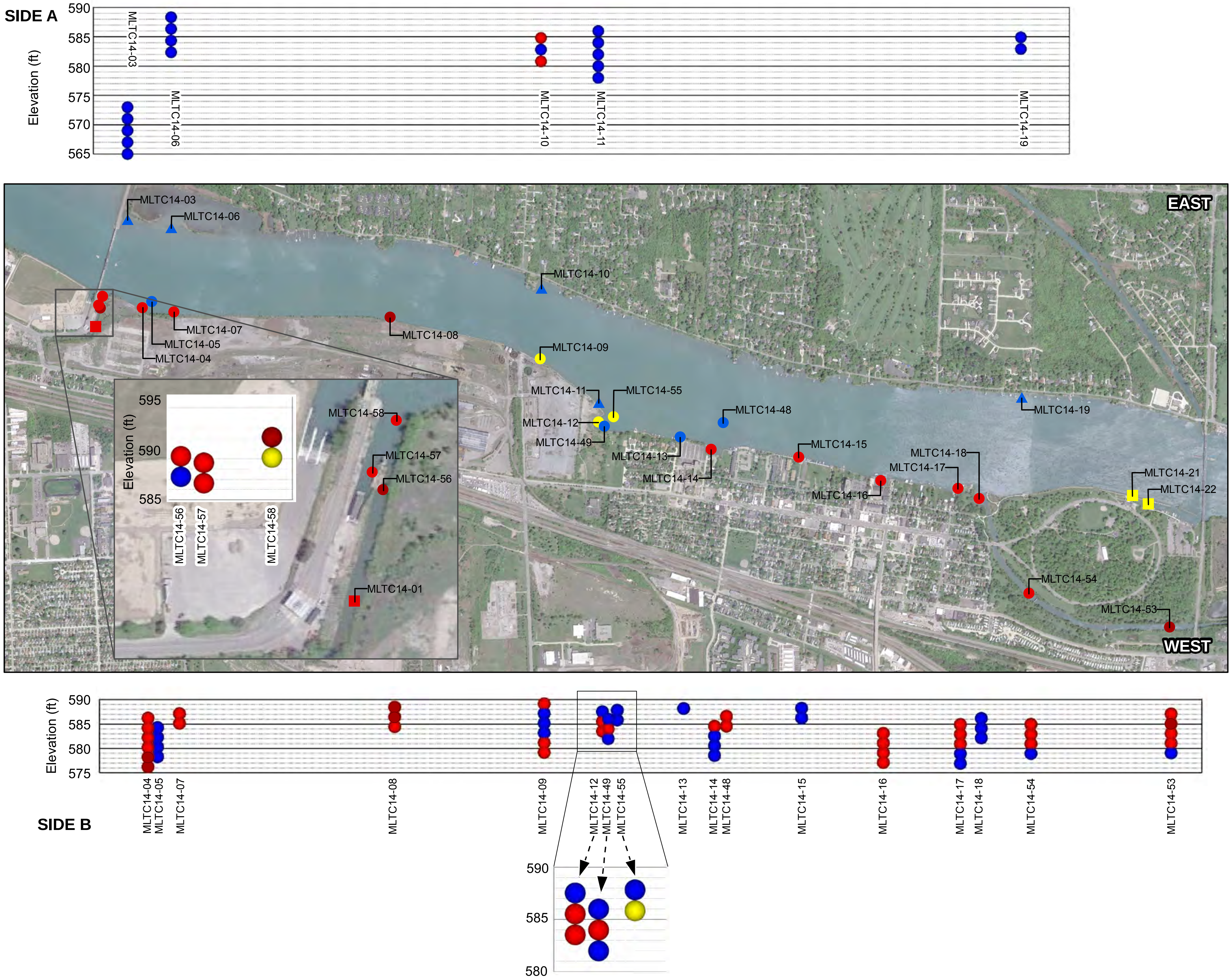
ESBTU

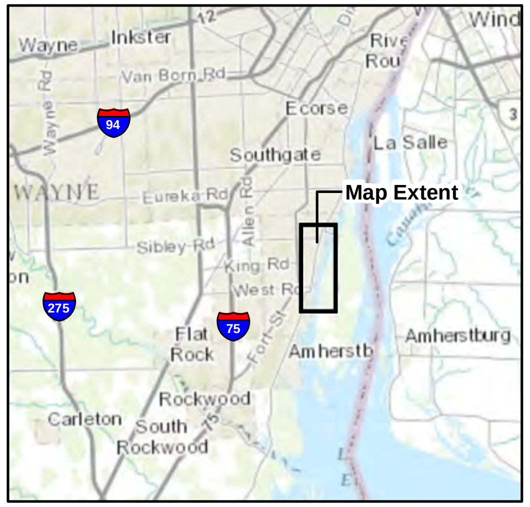
🟥 > 10
🟧 7.5 - 10
🟨 1 - 7.5
🟦 < 1

Map Date: 6/24/2015
Basemap: Google Earth 2010

FIGURE 4-1B
ESBTUs for PAHs in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure5-1A_PECQ_AreaA_North.mxd





Legend

▲ Side A ■ Ponar Only

● Side B

Ponar sample results are shown on the map.
Vibracore sample results are shown on the graphs.
Locations are color coded based upon PECQ results.

Mean PEC-Q Value (mean PEC-Q metals + PEC-Q Total PAHs + PEC-Q Total PCBs)/3

🟥 PEC-Q ≥ 5

🟥 1 ≤ PEC-Q < 5

🟨 0.5 ≤ PEC-Q < 1

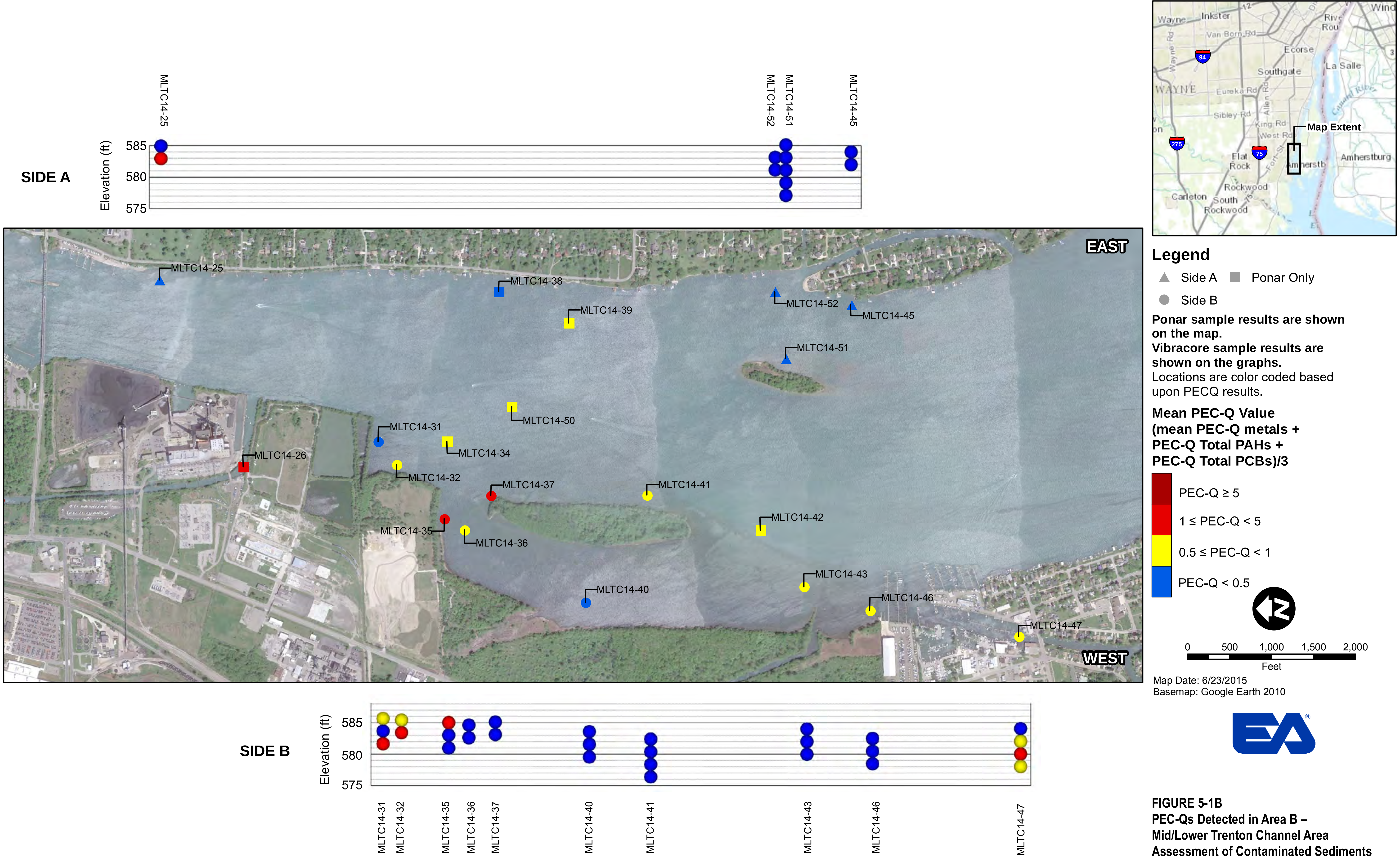
🟦 PEC-Q < 0.5

0 500 1,000 1,500 2,000
Feet

Map Date: 7/2/2015
Basemap: Google Earth 2010

FIGURE 5-1A
PEC-Qs Detected in Area A –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

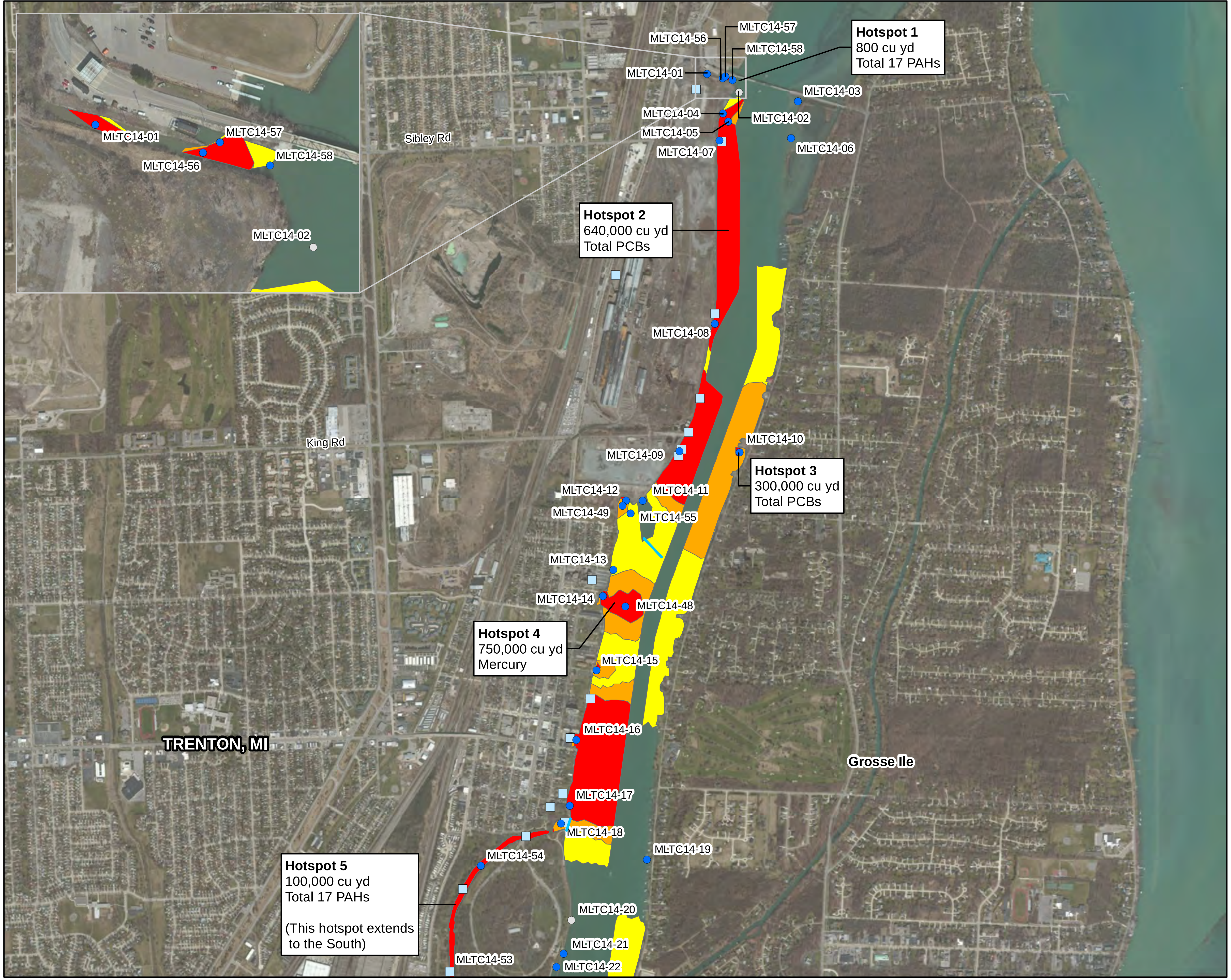
\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_Figure5-1B_PECQ_AreaB_South.mxd



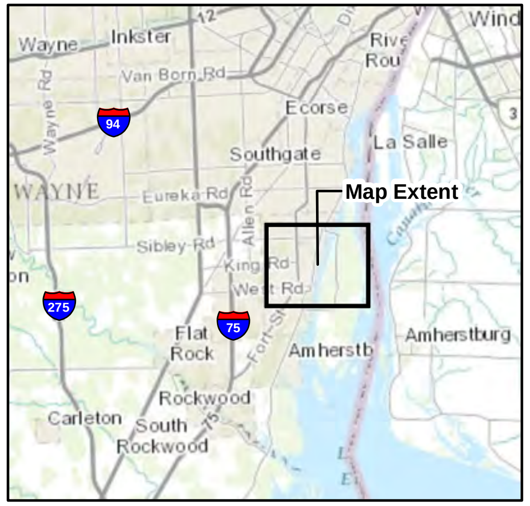
Map Date: 6/23/2015
Basemap: Google Earth 2010

FIGURE 5-1B
PEC-Qs Detected in Area B –
Mid/Lower Trenton Channel Area
Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-1A Spatial Analysis for All Constituents in Area A.mxd



VICINITY MAP



Legend

● Sampled Location

○ Abandoned Location

☐ MLTC Outfall

— Hotspot Separation

🟨 1x PEC

🟧 2x PEC

🟥 3x PEC

0 0.25 0.5

Miles

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

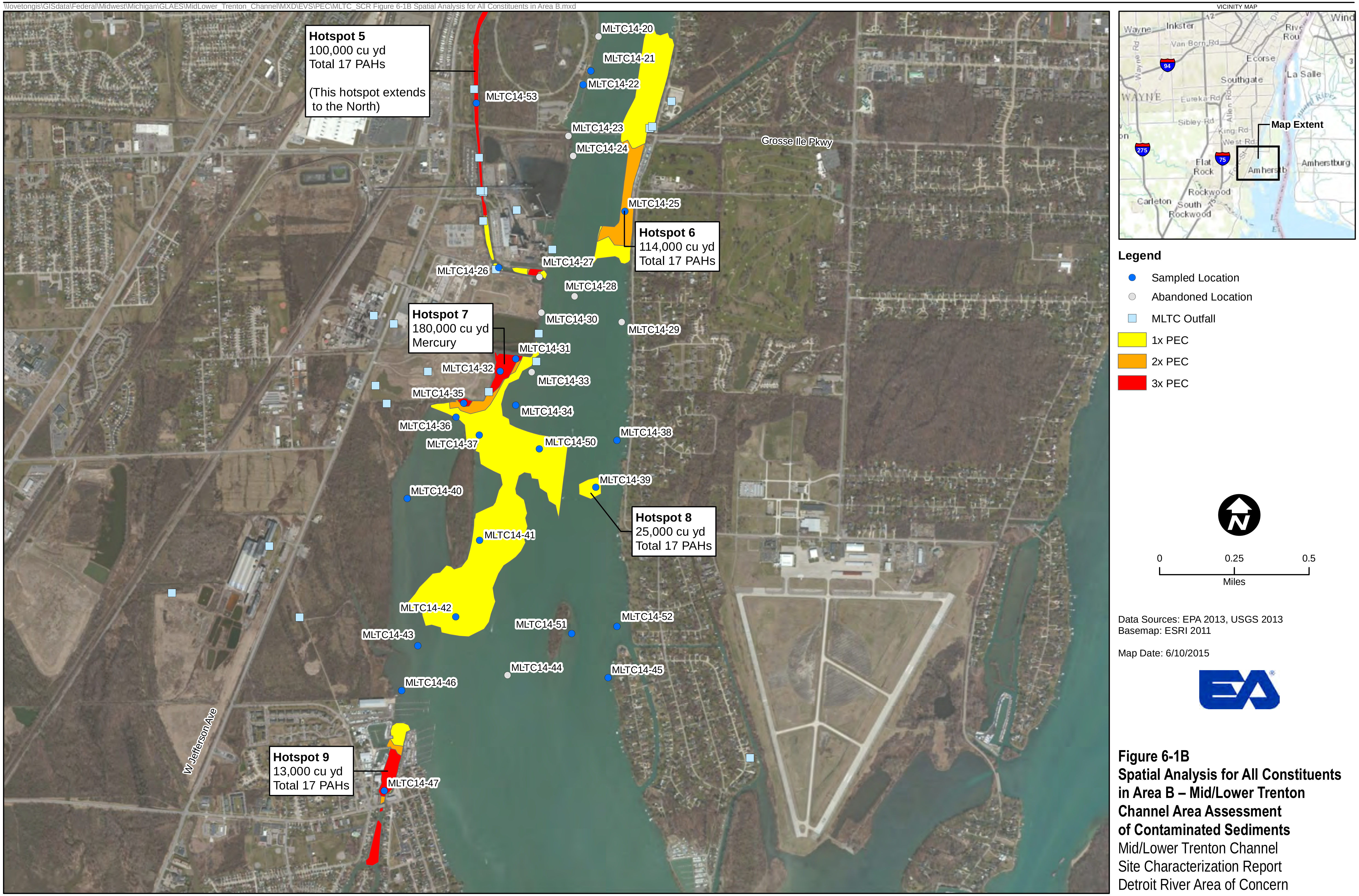
Map Date: 6/10/2015

Figure 6-1A

Spatial Analysis for All Constituents in Area A – Mid/Lower Trenton Channel (MLTC) Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-1B Spatial Analysis for All Constituents in Area B.mxd

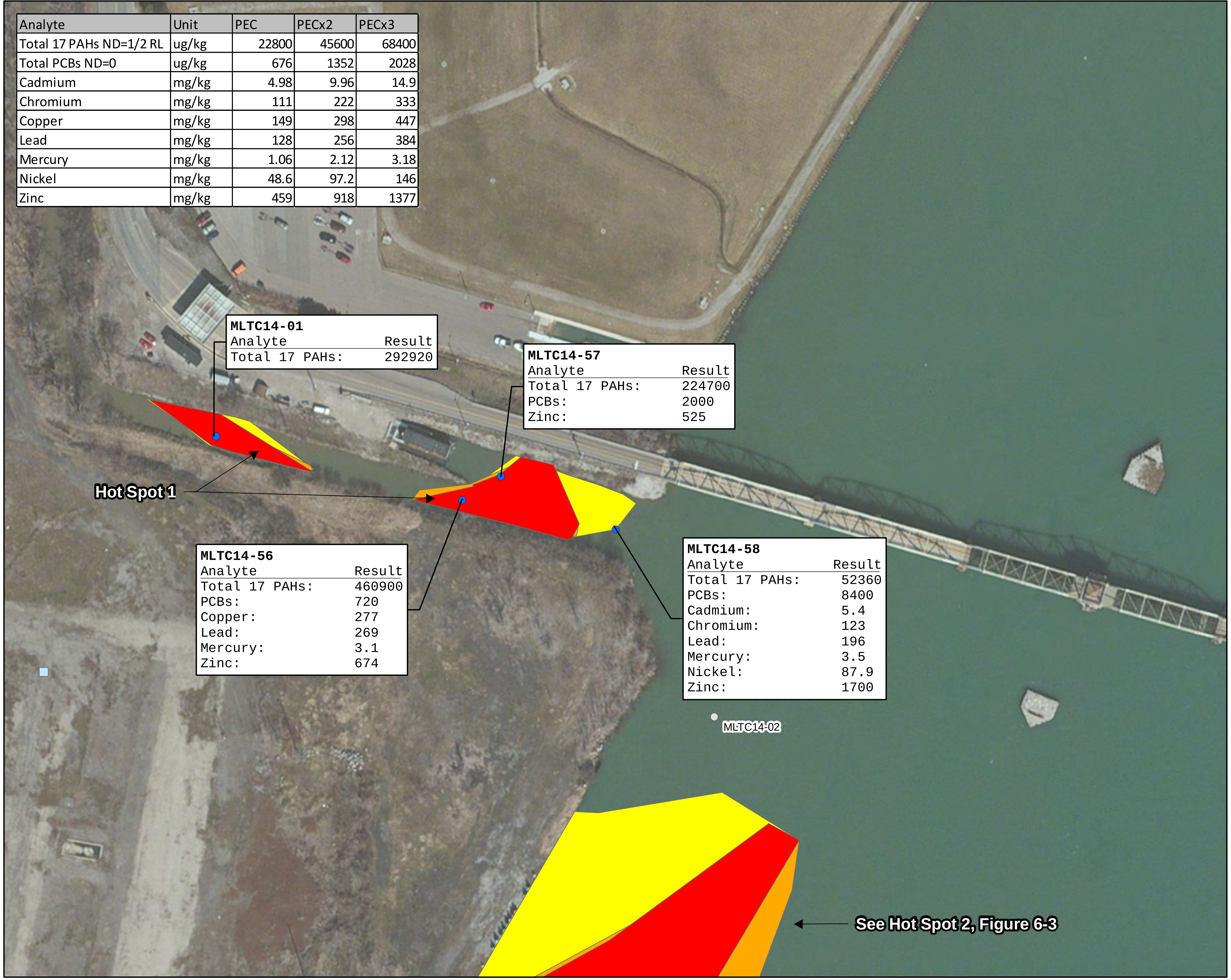


Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/10/2015

Figure 6-1B
Spatial Analysis for All Constituents in Area B – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-2 Hotspot1.mxd



Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400
Total PCBs ND=0	ug/kg	676	1352	2028
Cadmium	mg/kg	4.98	9.96	14.9
Chromium	mg/kg	111	222	333
Copper	mg/kg	149	298	447
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377

MLTC14-01

Analyte	Result
Total 17 PAHs:	292920

MLTC14-57

Analyte	Result
Total 17 PAHs:	224700
PCBs:	2000
Zinc:	525

MLTC14-56

Analyte	Result
Total 17 PAHs:	460900
PCBs:	720
Copper:	277
Lead:	269
Mercury:	3.1
Zinc:	674

MLTC14-58

Analyte	Result
Total 17 PAHs:	52360
PCBs:	8400
Cadmium:	5.4
Chromium:	123
Lead:	196
Mercury:	3.5
Nickel:	87.9
Zinc:	1700

VICINITY MAP

Legend

- ● Sampled Location
- ○ Abandoned Location
- ▫ MLTC Outfall
- 🟨 1x PEC
- 🟧 2x PEC
- 🟥 3x PEC

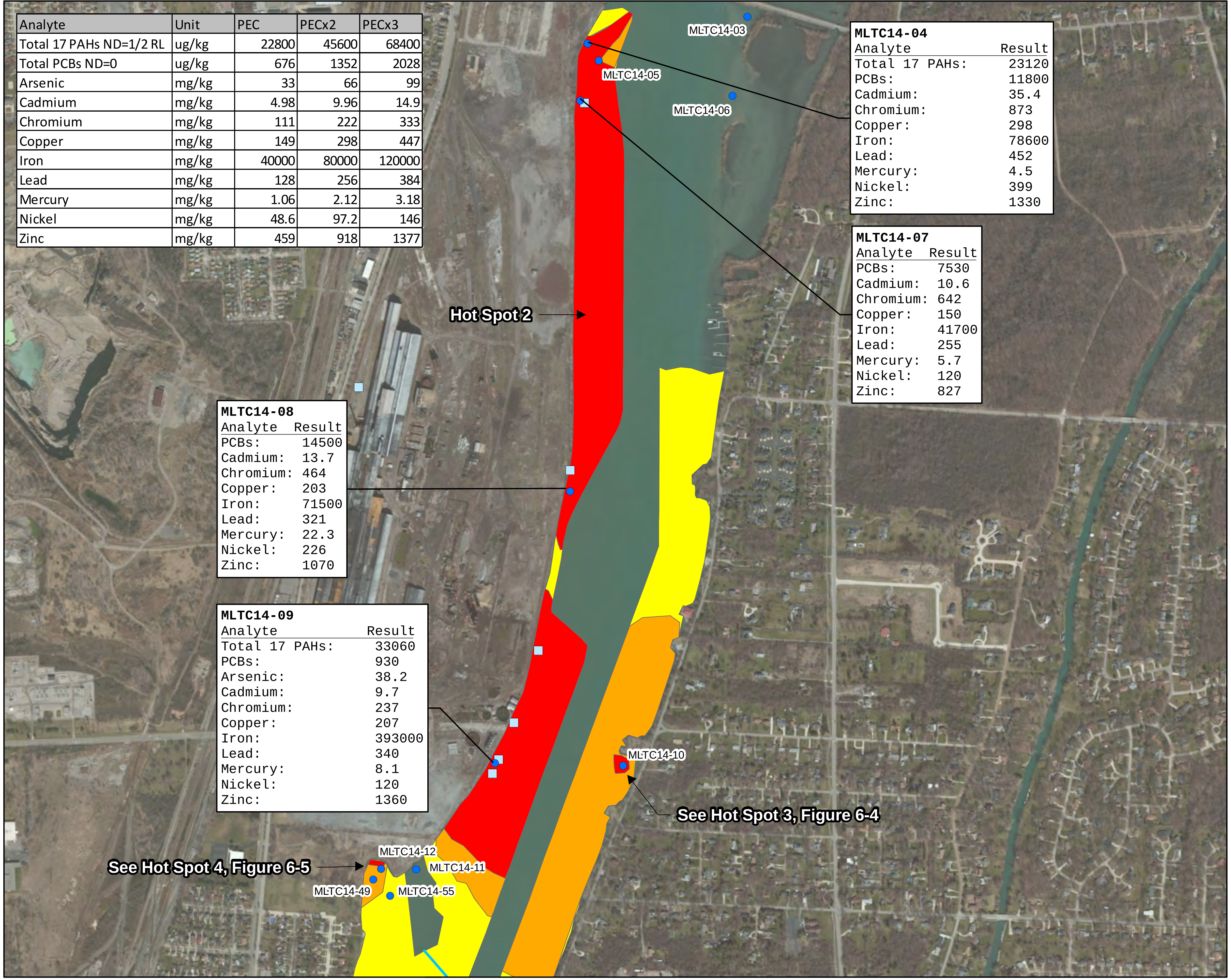
NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 800 cu yd
PAH results shown are total 17 PAHs.

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

Figure 6-2
Hot Spot 1 – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-3 Hotspot2.mxd



Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400
Total PCBs ND=0	ug/kg	676	1352	2028
Arsenic	mg/kg	33	66	99
Cadmium	mg/kg	4.98	9.96	14.9
Chromium	mg/kg	111	222	333
Copper	mg/kg	149	298	447
Iron	mg/kg	40000	80000	120000
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377

MLTC14-04

Analyte	Result
Total 17 PAHs:	23120
PCBs:	11800
Cadmium:	35.4
Chromium:	873
Copper:	298
Iron:	78600
Lead:	452
Mercury:	4.5
Nickel:	399
Zinc:	1330

MLTC14-07

Analyte	Result
PCBs:	7530
Cadmium:	10.6
Chromium:	642
Copper:	150
Iron:	41700
Lead:	255
Mercury:	5.7
Nickel:	120
Zinc:	827

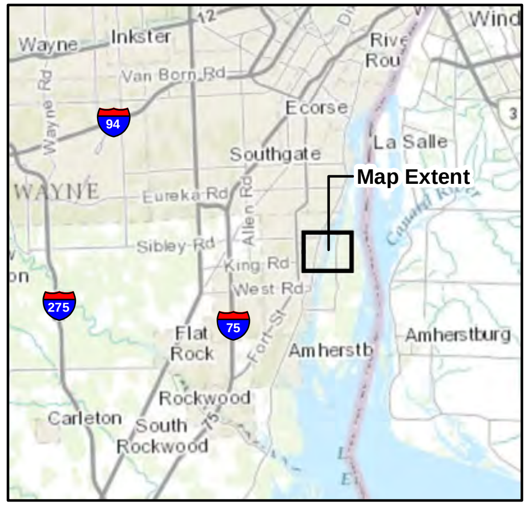
MLTC14-08

Analyte	Result
PCBs:	14500
Cadmium:	13.7
Chromium:	464
Copper:	203
Iron:	71500
Lead:	321
Mercury:	22.3
Nickel:	226
Zinc:	1070

MLTC14-09

Analyte	Result
Total 17 PAHs:	33060
PCBs:	930
Arsenic:	38.2
Cadmium:	9.7
Chromium:	237
Copper:	207
Iron:	393000
Lead:	340
Mercury:	8.1
Nickel:	120
Zinc:	1360

VICINITY MAP



Legend

- ● Sampled Location
- □ MLTC Outfall
- — Hotspot Separation
- 🟨 1x PEC
- 🟧 2x PEC
- 🟥 3x PEC

NOTE:
Results shown are maximum exceedances of PEC,
Estimated volume = 640,000 cu yd
PAH results shown are total 17 PAHs.

N

0 500 1,000
Feet

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

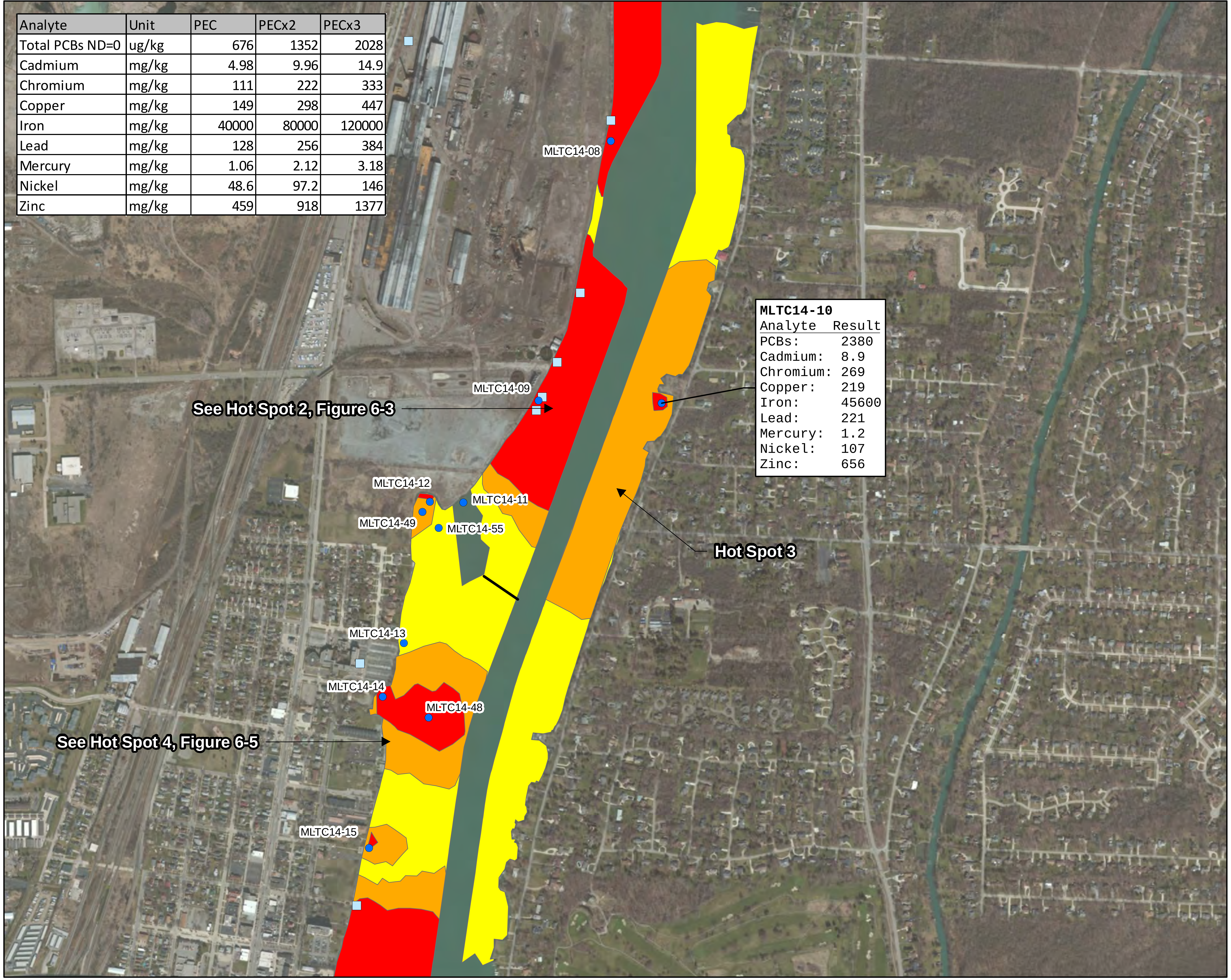
Map Date: 7/2/2015

EA

Figure 6-3
Hot Spot 2 – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

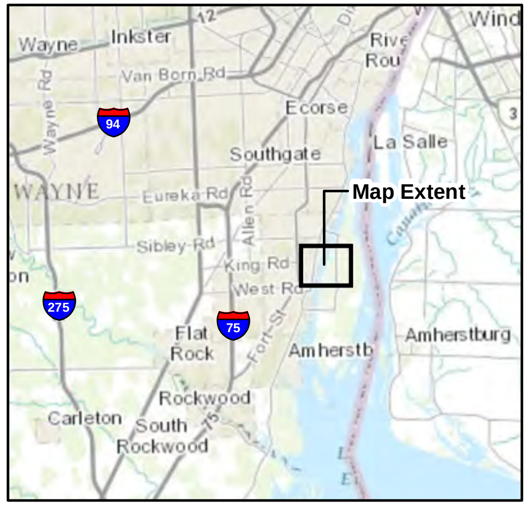
Analyte	Unit	PEC	PECx2	PECx3
Total PCBs ND=0	ug/kg	676	1352	2028
Cadmium	mg/kg	4.98	9.96	14.9
Chromium	mg/kg	111	222	333
Copper	mg/kg	149	298	447
Iron	mg/kg	40000	80000	120000
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377



MLTC14-10

Analyte	Result
PCBs:	2380
Cadmium:	8.9
Chromium:	269
Copper:	219
Iron:	45600
Lead:	221
Mercury:	1.2
Nickel:	107
Zinc:	656

VICINITY MAP



Legend

● Sampled Location

○ Abandoned Location

☐ MLTC Outfall

🟨 1x PEC

🟧 2x PEC

🟥 3x PEC

NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 300,000 cu yd

N

0 500 1,000
Feet

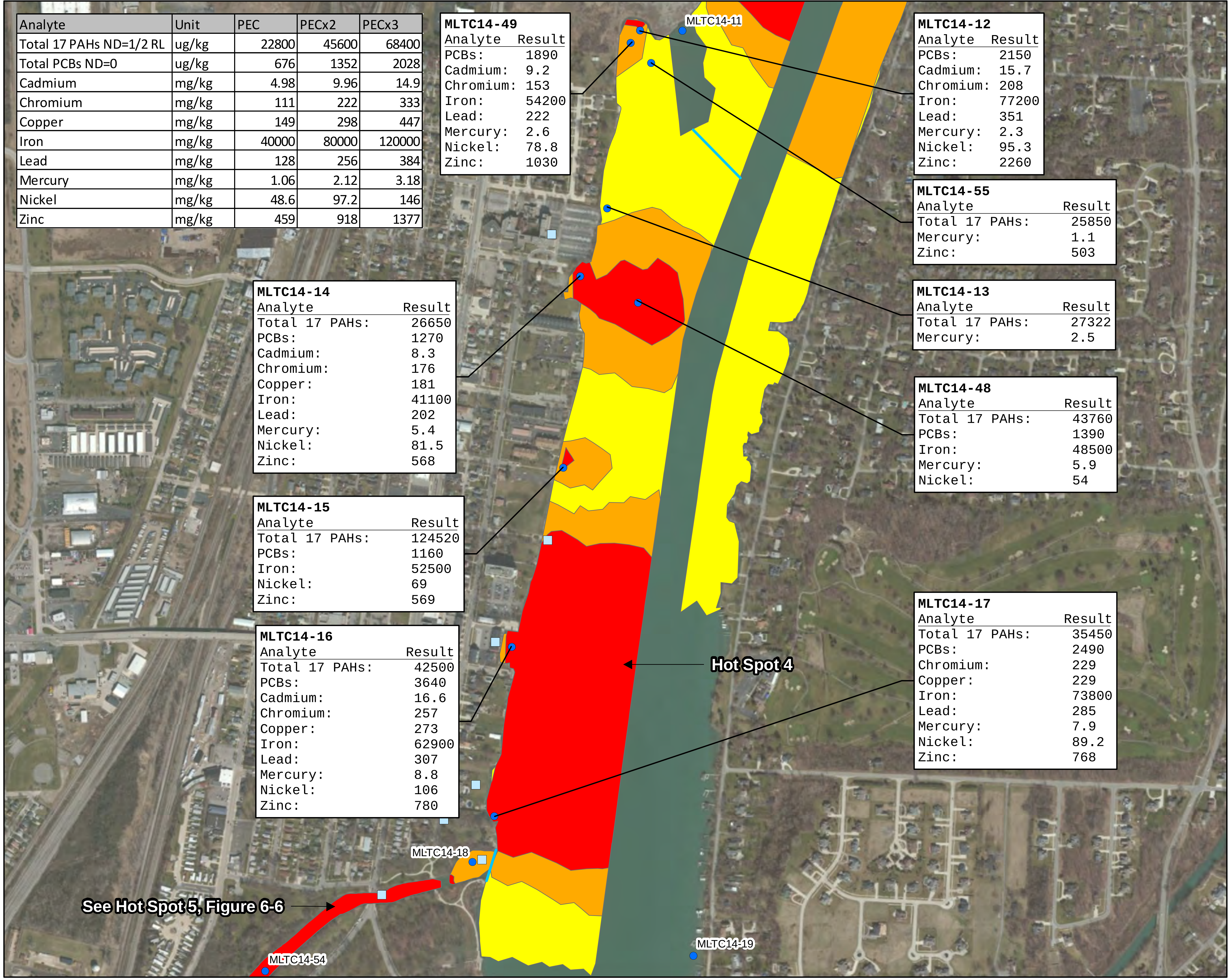
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

Figure 6-4
Hot Spot 3 – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-5 Hotspot4.mxd



Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400
Total PCBs ND=0	ug/kg	676	1352	2028
Cadmium	mg/kg	4.98	9.96	14.9
Chromium	mg/kg	111	222	333
Copper	mg/kg	149	298	447
Iron	mg/kg	40000	80000	120000
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377

MLTC14-49

Analyte	Result
PCBs:	1890
Cadmium:	9.2
Chromium:	153
Iron:	54200
Lead:	222
Mercury:	2.6
Nickel:	78.8
Zinc:	1030

MLTC14-12

Analyte	Result
PCBs:	2150
Cadmium:	15.7
Chromium:	208
Iron:	77200
Lead:	351
Mercury:	2.3
Nickel:	95.3
Zinc:	2260

MLTC14-55

Analyte	Result
Total 17 PAHs:	25850
Mercury:	1.1
Zinc:	503

MLTC14-13

Analyte	Result
Total 17 PAHs:	27322
Mercury:	2.5

MLTC14-14

Analyte	Result
Total 17 PAHs:	26650
PCBs:	1270
Cadmium:	8.3
Chromium:	176
Copper:	181
Iron:	41100
Lead:	202
Mercury:	5.4
Nickel:	81.5
Zinc:	568

MLTC14-48

Analyte	Result
Total 17 PAHs:	43760
PCBs:	1390
Iron:	48500
Mercury:	5.9
Nickel:	54

MLTC14-15

Analyte	Result
Total 17 PAHs:	124520
PCBs:	1160
Iron:	52500
Nickel:	69
Zinc:	569

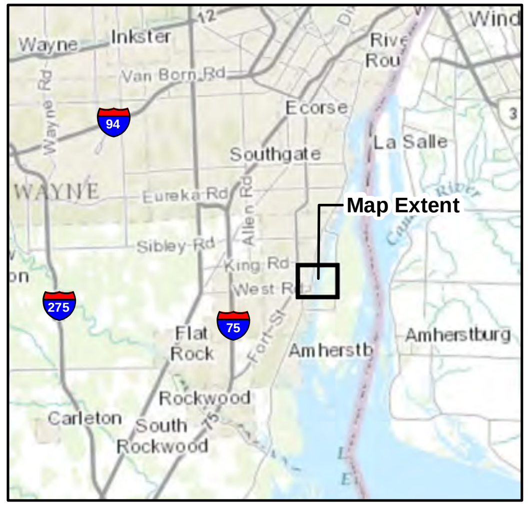
MLTC14-16

Analyte	Result
Total 17 PAHs:	42500
PCBs:	3640
Cadmium:	16.6
Chromium:	257
Copper:	273
Iron:	62900
Lead:	307
Mercury:	8.8
Nickel:	106
Zinc:	780

MLTC14-17

Analyte	Result
Total 17 PAHs:	35450
PCBs:	2490
Chromium:	229
Copper:	229
Iron:	73800
Lead:	285
Mercury:	7.9
Nickel:	89.2
Zinc:	768

VICINITY MAP



Legend

●	Sampled Location
▢	MLTC Outfall
—	Hotspot Separation
🟨	1x PEC
🟧	2x PEC
🟥	3x PEC

NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 750,000 cu yd
PAH results shown are total 17 PAHs.

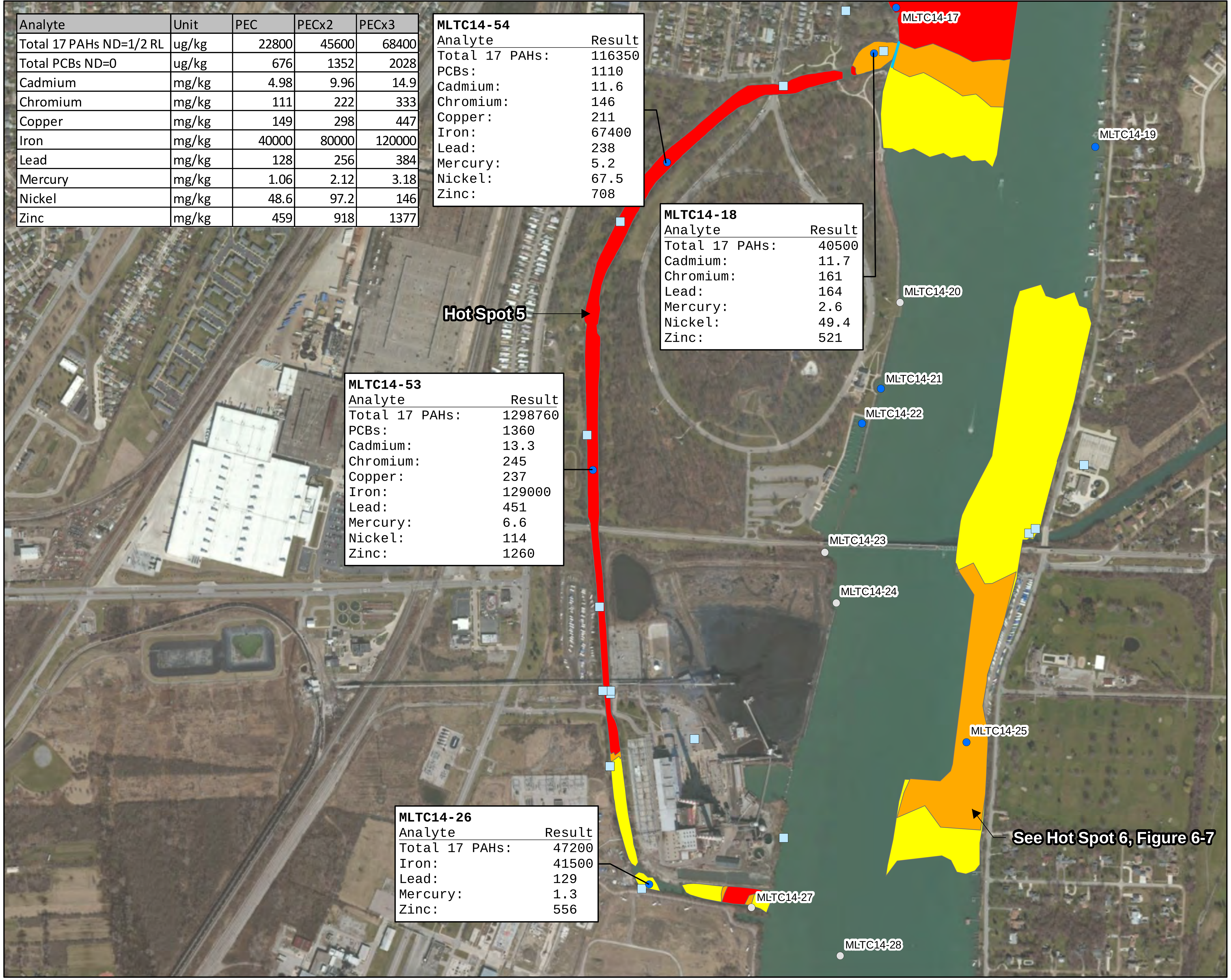
0 500 1,000
Feet

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

Figure 6-5
Hot Spot 4 – Mid/Lower Trenton
Channel Area Assessment
of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-6 Hotspot5.mxd



Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400
Total PCBs ND=0	ug/kg	676	1352	2028
Cadmium	mg/kg	4.98	9.96	14.9
Chromium	mg/kg	111	222	333
Copper	mg/kg	149	298	447
Iron	mg/kg	40000	80000	120000
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377

MLTC14-54

Analyte	Result
Total 17 PAHs:	116350
PCBs:	1110
Cadmium:	11.6
Chromium:	146
Copper:	211
Iron:	67400
Lead:	238
Mercury:	5.2
Nickel:	67.5
Zinc:	708

MLTC14-18

Analyte	Result
Total 17 PAHs:	40500
Cadmium:	11.7
Chromium:	161
Lead:	164
Mercury:	2.6
Nickel:	49.4
Zinc:	521

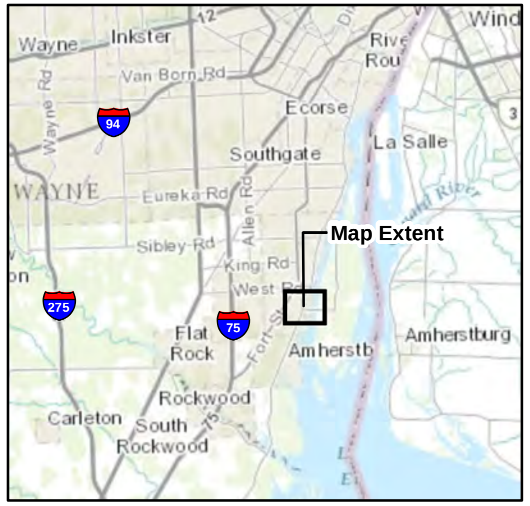
MLTC14-53

Analyte	Result
Total 17 PAHs:	1298760
PCBs:	1360
Cadmium:	13.3
Chromium:	245
Copper:	237
Iron:	129000
Lead:	451
Mercury:	6.6
Nickel:	114
Zinc:	1260

MLTC14-26

Analyte	Result
Total 17 PAHs:	47200
Iron:	41500
Lead:	129
Mercury:	1.3
Zinc:	556

VICINITY MAP



Legend

- ● Sampled Location
- ○ Abandoned Location
- ▢ MLTC Outfall
- — Hotspot Separation
- 🟨 1x PEC
- 🟧 2x PEC
- 🟥 3x PEC

NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 100,000 cu yd
PAH results shown are total 17 PAHs.

0 500 1,000
Feet

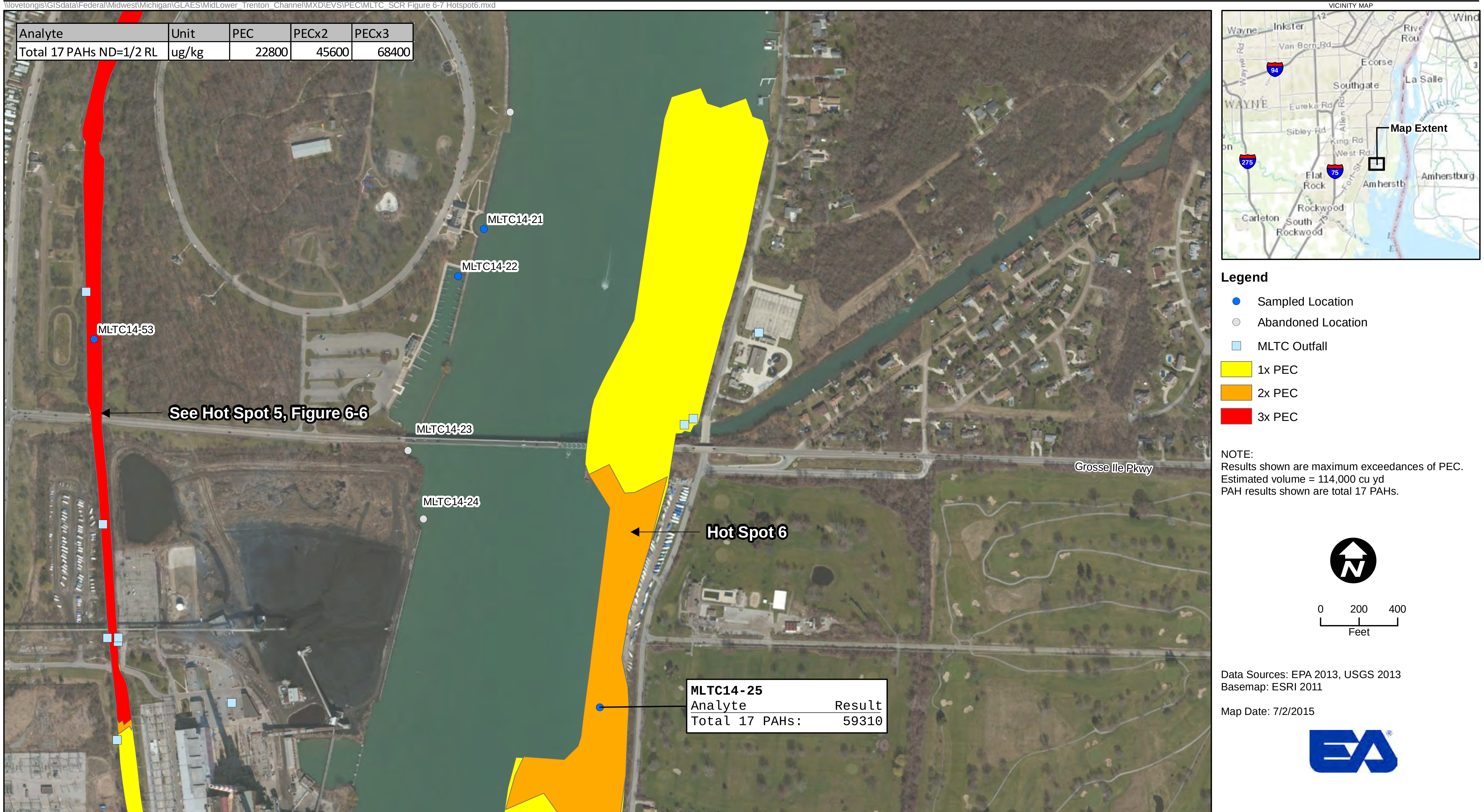
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

Figure 6-6
Hot Spot 5 – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-7 Hotspot6.mxd



Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400

```
MLTC14-25
Analyte              Result
Total 17 PAHs:        59310
```

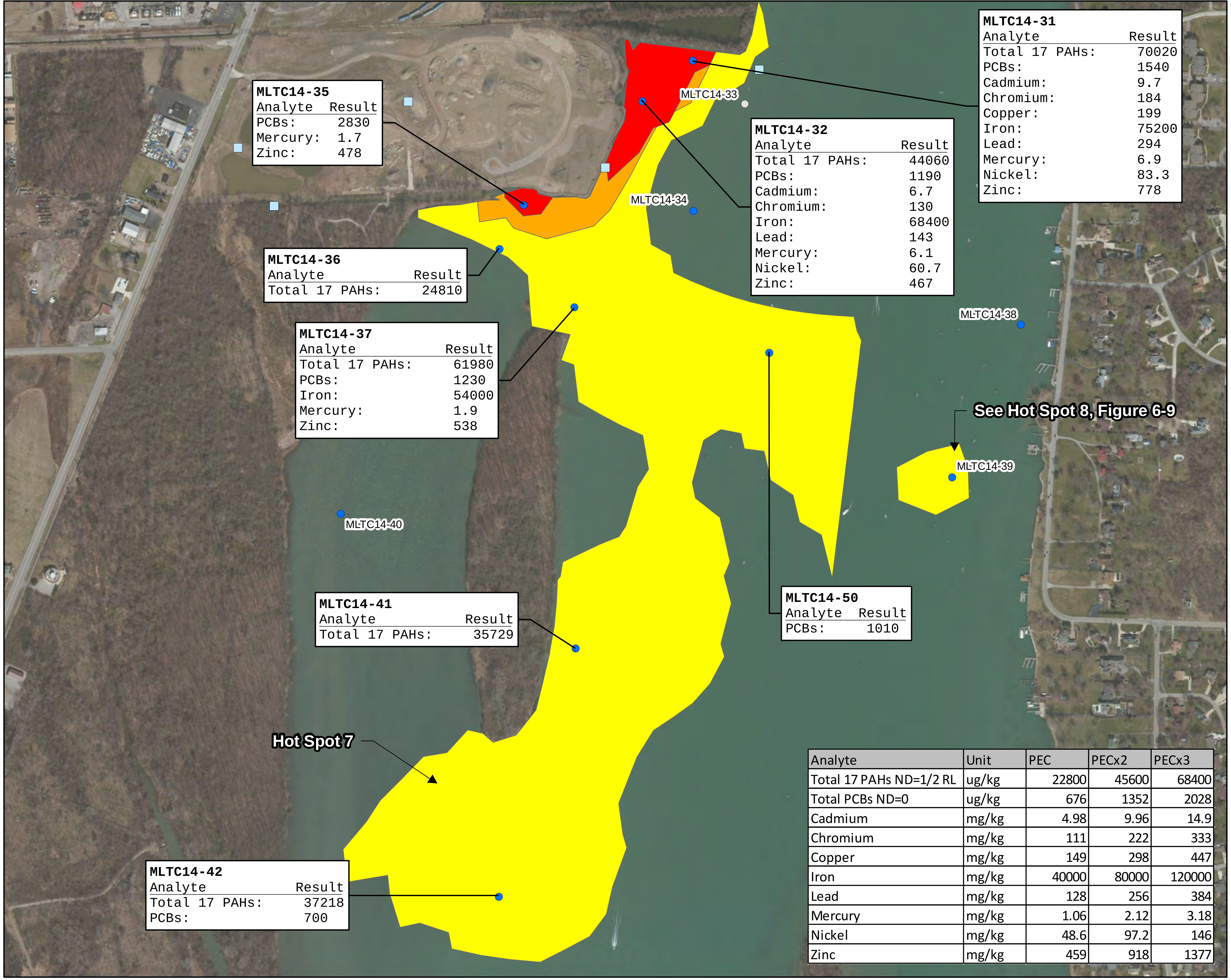
NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 114,000 cu yd
PAH results shown are total 17 PAHs.

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

Figure 6-7
Hot Spot 6 – Mid/Lower Trenton
Channel Area Assessment
of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-8 Hotspot7.mxd



MLTC14-31

Analyte	Result
Total 17 PAHs:	70020
PCBs:	1540
Cadmium:	9.7
Chromium:	184
Copper:	199
Iron:	75200
Lead:	294
Mercury:	6.9
Nickel:	83.3
Zinc:	778

MLTC14-35

Analyte	Result
PCBs:	2830
Mercury:	1.7
Zinc:	478

MLTC14-32

Analyte	Result
Total 17 PAHs:	44060
PCBs:	1190
Cadmium:	6.7
Chromium:	130
Iron:	68400
Lead:	143
Mercury:	6.1
Nickel:	60.7
Zinc:	467

MLTC14-36

Analyte	Result
Total 17 PAHs:	24810

MLTC14-37

Analyte	Result
Total 17 PAHs:	61980
PCBs:	1230
Iron:	54000
Mercury:	1.9
Zinc:	538

MLTC14-41

Analyte	Result
Total 17 PAHs:	35729

MLTC14-50

Analyte	Result
PCBs:	1010

MLTC14-42

Analyte	Result
Total 17 PAHs:	37218
PCBs:	700

Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400
Total PCBs ND=0	ug/kg	676	1352	2028
Cadmium	mg/kg	4.98	9.96	14.9
Chromium	mg/kg	111	222	333
Copper	mg/kg	149	298	447
Iron	mg/kg	40000	80000	120000
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377

VICINITY MAP

Legend

- ● Sampled Location
- ○ Abandoned Location
- ▫ MLTC Outfall
- 🟨 1x PEC
- 🟧 2x PEC
- 🟥 3x PEC

NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 180,000 cu yd
PAH results shown are total 17 PAHs.

0 500 1,000
Feet

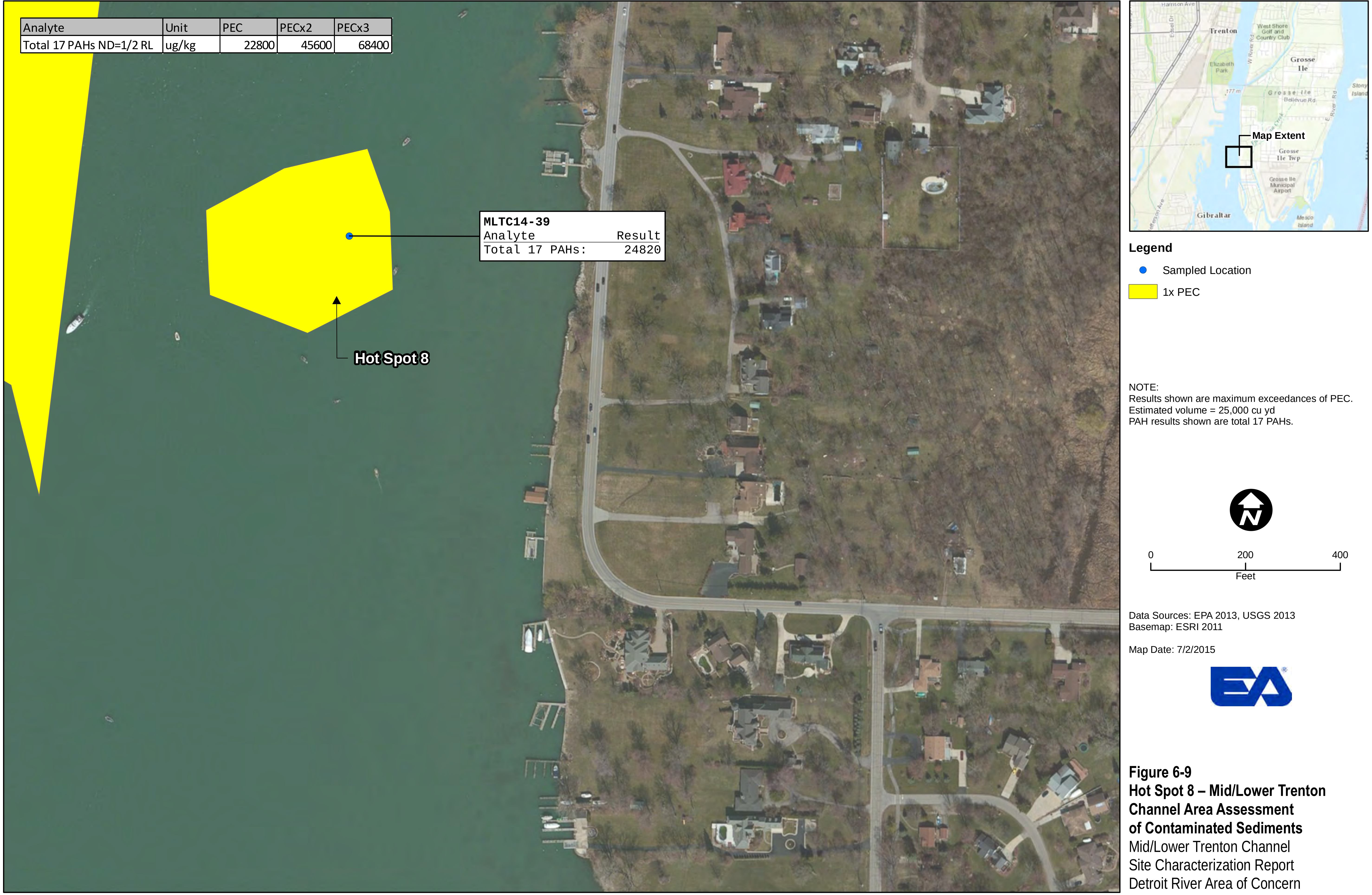
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

Figure 6-8
Hot Spot 7 – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-9 Hotspot8.mxd



Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400

MLTC14-39

Analyte	Result
Total 17 PAHs:	24820

Legend

●	Sampled Location
🟨	1x PEC

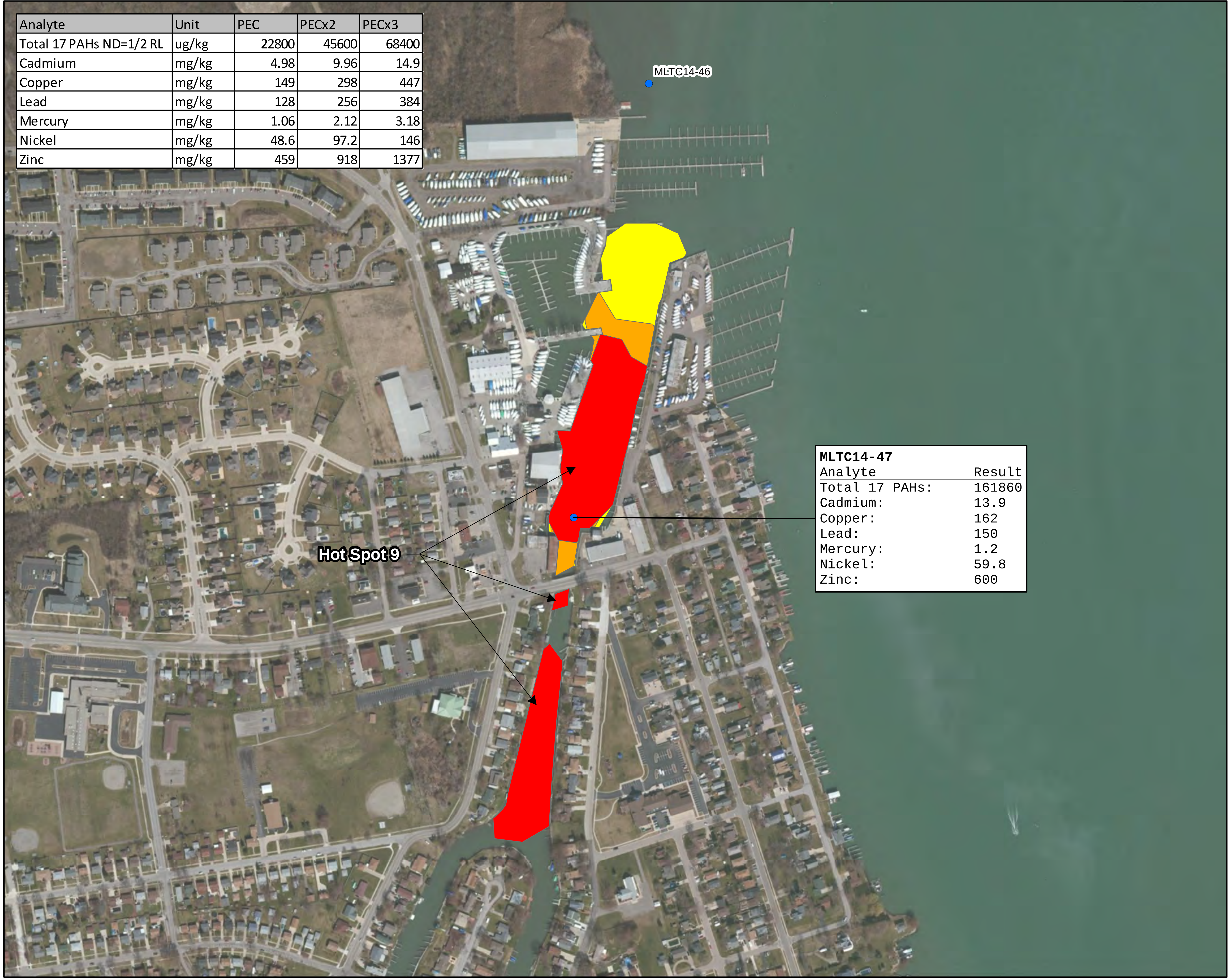
NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 25,000 cu yd
PAH results shown are total 17 PAHs.

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

Figure 6-9
Hot Spot 8 – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PEC\MLTC_SCR Figure 6-10 Hotspot9.mxd

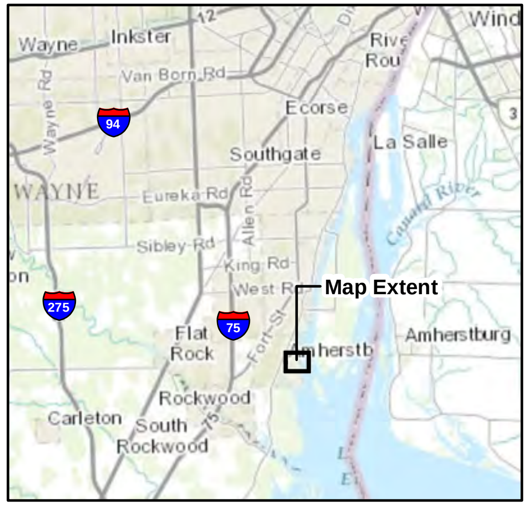


Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400
Cadmium	mg/kg	4.98	9.96	14.9
Copper	mg/kg	149	298	447
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377

MLTC14-47

Analyte	Result
Total 17 PAHs:	161860
Cadmium:	13.9
Copper:	162
Lead:	150
Mercury:	1.2
Nickel:	59.8
Zinc:	600

VICINITY MAP



Legend

● Sampled Location

🟨 1x PEC

🟧 2x PEC

🟥 3x PEC

NOTE:
Results shown are maximum exceedances of PEC.
Estimated volume = 13,000 cu yd
PAH results shown are total 17 PAHs.

N

0 400 800
Feet

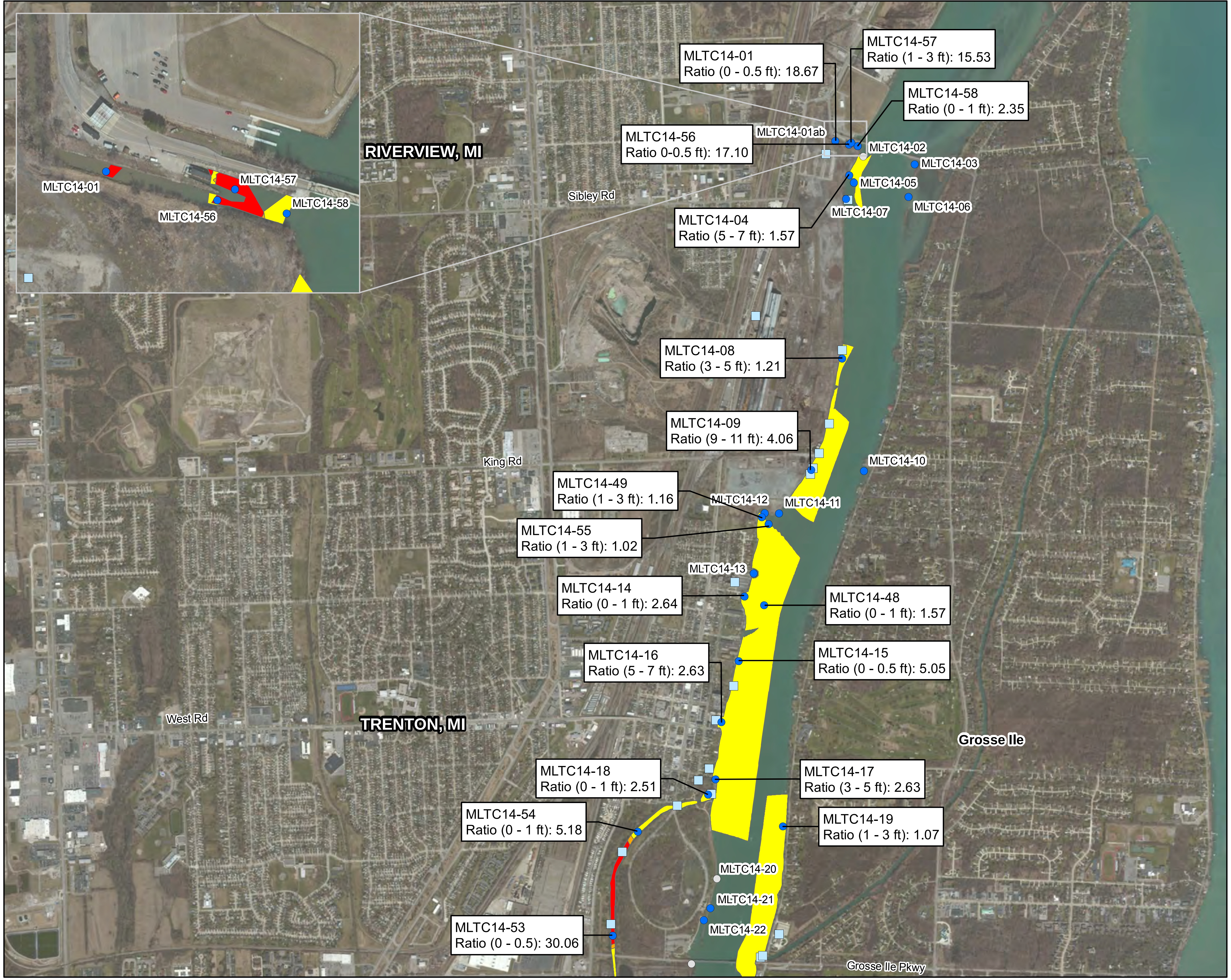
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 7/2/2015

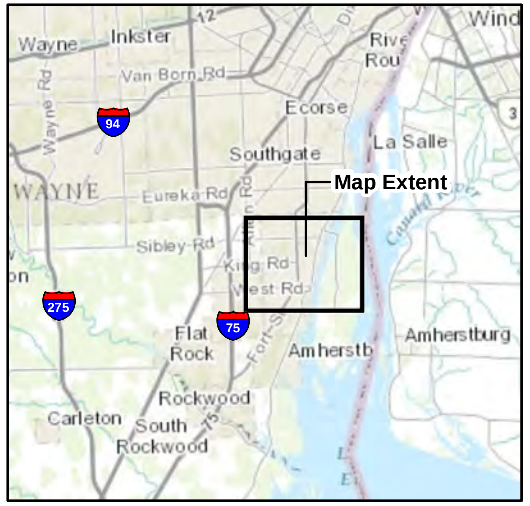
EA

Figure 6-10
Hot Spot 9 – Mid/Lower Trenton Channel Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\ESBTU\MLTC_SCR Figure 6-11A Spatial Analysis for ESBTUs in Area A.mxd



VICINITY MAP



Legend

● Sampled Location

○ Abandoned Location

▢ MLTC Outfall

🟥 ESBTU ≥ 10

🟧 7.5 ≤ ESBTU < 10

🟨 1 ≤ ESBTU < 7.5

NOTE: Ratio value shown represents highest ESBTU PAH result with associated depth (ft) ESBTUs were calculated using total 34 PAHs.

N

0 0.25 0.5
Miles

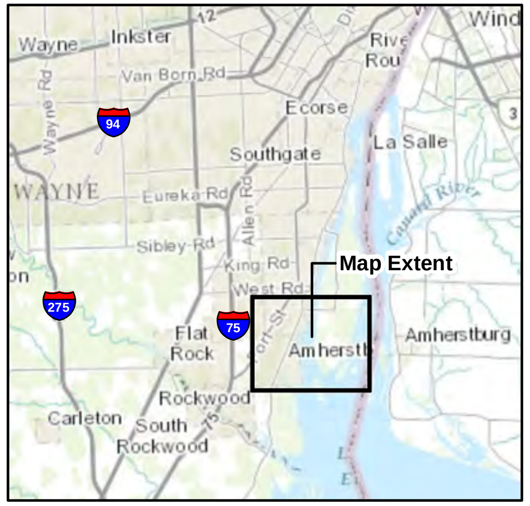
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/29/2015

Figure 6-11A
Spatial Analysis for ESBTUs in Area A – MLTC Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\ESBTU\MLTC_SCR Figure 6-11B Spatial Analysis for ESBTUs in Area B.mxd

VICINITY MAP



Legend

● Sampled Location

○ Abandoned Location

□ MLTC Outfall

🟥 ESBTU ≥ 10

🟧 7.5 ≤ ESBTU < 10

🟨 1 ≤ ESBTU < 7.5

NOTE: Ratio Value shown represents highest ESBTU PAH result with associated depth (ft) ESBTUs were calculated using total 34 PAHs.

N

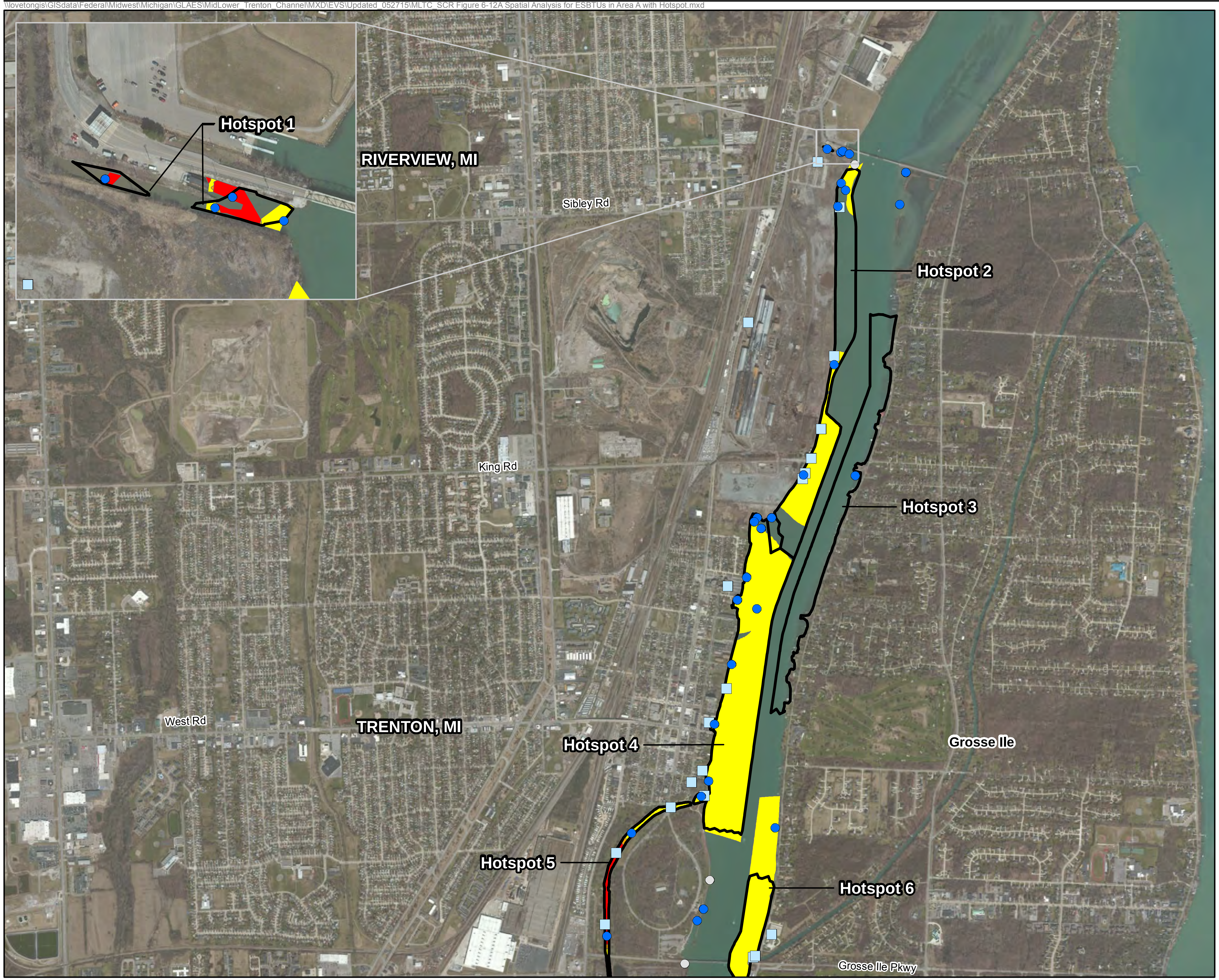
0 0.25 0.5
Miles

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

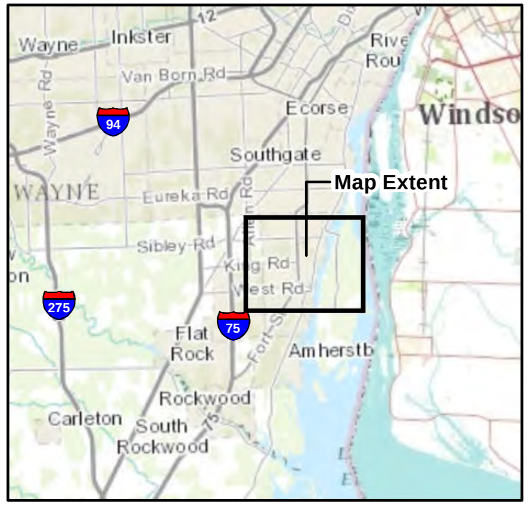
Map Date: 6/29/2015

Figure 6-11B
Spatial Analysis for ESBTUs in Area B – MLTC Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_SCR Figure 6-12A Spatial Analysis for ESBTUs in Area A with Hotspot.mxd



VICINITY MAP



Legend

● Sampled Location

○ Abandoned Location

☐ MLTC Outfall

🟥 ESBTU ≥ 10

🟧 7.5 ≤ ESBTU < 10

🟨 1 ≤ ESBTU < 7.5

☐ Hot Spot

NOTE: Ratio value shown represents highest ESBTU PAH result with associated depth (ft) ESBTUs were calculated using total 34 PAHs.

N

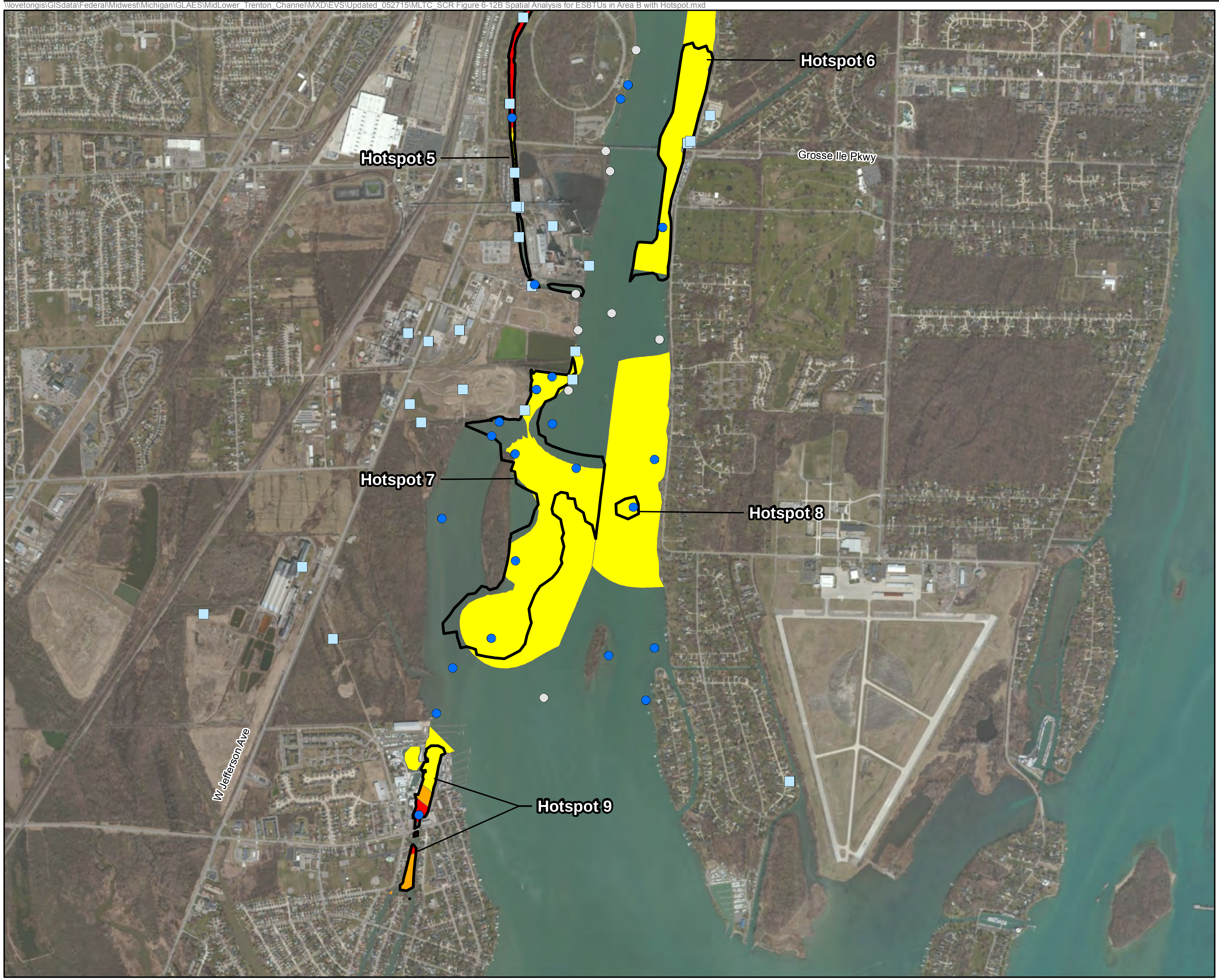
0 0.25 0.5
Miles

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/15/2015

Figure 6-12A
Spatial Analysis for ESBTUs in Area A with Outline of Identified Hot Spots – MLTC Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_SCR Figure 6-12B Spatial Analysis for ESBTUs in Area B with Hotspot.mxd



VICINITY MAP

Legend

- ● Sampled Location
- ○ Abandoned Location
- ▢ MLTC Outfall
- 🟥 ESBTU ≥ 10
- 🟧 7.5 ≤ ESBTU < 10
- 🟨 1 ≤ ESBTU < 7.5
- ▢ Hot Spot

NOTE: Ratio value shown represents highest ESBTU PAH result with associated depth (ft)
ESBTUs were calculated using total 34 PAHs.

N

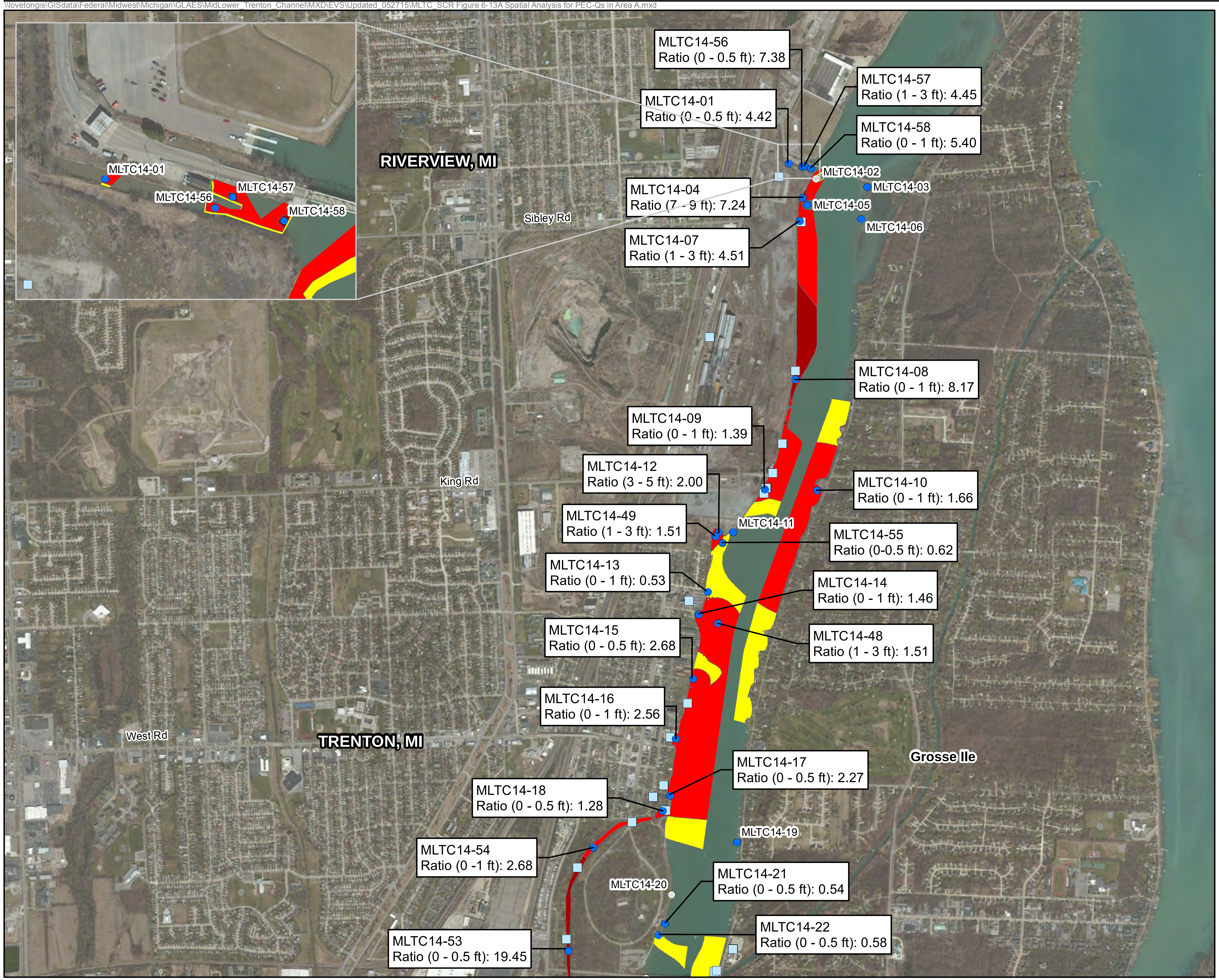
0 0.25 0.5
Miles

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

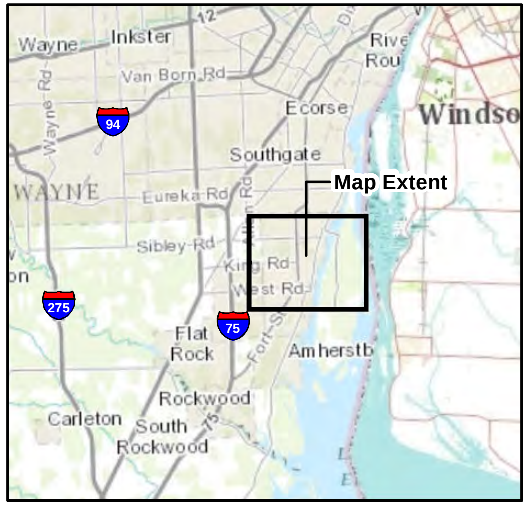
Map Date: 6/15/2015

Figure 6-12B
Spatial Analysis for ESBTUs in Area B with Outline of Identified Hot Spots – MLTC Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_SCR Figure 6-13A Spatial Analysis for PEC-Qs in Area A.mxd



VICINITY MAP



Legend

- ● Sampled Location
- ○ Abandoned Location
- ▫ MLTC Outfall
- 🟥 PEC-Q ≥ 5
- 🟥 1 ≤ PEC-Q < 5
- 🟨 0.5 ≤ PEC-Q < 1

NOTE:
Mean PEC-Q Value = (mean PEC-Qmetals + PEC-Q Total PAHs + PEC-Q Total PCBs)/3
Ratio value shown represents highest result associated with depth (ft).

N

0 0.25 0.5
Miles

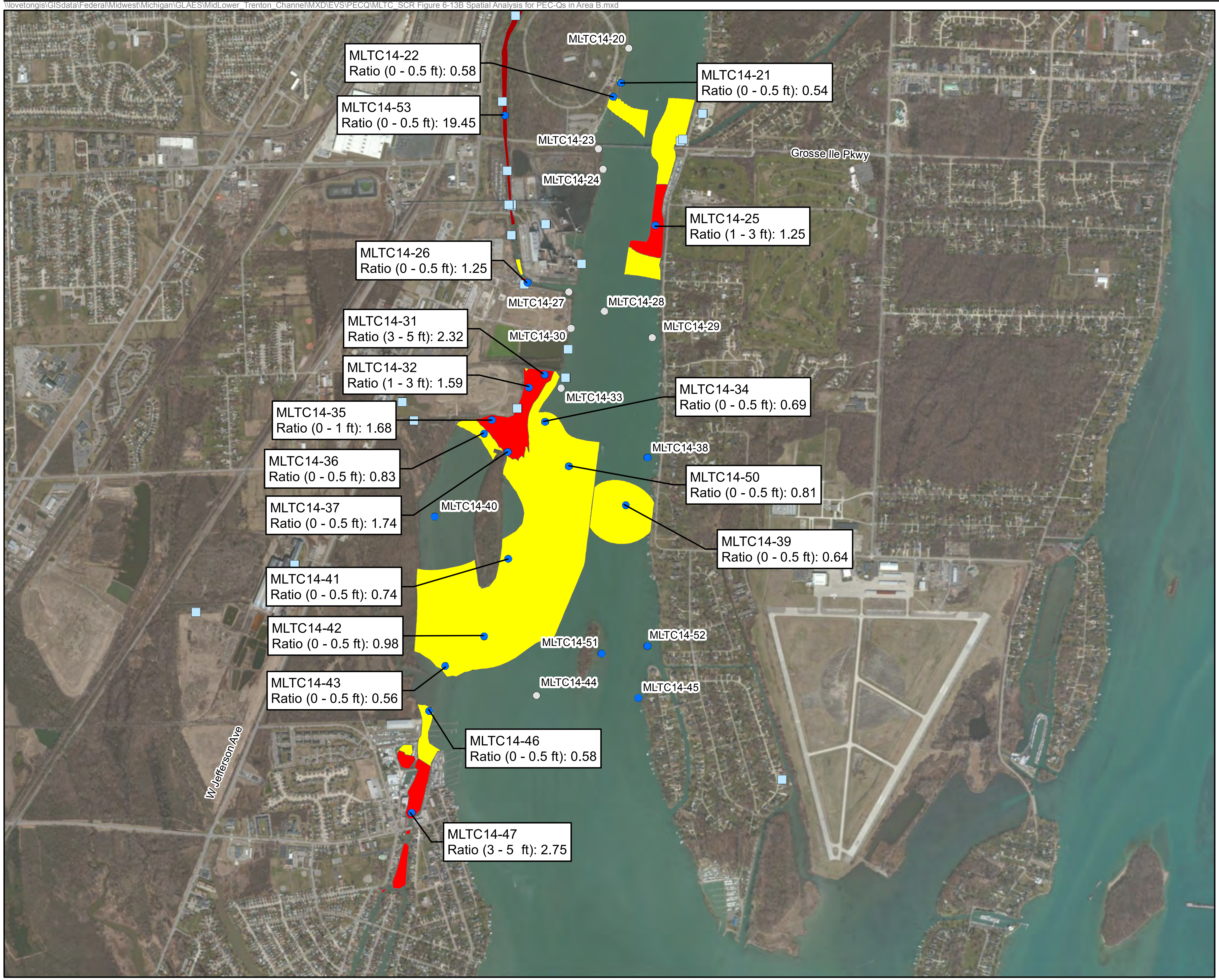
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/15/2015

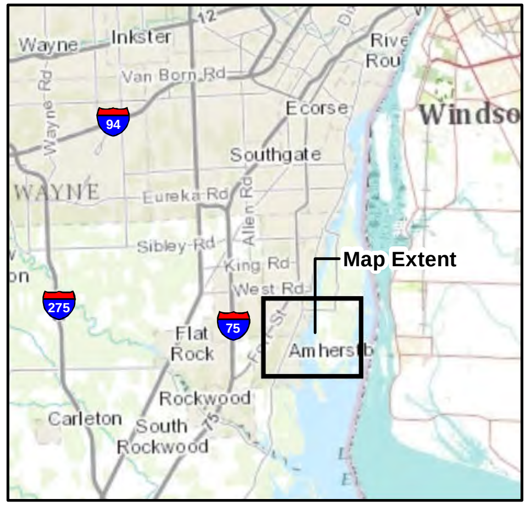
Figure 6-13A
Spatial Analysis for PEC-Qs in Area A – MLTC Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\PECQ\MLTC_SCR Figure 6-13B Spatial Analysis for PEC-Qs in Area B.mxd



VICINITY MAP



Legend

- ● Sampled Location
- ○ Abandoned Location
- ☐ MLTC Outfall
- 🟥 PEC-Q ≥ 5
- 🟥 1 ≤ PEC-Q < 5
- 🟨 0.5 ≤ PEC-Q < 1

NOTE:
Mean PEC-Q Value = (mean PEC-Qmetals + PEC-Q Total PAHs + PEC-Q Total PCBs)/3
Ratio value shown represents highest result associated with depth (ft).

N

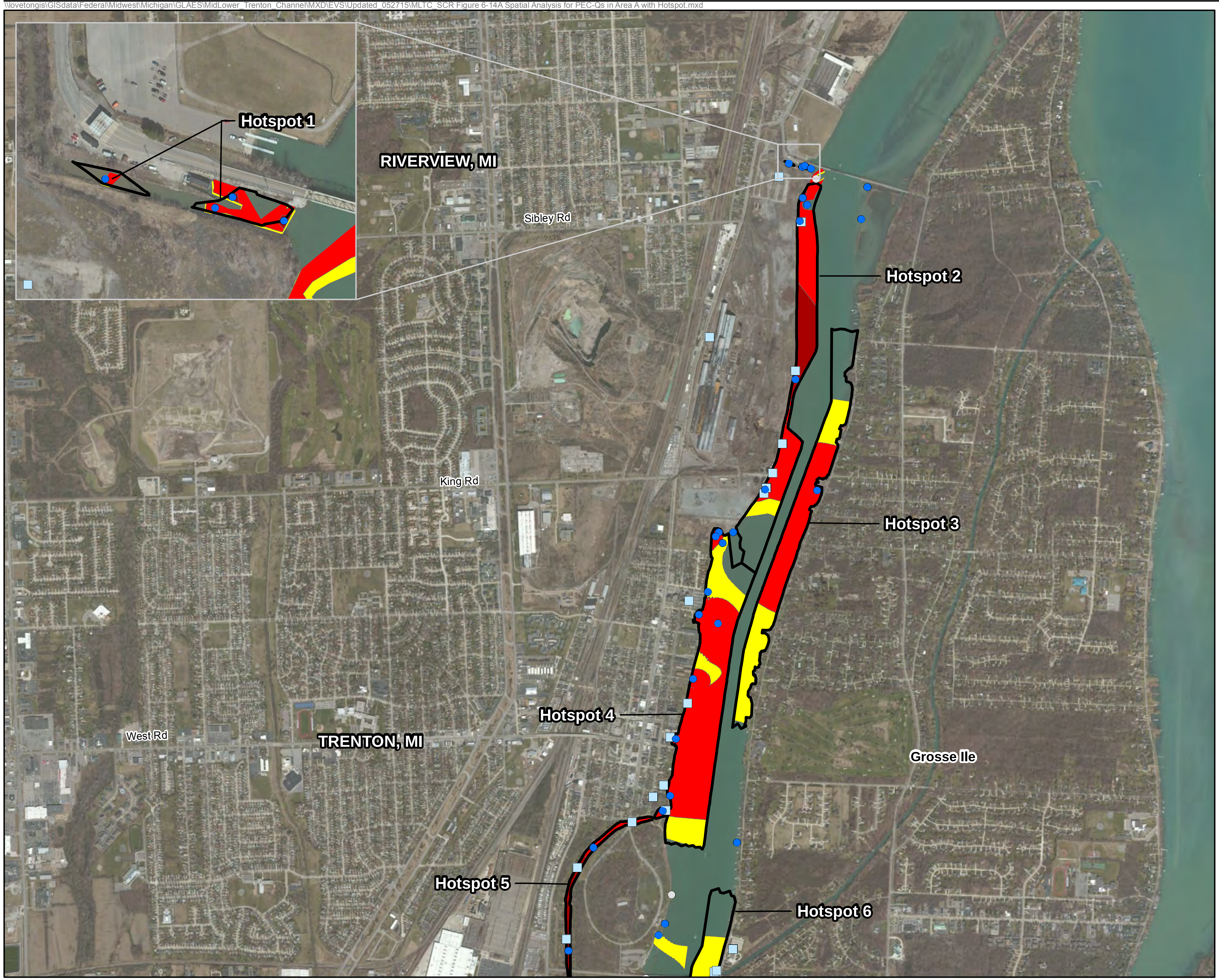
0 0.25 0.5
Miles

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

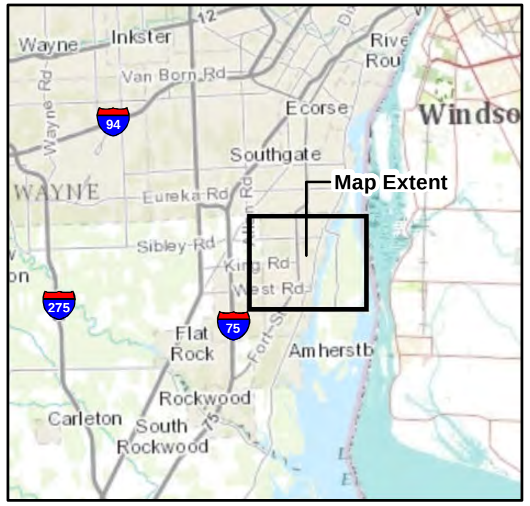
Map Date: 6/15/2015

Figure 6-13B
Spatial Analysis for PEC-Qs in Area B – MLTC Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Updated_052715\MLTC_SCR Figure 6-14A Spatial Analysis for PEC-Qs in Area A with Hotspot.mxd



VICINITY MAP



Legend

- ● Sampled Location
- ○ Abandoned Location
- ☐ MLTC Outfall
- 🟥 PEC-Q ≥ 5
- 🟥 1 ≤ PEC-Q < 5
- 🟨 0.5 ≤ PEC-Q < 1
- ☐ Hot Spot

NOTE:
Mean PEC-Q Value = (mean PEC-Qmetals + PEC-Q Total PAHs + PEC-Q Total PCBs)/3
Ratio value shown represents highest result associated with depth (ft).

N

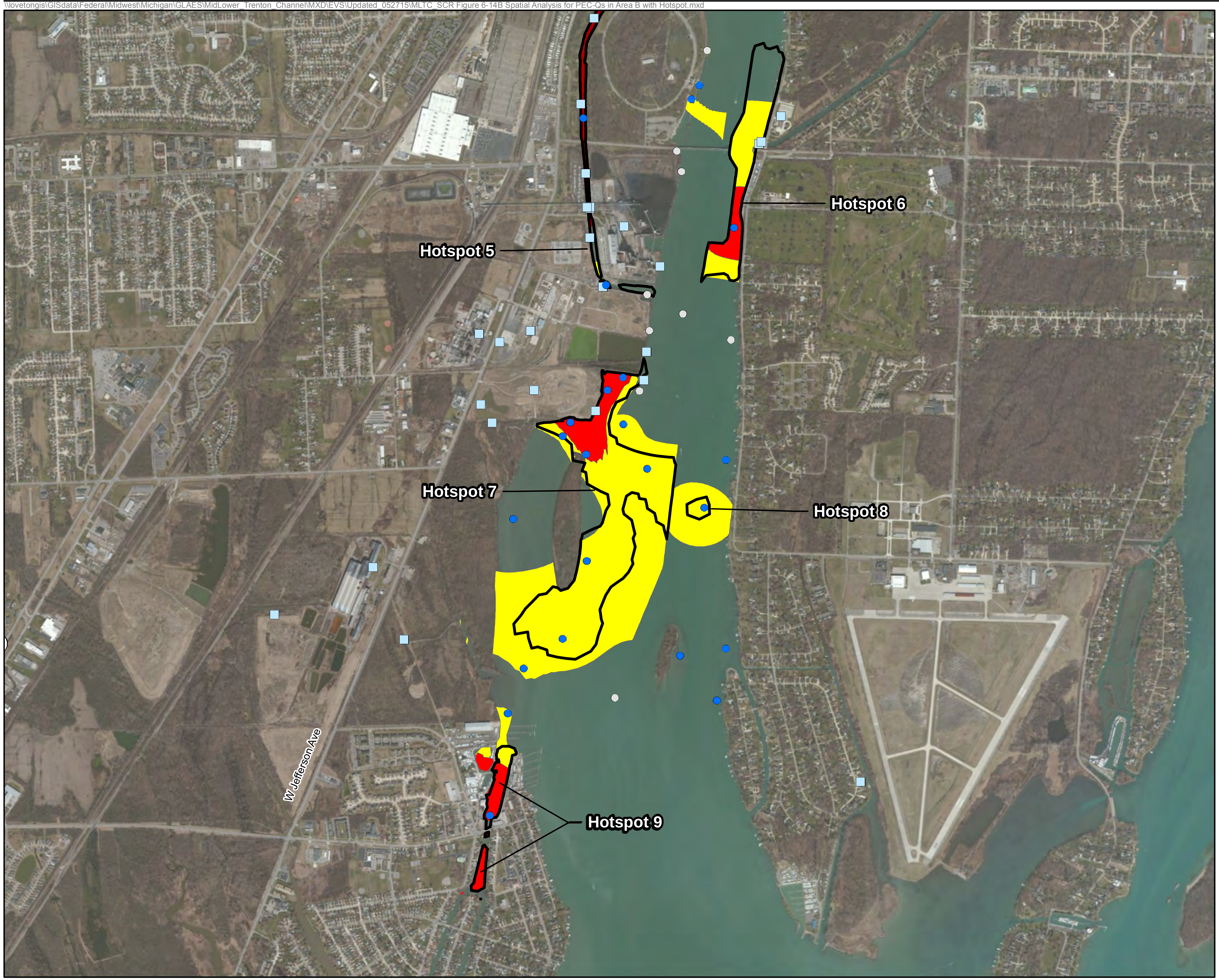
0 0.25 0.5
Miles

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/15/2015

Figure 6-14A
Spatial Analysis for PEC-Qs in Area A with Outline of Identified Hot Spots – MLTC Area Assessment of Contaminated Sediments

Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern



VICINITY MAP

Legend

- ● Sampled Location
- ○ Abandoned Location
- ☐ MLTC Outfall
- 🟥 PEC-Q ≥ 5
- 🟥 1 ≤ PEC-Q < 5
- 🟨 0.5 ≤ PEC-Q < 1
- ☐ Hot Spot

NOTE:
Mean PEC-Q Value = (mean PEC-Qmetals + PEC-Q Total PAHs + PEC-Q Total PCBs)/3
Ratio value shown represents highest result associated with depth (ft).

0 0.25 0.5
Miles

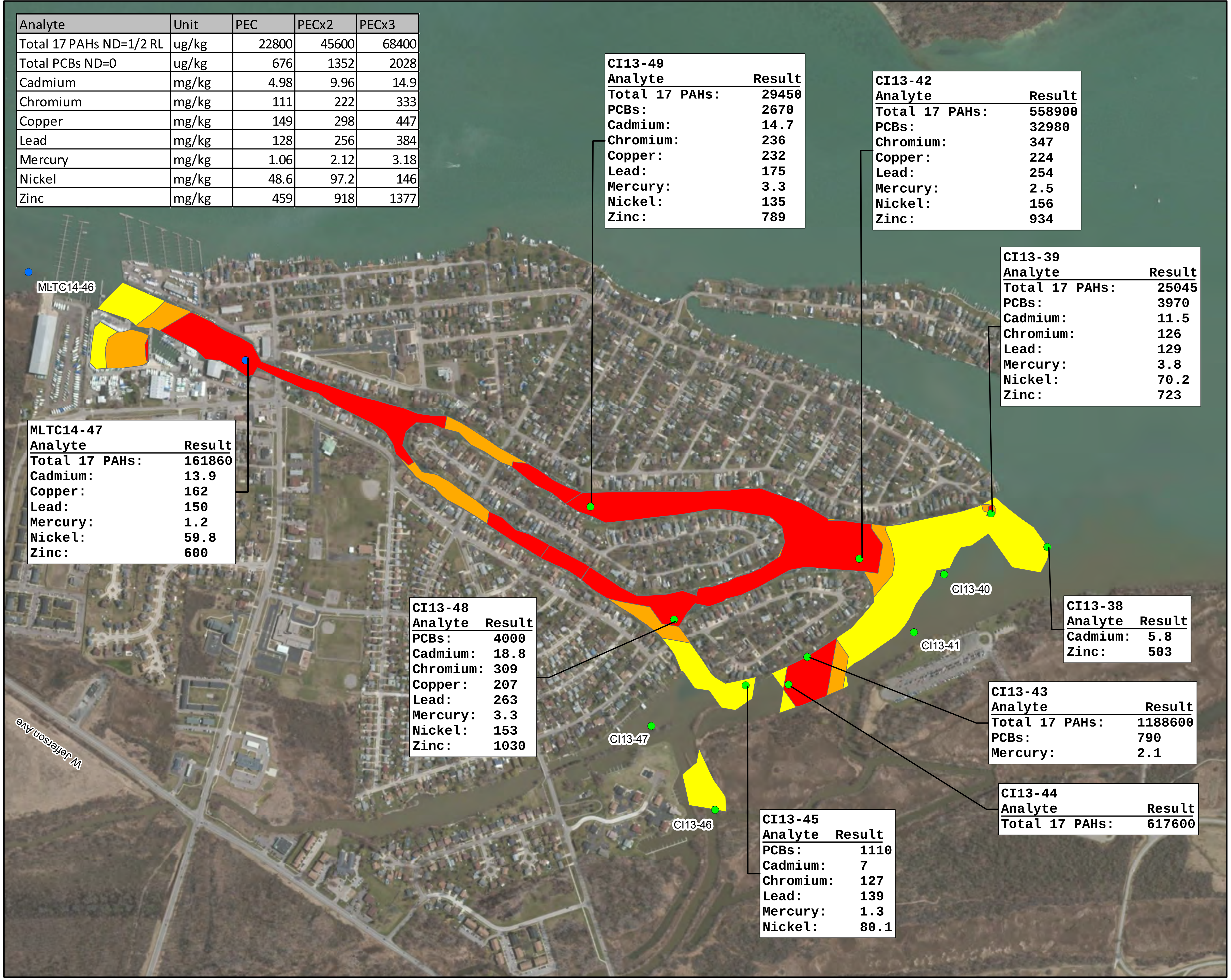
Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/15/2015

Figure 6-14B
Spatial Analysis for PEC-Qs in Area B with Outline of Identified Hot Spots – MLTC Area Assessment of Contaminated Sediments
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Celeron_MLTC\MLTC_SCR Figure 7-1 Spatial Analysis for All Constits in Channels.mxd

Analyte	Unit	PEC	PECx2	PECx3
Total 17 PAHs ND=1/2 RL	ug/kg	22800	45600	68400
Total PCBs ND=0	ug/kg	676	1352	2028
Cadmium	mg/kg	4.98	9.96	14.9
Chromium	mg/kg	111	222	333
Copper	mg/kg	149	298	447
Lead	mg/kg	128	256	384
Mercury	mg/kg	1.06	2.12	3.18
Nickel	mg/kg	48.6	97.2	146
Zinc	mg/kg	459	918	1377



CI13-49

Analyte	Result
Total 17 PAHs:	29450
PCBs:	2670
Cadmium:	14.7
Chromium:	236
Copper:	232
Lead:	175
Mercury:	3.3
Nickel:	135
Zinc:	789

CI13-42

Analyte	Result
Total 17 PAHs:	558900
PCBs:	32980
Chromium:	347
Copper:	224
Lead:	254
Mercury:	2.5
Nickel:	156
Zinc:	934

CI13-39

Analyte	Result
Total 17 PAHs:	25045
PCBs:	3970
Cadmium:	11.5
Chromium:	126
Lead:	129
Mercury:	3.8
Nickel:	70.2
Zinc:	723

MLTC14-47

Analyte	Result
Total 17 PAHs:	161860
Cadmium:	13.9
Copper:	162
Lead:	150
Mercury:	1.2
Nickel:	59.8
Zinc:	600

CI13-48

Analyte	Result
PCBs:	4000
Cadmium:	18.8
Chromium:	309
Copper:	207
Lead:	263
Mercury:	3.3
Nickel:	153
Zinc:	1030

CI13-38

Analyte	Result
Cadmium:	5.8
Zinc:	503

CI13-43

Analyte	Result
Total 17 PAHs:	1188600
PCBs:	790
Mercury:	2.1

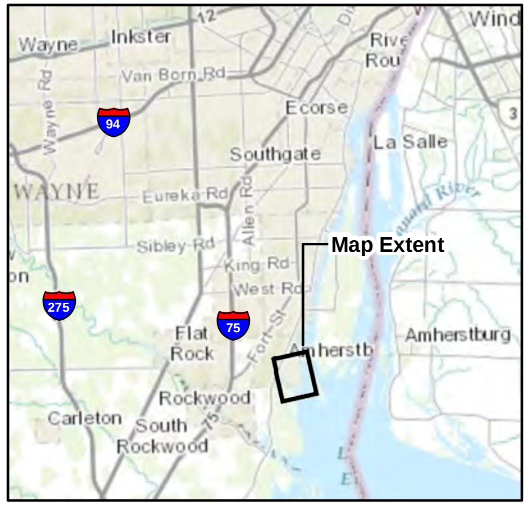
CI13-44

Analyte	Result
Total 17 PAHs:	617600

CI13-45

Analyte	Result
PCBs:	1110
Cadmium:	7
Chromium:	127
Lead:	139
Mercury:	1.3
Nickel:	80.1

VICINITY MAP



Legend

● MLTC Sampled Location

● Celeron Island Sampled Location

All Constituents

🟥 ≥ 3x PEC

🟧 ≥ 2x PEC

🟨 ≥ PEC

0 500 1,000
Feet

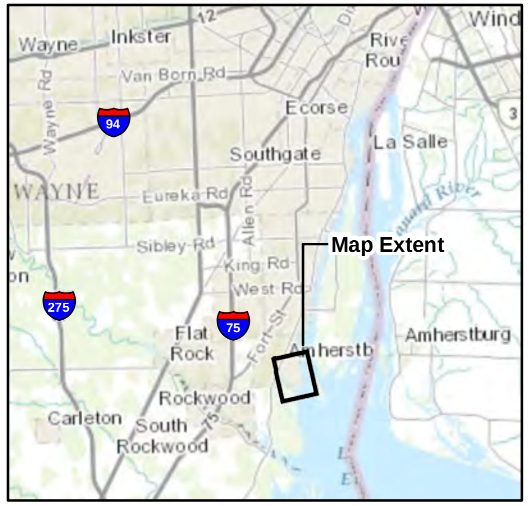
NOTE:
PAH results shown are total 17 PAHs.

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/11/2015

Figure 7-1
Spatial Analysis for All Constituents in the Area of Overlap Between the Mid/Lower Trenton Channel Area and the Celeron Island Area
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

VICINITY MAP



Legend

- ● MLTC Sampled Location
- ● Celeron Island Sampled Location
- 🟥 ESBTU ≥ 10
- 🟧 7.5 ≤ ESBTU < 10
- 🟨 1 ≤ ESBTU < 7.5

NOTE: Ratio Value shown represents highest ESBTU PAH result with associated depth (ft)
ESBTUs were calculated using total 34 PAHs.

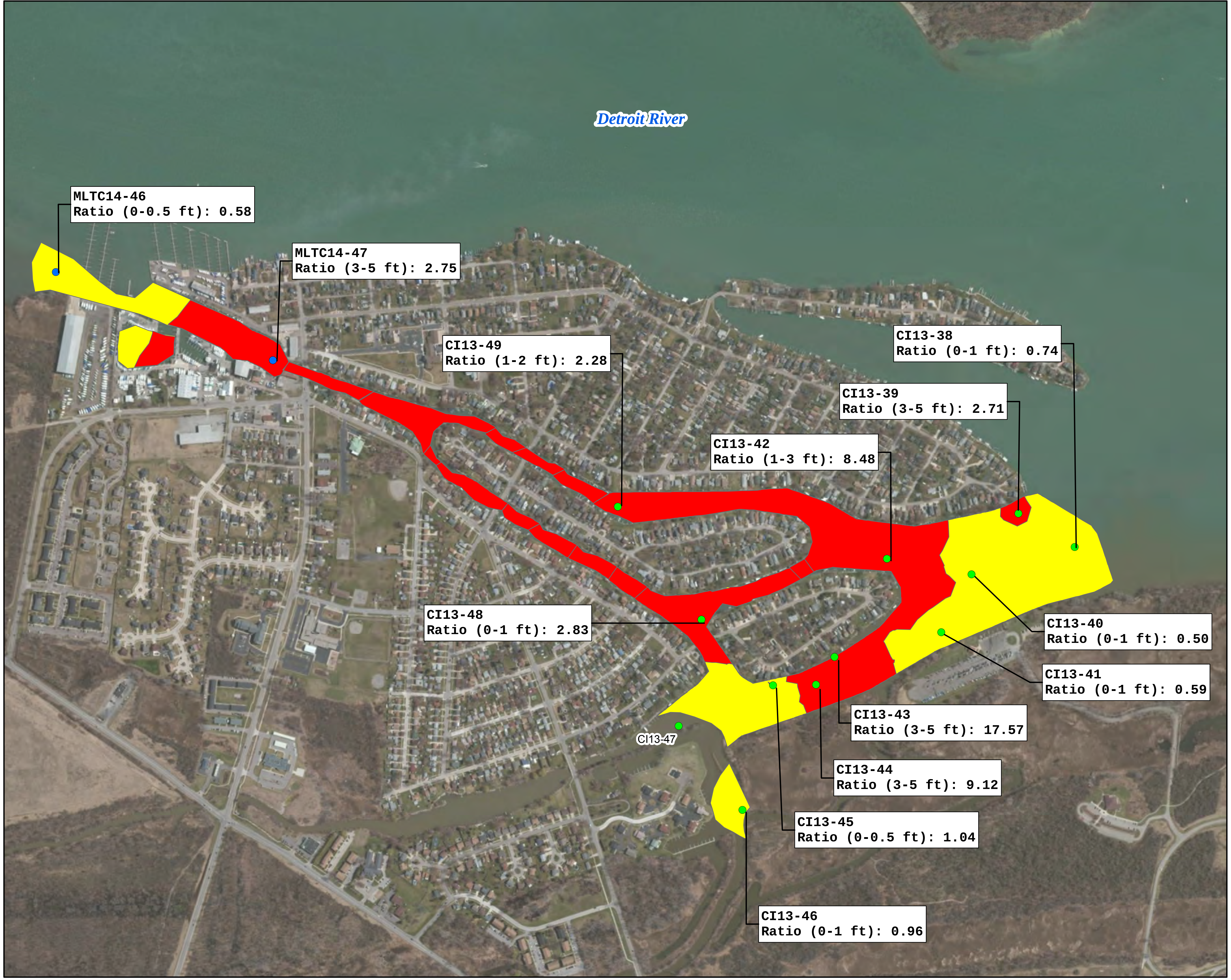
0 500 1,000
Feet

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

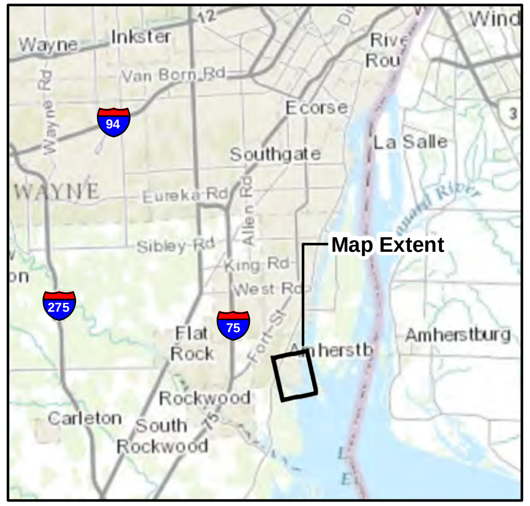
Map Date: 6/11/2015

Figure 7-2
Spatial Analysis for ESBTUs
in the Area of Overlap Between the
Mid/Lower Trenton Channel Area and
the Celeron Island Area
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

\\lovetongis\GISdata\Federal\Midwest\Michigan\GLAES\MidLower_Trenton_Channel\MXD\EVS\Celeron_MLTC\MLTC_SCR Figure 7-3 Spatial Analysis for PEC-Qs in Channels.mxd



VICINITY MAP



Legend

● MLTC Sampled Location

● Celeron Island Sampled Location

🟥 PEC-Q ≥ 1

🟨 0.5 ≤ PEC-Q < 1

NOTE:
Mean PEC-Q Value = (mean PEC-Qmetals + PEC-Q Total PAHs + PEC-Q Total PCBs)/3
Ratio value shown represents highest result associated with depth (ft).

0 500 1,000
Feet

Data Sources: EPA 2013, USGS 2013
Basemap: ESRI 2011

Map Date: 6/11/2015

Figure 7-3
Spatial Analysis for PEC-Qs in the Area of Overlap Between the Mid/Lower Trenton Channel Area and the Celeron Island Area
Mid/Lower Trenton Channel
Site Characterization Report
Detroit River Area of Concern

Tables

TABLE 2-1 MID/LOWER TRENTON CHANNEL AREA SAMPLE COORDINATES

Sample Location	World Geodetic System 84 Coordinates (degrees minutes seconds)							
	Proposed		Actual		Unsuccessful Attempt 1		Unsuccessful Attempt 2	
	X Coordinate	Y Coordinate	X Coordinate	Y Coordinate	X Coordinate	Y Coordinate	X Coordinate	Y Coordinate
MLTC14-01	83° 09' 58.442" W	42° 10' 26.803" N	83° 09' 57.534" W	42° 10' 26.592" N	83° 09' 58.698" W	42° 10' 26.958" N	--	--
MLTC14-02[a]	83° 09' 49.238" W	42° 10' 23.392" N	83° 09' 49.938" W	42° 10' 23.304" N	--	--	--	--
MLTC14-03	83° 09' 35.638" W	42° 10' 21.511" N	83° 09' 35.772" W	42° 10' 21.51" N	--	--	--	--
MLTC14-04	83° 09' 54.222" W	42° 10' 19.499" N	83° 09' 53.802" W	42° 10' 19.458" N	--	--	--	--
MLTC14-05	83° 09' 48.556" W	42° 10' 17.574" N	83° 09' 52.596" W	42° 10' 18.006" N	83° 09' 52.704" W	42° 10' 17.91" N	83° 09' 52.734" W	42° 10' 17.868" N
MLTC14-06	83° 09' 37.715" W	42° 10' 15.371" N	83° 09' 37.584" W	42° 10' 14.904" N	--	--	--	--
MLTC14-07	83° 09' 55.199" W	42° 10' 14.533" N	83° 09' 54.7728" W	42° 10' 14.682" N	83° 09' 54.966" W	42° 10' 14.694" N	--	--
MLTC14-08	83° 09' 57.140" W	42° 09' 41.652" N	83° 09' 56.502" W	42° 09' 41.922" N	83° 09' 56.274" W	42° 09' 43.188" N	--	--
MLTC14-09	83° 10' 5.668" W	42° 09' 19.065" N	83° 10' 5.442" W	42° 09' 19.242" N	--	--	--	--
MLTC14-10	83° 09' 50.917" W	42° 09' 19.585" N	83° 09' 50.988" W	42° 09' 18.882" N	--	--	--	--
MLTC14-11	83° 10' 12.104" W	42° 09' 12.907" N	83° 10' 14.478" W	42° 09' 10.428" N	--	--	--	--
MLTC14-12	83° 10' 18.284" W	42° 09' 10.376" N	83° 10' 18.438" W	42° 09' 10.512" N	83° 10' 18.462" W	42° 10' 10.53" N	--	--
MLTC14-13	83° 10' 21.979" W	42° 8' 58.414" N	83° 10' 21.714" W	42° 08' 58.176" N	--	--	--	--
MLTC14-14	83° 10' 24.266" W	42° 8' 52.932" N	83° 10' 24.33" W	42° 08' 53.496" N	83° 10' 24.402" W	42° 10' 53.514" N	--	--
MLTC14-15	83° 10' 26.318" W	42° 8' 39.589" N	83° 10' 26.172" W	42° 08' 40.248" N	--	--	--	--
MLTC14-16	83° 10' 29.266" W	42° 8' 29.794" N	83° 10' 31.194" W	42° 08' 27.858" N	--	--	--	--
MLTC14-17	83° 10' 32.069" W	42° 8' 14.453" N	83° 10' 33.036" W	42° 08' 16.134" N	--	--	--	--
MLTC14-18	83° 10' 35.178" W	42° 8' 13.197" N	83° 10' 35.154" W	42° 08' 12.972" N	--	--	--	--
MLTC14-19	83° 10' 15.910" W	42° 8' 6.301" N	83° 10' 14.664" W	42° 08' 6.258" N	--	--	--	--
MLTC14-20	83° 10' 33.049" W	42° 7' 55.679" N	Location abandoned without sampling attempt		--	--	--	--
MLTC14-21	83° 10' 35.060" W	42° 7' 49.995" N	83° 10' 34.968" W	42° 07' 49.698" N	83° 10' 35.034" W	42° 07' 49.644" N	--	--
MLTC14-22	83° 10' 37.034" W	42° 7' 47.083" N	83° 10' 36.774" W	42° 07' 47.304" N	83° 10' 36.774" W	42° 07' 47.274" N	83° 10' 36.804" W	42° 07' 47.268" N
MLTC14-23	83° 10' 40.392" W	42° 7' 38.402" N	Location abandoned without sampling attempt		--	--	--	--
MLTC14-24[a]	83° 10' 39.485" W	42° 7' 34.854" N	83° 10' 39.408" W	42° 07' 34.878" N	83° 10' 39.348" W	42° 07' 34.788" N	83° 10' 39.282" W	42° 07' 34.854" N
MLTC14-25	83° 10' 27.127" W	42° 7' 27.059" N	83° 10' 27.456" W	42° 07' 25.086" N	--	--	--	--
MLTC14-26	83° 10' 58.278" W	42° 7' 16.526" N	83° 10' 57.198" W	42° 07' 15.534" N	--	--	--	--
MLTC14-27[a]	83° 10' 50.744" W	42° 7' 14.899" N	83° 10' 47.718" W	42° 07' 13.824" N	83° 10' 47.778" W	42° 07' 13.968" N	83° 10' 47.664" W	42° 07' 13.836" N
MLTC14-28	83° 10' 39.510" W	42° 7' 10.393" N	Location abandoned without sampling attempt		--	--	--	--
MLTC14-29[a]	83° 10' 27.310" W	42° 7' 8.648" N	83° 10' 27.096" W	42° 07' 9.246" N	83° 10' 28.53" W	42° 07' 5.748" N	--	--
MLTC14-30	83° 10' 47.338" W	42° 7' 7.591" N	Location abandoned without sampling attempt		--	--	--	--
MLTC14-31	83° 10' 53.295" W	42° 6' 59.665" N	83° 10' 53.514" W	42° 06' 59.61" N	--	--	--	--
MLTC14-32	83° 10' 57.297" W	42° 6' 57.765" N	83° 10' 57.186" W	42° 06' 57.462" N	--	--	--	--
MLTC14-33	83° 10' 49.788" W	42° 6' 57.233" N	Location abandoned without sampling attempt		--	--	--	--

TABLE 2-1 MID/LOWER TRENTON CHANNEL AREA SAMPLE COORDINATES

Sample Location	World Geodetic System 84 Coordinates (degrees minutes seconds)							
	Proposed		Actual		Unsuccessful Attempt 1		Unsuccessful Attempt 2	
	X Coordinate	Y Coordinate	X Coordinate	Y Coordinate	X Coordinate	Y Coordinate	X Coordinate	Y Coordinate
MLTC14-34	83° 10' 53.147" W	42° 6' 51.966" N	83° 10' 53.622" W	42° 06' 51.51" N	--	--	--	--
MLTC14-35	83° 11' 6.214" W	42° 6' 52.259" N	83° 11' 5.88" W	42° 06' 51.966" N	--	--	--	--
MLTC14-36	83° 11' 7.296" W	42° 6' 49.167" N	83° 11' 7.686" W	42° 06' 49.602" N	--	--	--	--
MLTC14-37	83° 11' 2.719" W	42° 6' 46.265" N	83° 11' 2.316" W	42° 06' 46.416" N	--	--	--	--
MLTC14-38	83° 10' 30.357" W	42° 6' 45.170" N	83° 10' 30.06" W	42° 06' 45.144" N	--	--	--	--
MLTC14-39	83° 10' 35.204" W	42° 6' 37.439" N	83° 10' 35.172" W	42° 06' 36.966" N	--	--	--	--
MLTC14-40	83° 11' 15.587" W	42° 6' 35.411" N	83° 11' 19.428" W	42° 06' 35.472" N	--	--	--	--
MLTC14-41	83° 11' 3.108" W	42° 6' 27.743" N	83° 11' 2.586" W	42° 06' 28.038" N	--	--	--	--
MLTC14-42	83° 11' 9.670" W	42° 6' 17.488" N	83° 11' 8.388" W	42° 06' 14.73" N	--	--	--	--
MLTC14-43	83° 11' 19.369" W	42° 6' 9.874" N	83° 11' 17.436" W	42° 06' 9.714" N	--	--	--	--
MLTC14-44	83° 10' 56.485" W	42° 6' 4.392" N	Location abandoned without sampling attempt		--	--	--	--
MLTC14-45	83° 10' 31.738" W	42° 6' 3.581" N	83° 10' 32.91" W	42° 06' 3.714" N	--	--	--	--
MLTC14-46	83° 11' 21.483" W	42° 6' 1.845" N	83° 11' 21.33" W	42° 06' 1.986" N	--	--	--	--
MLTC14-47	83° 11' 25.232" W	42° 5' 47.540" N	83° 11' 25.728" W	42° 05' 44.514" N	--	--	--	--
MLTC14-48	83° 10' 10.265" W	42° 8' 59.191" N	83° 10' 18.954" W	42° 08' 51.618" N	--	--	--	--
MLTC14-49	83° 10' 19.390" W	42° 09' 9.611" N	83° 10' 19.314" W	42° 09' 9.636" N	--	--	--	--
MLTC14-50	83° 10' 48.697" W	42° 6' 43.909" N	83° 10' 48.27" W	42° 06' 43.812" N	--	--	--	--
MLTC14-51[b]	No proposed coordinates. Sample locations added in the field.		83° 10' 41.31" W	42° 06' 11.502" N	--	--	--	--
MLTC14-52[b]			83° 10' 30.666" W	42° 06' 12.648" N	--	--	--	--
MLTC14-53[b]			83° 11' 1.908" W	42° 07' 44.334" N	--	--	--	--
MLTC14-54[b]			83° 10' 54.594" W	42° 08' 5.61" N	--	--	--	--
MLTC14-55[b]			83° 10' 17.43" W	42° 09' 8.238" N	83° 10' 17.682" W	42° 09' 7.188" N	--	--
MLTC14-56[b]			83° 09' 53.766" W	42° 10' 25.824" N	--	--	--	--
MLTC14-57[b]			83° 09' 53.166" W	42° 10' 26.088" N	--	--	--	--
MLTC14-58[b]			83° 09' 51.414" W	42° 10' 25.464" N	--	--	--	--

Notes:

BOLD = Location was abandoned

[a] Location was abandoned after unsuccessful sampling attempts

[b] Location added during the field sampling event

TABLE 2-2 MID/LOWER TRENTON CHANNEL AREA SAMPLE COLLECTION DATA

Sample Location	Area	Elevation (mAMSL)	Date	Time	Water Depth (ft)	Core Penetration (ft)	Sediment Recovery (ft)	% Recovery	Core Collected	Ponar Collected	Location Abandoned	Comments/Remarks
MLTC14-01	Monguagon Creek	180.01	10/23/2014	09:05	3.08	~0.2	0.0	0	No	Yes	No	1st sediment location could not get recovery in ponar; moved downstream back toward channel to find a spot with good sediment about 60 feet from original.
MLTC14-02	Near mouth of Monguagon Creek	178.93	10/23/2014	12:50	32.92	0	0.0	0	No	No	Yes	No core collected at this location after three attempts. No ponar could be collected, all hard pan.
MLTC14-03	Grosse Ile Toll Bridge, near Grosse Ile shore	~175	10/14/2014	9:20	3.5	10	9.6	95.8	Yes	Yes	No	Vertical elevation did not stabilize at time of core collection. Elevation is approximate.
MLTC14-04	South end of sea wall (Trenton Shore)	179.03	10/14/2014	10:45	8.08	Push 1: 10 Push 2: 15	Push 1: 10.0 Push 2: 11.1	Push 1: 100 Push 2: 73.9	Yes	Yes	No	Moved off-shore 15-20 ft
MLTC14-05	South of toll bridge - west side of channel	178.44	10/22/2014	15:12	27.5	6	5.6	93.1	Yes	Yes	No	1st run of vibracore lost. 2nd core also lost recovery. Moved location 330 feet to west of proposed.
MLTC14-06	Near Grosse Ile Shore	179.68	10/14/2014	10:04	2.58	7.5	6.0	80	Yes	Yes	No	NA
MLTC14-07	South of Grosse Ile Shore	179.31	41926	1455	18.83	3.5	2.5	71.4	Yes	Yes	No	1st run: 6 inches of recovery - gravel and some larger rocks; moving location east and away from shoreline.
MLTC14-08	South of proposed location, next to seawall	179.72	10/14/2014	1639	23	4.5	4.2	92.6	Yes	Yes	No	Five attempts at original location. Moved in order to get better recovery.
MLTC14-09	Next to building with short stacks-McClough property still-on mainland side	179.93	10/15/2014	940	9.5	10	9.6	95.8	Yes	Yes	No	Core collected off west side of the boat, elevation will be offset.
MLTC14-10	Across from McClouth - Grosse Ile side of channel	178.6	10/15/2014	848	6	3.5	2.8	81	Yes	Yes	No	Location moved slightly to account for utilities.
MLTC14-11	Adjacent to Levy property, above black lagoon	178.96	10/15/2014	1035	13.58	8	7.2	89.6	Yes	Yes	No	Location just south of proposed.
MLTC14-12	Black lagoon	179.43	10/15/2014	1115	16.67	4.5	3.8	83.3	Yes	Yes	No	NA
MLTC14-13	West side of Trenton Channel	179.63	10/22/2014	1350	8	1	0.5	50	Yes	Yes	No	Close to originally plotted location, a little off due to wind.
MLTC14-14	West side of Trenton Channel	178.52	10/22/2014	1055	2.58	6	5.4	90.3	Yes	Yes	No	Location moved slightly after 1st core had little recovery, hit rock.
MLTC14-15	West side of Trenton Channel	179.65	10/22/2014	1015	11.08	2	1.7	83.3	Yes	Yes	No	NA
MLTC14-16	Marina on west side of Trenton Channel	178.08	10/22/2014	902	4.58	5.5	5.3	97	Yes	Yes	No	Location moved south into manna
MLTC14-17	West side of Trenton Channel	178.63	10/20/2014	1600	7.83	8	8.1	101	Yes	Yes	No	Moved north
MLTC14-18	Channel going into Elizabeth Park	179.01	10/20/2014	1053	2.5	5.5	5.2	93.9	Yes	Yes	No	NA
MLTC14-19	East side of Trenton Channel (Grosse Ile)	178.63	10/20/2014	1638	5.75	1.5	1.5	100	Yes	Yes	No	NA
MLTC14-20	Elizabeth Park Habitat Restoration Area	NA	10/20/2014	NA	NA	NA	NA	NA	No	No	Yes	Location abandoned after probing.
MLTC14-21	North of marina, adjacent to park building	180.1	10/20/2014	1136	4.83	NA	NA	NA	No	Yes	No	Two attempts. Not able to collect core - not enough sediment.
MLTC14-22	Elizabeth Park marina	179.01	10/20/2014	945	7.08	1.5	0.0	0	No	Yes	No	Three attempts. Core could not be collected, even with double catcher-cores.
MLTC14-23	In close proximity to free bridge	NA	10/15/2014	NA	NA	NA	NA	NA	No	No	Yes	Cable and water main too close to bridge. Location abandoned.

TABLE 2-2 MID/LOWER TRENTON CHANNEL AREA SAMPLE COLLECTION DATA

Sample Location	Area	Elevation (mAMSL)	Date	Time	Water Depth (ft)	Core Penetration (ft)	Sediment Recovery (ft)	% Recovery	Core Collected	Ponar Collected	Location Abandoned	Comments/Remarks
MLTC14-24	Just north of free bridge - beyond water line	178.44	10/15/2014	1423	19.75	1	1.0	0	No	No	Yes	Two attempts. Very poor recovery in first two cores (hard bottom-rocks & gravel). No core could be collected.
MLTC14-25	North of free bridge - mainland side of channel	178.64	10/15/2014	1508	6.67	2.3	2.1	92.6	Yes	Yes	No	NA
MLTC14-26	Channel by Edison Power Plant	192.38	10/15/2014	1615	6.75	6	0.5	0	No	Yes	No	Near stormwater/CSO in channel. No core was collected. Recovery was poor in coring attempt and probing revealed hard bottom surrounding location.
MLTC14-27	DTE channel - near mouth	178.87	10/15/2014	1645	8.5	NA	NA	NA	No	No	Yes	Three attempts. Probing around proposed location MLTC, felt hard bottom and no sediments. Moved toward Trenton Channel, probing along the way, continued to feel hard bottom. No core collected or attempted.
MLTC14-28	Near power plant - center of channel	NA	10/16/2014	NA	NA	NA	NA	NA	No	No	Yes	Rocky/gravel bottom. Strong current. Location abandoned.
MLTC14-29	Opposite the power plant - Grosse Ile side of channel	179.23	10/16/2014	905	12	NA	NA	NA	No	No	Yes	Two attempts. Probing revealed rocky/gravel bottom, did not attempt core. Large rocks and vegetation. No sediments grabbed. No sample collected.
MLTC14-30	Near power plant	NA	10/16/2014	NA	NA	NA	NA	NA	No	No	Yes	Rocky/gravel bottom. Strong current. Location abandoned.
MLTC14-31	Humbug marsh area (just above)	178.86	10/16/2014	945	3.75	4	3.5	87.5	Yes	Yes	No	NA
MLTC14-32	Humbug marsh area	178.78	10/16/2014	945	3.75	4	3.5	87.5	Yes	Yes	No	NA
MLTC14-33	Humbug marsh area	NA	10/16/2014	NA	NA	NA	NA	NA	No	No	Yes	Rocky/gravel bottom. Strong current. Location abandoned.
MLTC14-34	Humbug marsh area - further out in channel	180.22	10/16/2014	1110	9	NA	NA	NA	No	Yes	No	No core collected due to sand and rock bottom. Probing revealed hard bottom with little to no sediment.
MLTC14-35	Humbug marsh - by scenic lookout area	178.66	10/16/2014	1341	3.5	3.5	3.5	100	Yes	Yes	No	NA
MLTC14-36	Humbug marsh (north end)	178.54	10/17/2014	910	2.83	2.5	2.3	93.3	Yes	Yes	No	NA
MLTC14-37	North of island in Humbug marsh	178.69	10/17/2014	835	4.5	2.3	1.9	85.2	Yes	Yes	No	NA
MLTC14-38	Grosse Ile side of main channel above Swan island, below free bridge	178.94	10/20/2014	833	11.42	NA	NA	NA	No	Yes	No	Sediments not deep enough to warrant coring.
MLTC14-39	East side of channel - Grosse Ile side	179.94	10/16/2014	1710	15.5	NA	NA	NA	No	Yes	No	Not collecting core at this location - hard bottom, but some sand/silt present in ~2 inch layer.
MLTC14-40	Humbug marsh	178.22	10/17/2014	955	2.25	3.5	4.0	114	Yes	Yes	No	NA
MLTC14-41	East side of island between main channel and Humbug marsh	177.86	10/17/2014	1047	5.67	9	9.3	102.8	Yes	Yes	No	NA
MLTC14-42	Below Humbug marsh - just south of island	179.76	10/20/2014	908	15.08	NA	NA	NA	No	Yes	No	300 feet due south of plotted point. Not enough sediment to collect core.
MLTC14-43	South of Humbug creek, near shipwreck	178.35	10/17/2014	1332	3.5	4.3	4.9	115.7	Yes	Yes	No	NA

TABLE 2-2 MID/LOWER TRENTON CHANNEL AREA SAMPLE COLLECTION DATA

Sample Location	Area	Elevation (mAMSL)	Date	Time	Water Depth (ft)	Core Penetration (ft)	Sediment Recovery (ft)	% Recovery	Core Collected	Ponar Collected	Location Abandoned	Comments/Remarks
MLTC14-44	Center of Main Trenton Channel - southwest side of Swan island	NA	10/17/2014	NA	NA	NA	NA	NA	No	No	Yes	Probing revealed rocky bottom. Location abandoned.
MLTC14-45	Main Trenton Channel - east side by Swan island	178.35	10/17/2014	1621	6.08	3	2.8	94.4	Yes	Yes	No	NA
MLTC14-46	Near boat marina, south of boat wreck	177.89	10/17/2014	1415	3	4.5	4.8	107.4	Yes	Yes	No	NA
MLTC14-47	Channel in marina - near bridge	178.37	10/17/2014	1520	4.92	6.8	6.8	100	Yes	Yes	No	NA
MLTC14-48	Near middle of Trenton Channel	179.14	10/22/2014	1430	20.17	2.8	1.3	45.5	Yes	Yes	No	1,000 feet downstream of plotted location. Given coordinates actual field location.
MLTC14-49	Black lagoon - south of MLTC14-12	178.96	10/15/2014	1155	17.5	3.8	3.4	91.1	Yes	Yes	No	NA
MLTC14-50	Western side of channel	178.89	10/16/2014	1420	12.92	NA	NA	NA	No	Yes	No	No core collected here - probing revealed sandy bottom with rock and cobbles throughout. No sediments noted.
MLTC14-51	Across from Swan island by Grosse Ile	178.69	10/16/2014	1530	3.17	7.5	7.8	104.4	Yes	Yes	No	NA
MLTC14-52	Off north end of Swan island	178.09	10/16/2014	1614	4.5	2.5	2.4	96.7	Yes	Yes	No	NA
MLTC14-53	Canal next to Elizabeth Park below outfall	179.29	10/20/2014	1415	5	7.5	7.3	96.7	Yes	Yes	No	NA
MLTC14-54	Canal by Elizabeth park	178.64	10/20/2014	1456	4.75	6.5	5.8	89.7	Yes	Yes	No	NA
MLTC14-55	Black lagoon	179.52	10/21/2014	854	17	2.3	1.7	74.1	Yes	Yes	No	Moved after ponar grab did not get much recovery. Hitting rocks that appear to be part of a cap that was put in place during remediation activities, sand also collected.
MLTC14-56	Monguagon Creek	179.95	10/22/2014	945	4.92	2	1.8	91.7	Yes	Yes	No	NA
MLTC14-57	Monguagon Creek	179.76	10/23/2014	1039	4.42	3	2.5	83.3	Yes	Yes	No	NA
MLTC14-58	Monguagon Creek	180.52	10/23/2014	1145	7.42	2.3	2.3	102.2	Yes	Yes	No	NA

Notes:
Gray shading = Location was abandoned
mAMSL = meters Above Mean Sea Level

TABLE 2-3 MID/LOWER TRENTON CHANNEL AREA SITE CHARACTERIZATION ANALYTICAL PROGRAM

Matrix	Analytical Group/Analyte	Method	Maximum Samples	Samples Collected	Field Duplicates**	MS/MSD**
Solid/Sediment						
	Total Organic Carbon	Lloyd Kahn	250	172	20	11
	Percent Solids	ASTM D2216	250	172	20	0
	Total PCBs-Aroclors	EPA CLP SOM01.2	250	172	20	11
	PAHs - 34	EPA CLP SOM01.2	250	172	20	11
	Michigan 10 Metals* + Fe and Ni	EPA CLP ISM01.3	250	172	20	11
	Simultaneously Extracted Metals/Acid Volatile Sulfides	EPA-821-R-91-100/ SW846 6010C/7470A	50	48	5	3
	Diesel Range Organics (C10 to C20)	SW 846 8015B	50	48	5	3
	Mid Range Organics (C20 to C36)	SW 846 8015B	50	48	5	3
	Grain Size (with hydrometer)	ASTM D422	50	48	0	0

* Michigan 10 Metals includes the following analytes: arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc

** More than the required amount of QA/QC samples were submitted to the lab.

NOTE:

ASTM = American Society for Testing and Materials
CLP = Contract Laboratory Program
EPA = U.S. Environmental Protection Agency
Fe = Iron
Ni = Nickel
MS/MSD = Matrix spike/matrix spike duplicate
PAH = Polycyclic aromatic hydrocarbon
PCB = Polychlorinated biphenyl
QA/QC = Quality Assurance/Quality Control

TABLE 3-1 SUMMARY OF EXCEEDANCES

Analyte	Total Number of Submitted Samples	Total Number of Submitted Samples (Without FDs)	TEC	PEC	SEM/AVS Ratio > 1	TEC Exceedance	PEC Exceedance	Units	Percentage of Samples that Exceeded TEC	Percentage of Samples That Exceeded PEC	Percentage of Samples That Exceed SEM/AVS Ratio of 1
SEM/AVS											
SEM/AVS Ratio	53	48	NSL	NSL	9	--	--	none	NSL	NSL	**18.8**
PAHs											
Total PAH17 ND=1/2RL	192	172	1,610	22,800	NSL	120	54	µg/kg	**69.8**	**31.4**	NSL
Total PAH34 ND=1/2RL	192	172	1,610	22,800	NSL	124	83	µg/kg	**72.1**	**48.3**	NSL
PCB Aroclors											
Total PCBs ND=0	192	172	59.8	676	NSL	112	51	µg/kg	**58.3**	**26.6**	NSL
Metals											
Arsenic	192	172	9.79	33	NSL	57	2	mg/kg	**33.1**	**1.2**	NSL
Barium	192	172	NSL	NSL	NSL	NSL	NSL	mg/kg	NSL	NSL	NSL
Cadmium	192	172	0.99	4.98	NSL	98	47	mg/kg	**57.0**	**27.3**	NSL
Chromium	192	172	43.4	111	NSL	79	45	mg/kg	**45.9**	**26.2**	NSL
Copper	192	172	31.6	149	NSL	99	33	mg/kg	**57.6**	**19.2**	NSL
Iron	192	172	20000*	40000*	NSL	106	42	mg/kg	**61.6**	**24.4**	NSL
Lead	192	172	35.8	128	NSL	92	51	mg/kg	**53.5**	**29.7**	NSL
Mercury	192	172	0.18	1.06	NSL	112	60	mg/kg	**65.1**	**34.9**	NSL
Nickel	192	172	22.7	48.6	NSL	124	52	mg/kg	**72.1**	**30.2**	NSL
Selenium	192	172	NSL	NSL	NSL	NSL	NSL	mg/kg	NSL	NSL	NSL
Silver	192	172	0.5**	NSL	NSL	58	NSL	mg/kg	**33.7**	NSL	NSL
Zinc	192	172	121	459	NSL	108	59	mg/kg	**62.8**	**34.3**	NSL

Notes:

FD = Field Duplicate
mg/kg = milligrams per kilogram
NSL = No Screening Level
PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)
**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)
µg/kg = micrograms per kilogram

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

Location ID:		MLTC14-01	MLTC14-03	MLTC14-04	MLTC14-05	MLTC14-06	MLTC14-07
Sample Name:		MLTC14-01-SURF	MLTC14-03-SURF	MLTC14-04-SURF	MLTC14-05-SURF	MLTC14-06-SURF	MLTC14-07-SURF
Sample Date:		10/23/2014	10/14/2014	10/14/2014	10/22/2014	10/14/2014	10/14/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	12	0.9	0	12.2	1.6	17.9
Sand	%	73	40.2	25.2	83	95	24.8
Coarse Sand	%	13	3.7	0	23.4	6.8	7.6
Medium Sand	%	16	11.5	1.5	24.5	40.1	6.1
Fine Sand	%	44	25	23.7	35.1	48.1	11.1
Silt	%	11.0	48.5	49.7	4.0	3.2	30.0
Clay	%	3.8	10.4	25.1	0.8	0.3	27.3
Silt + Clay	%	14.8	58.9	74.8	4.8	3.5	57.3
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	99	100	100	95.7	100	86.9
No. 4 Sieve	% passed	88	99.1	100	87.8	98.4	82.1
No. 10 Sieve	% passed	75	95.4	100	64.4	91.6	74.5
No.20 Sieve (0.85 MM)	% passed	68	88.8	99.4	52.1	82	71.7
No. 40 Sieve	% passed	58	83.9	98.5	39.9	51.5	68.4
No. 60 Sieve	% passed	44	77.8	96.5	25.7	13.7	63.6
No.80 Sieve (0.18 MM)	% passed	32	73.4	93.4	17.3	6	61.6
No.100 Sieve (0.15 MM)	% passed	26	69.9	89.6	12.6	5.1	60.3
No.200 Sieve (0.075 MM)	% passed	15	58.9	74.8	4.8	3.4	57.3
Hydrometer Reading 1 - Percent Finer	% passed	14	32.1	58.2	2.6	1.8	50.1
Hydrometer Reading 2 - Percent Finer	% passed	9.1	25.9	49.2	1.9	1.8	44.4
Hydrometer Reading 3 - Percent Finer	% passed	7	19.7	40.2	1.5	1.4	36.8
Hydrometer Reading 4 - Percent Finer	% passed	4.9	13.5	31.1	1.2	1	31.1
Hydrometer Reading 5 - Percent Finer	% passed	3.8	10.4	25.1	0.8	0.3	27.3
Hydrometer Reading 6 - Percent Finer	% passed	1.6	4.6	16.5	0.4	0	18.1
Hydrometer Reading 7 - Percent Finer	% passed	1.1	1.9	9.4	0.4	0	10.5

Notes:
% = percent passed

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

Location ID:		MLTC14-08	MLTC14-09	MLTC14-10	MLTC14-11	MLTC14-12	MLTC14-13
Sample Name:		MLTC14-08-SURF	MLTC14-09-SURF	MLTC14-10-SURF	MLTC14-11-SURF	MLTC14-12-SURF	MLTC14-13-SURF
Sample Date:		10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/22/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	13.6	1.2	0	0.8	0	6.6
Sand	%	48.2	20.3	14.1	92.2	11.1	88.2
Coarse Sand	%	2.2	9	0.5	1.7	0	17.4
Medium Sand	%	5	2.6	2.3	4	1.6	44.5
Fine Sand	%	41	8.7	11.3	86.5	9.5	26.3
Silt	%	20.6	73.6	11.4	5.6	70.7	4.0
Clay	%	17.6	4.9	11.5	1.4	18.2	1.2
Silt + Clay	%	38.2	78.5	0.0	7.0	88.9	5.2
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	91.1	100	100	100	100	98.5
No. 4 Sieve	% passed	86.4	98.8	100	99.2	100	93.4
No. 10 Sieve	% passed	84.2	89.8	99.5	97.5	100	76
No.20 Sieve (0.85 MM)	% passed	81.9	88.8	98.4	95.8	99.2	56.2
No. 40 Sieve	% passed	79.2	87.2	97.2	93.5	98.4	31.5
No. 60 Sieve	% passed	72.4	85	95	83.8	96.6	13.4
No.80 Sieve (0.18 MM)	% passed	64.5	83.5	92.8	61.9	94.5	8.9
No.100 Sieve (0.15 MM)	% passed	57.5	81.9	90.6	41.9	92.4	7.4
No.200 Sieve (0.075 MM)	% passed	38.2	78.5	85.9	7	88.9	5.3
Hydrometer Reading 1 - Percent Finer	% passed	34.6	17.1	82.9	5.3	72.3	2.7
Hydrometer Reading 2 - Percent Finer	% passed	27.5	13	48.9	3.7	45.2	2
Hydrometer Reading 3 - Percent Finer	% passed	23.3	9	31.9	2.9	33.4	1.6
Hydrometer Reading 4 - Percent Finer	% passed	20.4	5.9	25.1	2.1	21.6	1.2
Hydrometer Reading 5 - Percent Finer	% passed	17.6	4.9	14.9	1.4	18.2	1.2
Hydrometer Reading 6 - Percent Finer	% passed	12.1	2.1	10.2	0	11.8	0.4
Hydrometer Reading 7 - Percent Finer	% passed	7.1	1	5.1	0	6.8	0.4

Notes:
% = percent passed

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

	Location ID:	MLTC14-14	MLTC14-15	MLTC14-16	MLTC14-17	MLTC14-18	MLTC14-19
	Sample Name:	MLTC14-14-SURF	MLTC14-15-SURF	MLTC14-16-SURF	MLTC14-17-SURF	MLTC14-18-SURF	MLTC14-19-SURF
	Sample Date:	10/22/2014	10/22/2014	10/22/2014	10/20/2014	10/20/2014	10/20/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	1.5	20.8	3.2	0	1.6	0
Sand	%	55.3	68	20.5	10	21.6	6
Coarse Sand	%	1.7	9.5	2	0.7	1.2	0.3
Medium Sand	%	2.6	10.3	3.4	0.6	2.8	0.7
Fine Sand	%	51	48.2	15.1	8.7	17.6	5
Silt	%	32.7	8.4	58.2	60.0	53.7	73.0
Clay	%	10.5	2.8	18.1	30.0	23.1	21.0
Silt + Clay	%	43.2	11.2	76.3	90.0	76.8	94.0
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	100	90.8	100	100	100	100
No. 4 Sieve	% passed	98.5	79.2	96.8	100	98.4	100
No. 10 Sieve	% passed	96.8	69.7	94.8	99.3	97.2	99.7
No.20 Sieve (0.85 MM)	% passed	95.8	66.1	93.2	99.1	96.1	99.3
No. 40 Sieve	% passed	94.2	59.4	91.4	98.7	94.4	99
No. 60 Sieve	% passed	87.9	47.6	88.6	98.1	91.3	98.6
No.80 Sieve (0.18 MM)	% passed	76.6	36.3	85.6	97.4	88.4	98.1
No.100 Sieve (0.15 MM)	% passed	63.5	27.8	82.9	96.6	86.1	97.7
No.200 Sieve (0.075 MM)	% passed	43.2	11.2	76.3	90	76.8	94
Hydrometer Reading 1 - Percent Finer	% passed	34.9	6.2	68	71.9	53.2	49.6
Hydrometer Reading 2 - Percent Finer	% passed	28.8	5.4	39.5	58.4	43.8	43.2
Hydrometer Reading 3 - Percent Finer	% passed	18.6	4.5	27.6	44.9	32.4	33.7
Hydrometer Reading 4 - Percent Finer	% passed	15.6	3.7	22.9	36.8	26.2	27.4
Hydrometer Reading 5 - Percent Finer	% passed	10.5	2.8	18.1	30	23.1	21
Hydrometer Reading 6 - Percent Finer	% passed	5.1	0.9	10.7	17.5	15.6	14.3
Hydrometer Reading 7 - Percent Finer	% passed	3.1	0.9	5.9	10.8	9.3	9.5

Notes:
% = percent passed

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

Location ID:		MLTC14-21	MLTC14-22	MLTC14-25	MLTC14-26	MLTC14-31	MLTC14-32
Sample Name:		MLTC14-21-SURF	MLTC14-22-SURF	MLTC14-25-SURF	MLTC14-26-SURF	MLTC14-31-SURF	MLTC14-32-SURF
Sample Date:		10/20/2014	10/20/2014	10/15/2014	10/15/2014	10/16/2014	10/16/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	0	0	0	0	0.4	0
Sand	%	14.1	5.4	53.4	24.3	77.3	38.8
Coarse Sand	%	0.6	1.8	0.6	3.3	4.7	0.3
Medium Sand	%	0.6	0.4	3.3	2	23.1	2.6
Fine Sand	%	12.9	3.2	49.5	19	49.5	35.9
Silt	%	70.4	68.3	34.2	72.1	19.2	57.3
Clay	%	15.5	26.3	12.4	3.6	3.1	3.9
Silt + Clay	%	85.9	94.6	46.6	75.7	22.3	61.2
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	100	100	100	100	100	100
No. 4 Sieve	% passed	100	100	100	100	99.6	100
No. 10 Sieve	% passed	99.4	98.2	99.4	96.7	94.9	99.7
No.20 Sieve (0.85 MM)	% passed	99.2	98.1	98.3	95.8	86.2	98.5
No. 40 Sieve	% passed	98.8	97.8	96.1	94.7	71.8	97.1
No. 60 Sieve	% passed	97.6	97.4	90.7	91.6	58.6	92.7
No.80 Sieve (0.18 MM)	% passed	95.6	96.9	84.3	88.4	48.9	87.6
No.100 Sieve (0.15 MM)	% passed	93.5	96.5	77.9	85.6	40.5	82.7
No.200 Sieve (0.075 MM)	% passed	85.9	94.6	46.6	75.7	22.3	61.2
Hydrometer Reading 1 - Percent Finer	% passed	56.7	92.5	40	24.5	13.5	36.1
Hydrometer Reading 2 - Percent Finer	% passed	33.3	58.6	26.2	14.1	9.7	17
Hydrometer Reading 3 - Percent Finer	% passed	26.5	44	19.3	8.8	7.8	12.2
Hydrometer Reading 4 - Percent Finer	% passed	21	31.1	17	6.2	5	7.5
Hydrometer Reading 5 - Percent Finer	% passed	15.5	26.3	12.4	3.6	3.1	3.9
Hydrometer Reading 6 - Percent Finer	% passed	9.6	14.5	8.1	0	1.9	3.6
Hydrometer Reading 7 - Percent Finer	% passed	6.9	9.7	4.6	0	0	1.2

Notes:
% = percent passed

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

Location ID:		MLTC14-34	MLTC14-35	MLTC14-36	MLTC14-37	MLTC14-38	MLTC14-39
Sample Name:		MLTC14-34-SURF	MLTC14-35-SURF	MLTC14-36-SURF	MLTC14-37-SURF	MLTC14-38-SURF	MLTC14-39-SURF
Sample Date:		10/16/2014	10/16/2014	10/17/2014	10/17/2014	10/20/2014	10/16/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	1.9	0.1	0	0	0.7	0
Sand	%	87.7	65.6	62.2	62.8	83.7	49.6
Coarse Sand	%	2.5	2.1	1.8	1.9	0.8	0.9
Medium Sand	%	18.7	12.1	7.7	5.2	3.9	8.4
Fine Sand	%	66.5	51.4	52.7	55.7	79	40.3
Silt	%	9.1	30.0	32.8	32.9	10.0	35.9
Clay	%	1.3	4.3	5.0	4.3	5.6	14.5
Silt + Clay	%	10.4	34.3	37.8	37.2	15.6	50.4
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	100	100	100	100	100	100
No. 4 Sieve	% passed	98.1	99.9	100	100	99.3	100
No. 10 Sieve	% passed	95.6	97.8	98.2	98.1	98.5	99.1
No.20 Sieve (0.85 MM)	% passed	90.3	92.6	95.4	95.9	97.7	97.1
No. 40 Sieve	% passed	76.9	85.7	90.5	92.9	94.6	90.7
No. 60 Sieve	% passed	56.2	73.1	81.1	87.7	69.7	75.7
No.80 Sieve (0.18 MM)	% passed	33.5	62.7	71.8	82.1	37.9	63.1
No.100 Sieve (0.15 MM)	% passed	21.7	55.2	65	76.4	26.3	57.6
No.200 Sieve (0.075 MM)	% passed	10.4	34.3	37.8	37.2	15.6	50.4
Hydrometer Reading 1 - Percent Finer	% passed	9.3	21.3	16.6	11.8	12.8	47.5
Hydrometer Reading 2 - Percent Finer	% passed	2.4	14.8	12.7	9.1	9.8	26.3
Hydrometer Reading 3 - Percent Finer	% passed	2.4	10.8	10.8	7.7	8.6	21.6
Hydrometer Reading 4 - Percent Finer	% passed	1.3	6.9	7	6.4	6.8	16.8
Hydrometer Reading 5 - Percent Finer	% passed	1.3	4.3	5	4.3	5.6	14.5
Hydrometer Reading 6 - Percent Finer	% passed	0.6	2.6	2.9	2.1	4.2	9.5
Hydrometer Reading 7 - Percent Finer	% passed	0	1.3	1.9	1.4	3	5.9

Notes:
% = percent passed

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

Location ID:		MLTC14-40	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-45	MLTC14-46
Sample Name:		MLTC14-40-SURF	MLTC14-41-SURF	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-45-SURF	MLTC14-46-SURF
Sample Date:		10/17/2014	10/17/2014	10/20/2014	10/17/2014	10/17/2014	10/17/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	0	0	1.2	0	0	0
Sand	%	53.2	40.6	94.9	41.3	40.5	54.3
Coarse Sand	%	5.8	2.9	1.4	1.8	1.1	1.1
Medium Sand	%	16.8	4.4	9.8	19.3	3.8	29.6
Fine Sand	%	30.6	33.3	83.7	20.2	35.6	23.6
Silt	%	45.0	48.7	2.3	48.0	27.8	43.2
Clay	%	1.8	10.7	1.7	10.7	31.7	2.5
Silt + Clay	%	46.8	59.4	4.0	58.7	59.5	45.7
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	100	100	100	100	100	100
No. 4 Sieve	% passed	100	100	98.8	100	100	100
No. 10 Sieve	% passed	94.2	97.1	97.4	98.2	98.9	98.9
No.20 Sieve (0.85 MM)	% passed	84.8	95.1	95.4	85.8	97.5	77.9
No. 40 Sieve	% passed	77.4	92.7	87.6	78.9	95.1	69.3
No. 60 Sieve	% passed	71.9	88.4	57.4	74.2	90.8	63.3
No.80 Sieve (0.18 MM)	% passed	67.2	83	34.4	69.5	85.4	59.4
No.100 Sieve (0.15 MM)	% passed	62.3	78.7	21.8	66	79.9	56.3
No.200 Sieve (0.075 MM)	% passed	46.8	59.4	3.9	58.7	59.5	45.7
Hydrometer Reading 1 - Percent Finer	% passed	23.6	25.8	3.8	45.1	56.2	28.8
Hydrometer Reading 2 - Percent Finer	% passed	6.2	20.1	2.7	17.6	48	8.6
Hydrometer Reading 3 - Percent Finer	% passed	4.7	19.2	2.7	17.6	44.5	6.6
Hydrometer Reading 4 - Percent Finer	% passed	4.7	14.5	2.2	14.2	39.9	4.5
Hydrometer Reading 5 - Percent Finer	% passed	1.8	10.7	1.7	10.7	31.7	2.5
Hydrometer Reading 6 - Percent Finer	% passed	0	6.6	0.5	6.9	22.1	0
Hydrometer Reading 7 - Percent Finer	% passed	0	4.7	0.5	3.4	16.3	0

Notes:
% = percent passed

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

	Location ID:	MLTC14-47	MLTC14-48	MLTC14-49	MLTC14-50	MLTC14-51	MLTC14-52
	Sample Name:	MLTC14-47-SURF	MLTC14-48-SURF	MLTC14-49-SURF	MLTC14-50-SURF	MLTC14-51-SURF	MLTC14-52-SURF
	Sample Date:	10/17/2014	10/22/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	0	0	0	3.1	0	0
Sand	%	31.3	93.2	9.8	76.8	70.3	72.2
Coarse Sand	%	0.8	0	0	0.5	3.1	0.8
Medium Sand	%	19.3	1.5	1.1	4.1	6.7	1.9
Fine Sand	%	11.2	91.7	8.7	72.2	60.5	69.5
Silt	%	61.2	5.8	81.1	16.1	23.4	22.8
Clay	%	7.5	1.0	9.1	4.1	6.3	5.0
Silt + Clay	%	68.7	6.8	90.2	20.2	29.7	27.8
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	100	100	100	100	100	100
No. 4 Sieve	% passed	100	100	100	96.9	100	100
No. 10 Sieve	% passed	99.2	100	100	96.4	96.9	99.2
No.20 Sieve (0.85 MM)	% passed	86.9	99.5	99.4	95.3	94.5	98.6
No. 40 Sieve	% passed	79.9	98.5	98.9	92.3	90.2	97.3
No. 60 Sieve	% passed	76.2	92.8	97.5	79	83.3	94.6
No.80 Sieve (0.18 MM)	% passed	74.3	73.8	95.9	57.2	76.8	80.4
No.100 Sieve (0.15 MM)	% passed	73.1	54.2	94.2	42.5	70	64
No.200 Sieve (0.075 MM)	% passed	68.7	6.8	90.2	20.1	29.7	27.8
Hydrometer Reading 1 - Percent Finer	% passed	25.9	5.1	80.1	19.3	24.3	24
Hydrometer Reading 2 - Percent Finer	% passed	16.7	2.4	42.2	9.8	15.9	14.5
Hydrometer Reading 3 - Percent Finer	% passed	12.1	1.9	23.3	7.9	12.3	12.2
Hydrometer Reading 4 - Percent Finer	% passed	9.8	1.5	13.8	6	7.5	8.6
Hydrometer Reading 5 - Percent Finer	% passed	7.5	1	9.1	4.1	6.3	5
Hydrometer Reading 6 - Percent Finer	% passed	0	0.5	1.6	2.9	1.2	2.4
Hydrometer Reading 7 - Percent Finer	% passed	0	0.5	0	1.9	0	0

Notes:
% = percent passed

TABLE 3-2 SEDIMENT RESULTS FOR GRAIN SIZE

Location ID:		MLTC14-53	MLTC14-54	MLTC14-55	MLTC14-56	MLTC14-57	MLTC14-58
Sample Name:		MLTC14-53-SURF	MLTC14-54-SURF	MLTC14-55-SURF	MLTC14-56-SURF	MLTC14-57-SURF	MLTC14-58-SURF
Sample Date:		10/20/2014	10/20/2014	10/21/2014	10/23/2014	10/23/2014	10/23/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
% Gravel	%	0.8	0	0	1.2	0	0
Sand	%	76.7	63.2	28.5	65	46	38
Coarse Sand	%	1.3	1.8	0	4.6	1.9	3.2
Medium Sand	%	7.1	1.9	2.3	11	4.8	4.1
Fine Sand	%	68.3	59.5	26.2	49	39	30
Silt	%	20.1	33.7	62.4	28.0	43.0	49.0
Clay	%	2.4	3.1	9.1	6.6	11.0	13.0
Silt + Clay	%	22.5	36.8	71.5	34.6	54.0	62.0
Hydrometer and Sieve Analysis							
3 Inch Sieve	% passed	100	100	100	100	100	100
2 Inch Sieve	% passed	100	100	100	100	100	100
1.5 Inch Sieve	% passed	100	100	100	100	100	100
1 Inch Sieve	% passed	100	100	100	100	100	100
0.75 Inch Sieve	% passed	100	100	100	100	100	100
0.375 Inch Sieve	% passed	100	100	100	100	100	100
No. 4 Sieve	% passed	99.2	100	100	99	100	100
No. 10 Sieve	% passed	97.9	98.2	100	94	98	97
No.20 Sieve (0.85 MM)	% passed	94.9	97.7	98.7	91	96	95
No. 40 Sieve	% passed	90.8	96.3	97.7	83	93	93
No. 60 Sieve	% passed	84.6	92.9	95	68	88	88
No.80 Sieve (0.18 MM)	% passed	73.8	88.1	90.9	58	81	83
No.100 Sieve (0.15 MM)	% passed	61.2	83.6	87	51	74	79
No.200 Sieve (0.075 MM)	% passed	22.5	36.8	71.5	34	54	62
Hydrometer Reading 1 - Percent Finer	% passed	6.9	8.1	41.9	31	51	46
Hydrometer Reading 2 - Percent Finer	% passed	5.4	6	26.8	18	25	32
Hydrometer Reading 3 - Percent Finer	% passed	3.9	5.3	16.7	12	19	22
Hydrometer Reading 4 - Percent Finer	% passed	3.2	5.3	14.2	9.8	14	17
Hydrometer Reading 5 - Percent Finer	% passed	2.4	3.1	9.1	6.6	11	13
Hydrometer Reading 6 - Percent Finer	% passed	0.7	1.5	6.3	3.2	3.7	7.1
Hydrometer Reading 7 - Percent Finer	% passed	0.7	0.7	3.8	2.1	2.5	5.9

Notes:
% = percent passed

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-01	MLTC14-01	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-03
			Sample Name:	MLTC14-01-SURF	MLTC14-01-SURF-FD	MLTC14-03-SURF	MLTC14-03-0001	MLTC14-03-0103	MLTC14-03-0305	MLTC14-03-0305-FD
			Sample Date:	10/23/2014	10/23/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	3 - 5
Analyte	**TEC**	**PEC**	**Unit**							
Aroclor 1016	NSL	NSL	µg/kg	59 U	57 U	92 U	52 U	50 U	69 U	68 U
Aroclor 1221	NSL	NSL	µg/kg	59 U	57 U	92 U	52 U	50 U	69 U	68 U
Aroclor 1232	NSL	NSL	µg/kg	59 U	57 U	92 U	52 U	50 U	69 U	68 U
Aroclor 1242	NSL	NSL	µg/kg	13 J	57 U	39 J	12 J	50 U	24 J	68 U
Aroclor 1248	NSL	NSL	µg/kg	59 U	57 U	92 U	52 U	50 U	69 U	68 U
Aroclor 1254	NSL	NSL	µg/kg	69 J	57 U	59 J	45 J	50 U	69 U	68 U
Aroclor 1260	NSL	NSL	µg/kg	37 J	35 J	58 J	46 J	2.1 J	17 J	68 U
Aroclor 1262	NSL	NSL	µg/kg	59 U	57 U	92 U	52 U	50 U	69 U	68 U
Aroclor 1268	NSL	NSL	µg/kg	59 U	57 U	92 U	52 U	50 U	69 U	68 U
Total Interval PCB ND=0	59.8	676	µg/kg	**119**	35	**156**	**103**	2	41	0
Total Location PCB ND=0	NSL	NSL	µg/kg	---	119	---	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-03	MLTC14-03	MLTC14-04	MLTC14-04	MLTC14-04	MLTC14-04	MLTC14-04	MLTC14-04
			Sample Name:	MLTC14-03-0507	MLTC14-03-0709	MLTC14-04-SURF	MLTC14-04-0001	MLTC14-04-0103	MLTC14-04-0305	MLTC14-04-0507	MLTC14-04-0709
			Sample Date:	10/15/2014	10/15/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	5 - 7	7 - 9	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	7 - 9
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	53 U	51 U	320 U	520 U	720 U	270 U	280 U	660 U
Aroclor 1221	NSL	NSL	µg/kg	53 U	51 U	320 U	520 U	720 U	270 U	280 U	660 U
Aroclor 1232	NSL	NSL	µg/kg	53 U	51 U	320 U	520 U	720 U	270 U	280 U	660 U
Aroclor 1242	NSL	NSL	µg/kg	53 U	51 U	260 J	850	620 J	750	1400	6600 J
Aroclor 1248	NSL	NSL	µg/kg	53 U	51 U	320 U	520 U	720 U	270 U	280 U	660 U
Aroclor 1254	NSL	NSL	µg/kg	53 U	51 U	450 J	1600 J	1100 J	940	1400	3800
Aroclor 1260	NSL	NSL	µg/kg	53 U	51 U	750	2700 J	4300	1100	1100 J	1400 J
Aroclor 1262	NSL	NSL	µg/kg	53 U	51 U	320 U	520 U	720 U	270 U	280 U	660 U
Aroclor 1268	NSL	NSL	µg/kg	53 U	51 U	320 U	520 U	720 U	270 U	280 U	660 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	0	**1460**	**5150**	**6020**	**2790**	**3900**	**11800**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	302	---	---	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-04	MLTC14-05	MLTC14-05	MLTC14-05	MLTC14-05	MLTC14-05	MLTC14-06	MLTC14-06
			Sample Name:	MLTC14-04-0911	MLTC14-05-SURF	MLTC14-05-0001	MLTC14-05-0103	MLTC14-05-0305	MLTC14-05-0507	MLTC14-06-SURF	MLTC14-06-0001
			Sample Date:	10/15/2014	10/22/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/14/2014	10/15/2014
			Depth Interval (feet):	9 - 11	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	950 U	45 U	41 U	40 U	38 U	38 U	42 U	56 U
Aroclor 1221	NSL	NSL	µg/kg	950 U	45 U	41 U	40 U	38 U	38 U	42 U	56 U
Aroclor 1232	NSL	NSL	µg/kg	950 U	45 U	41 U	40 U	38 U	38 U	42 U	56 U
Aroclor 1242	NSL	NSL	µg/kg	5400 J	89 J	41 U	40 U	38 U	38 U	15 J	56 U
Aroclor 1248	NSL	NSL	µg/kg	950 U	45 U	41 U	40 U	38 U	38 U	42 U	56 U
Aroclor 1254	NSL	NSL	µg/kg	5000 J	100 J	41 U	40 U	38 U	38 U	12 J	56 U
Aroclor 1260	NSL	NSL	µg/kg	1200 J	63 J	41 U	40 U	38 U	38 U	6.2 J	56 UJ
Aroclor 1262	NSL	NSL	µg/kg	950 U	45 U	41 U	40 U	38 U	38 U	42 U	56 U
Aroclor 1268	NSL	NSL	µg/kg	950 U	45 U	41 U	40 U	38 U	38 U	42 U	56 U
Total Interval PCB ND=0	59.8	676	µg/kg	**11600**	**252**	0	0	0	0	33	0
Total Location PCB ND=0	NSL	NSL	µg/kg	42720	---	---	---	---	252	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-06	MLTC14-06	MLTC14-06	MLTC14-07	MLTC14-07	MLTC14-07	MLTC14-08	MLTC14-08
			Sample Name:	MLTC14-06-0103	MLTC14-06-0305	MLTC14-06-0507	MLTC14-07-SURF	MLTC14-07-0001	MLTC14-07-0103	MLTC14-08-SURF	MLTC14-08-0001
			Sample Date:	10/15/2014	10/15/2014	10/15/2014	10/14/2014	10/15/2014	10/15/2014	10/14/2014	10/15/2014
			Depth Interval (feet):	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	52 U	48 U	47 U	840 U	1400 U	1300 U	1400 U	1600 U
Aroclor 1221	NSL	NSL	µg/kg	52 U	48 U	47 U	840 U	1400 U	1300 U	1400 U	1600 U
Aroclor 1232	NSL	NSL	µg/kg	52 U	48 U	47 U	840 U	1400 U	1300 U	1400 U	1600 U
Aroclor 1242	NSL	NSL	µg/kg	52 U	48 U	47 U	840 U	1400 U	1300 U	1400 U	1600 U
Aroclor 1248	NSL	NSL	µg/kg	52 U	48 U	47 U	2800 J	3500 J	3800 J	12000 J	8500 J
Aroclor 1254	NSL	NSL	µg/kg	52 U	48 U	47 U	1800 J	2500 J	2800 J	1400 U	4400 J
Aroclor 1260	NSL	NSL	µg/kg	52 UJ	48 UJ	47 UJ	580 J	840 J	930 J	820 J	1600 J
Aroclor 1262	NSL	NSL	µg/kg	52 U	48 U	47 U	840 U	1400 U	1300 U	1400 U	1600 U
Aroclor 1268	NSL	NSL	µg/kg	52 U	48 U	47 U	840 U	1400 U	1300 U	1400 U	1600 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	0	0	**5180**	**6840**	**7530**	**12820**	**14500**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	33	---	---	19550	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

Location ID:				MLTC14-08	MLTC14-08	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09
Sample Name:				MLTC14-08-0103	MLTC14-08-0305	MLTC14-09-SURF	MLTC14-09-0001	MLTC14-09-0103	MLTC14-09-0305	MLTC14-09-0507	MLTC14-09-0709
Sample Date:				10/15/2014	10/15/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014
Depth Interval (feet):				1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	7 - 9
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	1700 U	1400 U	72 U	110 U	48 U	45 U	53 U	250 U
Aroclor 1221	NSL	NSL	µg/kg	1700 U	1400 U	72 U	110 U	48 U	45 U	53 U	250 U
Aroclor 1232	NSL	NSL	µg/kg	1700 U	1400 U	72 U	110 U	48 U	45 U	53 U	250 U
Aroclor 1242	NSL	NSL	µg/kg	1700 U	1400 U	110	230	92	13 J	94 J	73 J
Aroclor 1248	NSL	NSL	µg/kg	6400 J	4100 J	72 U	110 U	48 U	45 U	53 U	250 U
Aroclor 1254	NSL	NSL	µg/kg	3700 J	2900 J	270	430	150 J	50 J	240 J	470 J
Aroclor 1260	NSL	NSL	µg/kg	1000 J	840 J	180 J	270 J	170 J	100	130 J	230 J
Aroclor 1262	NSL	NSL	µg/kg	1700 U	1400 U	72 U	110 U	48 U	45 U	53 U	250 U
Aroclor 1268	NSL	NSL	µg/kg	1700 U	1400 U	72 U	110 U	48 U	45 U	53 U	250 U
Total Interval PCB ND=0	59.8	676	µg/kg	**11100**	**7840**	**560**	**930**	**412**	**163**	**464**	**773**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	46260	---	---	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-09	MLTC14-10	MLTC14-10	MLTC14-10	MLTC14-10	MLTC14-10	MLTC14-11	MLTC14-11
			Sample Name:	MLTC14-09-0911	MLTC14-10-SURF	MLTC14-10-SURF-FD	MLTC14-10-0001	MLTC14-10-0103	MLTC14-10-0305	MLTC14-11-SURF	MLTC14-11-0001
			Sample Date:	10/16/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/16/2014
			Depth Interval (feet):	9 - 11	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	100 U	64 U	67 UJ	440 U	64 U	180 U	50 U	42 U
Aroclor 1221	NSL	NSL	µg/kg	100 U	64 U	67 UJ	440 U	64 U	180 U	50 U	42 U
Aroclor 1232	NSL	NSL	µg/kg	100 U	64 U	67 UJ	440 U	64 U	180 U	50 U	42 U
Aroclor 1242	NSL	NSL	µg/kg	46 J	20 J	22 J	440 U	21 J	390 J	40 J	42 U
Aroclor 1248	NSL	NSL	µg/kg	100 U	64 U	67 UJ	1800 J	64 U	180 U	50 U	42 U
Aroclor 1254	NSL	NSL	µg/kg	270 J	31 J	33 J	440 U	24 J	1000	38 J	42 U
Aroclor 1260	NSL	NSL	µg/kg	140 J	31 J	33 J	580	37 J	460 J	23 J	42 U
Aroclor 1262	NSL	NSL	µg/kg	100 U	64 U	67 UJ	440 U	64 U	180 U	50 U	42 U
Aroclor 1268	NSL	NSL	µg/kg	100 U	64 U	67 UJ	440 U	64 U	180 U	50 U	42 U
Total Interval PCB ND=0	59.8	676	µg/kg	**456**	**82**	**88**	**2380**	**82**	**1850**	**101**	0
Total Location PCB ND=0	NSL	NSL	µg/kg	3758	---	---	---	---	4394	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-11	MLTC14-11	MLTC14-11	MLTC14-11	MLTC14-12	MLTC14-12	MLTC14-12	MLTC14-12
			Sample Name:	MLTC14-11-0103	MLTC14-11-0305	MLTC14-11-0507	MLTC14-11-0709	MLTC14-12-SURF	MLTC14-12-SURF-FD	MLTC14-12-0001	MLTC14-12-0103
			Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	1 - 3	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	91 U	93 U	77 U	53 U
Aroclor 1221	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	91 U	93 U	77 U	53 U
Aroclor 1232	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	91 U	93 U	77 U	53 U
Aroclor 1242	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	91 J	77 J	69 J	280
Aroclor 1248	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	91 U	93 U	77 U	53 U
Aroclor 1254	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	180 J	180 J	110	370
Aroclor 1260	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	140 J	130 J	96 J	340 J
Aroclor 1262	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	91 U	93 U	77 U	53 U
Aroclor 1268	NSL	NSL	µg/kg	43 U	40 U	40 U	38 U	91 U	93 U	77 U	53 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	0	0	0	**411**	**387**	**275**	**990**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	---	101	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-12	MLTC14-13	MLTC14-13	MLTC14-13	MLTC14-14	MLTC14-14	MLTC14-14	MLTC14-14
			Sample Name:	MLTC14-12-0305	MLTC14-13-SURF	MLTC14-13-0001	MLTC14-13-0001-FD	MLTC14-14-SURF	MLTC14-14-0001	MLTC14-14-0103	MLTC14-14-0305
			Sample Date:	10/15/2014	10/22/2014	10/23/2014	10/23/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014
			Depth Interval (feet):	3 - 5	0 - 0.5	0 - 1	0 - 1	0 - 0.5	0 - 1	1 - 3	3 - 5
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	140 U	46 U	39 U	40 U	190 U	240 U	45 U	42 U
Aroclor 1221	NSL	NSL	µg/kg	140 U	46 U	39 U	40 U	190 U	240 U	45 U	42 U
Aroclor 1232	NSL	NSL	µg/kg	140 U	46 U	39 U	40 U	190 U	240 U	45 U	42 U
Aroclor 1242	NSL	NSL	µg/kg	630 J	23 J	22 J	19 J	430	430	6.1 J	42 U
Aroclor 1248	NSL	NSL	µg/kg	140 U	46 U	39 U	40 U	190 U	240 U	45 U	42 U
Aroclor 1254	NSL	NSL	µg/kg	880	49	45 J	34 J	400	620	10 J	42 U
Aroclor 1260	NSL	NSL	µg/kg	640 J	41 J	42	26 J	240 J	220 J	4.1 J	42 U
Aroclor 1262	NSL	NSL	µg/kg	140 U	46 U	39 U	40 U	190 U	240 U	45 U	42 U
Aroclor 1268	NSL	NSL	µg/kg	140 U	46 U	39 U	40 U	190 U	240 U	45 U	42 U
Total Interval PCB ND=0	59.8	676	µg/kg	**2150**	**113**	**109**	**79**	**1070**	**1270**	20	0
Total Location PCB ND=0	NSL	NSL	µg/kg	3826	---	---	222	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-14	MLTC14-15	MLTC14-15	MLTC14-15	MLTC14-16	MLTC14-16	MLTC14-16	MLTC14-16
			Sample Name:	MLTC14-14-0507	MLTC14-15-SURF	MLTC14-15-0001	MLTC14-15-0103	MLTC14-16-SURF	MLTC14-16-0001	MLTC14-16-0103	MLTC14-16-0305
			Sample Date:	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014
			Depth Interval (feet):	5 - 7	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3	3 - 5
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	39 U	190 UJ	49 U	39 UJ	330 UJ	650 UJ	590 UJ	340 UJ
Aroclor 1221	NSL	NSL	µg/kg	39 U	190 UJ	49 U	39 UJ	330 UJ	650 UJ	590 UJ	340 UJ
Aroclor 1232	NSL	NSL	µg/kg	39 U	190 UJ	49 U	39 UJ	330 UJ	650 UJ	590 UJ	340 UJ
Aroclor 1242	NSL	NSL	µg/kg	39 U	410	99	13 J	130 J	1600 J	1300	120 J
Aroclor 1248	NSL	NSL	µg/kg	39 U	190 UJ	49 U	39 UJ	330 UJ	650 UJ	590 UJ	340 UJ
Aroclor 1254	NSL	NSL	µg/kg	39 U	470	130	130 J	280 J	1400	1500	760 J
Aroclor 1260	NSL	NSL	µg/kg	39 U	280	50 J	16 J	150 J	640 J	550 J	420 J
Aroclor 1262	NSL	NSL	µg/kg	39 U	190 U	49 U	39 U	330 U	650 U	590 U	340 U
Aroclor 1268	NSL	NSL	µg/kg	39 U	190 U	49 U	39 U	330 U	650 U	590 U	340 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	**1160**	**279**	**159**	**560**	**3640**	**3350**	**1300**
Total Location PCB ND=0	NSL	NSL	µg/kg	2360	---	---	1598	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-16	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17
			Sample Name:	MLTC14-16-0507	MLTC14-17-SURF	MLTC14-17-0001	MLTC14-17-0001-FD	MLTC14-17-0103	MLTC14-17-0305	MLTC14-17-0305-FD	MLTC14-17-0507
			Sample Date:	10/22/2014	10/20/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014
			Depth Interval (feet):	5 - 7	0 - 0.5	0 - 1	0 - 1	1 - 3	3 - 5	3 - 5	5 - 7
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	330 UJ	230 U	200 U	190 U	66 U	55 U	56 U	43 U
Aroclor 1221	NSL	NSL	µg/kg	330 UJ	230 U	200 U	190 U	66 U	55 U	56 U	43 U
Aroclor 1232	NSL	NSL	µg/kg	330 UJ	230 U	200 U	190 U	66 U	55 U	56 U	43 U
Aroclor 1242	NSL	NSL	µg/kg	380 J	750	51 J	51 J	26 J	26 J	23 J	43 U
Aroclor 1248	NSL	NSL	µg/kg	330 UJ	230 U	200 U	190 U	66 U	55 U	56 U	43 U
Aroclor 1254	NSL	NSL	µg/kg	950 J	1300	590	610	240 J	130 J	150	43 U
Aroclor 1260	NSL	NSL	µg/kg	500 J	440 J	270 J	250 J	190 J	90 J	98	43 U
Aroclor 1262	NSL	NSL	µg/kg	330 U	230 U	200 U	190 U	66 U	55 U	56 U	43 U
Aroclor 1268	NSL	NSL	µg/kg	330 U	230 U	200 U	190 U	66 U	55 U	56 U	43 U
Total Interval PCB ND=0	59.8	676	µg/kg	**1830**	**2490**	**911**	**911**	**456**	**246**	**271**	0
Total Location PCB ND=0	NSL	NSL	µg/kg	10680	---	---	---	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-17	MLTC14-18	MLTC14-18	MLTC14-18	MLTC14-18	MLTC14-18	MLTC14-19	MLTC14-19
			Sample Name:	MLTC14-17-0709	MLTC14-18-SURF	MLTC14-18-0001	MLTC14-18-0103	MLTC14-18-0103-FD	MLTC14-18-0305	MLTC14-19-SURF	MLTC14-19-0001
			Sample Date:	10/21/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/21/2014
			Depth Interval (feet):	7 - 9	0 - 0.5	0 - 1	1 - 3	1 - 3	3 - 5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	46 UJ	73 U	58 U	42 U	53 U	50 U	64 U	93 U
Aroclor 1221	NSL	NSL	µg/kg	46 UJ	73 U	58 U	42 U	53 U	50 U	64 U	93 U
Aroclor 1232	NSL	NSL	µg/kg	46 UJ	73 U	58 U	42 U	53 U	50 U	64 U	93 U
Aroclor 1242	NSL	NSL	µg/kg	46 UJ	91 J	23 J	42 U	53 U	50 U	20 J	14 J
Aroclor 1248	NSL	NSL	µg/kg	46 UJ	73 U	58 U	42 U	53 U	50 U	64 U	93 U
Aroclor 1254	NSL	NSL	µg/kg	46 U	280	83 J	42 U	53 U	50 U	22 J	20 J
Aroclor 1260	NSL	NSL	µg/kg	46 U	230 J	140 J	42 U	53 U	50 U	25 J	24 J
Aroclor 1262	NSL	NSL	µg/kg	46 U	73 U	58 U	42 U	53 U	50 U	64 U	93 U
Aroclor 1268	NSL	NSL	µg/kg	46 U	73 U	58 U	42 U	53 U	50 U	64 U	93 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	**601**	**246**	0	0	0	**67**	58
Total Location PCB ND=0	NSL	NSL	µg/kg	4103	---	---	---	---	847	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

Location ID:				MLTC14-19	MLTC14-21	MLTC14-22	MLTC14-25	MLTC14-25	MLTC14-25	MLTC14-25	MLTC14-26
Sample Name:				MLTC14-19-0103	MLTC14-21-SURF	MLTC14-22-SURF	MLTC14-25-SURF	MLTC14-25-0001	MLTC14-25-0103	MLTC14-25-0103-FD	MLTC14-26-SURF
Sample Date:				10/21/2014	10/20/2014	10/20/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/15/2014
Depth Interval (feet):				1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	1 - 3	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	58 U	63 U	69 UJ	60 U	70 U	50 U	48 U	89 U
Aroclor 1221	NSL	NSL	µg/kg	58 U	63 U	69 UJ	60 U	70 U	50 U	48 U	89 U
Aroclor 1232	NSL	NSL	µg/kg	58 U	63 U	69 UJ	60 U	70 U	50 U	48 U	89 U
Aroclor 1242	NSL	NSL	µg/kg	14 J	89	120 J	33 J	54 J	120	94	120
Aroclor 1248	NSL	NSL	µg/kg	58 U	63 U	69 UJ	60 U	70 U	50 U	48 U	89 U
Aroclor 1254	NSL	NSL	µg/kg	20 J	170 J	210 J	59 J	83 J	270	210	330
Aroclor 1260	NSL	NSL	µg/kg	27 J	150 J	180 J	91	100 J	190 J	180 J	170 J
Aroclor 1262	NSL	NSL	µg/kg	58 U	63 U	69 UJ	60 U	70 U	50 U	48 U	89 U
Aroclor 1268	NSL	NSL	µg/kg	58 U	63 U	69 UJ	60 U	70 U	50 U	48 U	89 U
Total Interval PCB ND=0	59.8	676	µg/kg	**61**	**409**	**510**	**183**	**237**	**580**	**484**	**620**
Total Location PCB ND=0	NSL	NSL	µg/kg	186	409	510	---	---	---	1000	620

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

Location ID:				MLTC14-31	MLTC14-31	MLTC14-31	MLTC14-31	MLTC14-32	MLTC14-32	MLTC14-32	MLTC14-32
Sample Name:				MLTC14-31-SURF	MLTC14-31-0001	MLTC14-31-0103	MLTC14-31-0305	MLTC14-32-SURF	MLTC14-32-SURF-FD	MLTC14-32-0001	MLTC14-32-0103
Sample Date:				10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014
Depth Interval (feet):				0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	55 U	48 U	45 U	170 U	69 U	140 U	61 U	110 U
Aroclor 1221	NSL	NSL	µg/kg	55 U	48 U	45 U	170 U	69 U	140 U	61 U	110 U
Aroclor 1232	NSL	NSL	µg/kg	55 U	48 U	45 U	170 U	69 U	140 U	61 U	110 U
Aroclor 1242	NSL	NSL	µg/kg	48 J	64 J	34 J	210 J	92	97 J	81	130 J
Aroclor 1248	NSL	NSL	µg/kg	55 U	48 U	45 U	170 U	69 U	140 U	61 U	110 U
Aroclor 1254	NSL	NSL	µg/kg	120	260 J	180	910	170 J	350 J	230	740 J
Aroclor 1260	NSL	NSL	µg/kg	52 J	150 J	92 J	420 J	170 J	210 J	140 J	320 J
Aroclor 1262	NSL	NSL	µg/kg	55 U	48 U	45 U	170 U	69 U	140 U	61 U	110 U
Aroclor 1268	NSL	NSL	µg/kg	55 U	48 U	45 U	170 U	69 U	140 U	61 U	110 U
Total Interval PCB ND=0	59.8	676	µg/kg	**220**	**474**	**306**	**1540**	**432**	**657**	**451**	**1190**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	---	2540	---	---	---	2073

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-34	MLTC14-35	MLTC14-35	MLTC14-35	MLTC14-35	MLTC14-35	MLTC14-36	MLTC14-36
			Sample Name:	MLTC14-34-SURF	MLTC14-35-SURF	MLTC14-35-0001	MLTC14-35-0103	MLTC14-35-0103-FD	MLTC14-35-0305	MLTC14-36-SURF	MLTC14-36-0001
			Sample Date:	10/16/2014	10/16/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 1	1 - 3	1 - 3	3 - 5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	460 U	250 U	330 U	40 U	45 U	44 U	81 U	51 U
Aroclor 1221	NSL	NSL	µg/kg	460 U	250 U	330 U	40 U	45 U	44 U	81 U	51 U
Aroclor 1232	NSL	NSL	µg/kg	460 U	250 U	330 U	40 U	45 U	44 U	81 U	51 U
Aroclor 1242	NSL	NSL	µg/kg	130 J	140 J	200 J	40 U	45 U	44 U	83	19 J
Aroclor 1248	NSL	NSL	µg/kg	460 U	250 U	330 U	40 U	45 U	44 U	81 U	51 U
Aroclor 1254	NSL	NSL	µg/kg	380 J	1300	2100	7.2 J	24 J	44 U	390	29 J
Aroclor 1260	NSL	NSL	µg/kg	460 U	270 J	530 J	40 U	5.4 J	44 U	140 J	8.9 J
Aroclor 1262	NSL	NSL	µg/kg	460 U	250 U	330 U	40 U	45 U	44 U	81 U	51 U
Aroclor 1268	NSL	NSL	µg/kg	460 U	250 U	330 U	40 U	45 U	44 U	81 U	51 U
Total Interval PCB ND=0	59.8	676	µg/kg	**510**	**1710**	**2830**	7	29	0	**613**	57
Total Location PCB ND=0	NSL	NSL	µg/kg	510	---	---	---	---	4547	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-36	MLTC14-37	MLTC14-37	MLTC14-37	MLTC14-38	MLTC14-39	MLTC14-40	MLTC14-40
			Sample Name:	MLTC14-36-0103	MLTC14-37-SURF	MLTC14-37-0001	MLTC14-37-0103	MLTC14-38-SURF	MLTC14-39-SURF	MLTC14-40-SURF	MLTC14-40-0001
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/20/2014	10/16/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	1 - 3	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	43 U	200 U	43 U	44 U	51 U	81 U	110 UJ	160 UJ
Aroclor 1221	NSL	NSL	µg/kg	43 U	200 U	43 U	44 U	51 U	81 U	110 UJ	160 UJ
Aroclor 1232	NSL	NSL	µg/kg	43 U	200 U	43 U	44 U	51 U	81 U	110 UJ	160 UJ
Aroclor 1242	NSL	NSL	µg/kg	43 U	240 J	17 J	5.3 J	37 J	56 J	37 J	160 UJ
Aroclor 1248	NSL	NSL	µg/kg	43 U	200 U	43 U	44 U	51 U	81 U	110 UJ	160 UJ
Aroclor 1254	NSL	NSL	µg/kg	43 U	670 J	22 J	9.6 J	63	220	80 J	160 UJ
Aroclor 1260	NSL	NSL	µg/kg	43 U	320 J	18 J	9 J	35 J	100 J	56 J	160 UJ
Aroclor 1262	NSL	NSL	µg/kg	43 U	200 U	43 U	44 U	51 U	81 U	110 UJ	160 UJ
Aroclor 1268	NSL	NSL	µg/kg	43 U	200 U	43 U	44 U	51 U	81 U	110 UJ	160 UJ
Total Interval PCB ND=0	59.8	676	µg/kg	0	**1230**	57	24	**135**	**376**	**173**	0
Total Location PCB ND=0	NSL	NSL	µg/kg	670	---	---	1311	135	376	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-40	MLTC14-40	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-41
			Sample Name:	MLTC14-40-0103	MLTC14-40-0305	MLTC14-41-SURF	MLTC14-41-0001	MLTC14-41-0103	MLTC14-41-0103-FD	MLTC14-41-0305	MLTC14-41-0305-FD
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	1 - 3	3 - 5	3 - 5
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	47 U	43 U	70 U	61 U	55 U	56 U	51 U	48 U
Aroclor 1221	NSL	NSL	µg/kg	47 U	43 U	70 U	61 U	55 U	56 U	51 U	48 U
Aroclor 1232	NSL	NSL	µg/kg	47 U	43 U	70 U	61 U	55 U	56 U	51 U	48 U
Aroclor 1242	NSL	NSL	µg/kg	47 U	43 U	39 J	61 U	55 UJ	82 J	51 U	48 U
Aroclor 1248	NSL	NSL	µg/kg	47 U	43 U	70 U	61 U	55 U	56 U	51 U	48 U
Aroclor 1254	NSL	NSL	µg/kg	47 U	43 U	130 J	61 U	55 UJ	210 J	51 U	48 U
Aroclor 1260	NSL	NSL	µg/kg	47 U	43 U	110 J	61 U	55 UJ	130 J	51 U	48 U
Aroclor 1262	NSL	NSL	µg/kg	47 U	43 U	70 U	61 U	55 U	56 U	51 U	48 U
Aroclor 1268	NSL	NSL	µg/kg	47 U	43 U	70 U	61 U	55 U	56 U	51 U	48 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	0	**279**	0	0	**422**	0	0
Total Location PCB ND=0	NSL	NSL	µg/kg	---	173	---	---	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-43	MLTC14-43	MLTC14-43	MLTC14-45	MLTC14-45
			Sample Name:	MLTC14-41-0507	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-43-0001	MLTC14-43-0103	MLTC14-43-0305	MLTC14-45-SURF	MLTC14-45-0001
			Sample Date:	10/17/2014	10/20/2014	10/17/2014	10/20/2014	10/20/2014	10/20/2014	10/17/2014	10/20/2014
			Depth Interval (feet):	5 - 7	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	50 U	500 U	86 UJ	71 U	57 U	49 U	67 U	63 U
Aroclor 1221	NSL	NSL	µg/kg	50 U	500 U	86 UJ	71 U	57 U	49 U	67 U	63 U
Aroclor 1232	NSL	NSL	µg/kg	50 U	500 U	86 UJ	71 U	57 U	49 U	67 U	63 U
Aroclor 1242	NSL	NSL	µg/kg	50 U	120 J	81 J	71 U	57 U	49 U	15 J	63 U
Aroclor 1248	NSL	NSL	µg/kg	50 U	500 U	86 UJ	71 U	57 U	49 U	67 U	63 U
Aroclor 1254	NSL	NSL	µg/kg	50 U	270 J	170 J	71 U	57 U	49 U	56 J	63 U
Aroclor 1260	NSL	NSL	µg/kg	50 U	310 J	98 J	71 U	57 U	49 U	22 J	63 U
Aroclor 1262	NSL	NSL	µg/kg	50 U	500 U	86 UJ	71 U	57 U	49 U	67 U	63 U
Aroclor 1268	NSL	NSL	µg/kg	50 U	500 U	86 UJ	71 U	57 U	49 U	67 U	63 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	**700**	**349**	0	0	0	**93**	0
Total Location PCB ND=0	NSL	NSL	µg/kg	279	700	---	---	---	349	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-45	MLTC14-46	MLTC14-46	MLTC14-46	MLTC14-46	MLTC14-46	MLTC14-47	MLTC14-47
			Sample Name:	MLTC14-45-0103	MLTC14-46-SURF	MLTC14-46-0001	MLTC14-46-0001-FD	MLTC14-46-0103	MLTC14-46-0305	MLTC14-47-SURF	MLTC14-47-0001
			Sample Date:	10/20/2014	10/17/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/17/2014	10/20/2014
			Depth Interval (feet):	1 - 3	0 - 0.5	0 - 1	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	42 U	98 UJ	67 UJ	70 UJ	67 U	43 U	99 UJ	98 UJ
Aroclor 1221	NSL	NSL	µg/kg	42 U	98 UJ	67 UJ	70 UJ	67 U	43 U	99 UJ	98 UJ
Aroclor 1232	NSL	NSL	µg/kg	42 U	98 UJ	67 UJ	70 UJ	67 U	43 U	99 UJ	98 UJ
Aroclor 1242	NSL	NSL	µg/kg	42 U	84 J	40 J	52 J	13 J	43 U	84 J	78 J
Aroclor 1248	NSL	NSL	µg/kg	42 U	98 UJ	67 UJ	70 UJ	67 U	43 U	99 UJ	98 UJ
Aroclor 1254	NSL	NSL	µg/kg	42 U	230 J	68 J	83 J	12 J	43 U	210 J	160 J
Aroclor 1260	NSL	NSL	µg/kg	42 U	150 J	43 J	51 J	7.6 J	43 U	180 J	140 J
Aroclor 1262	NSL	NSL	µg/kg	42 U	98 UJ	67 UJ	70 UJ	67 U	43 U	99 UJ	98 UJ
Aroclor 1268	NSL	NSL	µg/kg	42 U	98 UJ	67 UJ	70 UJ	67 U	43 U	99 UJ	98 UJ
Total Interval PCB ND=0	59.8	676	µg/kg	0	**464**	**151**	**186**	33	0	**474**	**378**
Total Location PCB ND=0	NSL	NSL	µg/kg	93	---	---	---	---	648	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-47	MLTC14-47	MLTC14-47	MLTC14-48	MLTC14-48	MLTC14-48	MLTC14-48	MLTC14-49
			Sample Name:	MLTC14-47-0103	MLTC14-47-0305	MLTC14-47-0507	MLTC14-48-SURF	MLTC14-48-0001	MLTC14-48-0001-FD	MLTC14-48-0103	MLTC14-49-SURF
			Sample Date:	10/20/2014	10/20/2014	10/20/2014	10/22/2014	10/23/2014	10/23/2014	10/23/2014	10/15/2014
			Depth Interval (feet):	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	0 - 1	1 - 3	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	65 U	65 U	57 U	150 U	440 U	220 U	460 U	87 U
Aroclor 1221	NSL	NSL	µg/kg	65 U	65 U	57 U	150 U	440 U	220 U	460 U	87 U
Aroclor 1232	NSL	NSL	µg/kg	65 U	65 U	57 U	150 U	440 U	220 U	460 U	87 U
Aroclor 1242	NSL	NSL	µg/kg	110 J	65 U	57 U	92 J	340 J	350 J	300 J	70 J
Aroclor 1248	NSL	NSL	µg/kg	65 U	65 U	57 U	150 U	440 U	220 U	460 U	87 U
Aroclor 1254	NSL	NSL	µg/kg	200	65 U	57 U	190	520 J	550 J	750 J	140 J
Aroclor 1260	NSL	NSL	µg/kg	170	65 U	4.1 J	86 J	380 J	320 J	340 J	110 J
Aroclor 1262	NSL	NSL	µg/kg	65 U	65 U	57 U	150 U	440 U	220 U	460 U	87 U
Aroclor 1268	NSL	NSL	µg/kg	65 U	65 U	57 U	150 U	440 U	220 U	460 U	87 U
Total Interval PCB ND=0	59.8	676	µg/kg	**480**	0	4	**368**	**1240**	**1220**	**1390**	**320**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	1336	---	---	---	2998	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-49	MLTC14-49	MLTC14-49	MLTC14-49	MLTC14-50	MLTC14-51	MLTC14-51	MLTC14-51
			Sample Name:	MLTC14-49-0001	MLTC14-49-0103	MLTC14-49-0103-FD	MLTC14-49-0305	MLTC14-50-SURF	MLTC14-51-SURF	MLTC14-51-0001	MLTC14-51-0103
			Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	0 - 1	1 - 3	1 - 3	3 - 5	0 - 0.5	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	73 U	260 U	280 U	40 U	190 U	61 U	49 U	48 U
Aroclor 1221	NSL	NSL	µg/kg	73 U	260 U	280 U	40 U	190 U	61 U	49 U	48 U
Aroclor 1232	NSL	NSL	µg/kg	73 U	260 U	280 U	40 U	190 U	61 U	49 U	48 U
Aroclor 1242	NSL	NSL	µg/kg	100	620	600	4.2 J	280 J	65	49 U	48 U
Aroclor 1248	NSL	NSL	µg/kg	73 U	260 U	280 U	40 U	190 U	61 U	49 U	48 U
Aroclor 1254	NSL	NSL	µg/kg	190	790	760	5 J	550 J	86	49 U	48 U
Aroclor 1260	NSL	NSL	µg/kg	140 J	480 J	500 J	3.5 J	180 J	78 J	49 U	48 U
Aroclor 1262	NSL	NSL	µg/kg	73 U	260 U	280 U	40 U	190 U	61 U	49 U	48 U
Aroclor 1268	NSL	NSL	µg/kg	73 U	260 U	280 U	40 U	190 U	61 U	49 U	48 U
Total Interval PCB ND=0	59.8	676	µg/kg	**430**	**1890**	**1860**	13	**1010**	**229**	0	0
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	---	2653	1010	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-51	MLTC14-51	MLTC14-51	MLTC14-52	MLTC14-52	MLTC14-52	MLTC14-53	MLTC14-53
			Sample Name:	MLTC14-51-0305	MLTC14-51-0507	MLTC14-51-0709	MLTC14-52-SURF	MLTC14-52-0001	MLTC14-52-0103	MLTC14-53-SURF	MLTC14-53-0001
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/16/2014	10/17/2014	10/17/2014	10/20/2014	10/21/2014
			Depth Interval (feet):	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	45 U	40 U	41 U	61 U	48 U	42 U	60 U	310 U
Aroclor 1221	NSL	NSL	µg/kg	45 U	40 U	41 U	61 U	48 U	42 U	60 U	310 U
Aroclor 1232	NSL	NSL	µg/kg	45 U	40 U	41 U	61 U	48 U	42 U	60 U	310 U
Aroclor 1242	NSL	NSL	µg/kg	45 U	40 U	41 U	26 J	16 J	42 U	100 J	310 J
Aroclor 1248	NSL	NSL	µg/kg	45 U	40 U	41 U	61 U	48 U	42 U	60 U	310 U
Aroclor 1254	NSL	NSL	µg/kg	45 U	40 U	41 U	37 J	17 J	42 U	170	670
Aroclor 1260	NSL	NSL	µg/kg	45 U	40 U	41 U	24 J	10 J	42 U	110 J	380
Aroclor 1262	NSL	NSL	µg/kg	45 U	40 U	41 U	61 U	48 U	42 U	60 U	310 U
Aroclor 1268	NSL	NSL	µg/kg	45 U	40 U	41 U	61 U	48 U	42 U	60 U	310 U
Total Interval PCB ND=0	59.8	676	µg/kg	0	0	0	**87**	43	0	**380**	**1360**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	229	---	---	130	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-54	MLTC14-54
			Sample Name:	MLTC14-53-0103	MLTC14-53-0305	MLTC14-53-0305-FD	MLTC14-53-0507	MLTC14-53-0709	MLTC14-54-SURF	MLTC14-54-SURF-FD
			Sample Date:	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	1 - 3	3 - 5	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**							
Aroclor 1016	NSL	NSL	µg/kg	250 U	140 U	140 U	57 U	46 UJ	130 U	200 U
Aroclor 1221	NSL	NSL	µg/kg	250 U	140 U	140 U	57 U	46 UJ	130 U	200 U
Aroclor 1232	NSL	NSL	µg/kg	250 U	140 U	140 U	57 U	46 UJ	130 U	200 U
Aroclor 1242	NSL	NSL	µg/kg	250 J	55 J	57 J	23 J	46 UJ	190	210
Aroclor 1248	NSL	NSL	µg/kg	250 U	140 U	140 U	57 U	46 UJ	130 U	200 U
Aroclor 1254	NSL	NSL	µg/kg	660 J	450	490	57 U	46 U	320 J	310 J
Aroclor 1260	NSL	NSL	µg/kg	420	240 J	260 J	110	46 U	190 J	220 J
Aroclor 1262	NSL	NSL	µg/kg	250 U	140 U	140 U	57 U	46 U	130 U	200 U
Aroclor 1268	NSL	NSL	µg/kg	250 U	140 U	140 U	57 U	46 U	130 U	200 U
Total Interval PCB ND=0	59.8	676	µg/kg	**1330**	**745**	**807**	**133**	0	**700**	**740**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	---	---	3948	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-55	MLTC14-55	MLTC14-55	MLTC14-55
			Sample Name:	MLTC14-54-0001	MLTC14-54-0103	MLTC14-54-0305	MLTC14-54-0507	MLTC14-55-SURF	MLTC14-55-0001	MLTC14-55-0001-FD	MLTC14-55-0103
			Sample Date:	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014
			Depth Interval (feet):	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	190 U	190 U	62 U	51 U	75 U	47 U	46 U	94 U
Aroclor 1221	NSL	NSL	µg/kg	190 U	190 U	62 U	51 U	75 U	47 U	46 U	94 U
Aroclor 1232	NSL	NSL	µg/kg	190 U	190 U	62 U	51 U	75 U	47 U	46 U	94 U
Aroclor 1242	NSL	NSL	µg/kg	180 J	37 J	62 U	51 U	42 J	53	53	180
Aroclor 1248	NSL	NSL	µg/kg	190 U	190 U	62 U	51 U	75 U	47 U	46 U	94 U
Aroclor 1254	NSL	NSL	µg/kg	660	160 J	62 U	51 U	79	47 J	44 J	250
Aroclor 1260	NSL	NSL	µg/kg	270 J	180 J	62 U	51 U	92 J	30 J	28 J	170 J
Aroclor 1262	NSL	NSL	µg/kg	190 U	190 U	62 U	51 U	75 U	47 U	46 U	94 U
Aroclor 1268	NSL	NSL	µg/kg	190 U	190 U	62 U	51 U	75 U	47 U	46 U	94 U
Total Interval PCB ND=0	59.8	676	µg/kg	**1110**	**377**	0	0	**213**	**130**	**125**	**600**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	---	---	2187	---	---	---	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-55	MLTC14-56	MLTC14-56	MLTC14-56	MLTC14-57	MLTC14-57	MLTC14-57	MLTC14-58
			Sample Name:	MLTC14-55-0103-FD	MLTC14-56-SURF	MLTC14-56-0001	MLTC14-56-0103	MLTC14-57-SURF	MLTC14-57-0001	MLTC14-57-0103	MLTC14-58-SURF
			Sample Date:	10/21/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014
			Depth Interval (feet):	1 - 3	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**								
Aroclor 1016	NSL	NSL	µg/kg	98 U	640 U	270 U	41 U	690 U	680 U	500 U	770 U
Aroclor 1221	NSL	NSL	µg/kg	98 U	640 U	270 U	41 U	690 U	680 U	500 U	770 U
Aroclor 1232	NSL	NSL	µg/kg	98 U	640 U	270 U	41 U	690 U	680 U	500 U	770 U
Aroclor 1242	NSL	NSL	µg/kg	150	100 J	70 J	5.2 J	130 J	120 J	500 U	350 J
Aroclor 1248	NSL	NSL	µg/kg	98 U	640 U	270 U	41 U	690 U	680 U	500 U	770 U
Aroclor 1254	NSL	NSL	µg/kg	190	430 J	260 J	10 J	480 J	480 J	1700 J	1800 J
Aroclor 1260	NSL	NSL	µg/kg	130 J	190 J	140 J	6.9 J	230 J	230 J	300 J	540 J
Aroclor 1262	NSL	NSL	µg/kg	98 U	640 U	270 U	41 U	690 U	680 U	500 U	770 U
Aroclor 1268	NSL	NSL	µg/kg	98 U	640 U	270 U	41 U	690 U	680 U	500 U	770 U
Total Interval PCB ND=0	59.8	676	µg/kg	**470**	**720**	**470**	22	**840**	**830**	**2000**	**2690**
Total Location PCB ND=0	NSL	NSL	µg/kg	943	---	---	1212	---	---	3670	---

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-3 SEDIMENT RESULTS FOR PCBS

			Location ID:	MLTC14-58	MLTC14-58
			Sample Name:	MLTC14-58-0001	MLTC14-58-0103
			Sample Date:	10/23/2014	10/23/2014
			Depth Interval (feet):	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**		
Aroclor 1016	NSL	NSL	µg/kg	660 U	220 U
Aroclor 1221	NSL	NSL	µg/kg	660 U	220 U
Aroclor 1232	NSL	NSL	µg/kg	660 U	220 U
Aroclor 1242	NSL	NSL	µg/kg	2000 J	190 J
Aroclor 1248	NSL	NSL	µg/kg	660 U	220 U
Aroclor 1254	NSL	NSL	µg/kg	5300 J	390 J
Aroclor 1260	NSL	NSL	µg/kg	1100	130 J
Aroclor 1262	NSL	NSL	µg/kg	660 U	220 U
Aroclor 1268	NSL	NSL	µg/kg	660 U	220 U
Total Interval PCB ND=0	59.8	676	µg/kg	**8400**	**710**
Total Location PCB ND=0	NSL	NSL	µg/kg	---	11800

NOTES:

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected.

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

Location ID:				MLTC14-01	MLTC14-01	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-04	MLTC14-04	MLTC14-04	MLTC14-04
Sample Name:				MLTC14-01-SURF	MLTC14-01-SURF-FD	MLTC14-03-SURF	MLTC14-03-0001	MLTC14-03-0103	MLTC14-03-0305	MLTC14-03-0305-FD	MLTC14-03-0507	MLTC14-03-0709	MLTC14-04-SURF	MLTC14-04-0001	MLTC14-04-0103	MLTC14-04-0305
Sample Date:				10/23/2014	10/23/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014
Depth Interval (feet):				0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 1	1 - 3	3 - 5
Analyte	**TEC**	**PEC**	**Unit**													
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	9900 U	47 J	25 J	19 J	3.7 J	6.6 J	7.3 J	4.5 J	2.8 J	98 J	240 J	210 J	180 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	9900 U	47 J	37 J	23 J	3.5 J	5.7 J	6.3 J	4.3 J	2.3 J	190 J	450 J	390	340
Acenaphthene(a)	6.71*	NSL	µg/kg	**470 J**	**110 J**	**31 J**	**36 J**	3 J	0.65 J	0.83 J	0.52 J	4.9 U	**120 J**	**180 J**	**120 J**	**130 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**2900 J**	**570 J**	**61 J**	**29 J**	0.88 J	0.56 J	0.47 J	0.31 J	4.9 U	**130 J**	**170 J**	**150 J**	**140 J**
Anthracene(a)(c)	57.2	845	µg/kg	**19000 J**	**1400 J**	**88 J**	**83 J**	4.3 J	1.2 J	1.6 J	0.6 J	0.7 J	**340 J**	**430 J**	**310 J**	**450**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**22000 J**	**3700 J**	**500**	**300**	18	6 J	5.3 J	2.9 J	2.6 J	**1500**	**1800**	**1100**	**1200**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	**17000 J**	**4200 J**	**530**	**260**	13	3.6 J	4.1 J	2.3 J	1.3 J	**1600**	**1900**	**1000**	**1100**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	9600 J	2200 J	450	200	18	9	9.4	5.4 J	4.9 J	1400	1400	970	1200
Benzo(e)pyrene	NSL	NSL	µg/kg	9500 J	2100 J	350	190	13	8 J	8.4 J	5.1 J	4.7 J	930	1200	700	790
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	**9800 J**	**1800 J**	**370**	170	17	11	12	7.5	6.7	**1000**	**1200**	**620**	**730**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	**24000 J**	**5100 J**	**500**	**260**	14	5 J	5.6 J	2.7 J	3 J	**1200**	**1500**	**730**	**780**
C1 Chrysenes	NSL	NSL	µg/kg	7500 J	2200 J	620 J	450 J	33 J	27 J	30 J	14 J	15 J	950 J	1800 J	1300	1300
C1 Fluorenes	NSL	NSL	µg/kg	840 J	92 J	36 J	43 J	3.8 J	4.2 J	5.1 J	3 J	3.1 J	180 J	370 J	540	490
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	30000 J	4800 J	910 J	690 J	44 J	31 J	34 J	19 J	21 J	2200 J	3500 J	2600	2800
C1-Naphthalenes	NSL	NSL	µg/kg	9900 U	150 J	43 J	29 J	4.9 J	8.7 J	9.3 J	6 J	3.7 J	190 J	460 J	400	360
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	8500 J	1100 J	300 J	360 J	28 J	27 J	30 J	19 J	22 J	1100 J	2400 J	2800	2900
C2 Chrysenes	NSL	NSL	µg/kg	2300 J	890 J	360 J	300 J	19 J	17 J	19 J	11 J	15 J	760 J	1400 J	1900	1700
C2 Fluorenes	NSL	NSL	µg/kg	9900 U	1100 U	64 J	100 J	8.2 J	8.3 J	10 J	6.4 J	6.7 J	320 J	1300 J	1800	1600
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	7400 J	1900 J	550 J	480 J	36 J	39 J	46 J	20 J	21 J	1200 J	2400 J	2700	2800
C2-Naphthalenes	NSL	NSL	µg/kg	1800 J	260 J	160 J	160 J	18 J	26 J	28 J	21 J	13 J	930 J	2400 J	3100	2600
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	3100 J	560 J	430 J	580 J	39 J	36 J	42 J	26 J	35 J	1500 J	4200 J	5900	6100
C3 Chrysenes	NSL	NSL	µg/kg	9900 U	1100 U	200 J	150 J	13 J	14 J	17 J	8.5 J	11 J	590 J	760 J	1200	900
C3 Fluorenes	NSL	NSL	µg/kg	9900 U	1100 U	130 J	170 J	11 J	9.8 J	12 J	7.6 J	8.6 J	690 J	2100 J	3200	3100
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	9900 U	620 J	320 J	350 J	25 J	26 J	28 J	18 J	22 J	890 J	1700 J	2900	2400
C3-Naphthalenes	NSL	NSL	µg/kg	1300 J	200 J	280 J	330 J	37 J	47 J	52 J	37 J	31 J	1800 J	5300 J	6800	5900
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1700 J	460 J	690 J	1100 J	64 J	58 J	66 J	43 J	48 J	2000 J	6500 J	8700	7900
C4 Chrysenes	NSL	NSL	µg/kg	9900 U	1100 U	71 J	94 J	6.4 U	8.7 U	8.7 U	5.5 U	4.9 U	470 J	610 U	360 U	330 U
C4-Naphthalenes	NSL	NSL	µg/kg	9900 U	87 J	170 J	280 J	34 J	38 J	44 J	31 J	35 J	1300 J	4700 J	6800	6100
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	9900 U	230 J	490 J	770 J	40 J	31 J	38 J	22 J	28 J	1400 J	4500 J	6200	5800
Chrysene(a)(c)	166	1290	µg/kg	**26000 J**	**4500 J**	**580**	**370**	26	16	17	10	12	**1700**	**2100**	**1300**	**1400**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	**2700 J**	**560 J**	**140**	**65 J**	5 J	1.7 J	1.7 J	1.2 J	0.8 J	**330 J**	**420 J**	**200 J**	**210 J**
Fluoranthene(a)(c)	423	2230	µg/kg	**62000 J**	**7500 J**	**670**	**500**	31	12	13	6.6	7.3	**2500**	**2800**	**2000**	**2400**
Fluorene(a)(c)	77.4	536	µg/kg	**6200 J**	**520 J**	45 J	40 J	5 J	4.8 J	4.9 J	2.9 J	2.1 J	**210 J**	**360 J**	**230 J**	**230 J**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	**9100 J**	**2100 J**	**340**	150	12	4.4 J	4.8 J	2.7 J	2.3 J	**950**	**1100**	**550**	**660**
Naphthalene(a)(c)	176	561	µg/kg	**1200 J**	**450 J**	57 J	33 J	7.6	4 J	4.1 J	2.7 J	1.5 J	**300 J**	**540 J**	**460**	**530**
Perylene	NSL	NSL	µg/kg	6600 J	1300 J	140	97	39	56	64	29	39	380 J	510 J	210 J	270 J
Phenanthrene(a)(c)	204	1170	µg/kg	**30000 J**	**2300 J**	**270**	**260**	18	10	14	6.5	6.6	**1300**	**1600**	**1100**	**1300**
Pyrene(a)(c)	195	1520	µg/kg	**46000 J**	**5700 J**	**570**	**400**	25 J	9.9	11	5.6	5.4	**2000**	**2400**	**1300**	**1400**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**292920**	**42757**	**5239**	**3179**	221	106	116	65	64	**16770**	**20350**	**12530**	**14200**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	395760	59339	10646	9049	670	551	623	372	404	34270	63605	66470	64635
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	292920	---	---	---	---	---	---	8874	---	---	---	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	395760	---	---	---	---	---	---	21692	---		---	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

▨ **Bolded and Shaded detected** values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

Location ID:				MLTC14-04	MLTC14-04	MLTC14-04	MLTC14-05	MLTC14-05	MLTC14-05	MLTC14-05	MLTC14-05	MLTC14-06	MLTC14-06	MLTC14-06	MLTC14-06	MLTC14-06	MLTC14-07
Sample Name:				MLTC14-04-0507	MLTC14-04-0709	MLTC14-04-0911	MLTC14-05-SURF	MLTC14-05-0001	MLTC14-05-0103	MLTC14-05-0305	MLTC14-05-0507	MLTC14-06-SURF	MLTC14-06-0001	MLTC14-06-0103	MLTC14-06-0305	MLTC14-06-0507	MLTC14-07-SURF
Sample Date:				10/15/2014	10/15/2014	10/15/2014	10/22/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/14/2014
Depth Interval (feet):				5 - 7	7 - 9	9 - 11	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	380 J	300 J	370 J	54 J	5.9	5.7	3.7 J	3.8	3.5 J	1.8 J	2.3 J	2.2 J	1.6 J	170 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	690	490	630 J	61 J	5.8	5.9	4	4.3	6.1 J	3 J	1.9 J	1.9 J	1.5 J	300 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**260 J**	370 U	**190 J**	**120 J**	3.3 J	4 U	0.42 J	0.73 J	4.3 J	2.2 J	5.1 U	0.36 J	0.3 J	**110 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**210 J**	370 U	**220 J**	**99 J**	2 J	4 U	3.9 U	3.8 U	**9.4 J**	1.4 J	5.1 U	0.19 J	4.8 U	**130 J**
Anthracene(a)(c)	57.2	845	µg/kg	**650**	**260 J**	**500 J**	**550**	7.6	4 UJ	1.7 J	3.8 U	21 J	6.7 J	0.6 J	0.67 J	0.37 J	**330 J**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**1600**	**1000 J**	**2100**	**1500**	17	3.7 J	2.4 J	2.7 J	71	23	2 J	1.7 J	1.4 J	**1400**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	**1200**	**940 J**	**1500**	**950**	9.8	3.8 J	2.8 J	2.2 J	84	19	1.4 J	1.4 J	0.92 J	**1300**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	1300	870 J	1700	930	14	4.6	3.3 J	3.3 J	66	19	4.4 J	4.2 J	3 J	1000
Benzo(e)pyrene	NSL	NSL	µg/kg	980	680 J	1300	690	11	7.4	5.1	3.4 J	49	15	4.3 J	4.4 J	3.1 J	850
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	**870**	**600 J**	**1100**	**420**	12	14	9.6	4.6	52	18	6.6	6.2	4.6 J	**940**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	**960**	**670 J**	**1300**	**980**	7.9	2.3 J	1.9 J	3.8 U	67	21	2.1 J	2 J	1.4 J	**1100**
C1 Chrysenes	NSL	NSL	µg/kg	1800	1300 J	2400	470 J	19 J	21 J	14 J	11 J	58 J	22 J	10 J	10 J	9 J	1500 J
C1 Fluorenes	NSL	NSL	µg/kg	1000	700 J	770	97 J	5.4 J	6 J	5.2 J	2.5 J	5.5 J	4.5 J	2.6 J	3.2 J	2.5 J	330 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	4300	3000 J	5400	1700 J	45 J	33 J	26 J	20 J	120 J	47 J	14 J	17 J	13 J	2600 J
C1-Naphthalenes	NSL	NSL	µg/kg	720	550 J	680 J	84 J	7.9 J	9.2 J	5.3 J	5.4 J	6.9 J	3.4 J	3 J	3 J	2.2 J	320 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	5900	4100 J	5300	960 J	64 J	67 J	39 J	44 J	55 J	33 J	17 J	18 J	13 J	2000 J
C2 Chrysenes	NSL	NSL	µg/kg	2800	1700 J	3100	190 J	16 J	30 J	21 J	9.5 J	34 J	21 J	12 J	10 J	14 J	960 J
C2 Fluorenes	NSL	NSL	µg/kg	3400	2200 J	2600	140 J	18 J	23 J	13 J	12 J	12 J	6.9 J	2.4 J	4.4 J	3.5 J	880 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	4000	2900 J	5400	580 J	41 J	44 J	32 J	25 J	57 J	27 J	22 J	18 J	14 J	1700 J
C2-Naphthalenes	NSL	NSL	µg/kg	6700	4700 J	4900	460 J	39 J	47 J	26 J	32 J	28 J	15 J	13 J	11 J	8.4 J	1700 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	12000	7400 J	9900	660 J	77 J	83 J	51 J	52 J	70 J	45 J	22 J	24 J	17 J	3300 J
C3 Chrysenes	NSL	NSL	µg/kg	1200	3000 J	2000	58 J	8.7 J	26 J	18 J	9.5 J	21 U	25 J	15 J	10 J	16 J	700 J
C3 Fluorenes	NSL	NSL	µg/kg	5600	3500 J	4000	130 J	21 J	26 J	16 J	10 J	21 J	15 J	3.7 J	6 J	4.6 J	1300 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	3600	2700 J	4600	250 J	33 J	44 J	33 J	26 J	34 J	25 J	18 J	20 J	15 J	1300 J
C3-Naphthalenes	NSL	NSL	µg/kg	15000	9400 J	11000	620 J	96 J	160 J	83 J	100 J	62 J	41 J	25 J	24 J	19 J	3800 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	15000	9200 J	13000	580 J	110 J	120 J	87 J	91 J	120 J	76 J	28 J	34 J	33 J	4700 J
C4 Chrysenes	NSL	NSL	µg/kg	460 U	370 UJ	680 U	320 U	8.7 J	13 J	14 J	6.4 J	21 U	26 J	18 J	13 J	13 J	390 J
C4-Naphthalenes	NSL	NSL	µg/kg	12000	7700 J	9300	340 J	120 J	170 J	97 J	110 J	52 J	32 J	12 J	25 J	18 J	3200 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	9200	6000 J	9100	260 J	53 J	67 J	35 J	42 J	56 J	35 J	18 J	18 J	16 J	3500 J
Chrysene(a)(c)	166	1290	µg/kg	**1800**	**1200 J**	**2400**	**1200**	19	15	10	6.8	92	35	8.3	8.9	7.3	**1600**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	**270 J**	**170 J**	**340 J**	**160 J**	2 J	1.8 J	1.1 J	0.71 J	18 J	4.9 J	0.77 J	0.73 J	0.49 J	**310 J**
Fluoranthene(a)(c)	423	2230	µg/kg	**3200**	**1900**	**3800**	**2800**	29	5.3	4.8	2.8 J	100	53	6.1	5.1 J	4.1 J	**2600**
Fluorene(a)(c)	77.4	536	µg/kg	**370 J**	**220 J**	**550 J**	**180 J**	5.2	2.9 J	2.3 J	1.9 J	10 J	6.5 J	1.8 J	2.3 J	1.7 J	**390**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	**770**	**490 J**	**1000**	**440**	4.6 J	2.2 J	1.5 J	0.69 J	47	13	2 J	1.9 J	1.1 J	**790**
Naphthalene(a)(c)	176	561	µg/kg	**630**	**390**	**690**	150 J	5.6	3.3 J	3.9 U	2 J	8.8 J	4 J	1.3 J	1.4 J	1.1 J	**410**
Perylene	NSL	NSL	µg/kg	340 J	220 J	390 J	270 J	8.8	9.4	6.3	3.9	22	10 J	30	39	32	350 J
Phenanthrene(a)(c)	204	1170	µg/kg	**2100**	**1300**	**2500**	**1300**	25	19	13	16	42	29	6.6	6	3.8 J	**1600**
Pyrene(a)(c)	195	1520	µg/kg	**2200**	**1400 J**	**2600**	**2200**	37	7.9 J	7.1 J	6.4	90	46	4.4 J	4.3 J	3.5 J	**2000**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**19080**	**12270**	**23120**	**14040**	207	98	70	61	789	305	55	49	39	**16310**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	116560	77315	107970	21848	930	1010	628	621	1575	775	303	321	275	48390
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	118320	---	---	---	---	14475	---	---	---	---	1237	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	530825	---	---	---	---	25036	---	---	---	---	3249	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-07	MLTC14-07	MLTC14-08	MLTC14-08	MLTC14-08	MLTC14-08	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-10
			Sample Name:	MLTC14-07-0001	MLTC14-07-0103	MLTC14-08-SURF	MLTC14-08-0001	MLTC14-08-0103	MLTC14-08-0305	MLTC14-09-SURF	MLTC14-09-0001	MLTC14-09-0103	MLTC14-09-0305	MLTC14-09-0507	MLTC14-09-0709	MLTC14-09-0911	MLTC14-10-SURF
			Sample Date:	10/15/2014	10/15/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/15/2014
			Depth Interval (feet):	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	7 - 9	9 - 11	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	14 J	270 J	340 J	360	370 J	530	53 J	100 J	79 J	16 J	210 J	660 J	770	19 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	24 J	510	570	590	630	860	110 J	190 J	150 J	23 J	310	890	1200	31 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**7.9 J**	**170 J**	**190 J**	**130 J**	**190 J**	**270 J**	**190 J**	**410 J**	**300 J**	**12 J**	**140 J**	880 U	**560 J**	**28 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**7.6 J**	**110 J**	**140 J**	**94 J**	**140 J**	**160 J**	**85 J**	**33 J**	**42 J**	**13 J**	**73 J**	**290 J**	**340 J**	**42 J**
Anthracene(a)(c)	57.2	845	µg/kg	25 J	**390 J**	**750**	**280 J**	**490 J**	**990**	**340 J**	**280 J**	**330 J**	**69**	**370**	**1000**	**2100**	**100 J**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	87	**1100**	**1400**	**1100**	**1600**	**1500**	**2500**	**2500**	**1800**	**190**	**720**	**2400**	**2200**	**410**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	77	**980**	**1300**	**1000**	**1300**	**1200**	**3600**	**3500**	**2500**	140	**470**	**1800**	**1800**	**490**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	70	920	1000	760	1100	1100	2900	3800	2100	150	500	1300	1200	400
Benzo(e)pyrene	NSL	NSL	µg/kg	53	740	870	750	970	880	2200	2500	1500	98	360	1200	1100	310
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	50	**530**	**780**	**670**	**810**	**710**	**2600**	**3100**	**2200**	82	**290**	**1000**	**1000**	**370**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	72	**930**	**1100**	**900**	**1400**	**1000**	**2900**	**2700**	**2000**	130	**400**	**1800**	**1900**	**450**
C1 Chrysenes	NSL	NSL	µg/kg	74 J	1400 J	1500 J	2100 J	1500 J	1600 J	1400 J	2000 J	1200 J	94 J	760 J	2800 J	2300 J	350 J
C1 Fluorenes	NSL	NSL	µg/kg	29 J	520 J	550 J	640 J	730 J	930 J	69 J	230 J	180 J	23 J	350 J	900 J	940 J	23 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	190 J	2900 J	3600 J	3500 J	3700 J	3500 J	3000 J	3700 J	2400 J	350 J	1800 J	6600 J	5600 J	650 J
C1-Naphthalenes	NSL	NSL	µg/kg	27 J	550 J	630 J	660 J	650 J	980 J	110 J	190 J	150 J	27 J	350 J	1100 J	1300 J	35 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	170 J	3100 J	3400 J	3800 J	3500 J	4600 J	640 J	1600 J	1200 J	150 J	2000 J	6100 J	6400 J	200 J
C2 Chrysenes	NSL	NSL	µg/kg	97 J	1700 J	1900 J	1700 J	2100 J	2100 J	980 J	1500 J	870 J	66 J	810 J	3800 J	2900 J	150 J
C2 Fluorenes	NSL	NSL	µg/kg	68 J	1400 J	1300 J	2000 J	1300 J	1800 J	89 J	560 J	360 J	51 J	770 J	2400 J	2500 J	34 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	170 J	2300 J	2900 J	3000 J	3000 J	3200 J	1400 J	2800 J	1700 J	170 J	1600 J	5600 J	4400 J	290 J
C2-Naphthalenes	NSL	NSL	µg/kg	140 J	3000 J	3800 J	4500 J	3700 J	5500 J	290 J	920 J	670 J	120 J	2000 J	5200 J	4800 J	100 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	280 J	5500 J	5500 J	6400 J	5700 J	7300 J	650 J	2400 J	1600 J	200 J	3100 J	12000 J	12000 J	210 J
C3 Chrysenes	NSL	NSL	µg/kg	94 J	1300 J	1400 J	1200 J	1700 J	1700 J	970 J	340 J	210 J	17 J	270 J	2400 J	2300 J	62 J
C3 Fluorenes	NSL	NSL	µg/kg	110 J	2300 J	1800 J	2800 J	2200 J	2600 J	140 J	750 J	460 J	60 J	920 J	3600 J	3700 J	42 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	120 J	2200 J	2500 J	2400 J	2700 J	2900 J	630 J	2300 J	1200 J	110 J	1400 J	5100 J	4100 J	150 J
C3-Naphthalenes	NSL	NSL	µg/kg	310 J	5900 J	7300 J	10000 J	7600 J	9600 J	360 J	1700 J	1100 J	210 J	3400 J	9700 J	8400 J	150 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	400 J	7200 J	9000 J	9700 J	8500 J	9800 J	1000 J	3300 J	2000 J	300 J	4200 J	17000 J	15000 J	280 J
C4 Chrysenes	NSL	NSL	µg/kg	91 J	1400 J	1200 J	670 J	1400 J	1400 J	650 J	290 J	210 J	44 U	260 U	1200 J	1200 J	130 U
C4-Naphthalenes	NSL	NSL	µg/kg	220 J	4200 J	5600 J	7900 J	5300 J	6300 J	190 J	1300 J	790 J	150 J	2400 J	8200 J	7500 J	110 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	260 J	4600 J	4500 J	6600 J	5400 J	4900 J	790 J	2200 J	1300 J	200 J	2900 J	13000 J	10000 J	180 J
Chrysene(a)(c)	166	1290	µg/kg	99	**1500**	**1700**	**1400**	**2000**	**1900**	**2900**	**3000**	**1900**	**200**	**850**	**3400**	**2700**	**510**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	15 J	**170 J**	**230 J**	**220 J**	**230 J**	**210 J**	**840**	**1000**	**730**	27 J	**100 J**	**340 J**	**300 J**	**130**
Fluoranthene(a)(c)	423	2230	µg/kg	200	**2800**	**3000**	**1800**	**3600**	**3800**	**3100**	**2700**	**2100**	310	**1700**	**4600**	**5200**	**760**
Fluorene(a)(c)	77.4	536	µg/kg	30 J	**460**	**510 J**	**290 J**	**560**	**700**	**130 J**	**280 J**	**290 J**	43 J	**500**	**820 J**	**1300**	49 J
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	41	**470**	**640**	**520**	**660**	**560**	**2300**	**2800**	**1900**	73	**240 J**	**860 J**	**860**	**340**
Naphthalene(a)(c)	176	561	µg/kg	36	**710**	**670**	**490**	**930**	**1300**	**210 J**	**220 J**	**210 J**	72	**320**	**1300**	**1500**	44 J
Perylene	NSL	NSL	µg/kg	22 J	270 J	360 J	300 J	370 J	340 J	820	950	650	38 J	100 J	470 J	430 J	140
Phenanthrene(a)(c)	204	1170	µg/kg	150	**1800**	**2300**	**1500**	**3300**	**3000**	**1200**	**1300**	**1300**	150	**1700**	**3700**	**5200**	**290**
Pyrene(a)(c)	195	1520	µg/kg	160	**1900**	**2600**	**1600**	**3000**	**2800**	**3400**	**2200**	**1500**	**220**	**1000**	**3800**	**3700**	**570**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	1152	**15450**	**18880**	**13344**	**21940**	**22060**	**29305**	**30013**	**21352**	**1904**	**9683**	**29740**	**33060**	**5014**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	3763	62920	72520	77974	77630	87030	43543	56253	38052	4057	35993	126520	120230	8074
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	32912	---	---	---	76224	---	---	---	---	---	---	155057	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	115073	---	---	---	315154	---	---	---	---	---	---	424648	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-10	MLTC14-10	MLTC14-10	MLTC14-10	MLTC14-11	MLTC14-11	MLTC14-11	MLTC14-11	MLTC14-11	MLTC14-11	MLTC14-12	MLTC14-12	MLTC14-12
			Sample Name:	MLTC14-10-SURF-FD	MLTC14-10-0001	MLTC14-10-0103	MLTC14-10-0305	MLTC14-11-SURF	MLTC14-11-0001	MLTC14-11-0103	MLTC14-11-0305	MLTC14-11-0507	MLTC14-11-0709	MLTC14-12-SURF	MLTC14-12-SURF-FD	MLTC14-12-0001
			Sample Date:	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**													
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	19 J	14 J	36 J	44 J	8.9 J	1.4 J	0.75 J	0.64 J	1.1 J	3.8 U	57 J	38 J	22 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	29 J	23 J	70 J	82 J	16 J	1.4 J	0.8 J	0.63 J	1.2 J	3.8 U	99 J	71 J	39 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**29 J**	**23 J**	**84 J**	**120 J**	**11 J**	0.77 J	0.88 J	4.2 U	4 U	3.8 U	**62 J**	**43 J**	**27 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**43 J**	**29 J**	**100 J**	**140 J**	**8.1 J**	4.4 U	0.32 J	4.2 U	4 U	3.8 U	**70 J**	**48 J**	**28 J**
Anthracene(a)(c)	57.2	845	µg/kg	**110 J**	**78 J**	**300 J**	**420**	29 J	2.3 J	2 J	4.2 U	4 U	3.8 U	**220 J**	**140 J**	**85 J**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**420 J**	**320**	**1000**	**1300**	**120**	4.9	5	1.2 J	2 J	0.89 J	**880**	**530**	**400**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	**480 J**	**350**	**1100**	**1300**	150	3.3 J	4.3	0.71 J	1.2 J	1.5 J	**1000**	**650**	**480**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	380 J	330	940	1000	130	5.9	4.7	1.4 J	3.7 J	1.8 J	910	570	530
Benzo(e)pyrene	NSL	NSL	µg/kg	290 J	250	670	820	98	4.1 J	3.6 J	1.9 J	3.4 J	2.8 J	690	440	350
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	**330 J**	**280**	**690**	**750**	110	4.9	3.9 J	2.7 J	3.7 J	4.1	**820**	**540**	**410**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	**450 J**	**380**	**870**	**1000**	150	3.6 J	3.2 J	1.1 J	0.7 J	0.96 J	**1000**	**650**	**410**
C1 Chrysenes	NSL	NSL	µg/kg	320 J	260 J	960 J	1200 J	110 J	8.8 J	6.4 J	6.7 J	12 J	10 J	740 J	470 J	300
C1 Fluorenes	NSL	NSL	µg/kg	22 J	18 J	130 J	210 J	12 J	3.3 J	2.6 J	1.3 J	2 J	1.3 J	52 J	38 J	25 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	630 J	520 J	2000 J	2600 J	210 J	22 J	16 J	11 J	16 J	14 J	1400 J	910 J	700
C1-Naphthalenes	NSL	NSL	µg/kg	34 J	26 J	74 J	100 J	17 J	1.9 J	1.1 J	0.94 J	4 U	3.8 U	110 J	74 J	43 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	200 J	160 J	970 J	1400 J	87 J	21 J	15 J	11 J	34 J	21 J	490 J	310 J	230
C2 Chrysenes	NSL	NSL	µg/kg	130 J	140 J	630 J	930 J	67 J	16 J	11 J	14 J	12 J	13 J	400 J	240 J	250
C2 Fluorenes	NSL	NSL	µg/kg	31 J	29 J	370 J	580 J	25 J	6.5 J	4.5 J	3.6 J	5.5 J	4.2 J	120 J	81 J	48 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	310 J	240 J	1100 J	1500 J	130 J	20 J	14 J	15 J	23 J	18 J	780 J	500 J	400
C2-Naphthalenes	NSL	NSL	µg/kg	110 J	85 J	370 J	540 J	62 J	11 J	8.3 J	4.7 J	12 J	10 J	310 J	210 J	150 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	200 J	170 J	1600 J	2500 J	150 J	43 J	40 J	30 J	110 J	58 J	590 J	380 J	260
C3 Chrysenes	NSL	NSL	µg/kg	77 J	64 J	410 J	580 J	37 J	10 J	7.3 J	10 J	7.9 J	10 J	270 J	150 J	130 J
C3 Fluorenes	NSL	NSL	µg/kg	47 J	150 U	580 J	970 J	42 J	9.5 J	6.4 J	8 J	10 J	9.8 J	190 J	120 J	100 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	140 J	120 J	780 J	1200 J	76 J	17 J	13 J	15 J	24 J	21 J	480 J	320 J	300
C3-Naphthalenes	NSL	NSL	µg/kg	150 J	140 J	1300 J	2100 J	110 J	33 J	22 J	19 J	36 J	36 J	390 J	270 J	200
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	250 J	220 J	2600 J	4300 J	220 J	67 J	59 J	49 J	88 J	77 J	900 J	570 J	510
C4 Chrysenes	NSL	NSL	µg/kg	130 UJ	150 U	310 U	320 J	41 U	3.5 J	3.4 J	4.8 J	7.9 J	6.5 J	360 U	210 U	150 U
C4-Naphthalenes	NSL	NSL	µg/kg	99 J	89 J	1200 J	2000 J	93 J	59 J	31 J	31 J	80 J	52 J	290 J	200 J	160
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	130 J	130 J	1700 J	3100 J	120 J	33 J	22 J	24 J	45 J	32 J	620 J	430 J	370
Chrysene(a)(c)	166	1290	µg/kg	**510 J**	**420**	**1200**	**1500**	160	10	8.3	5.8	10	9.1	**1200**	**750**	**530**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	**120 J**	**98 J**	**250 J**	**280 J**	**40 J**	0.77 J	0.98 J	0.29 J	4 U	3.8 U	**280 J**	**180 J**	**120 J**
Fluoranthene(a)(c)	423	2230	µg/kg	**750 J**	**640**	**1600**	**2100**	250	10	8.3	2.3 J	4.6	3.2 J	**1700**	**1100**	**810**
Fluorene(a)(c)	77.4	536	µg/kg	46 J	44 J	**100 J**	**110 J**	18 J	2.1 J	1.4 J	0.39 J	0.36 J	3.8 U	**110 J**	68 J	46 J
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	**320 J**	**260**	**650**	**710**	100	2.3 J	2.4 J	0.51 J	0.53 J	0.52 J	**750**	**490**	**360**
Naphthalene(a)(c)	176	561	µg/kg	43 J	32 J	140 J	**270 J**	22 J	1.3 J	0.76 J	0.79 J	4 U	1.2 J	160 J	120 J	65 J
Perylene	NSL	NSL	µg/kg	130 J	110 J	310 J	340 J	53	28	13	24	18	15	300 J	180 J	120 J
Phenanthrene(a)(c)	204	1170	µg/kg	**300 J**	**260**	**780**	**1000**	100	7.6	5.7	2.1 J	5.9	5	**690**	**440**	**300**
Pyrene(a)(c)	195	1520	µg/kg	**580 J**	**480**	**1400**	**1900**	190	9.2	7	2.5 J	6	4.6	**1300**	**820**	**580**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**4940**	**4047**	**11274**	**13982**	**1604**	73	60	29	50	44	**11251**	**7210**	**5220**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	7826	6585	27233	38490	3122	452	332	283	550	417	19194	12317	9202
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	34317	---	---	---	---	---	1859	---	---	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	80382	---	---	---	---	---	5155	---	---	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-12	MLTC14-12	MLTC14-13	MLTC14-13	MLTC14-13	MLTC14-14	MLTC14-14	MLTC14-14	MLTC14-14	MLTC14-14	MLTC14-15	MLTC14-15	MLTC14-15	MLTC14-16
			Sample Name:	MLTC14-12-0103	MLTC14-12-0305	MLTC14-13-SURF	MLTC14-13-0001	MLTC14-13-0001-FD	MLTC14-14-SURF	MLTC14-14-0001	MLTC14-14-0103	MLTC14-14-0305	MLTC14-14-0507	MLTC14-15-SURF	MLTC14-15-0001	MLTC14-15-0103	MLTC14-16-SURF
			Sample Date:	10/15/2014	10/15/2014	10/22/2014	10/23/2014	10/23/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014
			Depth Interval (feet):	1 - 3	3 - 5	0 - 0.5	0 - 1	0 - 1	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	1 - 3	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	50 J	130 J	21 J	220 J	24 J	48 J	220 J	4.8 J	1.2 J	1.2 J	130 J	53 J	13 J	110 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	55 J	140 J	31 J	220 J	41 J	48 J	160 J	7.2 J	1.2 J	1.1 J	140 J	77 J	17 J	140 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**47 J**	**93 J**	**26 J**	**370 J**	**38 J**	**100 J**	**280 J**	**18 J**	1.1 J	**7 J**	**730 J**	**280 J**	**24 J**	**120 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**42 J**	**77 J**	**72 J**	**62 J**	**73 J**	**62 J**	**180 J**	**21 J**	0.85 J	10 U	**160 J**	**31 J**	5.6 J	**110 J**
Anthracene(a)(c)	57.2	845	µg/kg	**110 J**	**290 J**	**150 J**	**640 J**	**95 J**	**230 J**	**690**	**67**	1.4 J	14	**1300 J**	**720**	**72**	**350 J**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**500**	**1000**	**1100**	**2000 J**	**630 J**	**1600**	**2300**	**200**	5.9	25	**9800**	**2200**	**200**	**1500**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	**570**	**1200**	**960**	**1700**	**620**	**2100**	**2300**	**250**	6	19	**9000**	**1900**	130	**1400**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	500	1100	1300	1700 J	860 J	1800	1600	110	7	16	8100	2100	160	1900
Benzo(e)pyrene	NSL	NSL	µg/kg	380	790	780	1300	520	1300	1400	130	6	12	6400	1400	100	1100
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	**340**	**700**	**710**	**940**	**430**	**1500**	**1400**	140	7.9	12	**5400**	**1100**	73	**770**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	**370**	**700**	**870**	**1800 J**	**560 J**	**2100**	**2100**	220	6.2	20	**10000**	**1800**	120	**1200**
C1 Chrysenes	NSL	NSL	µg/kg	590 J	1300	370 J	810 J	230 J	1400 J	2700 J	230 J	13 J	15 J	3100 J	690 J	95 J	1000 J
C1 Fluorenes	NSL	NSL	µg/kg	160 J	350	20 J	93 J	17 J	250 J	460 J	20 J	2.1 J	2.2 J	220 J	67 J	19 J	270 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	1200 J	2700	870 J	1900 J	600 J	2800 J	5100 J	510 J	22 J	40 J	10000	2200 J	240 J	2500 J
C1-Naphthalenes	NSL	NSL	µg/kg	74 J	190 J	37 J	310 J	46 J	83 J	300 J	9.7 J	1.7 J	10 U	200 J	97 J	20 J	180 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	770 J	2200	260 J	1500 J	180 J	1700 J	3700 J	220 J	14 J	15 J	3500 J	940 J	190 J	2300 J
C2 Chrysenes	NSL	NSL	µg/kg	790 J	1900	210 J	320 J	120 J	1300 J	2200 J	130 J	11 J	9.5 J	1400 J	280 J	55 J	990 J
C2 Fluorenes	NSL	NSL	µg/kg	490 J	920	51 J	580 U	45 J	890 J	1400 J	38 J	5.9 J	4.9 J	4600 U	110 J	33 J	980 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	1200 J	2500	400 J	1300 J	290 J	2100 J	3800 J	260 J	19 J	18 J	3600 J	860 J	130 J	1900 J
C2-Naphthalenes	NSL	NSL	µg/kg	530 J	1500	120 J	630 J	120 J	630 J	1500 J	52 J	7.1 J	5.5 J	680 J	310 J	130 J	1200 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1800 J	4400	270 J	680 J	190 J	3300 J	6800 J	240 J	30 J	34 J	2200 J	580 J	170 J	4000 J
C3 Chrysenes	NSL	NSL	µg/kg	690 J	1000	110 J	240 J	88 J	480 J	1400 J	52 J	6.9 J	5.3 J	4600 U	670 U	28 J	670 J
C3 Fluorenes	NSL	NSL	µg/kg	800 J	1600	81 J	580 U	45 J	1500 J	2200 J	49 J	8.1 J	7 J	4600 U	93 J	37 J	1300 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	1100 J	2400	240 J	460 J	150 J	1400 J	3200 J	140 J	15 J	15 J	1700 J	340 J	69 J	1400 J
C3-Naphthalenes	NSL	NSL	µg/kg	1500 J	3700	140 J	420 J	140 J	2500 J	4400 J	110 J	21 J	15 J	1000 J	400 J	230 J	3200 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	2800 J	6900	340 J	520 J	290 J	4400 J	8900 J	290 J	47 J	42 J	2400 J	780 J	210 J	5500 J
C4 Chrysenes	NSL	NSL	µg/kg	130 U	340 U	230 U	580 U	160 U	630 U	710 J	55 U	4.1 U	10 U	4600 U	670 U	58 U	460 U
C4-Naphthalenes	NSL	NSL	µg/kg	1500 J	3200	120 J	170 J	97 J	2600 J	4000 J	84 J	31 J	24 J	700 J	280 J	160 J	2900 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1800 J	4700	220 J	270 J	190 J	3000 J	6200 J	180 J	27 J	22 J	1100 J	800 J	110 J	3300 J
Chrysene(a)(c)	166	1290	µg/kg	**600**	**1400**	**1000**	**1900 J**	**580 J**	**2600**	**2900**	**270**	12	29	**11000**	**2200**	**170**	**1600**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	**120 J**	**240 J**	**210 J**	**270 J**	**120 J**	**490 J**	**480 J**	**40 J**	1.9 J	4.1 J	**1700 J**	**330 J**	24 J	**230 J**
Fluoranthene(a)(c)	423	2230	µg/kg	**960**	**2000**	**1700**	**5000 J**	**1100 J**	**4100**	**4700**	270	12	71	**26000**	**5900**	390	**2700**
Fluorene(a)(c)	77.4	536	µg/kg	**94 J**	**280 J**	45 J	**440 J**	47 J	**180 J**	**440 J**	20 J	0.91 J	7.8 J	**1100 J**	**400 J**	40 J	**190 J**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	**290**	**590**	**660**	**930**	**410**	**1400**	**1100**	110	4.8	10	**4900**	**1000**	68	**690**
Naphthalene(a)(c)	176	561	µg/kg	59 J	140 J	40 J	**250 J**	39 J	65 J	**220 J**	8.3 J	1.1 J	1 J	**190 J**	82 J	6.6 J	**180 J**
Perylene	NSL	NSL	µg/kg	110 J	230 J	290	440 J	180	460 J	490 J	83	39	26	2500 J	500 J	58 J	360 J
Phenanthrene(a)(c)	204	1170	µg/kg	**290**	**950**	**470**	**5100 J**	**400 J**	**1700**	**2500**	150	8.6	58	**14000**	**3800**	**300**	**1600**
Pyrene(a)(c)	195	1520	µg/kg	**600**	**1300**	**1200**	**4000 J**	**900 J**	**2800**	**3300**	**290**	10	51	**21000**	**4500**	**310**	**2400**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**5547**	**12200**	**10544**	**27322**	**6943**	**22875**	**26650**	**2192**	89	351	**124520**	**28420**	**2110**	**17080**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	21541	49810	14917	37575	10080	51735	80350	4640	383	639	168980	38540	4007	48920
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	34218	---	---	37866	---	---	---	---	52156	---	---	155050	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	99747	---	---	52492	---	---	---	---	137746	---	---	211527	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-16	MLTC14-16	MLTC14-16	MLTC14-16	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-18	MLTC14-18
			Sample Name:	MLTC14-16-0001	MLTC14-16-0103	MLTC14-16-0305	MLTC14-16-0507	MLTC14-17-SURF	MLTC14-17-0001	MLTC14-17-0001-FD	MLTC14-17-0103	MLTC14-17-0305	MLTC14-17-0305-FD	MLTC14-17-0507	MLTC14-17-0709	MLTC14-18-SURF	MLTC14-18-0001
			Sample Date:	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/20/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	0 - 1	1 - 3	3 - 5	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	110 J	200 J	650 J	1500	360 J	460 J	340 J	400 J	300 J	260 J	42 J	73 J	930 J	780
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	120 J	160 J	950	2400	310 J	560 J	420 J	510 J	420 J	380 J	46 J	110 J	370 J	230 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**120 J**	**170 J**	**590 J**	**2200**	**260 J**	**320 J**	**230 J**	**410 J**	**310 J**	**330 J**	**65 J**	**220 J**	**420 J**	**330 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**110 J**	**130 J**	**240 J**	**320 J**	**240 J**	**250 J**	**200 J**	**310 J**	**260 J**	**340 J**	**76 J**	**280 J**	1000 U	**250 J**
Anthracene(a)(c)	57.2	845	µg/kg	**360 J**	**560 J**	**1000**	**1800**	**940**	**820 J**	**640**	**1200**	**1000**	**900**	**250**	**1200**	**900 J**	**880**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**1800**	**2000**	**3100**	**3300**	**3500**	**3100**	**2400**	**3000**	**3200**	**3000**	**660**	**3200**	**4500**	**3200**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	**1600**	**1500**	**2000**	**2100**	**2400**	**1900**	**1400**	**2500**	**2900**	**2400**	**670**	**2500**	**2900**	**2700**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	1800	1700	2400	1900	3000	2000	1500	1900	1800	1600	320	1600	3600	2500
Benzo(e)pyrene	NSL	NSL	µg/kg	1300	1200	1500	1500	2000	1700	1200	1800	1800	1600	330	1500	2600	1800
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	**970**	**800**	**950**	**990**	**1500**	**1000**	**790**	**1700**	**1900**	**1400**	**310**	**1000**	**2000**	**1200**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	**1500**	**1400**	**1600**	**1900**	**2000**	**1900**	**1400**	**2800**	**2600**	**2300**	**580**	**1700**	**2400**	**2400**
C1 Chrysenes	NSL	NSL	µg/kg	1200 J	1400 J	2600 J	2800 J	2700 J	2900 J	2300 J	3600 J	4100 J	3500 J	710 J	2300 J	3700 J	3000 J
C1 Fluorenes	NSL	NSL	µg/kg	260 J	360 J	610 J	700 J	570 J	640 J	520 J	630 J	440 J	420 J	84 J	380 J	780 J	610 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	2600 J	3300 J	5200 J	6300 J	6100 J	6500 J	5000 J	7200 J	7300 J	7800 J	1700 J	7600 J	6400 J	7500 J
C1-Naphthalenes	NSL	NSL	µg/kg	160 J	250 J	1100 J	2600 J	460 J	680 J	520 J	680 J	540 J	460 J	79 J	130 J	900 J	700 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	2400 J	3200 J	5900 J	6900 J	5600 J	6000 J	4700 J	4600 J	4200 J	3700 J	860 J	4600 J	6300 J	4800 J
C2 Chrysenes	NSL	NSL	µg/kg	940 J	1200 J	2500 J	2400 J	2400 J	3300 J	1900 J	3500 J	3400 J	3300 J	470 J	1200 J	3000 J	2800 J
C2 Fluorenes	NSL	NSL	µg/kg	1000 J	1200 J	1800 J	2000 J	2000 J	2300 J	1700 J	1800 J	1200 J	970 J	150 J	570 J	2000 J	1500 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	1900 J	2700 J	4300 J	4800 J	4400 J	5600 J	4800 J	5300 J	5600 J	4900 J	850 J	3000 J	4800 J	4600 J
C2-Naphthalenes	NSL	NSL	µg/kg	1200 J	1700 J	3700 J	5700 J	3600 J	4100 J	3000 J	3000 J	2200 J	2000 J	360 J	1500 J	9000 J	7200 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	4400 J	6000 J	12000 J	13000 J	10000 J	14000 J	11000 J	9600 J	8000 J	6200 J	880 J	3500 J	10000 J	7400 J
C3 Chrysenes	NSL	NSL	µg/kg	580 J	770 J	1600 J	1600 J	1400 J	2200 J	1200 J	2200 J	2300 J	1700 J	180 J	410 J	1600 J	1400 J
C3 Fluorenes	NSL	NSL	µg/kg	1400 J	1700 J	3000 J	3000 J	2900 J	3400 J	2400 J	3000 J	2200 J	1700 J	150 J	440 J	2600 J	2000 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	1500 J	1900 J	3800 J	4600 J	3800 J	5700 J	4300 J	4200 J	4100 J	3500 J	390 J	1200 J	4300 J	3100 J
C3-Naphthalenes	NSL	NSL	µg/kg	3200 J	4100 J	6200 J	8200 J	7500 J	8000 J	6200 J	6200 J	3600 J	2800 J	480 J	1900 J	16000 J	12000 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	4900 J	7900 J	15000 J	17000 J	16000 J	23000 J	16000 J	16000 J	12000 J	11000 J	940 J	3200 J	12000 J	12000 J
C4 Chrysenes	NSL	NSL	µg/kg	430 U	580 U	810 J	610 J	750 U	840 J	680 J	980 J	1400 J	700 J	140 U	630 U	650 J	640 J
C4-Naphthalenes	NSL	NSL	µg/kg	2900 J	3600 J	5500 J	6200 J	6400 J	7300 J	5300 J	5300 J	2900 J	2400 J	270 J	940 J	8700 J	6700 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	3100 J	5000 J	10000 J	11000 J	11000 J	16000 J	11000 J	12000 J	8500 J	8400 J	570 J	1700 J	7100 J	7200 J
Chrysene(a)(c)	166	1290	µg/kg	**1900**	**1900**	**2800**	**2900**	**3100**	**2900**	**2300**	**4100**	**4000**	**3300**	**810**	**2700**	**3600**	**3400**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	**300 J**	**260 J**	**290 J**	**300 J**	**420 J**	**300 J**	**240 J**	**520 J**	**610**	**490 J**	**100 J**	**280 J**	**610 J**	**470 J**
Fluoranthene(a)(c)	423	2230	µg/kg	**3200**	**3600**	**6200**	**6500**	**5800**	**5200**	**4200**	**5500**	**4500**	**4100**	**870**	**3400**	**6100**	**5300**
Fluorene(a)(c)	77.4	536	µg/kg	**250 J**	**550 J**	**960**	**1700**	**1000**	**900**	**800**	**660**	**510 J**	**480 J**	**87 J**	**400 J**	**1000 J**	**840**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	**870**	**730**	**890**	**890 J**	**1300**	**890**	**710**	**1500**	**1500**	**1200**	**260**	**880**	**1600**	**1100**
Naphthalene(a)(c)	176	561	µg/kg	160 J	**180 J**	**880**	**1100**	**380 J**	**340 J**	**220 J**	**800**	**830**	**650**	46 J	100 J	**300 J**	**220 J**
Perylene	NSL	NSL	µg/kg	430	430 J	530 J	530 J	640 J	490 J	370 J	640 J	640	620	160	520 J	680 J	530 J
Phenanthrene(a)(c)	204	1170	µg/kg	**1700**	**2400**	**4100**	**6900**	**3900**	**3300**	**2600**	**2800**	**2400**	**2500**	**580**	**3200**	**4600**	**3300**
Pyrene(a)(c)	195	1520	µg/kg	**2400**	**2900**	**4300**	**5300**	**5400**	**4900**	**3500**	**4800**	**3700**	**3900**	**820**	**5100**	**5100**	**3900**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**19160**	**20940**	**33250**	**42500**	**35450**	**30580**	**23550**	**35010**	**32440**	**29270**	**6550**	**27870**	**40500**	**32220**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	51225	64380	111850	132140	116785	133370	98120	117230	98740	88160	14947	60465	134140	111770
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	132930	---	---	---	---	---	---	---	167900	---	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	408515	---	---	---	---	---	---	---	541537	---	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

Location ID:				MLTC14-18	MLTC14-18	MLTC14-18	MLTC14-19	MLTC14-19	MLTC14-19	MLTC14-21	MLTC14-22	MLTC14-25	MLTC14-25	MLTC14-25	MLTC14-25	MLTC14-26
Sample Name:				MLTC14-18-0103	MLTC14-18-0103-FD	MLTC14-18-0305	MLTC14-19-SURF	MLTC14-19-0001	MLTC14-19-0103	MLTC14-21-SURF	MLTC14-22-SURF	MLTC14-25-SURF	MLTC14-25-0001	MLTC14-25-0103	MLTC14-25-0103-FD	MLTC14-26-SURF
Sample Date:				10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/21/2014	10/21/2014	10/20/2014	10/20/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/15/2014
Depth Interval (feet):				1 - 3	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	1 - 3	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**													
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	9.9 J	15 J	3.8 J	19 J	30 J	22 J	37 J	37 J	16 J	18 J	63 J	98 J	94 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	6.2 J	9.7 J	2 J	30 J	48 J	31 J	79 J	71 J	28 J	31 J	110 J	180 J	160 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**16 J**	**24 J**	1.5 J	**24 J**	**31 J**	**170 J**	**52 J**	**34 J**	**32 J**	**36 J**	**240 J**	**310 J**	**290 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**7.2 J**	**9.3 J**	5.1 U	**39 J**	**45 J**	**88 J**	**71 J**	**39 J**	**75 J**	**120 J**	**480 J**	**520 J**	**130 J**
Anthracene(a)(c)	57.2	845	µg/kg	28	51	2.5 J	**85 J**	**120**	**380**	**190 J**	**93 J**	**240**	**190 J**	**1300**	**1600**	**610 J**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**110**	**180**	12	**470**	**420**	**910**	**1000**	**600 J**	**940**	**1500**	**5200**	**6400**	**4100**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	100	**170**	7.9	**450**	**490**	**950**	**1000**	**550 J**	**950**	**1300**	**5200**	**5900**	**4500**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	93	160	15	530	410	610	1300	990 J	840	970	4000	5200	4700
Benzo(e)pyrene	NSL	NSL	µg/kg	65	100	9.3	360	330	570	930	590 J	590	850	3000	3500	3600
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	48	76	8.8	**370**	**390**	**590**	**960**	**520 J**	**610**	**920**	**3200**	**3500**	**3500**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	85	150	7.5	**390**	**510**	**700**	**1000**	**530 J**	**690**	**1000**	**3900**	**4300**	**3200**
C1 Chrysenes	NSL	NSL	µg/kg	97 J	140 J	15 J	240 J	340 J	920 J	540 J	610 J	600 J	850 J	2900 J	3100 J	4800 J
C1 Fluorenes	NSL	NSL	µg/kg	14 J	19 J	3.4 J	21 J	33 J	160 J	38 J	46 J	36 J	50 J	180 J	220 J	100 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	250 J	390 J	27 J	620 J	770 J	2100 J	1100 J	900 J	1600 J	2600 J	8400 J	11000 J	6500 J
C1-Naphthalenes	NSL	NSL	µg/kg	11 J	17 J	4 J	35 J	31 J	41 J	78 J	75 J	33 J	35 J	120 J	200 J	170 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	120 J	170 J	29 J	230 J	250 J	1000 J	470 J	350 J	370 J	640 J	2000 J	2500 J	1200 J
C2 Chrysenes	NSL	NSL	µg/kg	64 J	100 J	12 J	120 J	230 J	570 J	290 J	360 J	0.15 J	450 J	1400 J	1700 J	3900 J
C2 Fluorenes	NSL	NSL	µg/kg	29 J	37 J	9.5 J	32 J	40 J	190 J	91 J	81 J	44 J	79 J	240 J	360 J	170 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	130 J	190 J	22 J	300 J	370 J	960 J	620 J	680 J	680 J	980 J	2900 J	3800 J	4600 J
C2-Naphthalenes	NSL	NSL	µg/kg	89 J	120 J	29 J	110 J	170 J	310 J	240 J	250 J	110 J	110 J	470 J	630 J	460 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	140 J	200 J	57 J	220 J	300 J	1000 J	500 J	570 J	330 J	550 J	1600 J	2000 J	1500 J
C3 Chrysenes	NSL	NSL	µg/kg	28 J	48 J	7.2 J	67 J	120 J	300 J	140 J	210 J	82 J	110 J	300 J	300 J	1500 J
C3 Fluorenes	NSL	NSL	µg/kg	33 J	46 J	11 J	46 J	48 J	190 J	130 J	220 J	66 J	89 J	270 J	380 J	440 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	77 J	100 J	17 J	140 J	210 J	540 J	370 J	420 J	290 J	440 J	1600 J	1500 J	3300 J
C3-Naphthalenes	NSL	NSL	µg/kg	170 J	240 J	56 J	150 J	250 J	700 J	260 J	330 J	160 J	210 J	640 J	820 J	570 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	230 J	320 J	68 J	250 J	370 J	920 J	560 J	940 J	410 J	540 J	1800 J	2400 J	2800 J
C4 Chrysenes	NSL	NSL	µg/kg	28 U	37 U	4.8 J	130 U	110 U	160 J	310 U	100 J	200 U	230 U	990 U	1500 U	610 J
C4-Naphthalenes	NSL	NSL	µg/kg	110 J	150 J	40 J	99 J	170 J	440 J	170 J	270 J	170 J	160 J	400 J	600 J	450 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	140 J	190 J	34 J	170 J	230 J	470 J	370 J	820 J	260 J	260 J	1100 J	1400 J	2200 J
Chrysene(a)(c)	166	1290	µg/kg	130	**210**	15	**450**	**520**	**930**	**1100**	**650 J**	**970**	**1400**	**5100**	**6100**	**5500**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	17 J	26 J	2.2 J	**100 J**	**120**	**190**	**250 J**	**140 J**	**190 J**	**270**	**980 J**	**1000 J**	**1000**
Fluoranthene(a)(c)	423	2230	µg/kg	170	310	20	**750**	**800**	**1500**	**2000**	**1100 J**	**1300**	**1800**	**6700**	**8500**	**7400**
Fluorene(a)(c)	77.4	536	µg/kg	14 J	24 J	3.3 J	39 J	51 J	**140 J**	**98 J**	57 J	55 J	58 J	**400 J**	**510 J**	**290 J**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	44	72	5.5	**310**	**340**	**490**	**800**	**410 J**	**560**	**800**	**2900**	**3200**	**2800**
Naphthalene(a)(c)	176	561	µg/kg	7 J	13 J	1.4 J	47 J	65 J	60 J	140 J	85 J	64 J	75 J	**310 J**	**690 J**	**220 J**
Perylene	NSL	NSL	µg/kg	100	170	43	120 J	140	220	300 J	170 J	190 J	290	1100	1300 J	950
Phenanthrene(a)(c)	204	1170	µg/kg	94	160	15	**330**	**370**	**900**	**790**	**450 J**	**400**	**430**	**2900**	**3600**	**3300**
Pyrene(a)(c)	195	1520	µg/kg	160	**250**	17	**680**	**660**	**1500**	**1400**	**950 J**	**1000**	**1700**	**5700**	**7800**	**5500 J**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	1129	**1895**	139	**5094**	**5390**	**10139**	**12230**	**7269**	**8944**	**12600**	**48620**	**59310**	**47200**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	2827	4361	596	8019	9219	20369	18513	14090	14067	20557	74925	92290	78960
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	73989	---	---	20623	12230	7269	---	---	---	70164	47200
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	249334	---	---	37607	18513	14090	---	---	---	109549	78960

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-31	MLTC14-31	MLTC14-31	MLTC14-31	MLTC14-32	MLTC14-32	MLTC14-32	MLTC14-32	MLTC14-34	MLTC14-35	MLTC14-35	MLTC14-35	MLTC14-35
			Sample Name:	MLTC14-31-SURF	MLTC14-31-0001	MLTC14-31-0103	MLTC14-31-0305	MLTC14-32-SURF	MLTC14-32-SURF-FD	MLTC14-32-0001	MLTC14-32-0103	MLTC14-34-SURF	MLTC14-35-SURF	MLTC14-35-0001	MLTC14-35-0103	MLTC14-35-0103-FD
			Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/17/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 1	1 - 3	1 - 3
Analyte	**TEC**	**PEC**	**Unit**													
1-Methylnaphthalene[(b)]	NSL	NSL	µg/kg	14 J	150 J	120 J	330 J	71 J	66 J	130 J	400 J	35 J	57 J	48 J	3.9 U	4.4 U
2-Methylnaphthalene[(a)(b)]	NSL	NSL	µg/kg	21 J	98 J	61 J	180 J	130 J	110 J	190 J	360 J	72 J	75 J	45 J	3.9 U	4.4 U
Acenaphthene[(a)]	6.71*	NSL	µg/kg	**13 J**	500 U	**100 J**	**290 J**	**91 J**	**91 J**	**150 J**	**340 J**	**120 J**	**54 J**	**40 J**	0.2 J	0.33 J
Acenaphthylene[(a)]	5.87*	NSL	µg/kg	**17 J**	**230 J**	**78 J**	**370 J**	**100 J**	**97 J**	**190 J**	**300 J**	**52 J**	**61 J**	**47 J**	0.19 J	0.12 J
Anthracene[(a)(c)]	57.2	845	µg/kg	**92 J**	**420 J**	**330**	**1200 J**	**260 J**	**250 J**	**510 J**	**1000 J**	**190 J**	**180 J**	**99 J**	0.45 J	1 J
Benzo(a)anthracene[(a)(c)]	108	1050	µg/kg	**370**	**3200**	**1300**	**8800**	**1700**	**2100**	**3100**	**4600 B**	**2000**	**1000**	**720**	4.2	4.6
Benzo(a)pyrene[(a)(c)]	150	1450	µg/kg	**350**	**2600**	**1000**	**7400**	**2100**	**2700**	**3700**	**3900**	**2300**	**1100**	**710**	3.4 J	3.2 J
Benzo(b)fluoranthene[(a)]	10400*	NSL	µg/kg	380	1700	780	5500	2100	2900	2900	3100	2600	1100	660	3.7 J	3.9 J
Benzo(e)pyrene	NSL	NSL	µg/kg	310	2000	920	7700	1600	2000	2500	3100	1800	840	560	3.1 J	3 J
Benzo(g,h,i)perylene[(a)]	170*	NSL	µg/kg	**240**	**1700**	**690**	**5200**	**1700**	**1900**	**2500**	**2500**	**2300**	**910**	**540**	3.1 J	2.8 J
Benzo(k)fluoranthene[(a)]	240*	NSL	µg/kg	**260**	**1800**	**690**	**3900**	**1500**	**2000**	**2500**	**2900**	**2400**	**960**	**630**	3.5 J	3.3 J
C1 Chrysenes	NSL	NSL	µg/kg	530 J	6500 J	3100 J	24000 J	1700 J	1800 J	4400 J	9200 J	1100 J	1400 J	1300 J	6.4 J	5.1 J
C1 Fluorenes	NSL	NSL	µg/kg	30 J	370 J	240 J	820 J	56 J	52 J	170 J	670 J	35 J	64 J	90 J	0.49 J	0.4 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	800 J	7600 J	3300 J	20000 J	2400 J	2800 J	5400 J	10000 J	2200 J	1600 J	1600 J	8.7 J	7.7 J
C1-Naphthalenes	NSL	NSL	µg/kg	24 J	180 J	130 J	380 J	140 J	120 J	230 J	530 J	73 J	92 J	67 J	0.61 J	0.46 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	310 J	3600 J	2200 J	7800 J	620 J	590 J	1800 J	5100 J	330 J	610 J	690 J	2.4 J	2.6 J
C2 Chrysenes	NSL	NSL	µg/kg	410 J	3700 J	2100 J	16000 J	1200 J	1400 J	2300 J	6000 J	560 J	810 J	830 J	4.4 J	3.5 J
C2 Fluorenes	NSL	NSL	µg/kg	76 J	1000 J	630 J	2400 J	120 J	92 J	410 J	2100 J	49 J	200 J	280 J	1.5 J	0.97 J
C2-Fluoranthenes/Pyrenes[(b)]	NSL	NSL	µg/kg	550 J	5200 J	2600 J	16000 J	1500 J	1600 J	3100 J	8100 J	910 J	1100 J	1200 J	6.4 J	5.3 J
C2-Naphthalenes	NSL	NSL	µg/kg	110 J	1200 J	1000 J	2300 J	370 J	340 J	750 J	2400 J	170 J	310 J	340 J	2.2 J	1.8 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	530 J	6400 J	3500 J	15000 J	740 J	670 J	2500 J	11000 J	280 J	1100 J	1400 J	6.5 J	5 J
C3 Chrysenes	NSL	NSL	µg/kg	110 J	1700 J	1000 J	6400 J	380 J	450 J	1100 J	3000 J	80 J	490 J	520 J	2.1 J	1.8 J
C3 Fluorenes	NSL	NSL	µg/kg	130 J	1600 J	920 J	3700 J	180 J	180 J	590 J	3300 J	71 J	330 J	500 J	2 J	1.5 J
C3-Fluoranthenes/Pyrenes[(b)]	NSL	NSL	µg/kg	410 J	3300 J	1900 J	11000 J	1100 J	970 J	1800 J	6000 J	500 J	690 J	900 J	7.4 J	4.2 J
C3-Naphthalenes	NSL	NSL	µg/kg	300 J	4100 J	2600 J	8000 J	420 J	390 J	1500 J	8100 J	170 J	580 J	800 J	4.2 J	3.2 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	750 J	7500 J	4400 J	17000 J	1000 J	1100 J	3000 J	15000 J	380 J	1400 J	2400 J	10 J	8.7 J
C4 Chrysenes	NSL	NSL	µg/kg	110 U	550 J	330 J	2100 J	350 U	500 U	310 J	1100 J	340 U	170 J	210 J	3.9 U	4.4 U
C4-Naphthalenes	NSL	NSL	µg/kg	260 J	3300 J	2000 J	6500 J	260 J	260 J	1100 J	7400 J	120 J	420 J	700 J	3.1 J	2.4 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	460 J	5000 J	3000 J	9800 J	780 J	800 J	1800 J	11000 J	260 J	1000 J	1700 J	6.7 J	6 J
Chrysene[(a)(c)]	166	1290	µg/kg	**510**	**4100**	**1800**	**13000**	**2000**	**2600**	**3900**	**6200**	**2400**	**1400**	**950**	5.6	5.6
Dibenzo(a,h)anthracene[(a)]	33	NSL	µg/kg	**76 J**	**660**	**270 J**	**2100**	**500**	**550**	**820**	**980 J**	**720**	**340**	**200 J**	1.2 J	0.99 J
Fluoranthene[(a)(c)]	423	2230	µg/kg	**480**	**3000**	**1600**	**7400**	**2300**	**2700**	**4000**	**6600**	**2100**	**1800**	**1200**	6.9	8.3
Fluorene[(a)(c)]	77.4	536	µg/kg	43 J	**270 J**	**230 J**	**500 J**	**110 J**	**120 J**	**230 J**	**590 J**	**79 J**	**85 J**	62 J	0.39 J	0.57 J
Indeno(1,2,3-cd)pyrene[(a)]	200*	NSL	µg/kg	190	**1300**	**450**	**2900**	**1400**	**1600**	**2100**	**2000**	**2100**	**780**	**450**	2.5 J	2.3 J
Naphthalene[(a)(c)]	176	561	µg/kg	29 J	130 J	100 J	**380 J**	**200 J**	**180 J**	**310 J**	**490 J**	**190 J**	98 J	55 J	3.9 U	4.4 U
Perylene	NSL	NSL	µg/kg	67 J	520	230 J	1300 J	460	590	790	920 J	690	280	180 J	1.3 J	1.4 J
Phenanthrene[(a)(c)]	204	1170	µg/kg	180	**1300**	**1100**	**2800**	**860**	**830**	**1400**	**2700**	**640**	**600**	**370**	2.6 J	4.2 J
Pyrene[(a)(c)]	195	1520	µg/kg	**410**	**3000**	**1500**	**8100**	**1600**	**2100**	**3300**	**5500**	**1900**	**1200**	**980**	6.1	7
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**3661**	**25758**	**12079**	**70020**	**18651**	**22828**	**31800**	**44060**	**22163**	**11743**	**7758**	48	53
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	8902	82480	43618	221040	31122	36602	62260	143620	30629	23364	21880	114	108
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	111518	---	---	---	94511	22163	---	---	---	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	356040	---	---	---	237002	30629	---	---	---	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-35	MLTC14-36	MLTC14-36	MLTC14-36	MLTC14-37	MLTC14-37	MLTC14-37	MLTC14-38	MLTC14-39	MLTC14-40	MLTC14-40	MLTC14-40	MLTC14-40	MLTC14-41
			Sample Name:	MLTC14-35-0305	MLTC14-36-SURF	MLTC14-36-0001	MLTC14-36-0103	MLTC14-37-SURF	MLTC14-37-0001	MLTC14-37-0103	MLTC14-38-SURF	MLTC14-39-SURF	MLTC14-40-SURF	MLTC14-40-0001	MLTC14-40-0103	MLTC14-40-0305	MLTC14-41-SURF
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/20/2014	10/16/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	3 - 5	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	4.2 U	90 J	1.8 J	0.25 J	210 J	22 J	3.2 J	16 J	120 J	29 J	6.3 J	0.2 J	0.2 J	47 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	4.2 U	140 J	3.3 J	4.4 U	360 J	38 J	6 J	25 J	220 J	51 J	10 J	4.8 U	4.3 U	90 J
Acenaphthene(a)	6.71*	NSL	µg/kg	0.1 J	**170 J**	3.8 J	0.071 J	**360 J**	**32 J**	4.5 J	**51 J**	**150 J**	**37 J**	3.3 J	0.088 J	4.3 U	**99 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	0.094 J	**160 J**	4.7 J	0.28 J	**360 J**	**160 J**	4 J	**130 J**	**240 J**	**49 J**	**5.9 J**	0.25 J	0.12 J	**200 J**
Anthracene(a)(c)	57.2	845	µg/kg	0.31 J	**550**	8 J	0.59 J	**1100 J**	**500**	5.7 J	**460**	**780 J**	**95 J**	23 J	0.44 J	0.27 J	**480 J**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	2.1 J	**2300**	54	3.5 J	**5900**	**3000**	59	**1300**	**2500**	**530 J**	55 J	2 J	1.4 J	**3700**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	1.4 J	**2700**	73	3.3 J	**7600**	**2200**	65	**1300**	**2300**	**670 J**	58 J	2.1 J	1.8 J	**4300**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	2 J	1900	52	3 J	5400	1300	66	760 J	1600	620 J	58 J	2.7 J	1.8 J	3000
Benzo(e)pyrene	NSL	NSL	µg/kg	1.5 J	1700	48	2.5 J	4600	1400	57	650	1400	440 J	43 J	2.3 J	1.8 J	2400
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	1.6 J	**1700**	48	2.5 J	**4700**	**1300**	66	**670**	**1400**	**480 J**	46 J	2.5 J	1.9 J	**2400**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	1.6 J	**2400**	55	3.1 J	**6900**	**2000**	76	**1100**	**1800**	**570 J**	58 J	2.1 J	1.5 J	**4100**
C1 Chrysenes	NSL	NSL	µg/kg	2.2 J	2000 J	69 J	4.5 J	4500 J	2200 J	49 J	980 J	2100 J	530 J	40 UJ	4.2 J	2.9 J	2300 J
C1 Fluorenes	NSL	NSL	µg/kg	0.27 J	91 J	2.2 J	4.4 U	160 J	110 J	2 J	61 J	140 J	25 J	7.1 J	4.8 U	4.3 U	58 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	4.4 J	3500 J	77 J	5 J	8000 J	6900 J	86 J	2400 J	4100 J	840 J	92 J	4.5 J	2.6 J	4800 J
C1-Naphthalenes	NSL	NSL	µg/kg	0.45 J	170 J	3.4 J	4.4 U	440 J	44 J	6.2 J	46 J	230 J	57 J	12 J	4.8 U	4.3 U	100 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1.2 J	950 J	18 J	1.7 J	1800 J	2000 J	16 J	690 J	1600 J	210 J	44 J	1.5 J	0.89 J	780 J
C2 Chrysenes	NSL	NSL	µg/kg	1.8 J	1100 J	36 J	2.5 J	2200 J	690 J	24 J	350 J	660 J	340 J	40 UJ	2.7 J	4.3 U	810 J
C2 Fluorenes	NSL	NSL	µg/kg	4.2 U	160 J	4.4 J	4.4 U	330 J	120 J	3.7 J	73 J	210 J	48 J	12 J	4.8 U	4.3 U	91 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	3.1 J	1700 J	51 J	3.8 J	3400 J	1900 J	35 J	1000 J	1600 J	410 J	51 J	4.8 U	2.7 J	1600 J
C2-Naphthalenes	NSL	NSL	µg/kg	1.2 J	450 J	8.8 J	1.2 J	960 J	130 J	12 J	130 J	510 J	130 J	30 J	1.5 J	0.97 J	210 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	3.2 J	1000 J	22 J	2.3 J	1800 J	1400 J	18 J	560 J	1400 J	240 J	33 J	2.4 J	1.6 J	570 J
C3 Chrysenes	NSL	NSL	µg/kg	1.2 J	510 J	16 J	1.7 J	870 J	160 J	9.5 J	95 J	250 J	140 UJ	40 UJ	4.8 U	4.3 U	350 J
C3 Fluorenes	NSL	NSL	µg/kg	4.2 U	270 J	5.8 J	4.4 U	430 J	120 J	4.4 J	77 J	210 J	77 J	40 UJ	4.8 U	4.3 U	700 U
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	2.5 J	1000 J	30 J	2.4 J	1700 J	520 J	19 J	290 J	660 J	190 J	28 J	4.8 U	4.3 U	580 J
C3-Naphthalenes	NSL	NSL	µg/kg	2.1 J	510 J	11 J	1.7 J	1000 J	210 J	12 J	240 J	630 J	150 J	25 J	2 J	1.1 J	260 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	5 J	1600 J	35 J	2.6 J	2500 J	810 J	26 J	530 J	930 J	340 J	41 J	3.4 J	2.6 J	640 J
C4 Chrysenes	NSL	NSL	µg/kg	4.2 U	480 U	13 U	4.4 U	1300 U	430 U	11 U	200 U	790 U	140 UJ	40 UJ	4.8 U	4.3 U	700 U
C4-Naphthalenes	NSL	NSL	µg/kg	1.7 J	350 J	7.1 J	0.96 J	620 J	160 J	9.2 J	180 J	360 J	88 J	23 J	1.3 J	4.3 U	160 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	3 J	1100 J	23 J	1.4 J	1400 J	230 J	14 J	300 J	460 J	260 J	40 UJ	1.8 J	1.4 J	340 J
Chrysene(a)(c)	166	1290	µg/kg	2.8 J	**2900**	59	4.3 J	**7000**	**3000**	70	**1500**	**2500**	**590 J**	78 J	3.3 J	2.4 J	**4300**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	0.48 J	**650**	19	0.95 J	**1700**	**380 J**	25	**180 J**	**480 J**	**170 J**	14 J	0.6 J	0.53 J	**1000**
Fluoranthene(a)(c)	423	2230	µg/kg	4.4	**3100**	55	3.1 J	**6700**	**2800**	56	**1900**	**4400**	**790 J**	150 J	3.9 J	2.3 J	**4300**
Fluorene(a)(c)	77.4	536	µg/kg	0.28 J	**180 J**	3.4 J	0.19 J	**310 J**	44 J	2.9 J	71 J	**220 J**	59 J	24 J	0.31 J	4.3 U	**110 J**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	1.2 J	**1500**	44	2.1 J	**4200**	**1000**	58	**590**	**1300**	**430 J**	42 J	1.6 J	1.2 J	**2400**
Naphthalene(a)(c)	176	561	µg/kg	4.2 U	**260 J**	4.7 J	4.4 U	**690 J**	67 J	8.7 J	99 J	**330 J**	79 J	16 J	4.8 U	4.3 U	150 J
Perylene	NSL	NSL	µg/kg	1.2 J	580	46	2.3 J	1800	460	36	320	540 J	170 J	18 J	1.7 J	0.86 J	1200
Phenanthrene(a)(c)	204	1170	µg/kg	2 J	**1500**	25	1.2 J	**2400**	**810**	20	**610**	**1600**	**360 J**	110 J	1.6 J	1.2 J	**1300**
Pyrene(a)(c)	195	1520	µg/kg	4 J	**2700**	51	2.6 J	**6300**	**4400**	69	**1700**	**3000**	**690 J**	82 J	3.7 J	2.3 J	**3800**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	29	**24810**	563	35	**61980**	**23031**	662	**12446**	**24820**	**6270**	833	32	27	**35729**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	63	40951	999	74	95680	40352	1046	20203	40725	10304	1323	73	59	51408
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	19577	---	---	25408.081	---	---	85673	12446	24820	---	---	---	7163	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	45421	---	---	42024.141	---	---	137078	20203	40725	---	---	---	11760	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-43	MLTC14-43	MLTC14-43	MLTC14-45	MLTC14-45	MLTC14-45
			Sample Name:	MLTC14-41-0001	MLTC14-41-0103	MLTC14-41-0103-FD	MLTC14-41-0305	MLTC14-41-0305-FD	MLTC14-41-0507	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-43-0001	MLTC14-43-0103	MLTC14-43-0305	MLTC14-45-SURF	MLTC14-45-0001	MLTC14-45-0103
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/20/2014	10/17/2014	10/20/2014	10/20/2014	10/20/2014	10/17/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	0 - 1	1 - 3	1 - 3	3 - 5	3 - 5	5 - 7	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	2 J	0.79 J	2.6 J	3.2 J	2.3 J	2.1 J	45 J	52 J	2.7 J	1.1 J	0.66 J	7.7 J	4 J	0.19 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	2.5 J	0.69 J	2.5 J	3 J	2.1 J	1.9 J	58 J	95 J	3.8 J	1.7 J	0.94 J	14 J	3.8 J	0.28 J
Acenaphthene(a)	6.71*	NSL	µg/kg	2.6 J	0.45 J	1.3 J	0.46 J	0.37 J	0.37 J	**250 J**	**72 J**	3.5 J	1.1 J	0.13 J	**15 J**	1.1 J	0.1 J
Acenaphthylene(a)	5.87*	NSL	µg/kg	2.8 J	**14 J**	0.44 J	12 U	0.48 J	6.9 U	**300 J**	**160 J**	**6.5 J**	2.7 J	0.19 J	**39 J**	**9.4**	0.093 J
Anthracene(a)(c)	57.2	845	µg/kg	12	1.8 J	2.3 J	0.65 J	0.42 J	0.51 J	**930**	**240 J**	8.3 J	3.3 J	0.55 J	**86**	5.3 J	4.4 U
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	65	70 J	9.6 J	2.2 J	2.8 J	2 J	**3600**	**1500 J**	97	23	2.4 J	**330**	33	4.4 U
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	76	72 J	8.3 J	1.7 J	2.5 J	1.4 J	**4700**	**2000 J**	130	34	2.3 J	**360**	28	0.83 J
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	82	59 J	19 J	3.9 J	7.2	4.2 J	2500 J	1500 J	130	27	2.9 J	250	28	1.6 J
Benzo(e)pyrene	NSL	NSL	µg/kg	48	40 J	8.5 J	3.9 J	3.8 J	4.5 J	2400	1200 J	77	23	2.9 J	190	21	1.8 J
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	46	37 J	7.6 J	6.1 J	4.8 J	6.6 J	**2300**	**1300 J**	71	24	2.9 J	**210**	25	2.1 J
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	63	50 J	8.1 J	2 J	2.5 J	2.2 J	**4400**	**1600 J**	95	27	2.6 J	**270**	28	0.94 J
C1 Chrysenes	NSL	NSL	µg/kg	37 J	58 J	12 J	13 J	8.4 J	15 J	3300 J	1300 J	75 J	19 J	4.3 J	290 J	34 J	2.9 J
C1 Fluorenes	NSL	NSL	µg/kg	2.5 J	1.8 J	1.9 J	2.5 J	1.6 J	2.9 J	100 J	54 J	2.5 J	1.6 J	0.56 J	24 J	3.4 J	4.4 U
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	95 J	120 J	30 J	17 J	15 J	16 J	5800 J	2100 J	150 J	34 J	8.2 J	620 J	60 J	2.8 J
C1-Naphthalenes	NSL	NSL	µg/kg	3.2 J	1 J	3.9 J	4.3 J	3.1 J	2.9 J	140 J	100 J	4.6 J	2 J	1.1 J	15 J	5.6 J	0.36 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	26 J	19 J	16 J	16 J	13 J	20 J	1200 J	490 J	23 J	7.7 J	5.9 J	170 J	24 J	1.2 J
C2 Chrysenes	NSL	NSL	µg/kg	19 J	24 J	11 J	8.7 J	8.6 J	17 J	1300 J	790 J	38 J	17 J	4 J	140 J	18 J	4.4 U
C2 Fluorenes	NSL	NSL	µg/kg	6.4 J	5.4 J	5.6 J	5.6 J	4.9 J	6.2 J	120 J	120 J	5.9 J	1.9 J	5 U	28 J	6 J	4.4 U
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	40 J	50 J	21 J	19 J	16 J	20 J	2200 J	990 J	60 J	22 J	5 U	270 J	32 J	4.4 U
C2-Naphthalenes	NSL	NSL	µg/kg	10 J	4.9 J	11 J	13 J	9.9 J	11 J	320 J	270 J	15 J	6.1 J	3.8 J	52 J	18 J	1.3 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	32 J	35 J	20 J	22 J	19 J	28 J	990 J	570 J	32 J	11 J	5 U	160 J	28 J	2.6 J
C3 Chrysenes	NSL	NSL	µg/kg	7.8 J	7.1 J	6.8 J	12 U	7 U	8.4 J	350 J	210 UJ	15 J	9.4 J	5 U	60 J	12 J	4.4 U
C3 Fluorenes	NSL	NSL	µg/kg	6 J	5.4 J	5.2 J	5.8 J	4.4 J	7.5 J	120 J	150 J	7.8 J	3 J	5 U	31 J	8.6 J	4.4 U
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	20 J	22 J	15 J	15 J	13 J	16 J	820 J	560 J	28 J	11 J	5 U	97 J	21 J	4.4 U
C3-Naphthalenes	NSL	NSL	µg/kg	16 J	10 J	19 J	26 J	20 J	32 J	350 J	330 J	17 J	7.5 J	4.6 J	85 J	33 J	2.1 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	41 J	46 J	36 J	39 J	36 J	45 J	1000 J	780 J	51 J	17 J	5 U	210 J	47 J	4.7 J
C4 Chrysenes	NSL	NSL	µg/kg	9.8 U	7.7 U	9.5 U	12 U	7 U	7.7 J	720 U	210 UJ	23 U	3 J	5 U	65 U	6.3 U	4.4 U
C4-Naphthalenes	NSL	NSL	µg/kg	17 J	13 J	20 J	31 J	25 J	38 J	200 J	200 J	13 J	5.3 J	3 J	54 J	26 J	4.4 U
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	28 J	21 J	21 J	12 U	18 J	22 J	530 J	460 J	32 J	10 J	5 U	96 J	42 J	4.4 U
Chrysene(a)(c)	166	1290	µg/kg	76	64 J	16 J	9.1 J	7.9	10	**5000**	**1800 J**	110	27	5.7	**340**	38	3.2 J
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	17	11 J	2.1 J	0.69 J	1.1 J	0.95 J	**670 J**	**510 J**	24	7.8	0.57 J	**80**	7.4	0.25 J
Fluoranthene(a)(c)	423	2230	µg/kg	91	45	22	5.2 J	4.4 J	5 J	**4400**	**1800 J**	89	23	4.2 J	400	36	4.4 U
Fluorene(a)(c)	77.4	536	µg/kg	4 J	0.9 J	2.4 J	2.3 J	1.6 J	2 J	**190 J**	**92 J**	4.4 J	1.7 J	5 U	25 J	2.9 J	4.4 U
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	46	33 J	5.8 J	1.8 J	2.1 J	1.8 J	**2000**	**1200 J**	64	22	1.6 J	200	21	0.63 J
Naphthalene(a)(c)	176	561	µg/kg	3.9 J	0.69 J	2.4 J	2.1 J	1.3 J	6.9 U	**320 J**	160 J	5.7 J	2.1 J	5 U	26 J	3.5 J	4.4 U
Perylene	NSL	NSL	µg/kg	79	55	81	59	60	60	1400	470 J	44	17	17	86	39	1.2 J
Phenanthrene(a)(c)	204	1170	µg/kg	32	4.1 J	12	6 J	4.4 J	6.3 J	**1400**	**680 J**	26 J	8.4	5 U	170	14	4.4 U
Pyrene(a)(c)	195	1520	µg/kg	67	51 J	16 J	5.3 J	4 J	4.5 J	**4200**	**1500 J**	84	20	5	**390**	29	4.4 U
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	689	515	138	59	50	57	**37218**	**16209**	952	256	39	**3205**	313	25
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	1165	984	449	340	306	399	57140	25708	1563	450	111	5535	738	64
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	---	37048	37218	---	---	---	17456	---	---	3544
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	---	54297	57140	---	---	---	27832	---	---	6337

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-46	MLTC14-46	MLTC14-46	MLTC14-46	MLTC14-46	MLTC14-47	MLTC14-47	MLTC14-47	MLTC14-47	MLTC14-47	MLTC14-48	MLTC14-48	MLTC14-48	MLTC14-48
			Sample Name:	MLTC14-46-SURF	MLTC14-46-0001	MLTC14-46-0001-FD	MLTC14-46-0103	MLTC14-46-0305	MLTC14-47-SURF	MLTC14-47-0001	MLTC14-47-0103	MLTC14-47-0305	MLTC14-47-0507	MLTC14-48-SURF	MLTC14-48-0001	MLTC14-48-0001-FD	MLTC14-48-0103
			Sample Date:	10/17/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/17/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/22/2014	10/23/2014	10/23/2014	10/23/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	47 J	8.4 J	14 J	0.88 J	0.51 J	48 J	19 J	41 J	990 J	140 J	31 J	130 J	92 J	220 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	87 J	14 J	24 J	1.4 J	0.43 J	87 J	33 J	67 J	270 J	65 J	57 J	130 J	94 J	170 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**54 J**	**7.4 J**	**20 J**	0.73 J	5.7 U	**48 J**	**24 J**	**70 J**	**570 J**	**130 J**	**67 J**	**200 J**	**150 J**	**380 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**110 J**	**17 J**	**46 J**	2.4 J	5.7 U	**99 J**	**50 J**	**96 J**	**370 J**	**98 J**	**80 J**	**280 J**	**180 J**	**300 J**
Anthracene(a)(c)	57.2	845	µg/kg	**160 J**	26 J	**66 J**	2.9 J	5.7 U	**170 J**	**85 J**	**220 J**	**5200 J**	**1400 J**	**290**	**1200**	**750**	**1900**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**940 J**	**190 J**	**490 J**	20	5.7 U	**940 J**	**540 J**	**1200**	**14000**	**5200**	**1000**	**3800**	**2700**	**4400**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	**1300 J**	**220 J**	**630 J**	30	0.68 J	**1300 J**	**690 J**	**1400**	**7100**	**2300**	**1000**	**2900**	**1900**	**3100**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	910 J	240 J	530 J	31	4.3 J	930 J	690 J	1500	6400	2300	1000	2500	1900	3000
Benzo(e)pyrene	NSL	NSL	µg/kg	790 J	160 J	420 J	22	2 J	790 J	470 J	960	8400	3600	730	2000	1400	2200
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	**880 J**	130 J	**330 J**	23	1.5 J	**940 J**	**410 J**	**740**	**2100 J**	**970 J**	**600**	**1500**	**920**	**1500**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	**1000 J**	180 J	**440 J**	21	5.7 UJ	**1100 J**	**560 J**	**1000**	**3500 J**	**1300 J**	**830**	**2500**	**1800**	**2600**
C1 Chrysenes	NSL	NSL	µg/kg	1100 J	200 J	500 J	22 J	4.2 J	1000 J	460 J	1400 J	28000 J	10000 J	440 J	1500 J	1100 J	1800 J
C1 Fluorenes	NSL	NSL	µg/kg	52 J	9.2 J	20 J	1.4 J	5.7 U	51 J	19 J	83 J	6500 J	1700 J	43 J	180 J	140 J	330 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	1500 J	330 J	920 J	33 J	4 J	1500 J	820 J	2300 J	65000 J	25000 J	1300 J	4500 J	3600 J	6100 J
C1-Naphthalenes	NSL	NSL	µg/kg	92 J	16 J	27 J	1.7 J	0.66 J	92 J	36 J	78 J	910 J	140 J	70 J	190 J	130 J	280 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	440 J	86 J	250 J	8.8 J	2.3 J	450 J	210 J	890 J	71000 J	22000 J	520 J	2200 J	1600 J	3400 J
C2 Chrysenes	NSL	NSL	µg/kg	750 J	140 J	320 J	39 J	2.6 J	650 J	320 J	1100 J	16000 J	6000 J	200 J	650 J	500 J	730 J
C2 Fluorenes	NSL	NSL	µg/kg	110 J	23 J	52 J	2.4 J	5.7 U	120 J	44 J	230 J	11000 J	3400 J	78 J	440 J	310 J	640 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	950 J	200 J	450 J	27 J	4 J	860 J	420 J	1500 J	34000 J	14000 J	500 J	1700 J	1400 J	2200 J
C2-Naphthalenes	NSL	NSL	µg/kg	230 J	50 J	88 J	6.2 J	2.7 J	250 J	110 J	330 J	10000 J	3100 J	220 J	900 J	680 J	1400 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	570 J	130 J	320 J	13 J	6.7 J	600 J	270 J	1200 J	42000 J	13000 J	440 J	2500 J	1700 J	3500 J
C3 Chrysenes	NSL	NSL	µg/kg	190 UJ	45 UJ	140 J	17 J	5.7 U	200 UJ	97 UJ	450 J	3500 J	1500 J	77 J	180 J	160 J	290 J
C3 Fluorenes	NSL	NSL	µg/kg	200 J	32 J	70 J	4.6 J	5.7 U	180 J	70 J	310 J	9300 J	2800 J	86 J	560 J	380 J	760 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	470 J	120 J	260 J	18 J	4.4 J	560 J	230 J	860 J	19000 J	6300 J	210 J	800 J	590 J	1000 J
C3-Naphthalenes	NSL	NSL	µg/kg	310 J	65 J	130 J	9.3 J	3.9 J	320 J	130 J	560 J	15000 J	5100 J	260 J	1500 J	1100 J	2200 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	890 J	220 J	480 J	24 J	10 J	850 J	440 J	2000 J	32000 J	10000 J	490 J	2600 J	2000 J	3700 J
C4 Chrysenes	NSL	NSL	µg/kg	190 UJ	45 UJ	71 UJ	6.8 U	5.7 U	200 UJ	97 UJ	260 U	6300 U	1900 U	240 U	650 U	460 U	900 U
C4-Naphthalenes	NSL	NSL	µg/kg	200 J	45 J	99 J	6.6 J	4.1 J	200 J	84 J	440 J	7900 J	2800 J	160 J	1100 J	870 J	1500 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	570 J	170 J	280 J	15 J	5.7 U	550 J	270 J	1200 J	16000 J	5000 J	270 J	1400 J	1000 J	2000 J
Chrysene(a)(c)	166	1290	µg/kg	**1200 J**	**230 J**	**570 J**	26	2.6 J	**1200 J**	**660 J**	**1600**	**23000**	**11000**	**970**	**3200**	**2300**	**3700**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	**330 J**	**48 J**	**110 J**	7.8	5.7 U	**340 J**	**140 J**	**260 J**	**1600 J**	**620 J**	**160 J**	**450 J**	**270 J**	**410 J**
Fluoranthene(a)(c)	423	2230	µg/kg	**1300 J**	270 J	**640 J**	26	5.7 U	**1500 J**	**810 J**	**1600**	**10000**	**3600**	**1500**	**5600**	**3800**	**7700**
Fluorene(a)(c)	77.4	536	µg/kg	**88 J**	19 J	31 J	2.1 J	5.7 U	75 J	36 J	**130 J**	**3000 J**	**720 J**	**120 J**	**530 J**	**390 J**	**960**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	**800 J**	120 J	**300 J**	19	0.39 J	**850 J**	**380 J**	**680**	**1600 J**	**650 J**	**530**	**1400**	**870**	**1400**
Naphthalene(a)(c)	176	561	µg/kg	140 J	21 J	37 J	2.1 J	5.7 U	120 J	54 J	120 J	6300 U	45 J	170 J	**490 J**	**300 J**	**640 J**
Perylene	NSL	NSL	µg/kg	300 J	57 J	150 J	37	45	310 J	140 J	280	780 J	190 J	270	780	530	890 J
Phenanthrene(a)(c)	204	1170	µg/kg	**530 J**	97 J	200 J	11	5.7 U	**510 J**	**280 J**	**840**	**54000**	**15000**	**770**	**2700**	**2000**	**4900**
Pyrene(a)(c)	195	1520	µg/kg	**1100 J**	**200 J**	**560 J**	19 J	3.6 U	**1100 J**	**580 J**	**1300**	**26000**	**10000**	**1600**	**4600**	**3700**	**6700**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**10929**	**2029**	**5024**	245	42	**11309**	**6022**	**12823**	**161860**	**55398**	**10744**	**33980**	**24024**	**43760**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	19136	3794	9302	510	147	19335	9979	26697	508030	171613	16461	57355	41360	75760
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	13246	---	---	---	---	247412	---	---	---	88484
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	23587	---	---	---	---	735654	---	---	---	149576

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-49	MLTC14-49	MLTC14-49	MLTC14-49	MLTC14-49	MLTC14-50	MLTC14-51	MLTC14-51	MLTC14-51	MLTC14-51	MLTC14-51	MLTC14-51	MLTC14-52	MLTC14-52
			Sample Name:	MLTC14-49-SURF	MLTC14-49-0001	MLTC14-49-0103	MLTC14-49-0103-FD	MLTC14-49-0305	MLTC14-50-SURF	MLTC14-51-SURF	MLTC14-51-0001	MLTC14-51-0103	MLTC14-51-0305	MLTC14-51-0507	MLTC14-51-0709	MLTC14-52-SURF	MLTC14-52-0001
			Sample Date:	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/16/2014	10/17/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	1 - 3	3 - 5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene[b]	NSL	NSL	µg/kg	41 J	52 J	120 J	31 J	4.3	51 J	33 J	3.2 J	2.9 J	1.1 J	4.1 U	4.1 U	18 J	32 U
2-Methylnaphthalene[a][b]	NSL	NSL	µg/kg	71 J	50 J	120 J	56 J	6.6	91 J	65 J	3.1 J	2.6 J	0.97 J	4.1 U	4.1 U	33 J	5.9 J
Acenaphthene[a]	6.71*	NSL	µg/kg	**39 J**	**47 J**	**92 J**	**33 J**	4 U	**110 J**	**46 J**	1.1 J	1.7 J	4.4 U	4.1 U	4.1 U	**32 J**	**8.9 J**
Acenaphthylene[a]	5.87*	NSL	µg/kg	**50 J**	**29 J**	**78 J**	**34 J**	4 U	**110 J**	**210 J**	3.7 J	3.1 J	4.4 U	4.1 U	0.94 J	**96 J**	**16 J**
Anthracene[a][c]	57.2	845	µg/kg	**160 J**	**100 J**	**290**	**110**	4 U	**520**	**440**	3.6 J	2.9 J	4.4 U	4.1 U	0.93 J	**170 J**	48
Benzo(a)anthracene[a][c]	108	1050	µg/kg	**620**	**380**	**960**	**580**	3.5 J	**1300**	**2200**	17	20	0.95 J	1.3 J	5.4	**980**	**170**
Benzo(a)pyrene[a][c]	150	1450	µg/kg	**780**	**370**	**920**	**690**	3.3 J	**1500**	**2400**	19	17	4.4 U	4.1 U	8.3	**1000**	**180**
Benzo(b)fluoranthene[a]	10400*	NSL	µg/kg	720	390	880	760	3 J	1000	1500	15	19	2.1 J	4.1 U	11	640	180
Benzo(e)pyrene	NSL	NSL	µg/kg	520	290	640	490	2.8 J	900	1400	14	17	2.4 J	3.6 J	7.3	590	110
Benzo(g,h,i)perylene[a]	170*	NSL	µg/kg	**620**	**230**	**600**	**590**	5.7	**1100**	**1400**	17	20	2.8 J	4.7	7.5	**650**	88
Benzo(k)fluoranthene[a]	240*	NSL	µg/kg	**740**	**280**	**680**	**610**	2.1 J	**1300**	**1800**	14	19	1.2 J	4.1 U	5.8	**770**	130
C1 Chrysenes	NSL	NSL	µg/kg	540 J	460 J	1000 J	400 J	7.7 J	1100 J	2100 J	25 J	29 J	7.2 J	13 J	6.6 J	980 J	100 J
C1 Fluorenes	NSL	NSL	µg/kg	35 J	120 J	310 J	32 J	5 J	60 J	54 J	4.1 J	3.7 J	1.5 J	2.3 J	0.62 J	26 J	9.1 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	980 J	1100 J	2500 J	960 J	18 J	1900 J	3500 J	39 J	44 J	10 J	19 J	11 J	1500 J	250 J
C1-Naphthalenes	NSL	NSL	µg/kg	82 J	69 J	180 J	59 J	8 J	95 J	66 J	4.5 J	4.2 J	1.5 J	4.1 U	4.1 U	35 J	6.9 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	340 J	750 J	1900 J	310 J	28 J	700 J	850 J	28 J	28 J	11 J	25 J	4.3 J	350 J	77 J
C2 Chrysenes	NSL	NSL	µg/kg	310 J	630 J	1400 J	380 J	19 J	390 J	770 J	14 J	18 J	6.9 J	15 J	9.8 J	310 J	59 J
C2 Fluorenes	NSL	NSL	µg/kg	79 J	340 J	930 J	75 J	8.7 J	100 J	120 J	7.5 J	8 J	3.7 J	10 J	1.1 J	46 J	17 J
C2-Fluoranthenes/Pyrenes[b]	NSL	NSL	µg/kg	560 J	980 J	2300 J	660 J	22 J	880 J	1400 J	27 J	29 J	11 J	24 J	7.6 J	660 J	110 J
C2-Naphthalenes	NSL	NSL	µg/kg	210 J	570 J	1300 J	200 J	53 J	260 J	180 J	16 J	15 J	5.8 J	12 J	2.9 J	89 J	22 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	420 J	1600 J	4200 J	420 J	34 J	630 J	960 J	34 J	39 J	21 J	58 J	6.9 J	420 J	89 J
C3 Chrysenes	NSL	NSL	µg/kg	170 J	230 J	500 J	110 J	6.5 J	160 J	250 J	10 J	13 J	5.8 J	13 J	4.2 J	130 J	27 J
C3 Fluorenes	NSL	NSL	µg/kg	120 J	690 J	1600 J	150 J	13 J	140 J	140 J	9.3 J	9.5 J	5.2 J	14 J	1.6 J	70 J	21 J
C3-Fluoranthenes/Pyrenes[b]	NSL	NSL	µg/kg	350 J	910 J	2200 J	440 J	23 J	420 J	650 J	20 J	23 J	11 J	20 J	8.1 J	290 J	52 J
C3-Naphthalenes	NSL	NSL	µg/kg	270 J	1400 J	3400 J	260 J	110 J	320 J	250 J	37 J	36 J	18 J	47 J	5.7 J	130 J	49 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	640 J	2800 J	6300 J	900 J	71 J	590 J	880 J	46 J	50 J	37 J	100 J	16 J	400 J	120 J
C4 Chrysenes	NSL	NSL	µg/kg	250 U	140 J	310 J	96 J	6.1 J	330 U	420 U	6 U	4.9 U	4.4 U	4.1 U	4.1 U	200 U	11 J
C4-Naphthalenes	NSL	NSL	µg/kg	180 J	1200 J	3000 J	280 J	83 J	200 J	170 J	43 J	37 J	24 J	83 J	8.7 J	88 J	43 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	450 J	1900 J	4300 J	640 J	41 J	300 J	400 J	22 J	25 J	20 J	47 J	8.3 J	210 J	80 J
Chrysene[a][c]	166	1290	µg/kg	**860**	**500**	**1200**	**730**	6.9	**1500**	**2400**	24	29	5.9	11	13	**1000**	**180**
Dibenzo(a,h)anthracene[a]	33	NSL	µg/kg	**210 J**	**92 J**	**220 J**	**170 J**	0.84 J	**370**	**460**	4.6 J	5.9	0.37 J	4.1 U	2 J	**220**	27 J
Fluoranthene[a][c]	423	2230	µg/kg	**1300**	**720**	**1900**	**1200**	3.3 J	**2200**	**2400**	26	26	3 J	2.8 J	4.1 U	**1100**	300
Fluorene[a][c]	77.4	536	µg/kg	70 J	**110 J**	**250 J**	64 J	1.3 J	**140 J**	**82 J**	3.6 J	3.3 J	0.95 J	0.45 J	4.1 U	49 J	15 J
Indeno(1,2,3-cd)pyrene[a]	200*	NSL	µg/kg	**570**	**210**	**510**	**510**	1.3 J	**950**	**1200**	11	15	0.83 J	0.59 J	5.5	**560**	85
Naphthalene[a][c]	176	561	µg/kg	120 J	48 J	110 J	81 J	1.4 J	**220 J**	150 J	2.6 J	2.4 J	4.4 U	1 J	0.23 J	74 J	16 J
Perylene	NSL	NSL	µg/kg	210 J	84 J	200 J	170 J	2.9 J	370	610	24	31	18	20	5.4	260	200
Phenanthrene[a][c]	204	1170	µg/kg	**480**	**350**	**810**	**420**	11	**1000**	**630**	15	18	3.1 J	3.2 J	2.5 J	**350**	110
Pyrene[a][c]	195	1520	µg/kg	**920**	**540**	**1300**	**770**	5.2	**1600**	**2000**	20	17	2.8 J	5	3.3 J	**850**	**220**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**8330**	**4446**	**10920**	**7408**	61	**15011**	**19383**	200	222	36	46	75	**8574**	**1780**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	13940	18769	44770	13284	573	23300	32228	578	629	236	530	177	14275	3065
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	23757	15011	---	---	---	---	---	19962	---	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	78052	23300	---	---	---	---	---	34378	---	---

NOTES:

[a] = Included in Total PAH 17 calculations

[b] = Excluded from Total PAH 34 calculations

[c] = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

Location ID:				MLTC14-52	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-54
Sample Name:				MLTC14-52-0103	MLTC14-53-SURF	MLTC14-53-0001	MLTC14-53-0103	MLTC14-53-0305	MLTC14-53-0305-FD	MLTC14-53-0507	MLTC14-53-0709	MLTC14-54-SURF	MLTC14-54-SURF-FD	MLTC14-54-0001	MLTC14-54-0103	MLTC14-54-0305	MLTC14-54-0507
Sample Date:				10/17/2014	10/20/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/20/2014	10/20/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014
Depth Interval (feet):				1 - 3	0 - 0.5	0 - 1	1 - 3	3 - 5	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7
Analyte	**TEC**	**PEC**	**Unit**														
1-Methylnaphthalene[(b)]	NSL	NSL	µg/kg	0.36 J	1400 J	8200 U	2400 J	1600 J	1500 J	750 J	12 J	90 J	96 J	600 J	660 J	540 J	150 J
2-Methylnaphthalene[(a)(b)]	NSL	NSL	µg/kg	4.2 U	1500 J	8200 U	4100	2200	2200	1100 J	17 J	190 J	180 J	420 J	260 J	660 J	190 J
Acenaphthene[(a)]	6.71*	NSL	µg/kg	0.17 J	**18000 J**	**3400 J**	**780 J**	1700 U	**560 J**	**350 J**	**7 J**	**260 J**	**280 J**	**510 J**	**330 J**	**660 J**	**260 J**
Acenaphthylene[(a)]	5.87*	NSL	µg/kg	0.18 J	**260 J**	8200 U	**290 J**	1700 U	1700 U	1200 U	5 J	**230 J**	**270 J**	2600 U	**310 J**	**430 J**	**180 J**
Anthracene[(a)(c)]	57.2	845	µg/kg	1 J	**23000 J**	**4500 J**	**2400 J**	**1300 J**	**1200 J**	**970 J**	15 J	**710 J**	**790 J**	**1600 J**	**850 J**	**2400**	**780**
Benzo(a)anthracene[(a)(c)]	108	1050	µg/kg	1.6 J	**93000**	**23000**	**22000**	**8100**	**7300**	**5100**	87	**5600**	**6200**	**17000**	**4500**	**7300**	**2700**
Benzo(a)pyrene[(a)(c)]	150	1450	µg/kg	1.1 J	**72000**	**15000**	**13000**	**3900**	**3600**	**3300**	58	**5700**	**6400**	**11000**	**3300**	**5100**	**1900**
Benzo(b)fluoranthene[(a)]	10400*	NSL	µg/kg	1.6 J	**65000**	**18000**	**13000**	4800	4400	3300	63	5500	6200	10000	3400	3900	1700
Benzo(e)pyrene	NSL	NSL	µg/kg	1.4 J	51000	15000	21000	5300	5200	2800	64	4400	5000	15000	2900	3700	1300
Benzo(g,h,i)perylene[(a)]	170*	NSL	µg/kg	1.4 J	**42000**	**9400**	**8500**	**2600**	**2000**	**2000**	40	**3800**	**4200**	**6400**	**1700**	**2500**	**960**
Benzo(k)fluoranthene[(a)]	240*	NSL	µg/kg	1.7 J	**84000**	**13000**	**3800 J**	**1900**	**1800**	**2400**	40	**4800**	**5300**	**5000**	**2600**	**4400**	**1400**
C1 Chrysenes	NSL	NSL	µg/kg	1.9 J	28000 J	16000 J	56000 J	16000 J	15000 J	5600 J	130 J	3500 J	4100 J	35000 J	4900 J	5800 J	2200 J
C1 Fluorenes	NSL	NSL	µg/kg	0.49 J	40000 U	1200 J	4400 J	1800 J	2000 J	860 J	16 J	130 J	150 J	2000 J	780 J	770 J	340 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	5.1 J	72000 J	25000 J	53000 J	18000 J	20000 J	11000 J	200 J	6400 J	7400 J	39000 J	9200 J	15000 J	6200 J
C1-Naphthalenes	NSL	NSL	µg/kg	4.2 U	40000 U	680 J	4300 J	2500 J	2500 J	1200 J	20 J	200 J	200 J	730 J	650 J	850 J	240 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1.9 J	34000 J	15000 J	41000 J	18000 J	17000 J	9600 J	170 J	1900 J	2000 J	23000 J	6900 J	9000 J	3500 J
C2 Chrysenes	NSL	NSL	µg/kg	4.2 U	7700 J	8800 J	41000 J	12000 J	13000 J	4200 J	100 J	2000 J	2500 J	28000 J	3600 J	4200 J	1400 J
C2 Fluorenes	NSL	NSL	µg/kg	4.2 U	40000 U	3000 J	12000 J	6900 J	6200 J	2900 J	44 J	310 J	370 J	5900 J	2100 J	1400 J	630 J
C2-Fluoranthenes/Pyrenes[(b)]	NSL	NSL	µg/kg	3.7 J	39000 J	16000 J	44000 J	18000 J	17000 J	8000 J	160 J	3000 J	3700 J	33000 J	6600 J	7800 J	2900 J
C2-Naphthalenes	NSL	NSL	µg/kg	2 J	40000 U	4000 J	44000 J	22000 J	21000 J	10000 J	170 J	590 J	690 J	12000 J	7300 J	4600 J	2100 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	3.4 J	12000 J	14000 J	56000 J	34000 J	32000 J	16000 J	240 J	2100 J	2400 J	38000 J	11000 J	9800 J	3800 J
C3 Chrysenes	NSL	NSL	µg/kg	4.2 U	40000 U	2700 J	13000 J	6300 J	6000 J	2100 J	49 J	870 J	960 J	10000 J	1800 J	1800 J	590 J
C3 Fluorenes	NSL	NSL	µg/kg	4.2 U	40000 U	4000 J	11000 J	7700 J	8000 J	3800 J	54 J	450 J	530 J	7500 J	2700 J	1700 J	630 J
C3-Fluoranthenes/Pyrenes[(b)]	NSL	NSL	µg/kg	4.2 U	40000 U	7400 J	26000 J	14000 J	14000 J	6400 J	120 J	1700 J	2200 J	20000 J	4900 J	4800 J	1400 J
C3-Naphthalenes	NSL	NSL	µg/kg	3.7 J	40000 U	11000 J	66000 J	43000 J	42000 J	19000 J	320 J	770 J	1000 J	29000 J	15000 J	5300 J	2500 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	5.4 J	40000 U	13000 J	56000 J	39000 J	44000 J	20000 J	320 J	2700 J	3300 J	48000 J	18000 J	12000 J	4700 J
C4 Chrysenes	NSL	NSL	µg/kg	4.2 U	40000 U	8200 U	4500 J	2400 J	2100 J	1100 J	26 J	230 J	830 U	3500 J	790 J	900 J	310 J
C4-Naphthalenes	NSL	NSL	µg/kg	2.3 J	40000 U	6600 J	35000 J	28000 J	28000 J	12000 J	220 J	460 J	710 J	19000 J	9000 J	3300 J	1300 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	4.3 J	40000 U	6700 J	27000 J	22000 J	24000 J	12000 J	180 J	1500 J	1900 J	23000 J	10000 J	7300 J	2900 J
Chrysene[(a)(c)]	166	1290	µg/kg	2.7 J	**110000**	**26000**	**30000**	**10000**	**9300**	**5000**	93	**5400**	**6000**	**21000**	**4200**	**6200**	**2400**
Dibenzo(a,h)anthracene[(a)]	33	NSL	µg/kg	0.28 J	**12000 J**	**3400 J**	**3300 J**	**1100 J**	**850 J**	**720 J**	12 J	**1100**	**1200**	**2400 J**	**610 J**	**800 J**	**290 J**
Fluoranthene[(a)(c)]	423	2230	µg/kg	3.5 J	**300000**	**52000**	**9800**	**7700**	**6700**	**6200**	87	**6900**	**7200**	**9200**	**5400**	**9500**	**3100**
Fluorene[(a)(c)]	77.4	536	µg/kg	0.7 J	**15000 J**	**3400 J**	**1800 J**	**1500 J**	**1400 J**	**850 J**	15 J	**330 J**	**360 J**	**1200 J**	**930 J**	**1200 J**	**360 J**
Indeno(1,2,3-cd)pyrene[(a)]	200*	NSL	µg/kg	0.97 J	**37000 J**	**7400 J**	**2700 J**	**1500 J**	**1200 J**	**1500**	24	**3200**	**3500**	**2900**	**1400**	**2100**	**790**
Naphthalene[(a)(c)]	176	561	µg/kg	4.2 U	**6000 J**	**660 J**	4100 U	1700 U	1700 U	**260 J**	5.7 J	**400 J**	**430 J**	**420 J**	**280 J**	**360 J**	95 J
Perylene	NSL	NSL	µg/kg	14	21000 J	3800 J	1300 J	680 J	570 J	680 J	17 J	1400	1600	1500 J	710 J	1200 J	380 J
Phenanthrene[(a)(c)]	204	1170	µg/kg	2.2 J	**210000**	**41000**	**13000**	**6200**	**5800**	**3700**	77	**2700**	**2900**	**7000**	**3600**	**6600**	**2000**
Pyrene[(a)(c)]	195	1520	µg/kg	3 J	**210000**	**46000**	**24000**	**9200**	**10000**	**6300**	120	**6600**	**7500**	**19000**	**6200**	**9800**	**4100**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	26	**1298760**	**274360**	**154520**	**64550**	**60010**	**43650**	766	**53420**	**58910**	**116350**	**39870**	**63910**	**23205**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	83	1742960	424840	696920	347930	346380	177390	3089	83140	93955	456060	146940	151870	58035
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	10380	---	---	---	---	---	---	1836606	---	---	---	---	---	296755
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	17423	---	---	---	---	---	---	3393129	---	---	---	---	---	896045

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

			Location ID:	MLTC14-55	MLTC14-55	MLTC14-55	MLTC14-55	MLTC14-55	MLTC14-56	MLTC14-56	MLTC14-56	MLTC14-57	MLTC14-57	MLTC14-57	MLTC14-58	MLTC14-58
			Sample Name:	MLTC14-55-SURF	MLTC14-55-0001	MLTC14-55-0001-FD	MLTC14-55-0103	MLTC14-55-0103-FD	MLTC14-56-SURF	MLTC14-56-0001	MLTC14-56-0103	MLTC14-57-SURF	MLTC14-57-0001	MLTC14-57-0103	MLTC14-58-SURF	MLTC14-58-0001
			Sample Date:	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	0 - 1	1 - 3	1 - 3	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**													
1-Methylnaphthalene(b)	NSL	NSL	µg/kg	85 J	10 J	8.8 J	36 J	38 J	13000 U	70 J	3.8 J	130 J	280 J	4400 J	150 J	350 J
2-Methylnaphthalene(a)(b)	NSL	NSL	µg/kg	160 J	16 J	12 J	55 J	64 J	13000 U	69 J	3.2 J	260 J	590 J	8000 J	270 J	690 J
Acenaphthene(a)	6.71*	NSL	µg/kg	**120 J**	**19 J**	**19 J**	**43 J**	**47 J**	**2300 J**	**480 J**	**11 J**	**280 J**	**680**	**4500 J**	**360 J**	**790 J**
Acenaphthylene(a)	5.87*	NSL	µg/kg	**210 J**	**16 J**	**14 J**	**34 J**	**51 J**	**4700 J**	**540 J**	5.7 J	**370 J**	**250 J**	**8700 J**	**250 J**	**460 J**
Anthracene(a)(c)	57.2	845	µg/kg	**640**	**72 J**	**59 J**	**120 J**	**110 J**	**34000**	**1600**	13 J	**1100 J**	**690**	**13000 J**	**1500 J**	**1700**
Benzo(a)anthracene(a)(c)	108	1050	µg/kg	**2000**	**360**	**290**	**460**	**540**	**34000**	**4600**	41	**2500**	**2300**	**7000 J**	**2600**	**4100**
Benzo(a)pyrene(a)(c)	150	1450	µg/kg	**2500**	**430**	**370**	**470**	**510**	**31000**	**5200**	44	**2900**	**2800**	**5800 J**	**2800**	**4100**
Benzo(b)fluoranthene(a)	10400*	NSL	µg/kg	1800	320	250	350	400	**17000**	3000 J	31 J	2300	1900 J	3200 J	1800	2800
Benzo(e)pyrene	NSL	NSL	µg/kg	1500	250	210	320	370	18000	2700	26	1800	1700	3500 J	1500	2200
Benzo(g,h,i)perylene(a)	170*	NSL	µg/kg	**1900**	**290**	**280**	**340**	**330**	**17000**	**2400**	25	**1900**	**1700**	**3000 J**	**1600**	**2400**
Benzo(k)fluoranthene(a)	240*	NSL	µg/kg	**2600**	**440**	**390**	**470**	**510**	**40000**	**6000**	55	**3300**	**3400**	**7800 J**	**3100**	**4300**
C1 Chrysenes	NSL	NSL	µg/kg	1600 J	230 J	200 J	620 J	660 J	15000 J	3100 J	40 J	1500 J	1900 J	13000 U	1600 J	2600 J
C1 Fluorenes	NSL	NSL	µg/kg	110 J	31 J	30 J	150 J	190 J	1600 J	130 J	5.4 J	130 J	100 J	1100 J	220 J	410 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	3600 J	540 J	450 J	1200 J	1500 J	56000 J	6800 J	77 J	3800 J	3500 J	15000 J	4300 J	6700 J
C1-Naphthalenes	NSL	NSL	µg/kg	200 J	21 J	19 J	74 J	82 J	13000 U	190 J	5.7 J	310 J	720 J	9800 J	320 J	810 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	970 J	130 J	120 J	500 J	580 J	17000 J	1600 J	26 J	1100 J	1000 J	6900 J	1500 J	3100 J
C2 Chrysenes	NSL	NSL	µg/kg	790 J	120 J	110 J	640 J	820 J	4900 J	1100 J	20 J	670 J	630 J	13000 U	670 J	1200 J
C2 Fluorenes	NSL	NSL	µg/kg	180 J	49 J	50 J	360 J	460 J	13000 U	97 J	6.2 J	140 J	98 J	13000 U	240 J	890 J
C2-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	1600 J	250 J	230 J	1100 J	1200 J	13000 J	2300 J	40 J	1500 J	1400 J	4000 J	1500 J	2700 J
C2-Naphthalenes	NSL	NSL	µg/kg	500 J	75 J	71 J	390 J	480 J	4200 J	450 J	16 J	480 J	550 J	7200 J	860 J	2300 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1100 J	180 J	160 J	1600 J	1900 J	6600 J	1100 J	33 J	1300 J	890 J	3500 J	2200 J	4500 J
C3 Chrysenes	NSL	NSL	µg/kg	490 J	70 J	59 J	480 J	500 J	13000 U	320 J	7.3 J	420 J	660 U	13000 U	430 J	810 J
C3 Fluorenes	NSL	NSL	µg/kg	260 J	65 J	58 J	700 J	800 J	13000 U	130 J	9.9 J	160 J	660 U	13000 U	400 J	1200 J
C3-Fluoranthenes/Pyrenes(b)	NSL	NSL	µg/kg	960 J	140 J	110 J	900 J	1200 J	3800 J	820 J	24 J	740 J	570 J	13000 U	700 J	1400 J
C3-Naphthalenes	NSL	NSL	µg/kg	560 J	130 J	120 J	1300 J	1600 J	2500 J	370 J	25 J	530 J	580 J	3900 J	1100 J	3100 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1500 J	220 J	190 J	2800 J	3200 J	4200 J	1000 J	51 J	1000 J	930 J	3700 J	1700 J	4000 J
C4 Chrysenes	NSL	NSL	µg/kg	490 U	95 U	110 U	160 U	230 J	13000 U	1400 U	21 U	700 U	660 U	13000 U	770 U	1600 U
C4-Naphthalenes	NSL	NSL	µg/kg	390 J	120 J	120 J	1400 J	1600 J	13000 U	220 J	25 J	380 J	660 U	13000 U	960 J	2500 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	1100 J	140 J	120 J	2100 J	2300 J	13000 U	790 J	36 J	640 J	830 J	13000 U	1200 J	2700 J
Chrysene(a)(c)	166	1290	µg/kg	**2700**	**490**	**410**	**670**	**720**	**44000**	**6000**	55	**3300**	**3300**	**9900 J**	**3300**	**4800**
Dibenzo(a,h)anthracene(a)	33	NSL	µg/kg	**630**	**99**	**86 J**	**100 J**	**110 J**	**5500 J**	**770 J**	6.8 J	**630 J**	**490 J**	**1200 J**	**560 J**	**820 J**
Fluoranthene(a)(c)	423	2230	µg/kg	**3800**	**730**	**600**	**790**	**930**	**89000**	**8700**	95	**5900**	**5300**	**24000**	**5200**	**9300**
Fluorene(a)(c)	77.4	536	µg/kg	**170 J**	29 J	25 J	67 J	**87 J**	**11000 J**	**780 J**	16 J	**570 J**	**710**	**14000**	**630 J**	**1300 J**
Indeno(1,2,3-cd)pyrene(a)	200*	NSL	µg/kg	**1700**	**250**	**240**	**280**	**280**	**15000**	**2300**	23	**1900**	**1700**	**2600 J**	**1500**	**2300**
Naphthalene(a)(c)	176	561	µg/kg	**320 J**	26 J	24 J	64 J	70 J	**4900 J**	**1100 J**	14 J	**1500**	**940**	**63000**	**490 J**	**900 J**
Perylene	NSL	NSL	µg/kg	620	130	110 J	140 J	160	10000 J	1500	32	820	840	3200 J	770	1100 J
Phenanthrene(a)(c)	204	1170	µg/kg	**1500**	200	170	**250**	**250**	**46000**	**2200**	45	**2400**	**2500**	**32000**	**2600**	**5600**
Pyrene(a)(c)	195	1520	µg/kg	**3100**	**540**	**460**	**720**	**870**	**59000**	**6200**	69	**3700**	**3900**	**17000**	**3500**	**6000**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**25850**	**4327**	**3699**	**5283**	**5879**	**460900**	**51939**	553	**34810**	**33150**	**224700**	**32060**	**52360**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	41405	6860	5939	20082	23247	639900	74167	1002	50080	48148	326500	52145	92590
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	35460	---	---	513392	---	---	292660	---	---
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	---	---	---	---	68347	---	---	715069	---	---	424728	---	---

NOTES:

(a) = Included in Total PAH 17 calculations

(b) = Excluded from Total PAH 34 calculations

(c) = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-4 SEDIMENT RESULTS FOR PAHS

Location ID:				MLTC14-58
Sample Name:				MLTC14-58-0103
Sample Date:				10/23/2014
Depth Interval (feet):				1 - 3
Analyte	**TEC**	**PEC**	**Unit**	
1-Methylnaphthalene[b]	NSL	NSL	µg/kg	59 J
2-Methylnaphthalene[a][b]	NSL	NSL	µg/kg	98
Acenaphthene[a]	6.71*	NSL	µg/kg	**82**
Acenaphthylene[a]	5.87*	NSL	µg/kg	**38 J**
Anthracene[a][c]	57.2	845	µg/kg	**130 J**
Benzo(a)anthracene[a][c]	108	1050	µg/kg	**250**
Benzo(a)pyrene[a][c]	150	1450	µg/kg	**240**
Benzo(b)fluoranthene[a]	10400*	NSL	µg/kg	180
Benzo(e)pyrene	NSL	NSL	µg/kg	140
Benzo(g,h,i)perylene[a]	170*	NSL	µg/kg	150
Benzo(k)fluoranthene[a]	240*	NSL	µg/kg	230
C1 Chrysenes	NSL	NSL	µg/kg	220 J
C1 Fluorenes	NSL	NSL	µg/kg	48 J
C1-Fluoranthenes/Pyrenes	NSL	NSL	µg/kg	490 J
C1-Naphthalenes	NSL	NSL	µg/kg	110 J
C1-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	320 J
C2 Chrysenes	NSL	NSL	µg/kg	120 J
C2 Fluorenes	NSL	NSL	µg/kg	130 J
C2-Fluoranthenes/Pyrenes[b]	NSL	NSL	µg/kg	240 J
C2-Naphthalenes	NSL	NSL	µg/kg	290 J
C2-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	540 J
C3 Chrysenes	NSL	NSL	µg/kg	85 J
C3 Fluorenes	NSL	NSL	µg/kg	160 J
C3-Fluoranthenes/Pyrenes[b]	NSL	NSL	µg/kg	160 J
C3-Naphthalenes	NSL	NSL	µg/kg	430 J
C3-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	560 J
C4 Chrysenes	NSL	NSL	µg/kg	46 J
C4-Naphthalenes	NSL	NSL	µg/kg	380 J
C4-Phenanthrenes/Anthracenes	NSL	NSL	µg/kg	350 J
Chrysene[a][c]	166	1290	µg/kg	**300**
Dibenzo(a,h)anthracene[a]	33	NSL	µg/kg	**54 J**
Fluoranthene[a][c]	423	2230	µg/kg	**590**
Fluorene[a][c]	77.4	536	µg/kg	**110**
Indeno(1,2,3-cd)pyrene[a]	200*	NSL	µg/kg	140
Naphthalene[a][c]	176	561	µg/kg	160
Perylene	NSL	NSL	µg/kg	68
Phenanthrene[a][c]	204	1170	µg/kg	**410**
Pyrene[a][c]	195	1520	µg/kg	**360**
Total Interval PAH17 ND = 1/2RL	1610	22800	µg/kg	**3522**
Total Interval PAH34 ND = 1/2RL	NSL	NSL	µg/kg	7911
Total Location PAH17 ND = 1/2RL	NSL	NSL	µg/kg	87942
Total Location PAH34 ND = 1/2RL	NSL	NSL	µg/kg	152646

NOTES:

[a] = Included in Total PAH 17 calculations

[b] = Excluded from Total PAH 34 calculations

[c] = Included in PEC-Q calculations

Bolded and Shaded detected values exceed PEC screening value

Bolded detected values exceed TEC screening value

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

µg/kg = Microgram per kilogram

B = Compound was found in the blank and sample

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-01	MLTC14-01	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-03
			Sample Name:	MLTC14-01-SURF	MLTC14-01-SURF-FD	MLTC14-03-SURF	MLTC14-03-0001	MLTC14-03-0103	MLTC14-03-0305
			Sample Date:	10/23/2014	10/23/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5
Analyte	**TEC**	**PEC**	**Unit**						
Arsenic	9.79	33	mg/kg	6.9 J	6.3 J	4	4.4	3.2	3.7
Barium	NSL	NSL	mg/kg	81.2 J	75.8 J	39.9 J	96.5 J	45.3 J	67 J
Cadmium	0.99	4.98	mg/kg	0.56 J	0.56 J	0.8 J+	**1.8**	0.41 J+	0.49 J+
Chromium	43.4	111	mg/kg	29.2	22.9	26.7 J	28.1 J	17.9 J	26.3 J
Copper	31.6	149	mg/kg	21.8 J	23.5 J	19.7	30.9	13.6	17.9
Iron	20000*	40000*	mg/kg	14400	15100	16100 J	16900 J	15800 J	**23900 J**
Lead	35.8	128	mg/kg	27.8 J	34.2 J	17.3	29.6	9.8	11.7
Mercury	0.18	1.06	mg/kg	0.17 U	0.16 U	**0.2 J**	0.12 J	0.023 J	0.2 U
Nickel	22.7	48.6	mg/kg	17.1 J	18.2 J	**23.2 J**	22.2 J	19.4 J	**29.1 J**
Selenium	NSL	NSL	mg/kg	5.2 U	4.5 U	0.94 J	0.84 J	0.66 J	1.1 J
Silver	0.5**	NSL	mg/kg	1.5 U	1.3 U	0.26 J	1.3 U	1.3 U	1.8 U
Zinc	121	459	mg/kg	**168**	**164**	83.2 J	103 J	45.8 J	65.3 J
Total organic carbon	NSL	NSL	mg/kg	25300	13800	98500	55400	54600	57500

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

J+ = Compound was detected, but result is below the reporting limit, greater than or equal t the method detection limit, and is biased high. (value is estimated)

J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-03	MLTC14-03	MLTC14-03	MLTC14-04	MLTC14-04	MLTC14-04	MLTC14-04
			Sample Name:	MLTC14-03-0305-FD	MLTC14-03-0507	MLTC14-03-0709	MLTC14-04-SURF	MLTC14-04-0001	MLTC14-04-0103	MLTC14-04-0305
			Sample Date:	10/15/2014	10/15/2014	10/15/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 1	1 - 3	3 - 5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	4.2	3.4	3.5	**11.4**	**19.7 J**	**16.2 J**	**14.1 J**
Barium	NSL	NSL	mg/kg	66.5 J	49.1 J	41.4 J	141 J	328	371	316
Cadmium	0.99	4.98	mg/kg	0.55 J+	0.37 J+	0.36 J	**13.2**	**35.4**	**20.9**	**17.2**
Chromium	43.4	111	mg/kg	26.3 J	19.1 J	16.6 J	**123 J**	**464 J**	**598 J**	**483 J**
Copper	31.6	149	mg/kg	18.1	13.9	12.9 J	**97.8**	**281 J**	**278 J**	**241 J**
Iron	20000*	40000*	mg/kg	**24500 J**	18600 J	15500 J	**50800 J**	**78600**	**59300**	**55800**
Lead	35.8	128	mg/kg	11.6	10.4	9.4	**174**	**452**	**372**	**357**
Mercury	0.18	1.06	mg/kg	0.022 J	0.017 J	0.14 UJ	**0.041666667**	**2**	**1.4**	**1.4**
Nickel	22.7	48.6	mg/kg	**30.3 J**	20.8 J	19.8 J	**69.3 J**	**229**	**399**	**265**
Selenium	NSL	NSL	mg/kg	1.4 J	0.74 J	4.9 U	3.1 J	4.9 J	3.7 J	3.2 J
Silver	0.5**	NSL	mg/kg	2.1 U	1.2 U	1.4 U	**1.9**	**8.6**	**10.1**	**7.9**
Zinc	121	459	mg/kg	67.8 J	48.6 J	44 J	**499 J**	**1330 J**	**1130 J**	**938 J**
Total organic carbon	NSL	NSL	mg/kg	56800	57000	26700	60300	95000 J+	106000 J+	88900 J+

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-04	MLTC14-04	MLTC14-04	MLTC14-05	MLTC14-05	MLTC14-05	MLTC14-05
			Sample Name:	MLTC14-04-0507	MLTC14-04-0709	MLTC14-04-0911	MLTC14-05-SURF	MLTC14-05-0001	MLTC14-05-0103	MLTC14-05-0305
			Sample Date:	10/15/2014	10/15/2014	10/15/2014	10/22/2014	10/23/2014	10/23/2014	10/23/2014
			Depth Interval (feet):	5 - 7	7 - 9	9 - 11	0 - 0.5	0 - 1	1 - 3	3 - 5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**16 J**	**17.3 J**	**14.3 J**	**11.2**	5.5	5.1 J	4.7 J
Barium	NSL	NSL	mg/kg	388	386	343	52	54.6	44.6 J	40.1 J
Cadmium	0.99	4.98	mg/kg	**24.7**	**25.1**	**21.9**	0.75	0.51 U	0.34 J	0.25 J
Chromium	43.4	111	mg/kg	**873 J**	**783 J**	**517 J**	19.7	16.4	14.2	13.2
Copper	31.6	149	mg/kg	**298 J**	**285 J**	**224 J**	**32**	13.9	12.7 J	13.1 J
Iron	20000*	40000*	mg/kg	**59100**	**58100**	**47800**	**22100**	16400	15000	13100
Lead	35.8	128	mg/kg	**448**	**431**	**425**	27.1	8.2	8.7 J	7 J
Mercury	0.18	1.06	mg/kg	**1.8**	**2.5**	**4.5**	**0.49 J**	0.11 UJ	0.12 U	0.1 U
Nickel	22.7	48.6	mg/kg	**349**	**272**	**210**	22.2	21.1	18.7 J	16.1 J
Selenium	NSL	NSL	mg/kg	3.2 J	3.7 J	2.7 J	4.1 U	3.5 U	3.9 U	3.5 U
Silver	0.5**	NSL	mg/kg	**9.1**	**9.5**	**7.2**	1.2 U	1 U	1.1 U	0.99 U
Zinc	121	459	mg/kg	**1300 J**	**1230 J**	**1090 J**	**130**	40.8	39.2	32.3
Total organic carbon	NSL	NSL	mg/kg	104000 J+	84800 J+	104000 J+	41500	42800	46000	43600

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

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J+ = Compound was detected, but result is below the reporting limit, greater than or equal t the method detection limit, and is biased high. (value is estimated)

J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-05	MLTC14-06	MLTC14-06	MLTC14-06	MLTC14-06	MLTC14-06	MLTC14-07
			Sample Name:	MLTC14-05-0507	MLTC14-06-SURF	MLTC14-06-0001	MLTC14-06-0103	MLTC14-06-0305	MLTC14-06-0507	MLTC14-07-SURF
			Sample Date:	10/23/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/14/2014
			Depth Interval (feet):	5 - 7	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	7.1	1.5	2.2	4.3	3.6	3.2	**13.5**
Barium	NSL	NSL	mg/kg	32.4	8.7 J	23.6 J	46.4 J	39.6 J	34.4 J	172 J
Cadmium	0.99	4.98	mg/kg	0.46 U	0.16 J+	0.3 J+	0.39 J+	0.34 J+	0.31 J	**6.7**
Chromium	43.4	111	mg/kg	10.8	6.3 J	9.4 J	19.3 J	15.3 J	13.6 J	**642 J**
Copper	31.6	149	mg/kg	12.1	4	9	15.3	11.8	11.9	**99.6**
Iron	20000*	40000*	mg/kg	12000	4640 J	6120 J	15800 J	14000 J	13800 J	**41700 J**
Lead	35.8	128	mg/kg	7	3.9	6.6	10.7	8.6	8.5	**176**
Mercury	0.18	1.06	mg/kg	0.036 J	0.036 J	0.02 J	0.15 U	0.013 J	0.024 J	**3.2**
Nickel	22.7	48.6	mg/kg	16.5	6.6 J	10.6 J	22.4 J	17 J	15.9 J	**120 J**
Selenium	NSL	NSL	mg/kg	3.2 U	3.3 U	0.78 J	0.85 J	0.71 J	0.76 J	2.1 J
Silver	0.5**	NSL	mg/kg	0.92 U	0.94 U	1.5 U	1.5 U	1.3 U	1.1 U	**1.9**
Zinc	121	459	mg/kg	34.8	20.1 J	18.7 J	47.2 J	38.1 J	36.8 J	**498 J**
Total organic carbon	NSL	NSL	mg/kg	40600	4500	57500	51600	60900	54500	106000

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

J+ = Compound was detected, but result is below the reporting limit, greater than or equal tc the method detection limit, and is biased high. (value is estimated)

J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-07	MLTC14-07	MLTC14-08	MLTC14-08	MLTC14-08	MLTC14-08	MLTC14-09
			Sample Name:	MLTC14-07-0001	MLTC14-07-0103	MLTC14-08-SURF	MLTC14-08-0001	MLTC14-08-0103	MLTC14-08-0305	MLTC14-09-SURF
			Sample Date:	10/15/2014	10/15/2014	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**13.4**	**13.2**	**14.4**	**14.1**	**12.4**	**15.8**	**11.9**
Barium	NSL	NSL	mg/kg	218 J	200 J	233 J	297 J	209 J	243 J	134 J
Cadmium	0.99	4.98	mg/kg	**10.6**	**9.3**	**10.3**	**13.7**	**10.8**	**11.3**	**1.9**
Chromium	43.4	111	mg/kg	**267 J**	**284 J**	**464 J**	**435 J**	**307 J**	**372 J**	**101 J**
Copper	31.6	149	mg/kg	**137**	**150**	**155**	**203**	**137**	**176**	**59.8**
Iron	20000*	40000*	mg/kg	**38900 J**	**39900 J**	**71500 J**	**52200 J**	**42000 J**	**65400 J**	**111000 J**
Lead	35.8	128	mg/kg	**255**	**238**	**243**	**321**	**259**	**307**	**109**
Mercury	0.18	1.06	mg/kg	**4.6**	**5.7**	**4.6**	**5.2**	**5.4**	**22.3**	**0.71**
Nickel	22.7	48.6	mg/kg	**116 J**	**116 J**	**212 J**	**226 J**	**128 J**	**159 J**	**51.9 J**
Selenium	NSL	NSL	mg/kg	2.8 J	2.5 J	3.7 J	2.8 J	2.4 J	2.8 J	4 J
Silver	0.5**	NSL	mg/kg	**2.9**	**3.1**	**3.4**	**5.1**	**3.6**	**3.9**	0.1 J
Zinc	121	459	mg/kg	**660 J**	**827 J**	**851 J**	**826 J**	**705 J**	**1070 J**	**617 J**
Total organic carbon	NSL	NSL	mg/kg	103000	110000	94400	103000	95000	102000	110000

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-09	MLTC14-10
			Sample Name:	MLTC14-09-0001	MLTC14-09-0103	MLTC14-09-0305	MLTC14-09-0507	MLTC14-09-0709	MLTC14-09-0911	MLTC14-10-SURF
			Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/15/2014
			Depth Interval (feet):	0 - 1	1 - 3	3 - 5	5 - 7	7 - 9	9 - 11	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**15.7**	**25.5**	**38.2**	**34.8**	**16.9**	**19.6**	5.5 J
Barium	NSL	NSL	mg/kg	109 J	84.9 J	66.5 J	89.1 J	168 J	124 J	69.4
Cadmium	0.99	4.98	mg/kg	**3.9**	**2.7**	**1.5**	**7.2**	**9.7**	**7.8**	**1.4**
Chromium	43.4	111	mg/kg	**141 J**	**123 J**	**68.3 J**	**216 J**	**237 J**	**197 J**	33.8 J
Copper	31.6	149	mg/kg	**62.5**	**49.1**	**40.8**	**162**	**207 J**	**177 J**	**36.8 J**
Iron	20000*	40000*	mg/kg	**199000 J**	**261000 J**	**393000 J**	**315000 J**	**41200 J**	**51400 J**	**24400**
Lead	35.8	128	mg/kg	**340**	**198**	**81.9**	**333**	**242**	**215**	33.4
Mercury	0.18	1.06	mg/kg	**1.3**	**0.72**	0.17	**2.2**	**8.1 J**	**4.1 J**	**0.22 J**
Nickel	22.7	48.6	mg/kg	**82.9 J**	**70 J**	**50.9 J**	**96.1 J**	**96.5 J**	**120 J**	**32.7**
Selenium	NSL	NSL	mg/kg	16.5 U	14.2 U	33.6 U	19.8 U	1.7 J	2 J	2 J
Silver	0.5**	NSL	mg/kg	**1.8**	**0.69 J**	0.96 U	**0.9 J**	**3.7**	**1.6**	2.3 U
Zinc	121	459	mg/kg	**1360**	**908**	**398**	**728**	**738 J**	**591 J**	**159 J**
Total organic carbon	NSL	NSL	mg/kg	91100 J-	111000 J-	60900 J-	75200 J-	76000	40900	71100 J+

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

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TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-10	MLTC14-10	MLTC14-10	MLTC14-10	MLTC14-11	MLTC14-11	MLTC14-11
			Sample Name:	MLTC14-10-SURF-FD	MLTC14-10-0001	MLTC14-10-0103	MLTC14-10-0305	MLTC14-11-SURF	MLTC14-11-0001	MLTC14-11-0103
			Sample Date:	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/16/2014	10/16/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	4.7 J	5.3 J	8 J	**11.7 J**	1.8 J	2.9	2.5
Barium	NSL	NSL	mg/kg	60.7	69.3	114	207	24.3 J	23.7 J	16.7 J
Cadmium	0.99	4.98	mg/kg	**1.1**	**1.4**	**4.4**	**8.9**	0.37 J	0.25 J	0.22 J
Chromium	43.4	111	mg/kg	31.7 J	34.7 J	**121 J**	**269 J**	11.5 J	10.3 J	7.7 J
Copper	31.6	149	mg/kg	**35.9 J**	**38 J**	**81.1 J**	**219 J**	11.2 J	7.8	5.1
Iron	20000*	40000*	mg/kg	**21900**	**24400**	**34700**	**45600**	8180	10400 J	7750 J
Lead	35.8	128	mg/kg	34.3	34.5	**114**	**221**	13.7	5.8	5.2
Mercury	0.18	1.06	mg/kg	**0.22**	**0.29**	**0.64**	**1.2**	0.089 J	**0.33**	0.12 U
Nickel	22.7	48.6	mg/kg	**29.6**	**34.2**	**63.4**	**107**	11.1	12.5 J	9 J
Selenium	NSL	NSL	mg/kg	1.4 J	1.7 J	2 J	2.3 J	4.5 UJ	4.3 U	4 U
Silver	0.5**	NSL	mg/kg	0.97 U	2.5 U	**1.4 J**	**3.1**	1.3 U	1.2 U	1.1 U
Zinc	121	459	mg/kg	**145 J**	**160 J**	**372 J**	**656 J**	62.2 J	32.9	24.2
Total organic carbon	NSL	NSL	mg/kg	65000 J+	64500 J+	98800 J+	78300 J+	16100 J+	20800 J-	12400 J-

NOTES:

Bolded and Shaded detected values exceed the PEC
Bolded detected values exceed the TEC
FD = Field Duplicate
NSL = No Screening Level
PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
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**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)
J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)
U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-11	MLTC14-11	MLTC14-11	MLTC14-12	MLTC14-12	MLTC14-12	MLTC14-12
			Sample Name:	MLTC14-11-0305	MLTC14-11-0507	MLTC14-11-0709	MLTC14-12-SURF	MLTC14-12-SURF-FD	MLTC14-12-0001	MLTC14-12-0103
			Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014
			Depth Interval (feet):	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	2.4	3	5.1	6.5 J	6.8 J	6.6 J	8.6 J
Barium	NSL	NSL	mg/kg	12.2 J	9.9 J	10.5 J	78.4	76.6	95.6	116
Cadmium	0.99	4.98	mg/kg	0.16 J	0.16 J	0.21 J	**1.8**	**1.7**	**1.4**	**8.9**
Chromium	43.4	111	mg/kg	6.5 J	6.6 J	6.9 J	**49.2 J**	**47.6 J**	41.1 J	**140 J**
Copper	31.6	149	mg/kg	5.3	4	5 J	**62.9 J**	**59.1 J**	**47.4 J**	**93.4 J**
Iron	20000*	40000*	mg/kg	6710 J	6910 J	7990 J	**29900**	**28700**	**24700**	**48100**
Lead	35.8	128	mg/kg	3.7	3.5	4.6	**59.5**	**53.6**	**48**	**218**
Mercury	0.18	1.06	mg/kg	0.12 U	0.11 U	0.1 UJ	**0.49**	**0.56**	**0.44**	**1.2**
Nickel	22.7	48.6	mg/kg	7.7 J	6.7 J	8.3 J	**36.6**	**34.3**	**30.1**	**66.1**
Selenium	NSL	NSL	mg/kg	3.2 U	4 U	3.8 U	2.4 J	1.2 J	1.9 J	2.6 J
Silver	0.5**	NSL	mg/kg	0.93 U	1.1 U	1.1 U	0.28 J	0.17 J	0.16 J	**2.2**
Zinc	121	459	mg/kg	18.9	15.6	15.1 J	**261 J**	**244 J**	**207 J**	**1170 J**
Total organic carbon	NSL	NSL	mg/kg	8050 J-	8150 J-	6660	66600 J+	64200 J+	86000 J+	83500 J+

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-12	MLTC14-13	MLTC14-13	MLTC14-13	MLTC14-14	MLTC14-14	MLTC14-14
			Sample Name:	MLTC14-12-0305	MLTC14-13-SURF	MLTC14-13-0001	MLTC14-13-0001-FD	MLTC14-14-SURF	MLTC14-14-0001	MLTC14-14-0103
			Sample Date:	10/15/2014	10/22/2014	10/23/2014	10/23/2014	10/22/2014	10/22/2014	10/22/2014
			Depth Interval (feet):	3 - 5	0 - 0.5	0 - 1	0 - 1	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**13.3 J**	5.3	5.4	4.2	5.3 J	**11.5**	2.8
Barium	NSL	NSL	mg/kg	162	63.5	51	51.3	100 J	178 J	26.4 J
Cadmium	0.99	4.98	mg/kg	**15.7**	0.78	0.76	0.68	**5.1**	**8.3**	0.44 J
Chromium	43.4	111	mg/kg	**208 J**	31.7	41.5	32.3	**146 J**	**176 J**	11.8 J
Copper	31.6	149	mg/kg	**128 J**	18.7	17.6	15.1	**66.2 J**	**181 J**	12.2 J
Iron	20000*	40000*	mg/kg	**77200**	14600	13500	15700	**26000 J**	**41100 J**	9410 J
Lead	35.8	128	mg/kg	**351**	30.4	23.6	23.6	**142**	**202**	12
Mercury	0.18	1.06	mg/kg	**2.3**	**2.5 J**	0.11 UJ	**0.35 J**	**0.79 J**	**5.4 J**	0.13 UJ
Nickel	22.7	48.6	mg/kg	**95.3**	11	11.3	9.2	**66.6 J**	**81.5 J**	11.6 J
Selenium	NSL	NSL	mg/kg	3.7 J	4.4 U	4.1 U	0.5 J	0.8 J	1.1 J	4.2 U
Silver	0.5**	NSL	mg/kg	**3.1**	1.3 U	1.2 U	1.1 U	**1.5**	**2.9**	1.2 U
Zinc	121	459	mg/kg	**2260 J**	**154**	**153**	**132**	**398 J**	**568 J**	43.6 J
Total organic carbon	NSL	NSL	mg/kg	82100 J+	55200	64500	58500	37700	39600	21400

NOTES:

Bolded and Shaded detected values exceed the PEC

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-14	MLTC14-14	MLTC14-15	MLTC14-15	MLTC14-15	MLTC14-16	MLTC14-16
			Sample Name:	MLTC14-14-0305	MLTC14-14-0507	MLTC14-15-SURF	MLTC14-15-0001	MLTC14-15-0103	MLTC14-16-SURF	MLTC14-16-0001
			Sample Date:	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014
			Depth Interval (feet):	3 - 5	5 - 7	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	2.7	2.6	**17.5**	6	5.8	**10.1**	**11.7**
Barium	NSL	NSL	mg/kg	17.6 J	16.6 J	113	42.9	60.5	159	165
Cadmium	0.99	4.98	mg/kg	0.25 J	0.21 J	**2.6**	0.78	0.6 U	**8**	**8**
Chromium	43.4	111	mg/kg	8.8 J	8.2 J	**83.5**	19.6	12.9	**212**	**205**
Copper	31.6	149	mg/kg	7.2 J	5.4 J	**111**	**45.3**	17.4	**203**	**163**
Iron	20000*	40000*	mg/kg	8120 J	7510 J	**52500**	16500	14800	**49500**	**60600**
Lead	35.8	128	mg/kg	4.7	4.1	**104**	**50.1**	**40.5**	**210**	**221**
Mercury	0.18	1.06	mg/kg	0.11 UJ	0.12 UJ	**0.94 J**	**0.25 J**	**0.25 J**	**2 J**	**3 J**
Nickel	22.7	48.6	mg/kg	9.6 J	8.9 J	**69**	21.4	19	**106**	**102**
Selenium	NSL	NSL	mg/kg	3.6 U	4 U	10 U	4 U	4.2 U	1.4 J	1.5 J
Silver	0.5**	NSL	mg/kg	1 U	1.2 U	**1.1 J**	0.34 J	1.2 U	**2.6**	**2.6**
Zinc	121	459	mg/kg	26 J	21.3 J	**569**	**250**	75.7	**710**	**697**
Total organic carbon	NSL	NSL	mg/kg	8670	35800	40500	26900	13500	67800	57300

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-16	MLTC14-16	MLTC14-16	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17
			Sample Name:	MLTC14-16-0103	MLTC14-16-0305	MLTC14-16-0507	MLTC14-17-SURF	MLTC14-17-0001	MLTC14-17-0001-FD	MLTC14-17-0103
			Sample Date:	10/22/2014	10/22/2014	10/22/2014	10/20/2014	10/21/2014	10/21/2014	10/21/2014
			Depth Interval (feet):	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**13.3**	**17.4**	**16.2**	**16.9 J**	**15.8 J**	**15 J**	**15**
Barium	NSL	NSL	mg/kg	164	188	189	153 J	185 J	182 J	151 J
Cadmium	0.99	4.98	mg/kg	**8.7**	**11.6**	**16.6**	**8.3 J**	**12.3 J**	**11.9 J**	**14.4**
Chromium	43.4	111	mg/kg	**198**	**252**	**257**	**208 J**	**229 J**	**223 J**	**172 J**
Copper	31.6	149	mg/kg	**160**	**273**	**233**	**193**	**229**	**223**	**184 J**
Iron	20000*	40000*	mg/kg	**62900**	**42400**	**36200**	**73800**	**36800**	**36300**	**29000 J**
Lead	35.8	128	mg/kg	**307**	**235**	**206**	**285 J**	**205 J**	**203 J**	**184**
Mercury	0.18	1.06	mg/kg	**5.5 J**	**8.8 J**	**8.2 J**	**6.6**	**7.9**	**7.8**	**4 J**
Nickel	22.7	48.6	mg/kg	**93.5**	**98.1**	**103**	**87.3 J**	**89.2 J**	**87.7 J**	**59.3 J**
Selenium	NSL	NSL	mg/kg	1.8 J	1.2 J	1.1 J	1.7 J-	1.5 J-	1.3 J-	1.6 J
Silver	0.5**	NSL	mg/kg	**3**	**3.9**	**3.9**	**2.8**	**3.7**	**3.7**	**3**
Zinc	121	459	mg/kg	**773**	**780**	**741**	**768 J**	**687 J**	**678 J**	**599 J**
Total organic carbon	NSL	NSL	mg/kg	57400	63100	70100	76100 J	77100 J	78700 J	81800

NOTES:

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Bolded detected values exceed the TEC

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NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

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U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-17	MLTC14-18	MLTC14-18	MLTC14-18
			Sample Name:	MLTC14-17-0305	MLTC14-17-0305-FD	MLTC14-17-0507	MLTC14-17-0709	MLTC14-18-SURF	MLTC14-18-0001	MLTC14-18-0103
			Sample Date:	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/20/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	3 - 5	3 - 5	5 - 7	7 - 9	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**13.5**	**11.0**	3.9	8.4	**13.5 J**	**11.1**	2.7
Barium	NSL	NSL	mg/kg	172 J	190 J	99.4 J	59.7	116 J	130 J	31.7 J
Cadmium	0.99	4.98	mg/kg	**13.3**	**9**	0.74	0.87	**10.3 J**	**11.7**	0.34 J
Chromium	43.4	111	mg/kg	**128 J**	**84.9 J**	13.3 J	15.8	**161 J**	**116 J**	12.4 J
Copper	31.6	149	mg/kg	**186 J**	**146 J**	30.3 J	**72.8**	**147**	**147**	11.3
Iron	20000*	40000*	mg/kg	**32000 J**	**26700 J**	9670 J	13100	**34300**	**28900 J**	11300 J
Lead	35.8	128	mg/kg	**170**	**274**	**112**	**78.2**	**147 J**	**164 J**	14.9 J
Mercury	0.18	1.06	mg/kg	**2.1 J**	**1.7 J**	**0.57 J**	**0.27 J**	**2.1**	**2.6 J+**	0.08 J+
Nickel	22.7	48.6	mg/kg	**49.8 J**	**41.2 J**	13.2 J	17.1	**49.4 J**	**40.8 J**	13.9 J
Selenium	NSL	NSL	mg/kg	1.5 J	1.2 J	3.4 U	3.9 U	2.1 J-	2.2 J	0.62 J
Silver	0.5**	NSL	mg/kg	**1.6**	**1.1 J**	0.96 U	0.23 J	**2.8**	**1.9**	1 U
Zinc	121	459	mg/kg	**657 J**	**604 J**	108 J	**194**	**501 J**	**521 J**	42 J
Total organic carbon	NSL	NSL	mg/kg	59300	43200	13400	37800	100000 J	61000	18100 J

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-18	MLTC14-18	MLTC14-19	MLTC14-19	MLTC14-19	MLTC14-21	MLTC14-22
			Sample Name:	MLTC14-18-0103-FD	MLTC14-18-0305	MLTC14-19-SURF	MLTC14-19-0001	MLTC14-19-0103	MLTC14-21-SURF	MLTC14-22-SURF
			Sample Date:	10/20/2014	10/20/2014	10/20/2014	10/21/2014	10/21/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	3.4	3.8 J	7.4 J	6	5.3	8.7 J	9.4 J
Barium	NSL	NSL	mg/kg	44.7 J	29.1 J	82.3 J	58.5 J	46.8 J	85.2 J	86.3 J
Cadmium	0.99	4.98	mg/kg	0.52 J	0.46 J	**1.3 J**	**1.00**	0.74 J	**2.1 J**	**3.1 J**
Chromium	43.4	111	mg/kg	17.2 J	12.7 J	38.2 J	27.7 J	21 J	**53.6 J**	**72.7 J**
Copper	31.6	149	mg/kg	16.2	9	**44.2**	**33.9 J**	25.8 J	**67.7**	**117**
Iron	20000*	40000*	mg/kg	15300 J	10800	**29200**	**20400 J**	15700 J	**32100**	**34100**
Lead	35.8	128	mg/kg	28.2 J	7.3 J	**38.4 J**	26.9	29	**62 J**	**80.5 J**
Mercury	0.18	1.06	mg/kg	0.15 J+	0.043 J+	**0.52**	**0.21 J**	**0.24 J**	**0.68**	**0.74**
Nickel	22.7	48.6	mg/kg	18.8 J	13.6 J	**37.8 J**	**29.4 J**	21.2 J	**37.9 J**	**43.3 J**
Selenium	NSL	NSL	mg/kg	4.5 U	4.7 UJ	1.8 J-	1.4 J	0.77 J	2.1 J-	1.2 J-
Silver	0.5**	NSL	mg/kg	1.3 U	1.4 U	2.6 U	1.9 U	1.5 U	**0.58 J**	**1.2**
Zinc	121	459	mg/kg	62.9 J	37.1 J	**174 J**	**124 J**	91.8 J	**258 J**	**401 J**
Total organic carbon	NSL	NSL	mg/kg	49300 J	11100 J	30800 J	40000	24600	54400 J	60300 J

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-25	MLTC14-25	MLTC14-25	MLTC14-25	MLTC14-26	MLTC14-31	MLTC14-31
			Sample Name:	MLTC14-25-SURF	MLTC14-25-0001	MLTC14-25-0103	MLTC14-25-0103-FD	MLTC14-26-SURF	MLTC14-31-SURF	MLTC14-31-0001
			Sample Date:	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/15/2014	10/16/2014	10/16/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	1 - 3	0 - 0.5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	6.8 J	6.1	6.3	6.8	9 J	4.4	**14.5**
Barium	NSL	NSL	mg/kg	68.9	51 J	50.7 J	61.1 J	106	41.9 J	106 J
Cadmium	0.99	4.98	mg/kg	**1.2 J**	**1.1**	**1.6**	**1.8**	**3.6**	**1.4**	**5.4 J**
Chromium	43.4	111	mg/kg	37.2 J	34 J	**44.9 J**	**48.4 J**	**84.1 J**	30.4 J	**102 J**
Copper	31.6	149	mg/kg	**42.6 J**	**37.7**	**39.9**	**40.2**	**74 J**	**35.2**	**108**
Iron	20000*	40000*	mg/kg	**28200**	**23500 J**	**22800 J**	**25800 J**	**41500**	**22100 J**	**32300 J**
Lead	35.8	128	mg/kg	35.2	**36.8**	**60.7**	**62.2**	**129**	34.2	**126 J**
Mercury	0.18	1.06	mg/kg	**0.26**	**0.36**	**0.29**	**0.42**	**1.3**	**0.38**	**3.3**
Nickel	22.7	48.6	mg/kg	**33**	**31.3 J**	**32.1 J**	**38.2 J**	**47.2**	22.7 J	**43.8 J**
Selenium	NSL	NSL	mg/kg	1.8 J	6.3 U	3.9 U	4.8 U	2.8 J	5.1 U	4.5 U
Silver	0.5**	NSL	mg/kg	2.8 U	1.8 U	0.25 J	0.2 J	0.47 J	0.17 J	**1.2 J**
Zinc	121	459	mg/kg	**177 J**	**169**	**207**	**222**	**556 J**	**165**	**353 J**
Total organic carbon	NSL	NSL	mg/kg	66000 J+	46600 J-	58300 J-	61100 J-	110000 J+	32100 J-	38300 J

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-31	MLTC14-31	MLTC14-32	MLTC14-32	MLTC14-32	MLTC14-32	MLTC14-34
			Sample Name:	MLTC14-31-0103	MLTC14-31-0305	MLTC14-32-SURF	MLTC14-32-SURF-FD	MLTC14-32-0001	MLTC14-32-0103	MLTC14-34-SURF
			Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014
			Depth Interval (feet):	1 - 3	3 - 5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	8.7	**20.2**	8.6	8.1	**11.0**	**19.6**	6.7
Barium	NSL	NSL	mg/kg	63.1 J	148 J	89.1 J	84.5 J	104 J	157 J	32.8 J
Cadmium	0.99	4.98	mg/kg	**2.8 J**	**9.7 J**	**3.5**	**3.3**	**3.8 J**	**6.7 J**	**1.1**
Chromium	43.4	111	mg/kg	**53.8 J**	**184 J**	**69.9 J**	**69.8 J**	**85.7 J**	**130 J**	32.8 J
Copper	31.6	149	mg/kg	**55.5**	**199**	**105**	**94.2**	**99.6**	**147**	27.2
Iron	20000*	40000*	mg/kg	**23400 J**	**75200 J**	**55700 J**	**56500 J**	**68400 J**	**64400 J**	**25600 J**
Lead	35.8	128	mg/kg	**70.7 J**	**294 J**	**88.9**	**85.4**	**126 J**	**146 J**	34.6
Mercury	0.18	1.06	mg/kg	**1.4**	**6.9**	**1.2**	**1.2**	**1.4**	**6.1**	**0.66**
Nickel	22.7	48.6	mg/kg	**27.2 J**	**83.3 J**	**47.1 J**	**46.9 J**	**55.5 J**	**60.7 J**	**33.5 J**
Selenium	NSL	NSL	mg/kg	4.1 U	0.76 J	5.6 U	5.2 U	1.5 J	1.6 J	4.9 U
Silver	0.5**	NSL	mg/kg	0.5 J	**2**	**0.64 J**	0.38 J	**1.2 J**	**1.5 J**	1.4 U
Zinc	121	459	mg/kg	**194 J**	**778 J**	**549**	**546**	**557 J**	**467 J**	**225**
Total organic carbon	NSL	NSL	mg/kg	29500 J	92500 J	75000 J-	69600 J-	65100 J	78100 J	47100 J-

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-35	MLTC14-35	MLTC14-35	MLTC14-35	MLTC14-35	MLTC14-36	MLTC14-36
			Sample Name:	MLTC14-35-SURF	MLTC14-35-0001	MLTC14-35-0103	MLTC14-35-0103-FD	MLTC14-35-0305	MLTC14-36-SURF	MLTC14-36-0001
			Sample Date:	10/16/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	1 - 3	3 - 5	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	7	7.3	**11.3**	**10.4**	**12.1**	9.2	3.6
Barium	NSL	NSL	mg/kg	130 J	117 J	74.1 J	66 J	69.7 J	93.6 J	113 J
Cadmium	0.99	4.98	mg/kg	**2.6 J**	**2.5 J**	0.42 J	0.46 J	0.6 J	**2.2**	0.49 J+
Chromium	43.4	111	mg/kg	**61.9 J**	**50.8 J**	16.7 J	17.6 J	15.4 J	**48.3 J**	24.5 J
Copper	31.6	149	mg/kg	**60.9**	**52.8**	15.4	13.4	12	**54.5**	22.2
Iron	20000*	40000*	mg/kg	**27700 J**	**21200 J**	16800 J	15200 J	13000 J	**33400 J**	16000 J
Lead	35.8	128	mg/kg	**74.3 J**	**106 J**	9.9 J	13.3 J	9.7 J	**78**	15.6
Mercury	0.18	1.06	mg/kg	**0.81**	**1.7**	0.018 J	0.035 J	0.018 J	**0.5**	0.14 U
Nickel	22.7	48.6	mg/kg	**37.4 J**	**31.7 J**	**27.2 J**	**26.4 J**	**25.2 J**	**35.6 J**	**26.3 J**
Selenium	NSL	NSL	mg/kg	7.2 U	0.85 J	3.7 U	3.7 U	3.7 U	1.8 J-	1.3 J-
Silver	0.5**	NSL	mg/kg	0.17 J	0.14 J	1 U	1.1 U	1.1 U	2.4 U	1.3 U
Zinc	121	459	mg/kg	**400 J**	**288 J**	**478 J**	**448 J**	**444 J**	**319 J**	69.7 J
Total organic carbon	NSL	NSL	mg/kg	92700 J	73300 J	35600 J	7290 J	12900 J	51700	25800

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-36	MLTC14-37	MLTC14-37	MLTC14-37	MLTC14-38	MLTC14-39	MLTC14-40
			Sample Name:	MLTC14-36-0103	MLTC14-37-SURF	MLTC14-37-0001	MLTC14-37-0103	MLTC14-38-SURF	MLTC14-39-SURF	MLTC14-40-SURF
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/20/2014	10/16/2014	10/17/2014
			Depth Interval (feet):	1 - 3	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	8	**10.0**	7.4	8	3.8	7.2	5.7
Barium	NSL	NSL	mg/kg	98.7 J	83.5 J	59.3 J	88.6 J	19.8 J	47.7 J	83 J
Cadmium	0.99	4.98	mg/kg	0.34 J+	**3.2**	0.58 J+	0.43 J+	0.37 J	0.74 J	**1.5 J**
Chromium	43.4	111	mg/kg	23.2 J	**65.7 J**	20.7 J	20.6 J	15.4 J	28 J	26.1 J
Copper	31.6	149	mg/kg	19.1	**75.2**	19.9	17.8	19.8	25.7	**56.8**
Iron	20000*	40000*	mg/kg	18100 J	**54000 J**	17200 J	**20300 J**	13800 J	**21500 J**	18800 J
Lead	35.8	128	mg/kg	16.5	**73.2**	15.4	14	16.4 J	32.4 J	29.8 J
Mercury	0.18	1.06	mg/kg	0.12 U	**1.9**	**0.4**	0.13 U	**0.21 J+**	0.17 J	**0.22 J**
Nickel	22.7	48.6	mg/kg	**25.7 J**	**45.4 J**	**27.9 J**	**27 J**	13.6 J	**30.6 J**	**32.1 J**
Selenium	NSL	NSL	mg/kg	0.8 J-	2.1 J-	4.5 UJ	0.85 J-	4.1 U	6.5 U	2.3 J
Silver	0.5**	NSL	mg/kg	1.3 U	1.6 U	1.3 U	1.2 U	1.2 U	1.8 U	0.84 U
Zinc	121	459	mg/kg	62.1 J	**538 J**	108 J	69.2 J	68.4 J	**144 J**	**166 J**
Total organic carbon	NSL	NSL	mg/kg	10200	104000	38000	17200	12700	42200 J	230000 J

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-40	MLTC14-40	MLTC14-40	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-41
			Sample Name:	MLTC14-40-0001	MLTC14-40-0103	MLTC14-40-0305	MLTC14-41-SURF	MLTC14-41-0001	MLTC14-41-0103	MLTC14-41-0103-FD
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	0 - 1	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	7.1	3.5	**12.1**	4.6	3.9	4	3.3
Barium	NSL	NSL	mg/kg	37.1 J	94.1 J	74.1 J	40.6 J	35.9 J	38.3 J	44.4 J
Cadmium	0.99	4.98	mg/kg	**1.6**	0.54 J+	0.47 J+	0.9	0.45 J	0.41 J	0.46 J
Chromium	43.4	111	mg/kg	7.2 J	21.5 J	21.7 J	24.7 J	15.3 J	15.3 J	17.3 J
Copper	31.6	149	mg/kg	**58.5**	28.5	17.3	24.5	12.6	12.5	13
Iron	20000*	40000*	mg/kg	8040 J	16800 J	**27900 J**	19100 J	12200 J	13700 J	14400 J
Lead	35.8	128	mg/kg	5	13.1	13.9	20.1	9 J	8.7 J	9 J
Mercury	0.18	1.06	mg/kg	0.094 U	0.13 U	0.44 U	**0.29**	0.17 U	0.16 U	0.14 U
Nickel	22.7	48.6	mg/kg	22 J	**23.2 J**	**30.1 J**	**23.4 J**	16.4 J	17.8 J	18.9 J
Selenium	NSL	NSL	mg/kg	3.8 J-	1.1 J-	1.2 J-	1.2 J-	5.8 U	4.8 U	5.8 U
Silver	0.5**	NSL	mg/kg	0.95 U	1.3 U	1.2 U	1.8 U	1.7 U	1.4 U	1.7 U
Zinc	121	459	mg/kg	19.6 J	61.2 J	75 J	117 J	45.9 J	46.1 J	58.1 J
Total organic carbon	NSL	NSL	mg/kg	478000 J	3340	7670	43900	40600 J	33400 J	31700 J

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-41	MLTC14-41	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-43	MLTC14-43
			Sample Name:	MLTC14-41-0305	MLTC14-41-0305-FD	MLTC14-41-0507	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-43-0001	MLTC14-43-0103
			Sample Date:	10/17/2014	10/17/2014	10/17/2014	10/20/2014	10/17/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	3 - 5	3 - 5	5 - 7	0 - 0.5	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	3.4	3.4	3.2	6	5.1	5.4	6.1
Barium	NSL	NSL	mg/kg	39.6 J	37.5 J	37.5 J	26.2 J	96.2 J	76 J	122 J
Cadmium	0.99	4.98	mg/kg	0.37 J	0.32 J	0.38 J+	0.88	**2.0**	0.59 J	0.86
Chromium	43.4	111	mg/kg	15 J	14.1 J	14.3 J	28.8 J	**45.2 J**	28.7 J	27.3 J
Copper	31.6	149	mg/kg	10.7	10.4	10.6	19.6	**51.9**	21.7	**35.2**
Iron	20000*	40000*	mg/kg	13900 J	13100 J	13700 J	**21100 J**	**26200 J**	20000 J	**21200 J**
Lead	35.8	128	mg/kg	7.9 J	7.9 J	7.4	28.2 J	**40.8**	15.5 J	15.7 J
Mercury	0.18	1.06	mg/kg	0.14 U	0.14 U	0.15 U	**0.72 J+**	**0.55**	0.056 J+	0.044 J+
Nickel	22.7	48.6	mg/kg	16.4 J	15.8 J	16.2 J	**27.5 J**	**45 J**	**32.6 J**	**41.5 J**
Selenium	NSL	NSL	mg/kg	4.5 U	4 U	4.9 UJ	0.5 J	1.7 J-	6.6 U	5.2 U
Silver	0.5**	NSL	mg/kg	1.3 U	1.1 U	1.4 U	1.1 U	0.97 U	0.12 J	1.5 U
Zinc	121	459	mg/kg	40.5 J	38.5 J	38.7 J	**188 J**	**263 J**	85.8 J	64.9 J
Total organic carbon	NSL	NSL	mg/kg	29500 J	29200 J	17900	27500	220000 J	109000	33300

NOTES:

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Bolded detected values exceed the TEC
FD = Field Duplicate
NSL = No Screening Level
PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)
**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)
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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)
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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-43	MLTC14-45	MLTC14-45	MLTC14-45	MLTC14-46	MLTC14-46	MLTC14-46
			Sample Name:	MLTC14-43-0305	MLTC14-45-SURF	MLTC14-45-0001	MLTC14-45-0103	MLTC14-46-SURF	MLTC14-46-0001	MLTC14-46-0001-FD
			Sample Date:	10/20/2014	10/17/2014	10/20/2014	10/20/2014	10/17/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	3 - 5	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1	0 - 1
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	4.7	4.4	4.5	**10.7**	5.5	5.5	5.9
Barium	NSL	NSL	mg/kg	84.2 J	97.1 J	48.1 J	65.7 J	89.6 J	53.8 J	64.4 J
Cadmium	0.99	4.98	mg/kg	0.32 J	0.7 J+	0.36 J	0.32 J	**3.1**	0.75	**1.3**
Chromium	43.4	111	mg/kg	23.5 J	26.5 J	19.6 J	18.7 J	**50.1 J**	21.1 J	27.7 J
Copper	31.6	149	mg/kg	26.7	21.3	16.8	16.5	**72.7**	25.1	**33**
Iron	20000*	40000*	mg/kg	20000 J	18500 J	15100 J	**24900 J**	**24100 J**	12700 J	17500 J
Lead	35.8	128	mg/kg	14.7 J	17.8	12.3 J	14.1 J	**58.1**	15.6 J	23.1 J
Mercury	0.18	1.06	mg/kg	0.037 J+	0.2 U	0.025 J+	0.02 J+	**0.94**	**0.27 J+**	**0.8 J+**
Nickel	22.7	48.6	mg/kg	**31.5 J**	**27.2 J**	**24 J**	**28.5 J**	**47.8 J**	**25 J**	**33.2 J**
Selenium	NSL	NSL	mg/kg	4.1 U	1.9 J-	4.6 U	3.4 U	2.1 J-	0.56 J	0.85 J
Silver	0.5**	NSL	mg/kg	1.2 U	1.9 U	1.3 U	0.98 U	0.95 U	0.99 U	0.89 U
Zinc	121	459	mg/kg	70.5 J	89.8 J	57.1 J	70.6 J	**389 J**	83 J	**134 J**
Total organic carbon	NSL	NSL	mg/kg	34100	14300	37900	4320	213000 J	172000 J	157000

NOTES:

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-46	MLTC14-46	MLTC14-47	MLTC14-47	MLTC14-47	MLTC14-47	MLTC14-47
			Sample Name:	MLTC14-46-0103	MLTC14-46-0305	MLTC14-47-SURF	MLTC14-47-0001	MLTC14-47-0103	MLTC14-47-0305	MLTC14-47-0507
			Sample Date:	10/20/2014	10/20/2014	10/17/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014
			Depth Interval (feet):	1 - 3	3 - 5	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	4.7	3.5	6.3	5.8	8.3	9.5	6.8
Barium	NSL	NSL	mg/kg	105 J	60.9 J	86.7 J	79.6 J	113 J	172 J	111 J
Cadmium	0.99	4.98	mg/kg	0.29 J	0.22 J	**3.4**	**3.3**	**5.1**	**13.9**	**2.4**
Chromium	43.4	111	mg/kg	23.9 J	18.4 J	**61.5 J**	**59.9 J**	**82.8 J**	**96.7 J**	34.6 J
Copper	31.6	149	mg/kg	18.7	15.9	**95.6**	**85.2**	**106**	**162**	**56.3**
Iron	20000*	40000*	mg/kg	15300 J	14800 J	**26100 J**	**30200 J**	**36900 J**	**25900 J**	**21400 J**
Lead	35.8	128	mg/kg	16.1 J	11.9 J	**71.3**	**70.9 J**	**85.7 J**	**150 J**	**67.4 J**
Mercury	0.18	1.06	mg/kg	0.025 J+	0.017 J+	**1.1**	**1 J+**	**1.2 J+**	**1.2 J+**	**0.8 J+**
Nickel	22.7	48.6	mg/kg	**27.1 J**	**24.1 J**	**47.4 J**	**45.7 J**	**59.8 J**	**49 J**	**31.8 J**
Selenium	NSL	NSL	mg/kg	5.3 U	3.5 U	2.2 J-	1.8 J	2.3 J	1.6 J	1 J
Silver	0.5**	NSL	mg/kg	1.5 U	1 U	0.92 U	0.38 J	**1.1 J**	**1.4 J**	0.25 J
Zinc	121	459	mg/kg	53.9 J	49.8 J	**416 J**	**430 J**	**600 J**	**456 J**	**166 J**
Total organic carbon	NSL	NSL	mg/kg	45500	13400	141000 J	147000	148000	57900	26900

NOTES:

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-48	MLTC14-48	MLTC14-48	MLTC14-48	MLTC14-49	MLTC14-49	MLTC14-49
			Sample Name:	MLTC14-48-SURF	MLTC14-48-0001	MLTC14-48-0001-FD	MLTC14-48-0103	MLTC14-49-SURF	MLTC14-49-0001	MLTC14-49-0103
			Sample Date:	10/22/2014	10/23/2014	10/23/2014	10/23/2014	10/15/2014	10/16/2014	10/16/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	7.1	8.3	7	8.3	6.1 J	7.1	**10.7**
Barium	NSL	NSL	mg/kg	74.3	67.9	71.8	74	67.2	76.2 J	144 J
Cadmium	0.99	4.98	mg/kg	0.63	**2.1**	**1.8**	**2.3**	**1.5**	**1.7**	**8.2**
Chromium	43.4	111	mg/kg	17.7	**59.4**	**54**	**61.1**	41.8 J	**45.9 J**	**141 J**
Copper	31.6	149	mg/kg	22.6	**52.2**	**53.1**	**63.6**	**56.1 J**	**59.6**	**93**
Iron	20000*	40000*	mg/kg	17300	**27900**	**48500**	**46300**	**26100**	**25000 J**	**49300 J**
Lead	35.8	128	mg/kg	13.4	**73.4**	**54.8**	**76.3**	**50.9**	**62.7**	**198**
Mercury	0.18	1.06	mg/kg	**0.58 J**	**5.9 J**	**1.2 J**	**2.1 J**	**0.57**	**0.84**	**2.4**
Nickel	22.7	48.6	mg/kg	**23.1**	**44.8**	**42.3**	**54**	**30.8**	**34.5 J**	**72.1 J**
Selenium	NSL	NSL	mg/kg	0.57 J	1.4 J	0.7 J	0.87 J	1.3 J	5.6 U	5.1 U
Silver	0.5**	NSL	mg/kg	1.1 U	0.17 J	0.1 J	0.24 J	0.17 J	0.31 J	**1.8**
Zinc	121	459	mg/kg	59.9	**294**	**258**	**301**	**215 J**	**233**	**888**
Total organic carbon	NSL	NSL	mg/kg	46200	47400	86000	81600	65500 J+	56600 J-	51000 J-

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TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-49	MLTC14-49	MLTC14-50	MLTC14-51	MLTC14-51	MLTC14-51	MLTC14-51
			Sample Name:	MLTC14-49-0103-FD	MLTC14-49-0305	MLTC14-50-SURF	MLTC14-51-SURF	MLTC14-51-0001	MLTC14-51-0103	MLTC14-51-0305
			Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/17/2014	10/17/2014	10/17/2014
			Depth Interval (feet):	1 - 3	3 - 5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	3 - 5
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**11.6**	8.6	5.7	5.3	2.8	3.4	2.8
Barium	NSL	NSL	mg/kg	143 J	58.7 J	39.4 J	28.4 J	31.9 J	34 J	23.3 J
Cadmium	0.99	4.98	mg/kg	**9.2**	0.37 J	0.69 J	0.86 J	0.34 J+	0.37 J+	0.34 J+
Chromium	43.4	111	mg/kg	**153 J**	15.2 J	33 J	20.6 J	14.1 J	14.5 J	10.6 J
Copper	31.6	149	mg/kg	**98**	14.8	23.9	25.6	9.4	9.6	7.2
Iron	20000*	40000*	mg/kg	**54200 J**	16600 J	**25600 J**	15500 J	11500 J	13100 J	9650 J
Lead	35.8	128	mg/kg	**222**	8.8	31.7 J	22.6 J	7.2	7.6	5.9
Mercury	0.18	1.06	mg/kg	**2.6**	0.1 U	**0.51**	**0.21**	0.15 U	0.14 U	0.12 U
Nickel	22.7	48.6	mg/kg	**78.8 J**	**24.5 J**	**26 J**	**24.3 J**	15.3 J	16.5 J	12.1 J
Selenium	NSL	NSL	mg/kg	0.76 J	3.6 U	5.2 U	5.2 U	0.55 J-	4.9 UJ	0.57 J-
Silver	0.5**	NSL	mg/kg	**2**	1 U	1.5 U	1.5 U	1.2 U	1.4 U	1.1 U
Zinc	121	459	mg/kg	**1030**	44.4	**161 J**	110 J	37.6 J	40.3 J	32.4 J
Total organic carbon	NSL	NSL	mg/kg	43800 J-	36900 J-	29200 J	56100 J	26500	15700	12800

NOTES:

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-51	MLTC14-51	MLTC14-52	MLTC14-52	MLTC14-52	MLTC14-53	MLTC14-53
			Sample Name:	MLTC14-51-0507	MLTC14-51-0709	MLTC14-52-SURF	MLTC14-52-0001	MLTC14-52-0103	MLTC14-53-SURF	MLTC14-53-0001
			Sample Date:	10/17/2014	10/17/2014	10/16/2014	10/17/2014	10/17/2014	10/20/2014	10/21/2014
			Depth Interval (feet):	5 - 7	7 - 9	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	4.5	**11.4**	3.9	4.1	5.8	8.9 J	**22.7 J**
Barium	NSL	NSL	mg/kg	14.4 J	55.4 J	25.5 J	34.7 J	84.2 J	78.4 J	165 J
Cadmium	0.99	4.98	mg/kg	0.25 J+	0.49 J	0.75 J	0.58 J	0.27 J+	**3.5 J**	**10.4 J**
Chromium	43.4	111	mg/kg	7.5 J	15.4 J	18.7 J	16.8 J	20.5 J	**82.6 J**	**245 J**
Copper	31.6	149	mg/kg	6.5	18.5	19.1	18.2	22.9	**86.5**	**142**
Iron	20000*	40000*	mg/kg	7360 J	**25900 J**	13500 J	13800 J	**21300 J**	**41900**	**129000**
Lead	35.8	128	mg/kg	4.5	10 J	15.6 J	14.5 J	12.9	**184 J**	**417 J**
Mercury	0.18	1.06	mg/kg	0.12 U	0.01 J+	0.12 J	0.1 J+	0.12 U	**0.041666667**	**4.1**
Nickel	22.7	48.6	mg/kg	9 J	**27.2 J**	18.8 J	18.8 J	**27.2 J**	**44.6 J**	**114 J**
Selenium	NSL	NSL	mg/kg	4.2 UJ	3.7 U	6.3 U	4.6 U	0.6 J-	1.7 J-	2.7 J-
Silver	0.5**	NSL	mg/kg	1.2 U	1.1 U	1.8 U	1.3 U	1.2 U	**2**	**3.1**
Zinc	121	459	mg/kg	19 J	52.5 J	86.1 J	62.8 J	69.3 J	**545 J**	**1260 J**
Total organic carbon	NSL	NSL	mg/kg	5080	13100	20700 J	31300	3860	64800 J	91400 J

NOTES:

Bolded and Shaded detected values exceed the PEC

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-53	MLTC14-54
			Sample Name:	MLTC14-53-0103	MLTC14-53-0305	MLTC14-53-0305-FD	MLTC14-53-0507	MLTC14-53-0709	MLTC14-54-SURF
			Sample Date:	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/20/2014
			Depth Interval (feet):	1 - 3	3 - 5	3 - 5	5 - 7	7 - 9	0 - 0.5
Analyte	**TEC**	**PEC**	**Unit**						
Arsenic	9.79	33	mg/kg	**27.9 J**	**15.3 J**	**15.3 J**	**10.4 J**	5.1	**10.4 J**
Barium	NSL	NSL	mg/kg	149 J	146 J	150 J	192 J	38.8	94.8 J
Cadmium	0.99	4.98	mg/kg	**10.4 J**	**13.3 J**	**13.1 J**	**10.9 J**	**1.6**	**4.3 J**
Chromium	43.4	111	mg/kg	**237 J**	**201 J**	**200 J**	**96.8 J**	33.4	**102 J**
Copper	31.6	149	mg/kg	**222**	**236**	**237**	**189**	28.3	**78.4**
Iron	20000*	40000*	mg/kg	**120000**	**36100**	**36200**	**28300**	**34500**	**67400**
Lead	35.8	128	mg/kg	**451 J**	**239 J**	**244 J**	**210 J**	26.7	**119 J**
Mercury	0.18	1.06	mg/kg	**5.8**	**6.5**	**6.6**	**2.2**	0.11 J	**1.7**
Nickel	22.7	48.6	mg/kg	**98.8 J**	**60.4 J**	**63 J**	**42.9 J**	**26.1**	**60.9 J**
Selenium	NSL	NSL	mg/kg	2.8 J-	1.6 J-	1.7 J-	0.78 J-	0.71 J	1.1 J-
Silver	0.5**	NSL	mg/kg	**2.8**	**3.2**	**3.2**	**1.6**	1 U	0.13 J
Zinc	121	459	mg/kg	**995 J**	**685 J**	**701 J**	**589 J**	**155**	**708 J**
Total organic carbon	NSL	NSL	mg/kg	115000 J	82100 J	89800 J	59000 J	22200	49100 J

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

J+ = Compound was detected, but result is below the reporting limit, greater than or equal tc the method detection limit, and is biased high. (value is estimated)

J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-54	MLTC14-55	MLTC14-55
			Sample Name:	MLTC14-54-SURF-FD	MLTC14-54-0001	MLTC14-54-0103	MLTC14-54-0305	MLTC14-54-0507	MLTC14-55-SURF	MLTC14-55-0001
			Sample Date:	10/20/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014	10/21/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 1
Analyte	**TEC**	**PEC**	**Unit**							
Arsenic	9.79	33	mg/kg	**9.8 J**	**14.8 J**	**12.7 J**	9.2 J	8.4 J	7.5	3.6
Barium	NSL	NSL	mg/kg	95 J	154 J	185 J	273 J	89.7 J	63 J	83.2 J
Cadmium	0.99	4.98	mg/kg	**3.7 J**	**8.2 J**	**11.6 J**	**5.4 J**	**1.1 J**	**1.6**	0.55 J
Chromium	43.4	111	mg/kg	**99.9 J**	**146 J**	**129 J**	**51.9 J**	23.4 J	**45.2 J**	14 J
Copper	31.6	149	mg/kg	**79.6**	**165**	**180**	**211**	**75.2**	**56.9 J**	14.6 J
Iron	20000*	40000*	mg/kg	**63300**	**51000**	**30100**	**21100**	**20400**	**28800 J**	9660 J
Lead	35.8	128	mg/kg	**112 J**	**238 J**	**191 J**	**221 J**	**77.4 J**	**54.3**	17.6
Mercury	0.18	1.06	mg/kg	**1.3**	**5.2**	**2.4**	**1.8**	**0.84**	**1.1 J**	0.074 J
Nickel	22.7	48.6	mg/kg	**59.5 J**	**67.5 J**	**43.2 J**	**34.8 J**	**27 J**	**31.5 J**	13.7 J
Selenium	NSL	NSL	mg/kg	1.1 J-	1.5 J-	1.6 J-	5.1 UJ	0.8 J-	1.5 J	0.6 J
Silver	0.5**	NSL	mg/kg	**0.98 J**	**1.9**	**1.9**	**1.5**	0.15 J	0.43 J	1.2 U
Zinc	121	459	mg/kg	**688 J**	**643 J**	**564 J**	**596 J**	**222 J**	**255 J**	60.2 J
Total organic carbon	NSL	NSL	mg/kg	101000 J	112000 J	56800 J	49400 J	30000 J	51900	15400

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

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J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

Location ID:				MLTC14-55	MLTC14-55	MLTC14-55	MLTC14-56	MLTC14-56	MLTC14-56
Sample Name:				MLTC14-55-0001-FD	MLTC14-55-0103	MLTC14-55-0103-FD	MLTC14-56-SURF	MLTC14-56-0001	MLTC14-56-0103
Sample Date:				10/21/2014	10/21/2014	10/21/2014	10/23/2014	10/23/2014	10/23/2014
Depth Interval (feet):				0 - 1	1 - 3	1 - 3	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**						
Arsenic	9.79	33	mg/kg	2.4	6.9	6.8	8.6 J	7 J	2.7 J
Barium	NSL	NSL	mg/kg	35.5 J	68.5 J	73.1 J	104 J	86.3 J	21.3 J
Cadmium	0.99	4.98	mg/kg	0.4 J	**4.5**	**4.4**	**1.7**	**1.2**	0.28 J
Chromium	43.4	111	mg/kg	7.3 J	**76.9 J**	**75.6 J**	**47.1**	38.4	8.5
Copper	31.6	149	mg/kg	7.5 J	**48.3 J**	**49.4 J**	**277 J**	**52.1 J**	8.4 J
Iron	20000*	40000*	mg/kg	6260 J	**28900 J**	**28800 J**	**31900**	**29100**	8920
Lead	35.8	128	mg/kg	10.1	**107**	**104**	**137 J**	**269 J**	6.3 J
Mercury	0.18	1.06	mg/kg	0.16 J	**0.86 J**	**0.91 J**	**3.1**	**0.7**	0.12 U
Nickel	22.7	48.6	mg/kg	6.6 J	**41.3 J**	**40.9 J**	**33 J**	**27.8 J**	9.5 J
Selenium	NSL	NSL	mg/kg	3.3 U	0.96 J	1.3 J	1.1 J	0.91 J	3.6 U
Silver	0.5**	NSL	mg/kg	0.082 J	**1.1 J**	**1.1 J**	0.36 J	0.15 J	1 U
Zinc	121	459	mg/kg	40.4 J	**503 J**	**499 J**	**674**	**387**	32
Total organic carbon	NSL	NSL	mg/kg	16400	27000	29600	45600	36500	16300

NOTES:

Bolded and Shaded detected values exceed the PEC

Bolded detected values exceed the TEC

FD = Field Duplicate

NSL = No Screening Level

PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)

*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)

**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)

J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)

J+ = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high. (value is estimated)

J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)

U = Indicates the analyte was analyzed but not detected

TABLE 3-5 SEDIMENT RESULTS FOR METALS AND TOC

			Location ID:	MLTC14-57	MLTC14-57	MLTC14-57	MLTC14-58	MLTC14-58	MLTC14-58
			Sample Name:	MLTC14-57-SURF	MLTC14-57-0001	MLTC14-57-0103	MLTC14-58-SURF	MLTC14-58-0001	MLTC14-58-0103
			Sample Date:	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014	10/23/2014
			Depth Interval (feet):	0 - 0.5	0 - 1	1 - 3	0 - 0.5	0 - 1	1 - 3
Analyte	**TEC**	**PEC**	**Unit**						
Arsenic	9.79	33	mg/kg	5.4 J	6.6 J	9.6 J	8.8 J	**12.8 J**	**15.2 J**
Barium	NSL	NSL	mg/kg	94.6 J	93.9 J	107 J	98.7 J	156 J	110 J
Cadmium	0.99	4.98	mg/kg	**1.3**	**1.7**	**1.5**	**2.6**	**5.4**	0.79
Chromium	43.4	111	mg/kg	37.7	**46.8**	40.3	**60.9**	**123**	31.8
Copper	31.6	149	mg/kg	**51 J**	**65.5 J**	**61.6 J**	**85.1 J**	**111 J**	27.1 J
Iron	20000*	40000*	mg/kg	18200	**23200**	**35500**	**21800**	**26700**	**23000**
Lead	35.8	128	mg/kg	**55.9 J**	**71.9 J**	**65.8 J**	**98 J**	**196 J**	32.6 J
Mercury	0.18	1.06	mg/kg	**0.77**	**0.8**	**0.25**	**2.1**	**3.5**	**0.33**
Nickel	22.7	48.6	mg/kg	**27.3 J**	**36.1 J**	**46.4 J**	**54.1 J**	**87.9 J**	**33.1 J**
Selenium	NSL	NSL	mg/kg	7.1 U	1.1 J	0.84 J	7.8 U	0.86 J	4.5 U
Silver	0.5**	NSL	mg/kg	0.15 J	0.16 J	1.5 U	**0.62 J**	**1.6 J**	1.3 U
Zinc	121	459	mg/kg	**435**	**525**	**440**	**1130**	**1700**	**210**
Total organic carbon	NSL	NSL	mg/kg	46600	48200	31300	84000	52200	50100

NOTES:

Bolded and Shaded detected values exceed the PEC
Bolded detected values exceed the TEC
FD = Field Duplicate
NSL = No Screening Level
PEC = Probable effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
TEC = Threshold effect concentration. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al. 2000)
*TEC and PEC values based on Guidelines for the Protection and Management of Aquatic Sediments in Ontario (Persaud et al. 1993)
**TEC value based on USEPA Region 5 RCRA Ecological Screening Value (EPA 2003)
J = Compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = Compound was detected, but result is below the reporting limit, greater than or equal t the method detection limit, and is biased high. (value is estimated)
J- = Compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and and is biased low. (value is estimated)
U = Indicates the analyte was analyzed but not detected

TABLE 3-6 SEDIMENT RESULTS FOR SEM/AVS

Location ID:		MLTC14-01	MLTC14-01	MLTC14-03	MLTC14-04	MLTC14-05	MLTC14-06	MLTC14-07
Sample Name:		MLTC14-01-SURF	MLTC14-01-SURF-FD	MLTC14-03-SURF	MLTC14-04-SURF	MLTC14-05-SURF	MLTC14-06-SURF	MLTC14-07-SURF
Sample Date:		10/23/2014	10/23/2014	10/14/2014	10/14/2014	10/22/2014	10/14/2014	10/14/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**							
Cadmium	µmole/g dry	0.018 U	0.018 U	0.029 U	0.054	0.014 U	0.014 U	0.04
Copper	µmole/g dry	0.21	0.23	0.23 J	0.62	0.25	0.033 J	0.78
Lead	µmole/g dry	0.091	0.13	0.095	0.4	0.13	0.015 J	0.5
Mercury	µmole/g dry	0.00005 J+	0.000062 J+	0.000036 J	0.000044 J	0.00057 J+	0.000032 U	0.00011
Nickel	µmole/g dry	0.29 U	0.29 U	0.15 J	0.49	0.28	0.036 J	1
Zinc	µmole/g dry	1.5	1.8	1.1	4.2	1.5 J	0.21	4.7
Σ SEM	µmole/g dry	0.091	1.8	1.1	0.054	0.014	0.21	0.5
Acid Volatile Sulfide (AVS)	µmole/g dry	6.2	5.5	10.3	3.8	4.9	0.63 U	5.2
foc	fraction	0.0253	0.0138	0.0985	0.0603	0.0415	0.0045	0.106
(Σ SEM - AVS) / foc	µmole/g dry	-241	-268	-93	-62	-118	-93	-44
SEM/AVS Ratio	none	0.30	0.39	0.15	**1.50**	0.44	0.00	**1.36**

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected
"--" SEM/AVS not calculated because AVS was not detected

TABLE 3-6 SEDIMENT RESULTS FOR SEM/AVS

Location ID:		MLTC14-08	MLTC14-09	MLTC14-10	MLTC14-10	MLTC14-11	MLTC14-12	MLTC14-12	MLTC14-13	MLTC14-14
Sample Name:		MLTC14-08-SURF	MLTC14-09-SURF	MLTC14-10-SURF	MLTC14-10-SURF-FD	MLTC14-11-SURF	MLTC14-12-SURF	MLTC14-12-SURF-FD	MLTC14-13-SURF	MLTC14-14-SURF
Sample Date:		10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/22/2014	10/22/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**									
Cadmium	µmole/g dry	0.079	0.0052 J	0.034 U	0.035 U	0.015 U	0.0063 J	0.01 J	0.014 U	0.0046 J
Copper	µmole/g dry	1.6	0.33	0.24 J	0.35	0.058 J	0.46	0.64	0.32	0.3
Lead	µmole/g dry	1	0.29	0.11 J	0.11 J	0.041 J	0.21 J	0.25 J	0.15	0.21
Mercury	µmole/g dry	0.00016	0.000025 J	0.000079 U	0.000082 U	0.000036 U	0.000025 J	0.000027 J	0.00013 J+	0.000054 J+
Nickel	µmole/g dry	1.6	0.35 J	0.21 J	0.22 J	0.058 J	0.24 J	0.27 J	0.11 J	0.24 J
Zinc	µmole/g dry	9.3	5.6	1.5 J	1.6 J	0.69 J	2.6 J	3 J	1.4 J	3.4
Σ SEM	µmole/g dry	1.6	0.35	0.034	0.11	0.058	0.21	0.01	0.014	3.4
Acid Volatile Sulfide (AVS)	µmole/g dry	7.4	8.9	50.3 J+	36.6 J+	4.3 J+	16 J+	19.2 J+	4.5	7.1
foc	fraction	0.0944	0.11	0.0711	0.065	0.0161	0.0666	0.0642	0.0552	0.0377
(Σ SEM - AVS) / foc	µmole/g dry	-61	-78	-707	-561	-263	-237	-299	-81	-98
SEM/AVS Ratio	none	**1.83**	0.74	0.04	0.06	0.19	0.22	0.22	0.44	0.58

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected
"--" SEM/AVS not calculated because AVS was not detected

TABLE 3-6 SEDIMENT RESULTS FOR SEM/AVS

Location ID:		MLTC14-15	MLTC14-16	MLTC14-17	MLTC14-18	MLTC14-19	MLTC14-21	MLTC14-22	MLTC14-25	MLTC14-26
Sample Name:		MLTC14-15-SURF	MLTC14-16-SURF	MLTC14-17-SURF	MLTC14-18-SURF	MLTC14-19-SURF	MLTC14-21-SURF	MLTC14-22-SURF	MLTC14-25-SURF	MLTC14-26-SURF
Sample Date:		10/22/2014	10/22/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/15/2014	10/15/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**									
Cadmium	µmole/g dry	0.011 J	0.015 J	0.026	0.039	0.034 U	0.0087 J	0.0066 J	0.032 U	0.019 J
Copper	µmole/g dry	0.48	0.29	1.2	1.1	0.28 J	0.68	0.38	0.41	0.29
Lead	µmole/g dry	0.41	0.31	0.64	0.55	0.11	0.25	0.15	0.15 J	0.4 J
Mercury	µmole/g dry	0.000079 U	0.000059 J+	0.0004 J	0.00016 J	0.00008 UJ	0.00012 J	0.000084 UJ	0.000025 J	0.000067 U
Nickel	µmole/g dry	0.33 J	0.38	0.59	0.51	0.2 J	0.31 J	0.19 J	0.26 J	0.28 J
Zinc	µmole/g dry	4.4 J	2.8 J	5.2	5.6	1.2	2.7	2.5	1.9 J	5.2 J
Σ SEM	µmole/g dry	4.4	2.8	0.59	1.1	0.11	2.7	0.0066	0.41	0.29
Acid Volatile Sulfide (AVS)	µmole/g dry	11.9	7.3	8.2	20	33.9	10.5	30.9	26.3 J+	22.1 J+
foc	fraction	0.0405	0.0678	0.0761	0.1	0.0308	0.0544	0.0603	0.066	0.11
(Σ SEM - AVS) / foc	µmole/g dry	-185	-66	-100	-189	-1097	-143	-512	-392	-198
SEM/AVS Ratio	none	0.47	0.52	0.93	0.39	0.05	0.37	0.11	0.10	0.28

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected
"--" SEM/AVS not calculated because AVS was not detected

TABLE 3-6 SEDIMENT RESULTS FOR SEM/AVS

	Location ID:	MLTC14-31	MLTC14-32	MLTC14-32	MLTC14-34	MLTC14-35	MLTC14-36	MLTC14-37	MLTC14-38
	Sample Name:	MLTC14-31-SURF	MLTC14-32-SURF	MLTC14-32-SURF-FD	MLTC14-34-SURF	MLTC14-35-SURF	MLTC14-36-SURF	MLTC14-37-SURF	MLTC14-38-SURF
	Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/17/2014	10/17/2014	10/20/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
Cadmium	µmole/g dry	0.034	0.023	0.019 J	0.0037 J	0.015 J	0.014 J	0.019 J	0.016 U
Copper	µmole/g dry	0.35	0.71	0.63	0.19	0.4	0.5	0.66	0.14 J
Lead	µmole/g dry	0.11	0.38	0.33	0.13	0.25	0.23	0.52	0.083
Mercury	µmole/g dry	0.000081	0.000066	0.000058	0.00012	0.000023 J	0.000053 J	0.00025	0.000037 U
Nickel	µmole/g dry	0.2 J	0.32 J	0.27 J	0.35	0.22 J	0.24 J	0.41	0.14 J
Zinc	µmole/g dry	1.5	6.5	5.7	2.7	3.9	4	5.9	0.84
Σ SEM	µmole/g dry	1.5	0.023	5.7	0.35	3.9	0.23	5.9	0.84
Acid Volatile Sulfide (AVS)	µmole/g dry	0.82 U	4.8	5.2	0.69 U	10.8	8.7	1 U	0.93
foc	fraction	0.0321	0.075	0.0696	0.0471	0.0927	0.0517	0.104	0.0127
(Σ SEM - AVS) / foc	µmole/g dry	21	-64	7	-7	-74	-164	47	-7
SEM/AVS Ratio	none	0.00	**1.64**	**1.33**	0.00	0.44	0.57	**6.44**	**1.29**

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected
"--" SEM/AVS not calculated because AVS was not detected

TABLE 3-6 SEDIMENT RESULTS FOR SEM/AVS

	Location ID:	MLTC14-39	MLTC14-40	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-45	MLTC14-46	MLTC14-47	MLTC14-48
	Sample Name:	MLTC14-39-SURF	MLTC14-40-SURF	MLTC14-41-SURF	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-45-SURF	MLTC14-46-SURF	MLTC14-47-SURF	MLTC14-48-SURF
	Sample Date:	10/16/2014	10/17/2014	10/17/2014	10/20/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/22/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**									
Cadmium	µmole/g dry	0.026 U	0.057 U	0.022 U	0.0077 J	0.013 J	0.021 U	0.014 J	0.018 J	0.0033 J
Copper	µmole/g dry	0.26	0.24 J	0.14 J	0.27	0.2 J	0.099 J	0.19 J	0.48	0.28
Lead	µmole/g dry	0.12	0.13	0.046	0.2	0.13	0.037	0.16	0.2	0.11
Mercury	µmole/g dry	0.000026 J	0.00013 U	0.000052 U	0.00083 J+	0.0001 U	0.000048 U	0.00012 U	0.00012 U	0.00027 J+
Nickel	µmole/g dry	0.18 J	0.23 J	0.13 J	0.43	0.27 J	0.069 J	0.27 J	0.29 J	0.29
Zinc	µmole/g dry	1.3	1.8	0.67	3	3.3	0.49	3.3	3.8	1.6 J
Σ SEM	µmole/g dry	1.3	0.057	0.022	3	0.13	0.037	0.014	3.8	0.0033
Acid Volatile Sulfide (AVS)	µmole/g dry	8.9	2.7 U	1 U	1.7	7.3	6.8	15.3	18.9	5.6
foc	fraction	0.0422	0.23	0.0439	0.0275	0.22	0.0143	0.213	0.141	0.0462
(Σ SEM - AVS) / foc	µmole/g dry	-180	-11	-22	47	-33	-473	-72	-107	-121
SEM/AVS Ratio	none	0.21	0.00	0.43	**2.35**	0.53	0.10	0.26	0.26	0.41

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected
"--" SEM/AVS not calculated because AVS was not detected

TABLE 3-6 SEDIMENT RESULTS FOR SEM/AVS

Location ID:		MLTC14-49	MLTC14-50	MLTC14-51	MLTC14-52	MLTC14-53	MLTC14-54	MLTC14-54	MLTC14-55
Sample Name:		MLTC14-49-SURF	MLTC14-50-SURF	MLTC14-51-SURF	MLTC14-52-SURF	MLTC14-53-SURF	MLTC14-54-SURF	MLTC14-54-SURF-FD	MLTC14-55-SURF
Sample Date:		10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/20/2014	10/20/2014	10/20/2014	10/21/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
Cadmium	µmole/g dry	0.0048 J	0.02 U	0.0065 J	0.019 U	0.017 J	0.027	0.022	0.0091 J
Copper	µmole/g dry	0.51	0.23	0.17 J	0.14 J	0.55	0.62	0.5	0.44
Lead	µmole/g dry	0.2 J	0.13	0.11	0.06	0.41	0.46	0.38	0.24
Mercury	µmole/g dry	0.000045 J	0.000031 J	0.00002 J	0.000015 J	0.000069 J	0.000084 J	0.000081 J	0.000057 J+
Nickel	µmole/g dry	0.2 J	0.2 J	0.14 J	0.11 J	0.32	0.5	0.42	0.24 J
Zinc	µmole/g dry	2.3 J	1.6	1.4	0.87	5.3	8.2	6.6	2.7
Σ SEM	µmole/g dry	2.3	0.23	0.0065	0.019	0.32	0.46	0.022	0.24
Acid Volatile Sulfide (AVS)	µmole/g dry	5.8 J+	0.95 U	7.5	7.2	6.5	0.99 U	7.6	7.3
foc	fraction	0.0655	0.0292	0.0561	0.0207	0.0648	0.0491	0.101	0.0519
(Σ SEM - AVS) / foc	µmole/g dry	-53	-25	-134	-347	-95	-11	-75	-136
SEM/AVS Ratio	none	0.55	0.00	0.24	0.16	**1.02**	0.00	**1.05**	0.50

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected
"--" SEM/AVS not calculated because AVS was not detected

TABLE 3-6 SEDIMENT RESULTS FOR SEM/AVS

	Location ID:	MLTC14-56	MLTC14-57	MLTC14-58
	Sample Name:	MLTC14-56-SURF	MLTC14-57-SURF	MLTC14-58-SURF
	Sample Date:	10/23/2014	10/23/2014	10/23/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**			
Cadmium	µmole/g dry	0.021 U	0.022 U	0.025 U
Copper	µmole/g dry	0.56	0.54	0.54
Lead	µmole/g dry	0.29	0.27	0.26
Mercury	µmole/g dry	0.000072 J+	0.000081 J+	0.000085 J+
Nickel	µmole/g dry	0.34 U	0.35 U	0.39 U
Zinc	µmole/g dry	5.2	7.8	4.9
Σ SEM	µmole/g dry	5.2	0.35	0.025
Acid Volatile Sulfide (AVS)	µmole/g dry	6.6	6.7	8.3
foc	fraction	0.0456	0.0466	0.084
(Σ SEM - AVS) / foc	µmole/g dry	-31	-136	-99
SEM/AVS Ratio	none	0.92	**1.29**	0.68

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected
"--" SEM/AVS not calculated because AVS was not detected

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-01	MLTC14-01	MLTC14-03	MLTC14-04	MLTC14-05
	Sample Name:	MLTC14-01-SURF	MLTC14-01-SURF-FD	MLTC14-03-SURF	MLTC14-04-SURF	MLTC14-05-SURF
	Sample Date:	10/23/2014	10/23/2014	10/14/2014	10/14/2014	10/22/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	100 J	93 J	110 J	680 J	90 U
Oil Range Organics (C20-C36)	mg/kg	600	600 J	510 J	2700 J	200 J
Σ TPH	mg/kg	700	693	620	3380	290

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-06	MLTC14-07	MLTC14-08	MLTC14-09	MLTC14-10
	Sample Name:	MLTC14-06-SURF	MLTC14-07-SURF	MLTC14-08-SURF	MLTC14-09-SURF	MLTC14-10-SURF
	Sample Date:	10/14/2014	10/14/2014	10/14/2014	10/15/2014	10/15/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	29 J	910 J	2500 J	200	290
Oil Range Organics (C20-C36)	mg/kg	61 J	3300 J	8900 J	1300 J	1200
Σ TPH	mg/kg	90	4210	11400	1500	1490

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-10	MLTC14-11	MLTC14-12	MLTC14-12
	Sample Name:	MLTC14-10-SURF-FD	MLTC14-11-SURF	MLTC14-12-SURF	MLTC14-12-SURF-FD
	Sample Date:	10/15/2014	10/15/2014	10/15/2014	10/15/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**				
Diesel Range Organics (C10-C20)	mg/kg	180 J	100	230 J	190 UJ
Oil Range Organics (C20-C36)	mg/kg	760 J	380	1200	900
Σ TPH	mg/kg	940	480	1430	1090

NOTES:

FD = Field Duplicate

mg/kg = milligram per kilogram

TPH = Total Petroleum Hydrocarbons

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated

U = Indicates the analyte was analyzed but not detected

Σ TPH = Total Petroleum Hydrocarbons

Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-13	MLTC14-14	MLTC14-15	MLTC14-16	MLTC14-17
	Sample Name:	MLTC14-13-SURF	MLTC14-14-SURF	MLTC14-15-SURF	MLTC14-16-SURF	MLTC14-17-SURF
	Sample Date:	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/20/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	92 U	1500 J	410	1900	1900 J
Oil Range Organics (C20-C36)	mg/kg	500 J	5300 J	3100	8600	7400 J
Σ TPH	mg/kg	592	6800	3510	10500	9300

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-18	MLTC14-19	MLTC14-21	MLTC14-22	MLTC14-25
	Sample Name:	MLTC14-18-SURF	MLTC14-19-SURF	MLTC14-21-SURF	MLTC14-22-SURF	MLTC14-25-SURF
	Sample Date:	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/15/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	3300 J	130 UJ	440 J	590 J	200 UJ
Oil Range Organics (C20-C36)	mg/kg	8700 J	470 J	2200 J	3300 J	820
Σ TPH	mg/kg	12000	600	2640	3890	1020

NOTES:

FD = Field Duplicate

mg/kg = milligram per kilogram

TPH = Total Petroleum Hydrocarbons

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated

U = Indicates the analyte was analyzed but not detected

Σ TPH = Total Petroleum Hydrocarbons

Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-26	MLTC14-31	MLTC14-32	MLTC14-32	MLTC14-34
	Sample Name:	MLTC14-26-SURF	MLTC14-31-SURF	MLTC14-32-SURF	MLTC14-32-SURF-FD	MLTC14-34-SURF
	Sample Date:	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	550	150 J	310	280 U	110 J
Oil Range Organics (C20-C36)	mg/kg	2600	550	1500 J	1500	490
Σ TPH	mg/kg	3150	700	1810	1780	600

NOTES:

FD = Field Duplicate

mg/kg = milligram per kilogram

TPH = Total Petroleum Hydrocarbons

J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated

U = Indicates the analyte was analyzed but not detected

Σ TPH = Total Petroleum Hydrocarbons

Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-35	MLTC14-36	MLTC14-37	MLTC14-38	MLTC14-39
	Sample Name:	MLTC14-35-SURF	MLTC14-36-SURF	MLTC14-37-SURF	MLTC14-38-SURF	MLTC14-39-SURF
	Sample Date:	10/16/2014	10/17/2014	10/17/2014	10/20/2014	10/16/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	370 J	340	420	110	200 J
Oil Range Organics (C20-C36)	mg/kg	1600 J	1300	1900 J	410	840 J
Σ TPH	mg/kg	1970	1640	2320	520	1040

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-40	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-45
	Sample Name:	MLTC14-40-SURF	MLTC14-41-SURF	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-45-SURF
	Sample Date:	10/17/2014	10/17/2014	10/20/2014	10/17/2014	10/17/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	830 J	200	100 U	320	140 U
Oil Range Organics (C20-C36)	mg/kg	2400 J	880	520	1000	380
Σ TPH	mg/kg	3230	1080	620	1320	520

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogran
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detectec
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-46	MLTC14-47	MLTC14-48	MLTC14-49	MLTC14-50
	Sample Name:	MLTC14-46-SURF	MLTC14-47-SURF	MLTC14-48-SURF	MLTC14-49-SURF	MLTC14-50-SURF
	Sample Date:	10/17/2014	10/17/2014	10/22/2014	10/15/2014	10/16/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	420	410	100 U	240 J	300 J
Oil Range Organics (C20-C36)	mg/kg	1700	1900	250 J	1400	1000 J
Σ TPH	mg/kg	2120	2310	350	1640	1300

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-51	MLTC14-52	MLTC14-53	MLTC14-54	MLTC14-54
	Sample Name:	MLTC14-51-SURF	MLTC14-52-SURF	MLTC14-53-SURF	MLTC14-54-SURF	MLTC14-54-SURF-FD
	Sample Date:	10/16/2014	10/16/2014	10/20/2014	10/20/2014	10/20/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
Diesel Range Organics (C10-C20)	mg/kg	170 J	170 J	1200 UJ	300 J	330 J
Oil Range Organics (C20-C36)	mg/kg	580 J	490 J	5200 J	1400 J	1600 J
Σ TPH	mg/kg	750	660	6400	1700	1930

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-7 SEDIMENT RESULTS FOR TPH

	Location ID:	MLTC14-55	MLTC14-56	MLTC14-57	MLTC14-58
	Sample Name:	MLTC14-55-SURF	MLTC14-56-SURF	MLTC14-57-SURF	MLTC14-58-SURF
	Sample Date:	10/21/2014	10/23/2014	10/23/2014	10/23/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**				
Diesel Range Organics (C10-C20)	mg/kg	250 J	290	450	1800
Oil Range Organics (C20-C36)	mg/kg	1300 J	1900	2300	5400
Σ TPH	mg/kg	1550	2190	2750	7200

NOTES:
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected
Σ TPH = Total Petroleum Hydrocarbons
Σ TPH = DRO (C10-C28) + ORO (C20-C36)

TABLE 3-8 TPH RESULTS COMPARED TO SCREENING LEVELS

	Location ID:	MLTC14-01	MLTC14-01	MLTC14-03	MLTC14-04	MLTC14-05	MLTC14-06	MLTC14-07	MLTC14-08
	Sample Name:	MLTC14-01-SURF	MLTC14-01-SURF-FD	MLTC14-03-SURF	MLTC14-04-SURF	MLTC14-05-SURF	MLTC14-06-SURF	MLTC14-07-SURF	MLTC14-08-SURF
	Sample Date:	10/23/2014	10/23/2014	10/14/2014	10/14/2014	10/22/2014	10/14/2014	10/14/2014	10/14/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
foc	fraction	0.0253	0.0138	0.0985	0.0603	0.0415	0.0045	0.106	0.0944
Diesel Range Organics (C10-C20)	mg/kg	100 J	**93 J**	110 J	**680 J**	90 U	**29 J**	**910 J**	**2500 J**
Sample-Specific Risk Screening Level	mg/kg	140	76	546	334	230	25	588	523
Oil Range Organics (C20-C36)	mg/kg	**600**	**600 J**	510 J	**2700 J**	200 J	**61 J**	**3300 J**	**8900 J**
Sample-Specific Risk Screening Level	mg/kg	253	138	983	602	414	45	1058	942

NOTES:

- **Sediment benchmark for DRO** used in calculation of sample-specific risk screening level is **5543 mg/kg**

- **Sediment benchmark for ORO** used in calculation of sample-specific risk screening level is **9883 mg/kg**

Bolded detected values exceed the Sample-Specific Risk Screening Level

foc = fraction organic carbon
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
U = Indicates the analyte was analyzed but not detected

TABLE 3-8 TPH RESULTS COMPARED TO SCREENING LEVELS

Location ID:		MLTC14-09	MLTC14-10	MLTC14-10	MLTC14-11	MLTC14-12	MLTC14-12	MLTC14-13	MLTC14-14
Sample Name:		MLTC14-09-SURF	MLTC14-10-SURF	MLTC14-10-SURF-FD	MLTC14-11-SURF	MLTC14-12-SURF	MLTC14-12-SURF-FD	MLTC14-13-SURF	MLTC14-14-SURF
Sample Date:		10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/22/2014	10/22/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
foc	fraction	0.11	0.0711	0.065	0.0161	0.0666	0.0642	0.0552	0.0377
Diesel Range Organics (C10-C20)	mg/kg	200	290	180 J	**100**	230 J	190 UJ	92 U	**1500 J**
Sample-Specific Risk Screening Level	mg/kg	610	394	360	89	369	356	306	209
Oil Range Organics (C20-C36)	mg/kg	**1300 J**	**1200**	**760 J**	**380**	**1200**	**900**	500 J	**5300 J**
Sample-Specific Risk Screening Level	mg/kg	1098	710	649	161	665	641	551	376

NOTES:

- **Sediment benchmark for DRO** used in calculation of sample-specific risk screening level is **5543 mg/kg**

- **Sediment benchmark for ORO** used in calculation of sample-specific risk screening level is **9883 mg/kg**

Bolded detected values exceed the Sample-Specific Risk Screening Level

foc = fraction organic carbon
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit an
greater than or equal to the method detection limit (value is estimatec
U = Indicates the analyte was analyzed but not detected

	Location ID:	MLTC14-15	MLTC14-16	MLTC14-17	MLTC14-18	MLTC14-19	MLTC14-21	MLTC14-22	MLTC14-25
	Sample Name:	MLTC14-15-SURF	MLTC14-16-SURF	MLTC14-17-SURF	MLTC14-18-SURF	MLTC14-19-SURF	MLTC14-21-SURF	MLTC14-22-SURF	MLTC14-25-SURF
	Sample Date:	10/22/2014	10/22/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/20/2014	10/15/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
foc	fraction	0.0405	0.0678	0.0761	0.1	0.0308	0.0544	0.0603	0.066
Diesel Range Organics (C10-C20)	mg/kg	**410**	**1900**	**1900 J**	**3300 J**	130 UJ	**440 J**	**590 J**	200 UJ
Sample-Specific Risk Screening Level	mg/kg	224	376	422	554	171	302	334	366
Oil Range Organics (C20-C36)	mg/kg	**3100**	**8600**	**7400 J**	**8700 J**	**470 J**	**2200 J**	**3300 J**	**820**
Sample-Specific Risk Screening Level	mg/kg	404	677	760	998	307	543	602	659

NOTES:

- **Sediment benchmark for DRO** used in calculation of sample-specific risk screening level is **5543 mg/kg**

- **Sediment benchmark for ORO** used in calculation of sample-specific risk screening level is **9883 mg/kg**

Bolded detected values exceed the Sample-Specific Risk Screening Level

foc = fraction organic carbon
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit ar
greater than or equal to the method detection limit (value is estimatec
U = Indicates the analyte was analyzed but not detected

	Location ID:	MLTC14-26	MLTC14-31	MLTC14-32	MLTC14-32	MLTC14-34	MLTC14-35	MLTC14-36	MLTC14-37
	Sample Name:	MLTC14-26-SURF	MLTC14-31-SURF	MLTC14-32-SURF	MLTC14-32-SURF-FD	MLTC14-34-SURF	MLTC14-35-SURF	MLTC14-36-SURF	MLTC14-37-SURF
	Sample Date:	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/16/2014	10/17/2014	10/17/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
foc	fraction	0.11	0.0321	0.075	0.0696	0.0471	0.0927	0.0517	0.104
Diesel Range Organics (C10-C20)	mg/kg	550	150 J	310	280 U	110 J	370 J	**340**	420
Sample-Specific Risk Screening Level	mg/kg	610	178	416	386	261	514	287	576
Oil Range Organics (C20-C36)	mg/kg	**2600**	**550**	**1500 J**	**1500**	**490**	**1600 J**	**1300**	**1900 J**
Sample-Specific Risk Screening Level	mg/kg	1098	320	749	695	470	925	516	1038

NOTES:

- **Sediment benchmark for DRO** used in calculation of sample-specific risk screening level is **5543 mg/kg**
- **Sediment benchmark for ORO** used in calculation of sample-specific risk screening level is **9883 mg/kg**

Bolded detected values exceed the Sample-Specific Risk Screening Level

foc = fraction organic carbon
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit an
greater than or equal to the method detection limit (value is estimatec
U = Indicates the analyte was analyzed but not detected

TABLE 3-8 TPH RESULTS COMPARED TO SCREENING LEVELS

	Location ID:	MLTC14-38	MLTC14-39	MLTC14-40	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-45	MLTC14-46
	Sample Name:	MLTC14-38-SURF	MLTC14-39-SURF	MLTC14-40-SURF	MLTC14-41-SURF	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-45-SURF	MLTC14-46-SURF
	Sample Date:	10/20/2014	10/16/2014	10/17/2014	10/17/2014	10/20/2014	10/17/2014	10/17/2014	10/17/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
foc	fraction	0.0127	0.0422	0.23	0.0439	0.0275	0.22	0.0143	0.213
Diesel Range Organics (C10-C20)	mg/kg	**110**	200 J	830 J	200	100 U	320	140 U	420
Sample-Specific Risk Screening Level	mg/kg	70	234	1275	243	152	1219	79	1181
Oil Range Organics (C20-C36)	mg/kg	**410**	**840 J**	**2400 J**	**880**	**520**	1000	**380**	1700
Sample-Specific Risk Screening Level	mg/kg	127	421	2296	438	275	2196	143	2126

NOTES:

- **Sediment benchmark for DRO** used in calculation of sample-specific risk screening level is **5543 mg/kg**

- **Sediment benchmark for ORO** used in calculation of sample-specific risk screening level is **9883 mg/kg**

Bolded detected values exceed the Sample-Specific Risk Screening Level

foc = fraction organic carbon
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit an
greater than or equal to the method detection limit (value is estimated
U = Indicates the analyte was analyzed but not detected

TABLE 3-8 TPH RESULTS COMPARED TO SCREENING LEVELS

	Location ID:	MLTC14-47	MLTC14-48	MLTC14-49	MLTC14-50	MLTC14-51	MLTC14-52	MLTC14-53	MLTC14-54
	Sample Name:	MLTC14-47-SURF	MLTC14-48-SURF	MLTC14-49-SURF	MLTC14-50-SURF	MLTC14-51-SURF	MLTC14-52-SURF	MLTC14-53-SURF	MLTC14-54-SURF
	Sample Date:	10/17/2014	10/22/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/20/2014	10/20/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**								
foc	fraction	0.141	0.0462	0.0655	0.0292	0.0561	0.0207	0.0648	0.0491
Diesel Range Organics (C10-C20)	mg/kg	410	100 U	240 J	**300 J**	170 J	**170 J**	1200 UJ	**300 J**
Sample-Specific Risk Screening Level	mg/kg	782	256	363	162	311	115	359	272
Oil Range Organics (C20-C36)	mg/kg	**1900**	250 J	**1400**	**1000 J**	**580 J**	**490 J**	**5200 J**	**1400 J**
Sample-Specific Risk Screening Level	mg/kg	1408	461	654	292	560	207	647	490

NOTES:

- Sediment benchmark for DRO used in calculation of sample-specific risk screening level is **5543 mg/kg**

- Sediment benchmark for ORO used in calculation of sample-specific risk screening level is **9883 mg/kg**

Bolded detected values exceed the Sample-Specific Risk Screening Level

foc = fraction organic carbon
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit ar
greater than or equal to the method detection limit (value is estimatec
U = Indicates the analyte was analyzed but not detected

TABLE 3-8 TPH RESULTS COMPARED TO SCREENING LEVELS

Location ID:		MLTC14-54	MLTC14-55	MLTC14-56	MLTC14-57	MLTC14-58
Sample Name:		MLTC14-54-SURF-FD	MLTC14-55-SURF	MLTC14-56-SURF	MLTC14-57-SURF	MLTC14-58-SURF
Sample Date:		10/20/2014	10/21/2014	10/23/2014	10/23/2014	10/23/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
foc	fraction	0.101	0.0519	0.0456	0.0466	0.084
Diesel Range Organics (C10-C20)	mg/kg	330 J	250 J	**290**	**450**	**1800**
Sample-Specific Risk Screening Level	mg/kg	560	288	253	258	466
Oil Range Organics (C20-C36)	mg/kg	**1600 J**	**1300 J**	**1900**	**2300**	**5400**
Sample-Specific Risk Screening Level	mg/kg	1008	518	455	465	839

NOTES:

- **Sediment benchmark for DRO** used in calculation of sample-specific risk screening level is **5543 mg/kg**

- **Sediment benchmark for ORO** used in calculation of sample-specific risk screening level is **9883 mg/kg**

Bolded detected values exceed the Sample-Specific Risk Screening Level

foc = fraction organic carbon
FD = Field Duplicate
mg/kg = milligram per kilogram
TPH = Total Petroleum Hydrocarbons
J = compound was detected, but result is below the reporting limit an
greater than or equal to the method detection limit (value is estimatec
U = Indicates the analyte was analyzed but not detected

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-01**				**MLTC14-01**			
		Field Sample ID	**MLTC14-01-SURF**				**MLTC14-01-SURFFD**			
		Sample Depth	**0-0.5**				**0-0.5**			
		Sample Date	**10/23/2014**				**10/23/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	1.38	0.0138	---	---	2.53	0.0253	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	4.95	0.00	0.00	0.00	0.05	3.41	3.41	0.01
2-Methylnaphthalene	447	154,800	4.95	0.00	0.00	0.00	0.05	3.41	3.41	0.01
Acenaphthene	491	33,400	0.47	18.58	18.58	0.04	0.11	7.97	7.97	0.02
Acenaphthylene	452	24,000	2.90	114.62	114.62	0.25	0.57	41.30	41.30	0.09
Anthracene	594	1,300	19.00	750.99	750.99	1.26	1.40	101.45	101.45	0.17
Benzo[a]anthracene	841	4,153	22.00	869.57	869.57	1.03	3.70	268.12	268.12	0.32
Benzo[a]pyrene	965	3,840	17.00	671.94	671.94	0.70	4.20	304.35	304.35	0.32
Benzo[b]fluoranthene	979	2,169	9.60	379.45	379.45	0.39	2.20	159.42	159.42	0.16
Benzo[e]pyrene	967	4,300	9.50	375.49	375.49	0.39	2.10	152.17	152.17	0.16
Benzo[g,h,i]perylene	1,095	648	9.80	387.35	387.35	0.35	1.80	130.43	130.43	0.12
Benzo[k]fluoranthene	981	1,220	24.00	948.62	948.62	0.97	5.10	369.57	369.57	0.38
C1 Chrysenes	929	--	7.50	296.44	296.44	0.32	2.20	159.42	159.42	0.17
C1 Fluorenes	611	--	0.84	33.20	33.20	0.05	0.09	6.67	6.67	0.01
C1-Fluoranthenes/Pyrenes	770	--	30.00	1185.77	1185.77	1.54	4.80	347.83	347.83	0.45
C1-Naphthalenes	444	--	4.95	0.00	0.00	0.00	0.15	10.87	10.87	0.02
C1-Phenanthrenes/Anthracenes	670	--	8.50	335.97	335.97	0.50	1.10	79.71	79.71	0.12
C2 Chrysenes	1,008	--	2.30	90.91	90.91	0.09	0.89	64.49	64.49	0.06
C2 Fluorenes	686	--	4.95	0.00	0.00	0.00	0.55	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	7.40	292.49	292.49		1.90	137.68	137.68	
C2-Naphthalenes	510	--	1.80	71.15	71.15	0.14	0.26	18.84	18.84	0.04
C2-Phenanthrenes/Anthracenes	746	--	3.10	122.53	122.53	0.16	0.56	40.58	40.58	0.05
C3 Chrysenes	1,112	--	4.95	0.00	0.00	0.00	0.55	0.00	0.00	0.00
C3 Fluorenes	769	--	4.95	0.00	0.00	0.00	0.55	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	4.95	0.00	0.00	0.00	0.62	44.93	44.93	0.05
C3-Naphthalenes	581	--	1.30	51.38	51.38	0.09	0.20	14.49	14.49	0.02
C3-Phenanthrenes/Anthracenes	829	--	1.70	67.19	67.19	0.08	0.46	33.33	33.33	0.04
C4 Chrysenes	1,214	--	4.95	0.00	0.00	0.00	0.55	0.00	0.00	0.00
C4-Naphthalenes	657	--	4.95	0.00	0.00	0.00	0.09	6.30	6.30	0.01
C4-Phenanthrenes/Anthracenes	913	--	4.95	0.00	0.00	0.00	0.23	16.67	16.67	0.02
Chrysene	844	826	26.00	1027.67	826.00	0.98	4.50	326.09	326.09	0.39
Dibenz[a,h]anthracene	1,123	2,389	2.70	106.72	106.72	0.10	0.56	40.58	40.58	0.04
Fluoranthene	707	23,870	62.00	2450.59	2450.59	3.47	7.50	543.48	543.48	0.77
Fluorene	538	26,000	6.20	245.06	245.06	0.46	0.52	37.68	37.68	0.07
Indeno[1,2,3-c,d]pyrene	1,115	--	9.10	359.68	359.68	0.32	2.10	152.17	152.17	0.14
Naphthalene	385	61,700	1.20	47.43	47.43	0.12	0.45	32.61	32.61	0.08
Perylene	967	431	6.60	260.87	260.87	0.27	1.30	94.20	94.20	0.10
Phenanthrene	596	34,300	30.00	1185.77	1185.77	1.99	2.30	166.67	166.67	0.28
Pyrene	697	9,090	46.00	1818.18	1818.18	2.61	5.70	413.04	413.04	0.59
	---	**ESBTU FCVi**	---	---	---	18.67	--	--	--	5.21

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-03**				**MLTC14-03**			
		Field Sample ID	**MLTC14-03-SURF**				**MLTC14-03-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/14/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	9.85	0.0985	---	---	5.54	0.0554	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.03	0.25	0.25	0.00	0.02	0.34	0.34	0.00
2-Methylnaphthalene	447	154,800	0.04	0.38	0.38	0.00	0.02	0.42	0.42	0.00
Acenaphthene	491	33,400	0.03	0.31	0.31	0.00	0.04	0.65	0.65	0.00
Acenaphthylene	452	24,000	0.06	0.62	0.62	0.00	0.03	0.52	0.52	0.00
Anthracene	594	1,300	0.09	0.89	0.89	0.00	0.08	1.50	1.50	0.00
Benzo[a]anthracene	841	4,153	0.50	5.08	5.08	0.01	0.30	5.42	5.42	0.01
Benzo[a]pyrene	965	3,840	0.53	5.38	5.38	0.01	0.26	4.69	4.69	0.00
Benzo[b]fluoranthene	979	2,169	0.45	4.57	4.57	0.00	0.20	3.61	3.61	0.00
Benzo[e]pyrene	967	4,300	0.35	3.55	3.55	0.00	0.19	3.43	3.43	0.00
Benzo[g,h,i]perylene	1,095	648	0.37	3.76	3.76	0.00	0.17	3.07	3.07	0.00
Benzo[k]fluoranthene	981	1,220	0.50	5.08	5.08	0.01	0.26	4.69	4.69	0.00
C1 Chrysenes	929	--	0.62	6.29	6.29	0.01	0.45	8.12	8.12	0.01
C1 Fluorenes	611	--	0.04	0.37	0.37	0.00	0.04	0.78	0.78	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.91	9.24	9.24	0.01	0.69	12.45	12.45	0.02
C1-Naphthalenes	444	--	0.04	0.44	0.44	0.00	0.03	0.52	0.52	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.30	3.05	3.05	0.00	0.36	6.50	6.50	0.01
C2 Chrysenes	1,008	--	0.36	3.65	3.65	0.00	0.30	5.42	5.42	0.01
C2 Fluorenes	686	--	0.06	0.65	0.65	0.00	0.10	1.81	1.81	0.00
C2-Fluoranthenes/Pyrenes		--	0.55	5.58	5.58		0.48	8.66	8.66	
C2-Naphthalenes	510	--	0.16	1.62	1.62	0.00	0.16	2.89	2.89	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.43	4.37	4.37	0.01	0.58	10.47	10.47	0.01
C3 Chrysenes	1,112	--	0.20	2.03	2.03	0.00	0.15	2.71	2.71	0.00
C3 Fluorenes	769	--	0.13	1.32	1.32	0.00	0.17	3.07	3.07	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.32	3.25	3.25	0.00	0.35	6.32	6.32	0.01
C3-Naphthalenes	581	--	0.28	2.84	2.84	0.00	0.33	5.96	5.96	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.69	7.01	7.01	0.01	1.10	19.86	19.86	0.02
C4 Chrysenes	1,214	--	0.07	0.72	0.72	0.00	0.09	1.70	1.70	0.00
C4-Naphthalenes	657	--	0.17	1.73	1.73	0.00	0.28	5.05	5.05	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.49	4.97	4.97	0.01	0.77	13.90	13.90	0.02
Chrysene	844	826	0.58	5.89	5.89	0.01	0.37	6.68	6.68	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.14	1.42	1.42	0.00	0.07	1.17	1.17	0.00
Fluoranthene	707	23,870	0.67	6.80	6.80	0.01	0.50	9.03	9.03	0.01
Fluorene	538	26,000	0.05	0.46	0.46	0.00	0.04	0.72	0.72	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.34	3.45	3.45	0.00	0.15	2.71	2.71	0.00
Naphthalene	385	61,700	0.06	0.58	0.58	0.00	0.03	0.60	0.60	0.00
Perylene	967	431	0.14	1.42	1.42	0.00	0.10	1.75	1.75	0.00
Phenanthrene	596	34,300	0.27	2.74	2.74	0.00	0.26	4.69	4.69	0.01
Pyrene	697	9,090	0.57	5.79	5.79	0.01	0.40	7.22	7.22	0.01
	---	**ESBTU FCVi**	--	--	--	0.13	--	--	--	0.21

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-03**				**MLTC14-03**				**MLTC14-03**			
		Field Sample ID	**MLTC14-03-0103**				**MLTC14-03-0305**				**MLTC14-03-0305FD**			
		Sample Depth	**1-3**				**3-5**				**3-5**			
		Sample Date	**10/15/2014**				**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.46	0.0546	---	---	5.75	0.0575	---	---	5.68	0.0568	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)														
1-Methylnaphthalene	446	165,700	0.00	0.07	0.07	0.00	0.01	0.11	0.11	0.00	0.01	0.13	0.13	0.00
2-Methylnaphthalene	447	154,800	0.00	0.06	0.06	0.00	0.01	0.10	0.10	0.00	0.01	0.11	0.11	0.00
Acenaphthene	491	33,400	0.00	0.05	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
Acenaphthylene	452	24,000	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
Anthracene	594	1,300	0.00	0.08	0.08	0.00	0.00	0.02	0.02	0.00	0.00	0.03	0.03	0.00
Benzo[a]anthracene	841	4,153	0.02	0.33	0.33	0.00	0.01	0.10	0.10	0.00	0.01	0.09	0.09	0.00
Benzo[a]pyrene	965	3,840	0.01	0.24	0.24	0.00	0.00	0.06	0.06	0.00	0.00	0.07	0.07	0.00
Benzo[b]fluoranthene	979	2,169	0.02	0.33	0.33	0.00	0.01	0.16	0.16	0.00	0.01	0.17	0.17	0.00
Benzo[e]pyrene	967	4,300	0.01	0.24	0.24	0.00	0.01	0.14	0.14	0.00	0.01	0.15	0.15	0.00
Benzo[g,h,i]perylene	1,095	648	0.02	0.31	0.31	0.00	0.01	0.19	0.19	0.00	0.01	0.21	0.21	0.00
Benzo[k]fluoranthene	981	1,220	0.01	0.26	0.26	0.00	0.01	0.09	0.09	0.00	0.01	0.10	0.10	0.00
C1 Chrysenes	929	--	0.03	0.60	0.60	0.00	0.03	0.47	0.47	0.00	0.03	0.53	0.53	0.00
C1 Fluorenes	611	--	0.00	0.07	0.07	0.00	0.00	0.07	0.07	0.00	0.01	0.09	0.09	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.04	0.81	0.81	0.00	0.03	0.54	0.54	0.00	0.03	0.60	0.60	0.00
C1-Naphthalenes	444	--	0.00	0.09	0.09	0.00	0.01	0.15	0.15	0.00	0.01	0.16	0.16	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.03	0.51	0.51	0.00	0.03	0.47	0.47	0.00	0.03	0.53	0.53	0.00
C2 Chrysenes	1,008	--	0.02	0.35	0.35	0.00	0.02	0.30	0.30	0.00	0.02	0.33	0.33	0.00
C2 Fluorenes	686	--	0.01	0.15	0.15	0.00	0.01	0.14	0.14	0.00	0.01	0.18	0.18	0.00
C2-Fluoranthenes/Pyrenes		--	0.04	0.66	0.66		0.04	0.68	0.68		0.05	0.81	0.81	
C2-Naphthalenes	510	--	0.02	0.33	0.33	0.00	0.03	0.45	0.45	0.00	0.03	0.49	0.49	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.04	0.71	0.71	0.00	0.04	0.63	0.63	0.00	0.04	0.74	0.74	0.00
C3 Chrysenes	1,112	--	0.01	0.24	0.24	0.00	0.01	0.24	0.24	0.00	0.02	0.30	0.30	0.00
C3 Fluorenes	769	--	0.01	0.20	0.20	0.00	0.01	0.17	0.17	0.00	0.01	0.21	0.21	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.03	0.46	0.46	0.00	0.03	0.45	0.45	0.00	0.03	0.49	0.49	0.00
C3-Naphthalenes	581	--	0.04	0.68	0.68	0.00	0.05	0.82	0.82	0.00	0.05	0.92	0.92	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.06	1.17	1.17	0.00	0.06	1.01	1.01	0.00	0.07	1.16	1.16	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.03	0.62	0.62	0.00	0.04	0.66	0.66	0.00	0.04	0.77	0.77	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.04	0.73	0.73	0.00	0.03	0.54	0.54	0.00	0.04	0.67	0.67	0.00
Chrysene	844	826	0.03	0.48	0.48	0.00	0.02	0.28	0.28	0.00	0.02	0.30	0.30	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.01	0.09	0.09	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00
Fluoranthene	707	23,870	0.03	0.57	0.57	0.00	0.01	0.21	0.21	0.00	0.01	0.23	0.23	0.00
Fluorene	538	26,000	0.01	0.09	0.09	0.00	0.00	0.08	0.08	0.00	0.00	0.09	0.09	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.01	0.22	0.22	0.00	0.00	0.08	0.08	0.00	0.00	0.08	0.08	0.00
Naphthalene	385	61,700	0.01	0.14	0.14	0.00	0.00	0.07	0.07	0.00	0.00	0.07	0.07	0.00
Perylene	967	431	0.04	0.71	0.71	0.00	0.06	0.97	0.97	0.00	0.06	1.13	1.13	0.00
Phenanthrene	596	34,300	0.02	0.33	0.33	0.00	0.01	0.17	0.17	0.00	0.01	0.25	0.25	0.00
Pyrene	697	9,090	0.03	0.46	0.46	0.00	0.01	0.17	0.17	0.00	0.01	0.19	0.19	0.00
	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	0.01	--	--	--	0.01

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-03**				**MLTC14-03**				**MLTC14-04**			
		Field Sample ID	**MLTC14-03-0507**				**MLTC14-03-0709**				**MLTC14-04-SURF**			
		Sample Depth	**5-7**				**7-9**				**0-0.5**			
		Sample Date	**10/15/2014**				**10/15/2014**				**10/14/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.7	0.057	---	---	2.67	0.0267	---	---	6.03	0.0603	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)														
1-Methylnaphthalene	446	165,700	0.00	0.08	0.08	0.00	0.00	0.10	0.10	0.00	0.10	1.63	1.63	0.00
2-Methylnaphthalene	447	154,800	0.00	0.08	0.08	0.00	0.00	0.09	0.09	0.00	0.19	3.15	3.15	0.01
Acenaphthene	491	33,400	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.12	1.99	1.99	0.00
Acenaphthylene	452	24,000	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.13	2.16	2.16	0.00
Anthracene	594	1,300	0.00	0.01	0.01	0.00	0.00	0.03	0.03	0.00	0.34	5.64	5.64	0.01
Benzo[a]anthracene	841	4,153	0.00	0.05	0.05	0.00	0.00	0.10	0.10	0.00	1.50	24.88	24.88	0.03
Benzo[a]pyrene	965	3,840	0.00	0.04	0.04	0.00	0.00	0.05	0.05	0.00	1.60	26.53	26.53	0.03
Benzo[b]fluoranthene	979	2,169	0.01	0.09	0.09	0.00	0.00	0.18	0.18	0.00	1.40	23.22	23.22	0.02
Benzo[e]pyrene	967	4,300	0.01	0.09	0.09	0.00	0.00	0.18	0.18	0.00	0.93	15.42	15.42	0.02
Benzo[g,h,i]perylene	1,095	648	0.01	0.13	0.13	0.00	0.01	0.25	0.25	0.00	1.00	16.58	16.58	0.02
Benzo[k]fluoranthene	981	1,220	0.00	0.05	0.05	0.00	0.00	0.11	0.11	0.00	1.20	19.90	19.90	0.02
C1 Chrysenes	929	--	0.01	0.25	0.25	0.00	0.02	0.56	0.56	0.00	0.95	15.75	15.75	0.02
C1 Fluorenes	611	--	0.00	0.05	0.05	0.00	0.00	0.12	0.12	0.00	0.18	2.99	2.99	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.02	0.33	0.33	0.00	0.02	0.79	0.79	0.00	2.20	36.48	36.48	0.05
C1-Naphthalenes	444	--	0.01	0.11	0.11	0.00	0.00	0.14	0.14	0.00	0.19	3.15	3.15	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.02	0.33	0.33	0.00	0.02	0.82	0.82	0.00	1.10	18.24	18.24	0.03
C2 Chrysenes	1,008	--	0.01	0.19	0.19	0.00	0.02	0.56	0.56	0.00	0.76	12.60	12.60	0.01
C2 Fluorenes	686	--	0.01	0.11	0.11	0.00	0.01	0.25	0.25	0.00	0.32	5.31	5.31	0.01
C2-Fluoranthenes/Pyrenes		--	0.02	0.35	0.35		0.02	0.79	0.79		1.20	19.90	19.90	
C2-Naphthalenes	510	--	0.02	0.37	0.37	0.00	0.01	0.49	0.49	0.00	0.93	15.42	15.42	0.03
C2-Phenanthrenes/Anthracenes	746	--	0.03	0.46	0.46	0.00	0.04	1.31	1.31	0.00	1.50	24.88	24.88	0.03
C3 Chrysenes	1,112	--	0.01	0.15	0.15	0.00	0.01	0.41	0.41	0.00	0.59	9.78	9.78	0.01
C3 Fluorenes	769	--	0.01	0.13	0.13	0.00	0.01	0.32	0.32	0.00	0.69	11.44	11.44	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.02	0.32	0.32	0.00	0.02	0.82	0.82	0.00	0.89	14.76	14.76	0.02
C3-Naphthalenes	581	--	0.04	0.65	0.65	0.00	0.03	1.16	1.16	0.00	1.80	29.85	29.85	0.05
C3-Phenanthrenes/Anthracenes	829	--	0.04	0.75	0.75	0.00	0.05	1.80	1.80	0.00	2.00	33.17	33.17	0.04
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	7.79	7.79	0.01
C4-Naphthalenes	657	--	0.03	0.54	0.54	0.00	0.04	1.31	1.31	0.00	1.30	21.56	21.56	0.03
C4-Phenanthrenes/Anthracenes	913	--	0.02	0.39	0.39	0.00	0.03	1.05	1.05	0.00	1.40	23.22	23.22	0.03
Chrysene	844	826	0.01	0.18	0.18	0.00	0.01	0.45	0.45	0.00	1.70	28.19	28.19	0.03
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.02	0.02	0.00	0.00	0.03	0.03	0.00	0.33	5.47	5.47	0.00
Fluoranthene	707	23,870	0.01	0.12	0.12	0.00	0.01	0.27	0.27	0.00	2.50	41.46	41.46	0.06
Fluorene	538	26,000	0.00	0.05	0.05	0.00	0.00	0.08	0.08	0.00	0.21	3.48	3.48	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.05	0.05	0.00	0.00	0.09	0.09	0.00	0.95	15.75	15.75	0.01
Naphthalene	385	61,700	0.00	0.05	0.05	0.00	0.00	0.06	0.06	0.00	0.30	4.98	4.98	0.01
Perylene	967	431	0.03	0.51	0.51	0.00	0.04	1.46	1.46	0.00	0.38	6.30	6.30	0.01
Phenanthrene	596	34,300	0.01	0.11	0.11	0.00	0.01	0.25	0.25	0.00	1.30	21.56	21.56	0.04
Pyrene	697	9,090	0.01	0.10	0.10	0.00	0.01	0.20	0.20	0.00	2.00	33.17	33.17	0.05
	---	**ESBTU FCVi**	--	--	--	0.01	--	--	--	0.02	--	--	--	0.74

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-04**				**MLTC14-04**				**MLTC14-04**			
		Field Sample ID	**MLTC14-04-0001**				**MLTC14-04-0103**				**MLTC14-04-0305**			
		Sample Depth	**0-1**				**1-3**				**3-5**			
		Sample Date	**10/15/2014**				**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	9.5	0.095	---	---	10.6	0.106	---	---	8.89	0.0889	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)														
1-Methylnaphthalene	446	165,700	0.24	2.53	2.53	0.01	0.21	1.98	1.98	0.00	0.18	2.02	2.02	0.00
2-Methylnaphthalene	447	154,800	0.45	4.74	4.74	0.01	0.39	3.68	3.68	0.01	0.34	3.82	3.82	0.01
Acenaphthene	491	33,400	0.18	1.89	1.89	0.00	0.12	1.13	1.13	0.00	0.13	1.46	1.46	0.00
Acenaphthylene	452	24,000	0.17	1.79	1.79	0.00	0.15	1.42	1.42	0.00	0.14	1.57	1.57	0.00
Anthracene	594	1,300	0.43	4.53	4.53	0.01	0.31	2.92	2.92	0.00	0.45	5.06	5.06	0.01
Benzo[a]anthracene	841	4,153	1.80	18.95	18.95	0.02	1.10	10.38	10.38	0.01	1.20	13.50	13.50	0.02
Benzo[a]pyrene	965	3,840	1.90	20.00	20.00	0.02	1.00	9.43	9.43	0.01	1.10	12.37	12.37	0.01
Benzo[b]fluoranthene	979	2,169	1.40	14.74	14.74	0.02	0.97	9.15	9.15	0.01	1.20	13.50	13.50	0.01
Benzo[e]pyrene	967	4,300	1.20	12.63	12.63	0.01	0.70	6.60	6.60	0.01	0.79	8.89	8.89	0.01
Benzo[g,h,i]perylene	1,095	648	1.20	12.63	12.63	0.01	0.62	5.85	5.85	0.01	0.73	8.21	8.21	0.01
Benzo[k]fluoranthene	981	1,220	1.50	15.79	15.79	0.02	0.73	6.89	6.89	0.01	0.78	8.77	8.77	0.01
C1 Chrysenes	929	--	1.80	18.95	18.95	0.02	1.30	12.26	12.26	0.01	1.30	14.62	14.62	0.02
C1 Fluorenes	611	--	0.37	3.89	3.89	0.01	0.54	5.09	5.09	0.01	0.49	5.51	5.51	0.01
C1-Fluoranthenes/Pyrenes	770	--	3.50	36.84	36.84	0.05	2.60	24.53	24.53	0.03	2.80	31.50	31.50	0.04
C1-Naphthalenes	444	--	0.46	4.84	4.84	0.01	0.40	3.77	3.77	0.01	0.36	4.05	4.05	0.01
C1-Phenanthrenes/Anthracenes	670	--	2.40	25.26	25.26	0.04	2.80	26.42	26.42	0.04	2.90	32.62	32.62	0.05
C2 Chrysenes	1,008	--	1.40	14.74	14.74	0.01	1.90	17.92	17.92	0.02	1.70	19.12	19.12	0.02
C2 Fluorenes	686	--	1.30	13.68	13.68	0.02	1.80	16.98	16.98	0.02	1.60	18.00	18.00	0.03
C2-Fluoranthenes/Pyrenes		--	2.40	25.26	25.26		2.70	25.47	25.47		2.80	31.50	31.50	
C2-Naphthalenes	510	--	2.40	25.26	25.26	0.05	3.10	29.25	29.25	0.06	2.60	29.25	29.25	0.06
C2-Phenanthrenes/Anthracenes	746	--	4.20	44.21	44.21	0.06	5.90	55.66	55.66	0.07	6.10	68.62	68.62	0.09
C3 Chrysenes	1,112	--	0.76	8.00	8.00	0.01	1.20	11.32	11.32	0.01	0.90	10.12	10.12	0.01
C3 Fluorenes	769	--	2.10	22.11	22.11	0.03	3.20	30.19	30.19	0.04	3.10	34.87	34.87	0.05
C3-Fluoranthenes/Pyrenes	949	--	1.70	17.89	17.89	0.02	2.90	27.36	27.36	0.03	2.40	27.00	27.00	0.03
C3-Naphthalenes	581	--	5.30	55.79	55.79	0.10	6.80	64.15	64.15	0.11	5.90	66.37	66.37	0.11
C3-Phenanthrenes/Anthracenes	829	--	6.50	68.42	68.42	0.08	8.70	82.08	82.08	0.10	7.90	88.86	88.86	0.11
C4 Chrysenes	1,214	--	0.31	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.17	0.00	0.00	0.00
C4-Naphthalenes	657	--	4.70	49.47	49.47	0.08	6.80	64.15	64.15	0.10	6.10	68.62	68.62	0.10
C4-Phenanthrenes/Anthracenes	913	--	4.50	47.37	47.37	0.05	6.20	58.49	58.49	0.06	5.80	65.24	65.24	0.07
Chrysene	844	826	2.10	22.11	22.11	0.03	1.30	12.26	12.26	0.01	1.40	15.75	15.75	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.42	4.42	4.42	0.00	0.20	1.89	1.89	0.00	0.21	2.36	2.36	0.00
Fluoranthene	707	23,870	2.80	29.47	29.47	0.04	2.00	18.87	18.87	0.03	2.40	27.00	27.00	0.04
Fluorene	538	26,000	0.36	3.79	3.79	0.01	0.23	2.17	2.17	0.00	0.23	2.59	2.59	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.10	11.58	11.58	0.01	0.55	5.19	5.19	0.00	0.66	7.42	7.42	0.01
Naphthalene	385	61,700	0.54	5.68	5.68	0.01	0.46	4.34	4.34	0.01	0.53	5.96	5.96	0.02
Perylene	967	431	0.51	5.37	5.37	0.01	0.21	1.98	1.98	0.00	0.27	3.04	3.04	0.00
Phenanthrene	596	34,300	1.60	16.84	16.84	0.03	1.10	10.38	10.38	0.02	1.30	14.62	14.62	0.02
Pyrene	697	9,090	2.40	25.26	25.26	0.04	1.30	12.26	12.26	0.02	1.40	15.75	15.75	0.02
	---	**ESBTU FCVi**	--	--	--	0.90	--	--	--	0.86	--	--	--	0.99

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-04**				**MLTC14-04**				**MLTC14-04**			
		Field Sample ID	**MLTC14-04-0507**				**MLTC14-04-0709**				**MLTC14-04-0911**			
		Sample Depth	**5-7**				**7-9**				**9-11**			
		Sample Date	**10/15/2014**				**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	10.4	0.104	---	---	8.48	0.0848	---	---	10.4	0.104	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)														
1-Methylnaphthalene	446	165,700	0.38	3.65	3.65	0.01	0.30	3.54	3.54	0.01	0.37	3.56	3.56	0.01
2-Methylnaphthalene	447	154,800	0.69	6.63	6.63	0.01	0.49	5.78	5.78	0.01	0.63	6.06	6.06	0.01
Acenaphthene	491	33,400	0.26	2.50	2.50	0.01	0.19	0.00	0.00	0.00	0.19	1.83	1.83	0.00
Acenaphthylene	452	24,000	0.21	2.02	2.02	0.00	0.19	0.00	0.00	0.00	0.22	2.12	2.12	0.00
Anthracene	594	1,300	0.65	6.25	6.25	0.01	0.26	3.07	3.07	0.01	0.50	4.81	4.81	0.01
Benzo[a]anthracene	841	4,153	1.60	15.38	15.38	0.02	1.00	11.79	11.79	0.01	2.10	20.19	20.19	0.02
Benzo[a]pyrene	965	3,840	1.20	11.54	11.54	0.01	0.94	11.08	11.08	0.01	1.50	14.42	14.42	0.01
Benzo[b]fluoranthene	979	2,169	1.30	12.50	12.50	0.01	0.87	10.26	10.26	0.01	1.70	16.35	16.35	0.02
Benzo[e]pyrene	967	4,300	0.98	9.42	9.42	0.01	0.68	8.02	8.02	0.01	1.30	12.50	12.50	0.01
Benzo[g,h,i]perylene	1,095	648	0.87	8.37	8.37	0.01	0.60	7.08	7.08	0.01	1.10	10.58	10.58	0.01
Benzo[k]fluoranthene	981	1,220	0.96	9.23	9.23	0.01	0.67	7.90	7.90	0.01	1.30	12.50	12.50	0.01
C1 Chrysenes	929	--	1.80	17.31	17.31	0.02	1.30	15.33	15.33	0.02	2.40	23.08	23.08	0.02
C1 Fluorenes	611	--	1.00	9.62	9.62	0.02	0.70	8.25	8.25	0.01	0.77	7.40	7.40	0.01
C1-Fluoranthenes/Pyrenes	770	--	4.30	41.35	41.35	0.05	3.00	35.38	35.38	0.05	5.40	51.92	51.92	0.07
C1-Naphthalenes	444	--	0.72	6.92	6.92	0.02	0.55	6.49	6.49	0.01	0.68	6.54	6.54	0.01
C1-Phenanthrenes/Anthracenes	670	--	5.90	56.73	56.73	0.08	4.10	48.35	48.35	0.07	5.30	50.96	50.96	0.08
C2 Chrysenes	1,008	--	2.80	26.92	26.92	0.03	1.70	20.05	20.05	0.02	3.10	29.81	29.81	0.03
C2 Fluorenes	686	--	3.40	32.69	32.69	0.05	2.20	25.94	25.94	0.04	2.60	25.00	25.00	0.04
C2-Fluoranthenes/Pyrenes		--	4.00	38.46	38.46		2.90	34.20	34.20		5.40	51.92	51.92	
C2-Naphthalenes	510	--	6.70	64.42	64.42	0.13	4.70	55.42	55.42	0.11	4.90	47.12	47.12	0.09
C2-Phenanthrenes/Anthracenes	746	--	12.00	115.38	115.38	0.15	7.40	87.26	87.26	0.12	9.90	95.19	95.19	0.13
C3 Chrysenes	1,112	--	1.20	11.54	11.54	0.01	3.00	35.38	35.38	0.03	2.00	19.23	19.23	0.02
C3 Fluorenes	769	--	5.60	53.85	53.85	0.07	3.50	41.27	41.27	0.05	4.00	38.46	38.46	0.05
C3-Fluoranthenes/Pyrenes	949	--	3.60	34.62	34.62	0.04	2.70	31.84	31.84	0.03	4.60	44.23	44.23	0.05
C3-Naphthalenes	581	--	15.00	144.23	144.23	0.25	9.40	110.85	110.85	0.19	11.00	105.77	105.77	0.18
C3-Phenanthrenes/Anthracenes	829	--	15.00	144.23	144.23	0.17	9.20	108.49	108.49	0.13	13.00	125.00	125.00	0.15
C4 Chrysenes	1,214	--	0.23	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.34	0.00	0.00	0.00
C4-Naphthalenes	657	--	12.00	115.38	115.38	0.18	7.70	90.80	90.80	0.14	9.30	89.42	89.42	0.14
C4-Phenanthrenes/Anthracenes	913	--	9.20	88.46	88.46	0.10	6.00	70.75	70.75	0.08	9.10	87.50	87.50	0.10
Chrysene	844	826	1.80	17.31	17.31	0.02	1.20	14.15	14.15	0.02	2.40	23.08	23.08	0.03
Dibenz[a,h]anthracene	1,123	2,389	0.27	2.60	2.60	0.00	0.17	2.00	2.00	0.00	0.34	3.27	3.27	0.00
Fluoranthene	707	23,870	3.20	30.77	30.77	0.04	1.90	22.41	22.41	0.03	3.80	36.54	36.54	0.05
Fluorene	538	26,000	0.37	3.56	3.56	0.01	0.22	2.59	2.59	0.00	0.55	5.29	5.29	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.77	7.40	7.40	0.01	0.49	5.78	5.78	0.01	1.00	9.62	9.62	0.01
Naphthalene	385	61,700	0.63	6.06	6.06	0.02	0.39	4.60	4.60	0.01	0.69	6.63	6.63	0.02
Perylene	967	431	0.34	3.27	3.27	0.00	0.22	2.59	2.59	0.00	0.39	3.75	3.75	0.00
Phenanthrene	596	34,300	2.10	20.19	20.19	0.03	1.30	15.33	15.33	0.03	2.50	24.04	24.04	0.04
Pyrene	697	9,090	2.20	21.15	21.15	0.03	1.40	16.51	16.51	0.02	2.60	25.00	25.00	0.04
	---	**ESBTU FCVi**	--	--	--	1.57	--	--	--	1.26	--	--	--	1.42

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-05**				**MLTC14-05**				**MLTC14-05**			
		Field Sample ID	**MLTC14-05-SURF**				**MLTC14-05-0001**				**MLTC14-05-0103**			
		Sample Depth	**0-0.5**				**0-1**				**1-3**			
		Sample Date	**10/22/2014**				**10/23/2014**				**10/23/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	4.15	0.0415	---	---	4.28	0.0428	---	---	4.6	0.046	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)														
1-Methylnaphthalene	446	165,700	0.05	1.30	1.30	0.00	0.01	0.14	0.14	0.00	0.01	0.12	0.12	0.00
2-Methylnaphthalene	447	154,800	0.06	1.47	1.47	0.00	0.01	0.14	0.14	0.00	0.01	0.13	0.13	0.00
Acenaphthene	491	33,400	0.12	2.89	2.89	0.01	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.10	2.39	2.39	0.01	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00
Anthracene	594	1,300	0.55	13.25	13.25	0.02	0.01	0.18	0.18	0.00	0.00	0.00	0.00	0.00
Benzo[a]anthracene	841	4,153	1.50	36.14	36.14	0.04	0.02	0.40	0.40	0.00	0.00	0.08	0.08	0.00
Benzo[a]pyrene	965	3,840	0.95	22.89	22.89	0.02	0.01	0.23	0.23	0.00	0.00	0.08	0.08	0.00
Benzo[b]fluoranthene	979	2,169	0.93	22.41	22.41	0.02	0.01	0.33	0.33	0.00	0.00	0.10	0.10	0.00
Benzo[e]pyrene	967	4,300	0.69	16.63	16.63	0.02	0.01	0.26	0.26	0.00	0.01	0.16	0.16	0.00
Benzo[g,h,i]perylene	1,095	648	0.42	10.12	10.12	0.01	0.01	0.28	0.28	0.00	0.01	0.30	0.30	0.00
Benzo[k]fluoranthene	981	1,220	0.98	23.61	23.61	0.02	0.01	0.18	0.18	0.00	0.00	0.05	0.05	0.00
C1 Chrysenes	929	--	0.47	11.33	11.33	0.01	0.02	0.44	0.44	0.00	0.02	0.46	0.46	0.00
C1 Fluorenes	611	--	0.10	2.34	2.34	0.00	0.01	0.13	0.13	0.00	0.01	0.13	0.13	0.00
C1-Fluoranthenes/Pyrenes	770	--	1.70	40.96	40.96	0.05	0.05	1.05	1.05	0.00	0.03	0.72	0.72	0.00
C1-Naphthalenes	444	--	0.08	2.02	2.02	0.00	0.01	0.18	0.18	0.00	0.01	0.20	0.20	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.96	23.13	23.13	0.03	0.06	1.50	1.50	0.00	0.07	1.46	1.46	0.00
C2 Chrysenes	1,008	--	0.19	4.58	4.58	0.00	0.02	0.37	0.37	0.00	0.03	0.65	0.65	0.00
C2 Fluorenes	686	--	0.14	3.37	3.37	0.00	0.02	0.42	0.42	0.00	0.02	0.50	0.50	0.00
C2-Fluoranthenes/Pyrenes		--	0.58	13.98	13.98		0.04	0.96	0.96		0.04	0.96	0.96	
C2-Naphthalenes	510	--	0.46	11.08	11.08	0.02	0.04	0.91	0.91	0.00	0.05	1.02	1.02	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.66	15.90	15.90	0.02	0.08	1.80	1.80	0.00	0.08	1.80	1.80	0.00
C3 Chrysenes	1,112	--	0.06	1.40	1.40	0.00	0.01	0.20	0.20	0.00	0.03	0.57	0.57	0.00
C3 Fluorenes	769	--	0.13	3.13	3.13	0.00	0.02	0.49	0.49	0.00	0.03	0.57	0.57	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.25	6.02	6.02	0.01	0.03	0.77	0.77	0.00	0.04	0.96	0.96	0.00
C3-Naphthalenes	581	--	0.62	14.94	14.94	0.03	0.10	2.24	2.24	0.00	0.16	3.48	3.48	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.58	13.98	13.98	0.02	0.11	2.57	2.57	0.00	0.12	2.61	2.61	0.00
C4 Chrysenes	1,214	--	0.16	0.00	0.00	0.00	0.01	0.20	0.20	0.00	0.01	0.28	0.28	0.00
C4-Naphthalenes	657	--	0.34	8.19	8.19	0.01	0.12	2.80	2.80	0.00	0.17	3.70	3.70	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.26	6.27	6.27	0.01	0.05	1.24	1.24	0.00	0.07	1.46	1.46	0.00
Chrysene	844	826	1.20	28.92	28.92	0.03	0.02	0.44	0.44	0.00	0.02	0.33	0.33	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.16	3.86	3.86	0.00	0.00	0.05	0.05	0.00	0.00	0.04	0.04	0.00
Fluoranthene	707	23,870	2.80	67.47	67.47	0.10	0.03	0.68	0.68	0.00	0.01	0.12	0.12	0.00
Fluorene	538	26,000	0.18	4.34	4.34	0.01	0.01	0.12	0.12	0.00	0.00	0.06	0.06	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.44	10.60	10.60	0.01	0.00	0.11	0.11	0.00	0.00	0.05	0.05	0.00
Naphthalene	385	61,700	0.15	3.61	3.61	0.01	0.01	0.13	0.13	0.00	0.00	0.07	0.07	0.00
Perylene	967	431	0.27	6.51	6.51	0.01	0.01	0.21	0.21	0.00	0.01	0.20	0.20	0.00
Phenanthrene	596	34,300	1.30	31.33	31.33	0.05	0.03	0.58	0.58	0.00	0.02	0.41	0.41	0.00
Pyrene	697	9,090	2.20	53.01	53.01	0.08	0.04	0.86	0.86	0.00	0.01	0.17	0.17	0.00
	---	**ESBTU FCVi**	--	--	--	0.70	--	--	--	0.03	--	--	--	0.03

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-05**				**MLTC14-05**				**MLTC14-06**			
		Field Sample ID	**MLTC14-05-0305**				**MLTC14-05-0507**				**MLTC14-06-SURF**			
		Sample Depth	**3-5**				**5-7**				**0-0.5**			
		Sample Date	**10/23/2014**				**10/23/2014**				**10/14/2014**			
	Coc, PAHi, FCVi[a] μg/g oc	**Coc, PAHi, Maxi[a]** μg/g oc	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final** Coc[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	4.36	0.0436	---	---	4.06	0.0406	---	---	0.45	0.0045	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)														
1-Methylnaphthalene	446	165,700	0.00	0.08	0.08	0.00	0.00	0.09	0.09	0.00	0.00	0.78	0.78	0.00
2-Methylnaphthalene	447	154,800	0.00	0.09	0.09	0.00	0.00	0.11	0.11	0.00	0.01	1.36	1.36	0.00
Acenaphthene	491	33,400	0.00	0.01	0.01	0.00	0.00	0.02	0.02	0.00	0.00	0.96	0.96	0.00
Acenaphthylene	452	24,000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.09	2.09	0.00
Anthracene	594	1,300	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.02	4.67	4.67	0.01
Benzo[a]anthracene	841	4,153	0.00	0.06	0.06	0.00	0.00	0.07	0.07	0.00	0.07	15.78	15.78	0.02
Benzo[a]pyrene	965	3,840	0.00	0.06	0.06	0.00	0.00	0.05	0.05	0.00	0.08	18.67	18.67	0.02
Benzo[b]fluoranthene	979	2,169	0.00	0.08	0.08	0.00	0.00	0.08	0.08	0.00	0.07	14.67	14.67	0.01
Benzo[e]pyrene	967	4,300	0.01	0.12	0.12	0.00	0.00	0.08	0.08	0.00	0.05	10.89	10.89	0.01
Benzo[g,h,i]perylene	1,095	648	0.01	0.22	0.22	0.00	0.00	0.11	0.11	0.00	0.05	11.56	11.56	0.01
Benzo[k]fluoranthene	981	1,220	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.07	14.89	14.89	0.02
C1 Chrysenes	929	--	0.01	0.32	0.32	0.00	0.01	0.27	0.27	0.00	0.06	12.89	12.89	0.01
C1 Fluorenes	611	--	0.01	0.12	0.12	0.00	0.00	0.06	0.06	0.00	0.01	1.22	1.22	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.03	0.60	0.60	0.00	0.02	0.49	0.49	0.00	0.12	26.67	26.67	0.03
C1-Naphthalenes	444	--	0.01	0.12	0.12	0.00	0.01	0.13	0.13	0.00	0.01	1.53	1.53	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.04	0.89	0.89	0.00	0.04	1.08	1.08	0.00	0.06	12.22	12.22	0.02
C2 Chrysenes	1,008	--	0.02	0.48	0.48	0.00	0.01	0.23	0.23	0.00	0.03	7.56	7.56	0.01
C2 Fluorenes	686	--	0.01	0.30	0.30	0.00	0.01	0.30	0.30	0.00	0.01	2.67	2.67	0.00
C2-Fluoranthenes/Pyrenes		--	0.03	0.73	0.73		0.03	0.62	0.62		0.06	12.67	12.67	
C2-Naphthalenes	510	--	0.03	0.60	0.60	0.00	0.03	0.79	0.79	0.00	0.03	6.22	6.22	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.05	1.17	1.17	0.00	0.05	1.28	1.28	0.00	0.07	15.56	15.56	0.02
C3 Chrysenes	1,112	--	0.02	0.41	0.41	0.00	0.01	0.23	0.23	0.00	0.01	0.00	0.00	0.00
C3 Fluorenes	769	--	0.02	0.37	0.37	0.00	0.01	0.25	0.25	0.00	0.02	4.67	4.67	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.03	0.76	0.76	0.00	0.03	0.64	0.64	0.00	0.03	7.56	7.56	0.01
C3-Naphthalenes	581	--	0.08	1.90	1.90	0.00	0.10	2.46	2.46	0.00	0.06	13.78	13.78	0.02
C3-Phenanthrenes/Anthracenes	829	--	0.09	2.00	2.00	0.00	0.09	2.24	2.24	0.00	0.12	26.67	26.67	0.03
C4 Chrysenes	1,214	--	0.01	0.32	0.32	0.00	0.01	0.16	0.16	0.00	0.01	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.10	2.22	2.22	0.00	0.11	2.71	2.71	0.00	0.05	11.56	11.56	0.02
C4-Phenanthrenes/Anthracenes	913	--	0.04	0.80	0.80	0.00	0.04	1.03	1.03	0.00	0.06	12.44	12.44	0.01
Chrysene	844	826	0.01	0.23	0.23	0.00	0.01	0.17	0.17	0.00	0.09	20.44	20.44	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.03	0.03	0.00	0.00	0.02	0.02	0.00	0.02	4.00	4.00	0.00
Fluoranthene	707	23,870	0.00	0.11	0.11	0.00	0.00	0.07	0.07	0.00	0.10	22.22	22.22	0.03
Fluorene	538	26,000	0.00	0.05	0.05	0.00	0.00	0.05	0.05	0.00	0.01	2.22	2.22	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.03	0.03	0.00	0.00	0.02	0.02	0.00	0.05	10.44	10.44	0.01
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.01	1.96	1.96	0.01
Perylene	967	431	0.01	0.14	0.14	0.00	0.00	0.10	0.10	0.00	0.02	4.89	4.89	0.01
Phenanthrene	596	34,300	0.01	0.30	0.30	0.00	0.02	0.39	0.39	0.00	0.04	9.33	9.33	0.02
Pyrene	697	9,090	0.01	0.16	0.16	0.00	0.01	0.16	0.16	0.00	0.09	20.00	20.00	0.03
	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	0.02	--	--	--	0.44

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-06**				**MLTC14-06**				**MLTC14-06**			
		Field Sample ID	**MLTC14-06-0001**				**MLTC14-06-0103**				**MLTC14-06-0305**			
		Sample Depth	**0-1**				**1-3**				**3-5**			
		Sample Date	**10/15/2014**				**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.75	0.0575	---	---	5.16	0.0516	---	---	6.09	0.0609	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)														
1-Methylnaphthalene	446	165,700	0.00	0.03	0.03	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.04	0.00
2-Methylnaphthalene	447	154,800	0.00	0.05	0.05	0.00	0.00	0.04	0.04	0.00	0.00	0.03	0.03	0.00
Acenaphthene	491	33,400	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Acenaphthylene	452	24,000	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	594	1,300	0.01	0.12	0.12	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
Benzo[a]anthracene	841	4,153	0.02	0.40	0.40	0.00	0.00	0.04	0.04	0.00	0.00	0.03	0.03	0.00
Benzo[a]pyrene	965	3,840	0.02	0.33	0.33	0.00	0.00	0.03	0.03	0.00	0.00	0.02	0.02	0.00
Benzo[b]fluoranthene	979	2,169	0.02	0.33	0.33	0.00	0.00	0.09	0.09	0.00	0.00	0.07	0.07	0.00
Benzo[e]pyrene	967	4,300	0.02	0.26	0.26	0.00	0.00	0.08	0.08	0.00	0.00	0.07	0.07	0.00
Benzo[g,h,i]perylene	1,095	648	0.02	0.31	0.31	0.00	0.01	0.13	0.13	0.00	0.01	0.10	0.10	0.00
Benzo[k]fluoranthene	981	1,220	0.02	0.37	0.37	0.00	0.00	0.04	0.04	0.00	0.00	0.03	0.03	0.00
C1 Chrysenes	929	--	0.02	0.38	0.38	0.00	0.01	0.19	0.19	0.00	0.01	0.16	0.16	0.00
C1 Fluorenes	611	--	0.00	0.08	0.08	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.05	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.05	0.82	0.82	0.00	0.01	0.27	0.27	0.00	0.02	0.28	0.28	0.00
C1-Naphthalenes	444	--	0.00	0.06	0.06	0.00	0.00	0.06	0.06	0.00	0.00	0.05	0.05	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.03	0.57	0.57	0.00	0.02	0.33	0.33	0.00	0.02	0.30	0.30	0.00
C2 Chrysenes	1,008	--	0.02	0.37	0.37	0.00	0.01	0.23	0.23	0.00	0.01	0.16	0.16	0.00
C2 Fluorenes	686	--	0.01	0.12	0.12	0.00	0.00	0.05	0.05	0.00	0.00	0.07	0.07	0.00
C2-Fluoranthenes/Pyrenes		--	0.03	0.47	0.47		0.02	0.43	0.43		0.02	0.30	0.30	
C2-Naphthalenes	510	--	0.02	0.26	0.26	0.00	0.01	0.25	0.25	0.00	0.01	0.18	0.18	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.05	0.78	0.78	0.00	0.02	0.43	0.43	0.00	0.02	0.39	0.39	0.00
C3 Chrysenes	1,112	--	0.03	0.43	0.43	0.00	0.02	0.29	0.29	0.00	0.01	0.16	0.16	0.00
C3 Fluorenes	769	--	0.02	0.26	0.26	0.00	0.00	0.07	0.07	0.00	0.01	0.10	0.10	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.03	0.43	0.43	0.00	0.02	0.35	0.35	0.00	0.02	0.33	0.33	0.00
C3-Naphthalenes	581	--	0.04	0.71	0.71	0.00	0.03	0.48	0.48	0.00	0.02	0.39	0.39	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.08	1.32	1.32	0.00	0.03	0.54	0.54	0.00	0.03	0.56	0.56	0.00
C4 Chrysenes	1,214	--	0.03	0.45	0.45	0.00	0.02	0.35	0.35	0.00	0.01	0.21	0.21	0.00
C4-Naphthalenes	657	--	0.03	0.56	0.56	0.00	0.01	0.23	0.23	0.00	0.03	0.41	0.41	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.04	0.61	0.61	0.00	0.02	0.35	0.35	0.00	0.02	0.30	0.30	0.00
Chrysene	844	826	0.04	0.61	0.61	0.00	0.01	0.16	0.16	0.00	0.01	0.15	0.15	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.09	0.09	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
Fluoranthene	707	23,870	0.05	0.92	0.92	0.00	0.01	0.12	0.12	0.00	0.01	0.08	0.08	0.00
Fluorene	538	26,000	0.01	0.11	0.11	0.00	0.00	0.03	0.03	0.00	0.00	0.04	0.04	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.01	0.23	0.23	0.00	0.00	0.04	0.04	0.00	0.00	0.03	0.03	0.00
Naphthalene	385	61,700	0.00	0.07	0.07	0.00	0.00	0.03	0.03	0.00	0.00	0.02	0.02	0.00
Perylene	967	431	0.01	0.17	0.17	0.00	0.03	0.58	0.58	0.00	0.04	0.64	0.64	0.00
Phenanthrene	596	34,300	0.03	0.50	0.50	0.00	0.01	0.13	0.13	0.00	0.01	0.10	0.10	0.00
Pyrene	697	9,090	0.05	0.80	0.80	0.00	0.00	0.09	0.09	0.00				0.00
	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	0.01	--	--	--	0.01

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-06**				**MLTC14-07**			
		Field Sample ID	**MLTC14-06-0507**				**MLTC14-07-SURF**			
		Sample Depth	**5-7**				**0-0.5**			
		Sample Date	**10/15/2014**				**10/14/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	μg/g oc	**μg/g oc**	**μg/g dry wt.**	**μg/g oc**	**Coc[b]**	**ESBTU FCVi**	**μg/g dry wt.**	**μg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.45	0.0545	---	---	10.6	0.106	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.03	0.03	0.00	0.17	1.60	1.60	0.00
2-Methylnaphthalene	447	154,800	0.00	0.03	0.03	0.00	0.30	2.83	2.83	0.01
Acenaphthene	491	33,400	0.00	0.01	0.01	0.00	0.11	1.04	1.04	0.00
Acenaphthylene	452	24,000	0.00	0.00	0.00	0.00	0.13	1.23	1.23	0.00
Anthracene	594	1,300	0.00	0.01	0.01	0.00	0.33	3.11	3.11	0.01
Benzo[a]anthracene	841	4,153	0.00	0.03	0.03	0.00	1.40	13.21	13.21	0.02
Benzo[a]pyrene	965	3,840	0.00	0.02	0.02	0.00	1.30	12.26	12.26	0.01
Benzo[b]fluoranthene	979	2,169	0.00	0.06	0.06	0.00	1.00	9.43	9.43	0.01
Benzo[e]pyrene	967	4,300	0.00	0.06	0.06	0.00	0.85	8.02	8.02	0.01
Benzo[g,h,i]perylene	1,095	648	0.00	0.08	0.08	0.00	0.94	8.87	8.87	0.01
Benzo[k]fluoranthene	981	1,220	0.00	0.03	0.03	0.00	1.10	10.38	10.38	0.01
C1 Chrysenes	929	--	0.01	0.17	0.17	0.00	1.50	14.15	14.15	0.02
C1 Fluorenes	611	--	0.00	0.05	0.05	0.00	0.33	3.11	3.11	0.01
C1-Fluoranthenes/Pyrenes	770	--	0.01	0.24	0.24	0.00	2.60	24.53	24.53	0.03
C1-Naphthalenes	444	--	0.00	0.04	0.04	0.00	0.32	3.02	3.02	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.01	0.24	0.24	0.00	2.00	18.87	18.87	0.03
C2 Chrysenes	1,008	--	0.01	0.26	0.26	0.00	0.96	9.06	9.06	0.01
C2 Fluorenes	686	--	0.00	0.06	0.06	0.00	0.88	8.30	8.30	0.01
C2-Fluoranthenes/Pyrenes		--	0.01	0.26	0.26		1.70	16.04	16.04	
C2-Naphthalenes	510	--	0.01	0.15	0.15	0.00	1.70	16.04	16.04	0.03
C2-Phenanthrenes/Anthracenes	746	--	0.02	0.31	0.31	0.00	3.30	31.13	31.13	0.04
C3 Chrysenes	1,112	--	0.02	0.29	0.29	0.00	0.70	6.60	6.60	0.01
C3 Fluorenes	769	--	0.00	0.08	0.08	0.00	1.30	12.26	12.26	0.02
C3-Fluoranthenes/Pyrenes	949	--	0.02	0.28	0.28	0.00	1.30	12.26	12.26	0.01
C3-Naphthalenes	581	--	0.02	0.35	0.35	0.00	3.80	35.85	35.85	0.06
C3-Phenanthrenes/Anthracenes	829	--	0.03	0.61	0.61	0.00	4.70	44.34	44.34	0.05
C4 Chrysenes	1,214	--	0.01	0.24	0.24	0.00	0.39	3.68	3.68	0.00
C4-Naphthalenes	657	--	0.02	0.33	0.33	0.00	3.20	30.19	30.19	0.05
C4-Phenanthrenes/Anthracenes	913	--	0.02	0.29	0.29	0.00	3.50	33.02	33.02	0.04
Chrysene	844	826	0.01	0.13	0.13	0.00	1.60	15.09	15.09	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.01	0.01	0.00	0.31	2.92	2.92	0.00
Fluoranthene	707	23,870	0.00	0.08	0.08	0.00	2.60	24.53	24.53	0.03
Fluorene	538	26,000	0.00	0.03	0.03	0.00	0.39	3.68	3.68	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.02	0.02	0.00	0.79	7.45	7.45	0.01
Naphthalene	385	61,700	0.00	0.02	0.02	0.00	0.41	3.87	3.87	0.01
Perylene	967	431	0.03	0.59	0.59	0.00	0.35	3.30	3.30	0.00
Phenanthrene	596	34,300	0.00	0.07	0.07	0.00	1.60	15.09	15.09	0.03
Pyrene	697	9,090	0.00	0.06	0.06	0.00	2.00	18.87	18.87	0.03
	---	**ESBTU FCVi**	--	--	--	0.01	--	--	--	0.61

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-07				MLTC14-07			
		Field Sample ID	**MLTC14-07-0001**				**MLTC14-07-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi^{a}	**Coc, PAHi, Maxi^{a}**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**
Total Organic Carbon	--	--	10.3	0.103	---	---	11	0.11	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.01	0.14	0.14	0.00	0.27	2.45	2.45	0.01
2-Methylnaphthalene	447	154,800	0.02	0.23	0.23	0.00	0.51	4.64	4.64	0.01
Acenaphthene	491	33,400	0.01	0.08	0.08	0.00	0.17	1.55	1.55	0.00
Acenaphthylene	452	24,000	0.01	0.07	0.07	0.00	0.11	1.00	1.00	0.00
Anthracene	594	1,300	0.03	0.24	0.24	0.00	0.39	3.55	3.55	0.01
Benzo[a]anthracene	841	4,153	0.09	0.84	0.84	0.00	1.10	10.00	10.00	0.01
Benzo[a]pyrene	965	3,840	0.08	0.75	0.75	0.00	0.98	8.91	8.91	0.01
Benzo[b]fluoranthene	979	2,169	0.07	0.68	0.68	0.00	0.92	8.36	8.36	0.01
Benzo[e]pyrene	967	4,300	0.05	0.51	0.51	0.00	0.74	6.73	6.73	0.01
Benzo[g,h,i]perylene	1,095	648	0.05	0.49	0.49	0.00	0.53	4.82	4.82	0.00
Benzo[k]fluoranthene	981	1,220	0.07	0.70	0.70	0.00	0.93	8.45	8.45	0.01
C1 Chrysenes	929	--	0.07	0.72	0.72	0.00	1.40	12.73	12.73	0.01
C1 Fluorenes	611	--	0.03	0.28	0.28	0.00	0.52	4.73	4.73	0.01
C1-Fluoranthenes/Pyrenes	770	--	0.19	1.84	1.84	0.00	2.90	26.36	26.36	0.03
C1-Naphthalenes	444	--	0.03	0.26	0.26	0.00	0.55	5.00	5.00	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.17	1.65	1.65	0.00	3.10	28.18	28.18	0.04
C2 Chrysenes	1,008	--	0.10	0.94	0.94	0.00	1.70	15.45	15.45	0.02
C2 Fluorenes	686	--	0.07	0.66	0.66	0.00	1.40	12.73	12.73	0.02
C2-Fluoranthenes/Pyrenes		--	0.17	1.65	1.65		2.30	20.91	20.91	
C2-Naphthalenes	510	--	0.14	1.36	1.36	0.00	3.00	27.27	27.27	0.05
C2-Phenanthrenes/Anthracenes	746	--	0.28	2.72	2.72	0.00	5.50	50.00	50.00	0.07
C3 Chrysenes	1,112	--	0.09	0.91	0.91	0.00	1.30	11.82	11.82	0.01
C3 Fluorenes	769	--	0.11	1.07	1.07	0.00	2.30	20.91	20.91	0.03
C3-Fluoranthenes/Pyrenes	949	--	0.12	1.17	1.17	0.00	2.20	20.00	20.00	0.02
C3-Naphthalenes	581	--	0.31	3.01	3.01	0.01	5.90	53.64	53.64	0.09
C3-Phenanthrenes/Anthracenes	829	--	0.40	3.88	3.88	0.00	7.20	65.45	65.45	0.08
C4 Chrysenes	1,214	--	0.09	0.88	0.88	0.00	1.40	12.73	12.73	0.01
C4-Naphthalenes	657	--	0.22	2.14	2.14	0.00	4.20	38.18	38.18	0.06
C4-Phenanthrenes/Anthracenes	913	--	0.26	2.52	2.52	0.00	4.60	41.82	41.82	0.05
Chrysene	844	826	0.10	0.96	0.96	0.00	1.50	13.64	13.64	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.02	0.15	0.15	0.00	0.17	1.55	1.55	0.00
Fluoranthene	707	23,870	0.20	1.94	1.94	0.00	2.80	25.45	25.45	0.04
Fluorene	538	26,000	0.03	0.29	0.29	0.00	0.46	4.18	4.18	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.04	0.40	0.40	0.00	0.47	4.27	4.27	0.00
Naphthalene	385	61,700	0.04	0.35	0.35	0.00	0.71	6.45	6.45	0.02
Perylene	967	431	0.02	0.21	0.21	0.00	0.27	2.45	2.45	0.00
Phenanthrene	596	34,300	0.15	1.46	1.46	0.00	1.80	16.36	16.36	0.03
Pyrene	697	9,090	0.16	1.55	1.55	0.00	1.90	17.27	17.27	0.02
	---	**ESBTU FCVi**	--	--	--	0.05	--	--	--	0.78

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-08**				**MLTC14-08**			
		Field Sample ID	**MLTC14-08-SURF**				**MLTC14-08-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/14/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a] **µg/g oc**	**Coc, PAHi, Maxi[a]** **µg/g oc**	**Conc** **µg/g dry wt.**	**Coc** **µg/g oc**	**Final** **Coc[b]**	**ESBTU FCVi**	**Conc** **µg/g dry wt.**	**Coc** **µg/g oc**	**Final** **Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	9.44	0.0944	---	---	10.3	0.103	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.34	3.60	3.60	0.01	0.36	3.50	3.50	0.01
2-Methylnaphthalene	447	154,800	0.57	6.04	6.04	0.01	0.59	5.73	5.73	0.01
Acenaphthene	491	33,400	0.19	2.01	2.01	0.00	0.13	1.26	1.26	0.00
Acenaphthylene	452	24,000	0.14	1.48	1.48	0.00	0.09	0.91	0.91	0.00
Anthracene	594	1,300	0.75	7.94	7.94	0.01	0.28	2.72	2.72	0.00
Benzo[a]anthracene	841	4,153	1.40	14.83	14.83	0.02	1.10	10.68	10.68	0.01
Benzo[a]pyrene	965	3,840	1.30	13.77	13.77	0.01	1.00	9.71	9.71	0.01
Benzo[b]fluoranthene	979	2,169	1.00	10.59	10.59	0.01	0.76	7.38	7.38	0.01
Benzo[e]pyrene	967	4,300	0.87	9.22	9.22	0.01	0.75	7.28	7.28	0.01
Benzo[g,h,i]perylene	1,095	648	0.78	8.26	8.26	0.01	0.67	6.50	6.50	0.01
Benzo[k]fluoranthene	981	1,220	1.10	11.65	11.65	0.01	0.90	8.74	8.74	0.01
C1 Chrysenes	929	--	1.50	15.89	15.89	0.02	2.10	20.39	20.39	0.02
C1 Fluorenes	611	--	0.55	5.83	5.83	0.01	0.64	6.21	6.21	0.01
C1-Fluoranthenes/Pyrenes	770	--	3.60	38.14	38.14	0.05	3.50	33.98	33.98	0.04
C1-Naphthalenes	444	--	0.63	6.67	6.67	0.02	0.66	6.41	6.41	0.01
C1-Phenanthrenes/Anthracenes	670	--	3.40	36.02	36.02	0.05	3.80	36.89	36.89	0.06
C2 Chrysenes	1,008	--	1.90	20.13	20.13	0.02	1.70	16.50	16.50	0.02
C2 Fluorenes	686	--	1.30	13.77	13.77	0.02	2.00	19.42	19.42	0.03
C2-Fluoranthenes/Pyrenes		--	2.90	30.72	30.72		3.00	29.13	29.13	
C2-Naphthalenes	510	--	3.80	40.25	40.25	0.08	4.50	43.69	43.69	0.09
C2-Phenanthrenes/Anthracenes	746	--	5.50	58.26	58.26	0.08	6.40	62.14	62.14	0.08
C3 Chrysenes	1,112	--	1.40	14.83	14.83	0.01	1.20	11.65	11.65	0.01
C3 Fluorenes	769	--	1.80	19.07	19.07	0.02	2.80	27.18	27.18	0.04
C3-Fluoranthenes/Pyrenes	949	--	2.50	26.48	26.48	0.03	2.40	23.30	23.30	0.02
C3-Naphthalenes	581	--	7.30	77.33	77.33	0.13	10.00	97.09	97.09	0.17
C3-Phenanthrenes/Anthracenes	829	--	9.00	95.34	95.34	0.12	9.70	94.17	94.17	0.11
C4 Chrysenes	1,214	--	1.20	12.71	12.71	0.01	0.67	6.50	6.50	0.01
C4-Naphthalenes	657	--	5.60	59.32	59.32	0.09	7.90	76.70	76.70	0.12
C4-Phenanthrenes/Anthracenes	913	--	4.50	47.67	47.67	0.05	6.60	64.08	64.08	0.07
Chrysene	844	826	1.70	18.01	18.01	0.02	1.40	13.59	13.59	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.23	2.44	2.44	0.00	0.22	2.14	2.14	0.00
Fluoranthene	707	23,870	3.00	31.78	31.78	0.04	1.80	17.48	17.48	0.02
Fluorene	538	26,000	0.51	5.40	5.40	0.01	0.29	2.82	2.82	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.64	6.78	6.78	0.01	0.52	5.05	5.05	0.00
Naphthalene	385	61,700	0.67	7.10	7.10	0.02	0.49	4.76	4.76	0.01
Perylene	967	431	0.36	3.81	3.81	0.00	0.30	2.91	2.91	0.00
Phenanthrene	596	34,300	2.30	24.36	24.36	0.04	1.50	14.56	14.56	0.02
Pyrene	697	9,090	2.60	27.54	27.54	0.04	1.60	15.53	15.53	0.02
	---	**ESBTU FCVi**	--	--	--	1.06	--	--	--	1.05

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-08**				**MLTC14-08**			
		Field Sample ID	**MLTC14-08-0103**				**MLTC14-08-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	9.5	0.095	---	---	10.2	0.102	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.37	3.89	3.89	0.01	0.53	5.20	5.20	0.01
2-Methylnaphthalene	447	154,800	0.63	6.63	6.63	0.01	0.86	8.43	8.43	0.02
Acenaphthene	491	33,400	0.19	2.00	2.00	0.00	0.27	2.65	2.65	0.01
Acenaphthylene	452	24,000	0.14	1.47	1.47	0.00	0.16	1.57	1.57	0.00
Anthracene	594	1,300	0.49	5.16	5.16	0.01	0.99	9.71	9.71	0.02
Benzo[a]anthracene	841	4,153	1.60	16.84	16.84	0.02	1.50	14.71	14.71	0.02
Benzo[a]pyrene	965	3,840	1.30	13.68	13.68	0.01	1.20	11.76	11.76	0.01
Benzo[b]fluoranthene	979	2,169	1.10	11.58	11.58	0.01	1.10	10.78	10.78	0.01
Benzo[e]pyrene	967	4,300	0.97	10.21	10.21	0.01	0.88	8.63	8.63	0.01
Benzo[g,h,i]perylene	1,095	648	0.81	8.53	8.53	0.01	0.71	6.96	6.96	0.01
Benzo[k]fluoranthene	981	1,220	1.40	14.74	14.74	0.02	1.00	9.80	9.80	0.01
C1 Chrysenes	929	--	1.50	15.79	15.79	0.02	1.60	15.69	15.69	0.02
C1 Fluorenes	611	--	0.73	7.68	7.68	0.01	0.93	9.12	9.12	0.01
C1-Fluoranthenes/Pyrenes	770	--	3.70	38.95	38.95	0.05	3.50	34.31	34.31	0.04
C1-Naphthalenes	444	--	0.65	6.84	6.84	0.02	0.98	9.61	9.61	0.02
C1-Phenanthrenes/Anthracenes	670	--	3.50	36.84	36.84	0.05	4.60	45.10	45.10	0.07
C2 Chrysenes	1,008	--	2.10	22.11	22.11	0.02	2.10	20.59	20.59	0.02
C2 Fluorenes	686	--	1.30	13.68	13.68	0.02	1.80	17.65	17.65	0.03
C2-Fluoranthenes/Pyrenes		--	3.00	31.58	31.58		3.20	31.37	31.37	
C2-Naphthalenes	510	--	3.70	38.95	38.95	0.08	5.50	53.92	53.92	0.11
C2-Phenanthrenes/Anthracenes	746	--	5.70	60.00	60.00	0.08	7.30	71.57	71.57	0.10
C3 Chrysenes	1,112	--	1.70	17.89	17.89	0.02	1.70	16.67	16.67	0.01
C3 Fluorenes	769	--	2.20	23.16	23.16	0.03	2.60	25.49	25.49	0.03
C3-Fluoranthenes/Pyrenes	949	--	2.70	28.42	28.42	0.03	2.90	28.43	28.43	0.03
C3-Naphthalenes	581	--	7.60	80.00	80.00	0.14	9.60	94.12	94.12	0.16
C3-Phenanthrenes/Anthracenes	829	--	8.50	89.47	89.47	0.11	9.80	96.08	96.08	0.12
C4 Chrysenes	1,214	--	1.40	14.74	14.74	0.01	1.40	13.73	13.73	0.01
C4-Naphthalenes	657	--	5.30	55.79	55.79	0.08	6.30	61.76	61.76	0.09
C4-Phenanthrenes/Anthracenes	913	--	5.40	56.84	56.84	0.06	4.90	48.04	48.04	0.05
Chrysene	844	826	2.00	21.05	21.05	0.02	1.90	18.63	18.63	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.23	2.42	2.42	0.00	0.21	2.06	2.06	0.00
Fluoranthene	707	23,870	3.60	37.89	37.89	0.05	3.80	37.25	37.25	0.05
Fluorene	538	26,000	0.56	5.89	5.89	0.01	0.70	6.86	6.86	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.66	6.95	6.95	0.01	0.56	5.49	5.49	0.00
Naphthalene	385	61,700	0.93	9.79	9.79	0.03	1.30	12.75	12.75	0.03
Perylene	967	431	0.37	3.89	3.89	0.00	0.34	3.33	3.33	0.00
Phenanthrene	596	34,300	3.30	34.74	34.74	0.06	3.00	29.41	29.41	0.05
Pyrene	697	9,090	3.00	31.58	31.58	0.05	2.80	27.45	27.45	0.04
	---	**ESBTU FCVi**	--	--	--	1.13	--	--	--	1.21

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-09**				**MLTC14-09**			
		Field Sample ID	**MLTC14-09-SURF**				**MLTC14-09-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/15/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	μg/g oc	**μg/g oc**	**μg/g dry wt.**	**μg/g oc**	**Coc[b]**	**ESBTU FCVi**	**μg/g dry wt.**	**μg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	11	0.11	---	---	9.11	0.0911	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)										
1-Methylnaphthalene	446	165,700	0.05	0.48	0.48	0.00	0.10	1.10	1.10	0.00
2-Methylnaphthalene	447	154,800	0.11	1.00	1.00	0.00	0.19	2.09	2.09	0.00
Acenaphthene	491	33,400	0.19	1.73	1.73	0.00	0.41	4.50	4.50	0.01
Acenaphthylene	452	24,000	0.09	0.77	0.77	0.00	0.03	0.36	0.36	0.00
Anthracene	594	1,300	0.34	3.09	3.09	0.01	0.28	3.07	3.07	0.01
Benzo[a]anthracene	841	4,153	2.50	22.73	22.73	0.03	2.50	27.44	27.44	0.03
Benzo[a]pyrene	965	3,840	3.60	32.73	32.73	0.03	3.50	38.42	38.42	0.04
Benzo[b]fluoranthene	979	2,169	2.90	26.36	26.36	0.03	3.80	41.71	41.71	0.04
Benzo[e]pyrene	967	4,300	2.20	20.00	20.00	0.02	2.50	27.44	27.44	0.03
Benzo[g,h,i]perylene	1,095	648	2.60	23.64	23.64	0.02	3.10	34.03	34.03	0.03
Benzo[k]fluoranthene	981	1,220	2.90	26.36	26.36	0.03	2.70	29.64	29.64	0.03
C1 Chrysenes	929	--	1.40	12.73	12.73	0.01	2.00	21.95	21.95	0.02
C1 Fluorenes	611	--	0.07	0.63	0.63	0.00	0.23	2.52	2.52	0.00
C1-Fluoranthenes/Pyrenes	770	--	3.00	27.27	27.27	0.04	3.70	40.61	40.61	0.05
C1-Naphthalenes	444	--	0.11	1.00	1.00	0.00	0.19	2.09	2.09	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.64	5.82	5.82	0.01	1.60	17.56	17.56	0.03
C2 Chrysenes	1,008	--	0.98	8.91	8.91	0.01	1.50	16.47	16.47	0.02
C2 Fluorenes	686	--	0.09	0.81	0.81	0.00	0.56	6.15	6.15	0.01
C2-Fluoranthenes/Pyrenes		--	1.40	12.73	12.73		2.80	30.74	30.74	
C2-Naphthalenes	510	--	0.29	2.64	2.64	0.01	0.92	10.10	10.10	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.65	5.91	5.91	0.01	2.40	26.34	26.34	0.04
C3 Chrysenes	1,112	--	0.97	8.82	8.82	0.01	0.34	3.73	3.73	0.00
C3 Fluorenes	769	--	0.14	1.27	1.27	0.00	0.75	8.23	8.23	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.63	5.73	5.73	0.01	2.30	25.25	25.25	0.03
C3-Naphthalenes	581	--	0.36	3.27	3.27	0.01	1.70	18.66	18.66	0.03
C3-Phenanthrenes/Anthracenes	829	--	1.00	9.09	9.09	0.01	3.30	36.22	36.22	0.04
C4 Chrysenes	1,214	--	0.65	5.91	5.91	0.00	0.29	3.18	3.18	0.00
C4-Naphthalenes	657	--	0.19	1.73	1.73	0.00	1.30	14.27	14.27	0.02
C4-Phenanthrenes/Anthracenes	913	--	0.79	7.18	7.18	0.01	2.20	24.15	24.15	0.03
Chrysene	844	826	2.90	26.36	26.36	0.03	3.00	32.93	32.93	0.04
Dibenz[a,h]anthracene	1,123	2,389	0.84	7.64	7.64	0.01	1.00	10.98	10.98	0.01
Fluoranthene	707	23,870	3.10	28.18	28.18	0.04	2.70	29.64	29.64	0.04
Fluorene	538	26,000	0.13	1.18	1.18	0.00	0.28	3.07	3.07	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	2.30	20.91	20.91	0.02	2.80	30.74	30.74	0.03
Naphthalene	385	61,700	0.21	1.91	1.91	0.00	0.22	2.41	2.41	0.01
Perylene	967	431	0.82	7.45	7.45	0.01	0.95	10.43	10.43	0.01
Phenanthrene	596	34,300	1.20	10.91	10.91	0.02	1.30	14.27	14.27	0.02
Pyrene	697	9,090	3.40	30.91	30.91	0.04	2.20	24.15	24.15	0.03
	---	**ESBTU FCVi**	--	--	--	0.47	--	--	--	0.75

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-09				MLTC14-09			
		Field Sample ID	**MLTC14-09-0103**				**MLTC14-09-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	11.1	0.111	---	---	6.09	0.0609	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.08	0.71	0.71	0.00	0.02	0.26	0.26	0.00
2-Methylnaphthalene	447	154,800	0.15	1.35	1.35	0.00	0.02	0.38	0.38	0.00
Acenaphthene	491	33,400	0.30	2.70	2.70	0.01	0.01	0.20	0.20	0.00
Acenaphthylene	452	24,000	0.04	0.38	0.38	0.00	0.01	0.21	0.21	0.00
Anthracene	594	1,300	0.33	2.97	2.97	0.01	0.07	1.13	1.13	0.00
Benzo[a]anthracene	841	4,153	1.80	16.22	16.22	0.02	0.19	3.12	3.12	0.00
Benzo[a]pyrene	965	3,840	2.50	22.52	22.52	0.02	0.14	2.30	2.30	0.00
Benzo[b]fluoranthene	979	2,169	2.10	18.92	18.92	0.02	0.15	2.46	2.46	0.00
Benzo[e]pyrene	967	4,300	1.50	13.51	13.51	0.01	0.10	1.61	1.61	0.00
Benzo[g,h,i]perylene	1,095	648	2.20	19.82	19.82	0.02	0.08	1.35	1.35	0.00
Benzo[k]fluoranthene	981	1,220	2.00	18.02	18.02	0.02	0.13	2.13	2.13	0.00
C1 Chrysenes	929	--	1.20	10.81	10.81	0.01	0.09	1.54	1.54	0.00
C1 Fluorenes	611	--	0.18	1.62	1.62	0.00	0.02	0.38	0.38	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.40	21.62	21.62	0.03	0.35	5.75	5.75	0.01
C1-Naphthalenes	444	--	0.15	1.35	1.35	0.00	0.03	0.44	0.44	0.00
C1-Phenanthrenes/Anthracenes	670	--	1.20	10.81	10.81	0.02	0.15	2.46	2.46	0.00
C2 Chrysenes	1,008	--	0.87	7.84	7.84	0.01	0.07	1.08	1.08	0.00
C2 Fluorenes	686	--	0.36	3.24	3.24	0.00	0.05	0.84	0.84	0.00
C2-Fluoranthenes/Pyrenes		--	1.70	15.32	15.32		0.17	2.79	2.79	
C2-Naphthalenes	510	--	0.67	6.04	6.04	0.01	0.12	1.97	1.97	0.00
C2-Phenanthrenes/Anthracenes	746	--	1.60	14.41	14.41	0.02	0.20	3.28	3.28	0.00
C3 Chrysenes	1,112	--	0.21	1.89	1.89	0.00	0.02	0.28	0.28	0.00
C3 Fluorenes	769	--	0.46	4.14	4.14	0.01	0.06	0.99	0.99	0.00
C3-Fluoranthenes/Pyrenes	949	--	1.20	10.81	10.81	0.01	0.11	1.81	1.81	0.00
C3-Naphthalenes	581	--	1.10	9.91	9.91	0.02	0.21	3.45	3.45	0.01
C3-Phenanthrenes/Anthracenes	829	--	2.00	18.02	18.02	0.02	0.30	4.93	4.93	0.01
C4 Chrysenes	1,214	--	0.21	1.89	1.89	0.00	0.02	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.79	7.12	7.12	0.01	0.15	2.46	2.46	0.00
C4-Phenanthrenes/Anthracenes	913	--	1.30	11.71	11.71	0.01	0.20	3.28	3.28	0.00
Chrysene	844	826	1.90	17.12	17.12	0.02	0.20	3.28	3.28	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.73	6.58	6.58	0.01	0.03	0.44	0.44	0.00
Fluoranthene	707	23,870	2.10	18.92	18.92	0.03	0.31	5.09	5.09	0.01
Fluorene	538	26,000	0.29	2.61	2.61	0.00	0.04	0.71	0.71	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.90	17.12	17.12	0.02	0.07	1.20	1.20	0.00
Naphthalene	385	61,700	0.21	1.89	1.89	0.00	0.07	1.18	1.18	0.00
Perylene	967	431	0.65	5.86	5.86	0.01	0.04	0.62	0.62	0.00
Phenanthrene	596	34,300	1.30	11.71	11.71	0.02	0.15	2.46	2.46	0.00
Pyrene	697	9,090	1.50	13.51	13.51	0.02	0.22	3.61	3.61	0.01
	---	**ESBTU FCVi**	--	--	--	0.42	--	--	--	0.09

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-09				MLTC14-09			
		Field Sample ID	**MLTC14-09-0507**				**MLTC14-09-0709**			
		Sample Depth	**5-7**				**7-9**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	7.52	0.0752	---	---	7.6	0.076	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.21	2.79	2.79	0.01	0.66	8.68	8.68	0.02
2-Methylnaphthalene	447	154,800	0.31	4.12	4.12	0.01	0.89	11.71	11.71	0.03
Acenaphthene	491	33,400	0.14	1.86	1.86	0.00	0.44	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.07	0.97	0.97	0.00	0.29	3.82	3.82	0.01
Anthracene	594	1,300	0.37	4.92	4.92	0.01	1.00	13.16	13.16	0.02
Benzo[a]anthracene	841	4,153	0.72	9.57	9.57	0.01	2.40	31.58	31.58	0.04
Benzo[a]pyrene	965	3,840	0.47	6.25	6.25	0.01	1.80	23.68	23.68	0.02
Benzo[b]fluoranthene	979	2,169	0.50	6.65	6.65	0.01	1.30	17.11	17.11	0.02
Benzo[e]pyrene	967	4,300	0.36	4.79	4.79	0.00	1.20	15.79	15.79	0.02
Benzo[g,h,i]perylene	1,095	648	0.29	3.86	3.86	0.00	1.00	13.16	13.16	0.01
Benzo[k]fluoranthene	981	1,220	0.40	5.32	5.32	0.01	1.80	23.68	23.68	0.02
C1 Chrysenes	929	--	0.76	10.11	10.11	0.01	2.80	36.84	36.84	0.04
C1 Fluorenes	611	--	0.35	4.65	4.65	0.01	0.90	11.84	11.84	0.02
C1-Fluoranthenes/Pyrenes	770	--	1.80	23.94	23.94	0.03	6.60	86.84	86.84	0.11
C1-Naphthalenes	444	--	0.35	4.65	4.65	0.01	1.10	14.47	14.47	0.03
C1-Phenanthrenes/Anthracenes	670	--	2.00	26.60	26.60	0.04	6.10	80.26	80.26	0.12
C2 Chrysenes	1,008	--	0.81	10.77	10.77	0.01	3.80	50.00	50.00	0.05
C2 Fluorenes	686	--	0.77	10.24	10.24	0.01	2.40	31.58	31.58	0.05
C2-Fluoranthenes/Pyrenes		--	1.60	21.28	21.28		5.60	73.68	73.68	
C2-Naphthalenes	510	--	2.00	26.60	26.60	0.05	5.20	68.42	68.42	0.13
C2-Phenanthrenes/Anthracenes	746	--	3.10	41.22	41.22	0.06	12.00	157.89	157.89	0.21
C3 Chrysenes	1,112	--	0.27	3.59	3.59	0.00	2.40	31.58	31.58	0.03
C3 Fluorenes	769	--	0.92	12.23	12.23	0.02	3.60	47.37	47.37	0.06
C3-Fluoranthenes/Pyrenes	949	--	1.40	18.62	18.62	0.02	5.10	67.11	67.11	0.07
C3-Naphthalenes	581	--	3.40	45.21	45.21	0.08	9.70	127.63	127.63	0.22
C3-Phenanthrenes/Anthracenes	829	--	4.20	55.85	55.85	0.07	17.00	223.68	223.68	0.27
C4 Chrysenes	1,214	--	0.13	0.00	0.00	0.00	1.20	15.79	15.79	0.01
C4-Naphthalenes	657	--	2.40	31.91	31.91	0.05	8.20	107.89	107.89	0.16
C4-Phenanthrenes/Anthracenes	913	--	2.90	38.56	38.56	0.04	13.00	171.05	171.05	0.19
Chrysene	844	826	0.85	11.30	11.30	0.01	3.40	44.74	44.74	0.05
Dibenz[a,h]anthracene	1,123	2,389	0.10	1.33	1.33	0.00	0.34	4.47	4.47	0.00
Fluoranthene	707	23,870	1.70	22.61	22.61	0.03	4.60	60.53	60.53	0.09
Fluorene	538	26,000	0.50	6.65	6.65	0.01	0.82	10.79	10.79	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	0.24	3.19	3.19	0.00	0.86	11.32	11.32	0.01
Naphthalene	385	61,700	0.32	4.26	4.26	0.01	1.30	17.11	17.11	0.04
Perylene	967	431	0.10	1.33	1.33	0.00	0.47	6.18	6.18	0.01
Phenanthrene	596	34,300	1.70	22.61	22.61	0.04	3.70	48.68	48.68	0.08
Pyrene	697	9,090	1.00	13.30	13.30	0.02	3.80	50.00	50.00	0.07
	---	**ESBTU FCVi**	--	--	--	0.67	--	--	--	2.25

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-09				MLTC14-10			
		Field Sample ID	**MLTC14-09-0911**				**MLTC14-10-SURF**			
		Sample Depth	**9-11**				**0-0.5**			
		Sample Date	**10/16/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	4.09	0.0409	---	---	7.11	0.0711	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.77	18.83	18.83	0.04	0.02	0.27	0.27	0.00
2-Methylnaphthalene	447	154,800	1.20	29.34	29.34	0.07	0.03	0.44	0.44	0.00
Acenaphthene	491	33,400	0.56	13.69	13.69	0.03	0.03	0.39	0.39	0.00
Acenaphthylene	452	24,000	0.34	8.31	8.31	0.02	0.04	0.59	0.59	0.00
Anthracene	594	1,300	2.10	51.34	51.34	0.09	0.10	1.41	1.41	0.00
Benzo[a]anthracene	841	4,153	2.20	53.79	53.79	0.06	0.41	5.77	5.77	0.01
Benzo[a]pyrene	965	3,840	1.80	44.01	44.01	0.05	0.49	6.89	6.89	0.01
Benzo[b]fluoranthene	979	2,169	1.20	29.34	29.34	0.03	0.40	5.63	5.63	0.01
Benzo[e]pyrene	967	4,300	1.10	26.89	26.89	0.03	0.31	4.36	4.36	0.00
Benzo[g,h,i]perylene	1,095	648	1.00	24.45	24.45	0.02	0.37	5.20	5.20	0.00
Benzo[k]fluoranthene	981	1,220	1.90	46.45	46.45	0.05	0.45	6.33	6.33	0.01
C1 Chrysenes	929	--	2.30	56.23	56.23	0.06	0.35	4.92	4.92	0.01
C1 Fluorenes	611	--	0.94	22.98	22.98	0.04	0.02	0.32	0.32	0.00
C1-Fluoranthenes/Pyrenes	770	--	5.60	136.92	136.92	0.18	0.65	9.14	9.14	0.01
C1-Naphthalenes	444	--	1.30	31.78	31.78	0.07	0.04	0.49	0.49	0.00
C1-Phenanthrenes/Anthracenes	670	--	6.40	156.48	156.48	0.23	0.20	2.81	2.81	0.00
C2 Chrysenes	1,008	--	2.90	70.90	70.90	0.07	0.15	2.11	2.11	0.00
C2 Fluorenes	686	--	2.50	61.12	61.12	0.09	0.03	0.48	0.48	0.00
C2-Fluoranthenes/Pyrenes		--	4.40	107.58	107.58		0.29	4.08	4.08	
C2-Naphthalenes	510	--	4.80	117.36	117.36	0.23	0.10	1.41	1.41	0.00
C2-Phenanthrenes/Anthracenes	746	--	12.00	293.40	293.40	0.39	0.21	2.95	2.95	0.00
C3 Chrysenes	1,112	--	2.30	56.23	56.23	0.05	0.06	0.87	0.87	0.00
C3 Fluorenes	769	--	3.70	90.46	90.46	0.12	0.04	0.59	0.59	0.00
C3-Fluoranthenes/Pyrenes	949	--	4.10	100.24	100.24	0.11	0.15	2.11	2.11	0.00
C3-Naphthalenes	581	--	8.40	205.38	205.38	0.35	0.15	2.11	2.11	0.00
C3-Phenanthrenes/Anthracenes	829	--	15.00	366.75	366.75	0.44	0.28	3.94	3.94	0.00
C4 Chrysenes	1,214	--	1.20	29.34	29.34	0.02	0.07	0.00	0.00	0.00
C4-Naphthalenes	657	--	7.50	183.37	183.37	0.28	0.11	1.55	1.55	0.00
C4-Phenanthrenes/Anthracenes	913	--	10.00	244.50	244.50	0.27	0.18	2.53	2.53	0.00
Chrysene	844	826	2.70	66.01	66.01	0.08	0.51	7.17	7.17	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.30	7.33	7.33	0.01	0.13	1.83	1.83	0.00
Fluoranthene	707	23,870	5.20	127.14	127.14	0.18	0.76	10.69	10.69	0.02
Fluorene	538	26,000	1.30	31.78	31.78	0.06	0.05	0.69	0.69	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.86	21.03	21.03	0.02	0.34	4.78	4.78	0.00
Naphthalene	385	61,700	1.50	36.67	36.67	0.10	0.04	0.62	0.62	0.00
Perylene	967	431	0.43	10.51	10.51	0.01	0.14	1.97	1.97	0.00
Phenanthrene	596	34,300	5.20	127.14	127.14	0.21	0.29	4.08	4.08	0.01
Pyrene	697	9,090	3.70	90.46	90.46	0.13	0.57	8.02	8.02	0.01
	---	**ESBTU FCVi**	--	--	--	4.06	--	--	--	0.14

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-10**				**MLTC14-10**			
		Field Sample ID	**MLTC14-10-SURFFD**				**MLTC14-10-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	6.5	0.065	---	---	6.45	0.0645	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.29	0.29	0.00	0.01	0.22	0.22	0.00
2-Methylnaphthalene	447	154,800	0.03	0.45	0.45	0.00	0.02	0.36	0.36	0.00
Acenaphthene	491	33,400	0.03	0.45	0.45	0.00	0.02	0.36	0.36	0.00
Acenaphthylene	452	24,000	0.04	0.66	0.66	0.00	0.03	0.45	0.45	0.00
Anthracene	594	1,300	0.11	1.69	1.69	0.00	0.08	1.21	1.21	0.00
Benzo[a]anthracene	841	4,153	0.42	6.46	6.46	0.01	0.32	4.96	4.96	0.01
Benzo[a]pyrene	965	3,840	0.48	7.38	7.38	0.01	0.35	5.43	5.43	0.01
Benzo[b]fluoranthene	979	2,169	0.38	5.85	5.85	0.01	0.33	5.12	5.12	0.01
Benzo[e]pyrene	967	4,300	0.29	4.46	4.46	0.00	0.25	3.88	3.88	0.00
Benzo[g,h,i]perylene	1,095	648	0.33	5.08	5.08	0.00	0.28	4.34	4.34	0.00
Benzo[k]fluoranthene	981	1,220	0.45	6.92	6.92	0.01	0.38	5.89	5.89	0.01
C1 Chrysenes	929	--	0.32	4.92	4.92	0.01	0.26	4.03	4.03	0.00
C1 Fluorenes	611	--	0.02	0.34	0.34	0.00	0.02	0.28	0.28	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.63	9.69	9.69	0.01	0.52	8.06	8.06	0.01
C1-Naphthalenes	444	--	0.03	0.52	0.52	0.00	0.03	0.40	0.40	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.20	3.08	3.08	0.00	0.16	2.48	2.48	0.00
C2 Chrysenes	1,008	--	0.13	2.00	2.00	0.00	0.14	2.17	2.17	0.00
C2 Fluorenes	686	--	0.03	0.48	0.48	0.00	0.03	0.45	0.45	0.00
C2-Fluoranthenes/Pyrenes		--	0.31	4.77	4.77		0.24	3.72	3.72	
C2-Naphthalenes	510	--	0.11	1.69	1.69	0.00	0.09	1.32	1.32	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.20	3.08	3.08	0.00	0.17	2.64	2.64	0.00
C3 Chrysenes	1,112	--	0.08	1.18	1.18	0.00	0.06	0.99	0.99	0.00
C3 Fluorenes	769	--	0.05	0.72	0.72	0.00	0.08	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.14	2.15	2.15	0.00	0.12	1.86	1.86	0.00
C3-Naphthalenes	581	--	0.15	2.31	2.31	0.00	0.14	2.17	2.17	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.25	3.85	3.85	0.00	0.22	3.41	3.41	0.00
C4 Chrysenes	1,214	--	0.07	0.00	0.00	0.00	0.08	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.10	1.52	1.52	0.00	0.09	1.38	1.38	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.13	2.00	2.00	0.00	0.13	2.02	2.02	0.00
Chrysene	844	826	0.51	7.85	7.85	0.01	0.42	6.51	6.51	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.12	1.85	1.85	0.00	0.10	1.52	1.52	0.00
Fluoranthene	707	23,870	0.75	11.54	11.54	0.02	0.64	9.92	9.92	0.01
Fluorene	538	26,000	0.05	0.71	0.71	0.00	0.04	0.68	0.68	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.32	4.92	4.92	0.00	0.26	4.03	4.03	0.00
Naphthalene	385	61,700	0.04	0.66	0.66	0.00	0.03	0.50	0.50	0.00
Perylene	967	431	0.13	2.00	2.00	0.00	0.11	1.71	1.71	0.00
Phenanthrene	596	34,300	0.30	4.62	4.62	0.01	0.26	4.03	4.03	0.01
Pyrene	697	9,090	0.58	8.92	8.92	0.01	0.48	7.44	7.44	0.01
	---	**ESBTU FCVi**	--	--	--	0.15	--	--	--	0.12

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-10**				**MLTC14-10**			
		Field Sample ID	**MLTC14-10-0103**				**MLTC14-10-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	9.88	0.0988	---	---	7.83	0.0783	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.04	0.36	0.36	0.00	0.04	0.56	0.56	0.00
2-Methylnaphthalene	447	154,800	0.07	0.71	0.71	0.00	0.08	1.05	1.05	0.00
Acenaphthene	491	33,400	0.08	0.85	0.85	0.00	0.12	1.53	1.53	0.00
Acenaphthylene	452	24,000	0.10	1.01	1.01	0.00	0.14	1.79	1.79	0.00
Anthracene	594	1,300	0.30	3.04	3.04	0.01	0.42	5.36	5.36	0.01
Benzo[a]anthracene	841	4,153	1.00	10.12	10.12	0.01	1.30	16.60	16.60	0.02
Benzo[a]pyrene	965	3,840	1.10	11.13	11.13	0.01	1.30	16.60	16.60	0.02
Benzo[b]fluoranthene	979	2,169	0.94	9.51	9.51	0.01	1.00	12.77	12.77	0.01
Benzo[e]pyrene	967	4,300	0.67	6.78	6.78	0.01	0.82	10.47	10.47	0.01
Benzo[g,h,i]perylene	1,095	648	0.69	6.98	6.98	0.01	0.75	9.58	9.58	0.01
Benzo[k]fluoranthene	981	1,220	0.87	8.81	8.81	0.01	1.00	12.77	12.77	0.01
C1 Chrysenes	929	--	0.96	9.72	9.72	0.01	1.20	15.33	15.33	0.02
C1 Fluorenes	611	--	0.13	1.32	1.32	0.00	0.21	2.68	2.68	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.00	20.24	20.24	0.03	2.60	33.21	33.21	0.04
C1-Naphthalenes	444	--	0.07	0.75	0.75	0.00	0.10	1.28	1.28	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.97	9.82	9.82	0.01	1.40	17.88	17.88	0.03
C2 Chrysenes	1,008	--	0.63	6.38	6.38	0.01	0.93	11.88	11.88	0.01
C2 Fluorenes	686	--	0.37	3.74	3.74	0.01	0.58	7.41	7.41	0.01
C2-Fluoranthenes/Pyrenes		--	1.10	11.13	11.13		1.50	19.16	19.16	
C2-Naphthalenes	510	--	0.37	3.74	3.74	0.01	0.54	6.90	6.90	0.01
C2-Phenanthrenes/Anthracenes	746	--	1.60	16.19	16.19	0.02	2.50	31.93	31.93	0.04
C3 Chrysenes	1,112	--	0.41	4.15	4.15	0.00	0.58	7.41	7.41	0.01
C3 Fluorenes	769	--	0.58	5.87	5.87	0.01	0.97	12.39	12.39	0.02
C3-Fluoranthenes/Pyrenes	949	--	0.78	7.89	7.89	0.01	1.20	15.33	15.33	0.02
C3-Naphthalenes	581	--	1.30	13.16	13.16	0.02	2.10	26.82	26.82	0.05
C3-Phenanthrenes/Anthracenes	829	--	2.60	26.32	26.32	0.03	4.30	54.92	54.92	0.07
C4 Chrysenes	1,214	--	0.16	0.00	0.00	0.00	0.32	4.09	4.09	0.00
C4-Naphthalenes	657	--	1.20	12.15	12.15	0.02	2.00	25.54	25.54	0.04
C4-Phenanthrenes/Anthracenes	913	--	1.70	17.21	17.21	0.02	3.10	39.59	39.59	0.04
Chrysene	844	826	1.20	12.15	12.15	0.01	1.50	19.16	19.16	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.25	2.53	2.53	0.00	0.28	3.58	3.58	0.00
Fluoranthene	707	23,870	1.60	16.19	16.19	0.02	2.10	26.82	26.82	0.04
Fluorene	538	26,000	0.10	1.01	1.01	0.00	0.11	1.40	1.40	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.65	6.58	6.58	0.01	0.71	9.07	9.07	0.01
Naphthalene	385	61,700	0.14	1.42	1.42	0.00	0.27	3.45	3.45	0.01
Perylene	967	431	0.31	3.14	3.14	0.00	0.34	4.34	4.34	0.00
Phenanthrene	596	34,300	0.78	7.89	7.89	0.01	1.00	12.77	12.77	0.02
Pyrene	697	9,090	1.40	14.17	14.17	0.02	1.90	24.27	24.27	0.03
	---	**ESBTU FCVi**	--	--	--	0.35	--	--	--	0.64

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-11**				**MLTC14-11**			
		Field Sample ID	**MLTC14-11-SURF**				**MLTC14-11-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/15/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	1.61	0.0161	---	---	2.08	0.0208	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.01	0.55	0.55	0.00	0.00	0.07	0.07	0.00
2-Methylnaphthalene	447	154,800	0.02	0.99	0.99	0.00	0.00	0.07	0.07	0.00
Acenaphthene	491	33,400	0.01	0.68	0.68	0.00	0.00	0.04	0.04	0.00
Acenaphthylene	452	24,000	0.01	0.50	0.50	0.00	0.00	0.00	0.00	0.00
Anthracene	594	1,300	0.03	1.80	1.80	0.00	0.00	0.11	0.11	0.00
Benzo[a]anthracene	841	4,153	0.12	7.45	7.45	0.01	0.00	0.24	0.24	0.00
Benzo[a]pyrene	965	3,840	0.15	9.32	9.32	0.01	0.00	0.16	0.16	0.00
Benzo[b]fluoranthene	979	2,169	0.13	8.07	8.07	0.01	0.01	0.28	0.28	0.00
Benzo[e]pyrene	967	4,300	0.10	6.09	6.09	0.01	0.00	0.20	0.20	0.00
Benzo[g,h,i]perylene	1,095	648	0.11	6.83	6.83	0.01	0.00	0.24	0.24	0.00
Benzo[k]fluoranthene	981	1,220	0.15	9.32	9.32	0.01	0.00	0.17	0.17	0.00
C1 Chrysenes	929	--	0.11	6.83	6.83	0.01	0.01	0.42	0.42	0.00
C1 Fluorenes	611	--	0.01	0.75	0.75	0.00	0.00	0.16	0.16	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.21	13.04	13.04	0.02	0.02	1.06	1.06	0.00
C1-Naphthalenes	444	--	0.02	1.06	1.06	0.00	0.00	0.09	0.09	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.09	5.40	5.40	0.01	0.02	1.01	1.01	0.00
C2 Chrysenes	1,008	--	0.07	4.16	4.16	0.00	0.02	0.77	0.77	0.00
C2 Fluorenes	686	--	0.03	1.55	1.55	0.00	0.01	0.31	0.31	0.00
C2-Fluoranthenes/Pyrenes		--	0.13	8.07	8.07		0.02	0.96	0.96	
C2-Naphthalenes	510	--	0.06	3.85	3.85	0.01	0.01	0.53	0.53	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.15	9.32	9.32	0.01	0.04	2.07	2.07	0.00
C3 Chrysenes	1,112	--	0.04	2.30	2.30	0.00	0.01	0.48	0.48	0.00
C3 Fluorenes	769	--	0.04	2.61	2.61	0.00	0.01	0.46	0.46	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.08	4.72	4.72	0.00	0.02	0.82	0.82	0.00
C3-Naphthalenes	581	--	0.11	6.83	6.83	0.01	0.03	1.59	1.59	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.22	13.66	13.66	0.02	0.07	3.22	3.22	0.00
C4 Chrysenes	1,214	--	0.02	0.00	0.00	0.00	0.00	0.17	0.17	0.00
C4-Naphthalenes	657	--	0.09	5.78	5.78	0.01	0.06	2.84	2.84	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.12	7.45	7.45	0.01	0.03	1.59	1.59	0.00
Chrysene	844	826	0.16	9.94	9.94	0.01	0.01	0.48	0.48	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.04	2.48	2.48	0.00	0.00	0.04	0.04	0.00
Fluoranthene	707	23,870	0.25	15.53	15.53	0.02	0.01	0.48	0.48	0.00
Fluorene	538	26,000	0.02	1.12	1.12	0.00	0.00	0.10	0.10	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.10	6.21	6.21	0.01	0.00	0.11	0.11	0.00
Naphthalene	385	61,700	0.02	1.37	1.37	0.00	0.00	0.06	0.06	0.00
Perylene	967	431	0.05	3.29	3.29	0.00	0.03	1.35	1.35	0.00
Phenanthrene	596	34,300	0.10	6.21	6.21	0.01	0.01	0.37	0.37	0.00
Pyrene	697	9,090	0.19	11.80	11.80	0.02	0.01	0.44	0.44	0.00
	---	**ESBTU FCVi**	--	--	--	0.25	--	--	--	0.03

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-11**				**MLTC14-11**			
		Field Sample ID	**MLTC14-11-0103**				**MLTC14-11-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	1.24	0.0124	---	---	0.805	0.00805	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.06	0.06	0.00	0.00	0.08	0.08	0.00
2-Methylnaphthalene	447	154,800	0.00	0.06	0.06	0.00	0.00	0.08	0.08	0.00
Acenaphthene	491	33,400	0.00	0.07	0.07	0.00	0.00	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00
Anthracene	594	1,300	0.00	0.16	0.16	0.00	0.00	0.00	0.00	0.00
Benzo[a]anthracene	841	4,153	0.01	0.40	0.40	0.00	0.00	0.15	0.15	0.00
Benzo[a]pyrene	965	3,840	0.00	0.35	0.35	0.00	0.00	0.09	0.09	0.00
Benzo[b]fluoranthene	979	2,169	0.00	0.38	0.38	0.00	0.00	0.17	0.17	0.00
Benzo[e]pyrene	967	4,300	0.00	0.29	0.29	0.00	0.00	0.24	0.24	0.00
Benzo[g,h,i]perylene	1,095	648	0.00	0.31	0.31	0.00	0.00	0.34	0.34	0.00
Benzo[k]fluoranthene	981	1,220	0.00	0.26	0.26	0.00	0.00	0.14	0.14	0.00
C1 Chrysenes	929	--	0.01	0.52	0.52	0.00	0.01	0.83	0.83	0.00
C1 Fluorenes	611	--	0.00	0.21	0.21	0.00	0.00	0.16	0.16	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.02	1.29	1.29	0.00	0.01	1.37	1.37	0.00
C1-Naphthalenes	444	--	0.00	0.09	0.09	0.00	0.00	0.12	0.12	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.02	1.21	1.21	0.00	0.01	1.37	1.37	0.00
C2 Chrysenes	1,008	--	0.01	0.89	0.89	0.00	0.01	1.74	1.74	0.00
C2 Fluorenes	686	--	0.00	0.36	0.36	0.00	0.00	0.45	0.45	0.00
C2-Fluoranthenes/Pyrenes		--	0.01	1.13	1.13		0.02	1.86	1.86	
C2-Naphthalenes	510	--	0.01	0.67	0.67	0.00	0.00	0.58	0.58	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.04	3.23	3.23	0.00	0.03	3.73	3.73	0.00
C3 Chrysenes	1,112	--	0.01	0.59	0.59	0.00	0.01	1.24	1.24	0.00
C3 Fluorenes	769	--	0.01	0.52	0.52	0.00	0.01	0.99	0.99	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.01	1.05	1.05	0.00	0.02	1.86	1.86	0.00
C3-Naphthalenes	581	--	0.02	1.77	1.77	0.00	0.02	2.36	2.36	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.06	4.76	4.76	0.01	0.05	6.09	6.09	0.01
C4 Chrysenes	1,214	--	0.00	0.27	0.27	0.00	0.00	0.60	0.60	0.00
C4-Naphthalenes	657	--	0.03	2.50	2.50	0.00	0.03	3.85	3.85	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.02	1.77	1.77	0.00	0.02	2.98	2.98	0.00
Chrysene	844	826	0.01	0.67	0.67	0.00	0.01	0.72	0.72	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.08	0.08	0.00	0.00	0.04	0.04	0.00
Fluoranthene	707	23,870	0.01	0.67	0.67	0.00	0.00	0.29	0.29	0.00
Fluorene	538	26,000	0.00	0.11	0.11	0.00	0.00	0.05	0.05	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.19	0.19	0.00	0.00	0.06	0.06	0.00
Naphthalene	385	61,700	0.00	0.06	0.06	0.00	0.00	0.10	0.10	0.00
Perylene	967	431	0.01	1.05	1.05	0.00	0.02	2.98	2.98	0.00
Phenanthrene	596	34,300	0.01	0.46	0.46	0.00	0.00	0.26	0.26	0.00
Pyrene	697	9,090	0.01	0.56	0.56	0.00	0.00	0.31	0.31	0.00
	---	**ESBTU FCVi**	--	--	--	0.04	--	--	--	0.04

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-11**				**MLTC14-11**			
		Field Sample ID	**MLTC14-11-0507**				**MLTC14-11-0709**			
		Sample Depth	**5-7**				**7-9**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	0.815	0.00815	---	---	0.666	0.00666	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.00
2-Methylnaphthalene	447	154,800	0.00	0.15	0.15	0.00	0.00	0.00	0.00	0.00
Acenaphthene	491	33,400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	594	1,300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzo[a]anthracene	841	4,153	0.00	0.25	0.25	0.00	0.00	0.13	0.13	0.00
Benzo[a]pyrene	965	3,840	0.00	0.15	0.15	0.00	0.00	0.23	0.23	0.00
Benzo[b]fluoranthene	979	2,169	0.00	0.45	0.45	0.00	0.00	0.27	0.27	0.00
Benzo[e]pyrene	967	4,300	0.00	0.42	0.42	0.00	0.00	0.42	0.42	0.00
Benzo[g,h,i]perylene	1,095	648	0.00	0.45	0.45	0.00	0.00	0.62	0.62	0.00
Benzo[k]fluoranthene	981	1,220	0.00	0.09	0.09	0.00	0.00	0.14	0.14	0.00
C1 Chrysenes	929	--	0.01	1.47	1.47	0.00	0.01	1.50	1.50	0.00
C1 Fluorenes	611	--	0.00	0.25	0.25	0.00	0.00	0.20	0.20	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.02	1.96	1.96	0.00	0.01	2.10	2.10	0.00
C1-Naphthalenes	444	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.03	4.17	4.17	0.01	0.02	3.15	3.15	0.00
C2 Chrysenes	1,008	--	0.01	1.47	1.47	0.00	0.01	1.95	1.95	0.00
C2 Fluorenes	686	--	0.01	0.67	0.67	0.00	0.00	0.63	0.63	0.00
C2-Fluoranthenes/Pyrenes		--	0.02	2.82	2.82		0.02	2.70	2.70	
C2-Naphthalenes	510	--	0.01	1.47	1.47	0.00	0.01	1.50	1.50	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.11	13.50	13.50	0.02	0.06	8.71	8.71	0.01
C3 Chrysenes	1,112	--	0.01	0.97	0.97	0.00	0.01	1.50	1.50	0.00
C3 Fluorenes	769	--	0.01	1.23	1.23	0.00	0.01	1.47	1.47	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.02	2.94	2.94	0.00	0.02	3.15	3.15	0.00
C3-Naphthalenes	581	--	0.04	4.42	4.42	0.01	0.04	5.41	5.41	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.09	10.80	10.80	0.01	0.08	11.56	11.56	0.01
C4 Chrysenes	1,214	--	0.01	0.97	0.97	0.00	0.01	0.98	0.98	0.00
C4-Naphthalenes	657	--	0.08	9.82	9.82	0.01	0.05	7.81	7.81	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.05	5.52	5.52	0.01	0.03	4.80	4.80	0.01
Chrysene	844	826	0.01	1.23	1.23	0.00	0.01	1.37	1.37	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fluoranthene	707	23,870	0.00	0.56	0.56	0.00	0.00	0.48	0.48	0.00
Fluorene	538	26,000	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.07	0.07	0.00	0.00	0.08	0.08	0.00
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.00
Perylene	967	431	0.02	2.21	2.21	0.00	0.02	2.25	2.25	0.00
Phenanthrene	596	34,300	0.01	0.72	0.72	0.00	0.01	0.75	0.75	0.00
Pyrene	697	9,090	0.01	0.74	0.74	0.00	0.00	0.69	0.69	0.00
	---	**ESBTU FCVi**	--	--	--	0.09	--	--	--	0.08

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-12				MLTC14-12			
		Field Sample ID	MLTC14-12-SURF				MLTC14-12-SURFFD			
		Sample Depth	0-0.5				0-0.5			
		Sample Date	10/15/2014				10/15/2014			
	Coc, PAHi, FCVi[a]	Coc, PAHi, Maxi[a]	Conc	Coc	Final		Conc	Coc	Final	
	µg/g oc	µg/g oc	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	6.66	0.0666	---	---	6.42	0.0642	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.06	0.86	0.86	0.00	0.04	0.59	0.59	0.00
2-Methylnaphthalene	447	154,800	0.10	1.49	1.49	0.00	0.07	1.11	1.11	0.00
Acenaphthene	491	33,400	0.06	0.93	0.93	0.00	0.04	0.67	0.67	0.00
Acenaphthylene	452	24,000	0.07	1.05	1.05	0.00	0.05	0.75	0.75	0.00
Anthracene	594	1,300	0.22	3.30	3.30	0.01	0.14	2.18	2.18	0.00
Benzo[a]anthracene	841	4,153	0.88	13.21	13.21	0.02	0.53	8.26	8.26	0.01
Benzo[a]pyrene	965	3,840	1.00	15.02	15.02	0.02	0.65	10.12	10.12	0.01
Benzo[b]fluoranthene	979	2,169	0.91	13.66	13.66	0.01	0.57	8.88	8.88	0.01
Benzo[e]pyrene	967	4,300	0.69	10.36	10.36	0.01	0.44	6.85	6.85	0.01
Benzo[g,h,i]perylene	1,095	648	0.82	12.31	12.31	0.01	0.54	8.41	8.41	0.01
Benzo[k]fluoranthene	981	1,220	1.00	15.02	15.02	0.02	0.65	10.12	10.12	0.01
C1 Chrysenes	929	--	0.74	11.11	11.11	0.01	0.47	7.32	7.32	0.01
C1 Fluorenes	611	--	0.05	0.78	0.78	0.00	0.04	0.59	0.59	0.00
C1-Fluoranthenes/Pyrenes	770	--	1.40	21.02	21.02	0.03	0.91	14.17	14.17	0.02
C1-Naphthalenes	444	--	0.11	1.65	1.65	0.00	0.07	1.15	1.15	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.49	7.36	7.36	0.01	0.31	4.83	4.83	0.01
C2 Chrysenes	1,008	--	0.40	6.01	6.01	0.01	0.24	3.74	3.74	0.00
C2 Fluorenes	686	--	0.12	1.80	1.80	0.00	0.08	1.26	1.26	0.00
C2-Fluoranthenes/Pyrenes		--	0.78	11.71	11.71		0.50	7.79	7.79	
C2-Naphthalenes	510	--	0.31	4.65	4.65	0.01	0.21	3.27	3.27	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.59	8.86	8.86	0.01	0.38	5.92	5.92	0.01
C3 Chrysenes	1,112	--	0.27	4.05	4.05	0.00	0.15	2.34	2.34	0.00
C3 Fluorenes	769	--	0.19	2.85	2.85	0.00	0.12	1.87	1.87	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.48	7.21	7.21	0.01	0.32	4.98	4.98	0.01
C3-Naphthalenes	581	--	0.39	5.86	5.86	0.01	0.27	4.21	4.21	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.90	13.51	13.51	0.02	0.57	8.88	8.88	0.01
C4 Chrysenes	1,214	--	0.18	0.00	0.00	0.00	0.11	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.29	4.35	4.35	0.01	0.20	3.12	3.12	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.62	9.31	9.31	0.01	0.43	6.70	6.70	0.01
Chrysene	844	826	1.20	18.02	18.02	0.02	0.75	11.68	11.68	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.28	4.20	4.20	0.00	0.18	2.80	2.80	0.00
Fluoranthene	707	23,870	1.70	25.53	25.53	0.04	1.10	17.13	17.13	0.02
Fluorene	538	26,000	0.11	1.65	1.65	0.00	0.07	1.06	1.06	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.75	11.26	11.26	0.01	0.49	7.63	7.63	0.01
Naphthalene	385	61,700	0.16	2.40	2.40	0.01	0.12	1.87	1.87	0.00
Perylene	967	431	0.30	4.50	4.50	0.00	0.18	2.80	2.80	0.00
Phenanthrene	596	34,300	0.69	10.36	10.36	0.02	0.44	6.85	6.85	0.01
Pyrene	697	9,090	1.30	19.52	19.52	0.03	0.82	12.77	12.77	0.02
	---	**ESBTU FCVi**	--	--	--	0.36	--	--	--	0.24

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-12**				**MLTC14-12**			
		Field Sample ID	**MLTC14-12-0001**				**MLTC14-12-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/15/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	8.6	0.086	---	---	8.35	0.0835	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.26	0.26	0.00	0.05	0.60	0.60	0.00
2-Methylnaphthalene	447	154,800	0.04	0.45	0.45	0.00	0.06	0.66	0.66	0.00
Acenaphthene	491	33,400	0.03	0.31	0.31	0.00	0.05	0.56	0.56	0.00
Acenaphthylene	452	24,000	0.03	0.33	0.33	0.00	0.04	0.50	0.50	0.00
Anthracene	594	1,300	0.09	0.99	0.99	0.00	0.11	1.32	1.32	0.00
Benzo[a]anthracene	841	4,153	0.40	4.65	4.65	0.01	0.50	5.99	5.99	0.01
Benzo[a]pyrene	965	3,840	0.48	5.58	5.58	0.01	0.57	6.83	6.83	0.01
Benzo[b]fluoranthene	979	2,169	0.53	6.16	6.16	0.01	0.50	5.99	5.99	0.01
Benzo[e]pyrene	967	4,300	0.35	4.07	4.07	0.00	0.38	4.55	4.55	0.00
Benzo[g,h,i]perylene	1,095	648	0.41	4.77	4.77	0.00	0.34	4.07	4.07	0.00
Benzo[k]fluoranthene	981	1,220	0.41	4.77	4.77	0.00	0.37	4.43	4.43	0.00
C1 Chrysenes	929	--	0.30	3.49	3.49	0.00	0.59	7.07	7.07	0.01
C1 Fluorenes	611	--	0.03	0.29	0.29	0.00	0.16	1.92	1.92	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.70	8.14	8.14	0.01	1.20	14.37	14.37	0.02
C1-Naphthalenes	444	--	0.04	0.50	0.50	0.00	0.07	0.89	0.89	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.23	2.67	2.67	0.00	0.77	9.22	9.22	0.01
C2 Chrysenes	1,008	--	0.25	2.91	2.91	0.00	0.79	9.46	9.46	0.01
C2 Fluorenes	686	--	0.05	0.56	0.56	0.00	0.49	5.87	5.87	0.01
C2-Fluoranthenes/Pyrenes		--	0.40	4.65	4.65		1.20	14.37	14.37	
C2-Naphthalenes	510	--	0.15	1.74	1.74	0.00	0.53	6.35	6.35	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.26	3.02	3.02	0.00	1.80	21.56	21.56	0.03
C3 Chrysenes	1,112	--	0.13	1.51	1.51	0.00	0.69	8.26	8.26	0.01
C3 Fluorenes	769	--	0.10	1.16	1.16	0.00	0.80	9.58	9.58	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.30	3.49	3.49	0.00	1.10	13.17	13.17	0.01
C3-Naphthalenes	581	--	0.20	2.33	2.33	0.00	1.50	17.96	17.96	0.03
C3-Phenanthrenes/Anthracenes	829	--	0.51	5.93	5.93	0.01	2.80	33.53	33.53	0.04
C4 Chrysenes	1,214	--	0.08	0.00	0.00	0.00	0.07	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.16	1.86	1.86	0.00	1.50	17.96	17.96	0.03
C4-Phenanthrenes/Anthracenes	913	--	0.37	4.30	4.30	0.00	1.80	21.56	21.56	0.02
Chrysene	844	826	0.53	6.16	6.16	0.01	0.60	7.19	7.19	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.12	1.40	1.40	0.00	0.12	1.44	1.44	0.00
Fluoranthene	707	23,870	0.81	9.42	9.42	0.01	0.96	11.50	11.50	0.02
Fluorene	538	26,000	0.05	0.53	0.53	0.00	0.09	1.13	1.13	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.36	4.19	4.19	0.00	0.29	3.47	3.47	0.00
Naphthalene	385	61,700	0.07	0.76	0.76	0.00	0.06	0.71	0.71	0.00
Perylene	967	431	0.12	1.40	1.40	0.00	0.11	1.32	1.32	0.00
Phenanthrene	596	34,300	0.30	3.49	3.49	0.01	0.29	3.47	3.47	0.01
Pyrene	697	9,090	0.58	6.74	6.74	0.01	0.60	7.19	7.19	0.01
	---	**ESBTU FCVi**	--	--	--	0.13	--	--	--	0.33

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-12**				**MLTC14-13**			
		Field Sample ID	**MLTC14-12-0305**				**MLTC14-13-SURF**			
		Sample Depth	**3-5**				**0-0.5**			
		Sample Date	**10/15/2014**				**10/22/2014**			
	Coc, PAHi, FCVi^{a}	**Coc, PAHi, Maxi^{a}**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**
Total Organic Carbon	--	--	8.21	0.0821	---	---	5.52	0.0552	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.13	1.58	1.58	0.00	0.02	0.38	0.38	0.00
2-Methylnaphthalene	447	154,800	0.14	1.71	1.71	0.00	0.03	0.56	0.56	0.00
Acenaphthene	491	33,400	0.09	1.13	1.13	0.00	0.03	0.47	0.47	0.00
Acenaphthylene	452	24,000	0.08	0.94	0.94	0.00	0.07	1.30	1.30	0.00
Anthracene	594	1,300	0.29	3.53	3.53	0.01	0.15	2.72	2.72	0.00
Benzo[a]anthracene	841	4,153	1.00	12.18	12.18	0.01	1.10	19.93	19.93	0.02
Benzo[a]pyrene	965	3,840	1.20	14.62	14.62	0.02	0.96	17.39	17.39	0.02
Benzo[b]fluoranthene	979	2,169	1.10	13.40	13.40	0.01	1.30	23.55	23.55	0.02
Benzo[e]pyrene	967	4,300	0.79	9.62	9.62	0.01	0.78	14.13	14.13	0.01
Benzo[g,h,i]perylene	1,095	648	0.70	8.53	8.53	0.01	0.71	12.86	12.86	0.01
Benzo[k]fluoranthene	981	1,220	0.70	8.53	8.53	0.01	0.87	15.76	15.76	0.02
C1 Chrysenes	929	--	1.30	15.83	15.83	0.02	0.37	6.70	6.70	0.01
C1 Fluorenes	611	--	0.35	4.26	4.26	0.01	0.02	0.36	0.36	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.70	32.89	32.89	0.04	0.87	15.76	15.76	0.02
C1-Naphthalenes	444	--	0.19	2.31	2.31	0.01	0.04	0.67	0.67	0.00
C1-Phenanthrenes/Anthracenes	670	--	2.20	26.80	26.80	0.04	0.26	4.71	4.71	0.01
C2 Chrysenes	1,008	--	1.90	23.14	23.14	0.02	0.21	3.80	3.80	0.00
C2 Fluorenes	686	--	0.92	11.21	11.21	0.02	0.05	0.92	0.92	0.00
C2-Fluoranthenes/Pyrenes		--	2.50	30.45	30.45		0.40	7.25	7.25	
C2-Naphthalenes	510	--	1.50	18.27	18.27	0.04	0.12	2.17	2.17	0.00
C2-Phenanthrenes/Anthracenes	746	--	4.40	53.59	53.59	0.07	0.27	4.89	4.89	0.01
C3 Chrysenes	1,112	--	1.00	12.18	12.18	0.01	0.11	1.99	1.99	0.00
C3 Fluorenes	769	--	1.60	19.49	19.49	0.03	0.08	1.47	1.47	0.00
C3-Fluoranthenes/Pyrenes	949	--	2.40	29.23	29.23	0.03	0.24	4.35	4.35	0.00
C3-Naphthalenes	581	--	3.70	45.07	45.07	0.08	0.14	2.54	2.54	0.00
C3-Phenanthrenes/Anthracenes	829	--	6.90	84.04	84.04	0.10	0.34	6.16	6.16	0.01
C4 Chrysenes	1,214	--	0.17	0.00	0.00	0.00	0.12	0.00	0.00	0.00
C4-Naphthalenes	657	--	3.20	38.98	38.98	0.06	0.12	2.17	2.17	0.00
C4-Phenanthrenes/Anthracenes	913	--	4.70	57.25	57.25	0.06	0.22	3.99	3.99	0.00
Chrysene	844	826	1.40	17.05	17.05	0.02	1.00	18.12	18.12	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.24	2.92	2.92	0.00	0.21	3.80	3.80	0.00
Fluoranthene	707	23,870	2.00	24.36	24.36	0.03	1.70	30.80	30.80	0.04
Fluorene	538	26,000	0.28	3.41	3.41	0.01	0.05	0.82	0.82	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.59	7.19	7.19	0.01	0.66	11.96	11.96	0.01
Naphthalene	385	61,700	0.14	1.71	1.71	0.00	0.04	0.72	0.72	0.00
Perylene	967	431	0.23	2.80	2.80	0.00	0.29	5.25	5.25	0.01
Phenanthrene	596	34,300	0.95	11.57	11.57	0.02	0.47	8.51	8.51	0.01
Pyrene	697	9,090	1.30	15.83	15.83	0.02	1.20	21.74	21.74	0.03
	---	**ESBTU FCVi**	--	--	--	0.80	--	--	--	0.33

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-13**				**MLTC14-13**			
		Field Sample ID	**MLTC14-13-0001**				**MLTC14-13-0001FD**			
		Sample Depth	**0-1**				**0-1**			
		Sample Date	**10/23/2014**				**10/23/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	6.45	0.0645	---	---	5.85	0.0585	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.22	3.41	3.41	0.01	0.02	0.41	0.41	0.00
2-Methylnaphthalene	447	154,800	0.22	3.41	3.41	0.01	0.04	0.70	0.70	0.00
Acenaphthene	491	33,400	0.37	5.74	5.74	0.01	0.04	0.65	0.65	0.00
Acenaphthylene	452	24,000	0.06	0.96	0.96	0.00	0.07	1.25	1.25	0.00
Anthracene	594	1,300	0.64	9.92	9.92	0.02	0.10	1.62	1.62	0.00
Benzo[a]anthracene	841	4,153	2.00	31.01	31.01	0.04	0.63	10.77	10.77	0.01
Benzo[a]pyrene	965	3,840	1.70	26.36	26.36	0.03	0.62	10.60	10.60	0.01
Benzo[b]fluoranthene	979	2,169	1.70	26.36	26.36	0.03	0.86	14.70	14.70	0.02
Benzo[e]pyrene	967	4,300	1.30	20.16	20.16	0.02	0.52	8.89	8.89	0.01
Benzo[g,h,i]perylene	1,095	648	0.94	14.57	14.57	0.01	0.43	7.35	7.35	0.01
Benzo[k]fluoranthene	981	1,220	1.80	27.91	27.91	0.03	0.56	9.57	9.57	0.01
C1 Chrysenes	929	--	0.81	12.56	12.56	0.01	0.23	3.93	3.93	0.00
C1 Fluorenes	611	--	0.09	1.44	1.44	0.00	0.02	0.29	0.29	0.00
C1-Fluoranthenes/Pyrenes	770	--	1.90	29.46	29.46	0.04	0.60	10.26	10.26	0.01
C1-Naphthalenes	444	--	0.31	4.81	4.81	0.01	0.05	0.79	0.79	0.00
C1-Phenanthrenes/Anthracenes	670	--	1.50	23.26	23.26	0.03	0.18	3.08	3.08	0.00
C2 Chrysenes	1,008	--	0.32	4.96	4.96	0.00	0.12	2.05	2.05	0.00
C2 Fluorenes	686	--	0.29	0.00	0.00	0.00	0.05	0.77	0.77	0.00
C2-Fluoranthenes/Pyrenes		--	1.30	20.16	20.16		0.29	4.96	4.96	
C2-Naphthalenes	510	--	0.63	9.77	9.77	0.02	0.12	2.05	2.05	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.68	10.54	10.54	0.01	0.19	3.25	3.25	0.00
C3 Chrysenes	1,112	--	0.24	3.72	3.72	0.00	0.09	1.50	1.50	0.00
C3 Fluorenes	769	--	0.29	0.00	0.00	0.00	0.05	0.77	0.77	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.46	7.13	7.13	0.01	0.15	2.56	2.56	0.00
C3-Naphthalenes	581	--	0.42	6.51	6.51	0.01	0.14	2.39	2.39	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.52	8.06	8.06	0.01	0.29	4.96	4.96	0.01
C4 Chrysenes	1,214	--	0.29	0.00	0.00	0.00	0.08	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.17	2.64	2.64	0.00	0.10	1.66	1.66	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.27	4.19	4.19	0.00	0.19	3.25	3.25	0.00
Chrysene	844	826	1.90	29.46	29.46	0.03	0.58	9.91	9.91	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.27	4.19	4.19	0.00	0.12	2.05	2.05	0.00
Fluoranthene	707	23,870	5.00	77.52	77.52	0.11	1.10	18.80	18.80	0.03
Fluorene	538	26,000	0.44	6.82	6.82	0.01	0.05	0.80	0.80	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.93	14.42	14.42	0.01	0.41	7.01	7.01	0.01
Naphthalene	385	61,700	0.25	3.88	3.88	0.01	0.04	0.67	0.67	0.00
Perylene	967	431	0.44	6.82	6.82	0.01	0.18	3.08	3.08	0.00
Phenanthrene	596	34,300	5.10	79.07	79.07	0.13	0.40	6.84	6.84	0.01
Pyrene	697	9,090	4.00	62.02	62.02	0.09	0.90	15.38	15.38	0.02
	---	**ESBTU FCVi**	--	--	--	0.77	--	--	--	0.21

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-14**				**MLTC14-14**			
		Field Sample ID	**MLTC14-14-SURF**				**MLTC14-14-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/22/2014**				**10/22/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final Coc[b]**	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.77	0.0377	---	---	3.96	0.0396	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.05	1.27	1.27	0.00	0.22	5.56	5.56	0.01
2-Methylnaphthalene	447	154,800	0.05	1.27	1.27	0.00	0.16	4.04	4.04	0.01
Acenaphthene	491	33,400	0.10	2.65	2.65	0.01	0.28	7.07	7.07	0.01
Acenaphthylene	452	24,000	0.06	1.64	1.64	0.00	0.18	4.55	4.55	0.01
Anthracene	594	1,300	0.23	6.10	6.10	0.01	0.69	17.42	17.42	0.03
Benzo[a]anthracene	841	4,153	1.60	42.44	42.44	0.05	2.30	58.08	58.08	0.07
Benzo[a]pyrene	965	3,840	2.10	55.70	55.70	0.06	2.30	58.08	58.08	0.06
Benzo[b]fluoranthene	979	2,169	1.80	47.75	47.75	0.05	1.60	40.40	40.40	0.04
Benzo[e]pyrene	967	4,300	1.30	34.48	34.48	0.04	1.40	35.35	35.35	0.04
Benzo[g,h,i]perylene	1,095	648	1.50	39.79	39.79	0.04	1.40	35.35	35.35	0.03
Benzo[k]fluoranthene	981	1,220	2.10	55.70	55.70	0.06	2.10	53.03	53.03	0.05
C1 Chrysenes	929	--	1.40	37.14	37.14	0.04	2.70	68.18	68.18	0.07
C1 Fluorenes	611	--	0.25	6.63	6.63	0.01	0.46	11.62	11.62	0.02
C1-Fluoranthenes/Pyrenes	770	--	2.80	74.27	74.27	0.10	5.10	128.79	128.79	0.17
C1-Naphthalenes	444	--	0.08	2.20	2.20	0.00	0.30	7.58	7.58	0.02
C1-Phenanthrenes/Anthracenes	670	--	1.70	45.09	45.09	0.07	3.70	93.43	93.43	0.14
C2 Chrysenes	1,008	--	1.30	34.48	34.48	0.03	2.20	55.56	55.56	0.06
C2 Fluorenes	686	--	0.89	23.61	23.61	0.03	1.40	35.35	35.35	0.05
C2-Fluoranthenes/Pyrenes		--	2.10	55.70	55.70		3.80	95.96	95.96	
C2-Naphthalenes	510	--	0.63	16.71	16.71	0.03	1.50	37.88	37.88	0.07
C2-Phenanthrenes/Anthracenes	746	--	3.30	87.53	87.53	0.12	6.80	171.72	171.72	0.23
C3 Chrysenes	1,112	--	0.48	12.73	12.73	0.01	1.40	35.35	35.35	0.03
C3 Fluorenes	769	--	1.50	39.79	39.79	0.05	2.20	55.56	55.56	0.07
C3-Fluoranthenes/Pyrenes	949	--	1.40	37.14	37.14	0.04	3.20	80.81	80.81	0.09
C3-Naphthalenes	581	--	2.50	66.31	66.31	0.11	4.40	111.11	111.11	0.19
C3-Phenanthrenes/Anthracenes	829	--	4.40	116.71	116.71	0.14	8.90	224.75	224.75	0.27
C4 Chrysenes	1,214	--	0.32	0.00	0.00	0.00	0.71	17.93	17.93	0.01
C4-Naphthalenes	657	--	2.60	68.97	68.97	0.10	4.00	101.01	101.01	0.15
C4-Phenanthrenes/Anthracenes	913	--	3.00	79.58	79.58	0.09	6.20	156.57	156.57	0.17
Chrysene	844	826	2.60	68.97	68.97	0.08	2.90	73.23	73.23	0.09
Dibenz[a,h]anthracene	1,123	2,389	0.49	13.00	13.00	0.01	0.48	12.12	12.12	0.01
Fluoranthene	707	23,870	4.10	108.75	108.75	0.15	4.70	118.69	118.69	0.17
Fluorene	538	26,000	0.18	4.77	4.77	0.01	0.44	11.11	11.11	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	1.40	37.14	37.14	0.03	1.10	27.78	27.78	0.02
Naphthalene	385	61,700	0.07	1.72	1.72	0.00	0.22	5.56	5.56	0.01
Perylene	967	431	0.46	12.20	12.20	0.01	0.49	12.37	12.37	0.01
Phenanthrene	596	34,300	1.70	45.09	45.09	0.08	2.50	63.13	63.13	0.11
Pyrene	697	9,090	2.80	74.27	74.27	0.11	3.30	83.33	83.33	0.12
	---	**ESBTU FCVi**	--	--	--	1.74	--	--	--	2.64

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-14**				**MLTC14-14**			
		Field Sample ID	**MLTC14-14-0103**				**MLTC14-14-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/22/2014**				**10/22/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	2.14	0.0214	---	---	0.867	0.00867	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.22	0.22	0.00	0.00	0.14	0.14	0.00
2-Methylnaphthalene	447	154,800	0.01	0.34	0.34	0.00	0.00	0.14	0.14	0.00
Acenaphthene	491	33,400	0.02	0.84	0.84	0.00	0.00	0.13	0.13	0.00
Acenaphthylene	452	24,000	0.02	0.98	0.98	0.00	0.00	0.10	0.10	0.00
Anthracene	594	1,300	0.07	3.13	3.13	0.01	0.00	0.16	0.16	0.00
Benzo[a]anthracene	841	4,153	0.20	9.35	9.35	0.01	0.01	0.68	0.68	0.00
Benzo[a]pyrene	965	3,840	0.25	11.68	11.68	0.01	0.01	0.69	0.69	0.00
Benzo[b]fluoranthene	979	2,169	0.11	5.14	5.14	0.01	0.01	0.81	0.81	0.00
Benzo[e]pyrene	967	4,300	0.13	6.07	6.07	0.01	0.01	0.69	0.69	0.00
Benzo[g,h,i]perylene	1,095	648	0.14	6.54	6.54	0.01	0.01	0.91	0.91	0.00
Benzo[k]fluoranthene	981	1,220	0.22	10.28	10.28	0.01	0.01	0.72	0.72	0.00
C1 Chrysenes	929	--	0.23	10.75	10.75	0.01	0.01	1.50	1.50	0.00
C1 Fluorenes	611	--	0.02	0.93	0.93	0.00	0.00	0.24	0.24	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.51	23.83	23.83	0.03	0.02	2.54	2.54	0.00
C1-Naphthalenes	444	--	0.01	0.45	0.45	0.00	0.00	0.20	0.20	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.22	10.28	10.28	0.02	0.01	1.61	1.61	0.00
C2 Chrysenes	1,008	--	0.13	6.07	6.07	0.01	0.01	1.27	1.27	0.00
C2 Fluorenes	686	--	0.04	1.78	1.78	0.00	0.01	0.68	0.68	0.00
C2-Fluoranthenes/Pyrenes		--	0.26	12.15	12.15		0.02	2.19	2.19	
C2-Naphthalenes	510	--	0.05	2.43	2.43	0.00	0.01	0.82	0.82	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.24	11.21	11.21	0.02	0.03	3.46	3.46	0.00
C3 Chrysenes	1,112	--	0.05	2.43	2.43	0.00	0.01	0.80	0.80	0.00
C3 Fluorenes	769	--	0.05	2.29	2.29	0.00	0.01	0.93	0.93	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.14	6.54	6.54	0.01	0.02	1.73	1.73	0.00
C3-Naphthalenes	581	--	0.11	5.14	5.14	0.01	0.02	2.42	2.42	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.29	13.55	13.55	0.02	0.05	5.42	5.42	0.01
C4 Chrysenes	1,214	--	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.08	3.93	3.93	0.01	0.03	3.58	3.58	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.18	8.41	8.41	0.01	0.03	3.11	3.11	0.00
Chrysene	844	826	0.27	12.62	12.62	0.01	0.01	1.38	1.38	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.04	1.87	1.87	0.00	0.00	0.22	0.22	0.00
Fluoranthene	707	23,870	0.27	12.62	12.62	0.02	0.01	1.38	1.38	0.00
Fluorene	538	26,000	0.02	0.93	0.93	0.00	0.00	0.10	0.10	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.11	5.14	5.14	0.00	0.00	0.55	0.55	0.00
Naphthalene	385	61,700	0.01	0.39	0.39	0.00	0.00	0.13	0.13	0.00
Perylene	967	431	0.08	3.88	3.88	0.00	0.04	4.50	4.50	0.00
Phenanthrene	596	34,300	0.15	7.01	7.01	0.01	0.01	0.99	0.99	0.00
Pyrene	697	9,090	0.29	13.55	13.55	0.02	0.01	1.15	1.15	0.00
	---	**ESBTU FCVi**	--	--	--	0.27	--	--	--	0.06

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-14**				**MLTC14-15**			
		Field Sample ID	**MLTC14-14-0507**				**MLTC14-15-SURF**			
		Sample Depth	**5-7**				**0-0.5**			
		Sample Date	**10/22/2014**				**10/22/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.58	0.0358	---	---	4.05	0.0405	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.03	0.03	0.00	0.13	3.21	3.21	0.01
2-Methylnaphthalene	447	154,800	0.00	0.03	0.03	0.00	0.14	3.46	3.46	0.01
Acenaphthene	491	33,400	0.01	0.20	0.20	0.00	0.73	18.02	18.02	0.04
Acenaphthylene	452	24,000	0.01	0.00	0.00	0.00	0.16	3.95	3.95	0.01
Anthracene	594	1,300	0.01	0.39	0.39	0.00	1.30	32.10	32.10	0.05
Benzo[a]anthracene	841	4,153	0.03	0.70	0.70	0.00	9.80	241.98	241.98	0.29
Benzo[a]pyrene	965	3,840	0.02	0.53	0.53	0.00	9.00	222.22	222.22	0.23
Benzo[b]fluoranthene	979	2,169	0.02	0.45	0.45	0.00	8.10	200.00	200.00	0.20
Benzo[e]pyrene	967	4,300	0.01	0.34	0.34	0.00	6.40	158.02	158.02	0.16
Benzo[g,h,i]perylene	1,095	648	0.01	0.34	0.34	0.00	5.40	133.33	133.33	0.12
Benzo[k]fluoranthene	981	1,220	0.02	0.56	0.56	0.00	10.00	246.91	246.91	0.25
C1 Chrysenes	929	--	0.02	0.42	0.42	0.00	3.10	76.54	76.54	0.08
C1 Fluorenes	611	--	0.00	0.06	0.06	0.00	0.22	5.43	5.43	0.01
C1-Fluoranthenes/Pyrenes	770	--	0.04	1.12	1.12	0.00	10.00	246.91	246.91	0.32
C1-Naphthalenes	444	--	0.01	0.00	0.00	0.00	0.20	4.94	4.94	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.02	0.42	0.42	0.00	3.50	86.42	86.42	0.13
C2 Chrysenes	1,008	--	0.01	0.27	0.27	0.00	1.40	34.57	34.57	0.03
C2 Fluorenes	686	--	0.00	0.14	0.14	0.00	2.30	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	0.02	0.50	0.50		3.60	88.89	88.89	
C2-Naphthalenes	510	--	0.01	0.15	0.15	0.00	0.68	16.79	16.79	0.03
C2-Phenanthrenes/Anthracenes	746	--	0.03	0.95	0.95	0.00	2.20	54.32	54.32	0.07
C3 Chrysenes	1,112	--	0.01	0.15	0.15	0.00	2.30	0.00	0.00	0.00
C3 Fluorenes	769	--	0.01	0.20	0.20	0.00	2.30	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.02	0.42	0.42	0.00	1.70	41.98	41.98	0.04
C3-Naphthalenes	581	--	0.02	0.42	0.42	0.00	1.00	24.69	24.69	0.04
C3-Phenanthrenes/Anthracenes	829	--	0.04	1.17	1.17	0.00	2.40	59.26	59.26	0.07
C4 Chrysenes	1,214	--	0.01	0.00	0.00	0.00	2.30	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.02	0.67	0.67	0.00	0.70	17.28	17.28	0.03
C4-Phenanthrenes/Anthracenes	913	--	0.02	0.61	0.61	0.00	1.10	27.16	27.16	0.03
Chrysene	844	826	0.03	0.81	0.81	0.00	11.00	271.60	271.60	0.32
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.11	0.11	0.00	1.70	41.98	41.98	0.04
Fluoranthene	707	23,870	0.07	1.98	1.98	0.00	26.00	641.98	641.98	0.91
Fluorene	538	26,000	0.01	0.22	0.22	0.00	1.10	27.16	27.16	0.05
Indeno[1,2,3-c,d]pyrene	1,115	--	0.01	0.28	0.28	0.00	4.90	120.99	120.99	0.11
Naphthalene	385	61,700	0.00	0.03	0.03	0.00	0.19	4.69	4.69	0.01
Perylene	967	431	0.03	0.73	0.73	0.00	2.50	61.73	61.73	0.06
Phenanthrene	596	34,300	0.06	1.62	1.62	0.00	14.00	345.68	345.68	0.58
Pyrene	697	9,090	0.05	1.42	1.42	0.00	21.00	518.52	518.52	0.74
	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	5.05

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-15**				**MLTC14-15**			
		Field Sample ID	**MLTC14-15-0001**				**MLTC14-15-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/22/2014**				**10/22/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	2.69	0.0269	---	---	1.35	0.0135	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.05	1.97	1.97	0.00	0.01	0.96	0.96	0.00
2-Methylnaphthalene	447	154,800	0.08	2.86	2.86	0.01	0.02	1.26	1.26	0.00
Acenaphthene	491	33,400	0.28	10.41	10.41	0.02	0.02	1.78	1.78	0.00
Acenaphthylene	452	24,000	0.03	1.15	1.15	0.00	0.01	0.41	0.41	0.00
Anthracene	594	1,300	0.72	26.77	26.77	0.05	0.07	5.33	5.33	0.01
Benzo[a]anthracene	841	4,153	2.20	81.78	81.78	0.10	0.20	14.81	14.81	0.02
Benzo[a]pyrene	965	3,840	1.90	70.63	70.63	0.07	0.13	9.63	9.63	0.01
Benzo[b]fluoranthene	979	2,169	2.10	78.07	78.07	0.08	0.16	11.85	11.85	0.01
Benzo[e]pyrene	967	4,300	1.40	52.04	52.04	0.05	0.10	7.41	7.41	0.01
Benzo[g,h,i]perylene	1,095	648	1.10	40.89	40.89	0.04	0.07	5.41	5.41	0.00
Benzo[k]fluoranthene	981	1,220	1.80	66.91	66.91	0.07	0.12	8.89	8.89	0.01
C1 Chrysenes	929	--	0.69	25.65	25.65	0.03	0.10	7.04	7.04	0.01
C1 Fluorenes	611	--	0.07	2.49	2.49	0.00	0.02	1.41	1.41	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.20	81.78	81.78	0.11	0.24	17.78	17.78	0.02
C1-Naphthalenes	444	--	0.10	3.61	3.61	0.01	0.02	1.48	1.48	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.94	34.94	34.94	0.05	0.19	14.07	14.07	0.02
C2 Chrysenes	1,008	--	0.28	10.41	10.41	0.01	0.06	4.07	4.07	0.00
C2 Fluorenes	686	--	0.11	4.09	4.09	0.01	0.03	2.44	2.44	0.00
C2-Fluoranthenes/Pyrenes		--	0.86	31.97	31.97		0.13	9.63	9.63	
C2-Naphthalenes	510	--	0.31	11.52	11.52	0.02	0.13	9.63	9.63	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.58	21.56	21.56	0.03	0.17	12.59	12.59	0.02
C3 Chrysenes	1,112	--	0.34	0.00	0.00	0.00	0.03	2.07	2.07	0.00
C3 Fluorenes	769	--	0.09	3.46	3.46	0.00	0.04	2.74	2.74	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.34	12.64	12.64	0.01	0.07	5.11	5.11	0.01
C3-Naphthalenes	581	--	0.40	14.87	14.87	0.03	0.23	17.04	17.04	0.03
C3-Phenanthrenes/Anthracenes	829	--	0.78	29.00	29.00	0.03	0.21	15.56	15.56	0.02
C4 Chrysenes	1,214	--	0.34	0.00	0.00	0.00	0.03	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.28	10.41	10.41	0.02	0.16	11.85	11.85	0.02
C4-Phenanthrenes/Anthracenes	913	--	0.80	29.74	29.74	0.03	0.11	8.15	8.15	0.01
Chrysene	844	826	2.20	81.78	81.78	0.10	0.17	12.59	12.59	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.33	12.27	12.27	0.01	0.02	1.78	1.78	0.00
Fluoranthene	707	23,870	5.90	219.33	219.33	0.31	0.39	28.89	28.89	0.04
Fluorene	538	26,000	0.40	14.87	14.87	0.03	0.04	2.96	2.96	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	1.00	37.17	37.17	0.03	0.07	5.04	5.04	0.00
Naphthalene	385	61,700	0.08	3.05	3.05	0.01	0.01	0.49	0.49	0.00
Perylene	967	431	0.50	18.59	18.59	0.02	0.06	4.30	4.30	0.00
Phenanthrene	596	34,300	3.80	141.26	141.26	0.24	0.30	22.22	22.22	0.04
Pyrene	697	9,090	4.50	167.29	167.29	0.24	0.31	22.96	22.96	0.03
	---	**ESBTU FCVi**	--	--	--	1.84	--	--	--	0.40

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-16				MLTC14-16			
		Field Sample ID	MLTC14-16-SURF				MLTC14-16-0001			
		Sample Depth	0-0.5				0-1			
		Sample Date	10/22/2014				10/22/2014			
	Coc, PAHi, FCVi[a]	Coc, PAHi, Maxi[a]	Conc	Coc	Final		Conc	Coc	Final	
	µg/g oc	µg/g oc	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	6.78	0.0678	---	---	5.73	0.0573	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.11	1.62	1.62	0.00	0.11	1.92	1.92	0.00
2-Methylnaphthalene	447	154,800	0.14	2.06	2.06	0.00	0.12	2.09	2.09	0.00
Acenaphthene	491	33,400	0.12	1.77	1.77	0.00	0.12	2.09	2.09	0.00
Acenaphthylene	452	24,000	0.11	1.62	1.62	0.00	0.11	1.92	1.92	0.00
Anthracene	594	1,300	0.35	5.16	5.16	0.01	0.36	6.28	6.28	0.01
Benzo[a]anthracene	841	4,153	1.50	22.12	22.12	0.03	1.80	31.41	31.41	0.04
Benzo[a]pyrene	965	3,840	1.40	20.65	20.65	0.02	1.60	27.92	27.92	0.03
Benzo[b]fluoranthene	979	2,169	1.90	28.02	28.02	0.03	1.80	31.41	31.41	0.03
Benzo[e]pyrene	967	4,300	1.10	16.22	16.22	0.02	1.30	22.69	22.69	0.02
Benzo[g,h,i]perylene	1,095	648	0.77	11.36	11.36	0.01	0.97	16.93	16.93	0.02
Benzo[k]fluoranthene	981	1,220	1.20	17.70	17.70	0.02	1.50	26.18	26.18	0.03
C1 Chrysenes	929	--	1.00	14.75	14.75	0.02	1.20	20.94	20.94	0.02
C1 Fluorenes	611	--	0.27	3.98	3.98	0.01	0.26	4.54	4.54	0.01
C1-Fluoranthenes/Pyrenes	770	--	2.50	36.87	36.87	0.05	2.60	45.38	45.38	0.06
C1-Naphthalenes	444	--	0.18	2.65	2.65	0.01	0.16	2.79	2.79	0.01
C1-Phenanthrenes/Anthracenes	670	--	2.30	33.92	33.92	0.05	2.40	41.88	41.88	0.06
C2 Chrysenes	1,008	--	0.99	14.60	14.60	0.01	0.94	16.40	16.40	0.02
C2 Fluorenes	686	--	0.98	14.45	14.45	0.02	1.00	17.45	17.45	0.03
C2-Fluoranthenes/Pyrenes		--	1.90	28.02	28.02		1.90	33.16	33.16	
C2-Naphthalenes	510	--	1.20	17.70	17.70	0.03	1.20	20.94	20.94	0.04
C2-Phenanthrenes/Anthracenes	746	--	4.00	59.00	59.00	0.08	4.40	76.79	76.79	0.10
C3 Chrysenes	1,112	--	0.67	9.88	9.88	0.01	0.58	10.12	10.12	0.01
C3 Fluorenes	769	--	1.30	19.17	19.17	0.02	1.40	24.43	24.43	0.03
C3-Fluoranthenes/Pyrenes	949	--	1.40	20.65	20.65	0.02	1.50	26.18	26.18	0.03
C3-Naphthalenes	581	--	3.20	47.20	47.20	0.08	3.20	55.85	55.85	0.10
C3-Phenanthrenes/Anthracenes	829	--	5.50	81.12	81.12	0.10	4.90	85.51	85.51	0.10
C4 Chrysenes	1,214	--	0.23	0.00	0.00	0.00	0.22	0.00	0.00	0.00
C4-Naphthalenes	657	--	2.90	42.77	42.77	0.07	2.90	50.61	50.61	0.08
C4-Phenanthrenes/Anthracenes	913	--	3.30	48.67	48.67	0.05	3.10	54.10	54.10	0.06
Chrysene	844	826	1.60	23.60	23.60	0.03	1.90	33.16	33.16	0.04
Dibenz[a,h]anthracene	1,123	2,389	0.23	3.39	3.39	0.00	0.30	5.24	5.24	0.00
Fluoranthene	707	23,870	2.70	39.82	39.82	0.06	3.20	55.85	55.85	0.08
Fluorene	538	26,000	0.19	2.80	2.80	0.01	0.25	4.36	4.36	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.69	10.18	10.18	0.01	0.87	15.18	15.18	0.01
Naphthalene	385	61,700	0.18	2.65	2.65	0.01	0.16	2.79	2.79	0.01
Perylene	967	431	0.36	5.31	5.31	0.01	0.43	7.50	7.50	0.01
Phenanthrene	596	34,300	1.60	23.60	23.60	0.04	1.70	29.67	29.67	0.05
Pyrene	697	9,090	2.40	35.40	35.40	0.05	2.40	41.88	41.88	0.06
	---	**ESBTU FCVi**	--	--	--	0.95	--	--	--	1.17

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-16**				**MLTC14-16**			
		Field Sample ID	**MLTC14-16-0103**				**MLTC14-16-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/22/2014**				**10/22/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.74	0.0574	---	---	6.31	0.0631	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.20	3.48	3.48	0.01	0.65	10.30	10.30	0.02
2-Methylnaphthalene	447	154,800	0.16	2.79	2.79	0.01	0.95	15.06	15.06	0.03
Acenaphthene	491	33,400	0.17	2.96	2.96	0.01	0.59	9.35	9.35	0.02
Acenaphthylene	452	24,000	0.13	2.26	2.26	0.01	0.24	3.80	3.80	0.01
Anthracene	594	1,300	0.56	9.76	9.76	0.02	1.00	15.85	15.85	0.03
Benzo[a]anthracene	841	4,153	2.00	34.84	34.84	0.04	3.10	49.13	49.13	0.06
Benzo[a]pyrene	965	3,840	1.50	26.13	26.13	0.03	2.00	31.70	31.70	0.03
Benzo[b]fluoranthene	979	2,169	1.70	29.62	29.62	0.03	2.40	38.03	38.03	0.04
Benzo[e]pyrene	967	4,300	1.20	20.91	20.91	0.02	1.50	23.77	23.77	0.02
Benzo[g,h,i]perylene	1,095	648	0.80	13.94	13.94	0.01	0.95	15.06	15.06	0.01
Benzo[k]fluoranthene	981	1,220	1.40	24.39	24.39	0.02	1.60	25.36	25.36	0.03
C1 Chrysenes	929	--	1.40	24.39	24.39	0.03	2.60	41.20	41.20	0.04
C1 Fluorenes	611	--	0.36	6.27	6.27	0.01	0.61	9.67	9.67	0.02
C1-Fluoranthenes/Pyrenes	770	--	3.30	57.49	57.49	0.07	5.20	82.41	82.41	0.11
C1-Naphthalenes	444	--	0.25	4.36	4.36	0.01	1.10	17.43	17.43	0.04
C1-Phenanthrenes/Anthracenes	670	--	3.20	55.75	55.75	0.08	5.90	93.50	93.50	0.14
C2 Chrysenes	1,008	--	1.20	20.91	20.91	0.02	2.50	39.62	39.62	0.04
C2 Fluorenes	686	--	1.20	20.91	20.91	0.03	1.80	28.53	28.53	0.04
C2-Fluoranthenes/Pyrenes		--	2.70	47.04	47.04		4.30	68.15	68.15	
C2-Naphthalenes	510	--	1.70	29.62	29.62	0.06	3.70	58.64	58.64	0.11
C2-Phenanthrenes/Anthracenes	746	--	6.00	104.53	104.53	0.14	12.00	190.17	190.17	0.25
C3 Chrysenes	1,112	--	0.77	13.41	13.41	0.01	1.60	25.36	25.36	0.02
C3 Fluorenes	769	--	1.70	29.62	29.62	0.04	3.00	47.54	47.54	0.06
C3-Fluoranthenes/Pyrenes	949	--	1.90	33.10	33.10	0.03	3.80	60.22	60.22	0.06
C3-Naphthalenes	581	--	4.10	71.43	71.43	0.12	6.20	98.26	98.26	0.17
C3-Phenanthrenes/Anthracenes	829	--	7.90	137.63	137.63	0.17	15.00	237.72	237.72	0.29
C4 Chrysenes	1,214	--	0.29	0.00	0.00	0.00	0.81	12.84	12.84	0.01
C4-Naphthalenes	657	--	3.60	62.72	62.72	0.10	5.50	87.16	87.16	0.13
C4-Phenanthrenes/Anthracenes	913	--	5.00	87.11	87.11	0.10	10.00	158.48	158.48	0.17
Chrysene	844	826	1.90	33.10	33.10	0.04	2.80	44.37	44.37	0.05
Dibenz[a,h]anthracene	1,123	2,389	0.26	4.53	4.53	0.00	0.29	4.60	4.60	0.00
Fluoranthene	707	23,870	3.60	62.72	62.72	0.09	6.20	98.26	98.26	0.14
Fluorene	538	26,000	0.55	9.58	9.58	0.02	0.96	15.21	15.21	0.03
Indeno[1,2,3-c,d]pyrene	1,115	--	0.73	12.72	12.72	0.01	0.89	14.10	14.10	0.01
Naphthalene	385	61,700	0.18	3.14	3.14	0.01	0.88	13.95	13.95	0.04
Perylene	967	431	0.43	7.49	7.49	0.01	0.53	8.40	8.40	0.01
Phenanthrene	596	34,300	2.40	41.81	41.81	0.07	4.10	64.98	64.98	0.11
Pyrene	697	9,090	2.90	50.52	50.52	0.07	4.30	68.15	68.15	0.10
	---	**ESBTU FCVi**	--	--	--	1.49	--	--	--	2.39

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-16**				**MLTC14-17**			
		Field Sample ID	**MLTC14-16-0507**				**MLTC14-17-SURF**			
		Sample Depth	**5-7**				**0-0.5**			
		Sample Date	**10/22/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	7.01	0.0701	---	---	7.61	0.0761	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	1.50	21.40	21.40	0.05	0.36	4.73	4.73	0.01
2-Methylnaphthalene	447	154,800	2.40	34.24	34.24	0.08	0.31	4.07	4.07	0.01
Acenaphthene	491	33,400	2.20	31.38	31.38	0.06	0.26	3.42	3.42	0.01
Acenaphthylene	452	24,000	0.32	4.56	4.56	0.01	0.24	3.15	3.15	0.01
Anthracene	594	1,300	1.80	25.68	25.68	0.04	0.94	12.35	12.35	0.02
Benzo[a]anthracene	841	4,153	3.30	47.08	47.08	0.06	3.50	45.99	45.99	0.05
Benzo[a]pyrene	965	3,840	2.10	29.96	29.96	0.03	2.40	31.54	31.54	0.03
Benzo[b]fluoranthene	979	2,169	1.90	27.10	27.10	0.03	3.00	39.42	39.42	0.04
Benzo[e]pyrene	967	4,300	1.50	21.40	21.40	0.02	2.00	26.28	26.28	0.03
Benzo[g,h,i]perylene	1,095	648	0.99	14.12	14.12	0.01	1.50	19.71	19.71	0.02
Benzo[k]fluoranthene	981	1,220	1.90	27.10	27.10	0.03	2.00	26.28	26.28	0.03
C1 Chrysenes	929	--	2.80	39.94	39.94	0.04	2.70	35.48	35.48	0.04
C1 Fluorenes	611	--	0.70	9.99	9.99	0.02	0.57	7.49	7.49	0.01
C1-Fluoranthenes/Pyrenes	770	--	6.30	89.87	89.87	0.12	6.10	80.16	80.16	0.10
C1-Naphthalenes	444	--	2.60	37.09	37.09	0.08	0.46	6.04	6.04	0.01
C1-Phenanthrenes/Anthracenes	670	--	6.90	98.43	98.43	0.15	5.60	73.59	73.59	0.11
C2 Chrysenes	1,008	--	2.40	34.24	34.24	0.03	2.40	31.54	31.54	0.03
C2 Fluorenes	686	--	2.00	28.53	28.53	0.04	2.00	26.28	26.28	0.04
C2-Fluoranthenes/Pyrenes		--	4.80	68.47	68.47		4.40	57.82	57.82	
C2-Naphthalenes	510	--	5.70	81.31	81.31	0.16	3.60	47.31	47.31	0.09
C2-Phenanthrenes/Anthracenes	746	--	13.00	185.45	185.45	0.25	10.00	131.41	131.41	0.18
C3 Chrysenes	1,112	--	1.60	22.82	22.82	0.02	1.40	18.40	18.40	0.02
C3 Fluorenes	769	--	3.00	42.80	42.80	0.06	2.90	38.11	38.11	0.05
C3-Fluoranthenes/Pyrenes	949	--	4.60	65.62	65.62	0.07	3.80	49.93	49.93	0.05
C3-Naphthalenes	581	--	8.20	116.98	116.98	0.20	7.50	98.55	98.55	0.17
C3-Phenanthrenes/Anthracenes	829	--	17.00	242.51	242.51	0.29	16.00	210.25	210.25	0.25
C4 Chrysenes	1,214	--	0.61	8.70	8.70	0.01	0.38	0.00	0.00	0.00
C4-Naphthalenes	657	--	6.20	88.45	88.45	0.13	6.40	84.10	84.10	0.13
C4-Phenanthrenes/Anthracenes	913	--	11.00	156.92	156.92	0.17	11.00	144.55	144.55	0.16
Chrysene	844	826	2.90	41.37	41.37	0.05	3.10	40.74	40.74	0.05
Dibenz[a,h]anthracene	1,123	2,389	0.30	4.28	4.28	0.00	0.42	5.52	5.52	0.00
Fluoranthene	707	23,870	6.50	92.72	92.72	0.13	5.80	76.22	76.22	0.11
Fluorene	538	26,000	1.70	24.25	24.25	0.05	1.00	13.14	13.14	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	0.89	12.70	12.70	0.01	1.30	17.08	17.08	0.02
Naphthalene	385	61,700	1.10	15.69	15.69	0.04	0.38	4.99	4.99	0.01
Perylene	967	431	0.53	7.56	7.56	0.01	0.64	8.41	8.41	0.01
Phenanthrene	596	34,300	6.90	98.43	98.43	0.17	3.90	51.25	51.25	0.09
Pyrene	697	9,090	5.30	75.61	75.61	0.11	5.40	70.96	70.96	0.10
	---	**ESBTU FCVi**	--	--	--	2.63	--	--	--	2.04

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-17**				**MLTC14-17**			
		Field Sample ID	**MLTC14-17-0001**				**MLTC14-17-0001FD**			
		Sample Depth	**0-1**				**0-1**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	7.71	0.0771	---	---	7.87	0.0787	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.46	5.97	5.97	0.01	0.34	4.32	4.32	0.01
2-Methylnaphthalene	447	154,800	0.56	7.26	7.26	0.02	0.42	5.34	5.34	0.01
Acenaphthene	491	33,400	0.32	4.15	4.15	0.01	0.23	2.92	2.92	0.01
Acenaphthylene	452	24,000	0.25	3.24	3.24	0.01	0.20	2.54	2.54	0.01
Anthracene	594	1,300	0.82	10.64	10.64	0.02	0.64	8.13	8.13	0.01
Benzo[a]anthracene	841	4,153	3.10	40.21	40.21	0.05	2.40	30.50	30.50	0.04
Benzo[a]pyrene	965	3,840	1.90	24.64	24.64	0.03	1.40	17.79	17.79	0.02
Benzo[b]fluoranthene	979	2,169	2.00	25.94	25.94	0.03	1.50	19.06	19.06	0.02
Benzo[e]pyrene	967	4,300	1.70	22.05	22.05	0.02	1.20	15.25	15.25	0.02
Benzo[g,h,i]perylene	1,095	648	1.00	12.97	12.97	0.01	0.79	10.04	10.04	0.01
Benzo[k]fluoranthene	981	1,220	1.90	24.64	24.64	0.03	1.40	17.79	17.79	0.02
C1 Chrysenes	929	--	2.90	37.61	37.61	0.04	2.30	29.22	29.22	0.03
C1 Fluorenes	611	--	0.64	8.30	8.30	0.01	0.52	6.61	6.61	0.01
C1-Fluoranthenes/Pyrenes	770	--	6.50	84.31	84.31	0.11	5.00	63.53	63.53	0.08
C1-Naphthalenes	444	--	0.68	8.82	8.82	0.02	0.52	6.61	6.61	0.01
C1-Phenanthrenes/Anthracenes	670	--	6.00	77.82	77.82	0.12	4.70	59.72	59.72	0.09
C2 Chrysenes	1,008	--	3.30	42.80	42.80	0.04	1.90	24.14	24.14	0.02
C2 Fluorenes	686	--	2.30	29.83	29.83	0.04	1.70	21.60	21.60	0.03
C2-Fluoranthenes/Pyrenes		--	5.60	72.63	72.63		4.80	60.99	60.99	
C2-Naphthalenes	510	--	4.10	53.18	53.18	0.10	3.00	38.12	38.12	0.07
C2-Phenanthrenes/Anthracenes	746	--	14.00	181.58	181.58	0.24	11.00	139.77	139.77	0.19
C3 Chrysenes	1,112	--	2.20	28.53	28.53	0.03	1.20	15.25	15.25	0.01
C3 Fluorenes	769	--	3.40	44.10	44.10	0.06	2.40	30.50	30.50	0.04
C3-Fluoranthenes/Pyrenes	949	--	5.70	73.93	73.93	0.08	4.30	54.64	54.64	0.06
C3-Naphthalenes	581	--	8.00	103.76	103.76	0.18	6.20	78.78	78.78	0.14
C3-Phenanthrenes/Anthracenes	829	--	23.00	298.31	298.31	0.36	16.00	203.30	203.30	0.25
C4 Chrysenes	1,214	--	0.84	10.89	10.89	0.01	0.68	8.64	8.64	0.01
C4-Naphthalenes	657	--	7.30	94.68	94.68	0.14	5.30	67.34	67.34	0.10
C4-Phenanthrenes/Anthracenes	913	--	16.00	207.52	207.52	0.23	11.00	139.77	139.77	0.15
Chrysene	844	826	2.90	37.61	37.61	0.04	2.30	29.22	29.22	0.03
Dibenz[a,h]anthracene	1,123	2,389	0.30	3.89	3.89	0.00	0.24	3.05	3.05	0.00
Fluoranthene	707	23,870	5.20	67.44	67.44	0.10	4.20	53.37	53.37	0.08
Fluorene	538	26,000	0.90	11.67	11.67	0.02	0.80	10.17	10.17	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	0.89	11.54	11.54	0.01	0.71	9.02	9.02	0.01
Naphthalene	385	61,700	0.34	4.41	4.41	0.01	0.22	2.80	2.80	0.01
Perylene	967	431	0.49	6.36	6.36	0.01	0.37	4.70	4.70	0.00
Phenanthrene	596	34,300	3.30	42.80	42.80	0.07	2.60	33.04	33.04	0.06
Pyrene	697	9,090	4.90	63.55	63.55	0.09	3.50	44.47	44.47	0.06
	---	**ESBTU FCVi**	--	--	--	2.28	--	--	--	1.66

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-17**				**MLTC14-17**			
		Field Sample ID	**MLTC14-17-0103**				**MLTC14-17-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	8.18	0.0818	---	---	5.93	0.0593	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.40	4.89	4.89	0.01	0.30	5.06	5.06	0.01
2-Methylnaphthalene	447	154,800	0.51	6.23	6.23	0.01	0.42	7.08	7.08	0.02
Acenaphthene	491	33,400	0.41	5.01	5.01	0.01	0.31	5.23	5.23	0.01
Acenaphthylene	452	24,000	0.31	3.79	3.79	0.01	0.26	4.38	4.38	0.01
Anthracene	594	1,300	1.20	14.67	14.67	0.02	1.00	16.86	16.86	0.03
Benzo[a]anthracene	841	4,153	3.00	36.67	36.67	0.04	3.20	53.96	53.96	0.06
Benzo[a]pyrene	965	3,840	2.50	30.56	30.56	0.03	2.90	48.90	48.90	0.05
Benzo[b]fluoranthene	979	2,169	1.90	23.23	23.23	0.02	1.80	30.35	30.35	0.03
Benzo[e]pyrene	967	4,300	1.80	22.00	22.00	0.02	1.80	30.35	30.35	0.03
Benzo[g,h,i]perylene	1,095	648	1.70	20.78	20.78	0.02	1.90	32.04	32.04	0.03
Benzo[k]fluoranthene	981	1,220	2.80	34.23	34.23	0.03	2.60	43.84	43.84	0.04
C1 Chrysenes	929	--	3.60	44.01	44.01	0.05	4.10	69.14	69.14	0.07
C1 Fluorenes	611	--	0.63	7.70	7.70	0.01	0.44	7.42	7.42	0.01
C1-Fluoranthenes/Pyrenes	770	--	7.20	88.02	88.02	0.11	7.30	123.10	123.10	0.16
C1-Naphthalenes	444	--	0.68	8.31	8.31	0.02	0.54	9.11	9.11	0.02
C1-Phenanthrenes/Anthracenes	670	--	4.60	56.23	56.23	0.08	4.20	70.83	70.83	0.11
C2 Chrysenes	1,008	--	3.50	42.79	42.79	0.04	3.40	57.34	57.34	0.06
C2 Fluorenes	686	--	1.80	22.00	22.00	0.03	1.20	20.24	20.24	0.03
C2-Fluoranthenes/Pyrenes		--	5.30	64.79	64.79		5.60	94.44	94.44	
C2-Naphthalenes	510	--	3.00	36.67	36.67	0.07	2.20	37.10	37.10	0.07
C2-Phenanthrenes/Anthracenes	746	--	9.60	117.36	117.36	0.16	8.00	134.91	134.91	0.18
C3 Chrysenes	1,112	--	2.20	26.89	26.89	0.02	2.30	38.79	38.79	0.03
C3 Fluorenes	769	--	3.00	36.67	36.67	0.05	2.20	37.10	37.10	0.05
C3-Fluoranthenes/Pyrenes	949	--	4.20	51.34	51.34	0.05	4.10	69.14	69.14	0.07
C3-Naphthalenes	581	--	6.20	75.79	75.79	0.13	3.60	60.71	60.71	0.10
C3-Phenanthrenes/Anthracenes	829	--	16.00	195.60	195.60	0.24	12.00	202.36	202.36	0.24
C4 Chrysenes	1,214	--	0.98	11.98	11.98	0.01	1.40	23.61	23.61	0.02
C4-Naphthalenes	657	--	5.30	64.79	64.79	0.10	2.90	48.90	48.90	0.07
C4-Phenanthrenes/Anthracenes	913	--	12.00	146.70	146.70	0.16	8.50	143.34	143.34	0.16
Chrysene	844	826	4.10	50.12	50.12	0.06	4.00	67.45	67.45	0.08
Dibenz[a,h]anthracene	1,123	2,389	0.52	6.36	6.36	0.01	0.61	10.29	10.29	0.01
Fluoranthene	707	23,870	5.50	67.24	67.24	0.10	4.50	75.89	75.89	0.11
Fluorene	538	26,000	0.66	8.07	8.07	0.01	0.51	8.60	8.60	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	1.50	18.34	18.34	0.02	1.50	25.30	25.30	0.02
Naphthalene	385	61,700	0.80	9.78	9.78	0.03	0.83	14.00	14.00	0.04
Perylene	967	431	0.64	7.82	7.82	0.01	0.64	10.79	10.79	0.01
Phenanthrene	596	34,300	2.80	34.23	34.23	0.06	2.40	40.47	40.47	0.07
Pyrene	697	9,090	4.80	58.68	58.68	0.08	3.70	62.39	62.39	0.09
	---	**ESBTU FCVi**	--	--	--	1.87	--	--	--	2.14

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-17**				**MLTC14-17**			
		Field Sample ID	**MLTC14-17-0305FD**				**MLTC14-17-0507**			
		Sample Depth	**3-5**				**5-7**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a] μg/g oc	**Coc, PAHi, Maxi[a]** μg/g oc	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final** Coc[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	4.32	0.0432	---	---	1.34	0.0134	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)										
1-Methylnaphthalene	446	165,700	0.26	6.02	6.02	0.01	0.04	3.13	3.13	0.01
2-Methylnaphthalene	447	154,800	0.38	8.80	8.80	0.02	0.05	3.43	3.43	0.01
Acenaphthene	491	33,400	0.33	7.64	7.64	0.02	0.07	4.85	4.85	0.01
Acenaphthylene	452	24,000	0.34	7.87	7.87	0.02	0.08	5.67	5.67	0.01
Anthracene	594	1,300	0.90	20.83	20.83	0.04	0.25	18.66	18.66	0.03
Benzo[a]anthracene	841	4,153	3.00	69.44	69.44	0.08	0.66	49.25	49.25	0.06
Benzo[a]pyrene	965	3,840	2.40	55.56	55.56	0.06	0.67	50.00	50.00	0.05
Benzo[b]fluoranthene	979	2,169	1.60	37.04	37.04	0.04	0.32	23.88	23.88	0.02
Benzo[e]pyrene	967	4,300	1.60	37.04	37.04	0.04	0.33	24.63	24.63	0.03
Benzo[g,h,i]perylene	1,095	648	1.40	32.41	32.41	0.03	0.31	23.13	23.13	0.02
Benzo[k]fluoranthene	981	1,220	2.30	53.24	53.24	0.05	0.58	43.28	43.28	0.04
C1 Chrysenes	929	--	3.50	81.02	81.02	0.09	0.71	52.99	52.99	0.06
C1 Fluorenes	611	--	0.42	9.72	9.72	0.02	0.08	6.27	6.27	0.01
C1-Fluoranthenes/Pyrenes	770	--	7.80	180.56	180.56	0.23	1.70	126.87	126.87	0.16
C1-Naphthalenes	444	--	0.46	10.65	10.65	0.02	0.08	5.90	5.90	0.01
C1-Phenanthrenes/Anthracenes	670	--	3.70	85.65	85.65	0.13	0.86	64.18	64.18	0.10
C2 Chrysenes	1,008	--	3.30	76.39	76.39	0.08	0.47	35.07	35.07	0.03
C2 Fluorenes	686	--	0.97	22.45	22.45	0.03	0.15	11.19	11.19	0.02
C2-Fluoranthenes/Pyrenes		--	4.90	113.43	113.43		0.85	63.43	63.43	
C2-Naphthalenes	510	--	2.00	46.30	46.30	0.09	0.36	26.87	26.87	0.05
C2-Phenanthrenes/Anthracenes	746	--	6.20	143.52	143.52	0.19	0.88	65.67	65.67	0.09
C3 Chrysenes	1,112	--	1.70	39.35	39.35	0.04	0.18	13.43	13.43	0.01
C3 Fluorenes	769	--	1.70	39.35	39.35	0.05	0.15	11.19	11.19	0.01
C3-Fluoranthenes/Pyrenes	949	--	3.50	81.02	81.02	0.09	0.39	29.10	29.10	0.03
C3-Naphthalenes	581	--	2.80	64.81	64.81	0.11	0.48	35.82	35.82	0.06
C3-Phenanthrenes/Anthracenes	829	--	11.00	254.63	254.63	0.31	0.94	70.15	70.15	0.08
C4 Chrysenes	1,214	--	0.70	16.20	16.20	0.01	0.07	0.00	0.00	0.00
C4-Naphthalenes	657	--	2.40	55.56	55.56	0.08	0.27	20.15	20.15	0.03
C4-Phenanthrenes/Anthracenes	913	--	8.40	194.44	194.44	0.21	0.57	42.54	42.54	0.05
Chrysene	844	826	3.30	76.39	76.39	0.09	0.81	60.45	60.45	0.07
Dibenz[a,h]anthracene	1,123	2,389	0.49	11.34	11.34	0.01	0.10	7.46	7.46	0.01
Fluoranthene	707	23,870	4.10	94.91	94.91	0.13	0.87	64.93	64.93	0.09
Fluorene	538	26,000	0.48	11.11	11.11	0.02	0.09	6.49	6.49	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	1.20	27.78	27.78	0.02	0.26	19.40	19.40	0.02
Naphthalene	385	61,700	0.65	15.05	15.05	0.04	0.05	3.43	3.43	0.01
Perylene	967	431	0.62	14.35	14.35	0.01	0.16	11.94	11.94	0.01
Phenanthrene	596	34,300	2.50	57.87	57.87	0.10	0.58	43.28	43.28	0.07
Pyrene	697	9,090	3.90	90.28	90.28	0.13	0.82	61.19	61.19	0.09
	---	**ESBTU FCVi**	--	--	--	2.63	--	--	--	1.44

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-17**				**MLTC14-18**			
		Field Sample ID	**MLTC14-17-0709**				**MLTC14-18-SURF**			
		Sample Depth	**7-9**				**0-0.5**			
		Sample Date	**10/21/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi**[a]	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc**[b]	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc**[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	3.78	0.0378	---	---	10	0.1	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.07	1.93	1.93	0.00	0.93	9.30	9.30	0.02
2-Methylnaphthalene	447	154,800	0.11	2.91	2.91	0.01	0.37	3.70	3.70	0.01
Acenaphthene	491	33,400	0.22	5.82	5.82	0.01	0.42	4.20	4.20	0.01
Acenaphthylene	452	24,000	0.28	7.41	7.41	0.02	0.50	0.00	0.00	0.00
Anthracene	594	1,300	1.20	31.75	31.75	0.05	0.90	9.00	9.00	0.02
Benzo[a]anthracene	841	4,153	3.20	84.66	84.66	0.10	4.50	45.00	45.00	0.05
Benzo[a]pyrene	965	3,840	2.50	66.14	66.14	0.07	2.90	29.00	29.00	0.03
Benzo[b]fluoranthene	979	2,169	1.60	42.33	42.33	0.04	3.60	36.00	36.00	0.04
Benzo[e]pyrene	967	4,300	1.50	39.68	39.68	0.04	2.60	26.00	26.00	0.03
Benzo[g,h,i]perylene	1,095	648	1.00	26.46	26.46	0.02	2.00	20.00	20.00	0.02
Benzo[k]fluoranthene	981	1,220	1.70	44.97	44.97	0.05	2.40	24.00	24.00	0.02
C1 Chrysenes	929	--	2.30	60.85	60.85	0.07	3.70	37.00	37.00	0.04
C1 Fluorenes	611	--	0.38	10.05	10.05	0.02	0.78	7.80	7.80	0.01
C1-Fluoranthenes/Pyrenes	770	--	7.60	201.06	201.06	0.26	6.40	64.00	64.00	0.08
C1-Naphthalenes	444	--	0.13	3.44	3.44	0.01	0.90	9.00	9.00	0.02
C1-Phenanthrenes/Anthracenes	670	--	4.60	121.69	121.69	0.18	6.30	63.00	63.00	0.09
C2 Chrysenes	1,008	--	1.20	31.75	31.75	0.03	3.00	30.00	30.00	0.03
C2 Fluorenes	686	--	0.57	15.08	15.08	0.02	2.00	20.00	20.00	0.03
C2-Fluoranthenes/Pyrenes		--	3.00	79.37	79.37		4.80	48.00	48.00	
C2-Naphthalenes	510	--	1.50	39.68	39.68	0.08	9.00	90.00	90.00	0.18
C2-Phenanthrenes/Anthracenes	746	--	3.50	92.59	92.59	0.12	10.00	100.00	100.00	0.13
C3 Chrysenes	1,112	--	0.41	10.85	10.85	0.01	1.60	16.00	16.00	0.01
C3 Fluorenes	769	--	0.44	11.64	11.64	0.02	2.60	26.00	26.00	0.03
C3-Fluoranthenes/Pyrenes	949	--	1.20	31.75	31.75	0.03	4.30	43.00	43.00	0.05
C3-Naphthalenes	581	--	1.90	50.26	50.26	0.09	16.00	160.00	160.00	0.28
C3-Phenanthrenes/Anthracenes	829	--	3.20	84.66	84.66	0.10	12.00	120.00	120.00	0.14
C4 Chrysenes	1,214	--	0.32	0.00	0.00	0.00	0.65	6.50	6.50	0.01
C4-Naphthalenes	657	--	0.94	24.87	24.87	0.04	8.70	87.00	87.00	0.13
C4-Phenanthrenes/Anthracenes	913	--	1.70	44.97	44.97	0.05	7.10	71.00	71.00	0.08
Chrysene	844	826	2.70	71.43	71.43	0.08	3.60	36.00	36.00	0.04
Dibenz[a,h]anthracene	1,123	2,389	0.28	7.41	7.41	0.01	0.61	6.10	6.10	0.01
Fluoranthene	707	23,870	3.40	89.95	89.95	0.13	6.10	61.00	61.00	0.09
Fluorene	538	26,000	0.40	10.58	10.58	0.02	1.00	10.00	10.00	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	0.88	23.28	23.28	0.02	1.60	16.00	16.00	0.01
Naphthalene	385	61,700	0.10	2.65	2.65	0.01	0.30	3.00	3.00	0.01
Perylene	967	431	0.52	13.76	13.76	0.01	0.68	6.80	6.80	0.01
Phenanthrene	596	34,300	3.20	84.66	84.66	0.14	4.60	46.00	46.00	0.08
Pyrene	697	9,090	5.10	134.92	134.92	0.19	5.10	51.00	51.00	0.07
	---	**ESBTU FCVi**	--	--	--	2.11	--	--	--	1.85

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-18				MLTC14-18			
		Field Sample ID	MLTC14-18-0001				MLTC14-18-0103			
		Sample Depth	0-1				1-3			
		Sample Date	10/20/2014				10/20/2014			
	Coc, PAHi, FCVi[a]	Coc, PAHi, Maxi[a]	Conc	Coc	Final		Conc	Coc	Final	
	µg/g oc	µg/g oc	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	6.1	0.061	---	---	1.81	0.0181	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.78	12.79	12.79	0.03	0.01	0.55	0.55	0.00
2-Methylnaphthalene	447	154,800	0.23	3.77	3.77	0.01	0.01	0.34	0.34	0.00
Acenaphthene	491	33,400	0.33	5.41	5.41	0.01	0.02	0.88	0.88	0.00
Acenaphthylene	452	24,000	0.25	4.10	4.10	0.01	0.01	0.40	0.40	0.00
Anthracene	594	1,300	0.88	14.43	14.43	0.02	0.03	1.55	1.55	0.00
Benzo[a]anthracene	841	4,153	3.20	52.46	52.46	0.06	0.11	6.08	6.08	0.01
Benzo[a]pyrene	965	3,840	2.70	44.26	44.26	0.05	0.10	5.52	5.52	0.01
Benzo[b]fluoranthene	979	2,169	2.50	40.98	40.98	0.04	0.09	5.14	5.14	0.01
Benzo[e]pyrene	967	4,300	1.80	29.51	29.51	0.03	0.07	3.59	3.59	0.00
Benzo[g,h,i]perylene	1,095	648	1.20	19.67	19.67	0.02	0.05	2.65	2.65	0.00
Benzo[k]fluoranthene	981	1,220	2.40	39.34	39.34	0.04	0.09	4.70	4.70	0.00
C1 Chrysenes	929	--	3.00	49.18	49.18	0.05	0.10	5.36	5.36	0.01
C1 Fluorenes	611	--	0.61	10.00	10.00	0.02	0.01	0.77	0.77	0.00
C1-Fluoranthenes/Pyrenes	770	--	7.50	122.95	122.95	0.16	0.25	13.81	13.81	0.02
C1-Naphthalenes	444	--	0.70	11.48	11.48	0.03	0.01	0.61	0.61	0.00
C1-Phenanthrenes/Anthracenes	670	--	4.80	78.69	78.69	0.12	0.12	6.63	6.63	0.01
C2 Chrysenes	1,008	--	2.80	45.90	45.90	0.05	0.06	3.54	3.54	0.00
C2 Fluorenes	686	--	1.50	24.59	24.59	0.04	0.03	1.60	1.60	0.00
C2-Fluoranthenes/Pyrenes		--	4.60	75.41	75.41		0.13	7.18	7.18	
C2-Naphthalenes	510	--	7.20	118.03	118.03	0.23	0.09	4.92	4.92	0.01
C2-Phenanthrenes/Anthracenes	746	--	7.40	121.31	121.31	0.16	0.14	7.73	7.73	0.01
C3 Chrysenes	1,112	--	1.40	22.95	22.95	0.02	0.03	1.55	1.55	0.00
C3 Fluorenes	769	--	2.00	32.79	32.79	0.04	0.03	1.82	1.82	0.00
C3-Fluoranthenes/Pyrenes	949	--	3.10	50.82	50.82	0.05	0.08	4.25	4.25	0.00
C3-Naphthalenes	581	--	12.00	196.72	196.72	0.34	0.17	9.39	9.39	0.02
C3-Phenanthrenes/Anthracenes	829	--	12.00	196.72	196.72	0.24	0.23	12.71	12.71	0.02
C4 Chrysenes	1,214	--	0.64	10.49	10.49	0.01	0.01	0.00	0.00	0.00
C4-Naphthalenes	657	--	6.70	109.84	109.84	0.17	0.11	6.08	6.08	0.01
C4-Phenanthrenes/Anthracenes	913	--	7.20	118.03	118.03	0.13	0.14	7.73	7.73	0.01
Chrysene	844	826	3.40	55.74	55.74	0.07	0.13	7.18	7.18	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.47	7.70	7.70	0.01	0.02	0.94	0.94	0.00
Fluoranthene	707	23,870	5.30	86.89	86.89	0.12	0.17	9.39	9.39	0.01
Fluorene	538	26,000	0.84	13.77	13.77	0.03	0.01	0.77	0.77	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.10	18.03	18.03	0.02	0.04	2.43	2.43	0.00
Naphthalene	385	61,700	0.22	3.61	3.61	0.01	0.01	0.39	0.39	0.00
Perylene	967	431	0.53	8.69	8.69	0.01	0.10	5.52	5.52	0.01
Phenanthrene	596	34,300	3.30	54.10	54.10	0.09	0.09	5.19	5.19	0.01
Pyrene	697	9,090	3.90	63.93	63.93	0.09	0.16	8.84	8.84	0.01
	---	**ESBTU FCVi**	--	--	--	2.51	--	--	--	0.20

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-18**				**MLTC14-18**			
		Field Sample ID	**MLTC14-18-0103FD**				**MLTC14-18-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/20/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	4.93	0.0493	---	---	1.11	0.0111	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.30	0.30	0.00	0.00	0.34	0.34	0.00
2-Methylnaphthalene	447	154,800	0.01	0.20	0.20	0.00	0.00	0.18	0.18	0.00
Acenaphthene	491	33,400	0.02	0.49	0.49	0.00	0.00	0.14	0.14	0.00
Acenaphthylene	452	24,000	0.01	0.19	0.19	0.00	0.00	0.00	0.00	0.00
Anthracene	594	1,300	0.05	1.03	1.03	0.00	0.00	0.23	0.23	0.00
Benzo[a]anthracene	841	4,153	0.18	3.65	3.65	0.00	0.01	1.08	1.08	0.00
Benzo[a]pyrene	965	3,840	0.17	3.45	3.45	0.00	0.01	0.71	0.71	0.00
Benzo[b]fluoranthene	979	2,169	0.16	3.25	3.25	0.00	0.02	1.35	1.35	0.00
Benzo[e]pyrene	967	4,300	0.10	2.03	2.03	0.00	0.01	0.84	0.84	0.00
Benzo[g,h,i]perylene	1,095	648	0.08	1.54	1.54	0.00	0.01	0.79	0.79	0.00
Benzo[k]fluoranthene	981	1,220	0.15	3.04	3.04	0.00	0.01	0.68	0.68	0.00
C1 Chrysenes	929	--	0.14	2.84	2.84	0.00	0.02	1.35	1.35	0.00
C1 Fluorenes	611	--	0.02	0.39	0.39	0.00	0.00	0.31	0.31	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.39	7.91	7.91	0.01	0.03	2.43	2.43	0.00
C1-Naphthalenes	444	--	0.02	0.34	0.34	0.00	0.00	0.36	0.36	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.17	3.45	3.45	0.01	0.03	2.61	2.61	0.00
C2 Chrysenes	1,008	--	0.10	2.03	2.03	0.00	0.01	1.08	1.08	0.00
C2 Fluorenes	686	--	0.04	0.75	0.75	0.00	0.01	0.86	0.86	0.00
C2-Fluoranthenes/Pyrenes		--	0.19	3.85	3.85		0.02	1.98	1.98	
C2-Naphthalenes	510	--	0.12	2.43	2.43	0.00	0.03	2.61	2.61	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.20	4.06	4.06	0.01	0.06	5.14	5.14	0.01
C3 Chrysenes	1,112	--	0.05	0.97	0.97	0.00	0.01	0.65	0.65	0.00
C3 Fluorenes	769	--	0.05	0.93	0.93	0.00	0.01	0.99	0.99	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.10	2.03	2.03	0.00	0.02	1.53	1.53	0.00
C3-Naphthalenes	581	--	0.24	4.87	4.87	0.01	0.06	5.05	5.05	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.32	6.49	6.49	0.01	0.07	6.13	6.13	0.01
C4 Chrysenes	1,214	--	0.02	0.00	0.00	0.00	0.00	0.43	0.43	0.00
C4-Naphthalenes	657	--	0.15	3.04	3.04	0.00	0.04	3.60	3.60	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.19	3.85	3.85	0.00	0.03	3.06	3.06	0.00
Chrysene	844	826	0.21	4.26	4.26	0.01	0.02	1.35	1.35	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.03	0.53	0.53	0.00	0.00	0.20	0.20	0.00
Fluoranthene	707	23,870	0.31	6.29	6.29	0.01	0.02	1.80	1.80	0.00
Fluorene	538	26,000	0.02	0.49	0.49	0.00	0.00	0.30	0.30	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.07	1.46	1.46	0.00	0.01	0.50	0.50	0.00
Naphthalene	385	61,700	0.01	0.26	0.26	0.00	0.00	0.13	0.13	0.00
Perylene	967	431	0.17	3.45	3.45	0.00	0.04	3.87	3.87	0.00
Phenanthrene	596	34,300	0.16	3.25	3.25	0.01	0.02	1.35	1.35	0.00
Pyrene	697	9,090	0.25	5.07	5.07	0.01	0.02	1.53	1.53	0.00
	---	**ESBTU FCVi**	--	--	--	0.11	--	--	--	0.07

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-19**				**MLTC14-19**			
		Field Sample ID	**MLTC14-19-SURF**				**MLTC14-19-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/20/2014**				**10/21/2014**			
	Coc, PAHi, FCVi^{a}	**Coc, PAHi, Maxi^{a}**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.08	0.0308	---	---	4	0.04	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.62	0.62	0.00	0.03	0.75	0.75	0.00
2-Methylnaphthalene	447	154,800	0.03	0.97	0.97	0.00	0.05	1.20	1.20	0.00
Acenaphthene	491	33,400	0.02	0.78	0.78	0.00	0.03	0.78	0.78	0.00
Acenaphthylene	452	24,000	0.04	1.27	1.27	0.00	0.05	1.13	1.13	0.00
Anthracene	594	1,300	0.09	2.76	2.76	0.00	0.12	3.00	3.00	0.01
Benzo[a]anthracene	841	4,153	0.47	15.26	15.26	0.02	0.42	10.50	10.50	0.01
Benzo[a]pyrene	965	3,840	0.45	14.61	14.61	0.02	0.49	12.25	12.25	0.01
Benzo[b]fluoranthene	979	2,169	0.53	17.21	17.21	0.02	0.41	10.25	10.25	0.01
Benzo[e]pyrene	967	4,300	0.36	11.69	11.69	0.01	0.33	8.25	8.25	0.01
Benzo[g,h,i]perylene	1,095	648	0.37	12.01	12.01	0.01	0.39	9.75	9.75	0.01
Benzo[k]fluoranthene	981	1,220	0.39	12.66	12.66	0.01	0.51	12.75	12.75	0.01
C1 Chrysenes	929	--	0.24	7.79	7.79	0.01	0.34	8.50	8.50	0.01
C1 Fluorenes	611	--	0.02	0.68	0.68	0.00	0.03	0.83	0.83	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.62	20.13	20.13	0.03	0.77	19.25	19.25	0.03
C1-Naphthalenes	444	--	0.04	1.14	1.14	0.00	0.03	0.78	0.78	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.23	7.47	7.47	0.01	0.25	6.25	6.25	0.01
C2 Chrysenes	1,008	--	0.12	3.90	3.90	0.00	0.23	5.75	5.75	0.01
C2 Fluorenes	686	--	0.03	1.04	1.04	0.00	0.04	1.00	1.00	0.00
C2-Fluoranthenes/Pyrenes		--	0.30	9.74	9.74		0.37	9.25	9.25	
C2-Naphthalenes	510	--	0.11	3.57	3.57	0.01	0.17	4.25	4.25	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.22	7.14	7.14	0.01	0.30	7.50	7.50	0.01
C3 Chrysenes	1,112	--	0.07	2.18	2.18	0.00	0.12	3.00	3.00	0.00
C3 Fluorenes	769	--	0.05	1.49	1.49	0.00	0.05	1.20	1.20	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.14	4.55	4.55	0.00	0.21	5.25	5.25	0.01
C3-Naphthalenes	581	--	0.15	4.87	4.87	0.01	0.25	6.25	6.25	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.25	8.12	8.12	0.01	0.37	9.25	9.25	0.01
C4 Chrysenes	1,214	--	0.07	0.00	0.00	0.00	0.06	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.10	3.21	3.21	0.00	0.17	4.25	4.25	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.17	5.52	5.52	0.01	0.23	5.75	5.75	0.01
Chrysene	844	826	0.45	14.61	14.61	0.02	0.52	13.00	13.00	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.10	3.25	3.25	0.00	0.12	3.00	3.00	0.00
Fluoranthene	707	23,870	0.75	24.35	24.35	0.03	0.80	20.00	20.00	0.03
Fluorene	538	26,000	0.04	1.27	1.27	0.00	0.05	1.28	1.28	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.31	10.06	10.06	0.01	0.34	8.50	8.50	0.01
Naphthalene	385	61,700	0.05	1.53	1.53	0.00	0.07	1.63	1.63	0.00
Perylene	967	431	0.12	3.90	3.90	0.00	0.14	3.50	3.50	0.00
Phenanthrene	596	34,300	0.33	10.71	10.71	0.02	0.37	9.25	9.25	0.02
Pyrene	697	9,090	0.68	22.08	22.08	0.03	0.66	16.50	16.50	0.02
	---	**ESBTU FCVi**	--	--	--	0.32	--	--	--	0.29

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-19**				**MLTC14-21**			
		Field Sample ID	**MLTC14-19-0103**				**MLTC14-21-SURF**			
		Sample Depth	**1-3**				**0-0.5**			
		Sample Date	**10/21/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	2.46	0.0246	---	---	5.44	0.0544	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.89	0.89	0.00	0.04	0.68	0.68	0.00
2-Methylnaphthalene	447	154,800	0.03	1.26	1.26	0.00	0.08	1.45	1.45	0.00
Acenaphthene	491	33,400	0.17	6.91	6.91	0.01	0.05	0.96	0.96	0.00
Acenaphthylene	452	24,000	0.09	3.58	3.58	0.01	0.07	1.31	1.31	0.00
Anthracene	594	1,300	0.38	15.45	15.45	0.03	0.19	3.49	3.49	0.01
Benzo[a]anthracene	841	4,153	0.91	36.99	36.99	0.04	1.00	18.38	18.38	0.02
Benzo[a]pyrene	965	3,840	0.95	38.62	38.62	0.04	1.00	18.38	18.38	0.02
Benzo[b]fluoranthene	979	2,169	0.61	24.80	24.80	0.03	1.30	23.90	23.90	0.02
Benzo[e]pyrene	967	4,300	0.57	23.17	23.17	0.02	0.93	17.10	17.10	0.02
Benzo[g,h,i]perylene	1,095	648	0.59	23.98	23.98	0.02	0.96	17.65	17.65	0.02
Benzo[k]fluoranthene	981	1,220	0.70	28.46	28.46	0.03	1.00	18.38	18.38	0.02
C1 Chrysenes	929	--	0.92	37.40	37.40	0.04	0.54	9.93	9.93	0.01
C1 Fluorenes	611	--	0.16	6.50	6.50	0.01	0.04	0.70	0.70	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.10	85.37	85.37	0.11	1.10	20.22	20.22	0.03
C1-Naphthalenes	444	--	0.04	1.67	1.67	0.00	0.08	1.43	1.43	0.00
C1-Phenanthrenes/Anthracenes	670	--	1.00	40.65	40.65	0.06	0.47	8.64	8.64	0.01
C2 Chrysenes	1,008	--	0.57	23.17	23.17	0.02	0.29	5.33	5.33	0.01
C2 Fluorenes	686	--	0.19	7.72	7.72	0.01	0.09	1.67	1.67	0.00
C2-Fluoranthenes/Pyrenes		--	0.96	39.02	39.02		0.62	11.40	11.40	
C2-Naphthalenes	510	--	0.31	12.60	12.60	0.02	0.24	4.41	4.41	0.01
C2-Phenanthrenes/Anthracenes	746	--	1.00	40.65	40.65	0.05	0.50	9.19	9.19	0.01
C3 Chrysenes	1,112	--	0.30	12.20	12.20	0.01	0.14	2.57	2.57	0.00
C3 Fluorenes	769	--	0.19	7.72	7.72	0.01	0.13	2.39	2.39	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.54	21.95	21.95	0.02	0.37	6.80	6.80	0.01
C3-Naphthalenes	581	--	0.70	28.46	28.46	0.05	0.26	4.78	4.78	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.92	37.40	37.40	0.05	0.56	10.29	10.29	0.01
C4 Chrysenes	1,214	--	0.16	6.50	6.50	0.01	0.16	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.44	17.89	17.89	0.03	0.17	3.13	3.13	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.47	19.11	19.11	0.02	0.37	6.80	6.80	0.01
Chrysene	844	826	0.93	37.80	37.80	0.04	1.10	20.22	20.22	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.19	7.72	7.72	0.01	0.25	4.60	4.60	0.00
Fluoranthene	707	23,870	1.50	60.98	60.98	0.09	2.00	36.76	36.76	0.05
Fluorene	538	26,000	0.14	5.69	5.69	0.01	0.10	1.80	1.80	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.49	19.92	19.92	0.02	0.80	14.71	14.71	0.01
Naphthalene	385	61,700	0.06	2.44	2.44	0.01	0.14	2.57	2.57	0.01
Perylene	967	431	0.22	8.94	8.94	0.01	0.30	5.51	5.51	0.01
Phenanthrene	596	34,300	0.90	36.59	36.59	0.06	0.79	14.52	14.52	0.02
Pyrene	697	9,090	1.50	60.98	60.98	0.09	1.40	25.74	25.74	0.04
	---	**ESBTU FCVi**	--	--	--	1.07	--	--	--	0.42

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-22**				**MLTC14-25**			
		Field Sample ID	**MLTC14-22-SURF**				**MLTC14-25-SURF**			
		Sample Depth	**0-0.5**				**0-0.5**			
		Sample Date	**10/20/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	6.03	0.0603	---	---	6.6	0.066	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.04	0.61	0.61	0.00	0.02	0.24	0.24	0.00
2-Methylnaphthalene	447	154,800	0.07	1.18	1.18	0.00	0.03	0.42	0.42	0.00
Acenaphthene	491	33,400	0.03	0.56	0.56	0.00	0.03	0.48	0.48	0.00
Acenaphthylene	452	24,000	0.04	0.65	0.65	0.00	0.08	1.14	1.14	0.00
Anthracene	594	1,300	0.09	1.54	1.54	0.00	0.24	3.64	3.64	0.01
Benzo[a]anthracene	841	4,153	0.60	9.95	9.95	0.01	0.94	14.24	14.24	0.02
Benzo[a]pyrene	965	3,840	0.55	9.12	9.12	0.01	0.95	14.39	14.39	0.01
Benzo[b]fluoranthene	979	2,169	0.99	16.42	16.42	0.02	0.84	12.73	12.73	0.01
Benzo[e]pyrene	967	4,300	0.59	9.78	9.78	0.01	0.59	8.94	8.94	0.01
Benzo[g,h,i]perylene	1,095	648	0.52	8.62	8.62	0.01	0.61	9.24	9.24	0.01
Benzo[k]fluoranthene	981	1,220	0.53	8.79	8.79	0.01	0.69	10.45	10.45	0.01
C1 Chrysenes	929	--	0.61	10.12	10.12	0.01	0.60	9.09	9.09	0.01
C1 Fluorenes	611	--	0.05	0.76	0.76	0.00	0.04	0.55	0.55	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.90	14.93	14.93	0.02	1.60	24.24	24.24	0.03
C1-Naphthalenes	444	--	0.08	1.24	1.24	0.00	0.03	0.50	0.50	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.35	5.80	5.80	0.01	0.37	5.61	5.61	0.01
C2 Chrysenes	1,008	--	0.36	5.97	5.97	0.01	0.00	0.00	0.00	0.00
C2 Fluorenes	686	--	0.08	1.34	1.34	0.00	0.04	0.67	0.67	0.00
C2-Fluoranthenes/Pyrenes		--	0.68	11.28	11.28		0.68	10.30	10.30	
C2-Naphthalenes	510	--	0.25	4.15	4.15	0.01	0.11	1.67	1.67	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.57	9.45	9.45	0.01	0.33	5.00	5.00	0.01
C3 Chrysenes	1,112	--	0.21	3.48	3.48	0.00	0.08	1.24	1.24	0.00
C3 Fluorenes	769	--	0.22	3.65	3.65	0.00	0.07	1.00	1.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.42	6.97	6.97	0.01	0.29	4.39	4.39	0.00
C3-Naphthalenes	581	--	0.33	5.47	5.47	0.01	0.16	2.42	2.42	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.94	15.59	15.59	0.02	0.41	6.21	6.21	0.01
C4 Chrysenes	1,214	--	0.10	1.66	1.66	0.00	0.10	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.27	4.48	4.48	0.01	0.17	2.58	2.58	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.82	13.60	13.60	0.01	0.26	3.94	3.94	0.00
Chrysene	844	826	0.65	10.78	10.78	0.01	0.97	14.70	14.70	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.14	2.32	2.32	0.00	0.19	2.88	2.88	0.00
Fluoranthene	707	23,870	1.10	18.24	18.24	0.03	1.30	19.70	19.70	0.03
Fluorene	538	26,000	0.06	0.95	0.95	0.00	0.06	0.83	0.83	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.41	6.80	6.80	0.01	0.56	8.48	8.48	0.01
Naphthalene	385	61,700	0.09	1.41	1.41	0.00	0.06	0.97	0.97	0.00
Perylene	967	431	0.17	2.82	2.82	0.00	0.19	2.88	2.88	0.00
Phenanthrene	596	34,300	0.45	7.46	7.46	0.01	0.40	6.06	6.06	0.01
Pyrene	697	9,090	0.95	15.75	15.75	0.02	1.00	15.15	15.15	0.02
	---	**ESBTU FCVi**	--	--	--	0.29	--	--	--	0.26

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-25**				**MLTC14-25**			
		Field Sample ID	**MLTC14-25-0001**				**MLTC14-25-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	4.66	0.0466	---	---	5.83	0.0583	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.39	0.39	0.00	0.06	1.08	1.08	0.00
2-Methylnaphthalene	447	154,800	0.03	0.67	0.67	0.00	0.11	1.89	1.89	0.00
Acenaphthene	491	33,400	0.04	0.77	0.77	0.00	0.24	4.12	4.12	0.01
Acenaphthylene	452	24,000	0.12	2.58	2.58	0.01	0.48	8.23	8.23	0.02
Anthracene	594	1,300	0.19	4.08	4.08	0.01	1.30	22.30	22.30	0.04
Benzo[a]anthracene	841	4,153	1.50	32.19	32.19	0.04	5.20	89.19	89.19	0.11
Benzo[a]pyrene	965	3,840	1.30	27.90	27.90	0.03	5.20	89.19	89.19	0.09
Benzo[b]fluoranthene	979	2,169	0.97	20.82	20.82	0.02	4.00	68.61	68.61	0.07
Benzo[e]pyrene	967	4,300	0.85	18.24	18.24	0.02	3.00	51.46	51.46	0.05
Benzo[g,h,i]perylene	1,095	648	0.92	19.74	19.74	0.02	3.20	54.89	54.89	0.05
Benzo[k]fluoranthene	981	1,220	1.00	21.46	21.46	0.02	3.90	66.90	66.90	0.07
C1 Chrysenes	929	--	0.85	18.24	18.24	0.02	2.90	49.74	49.74	0.05
C1 Fluorenes	611	--	0.05	1.07	1.07	0.00	0.18	3.09	3.09	0.01
C1-Fluoranthenes/Pyrenes	770	--	2.60	55.79	55.79	0.07	8.40	144.08	144.08	0.19
C1-Naphthalenes	444	--	0.04	0.75	0.75	0.00	0.12	2.06	2.06	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.64	13.73	13.73	0.02	2.00	34.31	34.31	0.05
C2 Chrysenes	1,008	--	0.45	9.66	9.66	0.01	1.40	24.01	24.01	0.02
C2 Fluorenes	686	--	0.08	1.70	1.70	0.00	0.24	4.12	4.12	0.01
C2-Fluoranthenes/Pyrenes		--	0.98	21.03	21.03		2.90	49.74	49.74	
C2-Naphthalenes	510	--	0.11	2.36	2.36	0.00	0.47	8.06	8.06	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.55	11.80	11.80	0.02	1.60	27.44	27.44	0.04
C3 Chrysenes	1,112	--	0.11	2.36	2.36	0.00	0.30	5.15	5.15	0.00
C3 Fluorenes	769	--	0.09	1.91	1.91	0.00	0.27	4.63	4.63	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.44	9.44	9.44	0.01	1.60	27.44	27.44	0.03
C3-Naphthalenes	581	--	0.21	4.51	4.51	0.01	0.64	10.98	10.98	0.02
C3-Phenanthrenes/Anthracenes	829	--	0.54	11.59	11.59	0.01	1.80	30.87	30.87	0.04
C4 Chrysenes	1,214	--	0.12	0.00	0.00	0.00	0.50	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.16	3.43	3.43	0.01	0.40	6.86	6.86	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.26	5.58	5.58	0.01	1.10	18.87	18.87	0.02
Chrysene	844	826	1.40	30.04	30.04	0.04	5.10	87.48	87.48	0.10
Dibenz[a,h]anthracene	1,123	2,389	0.27	5.79	5.79	0.01	0.98	16.81	16.81	0.01
Fluoranthene	707	23,870	1.80	38.63	38.63	0.05	6.70	114.92	114.92	0.16
Fluorene	538	26,000	0.06	1.24	1.24	0.00	0.40	6.86	6.86	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.80	17.17	17.17	0.02	2.90	49.74	49.74	0.04
Naphthalene	385	61,700	0.08	1.61	1.61	0.00	0.31	5.32	5.32	0.01
Perylene	967	431	0.29	6.22	6.22	0.01	1.10	18.87	18.87	0.02
Phenanthrene	596	34,300	0.43	9.23	9.23	0.02	2.90	49.74	49.74	0.08
Pyrene	697	9,090	1.70	36.48	36.48	0.05	5.70	97.77	97.77	0.14
	---	**ESBTU FCVi**	--	--	--	0.54	--	--	--	1.58

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-25**				**MLTC14-26**			
		Field Sample ID	**MLTC14-25-0103FD**				**MLTC14-26-SURF**			
		Sample Depth	**1-3**				**0-0.5**			
		Sample Date	**10/16/2014**				**10/15/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	6.11	0.0611	---	---	11	0.11	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.10	1.60	1.60	0.00	0.09	0.85	0.85	0.00
2-Methylnaphthalene	447	154,800	0.18	2.95	2.95	0.01	0.16	1.45	1.45	0.00
Acenaphthene	491	33,400	0.31	5.07	5.07	0.01	0.29	2.64	2.64	0.01
Acenaphthylene	452	24,000	0.52	8.51	8.51	0.02	0.13	1.18	1.18	0.00
Anthracene	594	1,300	1.60	26.19	26.19	0.04	0.61	5.55	5.55	0.01
Benzo[a]anthracene	841	4,153	6.40	104.75	104.75	0.12	4.10	37.27	37.27	0.04
Benzo[a]pyrene	965	3,840	5.90	96.56	96.56	0.10	4.50	40.91	40.91	0.04
Benzo[b]fluoranthene	979	2,169	5.20	85.11	85.11	0.09	4.70	42.73	42.73	0.04
Benzo[e]pyrene	967	4,300	3.50	57.28	57.28	0.06	3.60	32.73	32.73	0.03
Benzo[g,h,i]perylene	1,095	648	3.50	57.28	57.28	0.05	3.50	31.82	31.82	0.03
Benzo[k]fluoranthene	981	1,220	4.30	70.38	70.38	0.07	3.20	29.09	29.09	0.03
C1 Chrysenes	929	--	3.10	50.74	50.74	0.05	4.80	43.64	43.64	0.05
C1 Fluorenes	611	--	0.22	3.60	3.60	0.01	0.10	0.91	0.91	0.00
C1-Fluoranthenes/Pyrenes	770	--	11.00	180.03	180.03	0.23	6.50	59.09	59.09	0.08
C1-Naphthalenes	444	--	0.20	3.27	3.27	0.01	0.17	1.55	1.55	0.00
C1-Phenanthrenes/Anthracenes	670	--	2.50	40.92	40.92	0.06	1.20	10.91	10.91	0.02
C2 Chrysenes	1,008	--	1.70	27.82	27.82	0.03	3.90	35.45	35.45	0.04
C2 Fluorenes	686	--	0.36	5.89	5.89	0.01	0.17	1.55	1.55	0.00
C2-Fluoranthenes/Pyrenes		--	3.80	62.19	62.19		4.60	41.82	41.82	
C2-Naphthalenes	510	--	0.63	10.31	10.31	0.02	0.46	4.18	4.18	0.01
C2-Phenanthrenes/Anthracenes	746	--	2.00	32.73	32.73	0.04	1.50	13.64	13.64	0.02
C3 Chrysenes	1,112	--	0.30	4.91	4.91	0.00	1.50	13.64	13.64	0.01
C3 Fluorenes	769	--	0.38	6.22	6.22	0.01	0.44	4.00	4.00	0.01
C3-Fluoranthenes/Pyrenes	949	--	1.50	24.55	24.55	0.03	3.30	30.00	30.00	0.03
C3-Naphthalenes	581	--	0.82	13.42	13.42	0.02	0.57	5.18	5.18	0.01
C3-Phenanthrenes/Anthracenes	829	--	2.40	39.28	39.28	0.05	2.80	25.45	25.45	0.03
C4 Chrysenes	1,214	--	0.75	0.00	0.00	0.00	0.61	5.55	5.55	0.00
C4-Naphthalenes	657	--	0.60	9.82	9.82	0.01	0.45	4.09	4.09	0.01
C4-Phenanthrenes/Anthracenes	913	--	1.40	22.91	22.91	0.03	2.20	20.00	20.00	0.02
Chrysene	844	826	6.10	99.84	99.84	0.12	5.50	50.00	50.00	0.06
Dibenz[a,h]anthracene	1,123	2,389	1.00	16.37	16.37	0.01	1.00	9.09	9.09	0.01
Fluoranthene	707	23,870	8.50	139.12	139.12	0.20	7.40	67.27	67.27	0.10
Fluorene	538	26,000	0.51	8.35	8.35	0.02	0.29	2.64	2.64	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	3.20	52.37	52.37	0.05	2.80	25.45	25.45	0.02
Naphthalene	385	61,700	0.69	11.29	11.29	0.03	0.22	2.00	2.00	0.01
Perylene	967	431	1.30	21.28	21.28	0.02	0.95	8.64	8.64	0.01
Phenanthrene	596	34,300	3.60	58.92	58.92	0.10	3.30	30.00	30.00	0.05
Pyrene	697	9,090	7.80	127.66	127.66	0.18	5.50	50.00	50.00	0.07
	---	**ESBTU FCVi**	--	--	--	1.88	--	--	--	0.87

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-31				MLTC14-31			
		Field Sample ID	MLTC14-31-SURF				MLTC14-31-0001			
		Sample Depth	0-0.5				0-1			
		Sample Date	10/16/2014				10/16/2014			
	Coc, PAHi, FCVi^a µg/g oc	Coc, PAHi, Maxi^a µg/g oc	Conc µg/g dry wt.	Coc µg/g oc	Final Coc^b	ESBTU FCVi	Conc µg/g dry wt.	Coc µg/g oc	Final Coc^b	ESBTU FCVi
Total Organic Carbon	--	--	3.21	0.0321	---	---	3.83	0.0383	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.01	0.44	0.44	0.00	0.15	3.92	3.92	0.01
2-Methylnaphthalene	447	154,800	0.02	0.65	0.65	0.00	0.10	2.56	2.56	0.01
Acenaphthene	491	33,400	0.01	0.40	0.40	0.00	0.25	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.02	0.53	0.53	0.00	0.23	6.01	6.01	0.01
Anthracene	594	1,300	0.09	2.87	2.87	0.00	0.42	10.97	10.97	0.02
Benzo[a]anthracene	841	4,153	0.37	11.53	11.53	0.01	3.20	83.55	83.55	0.10
Benzo[a]pyrene	965	3,840	0.35	10.90	10.90	0.01	2.60	67.89	67.89	0.07
Benzo[b]fluoranthene	979	2,169	0.38	11.84	11.84	0.01	1.70	44.39	44.39	0.05
Benzo[e]pyrene	967	4,300	0.31	9.66	9.66	0.01	2.00	52.22	52.22	0.05
Benzo[g,h,i]perylene	1,095	648	0.24	7.48	7.48	0.01	1.70	44.39	44.39	0.04
Benzo[k]fluoranthene	981	1,220	0.26	8.10	8.10	0.01	1.80	47.00	47.00	0.05
C1 Chrysenes	929	--	0.53	16.51	16.51	0.02	6.50	169.71	169.71	0.18
C1 Fluorenes	611	--	0.03	0.93	0.93	0.00	0.37	9.66	9.66	0.02
C1-Fluoranthenes/Pyrenes	770	--	0.80	24.92	24.92	0.03	7.60	198.43	198.43	0.26
C1-Naphthalenes	444	--	0.02	0.75	0.75	0.00	0.18	4.70	4.70	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.31	9.66	9.66	0.01	3.60	93.99	93.99	0.14
C2 Chrysenes	1,008	--	0.41	12.77	12.77	0.01	3.70	96.61	96.61	0.10
C2 Fluorenes	686	--	0.08	2.37	2.37	0.00	1.00	26.11	26.11	0.04
C2-Fluoranthenes/Pyrenes		--	0.55	17.13	17.13		5.20	135.77	135.77	
C2-Naphthalenes	510	--	0.11	3.43	3.43	0.01	1.20	31.33	31.33	0.06
C2-Phenanthrenes/Anthracenes	746	--	0.53	16.51	16.51	0.02	6.40	167.10	167.10	0.22
C3 Chrysenes	1,112	--	0.11	3.43	3.43	0.00	1.70	44.39	44.39	0.04
C3 Fluorenes	769	--	0.13	4.05	4.05	0.01	1.60	41.78	41.78	0.05
C3-Fluoranthenes/Pyrenes	949	--	0.41	12.77	12.77	0.01	3.30	86.16	86.16	0.09
C3-Naphthalenes	581	--	0.30	9.35	9.35	0.02	4.10	107.05	107.05	0.18
C3-Phenanthrenes/Anthracenes	829	--	0.75	23.36	23.36	0.03	7.50	195.82	195.82	0.24
C4 Chrysenes	1,214	--	0.06	0.00	0.00	0.00	0.55	14.36	14.36	0.01
C4-Naphthalenes	657	--	0.26	8.10	8.10	0.01	3.30	86.16	86.16	0.13
C4-Phenanthrenes/Anthracenes	913	--	0.46	14.33	14.33	0.02	5.00	130.55	130.55	0.14
Chrysene	844	826	0.51	15.89	15.89	0.02	4.10	107.05	107.05	0.13
Dibenz[a,h]anthracene	1,123	2,389	0.08	2.37	2.37	0.00	0.66	17.23	17.23	0.02
Fluoranthene	707	23,870	0.48	14.95	14.95	0.02	3.00	78.33	78.33	0.11
Fluorene	538	26,000	0.04	1.34	1.34	0.00	0.27	7.05	7.05	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.19	5.92	5.92	0.01	1.30	33.94	33.94	0.03
Naphthalene	385	61,700	0.03	0.90	0.90	0.00	0.13	3.39	3.39	0.01
Perylene	967	431	0.07	2.09	2.09	0.00	0.52	13.58	13.58	0.01
Phenanthrene	596	34,300	0.18	5.61	5.61	0.01	1.30	33.94	33.94	0.06
Pyrene	697	9,090	0.41	12.77	12.77	0.02	3.00	78.33	78.33	0.11
	---	**ESBTU FCVi**	--	--	--	0.34	--	--	--	2.71

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-31**				**MLTC14-31**			
		Field Sample ID	**MLTC14-31-0103**				**MLTC14-31-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	2.95	0.0295	---	---	9.25	0.0925	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.12	4.07	4.07	0.01	0.33	3.57	3.57	0.01
2-Methylnaphthalene	447	154,800	0.06	2.07	2.07	0.00	0.18	1.95	1.95	0.00
Acenaphthene	491	33,400	0.10	3.39	3.39	0.01	0.29	3.14	3.14	0.01
Acenaphthylene	452	24,000	0.08	2.64	2.64	0.01	0.37	4.00	4.00	0.01
Anthracene	594	1,300	0.33	11.19	11.19	0.02	1.20	12.97	12.97	0.02
Benzo[a]anthracene	841	4,153	1.30	44.07	44.07	0.05	8.80	95.14	95.14	0.11
Benzo[a]pyrene	965	3,840	1.00	33.90	33.90	0.04	7.40	80.00	80.00	0.08
Benzo[b]fluoranthene	979	2,169	0.78	26.44	26.44	0.03	5.50	59.46	59.46	0.06
Benzo[e]pyrene	967	4,300	0.92	31.19	31.19	0.03	7.70	83.24	83.24	0.09
Benzo[g,h,i]perylene	1,095	648	0.69	23.39	23.39	0.02	5.20	56.22	56.22	0.05
Benzo[k]fluoranthene	981	1,220	0.69	23.39	23.39	0.02	3.90	42.16	42.16	0.04
C1 Chrysenes	929	--	3.10	105.08	105.08	0.11	24.00	259.46	259.46	0.28
C1 Fluorenes	611	--	0.24	8.14	8.14	0.01	0.82	8.86	8.86	0.01
C1-Fluoranthenes/Pyrenes	770	--	3.30	111.86	111.86	0.15	20.00	216.22	216.22	0.28
C1-Naphthalenes	444	--	0.13	4.41	4.41	0.01	0.38	4.11	4.11	0.01
C1-Phenanthrenes/Anthracenes	670	--	2.20	74.58	74.58	0.11	7.80	84.32	84.32	0.13
C2 Chrysenes	1,008	--	2.10	71.19	71.19	0.07	16.00	172.97	172.97	0.17
C2 Fluorenes	686	--	0.63	21.36	21.36	0.03	2.40	25.95	25.95	0.04
C2-Fluoranthenes/Pyrenes		--	2.60	88.14	88.14		16.00	172.97	172.97	
C2-Naphthalenes	510	--	1.00	33.90	33.90	0.07	2.30	24.86	24.86	0.05
C2-Phenanthrenes/Anthracenes	746	--	3.50	118.64	118.64	0.16	15.00	162.16	162.16	0.22
C3 Chrysenes	1,112	--	1.00	33.90	33.90	0.03	6.40	69.19	69.19	0.06
C3 Fluorenes	769	--	0.92	31.19	31.19	0.04	3.70	40.00	40.00	0.05
C3-Fluoranthenes/Pyrenes	949	--	1.90	64.41	64.41	0.07	11.00	118.92	118.92	0.13
C3-Naphthalenes	581	--	2.60	88.14	88.14	0.15	8.00	86.49	86.49	0.15
C3-Phenanthrenes/Anthracenes	829	--	4.40	149.15	149.15	0.18	17.00	183.78	183.78	0.22
C4 Chrysenes	1,214	--	0.33	11.19	11.19	0.01	2.10	22.70	22.70	0.02
C4-Naphthalenes	657	--	2.00	67.80	67.80	0.10	6.50	70.27	70.27	0.11
C4-Phenanthrenes/Anthracenes	913	--	3.00	101.69	101.69	0.11	9.80	105.95	105.95	0.12
Chrysene	844	826	1.80	61.02	61.02	0.07	13.00	140.54	140.54	0.17
Dibenz[a,h]anthracene	1,123	2,389	0.27	9.15	9.15	0.01	2.10	22.70	22.70	0.02
Fluoranthene	707	23,870	1.60	54.24	54.24	0.08	7.40	80.00	80.00	0.11
Fluorene	538	26,000	0.23	7.80	7.80	0.01	0.50	5.41	5.41	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.45	15.25	15.25	0.01	2.90	31.35	31.35	0.03
Naphthalene	385	61,700	0.10	3.39	3.39	0.01	0.38	4.11	4.11	0.01
Perylene	967	431	0.23	7.80	7.80	0.01	1.30	14.05	14.05	0.01
Phenanthrene	596	34,300	1.10	37.29	37.29	0.06	2.80	30.27	30.27	0.05
Pyrene	697	9,090	1.50	50.85	50.85	0.07	8.10	87.57	87.57	0.13
	---	**ESBTU FCVi**	--	--	--	1.91	--	--	--	2.93

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-32				MLTC14-32			
		Field Sample ID	**MLTC14-32-SURF**				**MLTC14-32-SURFFD**			
		Sample Depth	**0-0.5**				**0-0.5**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	7.5	0.075	---	---	6.96	0.0696	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.07	0.95	0.95	0.00	0.07	0.95	0.95	0.00
2-Methylnaphthalene	447	154,800	0.13	1.73	1.73	0.00	0.11	1.58	1.58	0.00
Acenaphthene	491	33,400	0.09	1.21	1.21	0.00	0.09	1.31	1.31	0.00
Acenaphthylene	452	24,000	0.10	1.33	1.33	0.00	0.10	1.39	1.39	0.00
Anthracene	594	1,300	0.26	3.47	3.47	0.01	0.25	3.59	3.59	0.01
Benzo[a]anthracene	841	4,153	1.70	22.67	22.67	0.03	2.10	30.17	30.17	0.04
Benzo[a]pyrene	965	3,840	2.10	28.00	28.00	0.03	2.70	38.79	38.79	0.04
Benzo[b]fluoranthene	979	2,169	2.10	28.00	28.00	0.03	2.90	41.67	41.67	0.04
Benzo[e]pyrene	967	4,300	1.60	21.33	21.33	0.02	2.00	28.74	28.74	0.03
Benzo[g,h,i]perylene	1,095	648	1.70	22.67	22.67	0.02	1.90	27.30	27.30	0.02
Benzo[k]fluoranthene	981	1,220	1.50	20.00	20.00	0.02	2.00	28.74	28.74	0.03
C1 Chrysenes	929	--	1.70	22.67	22.67	0.02	1.80	25.86	25.86	0.03
C1 Fluorenes	611	--	0.06	0.75	0.75	0.00	0.05	0.75	0.75	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.40	32.00	32.00	0.04	2.80	40.23	40.23	0.05
C1-Naphthalenes	444	--	0.14	1.87	1.87	0.00	0.12	1.72	1.72	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.62	8.27	8.27	0.01	0.59	8.48	8.48	0.01
C2 Chrysenes	1,008	--	1.20	16.00	16.00	0.02	1.40	20.11	20.11	0.02
C2 Fluorenes	686	--	0.12	1.60	1.60	0.00	0.09	1.32	1.32	0.00
C2-Fluoranthenes/Pyrenes		--	1.50	20.00	20.00		1.60	22.99	22.99	
C2-Naphthalenes	510	--	0.37	4.93	4.93	0.01	0.34	4.89	4.89	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.74	9.87	9.87	0.01	0.67	9.63	9.63	0.01
C3 Chrysenes	1,112	--	0.38	5.07	5.07	0.00	0.45	6.47	6.47	0.01
C3 Fluorenes	769	--	0.18	2.40	2.40	0.00	0.18	2.59	2.59	0.00
C3-Fluoranthenes/Pyrenes	949	--	1.10	14.67	14.67	0.02	0.97	13.94	13.94	0.01
C3-Naphthalenes	581	--	0.42	5.60	5.60	0.01	0.39	5.60	5.60	0.01
C3-Phenanthrenes/Anthracenes	829	--	1.00	13.33	13.33	0.02	1.10	15.80	15.80	0.02
C4 Chrysenes	1,214	--	0.18	0.00	0.00	0.00	0.25	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.26	3.47	3.47	0.01	0.26	3.74	3.74	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.78	10.40	10.40	0.01	0.80	11.49	11.49	0.01
Chrysene	844	826	2.00	26.67	26.67	0.03	2.60	37.36	37.36	0.04
Dibenz[a,h]anthracene	1,123	2,389	0.50	6.67	6.67	0.01	0.55	7.90	7.90	0.01
Fluoranthene	707	23,870	2.30	30.67	30.67	0.04	2.70	38.79	38.79	0.05
Fluorene	538	26,000	0.11	1.47	1.47	0.00	0.12	1.72	1.72	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.40	18.67	18.67	0.02	1.60	22.99	22.99	0.02
Naphthalene	385	61,700	0.20	2.67	2.67	0.01	0.18	2.59	2.59	0.01
Perylene	967	431	0.46	6.13	6.13	0.01	0.59	8.48	8.48	0.01
Phenanthrene	596	34,300	0.86	11.47	11.47	0.02	0.83	11.93	11.93	0.02
Pyrene	697	9,090	1.60	21.33	21.33	0.03	2.10	30.17	30.17	0.04
	---	**ESBTU FCVi**	--	--	--	0.50	--	--	--	0.62

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-32				MLTC14-32			
		Field Sample ID	MLTC14-32-0001				MLTC14-32-0103			
		Sample Depth	0-1				1-3			
		Sample Date	10/16/2014				10/16/2014			
	Coc, PAHi, FCVi[a] µg/g oc	Coc, PAHi, Maxi[a] µg/g oc	Conc µg/g dry wt.	Coc µg/g oc	Final Coc[b]	ESBTU FCVi	Conc µg/g dry wt.	Coc µg/g oc	Final Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	6.51	0.0651	---	---	7.81	0.0781	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.13	2.00	2.00	0.00	0.40	5.12	5.12	0.01
2-Methylnaphthalene	447	154,800	0.19	2.92	2.92	0.01	0.36	4.61	4.61	0.01
Acenaphthene	491	33,400	0.15	2.30	2.30	0.00	0.34	4.35	4.35	0.01
Acenaphthylene	452	24,000	0.19	2.92	2.92	0.01	0.30	3.84	3.84	0.01
Anthracene	594	1,300	0.51	7.83	7.83	0.01	1.00	12.80	12.80	0.02
Benzo[a]anthracene	841	4,153	3.10	47.62	47.62	0.06	4.60	58.90	58.90	0.07
Benzo[a]pyrene	965	3,840	3.70	56.84	56.84	0.06	3.90	49.94	49.94	0.05
Benzo[b]fluoranthene	979	2,169	2.90	44.55	44.55	0.05	3.10	39.69	39.69	0.04
Benzo[e]pyrene	967	4,300	2.50	38.40	38.40	0.04	3.10	39.69	39.69	0.04
Benzo[g,h,i]perylene	1,095	648	2.50	38.40	38.40	0.04	2.50	32.01	32.01	0.03
Benzo[k]fluoranthene	981	1,220	2.50	38.40	38.40	0.04	2.90	37.13	37.13	0.04
C1 Chrysenes	929	--	4.40	67.59	67.59	0.07	9.20	117.80	117.80	0.13
C1 Fluorenes	611	--	0.17	2.61	2.61	0.00	0.67	8.58	8.58	0.01
C1-Fluoranthenes/Pyrenes	770	--	5.40	82.95	82.95	0.11	10.00	128.04	128.04	0.17
C1-Naphthalenes	444	--	0.23	3.53	3.53	0.01	0.53	6.79	6.79	0.02
C1-Phenanthrenes/Anthracenes	670	--	1.80	27.65	27.65	0.04	5.10	65.30	65.30	0.10
C2 Chrysenes	1,008	--	2.30	35.33	35.33	0.04	6.00	76.82	76.82	0.08
C2 Fluorenes	686	--	0.41	6.30	6.30	0.01	2.10	26.89	26.89	0.04
C2-Fluoranthenes/Pyrenes		--	3.10	47.62	47.62		8.10	103.71	103.71	
C2-Naphthalenes	510	--	0.75	11.52	11.52	0.02	2.40	30.73	30.73	0.06
C2-Phenanthrenes/Anthracenes	746	--	2.50	38.40	38.40	0.05	11.00	140.85	140.85	0.19
C3 Chrysenes	1,112	--	1.10	16.90	16.90	0.02	3.00	38.41	38.41	0.03
C3 Fluorenes	769	--	0.59	9.06	9.06	0.01	3.30	42.25	42.25	0.05
C3-Fluoranthenes/Pyrenes	949	--	1.80	27.65	27.65	0.03	6.00	76.82	76.82	0.08
C3-Naphthalenes	581	--	1.50	23.04	23.04	0.04	8.10	103.71	103.71	0.18
C3-Phenanthrenes/Anthracenes	829	--	3.00	46.08	46.08	0.06	15.00	192.06	192.06	0.23
C4 Chrysenes	1,214	--	0.31	4.76	4.76	0.00	1.10	14.08	14.08	0.01
C4-Naphthalenes	657	--	1.10	16.90	16.90	0.03	7.40	94.75	94.75	0.14
C4-Phenanthrenes/Anthracenes	913	--	1.80	27.65	27.65	0.03	11.00	140.85	140.85	0.15
Chrysene	844	826	3.90	59.91	59.91	0.07	6.20	79.39	79.39	0.09
Dibenz[a,h]anthracene	1,123	2,389	0.82	12.60	12.60	0.01	0.98	12.55	12.55	0.01
Fluoranthene	707	23,870	4.00	61.44	61.44	0.09	6.60	84.51	84.51	0.12
Fluorene	538	26,000	0.23	3.53	3.53	0.01	0.59	7.55	7.55	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	2.10	32.26	32.26	0.03	2.00	25.61	25.61	0.02
Naphthalene	385	61,700	0.31	4.76	4.76	0.01	0.49	6.27	6.27	0.02
Perylene	967	431	0.79	12.14	12.14	0.01	0.92	11.78	11.78	0.01
Phenanthrene	596	34,300	1.40	21.51	21.51	0.04	2.70	34.57	34.57	0.06
Pyrene	697	9,090	3.30	50.69	50.69	0.07	5.50	70.42	70.42	0.10
	---	**ESBTU FCVi**	--	--	--	1.17	--	--	--	2.35

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-34				MLTC14-35			
		Field Sample ID	MLTC14-34-SURF				MLTC14-35-SURF			
		Sample Depth	0-0.5				0-0.5			
		Sample Date	10/16/2014				10/16/2014			
	Coc, PAHi, FCVi[a]	Coc, PAHi, Maxi[a]	Conc	Coc	Final		Conc	Coc	Final	
	µg/g oc	µg/g oc	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	4.71	0.0471	---	---	9.27	0.0927	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.04	0.74	0.74	0.00	0.06	0.61	0.61	0.00
2-Methylnaphthalene	447	154,800	0.07	1.53	1.53	0.00	0.08	0.81	0.81	0.00
Acenaphthene	491	33,400	0.12	2.55	2.55	0.01	0.05	0.58	0.58	0.00
Acenaphthylene	452	24,000	0.05	1.10	1.10	0.00	0.06	0.66	0.66	0.00
Anthracene	594	1,300	0.19	4.03	4.03	0.01	0.18	1.94	1.94	0.00
Benzo[a]anthracene	841	4,153	2.00	42.46	42.46	0.05	1.00	10.79	10.79	0.01
Benzo[a]pyrene	965	3,840	2.30	48.83	48.83	0.05	1.10	11.87	11.87	0.01
Benzo[b]fluoranthene	979	2,169	2.60	55.20	55.20	0.06	1.10	11.87	11.87	0.01
Benzo[e]pyrene	967	4,300	1.80	38.22	38.22	0.04	0.84	9.06	9.06	0.01
Benzo[g,h,i]perylene	1,095	648	2.30	48.83	48.83	0.04	0.91	9.82	9.82	0.01
Benzo[k]fluoranthene	981	1,220	2.40	50.96	50.96	0.05	0.96	10.36	10.36	0.01
C1 Chrysenes	929	--	1.10	23.35	23.35	0.03	1.40	15.10	15.10	0.02
C1 Fluorenes	611	--	0.04	0.74	0.74	0.00	0.06	0.69	0.69	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.20	46.71	46.71	0.06	1.60	17.26	17.26	0.02
C1-Naphthalenes	444	--	0.07	1.55	1.55	0.00	0.09	0.99	0.99	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.33	7.01	7.01	0.01	0.61	6.58	6.58	0.01
C2 Chrysenes	1,008	--	0.56	11.89	11.89	0.01	0.81	8.74	8.74	0.01
C2 Fluorenes	686	--	0.05	1.04	1.04	0.00	0.20	2.16	2.16	0.00
C2-Fluoranthenes/Pyrenes		--	0.91	19.32	19.32		1.10	11.87	11.87	
C2-Naphthalenes	510	--	0.17	3.61	3.61	0.01	0.31	3.34	3.34	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.28	5.94	5.94	0.01	1.10	11.87	11.87	0.02
C3 Chrysenes	1,112	--	0.08	1.70	1.70	0.00	0.49	5.29	5.29	0.00
C3 Fluorenes	769	--	0.07	1.51	1.51	0.00	0.33	3.56	3.56	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.50	10.62	10.62	0.01	0.69	7.44	7.44	0.01
C3-Naphthalenes	581	--	0.17	3.61	3.61	0.01	0.58	6.26	6.26	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.38	8.07	8.07	0.01	1.40	15.10	15.10	0.02
C4 Chrysenes	1,214	--	0.17	0.00	0.00	0.00	0.17	1.83	1.83	0.00
C4-Naphthalenes	657	--	0.12	2.55	2.55	0.00	0.42	4.53	4.53	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.26	5.52	5.52	0.01	1.00	10.79	10.79	0.01
Chrysene	844	826	2.40	50.96	50.96	0.06	1.40	15.10	15.10	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.72	15.29	15.29	0.01	0.34	3.67	3.67	0.00
Fluoranthene	707	23,870	2.10	44.59	44.59	0.06	1.80	19.42	19.42	0.03
Fluorene	538	26,000	0.08	1.68	1.68	0.00	0.09	0.92	0.92	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	2.10	44.59	44.59	0.04	0.78	8.41	8.41	0.01
Naphthalene	385	61,700	0.19	4.03	4.03	0.01	0.10	1.06	1.06	0.00
Perylene	967	431	0.69	14.65	14.65	0.02	0.28	3.02	3.02	0.00
Phenanthrene	596	34,300	0.64	13.59	13.59	0.02	0.60	6.47	6.47	0.01
Pyrene	697	9,090	1.90	40.34	40.34	0.06	1.20	12.94	12.94	0.02
	---	**ESBTU FCVi**	--	--	--	0.75	--	--	--	0.31

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-35**				**MLTC14-35**			
		Field Sample ID	**MLTC14-35-0001**				**MLTC14-35-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	7.33	0.0733	---	---	3.56	0.0356	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.05	0.65	0.65	0.00	0.00	0.00	0.00	0.00
2-Methylnaphthalene	447	154,800	0.05	0.61	0.61	0.00	0.00	0.00	0.00	0.00
Acenaphthene	491	33,400	0.04	0.55	0.55	0.00	0.00	0.01	0.01	0.00
Acenaphthylene	452	24,000	0.05	0.64	0.64	0.00	0.00	0.01	0.01	0.00
Anthracene	594	1,300	0.10	1.35	1.35	0.00	0.00	0.01	0.01	0.00
Benzo[a]anthracene	841	4,153	0.72	9.82	9.82	0.01	0.00	0.12	0.12	0.00
Benzo[a]pyrene	965	3,840	0.71	9.69	9.69	0.01	0.00	0.10	0.10	0.00
Benzo[b]fluoranthene	979	2,169	0.66	9.00	9.00	0.01	0.00	0.10	0.10	0.00
Benzo[e]pyrene	967	4,300	0.56	7.64	7.64	0.01	0.00	0.09	0.09	0.00
Benzo[g,h,i]perylene	1,095	648	0.54	7.37	7.37	0.01	0.00	0.09	0.09	0.00
Benzo[k]fluoranthene	981	1,220	0.63	8.59	8.59	0.01	0.00	0.10	0.10	0.00
C1 Chrysenes	929	--	1.30	17.74	17.74	0.02	0.01	0.18	0.18	0.00
C1 Fluorenes	611	--	0.09	1.23	1.23	0.00	0.00	0.01	0.01	0.00
C1-Fluoranthenes/Pyrenes	770	--	1.60	21.83	21.83	0.03	0.01	0.24	0.24	0.00
C1-Naphthalenes	444	--	0.07	0.91	0.91	0.00	0.00	0.02	0.02	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.69	9.41	9.41	0.01	0.00	0.07	0.07	0.00
C2 Chrysenes	1,008	--	0.83	11.32	11.32	0.01	0.00	0.12	0.12	0.00
C2 Fluorenes	686	--	0.28	3.82	3.82	0.01	0.00	0.04	0.04	0.00
C2-Fluoranthenes/Pyrenes		--	1.20	16.37	16.37		0.01	0.18	0.18	
C2-Naphthalenes	510	--	0.34	4.64	4.64	0.01	0.00	0.06	0.06	0.00
C2-Phenanthrenes/Anthracenes	746	--	1.40	19.10	19.10	0.03	0.01	0.18	0.18	0.00
C3 Chrysenes	1,112	--	0.52	7.09	7.09	0.01	0.00	0.06	0.06	0.00
C3 Fluorenes	769	--	0.50	6.82	6.82	0.01	0.00	0.06	0.06	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.90	12.28	12.28	0.01	0.01	0.21	0.21	0.00
C3-Naphthalenes	581	--	0.80	10.91	10.91	0.02	0.00	0.12	0.12	0.00
C3-Phenanthrenes/Anthracenes	829	--	2.40	32.74	32.74	0.04	0.01	0.28	0.28	0.00
C4 Chrysenes	1,214	--	0.21	2.86	2.86	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.70	9.55	9.55	0.01	0.00	0.09	0.09	0.00
C4-Phenanthrenes/Anthracenes	913	--	1.70	23.19	23.19	0.03	0.01	0.19	0.19	0.00
Chrysene	844	826	0.95	12.96	12.96	0.02	0.01	0.16	0.16	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.20	2.73	2.73	0.00	0.00	0.03	0.03	0.00
Fluoranthene	707	23,870	1.20	16.37	16.37	0.02	0.01	0.19	0.19	0.00
Fluorene	538	26,000	0.06	0.85	0.85	0.00	0.00	0.01	0.01	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.45	6.14	6.14	0.01	0.00	0.07	0.07	0.00
Naphthalene	385	61,700	0.06	0.75	0.75	0.00	0.00	0.00	0.00	0.00
Perylene	967	431	0.18	2.46	2.46	0.00	0.00	0.04	0.04	0.00
Phenanthrene	596	34,300	0.37	5.05	5.05	0.01	0.00	0.07	0.07	0.00
Pyrene	697	9,090	0.98	13.37	13.37	0.02	0.01	0.17	0.17	0.00
	---	**ESBTU FCVi**	--	--	--	0.37	--	--	--	0.00

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-35				MLTC14-35			
		Field Sample ID	**MLTC14-35-0103FD**				**MLTC14-35-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	0.729	0.00729	---	---	1.29	0.0129	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylnaphthalene	447	154,800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acenaphthene	491	33,400	0.00	0.05	0.05	0.00	0.00	0.01	0.01	0.00
Acenaphthylene	452	24,000	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00
Anthracene	594	1,300	0.00	0.14	0.14	0.00	0.00	0.02	0.02	0.00
Benzo[a]anthracene	841	4,153	0.00	0.63	0.63	0.00	0.00	0.16	0.16	0.00
Benzo[a]pyrene	965	3,840	0.00	0.44	0.44	0.00	0.00	0.11	0.11	0.00
Benzo[b]fluoranthene	979	2,169	0.00	0.53	0.53	0.00	0.00	0.16	0.16	0.00
Benzo[e]pyrene	967	4,300	0.00	0.41	0.41	0.00	0.00	0.12	0.12	0.00
Benzo[g,h,i]perylene	1,095	648	0.00	0.38	0.38	0.00	0.00	0.12	0.12	0.00
Benzo[k]fluoranthene	981	1,220	0.00	0.45	0.45	0.00	0.00	0.12	0.12	0.00
C1 Chrysenes	929	--	0.01	0.70	0.70	0.00	0.00	0.17	0.17	0.00
C1 Fluorenes	611	--	0.00	0.05	0.05	0.00	0.00	0.02	0.02	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.01	1.06	1.06	0.00	0.00	0.34	0.34	0.00
C1-Naphthalenes	444	--	0.00	0.06	0.06	0.00	0.00	0.03	0.03	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.00	0.36	0.36	0.00	0.00	0.09	0.09	0.00
C2 Chrysenes	1,008	--	0.00	0.48	0.48	0.00	0.00	0.14	0.14	0.00
C2 Fluorenes	686	--	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	0.01	0.73	0.73		0.00	0.24	0.24	
C2-Naphthalenes	510	--	0.00	0.25	0.25	0.00	0.00	0.09	0.09	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.01	0.69	0.69	0.00	0.00	0.25	0.25	0.00
C3 Chrysenes	1,112	--	0.00	0.25	0.25	0.00	0.00	0.09	0.09	0.00
C3 Fluorenes	769	--	0.00	0.21	0.21	0.00	0.00	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.00	0.58	0.58	0.00	0.00	0.19	0.19	0.00
C3-Naphthalenes	581	--	0.00	0.44	0.44	0.00	0.00	0.16	0.16	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.01	1.19	1.19	0.00	0.01	0.39	0.39	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.00	0.33	0.33	0.00	0.00	0.13	0.13	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.01	0.82	0.82	0.00	0.00	0.23	0.23	0.00
Chrysene	844	826	0.01	0.77	0.77	0.00	0.00	0.22	0.22	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.14	0.14	0.00	0.00	0.04	0.04	0.00
Fluoranthene	707	23,870	0.01	1.14	1.14	0.00	0.00	0.34	0.34	0.00
Fluorene	538	26,000	0.00	0.08	0.08	0.00	0.00	0.02	0.02	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.32	0.32	0.00	0.00	0.09	0.09	0.00
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perylene	967	431	0.00	0.19	0.19	0.00	0.00	0.09	0.09	0.00
Phenanthrene	596	34,300	0.00	0.58	0.58	0.00	0.00	0.16	0.16	0.00
Pyrene	697	9,090	0.01	0.96	0.96	0.00	0.00	0.31	0.31	0.00
	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	0.01

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-36				MLTC14-36			
		Field Sample ID	MLTC14-36-SURF				MLTC14-36-0001			
		Sample Depth	0-0.5				0-1			
		Sample Date	10/17/2014				10/17/2014			
	Coc, PAHi, FCVi[a]	Coc, PAHi, Maxi[a]	Conc	Coc	Final		Conc	Coc	Final	
	μg/g oc	μg/g oc	μg/g dry wt.	μg/g oc	Coc[b]	ESBTU FCVi	μg/g dry wt.	μg/g oc	Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	5.17	0.0517	---	---	2.58	0.0258	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)										
1-Methylnaphthalene	446	165,700	0.09	1.74	1.74	0.00	0.00	0.07	0.07	0.00
2-Methylnaphthalene	447	154,800	0.14	2.71	2.71	0.01	0.00	0.13	0.13	0.00
Acenaphthene	491	33,400	0.17	3.29	3.29	0.01	0.00	0.15	0.15	0.00
Acenaphthylene	452	24,000	0.16	3.09	3.09	0.01	0.00	0.18	0.18	0.00
Anthracene	594	1,300	0.55	10.64	10.64	0.02	0.01	0.31	0.31	0.00
Benzo[a]anthracene	841	4,153	2.30	44.49	44.49	0.05	0.05	2.09	2.09	0.00
Benzo[a]pyrene	965	3,840	2.70	52.22	52.22	0.05	0.07	2.83	2.83	0.00
Benzo[b]fluoranthene	979	2,169	1.90	36.75	36.75	0.04	0.05	2.02	2.02	0.00
Benzo[e]pyrene	967	4,300	1.70	32.88	32.88	0.03	0.05	1.86	1.86	0.00
Benzo[g,h,i]perylene	1,095	648	1.70	32.88	32.88	0.03	0.05	1.86	1.86	0.00
Benzo[k]fluoranthene	981	1,220	2.40	46.42	46.42	0.05	0.06	2.13	2.13	0.00
C1 Chrysenes	929	--	2.00	38.68	38.68	0.04	0.07	2.67	2.67	0.00
C1 Fluorenes	611	--	0.09	1.76	1.76	0.00	0.00	0.09	0.09	0.00
C1-Fluoranthenes/Pyrenes	770	--	3.50	67.70	67.70	0.09	0.08	2.98	2.98	0.00
C1-Naphthalenes	444	--	0.17	3.29	3.29	0.01	0.00	0.13	0.13	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.95	18.38	18.38	0.03	0.02	0.70	0.70	0.00
C2 Chrysenes	1,008	--	1.10	21.28	21.28	0.02	0.04	1.40	1.40	0.00
C2 Fluorenes	686	--	0.16	3.09	3.09	0.00	0.00	0.17	0.17	0.00
C2-Fluoranthenes/Pyrenes		--	1.70	32.88	32.88		0.05	1.98	1.98	
C2-Naphthalenes	510	--	0.45	8.70	8.70	0.02	0.01	0.34	0.34	0.00
C2-Phenanthrenes/Anthracenes	746	--	1.00	19.34	19.34	0.03	0.02	0.85	0.85	0.00
C3 Chrysenes	1,112	--	0.51	9.86	9.86	0.01	0.02	0.62	0.62	0.00
C3 Fluorenes	769	--	0.27	5.22	5.22	0.01	0.01	0.22	0.22	0.00
C3-Fluoranthenes/Pyrenes	949	--	1.00	19.34	19.34	0.02	0.03	1.16	1.16	0.00
C3-Naphthalenes	581	--	0.51	9.86	9.86	0.02	0.01	0.43	0.43	0.00
C3-Phenanthrenes/Anthracenes	829	--	1.60	30.95	30.95	0.04	0.04	1.36	1.36	0.00
C4 Chrysenes	1,214	--	0.24	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.35	6.77	6.77	0.01	0.01	0.28	0.28	0.00
C4-Phenanthrenes/Anthracenes	913	--	1.10	21.28	21.28	0.02	0.02	0.89	0.89	0.00
Chrysene	844	826	2.90	56.09	56.09	0.07	0.06	2.29	2.29	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.65	12.57	12.57	0.01	0.02	0.74	0.74	0.00
Fluoranthene	707	23,870	3.10	59.96	59.96	0.08	0.06	2.13	2.13	0.00
Fluorene	538	26,000	0.18	3.48	3.48	0.01	0.00	0.13	0.13	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.50	29.01	29.01	0.03	0.04	1.71	1.71	0.00
Naphthalene	385	61,700	0.26	5.03	5.03	0.01	0.00	0.18	0.18	0.00
Perylene	967	431	0.58	11.22	11.22	0.01	0.05	1.78	1.78	0.00
Phenanthrene	596	34,300	1.50	29.01	29.01	0.05	0.03	0.97	0.97	0.00
Pyrene	697	9,090	2.70	52.22	52.22	0.07	0.05	1.98	1.98	0.00
	---	**ESBTU FCVi**	--	--	--	0.97	--	--	--	0.05

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-36**				**MLTC14-37**			
		Field Sample ID	**MLTC14-36-0103**				**MLTC14-37-SURF**			
		Sample Depth	**1-3**				**0-0.5**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi^a µg/g oc	**Coc, PAHi, Maxi^a µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc^b**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc^b**	**ESBTU FCVi**
Total Organic Carbon	--	--	1.02	0.0102	---	---	10.4	0.104	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.02	0.02	0.00	0.21	2.02	2.02	0.00
2-Methylnaphthalene	447	154,800	0.00	0.00	0.00	0.00	0.36	3.46	3.46	0.01
Acenaphthene	491	33,400	0.00	0.01	0.01	0.00	0.36	3.46	3.46	0.01
Acenaphthylene	452	24,000	0.00	0.03	0.03	0.00	0.36	3.46	3.46	0.01
Anthracene	594	1,300	0.00	0.06	0.06	0.00	1.10	10.58	10.58	0.02
Benzo[a]anthracene	841	4,153	0.00	0.34	0.34	0.00	5.90	56.73	56.73	0.07
Benzo[a]pyrene	965	3,840	0.00	0.32	0.32	0.00	7.60	73.08	73.08	0.08
Benzo[b]fluoranthene	979	2,169	0.00	0.29	0.29	0.00	5.40	51.92	51.92	0.05
Benzo[e]pyrene	967	4,300	0.00	0.25	0.25	0.00	4.60	44.23	44.23	0.05
Benzo[g,h,i]perylene	1,095	648	0.00	0.25	0.25	0.00	4.70	45.19	45.19	0.04
Benzo[k]fluoranthene	981	1,220	0.00	0.30	0.30	0.00	6.90	66.35	66.35	0.07
C1 Chrysenes	929	--	0.00	0.44	0.44	0.00	4.50	43.27	43.27	0.05
C1 Fluorenes	611	--	0.00	0.00	0.00	0.00	0.16	1.54	1.54	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.01	0.49	0.49	0.00	8.00	76.92	76.92	0.10
C1-Naphthalenes	444	--	0.00	0.00	0.00	0.00	0.44	4.23	4.23	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.00	0.17	0.17	0.00	1.80	17.31	17.31	0.03
C2 Chrysenes	1,008	--	0.00	0.25	0.25	0.00	2.20	21.15	21.15	0.02
C2 Fluorenes	686	--	0.00	0.00	0.00	0.00	0.33	3.17	3.17	0.00
C2-Fluoranthenes/Pyrenes		--	0.00	0.37	0.37		3.40	32.69	32.69	
C2-Naphthalenes	510	--	0.00	0.12	0.12	0.00	0.96	9.23	9.23	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.00	0.23	0.23	0.00	1.80	17.31	17.31	0.02
C3 Chrysenes	1,112	--	0.00	0.17	0.17	0.00	0.87	8.37	8.37	0.01
C3 Fluorenes	769	--	0.00	0.00	0.00	0.00	0.43	4.13	4.13	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.00	0.24	0.24	0.00	1.70	16.35	16.35	0.02
C3-Naphthalenes	581	--	0.00	0.17	0.17	0.00	1.00	9.62	9.62	0.02
C3-Phenanthrenes/Anthracenes	829	--	0.00	0.25	0.25	0.00	2.50	24.04	24.04	0.03
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.00	0.09	0.09	0.00	0.62	5.96	5.96	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.00	0.14	0.14	0.00	1.40	13.46	13.46	0.01
Chrysene	844	826	0.00	0.42	0.42	0.00	7.00	67.31	67.31	0.08
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.09	0.09	0.00	1.70	16.35	16.35	0.01
Fluoranthene	707	23,870	0.00	0.30	0.30	0.00	6.70	64.42	64.42	0.09
Fluorene	538	26,000	0.00	0.02	0.02	0.00	0.31	2.98	2.98	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.21	0.21	0.00	4.20	40.38	40.38	0.04
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	0.69	6.63	6.63	0.02
Perylene	967	431	0.00	0.23	0.23	0.00	1.80	17.31	17.31	0.02
Phenanthrene	596	34,300	0.00	0.12	0.12	0.00	2.40	23.08	23.08	0.04
Pyrene	697	9,090	0.00	0.25	0.25	0.00	6.30	60.58	60.58	0.09
	---	**ESBTU FCVi**	--	--	--	0.01	--	--	--	1.10

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-37**				**MLTC14-37**			
		Field Sample ID	**MLTC14-37-0001**				**MLTC14-37-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.8	0.038	---	---	1.72	0.0172	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.58	0.58	0.00	0.00	0.19	0.19	0.00
2-Methylnaphthalene	447	154,800	0.04	1.00	1.00	0.00	0.01	0.35	0.35	0.00
Acenaphthene	491	33,400	0.03	0.84	0.84	0.00	0.00	0.26	0.26	0.00
Acenaphthylene	452	24,000	0.16	4.21	4.21	0.01	0.00	0.23	0.23	0.00
Anthracene	594	1,300	0.50	13.16	13.16	0.02	0.01	0.33	0.33	0.00
Benzo[a]anthracene	841	4,153	3.00	78.95	78.95	0.09	0.06	3.43	3.43	0.00
Benzo[a]pyrene	965	3,840	2.20	57.89	57.89	0.06	0.07	3.78	3.78	0.00
Benzo[b]fluoranthene	979	2,169	1.30	34.21	34.21	0.03	0.07	3.84	3.84	0.00
Benzo[e]pyrene	967	4,300	1.40	36.84	36.84	0.04	0.06	3.31	3.31	0.00
Benzo[g,h,i]perylene	1,095	648	1.30	34.21	34.21	0.03	0.07	3.84	3.84	0.00
Benzo[k]fluoranthene	981	1,220	2.00	52.63	52.63	0.05	0.08	4.42	4.42	0.00
C1 Chrysenes	929	--	2.20	57.89	57.89	0.06	0.05	2.85	2.85	0.00
C1 Fluorenes	611	--	0.11	2.89	2.89	0.00	0.00	0.12	0.12	0.00
C1-Fluoranthenes/Pyrenes	770	--	6.90	181.58	181.58	0.24	0.09	5.00	5.00	0.01
C1-Naphthalenes	444	--	0.04	1.16	1.16	0.00	0.01	0.36	0.36	0.00
C1-Phenanthrenes/Anthracenes	670	--	2.00	52.63	52.63	0.08	0.02	0.93	0.93	0.00
C2 Chrysenes	1,008	--	0.69	18.16	18.16	0.02	0.02	1.40	1.40	0.00
C2 Fluorenes	686	--	0.12	3.16	3.16	0.00	0.00	0.22	0.22	0.00
C2-Fluoranthenes/Pyrenes		--	1.90	50.00	50.00		0.04	2.03	2.03	
C2-Naphthalenes	510	--	0.13	3.42	3.42	0.01	0.01	0.70	0.70	0.00
C2-Phenanthrenes/Anthracenes	746	--	1.40	36.84	36.84	0.05	0.02	1.05	1.05	0.00
C3 Chrysenes	1,112	--	0.16	4.21	4.21	0.00	0.01	0.55	0.55	0.00
C3 Fluorenes	769	--	0.12	3.16	3.16	0.00	0.00	0.26	0.26	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.52	13.68	13.68	0.01	0.02	1.10	1.10	0.00
C3-Naphthalenes	581	--	0.21	5.53	5.53	0.01	0.01	0.70	0.70	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.81	21.32	21.32	0.03	0.03	1.51	1.51	0.00
C4 Chrysenes	1,214	--	0.22	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.16	4.21	4.21	0.01	0.01	0.53	0.53	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.23	6.05	6.05	0.01	0.01	0.81	0.81	0.00
Chrysene	844	826	3.00	78.95	78.95	0.09	0.07	4.07	4.07	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.38	10.00	10.00	0.01	0.03	1.45	1.45	0.00
Fluoranthene	707	23,870	2.80	73.68	73.68	0.10	0.06	3.26	3.26	0.00
Fluorene	538	26,000	0.04	1.16	1.16	0.00	0.00	0.17	0.17	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.00	26.32	26.32	0.02	0.06	3.37	3.37	0.00
Naphthalene	385	61,700	0.07	1.76	1.76	0.00	0.01	0.51	0.51	0.00
Perylene	967	431	0.46	12.11	12.11	0.01	0.04	2.09	2.09	0.00
Phenanthrene	596	34,300	0.81	21.32	21.32	0.04	0.02	1.16	1.16	0.00
Pyrene	697	9,090	4.40	115.79	115.79	0.17	0.07	4.01	4.01	0.01
	---	**ESBTU FCVi**	--	--	--	1.32	--	--	--	0.07

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-38**				**MLTC14-39**			
		Field Sample ID	**MLTC14-38-SURF**				**MLTC14-39-SURF**			
		Sample Depth	**0-0.5**				**0-0.5**			
		Sample Date	**10/20/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	1.27	0.0127	---	---	4.22	0.0422	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	1.26	1.26	0.00	0.12	2.84	2.84	0.01
2-Methylnaphthalene	447	154,800	0.03	1.97	1.97	0.00	0.22	5.21	5.21	0.01
Acenaphthene	491	33,400	0.05	4.02	4.02	0.01	0.15	3.55	3.55	0.01
Acenaphthylene	452	24,000	0.13	10.24	10.24	0.02	0.24	5.69	5.69	0.01
Anthracene	594	1,300	0.46	36.22	36.22	0.06	0.78	18.48	18.48	0.03
Benzo[a]anthracene	841	4,153	1.30	102.36	102.36	0.12	2.50	59.24	59.24	0.07
Benzo[a]pyrene	965	3,840	1.30	102.36	102.36	0.11	2.30	54.50	54.50	0.06
Benzo[b]fluoranthene	979	2,169	0.76	59.84	59.84	0.06	1.60	37.91	37.91	0.04
Benzo[e]pyrene	967	4,300	0.65	51.18	51.18	0.05	1.40	33.18	33.18	0.03
Benzo[g,h,i]perylene	1,095	648	0.67	52.76	52.76	0.05	1.40	33.18	33.18	0.03
Benzo[k]fluoranthene	981	1,220	1.10	86.61	86.61	0.09	1.80	42.65	42.65	0.04
C1 Chrysenes	929	--	0.98	77.17	77.17	0.08	2.10	49.76	49.76	0.05
C1 Fluorenes	611	--	0.06	4.80	4.80	0.01	0.14	3.32	3.32	0.01
C1-Fluoranthenes/Pyrenes	770	--	2.40	188.98	188.98	0.25	4.10	97.16	97.16	0.13
C1-Naphthalenes	444	--	0.05	3.62	3.62	0.01	0.23	5.45	5.45	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.69	54.33	54.33	0.08	1.60	37.91	37.91	0.06
C2 Chrysenes	1,008	--	0.35	27.56	27.56	0.03	0.66	15.64	15.64	0.02
C2 Fluorenes	686	--	0.07	5.75	5.75	0.01	0.21	4.98	4.98	0.01
C2-Fluoranthenes/Pyrenes		--	1.00	78.74	78.74		1.60	37.91	37.91	
C2-Naphthalenes	510	--	0.13	10.24	10.24	0.02	0.51	12.09	12.09	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.56	44.09	44.09	0.06	1.40	33.18	33.18	0.04
C3 Chrysenes	1,112	--	0.10	7.48	7.48	0.01	0.25	5.92	5.92	0.01
C3 Fluorenes	769	--	0.08	6.06	6.06	0.01	0.21	4.98	4.98	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.29	22.83	22.83	0.02	0.66	15.64	15.64	0.02
C3-Naphthalenes	581	--	0.24	18.90	18.90	0.03	0.63	14.93	14.93	0.03
C3-Phenanthrenes/Anthracenes	829	--	0.53	41.73	41.73	0.05	0.93	22.04	22.04	0.03
C4 Chrysenes	1,214	--	0.10	0.00	0.00	0.00	0.40	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.18	14.17	14.17	0.02	0.36	8.53	8.53	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.30	23.62	23.62	0.03	0.46	10.90	10.90	0.01
Chrysene	844	826	1.50	118.11	118.11	0.14	2.50	59.24	59.24	0.07
Dibenz[a,h]anthracene	1,123	2,389	0.18	14.17	14.17	0.01	0.48	11.37	11.37	0.01
Fluoranthene	707	23,870	1.90	149.61	149.61	0.21	4.40	104.27	104.27	0.15
Fluorene	538	26,000	0.07	5.59	5.59	0.01	0.22	5.21	5.21	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.59	46.46	46.46	0.04	1.30	30.81	30.81	0.03
Naphthalene	385	61,700	0.10	7.80	7.80	0.02	0.33	7.82	7.82	0.02
Perylene	967	431	0.32	25.20	25.20	0.03	0.54	12.80	12.80	0.01
Phenanthrene	596	34,300	0.61	48.03	48.03	0.08	1.60	37.91	37.91	0.06
Pyrene	697	9,090	1.70	133.86	133.86	0.19	3.00	71.09	71.09	0.10
	---	**ESBTU FCVi**	--	--	--	1.99	--	--	--	1.22

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-40**				**MLTC14-40**			
		Field Sample ID	**MLTC14-40-SURF**				**MLTC14-40-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi^{a}	**Coc, PAHi, Maxi^{a}**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc^{b}**	**ESBTU FCVi**
Total Organic Carbon	--	--	23	0.23	---	---	47.8	0.478	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.03	0.13	0.13	0.00	0.01	0.01	0.01	0.00
2-Methylnaphthalene	447	154,800	0.05	0.22	0.22	0.00	0.01	0.02	0.02	0.00
Acenaphthene	491	33,400	0.04	0.16	0.16	0.00	0.00	0.01	0.01	0.00
Acenaphthylene	452	24,000	0.05	0.21	0.21	0.00	0.01	0.01	0.01	0.00
Anthracene	594	1,300	0.10	0.41	0.41	0.00	0.02	0.05	0.05	0.00
Benzo[a]anthracene	841	4,153	0.53	2.30	2.30	0.00	0.06	0.12	0.12	0.00
Benzo[a]pyrene	965	3,840	0.67	2.91	2.91	0.00	0.06	0.12	0.12	0.00
Benzo[b]fluoranthene	979	2,169	0.62	2.70	2.70	0.00	0.06	0.12	0.12	0.00
Benzo[e]pyrene	967	4,300	0.44	1.91	1.91	0.00	0.04	0.09	0.09	0.00
Benzo[g,h,i]perylene	1,095	648	0.48	2.09	2.09	0.00	0.05	0.10	0.10	0.00
Benzo[k]fluoranthene	981	1,220	0.57	2.48	2.48	0.00	0.06	0.12	0.12	0.00
C1 Chrysenes	929	--	0.53	2.30	2.30	0.00	0.02	0.00	0.00	0.00
C1 Fluorenes	611	--	0.03	0.11	0.11	0.00	0.01	0.01	0.01	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.84	3.65	3.65	0.00	0.09	0.19	0.19	0.00
C1-Naphthalenes	444	--	0.06	0.25	0.25	0.00	0.01	0.03	0.03	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.21	0.91	0.91	0.00	0.04	0.09	0.09	0.00
C2 Chrysenes	1,008	--	0.34	1.48	1.48	0.00	0.02	0.00	0.00	0.00
C2 Fluorenes	686	--	0.05	0.21	0.21	0.00	0.01	0.03	0.03	0.00
C2-Fluoranthenes/Pyrenes		--	0.41	1.78	1.78		0.05	0.11	0.11	
C2-Naphthalenes	510	--	0.13	0.57	0.57	0.00	0.03	0.06	0.06	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.24	1.04	1.04	0.00	0.03	0.07	0.07	0.00
C3 Chrysenes	1,112	--	0.07	0.00	0.00	0.00	0.02	0.00	0.00	0.00
C3 Fluorenes	769	--	0.08	0.33	0.33	0.00	0.02	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.19	0.83	0.83	0.00	0.03	0.06	0.06	0.00
C3-Naphthalenes	581	--	0.15	0.65	0.65	0.00	0.03	0.05	0.05	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.34	1.48	1.48	0.00	0.04	0.09	0.09	0.00
C4 Chrysenes	1,214	--	0.07	0.00	0.00	0.00	0.02	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.09	0.38	0.38	0.00	0.02	0.05	0.05	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.26	1.13	1.13	0.00	0.02	0.00	0.00	0.00
Chrysene	844	826	0.59	2.57	2.57	0.00	0.08	0.16	0.16	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.17	0.74	0.74	0.00	0.01	0.03	0.03	0.00
Fluoranthene	707	23,870	0.79	3.43	3.43	0.00	0.15	0.31	0.31	0.00
Fluorene	538	26,000	0.06	0.26	0.26	0.00	0.02	0.05	0.05	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.43	1.87	1.87	0.00	0.04	0.09	0.09	0.00
Naphthalene	385	61,700	0.08	0.34	0.34	0.00	0.02	0.03	0.03	0.00
Perylene	967	431	0.17	0.74	0.74	0.00	0.02	0.04	0.04	0.00
Phenanthrene	596	34,300	0.36	1.57	1.57	0.00	0.11	0.23	0.23	0.00
Pyrene	697	9,090	0.69	3.00	3.00	0.00	0.08	0.17	0.17	0.00
	---	**ESBTU FCVi**	--	--	--	0.05	--	--	--	0.00

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-40**				**MLTC14-40**			
		Field Sample ID	**MLTC14-40-0103**				**MLTC14-40-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a] μg/g oc	**Coc, PAHi, Maxi[a]** μg/g oc	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final** Coc[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	0.334	0.00334	---	---	0.767	0.00767	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.06	0.06	0.00	0.00	0.03	0.03	0.00
2-Methylnaphthalene	447	154,800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acenaphthene	491	33,400	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.00	0.07	0.07	0.00	0.00	0.02	0.02	0.00
Anthracene	594	1,300	0.00	0.13	0.13	0.00	0.00	0.04	0.04	0.00
Benzo[a]anthracene	841	4,153	0.00	0.60	0.60	0.00	0.00	0.18	0.18	0.00
Benzo[a]pyrene	965	3,840	0.00	0.63	0.63	0.00	0.00	0.23	0.23	0.00
Benzo[b]fluoranthene	979	2,169	0.00	0.81	0.81	0.00	0.00	0.23	0.23	0.00
Benzo[e]pyrene	967	4,300	0.00	0.69	0.69	0.00	0.00	0.23	0.23	0.00
Benzo[g,h,i]perylene	1,095	648	0.00	0.75	0.75	0.00	0.00	0.25	0.25	0.00
Benzo[k]fluoranthene	981	1,220	0.00	0.63	0.63	0.00	0.00	0.20	0.20	0.00
C1 Chrysenes	929	--	0.00	1.26	1.26	0.00	0.00	0.38	0.38	0.00
C1 Fluorenes	611	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.00	1.35	1.35	0.00	0.00	0.34	0.34	0.00
C1-Naphthalenes	444	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.00	0.45	0.45	0.00	0.00	0.12	0.12	0.00
C2 Chrysenes	1,008	--	0.00	0.81	0.81	0.00	0.00	0.00	0.00	0.00
C2 Fluorenes	686	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	0.00	0.00	0.00		0.00	0.35	0.35	
C2-Naphthalenes	510	--	0.00	0.45	0.45	0.00	0.00	0.13	0.13	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.00	0.72	0.72	0.00	0.00	0.21	0.21	0.00
C3 Chrysenes	1,112	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C3 Fluorenes	769	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C3-Naphthalenes	581	--	0.00	0.60	0.60	0.00	0.00	0.14	0.14	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.00	1.02	1.02	0.00	0.00	0.34	0.34	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.00	0.39	0.39	0.00	0.00	0.00	0.00	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.00	0.54	0.54	0.00	0.00	0.18	0.18	0.00
Chrysene	844	826	0.00	0.99	0.99	0.00	0.00	0.31	0.31	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.18	0.18	0.00	0.00	0.07	0.07	0.00
Fluoranthene	707	23,870	0.00	1.17	1.17	0.00	0.00	0.30	0.30	0.00
Fluorene	538	26,000	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.48	0.48	0.00	0.00	0.16	0.16	0.00
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perylene	967	431	0.00	0.51	0.51	0.00	0.00	0.11	0.11	0.00
Phenanthrene	596	34,300	0.00	0.48	0.48	0.00	0.00	0.16	0.16	0.00
Pyrene	697	9,090	0.00	1.11	1.11	0.00	0.00	0.30	0.30	0.00
	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	0.01

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-41				MLTC14-41			
		Field Sample ID	MLTC14-41-SURF				MLTC14-41-0001			
		Sample Depth	0-0.5				0-1			
		Sample Date	10/17/2014				10/17/2014			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	4.39	0.0439	---	---	4.06	0.0406	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.05	1.07	1.07	0.00	0.00	0.05	0.05	0.00
2-Methylnaphthalene	447	154,800	0.09	2.05	2.05	0.00	0.00	0.06	0.06	0.00
Acenaphthene	491	33,400	0.10	2.26	2.26	0.00	0.00	0.06	0.06	0.00
Acenaphthylene	452	24,000	0.20	4.56	4.56	0.01	0.00	0.07	0.07	0.00
Anthracene	594	1,300	0.48	10.93	10.93	0.02	0.01	0.30	0.30	0.00
Benzo[a]anthracene	841	4,153	3.70	84.28	84.28	0.10	0.07	1.60	1.60	0.00
Benzo[a]pyrene	965	3,840	4.30	97.95	97.95	0.10	0.08	1.87	1.87	0.00
Benzo[b]fluoranthene	979	2,169	3.00	68.34	68.34	0.07	0.08	2.02	2.02	0.00
Benzo[e]pyrene	967	4,300	2.40	54.67	54.67	0.06	0.05	1.18	1.18	0.00
Benzo[g,h,i]perylene	1,095	648	2.40	54.67	54.67	0.05	0.05	1.13	1.13	0.00
Benzo[k]fluoranthene	981	1,220	4.10	93.39	93.39	0.10	0.06	1.55	1.55	0.00
C1 Chrysenes	929	--	2.30	52.39	52.39	0.06	0.04	0.91	0.91	0.00
C1 Fluorenes	611	--	0.06	1.32	1.32	0.00	0.00	0.06	0.06	0.00
C1-Fluoranthenes/Pyrenes	770	--	4.80	109.34	109.34	0.14	0.10	2.34	2.34	0.00
C1-Naphthalenes	444	--	0.10	2.28	2.28	0.01	0.00	0.08	0.08	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.78	17.77	17.77	0.03	0.03	0.64	0.64	0.00
C2 Chrysenes	1,008	--	0.81	18.45	18.45	0.02	0.02	0.47	0.47	0.00
C2 Fluorenes	686	--	0.09	2.07	2.07	0.00	0.01	0.16	0.16	0.00
C2-Fluoranthenes/Pyrenes		--	1.60	36.45	36.45		0.04	0.99	0.99	
C2-Naphthalenes	510	--	0.21	4.78	4.78	0.01	0.01	0.25	0.25	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.57	12.98	12.98	0.02	0.03	0.79	0.79	0.00
C3 Chrysenes	1,112	--	0.35	7.97	7.97	0.01	0.01	0.19	0.19	0.00
C3 Fluorenes	769	--	0.35	0.00	0.00	0.00	0.01	0.15	0.15	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.58	13.21	13.21	0.01	0.02	0.49	0.49	0.00
C3-Naphthalenes	581	--	0.26	5.92	5.92	0.01	0.02	0.39	0.39	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.64	14.58	14.58	0.02	0.04	1.01	1.01	0.00
C4 Chrysenes	1,214	--	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.16	3.64	3.64	0.01	0.02	0.42	0.42	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.34	7.74	7.74	0.01	0.03	0.69	0.69	0.00
Chrysene	844	826	4.30	97.95	97.95	0.12	0.08	1.87	1.87	0.00
Dibenz[a,h]anthracene	1,123	2,389	1.00	22.78	22.78	0.02	0.02	0.42	0.42	0.00
Fluoranthene	707	23,870	4.30	97.95	97.95	0.14	0.09	2.24	2.24	0.00
Fluorene	538	26,000	0.11	2.51	2.51	0.00	0.00	0.10	0.10	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	2.40	54.67	54.67	0.05	0.05	1.13	1.13	0.00
Naphthalene	385	61,700	0.15	3.42	3.42	0.01	0.00	0.10	0.10	0.00
Perylene	967	431	1.20	27.33	27.33	0.03	0.08	1.95	1.95	0.00
Phenanthrene	596	34,300	1.30	29.61	29.61	0.05	0.03	0.79	0.79	0.00
Pyrene	697	9,090	3.80	86.56	86.56	0.12	0.07	1.65	1.65	0.00
	---	**ESBTU FCVi**	--	--	--	1.38	--	--	--	0.03

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-41**				**MLTC14-41**			
		Field Sample ID	**MLTC14-41-0103**				**MLTC14-41-0103FD**			
		Sample Depth	**1-3**				**1-3**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.34	0.0334	---	---	3.17	0.0317	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.02	0.02	0.00	0.00	0.08	0.08	0.00
2-Methylnaphthalene	447	154,800	0.00	0.02	0.02	0.00	0.00	0.08	0.08	0.00
Acenaphthene	491	33,400	0.00	0.01	0.01	0.00	0.00	0.04	0.04	0.00
Acenaphthylene	452	24,000	0.01	0.42	0.42	0.00	0.00	0.01	0.01	0.00
Anthracene	594	1,300	0.00	0.05	0.05	0.00	0.00	0.07	0.07	0.00
Benzo[a]anthracene	841	4,153	0.07	2.10	2.10	0.00	0.01	0.30	0.30	0.00
Benzo[a]pyrene	965	3,840	0.07	2.16	2.16	0.00	0.01	0.26	0.26	0.00
Benzo[b]fluoranthene	979	2,169	0.06	1.77	1.77	0.00	0.02	0.60	0.60	0.00
Benzo[e]pyrene	967	4,300	0.04	1.20	1.20	0.00	0.01	0.27	0.27	0.00
Benzo[g,h,i]perylene	1,095	648	0.04	1.11	1.11	0.00	0.01	0.24	0.24	0.00
Benzo[k]fluoranthene	981	1,220	0.05	1.50	1.50	0.00	0.01	0.26	0.26	0.00
C1 Chrysenes	929	--	0.06	1.74	1.74	0.00	0.01	0.38	0.38	0.00
C1 Fluorenes	611	--	0.00	0.05	0.05	0.00	0.00	0.06	0.06	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.12	3.59	3.59	0.00	0.03	0.95	0.95	0.00
C1-Naphthalenes	444	--	0.00	0.03	0.03	0.00	0.00	0.12	0.12	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.02	0.57	0.57	0.00	0.02	0.50	0.50	0.00
C2 Chrysenes	1,008	--	0.02	0.72	0.72	0.00	0.01	0.35	0.35	0.00
C2 Fluorenes	686	--	0.01	0.16	0.16	0.00	0.01	0.18	0.18	0.00
C2-Fluoranthenes/Pyrenes		--	0.05	1.50	1.50		0.02	0.66	0.66	
C2-Naphthalenes	510	--	0.00	0.15	0.15	0.00	0.01	0.35	0.35	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.04	1.05	1.05	0.00	0.02	0.63	0.63	0.00
C3 Chrysenes	1,112	--	0.01	0.21	0.21	0.00	0.01	0.21	0.21	0.00
C3 Fluorenes	769	--	0.01	0.16	0.16	0.00	0.01	0.16	0.16	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.02	0.66	0.66	0.00	0.02	0.47	0.47	0.00
C3-Naphthalenes	581	--	0.01	0.30	0.30	0.00	0.02	0.60	0.60	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.05	1.38	1.38	0.00	0.04	1.14	1.14	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.01	0.39	0.39	0.00	0.02	0.63	0.63	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.02	0.63	0.63	0.00	0.02	0.66	0.66	0.00
Chrysene	844	826	0.06	1.92	1.92	0.00	0.02	0.50	0.50	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.01	0.33	0.33	0.00	0.00	0.07	0.07	0.00
Fluoranthene	707	23,870	0.05	1.35	1.35	0.00	0.02	0.69	0.69	0.00
Fluorene	538	26,000	0.00	0.03	0.03	0.00	0.00	0.08	0.08	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.03	0.99	0.99	0.00	0.01	0.18	0.18	0.00
Naphthalene	385	61,700	0.00	0.02	0.02	0.00	0.00	0.08	0.08	0.00
Perylene	967	431	0.06	1.65	1.65	0.00	0.08	2.56	2.56	0.00
Phenanthrene	596	34,300	0.00	0.12	0.12	0.00	0.01	0.38	0.38	0.00
Pyrene	697	9,090	0.05	1.53	1.53	0.00	0.02	0.50	0.50	0.00
	---	**ESBTU FCVi**	--	--	--	0.03	--	--	--	0.02

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-41**				**MLTC14-41**			
		Field Sample ID	**MLTC14-41-0305**				**MLTC14-41-0305FD**			
		Sample Depth	**3-5**				**3-5**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final Coc[b]**	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	2.95	0.0295	---	---	2.92	0.0292	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.11	0.11	0.00	0.00	0.08	0.08	0.00
2-Methylnaphthalene	447	154,800	0.00	0.10	0.10	0.00	0.00	0.07	0.07	0.00
Acenaphthene	491	33,400	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00
Acenaphthylene	452	24,000	0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.00
Anthracene	594	1,300	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00
Benzo[a]anthracene	841	4,153	0.00	0.07	0.07	0.00	0.00	0.10	0.10	0.00
Benzo[a]pyrene	965	3,840	0.00	0.06	0.06	0.00	0.00	0.09	0.09	0.00
Benzo[b]fluoranthene	979	2,169	0.00	0.13	0.13	0.00	0.01	0.25	0.25	0.00
Benzo[e]pyrene	967	4,300	0.00	0.13	0.13	0.00	0.00	0.13	0.13	0.00
Benzo[g,h,i]perylene	1,095	648	0.01	0.21	0.21	0.00	0.00	0.16	0.16	0.00
Benzo[k]fluoranthene	981	1,220	0.00	0.07	0.07	0.00	0.00	0.09	0.09	0.00
C1 Chrysenes	929	--	0.01	0.44	0.44	0.00	0.01	0.29	0.29	0.00
C1 Fluorenes	611	--	0.00	0.08	0.08	0.00	0.00	0.05	0.05	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.02	0.58	0.58	0.00	0.02	0.51	0.51	0.00
C1-Naphthalenes	444	--	0.00	0.15	0.15	0.00	0.00	0.11	0.11	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.02	0.54	0.54	0.00	0.01	0.45	0.45	0.00
C2 Chrysenes	1,008	--	0.01	0.29	0.29	0.00	0.01	0.29	0.29	0.00
C2 Fluorenes	686	--	0.01	0.19	0.19	0.00	0.00	0.17	0.17	0.00
C2-Fluoranthenes/Pyrenes		--	0.02	0.64	0.64		0.02	0.55	0.55	
C2-Naphthalenes	510	--	0.01	0.44	0.44	0.00	0.01	0.34	0.34	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.02	0.75	0.75	0.00	0.02	0.65	0.65	0.00
C3 Chrysenes	1,112	--	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C3 Fluorenes	769	--	0.01	0.20	0.20	0.00	0.00	0.15	0.15	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.02	0.51	0.51	0.00	0.01	0.45	0.45	0.00
C3-Naphthalenes	581	--	0.03	0.88	0.88	0.00	0.02	0.68	0.68	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.04	1.32	1.32	0.00	0.04	1.23	1.23	0.00
C4 Chrysenes	1,214	--	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.03	1.05	1.05	0.00	0.03	0.86	0.86	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.01	0.00	0.00	0.00	0.02	0.62	0.62	0.00
Chrysene	844	826	0.01	0.31	0.31	0.00	0.01	0.27	0.27	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.02	0.02	0.00	0.00	0.04	0.04	0.00
Fluoranthene	707	23,870	0.01	0.18	0.18	0.00	0.00	0.15	0.15	0.00
Fluorene	538	26,000	0.00	0.08	0.08	0.00	0.00	0.05	0.05	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.06	0.06	0.00	0.00	0.07	0.07	0.00
Naphthalene	385	61,700	0.00	0.07	0.07	0.00	0.00	0.04	0.04	0.00
Perylene	967	431	0.06	2.00	2.00	0.00	0.06	2.05	2.05	0.00
Phenanthrene	596	34,300	0.01	0.20	0.20	0.00	0.00	0.15	0.15	0.00
Pyrene	697	9,090	0.01	0.18	0.18	0.00	0.00	0.14	0.14	0.00
	---	**ESBTU FCVi**	--	--	--	0.01	--	--	--	0.01

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-41**				**MLTC14-42**			
		Field Sample ID	**MLTC14-41-0507**				**MLTC14-42-SURF**			
		Sample Depth	**5-7**				**0-0.5**			
		Sample Date	**10/17/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	1.79	0.0179	---	---	2.75	0.0275	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.12	0.12	0.00	0.05	1.64	1.64	0.00
2-Methylnaphthalene	447	154,800	0.00	0.11	0.11	0.00	0.06	2.11	2.11	0.00
Acenaphthene	491	33,400	0.00	0.02	0.02	0.00	0.25	9.09	9.09	0.02
Acenaphthylene	452	24,000	0.00	0.00	0.00	0.00	0.30	10.91	10.91	0.02
Anthracene	594	1,300	0.00	0.03	0.03	0.00	0.93	33.82	33.82	0.06
Benzo[a]anthracene	841	4,153	0.00	0.11	0.11	0.00	3.60	130.91	130.91	0.16
Benzo[a]pyrene	965	3,840	0.00	0.08	0.08	0.00	4.70	170.91	170.91	0.18
Benzo[b]fluoranthene	979	2,169	0.00	0.23	0.23	0.00	2.50	90.91	90.91	0.09
Benzo[e]pyrene	967	4,300	0.00	0.25	0.25	0.00	2.40	87.27	87.27	0.09
Benzo[g,h,i]perylene	1,095	648	0.01	0.37	0.37	0.00	2.30	83.64	83.64	0.08
Benzo[k]fluoranthene	981	1,220	0.00	0.12	0.12	0.00	4.40	160.00	160.00	0.16
C1 Chrysenes	929	--	0.02	0.84	0.84	0.00	3.30	120.00	120.00	0.13
C1 Fluorenes	611	--	0.00	0.16	0.16	0.00	0.10	3.64	3.64	0.01
C1-Fluoranthenes/Pyrenes	770	--	0.02	0.89	0.89	0.00	5.80	210.91	210.91	0.27
C1-Naphthalenes	444	--	0.00	0.16	0.16	0.00	0.14	5.09	5.09	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.02	1.12	1.12	0.00	1.20	43.64	43.64	0.07
C2 Chrysenes	1,008	--	0.02	0.95	0.95	0.00	1.30	47.27	47.27	0.05
C2 Fluorenes	686	--	0.01	0.35	0.35	0.00	0.12	4.36	4.36	0.01
C2-Fluoranthenes/Pyrenes		--	0.02	1.12	1.12		2.20	80.00	80.00	
C2-Naphthalenes	510	--	0.01	0.61	0.61	0.00	0.32	11.64	11.64	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.03	1.56	1.56	0.00	0.99	36.00	36.00	0.05
C3 Chrysenes	1,112	--	0.01	0.47	0.47	0.00	0.35	12.73	12.73	0.01
C3 Fluorenes	769	--	0.01	0.42	0.42	0.00	0.12	4.36	4.36	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.02	0.89	0.89	0.00	0.82	29.82	29.82	0.03
C3-Naphthalenes	581	--	0.03	1.79	1.79	0.00	0.35	12.73	12.73	0.02
C3-Phenanthrenes/Anthracenes	829	--	0.05	2.51	2.51	0.00	1.00	36.36	36.36	0.04
C4 Chrysenes	1,214	--	0.01	0.43	0.43	0.00	0.36	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.04	2.12	2.12	0.00	0.20	7.27	7.27	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.02	1.23	1.23	0.00	0.53	19.27	19.27	0.02
Chrysene	844	826	0.01	0.56	0.56	0.00	5.00	181.82	181.82	0.22
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.05	0.05	0.00	0.67	24.36	24.36	0.02
Fluoranthene	707	23,870	0.01	0.28	0.28	0.00	4.40	160.00	160.00	0.23
Fluorene	538	26,000	0.00	0.11	0.11	0.00	0.19	6.91	6.91	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.10	0.10	0.00	2.00	72.73	72.73	0.07
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	0.32	11.64	11.64	0.03
Perylene	967	431	0.06	3.35	3.35	0.00	1.40	50.91	50.91	0.05
Phenanthrene	596	34,300	0.01	0.35	0.35	0.00	1.40	50.91	50.91	0.09
Pyrene	697	9,090	0.00	0.25	0.25	0.00	4.20	152.73	152.73	0.22
	---	**ESBTU FCVi**	--	--	--	0.03	--	--	--	2.51

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-43**				**MLTC14-43**			
		Field Sample ID	**MLTC14-43-SURF**				**MLTC14-43-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/17/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	22	0.22	---	---	10.9	0.109	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.05	0.24	0.24	0.00	0.00	0.02	0.02	0.00
2-Methylnaphthalene	447	154,800	0.10	0.43	0.43	0.00	0.00	0.03	0.03	0.00
Acenaphthene	491	33,400	0.07	0.33	0.33	0.00	0.00	0.03	0.03	0.00
Acenaphthylene	452	24,000	0.16	0.73	0.73	0.00	0.01	0.06	0.06	0.00
Anthracene	594	1,300	0.24	1.09	1.09	0.00	0.01	0.08	0.08	0.00
Benzo[a]anthracene	841	4,153	1.50	6.82	6.82	0.01	0.10	0.89	0.89	0.00
Benzo[a]pyrene	965	3,840	2.00	9.09	9.09	0.01	0.13	1.19	1.19	0.00
Benzo[b]fluoranthene	979	2,169	1.50	6.82	6.82	0.01	0.13	1.19	1.19	0.00
Benzo[e]pyrene	967	4,300	1.20	5.45	5.45	0.01	0.08	0.71	0.71	0.00
Benzo[g,h,i]perylene	1,095	648	1.30	5.91	5.91	0.01	0.07	0.65	0.65	0.00
Benzo[k]fluoranthene	981	1,220	1.60	7.27	7.27	0.01	0.10	0.87	0.87	0.00
C1 Chrysenes	929	--	1.30	5.91	5.91	0.01	0.08	0.69	0.69	0.00
C1 Fluorenes	611	--	0.05	0.25	0.25	0.00	0.00	0.02	0.02	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.10	9.55	9.55	0.01	0.15	1.38	1.38	0.00
C1-Naphthalenes	444	--	0.10	0.45	0.45	0.00	0.00	0.04	0.04	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.49	2.23	2.23	0.00	0.02	0.21	0.21	0.00
C2 Chrysenes	1,008	--	0.79	3.59	3.59	0.00	0.04	0.35	0.35	0.00
C2 Fluorenes	686	--	0.12	0.55	0.55	0.00	0.01	0.05	0.05	0.00
C2-Fluoranthenes/Pyrenes		--	0.99	4.50	4.50		0.06	0.55	0.55	
C2-Naphthalenes	510	--	0.27	1.23	1.23	0.00	0.02	0.14	0.14	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.57	2.59	2.59	0.00	0.03	0.29	0.29	0.00
C3 Chrysenes	1,112	--	0.11	0.00	0.00	0.00	0.02	0.14	0.14	0.00
C3 Fluorenes	769	--	0.15	0.68	0.68	0.00	0.01	0.07	0.07	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.56	2.55	2.55	0.00	0.03	0.26	0.26	0.00
C3-Naphthalenes	581	--	0.33	1.50	1.50	0.00	0.02	0.16	0.16	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.78	3.55	3.55	0.00	0.05	0.47	0.47	0.00
C4 Chrysenes	1,214	--	0.11	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.20	0.91	0.91	0.00	0.01	0.12	0.12	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.46	2.09	2.09	0.00	0.03	0.29	0.29	0.00
Chrysene	844	826	1.80	8.18	8.18	0.01	0.11	1.01	1.01	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.51	2.32	2.32	0.00	0.02	0.22	0.22	0.00
Fluoranthene	707	23,870	1.80	8.18	8.18	0.01	0.09	0.82	0.82	0.00
Fluorene	538	26,000	0.09	0.42	0.42	0.00	0.00	0.04	0.04	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.20	5.45	5.45	0.00	0.06	0.59	0.59	0.00
Naphthalene	385	61,700	0.16	0.73	0.73	0.00	0.01	0.05	0.05	0.00
Perylene	967	431	0.47	2.14	2.14	0.00	0.04	0.40	0.40	0.00
Phenanthrene	596	34,300	0.68	3.09	3.09	0.01	0.03	0.24	0.24	0.00
Pyrene	697	9,090	1.50	6.82	6.82	0.01	0.08	0.77	0.77	0.00
	---	**ESBTU FCVi**	--	--	--	0.14	--	--	--	0.02

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-43**				**MLTC14-43**			
		Field Sample ID	**MLTC14-43-0103**				**MLTC14-43-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/20/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.33	0.0333	---	---	3.41	0.0341	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.03	0.03	0.00	0.00	0.02	0.02	0.00
2-Methylnaphthalene	447	154,800	0.00	0.05	0.05	0.00	0.00	0.03	0.03	0.00
Acenaphthene	491	33,400	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.00	0.08	0.08	0.00	0.00	0.01	0.01	0.00
Anthracene	594	1,300	0.00	0.10	0.10	0.00	0.00	0.02	0.02	0.00
Benzo[a]anthracene	841	4,153	0.02	0.69	0.69	0.00	0.00	0.07	0.07	0.00
Benzo[a]pyrene	965	3,840	0.03	1.02	1.02	0.00	0.00	0.07	0.07	0.00
Benzo[b]fluoranthene	979	2,169	0.03	0.81	0.81	0.00	0.00	0.09	0.09	0.00
Benzo[e]pyrene	967	4,300	0.02	0.69	0.69	0.00	0.00	0.09	0.09	0.00
Benzo[g,h,i]perylene	1,095	648	0.02	0.72	0.72	0.00	0.00	0.09	0.09	0.00
Benzo[k]fluoranthene	981	1,220	0.03	0.81	0.81	0.00	0.00	0.08	0.08	0.00
C1 Chrysenes	929	--	0.02	0.57	0.57	0.00	0.00	0.13	0.13	0.00
C1 Fluorenes	611	--	0.00	0.05	0.05	0.00	0.00	0.02	0.02	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.03	1.02	1.02	0.00	0.01	0.24	0.24	0.00
C1-Naphthalenes	444	--	0.00	0.06	0.06	0.00	0.00	0.03	0.03	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.01	0.23	0.23	0.00	0.01	0.17	0.17	0.00
C2 Chrysenes	1,008	--	0.02	0.51	0.51	0.00	0.00	0.12	0.12	0.00
C2 Fluorenes	686	--	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	0.02	0.66	0.66		0.00	0.00	0.00	
C2-Naphthalenes	510	--	0.01	0.18	0.18	0.00	0.00	0.11	0.11	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.01	0.33	0.33	0.00	0.00	0.00	0.00	0.00
C3 Chrysenes	1,112	--	0.01	0.28	0.28	0.00	0.00	0.00	0.00	0.00
C3 Fluorenes	769	--	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.01	0.33	0.33	0.00	0.00	0.00	0.00	0.00
C3-Naphthalenes	581	--	0.01	0.23	0.23	0.00	0.00	0.13	0.13	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.02	0.51	0.51	0.00	0.00	0.00	0.00	0.00
C4 Chrysenes	1,214	--	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.01	0.16	0.16	0.00	0.00	0.09	0.09	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.01	0.30	0.30	0.00	0.00	0.00	0.00	0.00
Chrysene	844	826	0.03	0.81	0.81	0.00	0.01	0.17	0.17	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.01	0.23	0.23	0.00	0.00	0.02	0.02	0.00
Fluoranthene	707	23,870	0.02	0.69	0.69	0.00	0.00	0.12	0.12	0.00
Fluorene	538	26,000	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.02	0.66	0.66	0.00	0.00	0.05	0.05	0.00
Naphthalene	385	61,700	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00
Perylene	967	431	0.02	0.51	0.51	0.00	0.02	0.50	0.50	0.00
Phenanthrene	596	34,300	0.01	0.25	0.25	0.00	0.00	0.00	0.00	0.00
Pyrene	697	9,090	0.02	0.60	0.60	0.00	0.01	0.15	0.15	0.00
	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	0.00

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-45**				**MLTC14-45**			
		Field Sample ID	**MLTC14-45-SURF**				**MLTC14-45-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/17/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	1.43	0.0143	---	---	3.79	0.0379	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.01	0.54	0.54	0.00	0.00	0.11	0.11	0.00
2-Methylnaphthalene	447	154,800	0.01	0.98	0.98	0.00	0.00	0.10	0.10	0.00
Acenaphthene	491	33,400	0.02	1.05	1.05	0.00	0.00	0.03	0.03	0.00
Acenaphthylene	452	24,000	0.04	2.73	2.73	0.01	0.01	0.25	0.25	0.00
Anthracene	594	1,300	0.09	6.01	6.01	0.01	0.01	0.14	0.14	0.00
Benzo[a]anthracene	841	4,153	0.33	23.08	23.08	0.03	0.03	0.87	0.87	0.00
Benzo[a]pyrene	965	3,840	0.36	25.17	25.17	0.03	0.03	0.74	0.74	0.00
Benzo[b]fluoranthene	979	2,169	0.25	17.48	17.48	0.02	0.03	0.74	0.74	0.00
Benzo[e]pyrene	967	4,300	0.19	13.29	13.29	0.01	0.02	0.55	0.55	0.00
Benzo[g,h,i]perylene	1,095	648	0.21	14.69	14.69	0.01	0.03	0.66	0.66	0.00
Benzo[k]fluoranthene	981	1,220	0.27	18.88	18.88	0.02	0.03	0.74	0.74	0.00
C1 Chrysenes	929	--	0.29	20.28	20.28	0.02	0.03	0.90	0.90	0.00
C1 Fluorenes	611	--	0.02	1.68	1.68	0.00	0.00	0.09	0.09	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.62	43.36	43.36	0.06	0.06	1.58	1.58	0.00
C1-Naphthalenes	444	--	0.02	1.05	1.05	0.00	0.01	0.15	0.15	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.17	11.89	11.89	0.02	0.02	0.63	0.63	0.00
C2 Chrysenes	1,008	--	0.14	9.79	9.79	0.01	0.02	0.47	0.47	0.00
C2 Fluorenes	686	--	0.03	1.96	1.96	0.00	0.01	0.16	0.16	0.00
C2-Fluoranthenes/Pyrenes		--	0.27	18.88	18.88		0.03	0.84	0.84	
C2-Naphthalenes	510	--	0.05	3.64	3.64	0.01	0.02	0.47	0.47	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.16	11.19	11.19	0.01	0.03	0.74	0.74	0.00
C3 Chrysenes	1,112	--	0.06	4.20	4.20	0.00	0.01	0.32	0.32	0.00
C3 Fluorenes	769	--	0.03	2.17	2.17	0.00	0.01	0.23	0.23	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.10	6.78	6.78	0.01	0.02	0.55	0.55	0.00
C3-Naphthalenes	581	--	0.09	5.94	5.94	0.01	0.03	0.87	0.87	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.21	14.69	14.69	0.02	0.05	1.24	1.24	0.00
C4 Chrysenes	1,214	--	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.05	3.78	3.78	0.01	0.03	0.69	0.69	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.10	6.71	6.71	0.01	0.04	1.11	1.11	0.00
Chrysene	844	826	0.34	23.78	23.78	0.03	0.04	1.00	1.00	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.08	5.59	5.59	0.00	0.01	0.20	0.20	0.00
Fluoranthene	707	23,870	0.40	27.97	27.97	0.04	0.04	0.95	0.95	0.00
Fluorene	538	26,000	0.03	1.75	1.75	0.00	0.00	0.08	0.08	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.20	13.99	13.99	0.01	0.02	0.55	0.55	0.00
Naphthalene	385	61,700	0.03	1.82	1.82	0.00	0.00	0.09	0.09	0.00
Perylene	967	431	0.09	6.01	6.01	0.01	0.04	1.03	1.03	0.00
Phenanthrene	596	34,300	0.17	11.89	11.89	0.02	0.01	0.37	0.37	0.00
Pyrene	697	9,090	0.39	27.27	27.27	0.04	0.03	0.77	0.77	0.00
	---	**ESBTU FCVi**	--	--	--	0.48	--	--	--	0.02

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-45**			
		Field Sample ID	**MLTC14-45-0103**			
		Sample Depth	**1-3**			
		Sample Date	**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	0.432	0.00432	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)						
1-Methylnaphthalene	446	165,700	0.00	0.04	0.04	0.00
2-Methylnaphthalene	447	154,800	0.00	0.06	0.06	0.00
Acenaphthene	491	33,400	0.00	0.02	0.02	0.00
Acenaphthylene	452	24,000	0.00	0.02	0.02	0.00
Anthracene	594	1,300	0.00	0.00	0.00	0.00
Benzo[a]anthracene	841	4,153	0.00	0.00	0.00	0.00
Benzo[a]pyrene	965	3,840	0.00	0.19	0.19	0.00
Benzo[b]fluoranthene	979	2,169	0.00	0.37	0.37	0.00
Benzo[e]pyrene	967	4,300	0.00	0.42	0.42	0.00
Benzo[g,h,i]perylene	1,095	648	0.00	0.49	0.49	0.00
Benzo[k]fluoranthene	981	1,220	0.00	0.22	0.22	0.00
C1 Chrysenes	929	--	0.00	0.67	0.67	0.00
C1 Fluorenes	611	--	0.00	0.00	0.00	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.00	0.65	0.65	0.00
C1-Naphthalenes	444	--	0.00	0.08	0.08	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.00	0.28	0.28	0.00
C2 Chrysenes	1,008	--	0.00	0.00	0.00	0.00
C2 Fluorenes	686	--	0.00	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	0.00	0.00	0.00	
C2-Naphthalenes	510	--	0.00	0.30	0.30	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.00	0.60	0.60	0.00
C3 Chrysenes	1,112	--	0.00	0.00	0.00	0.00
C3 Fluorenes	769	--	0.00	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.00	0.00	0.00	0.00
C3-Naphthalenes	581	--	0.00	0.49	0.49	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.00	1.09	1.09	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.00	0.00	0.00	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.00	0.00	0.00	0.00
Chrysene	844	826	0.00	0.74	0.74	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.06	0.06	0.00
Fluoranthene	707	23,870	0.00	0.00	0.00	0.00
Fluorene	538	26,000	0.00	0.00	0.00	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.15	0.15	0.00
Naphthalene	385	61,700	0.00	0.00	0.00	0.00
Perylene	967	431	0.00	0.28	0.28	0.00
Phenanthrene	596	34,300	0.00	0.00	0.00	0.00
Pyrene	697	9,090	0.00	0.00	0.00	0.00
	---	**ESBTU FCVi**	--	--	--	0.01

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-46**				**MLTC14-46**			
		Field Sample ID	**MLTC14-46-SURF**				**MLTC14-46-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/17/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	21.3	0.213	---	---	17.2	0.172	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.05	0.22	0.22	0.00	0.01	0.05	0.05	0.00
2-Methylnaphthalene	447	154,800	0.09	0.41	0.41	0.00	0.01	0.08	0.08	0.00
Acenaphthene	491	33,400	0.05	0.25	0.25	0.00	0.01	0.04	0.04	0.00
Acenaphthylene	452	24,000	0.11	0.52	0.52	0.00	0.02	0.10	0.10	0.00
Anthracene	594	1,300	0.16	0.75	0.75	0.00	0.03	0.15	0.15	0.00
Benzo[a]anthracene	841	4,153	0.94	4.41	4.41	0.01	0.19	1.10	1.10	0.00
Benzo[a]pyrene	965	3,840	1.30	6.10	6.10	0.01	0.22	1.28	1.28	0.00
Benzo[b]fluoranthene	979	2,169	0.91	4.27	4.27	0.00	0.24	1.40	1.40	0.00
Benzo[e]pyrene	967	4,300	0.79	3.71	3.71	0.00	0.16	0.93	0.93	0.00
Benzo[g,h,i]perylene	1,095	648	0.88	4.13	4.13	0.00	0.13	0.76	0.76	0.00
Benzo[k]fluoranthene	981	1,220	1.00	4.69	4.69	0.00	0.18	1.05	1.05	0.00
C1 Chrysenes	929	--	1.10	5.16	5.16	0.01	0.20	1.16	1.16	0.00
C1 Fluorenes	611	--	0.05	0.24	0.24	0.00	0.01	0.05	0.05	0.00
C1-Fluoranthenes/Pyrenes	770	--	1.50	7.04	7.04	0.01	0.33	1.92	1.92	0.00
C1-Naphthalenes	444	--	0.09	0.43	0.43	0.00	0.02	0.09	0.09	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.44	2.07	2.07	0.00	0.09	0.50	0.50	0.00
C2 Chrysenes	1,008	--	0.75	3.52	3.52	0.00	0.14	0.81	0.81	0.00
C2 Fluorenes	686	--	0.11	0.52	0.52	0.00	0.02	0.13	0.13	0.00
C2-Fluoranthenes/Pyrenes		--	0.95	4.46	4.46		0.20	1.16	1.16	
C2-Naphthalenes	510	--	0.23	1.08	1.08	0.00	0.05	0.29	0.29	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.57	2.68	2.68	0.00	0.13	0.76	0.76	0.00
C3 Chrysenes	1,112	--	0.10	0.00	0.00	0.00	0.02	0.00	0.00	0.00
C3 Fluorenes	769	--	0.20	0.94	0.94	0.00	0.03	0.19	0.19	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.47	2.21	2.21	0.00	0.12	0.70	0.70	0.00
C3-Naphthalenes	581	--	0.31	1.46	1.46	0.00	0.07	0.38	0.38	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.89	4.18	4.18	0.01	0.22	1.28	1.28	0.00
C4 Chrysenes	1,214	--	0.10	0.00	0.00	0.00	0.02	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.20	0.94	0.94	0.00	0.05	0.26	0.26	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.57	2.68	2.68	0.00	0.17	0.99	0.99	0.00
Chrysene	844	826	1.20	5.63	5.63	0.01	0.23	1.34	1.34	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.33	1.55	1.55	0.00	0.05	0.28	0.28	0.00
Fluoranthene	707	23,870	1.30	6.10	6.10	0.01	0.27	1.57	1.57	0.00
Fluorene	538	26,000	0.09	0.41	0.41	0.00	0.02	0.11	0.11	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.80	3.76	3.76	0.00	0.12	0.70	0.70	0.00
Naphthalene	385	61,700	0.14	0.66	0.66	0.00	0.02	0.12	0.12	0.00
Perylene	967	431	0.30	1.41	1.41	0.00	0.06	0.33	0.33	0.00
Phenanthrene	596	34,300	0.53	2.49	2.49	0.00	0.10	0.56	0.56	0.00
Pyrene	697	9,090	1.10	5.16	5.16	0.01	0.20	1.16	1.16	0.00
--	---	**ESBTU FCVi**	--	--	--	0.11	--	--	--	0.03

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-46				MLTC14-46			
		Field Sample ID	**MLTC14-46-0001FD**				**MLTC14-46-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/20/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	15.7	0.157	---	---	4.55	0.0455	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.01	0.09	0.09	0.00	0.00	0.02	0.02	0.00
2-Methylnaphthalene	447	154,800	0.02	0.15	0.15	0.00	0.00	0.03	0.03	0.00
Acenaphthene	491	33,400	0.02	0.13	0.13	0.00	0.00	0.02	0.02	0.00
Acenaphthylene	452	24,000	0.05	0.29	0.29	0.00	0.00	0.05	0.05	0.00
Anthracene	594	1,300	0.07	0.42	0.42	0.00	0.00	0.06	0.06	0.00
Benzo[a]anthracene	841	4,153	0.49	3.12	3.12	0.00	0.02	0.44	0.44	0.00
Benzo[a]pyrene	965	3,840	0.63	4.01	4.01	0.00	0.03	0.66	0.66	0.00
Benzo[b]fluoranthene	979	2,169	0.53	3.38	3.38	0.00	0.03	0.68	0.68	0.00
Benzo[e]pyrene	967	4,300	0.42	2.68	2.68	0.00	0.02	0.48	0.48	0.00
Benzo[g,h,i]perylene	1,095	648	0.33	2.10	2.10	0.00	0.02	0.51	0.51	0.00
Benzo[k]fluoranthene	981	1,220	0.44	2.80	2.80	0.00	0.02	0.46	0.46	0.00
C1 Chrysenes	929	--	0.50	3.18	3.18	0.00	0.02	0.48	0.48	0.00
C1 Fluorenes	611	--	0.02	0.13	0.13	0.00	0.00	0.03	0.03	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.92	5.86	5.86	0.01	0.03	0.73	0.73	0.00
C1-Naphthalenes	444	--	0.03	0.17	0.17	0.00	0.00	0.04	0.04	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.25	1.59	1.59	0.00	0.01	0.19	0.19	0.00
C2 Chrysenes	1,008	--	0.32	2.04	2.04	0.00	0.04	0.86	0.86	0.00
C2 Fluorenes	686	--	0.05	0.33	0.33	0.00	0.00	0.05	0.05	0.00
C2-Fluoranthenes/Pyrenes		--	0.45	2.87	2.87		0.03	0.59	0.59	
C2-Naphthalenes	510	--	0.09	0.56	0.56	0.00	0.01	0.14	0.14	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.32	2.04	2.04	0.00	0.01	0.29	0.29	0.00
C3 Chrysenes	1,112	--	0.14	0.89	0.89	0.00	0.02	0.37	0.37	0.00
C3 Fluorenes	769	--	0.07	0.45	0.45	0.00	0.00	0.10	0.10	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.26	1.66	1.66	0.00	0.02	0.40	0.40	0.00
C3-Naphthalenes	581	--	0.13	0.83	0.83	0.00	0.01	0.20	0.20	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.48	3.06	3.06	0.00	0.02	0.53	0.53	0.00
C4 Chrysenes	1,214	--	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.10	0.63	0.63	0.00	0.01	0.15	0.15	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.28	1.78	1.78	0.00	0.02	0.33	0.33	0.00
Chrysene	844	826	0.57	3.63	3.63	0.00	0.03	0.57	0.57	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.11	0.70	0.70	0.00	0.01	0.17	0.17	0.00
Fluoranthene	707	23,870	0.64	4.08	4.08	0.01	0.03	0.57	0.57	0.00
Fluorene	538	26,000	0.03	0.20	0.20	0.00	0.00	0.05	0.05	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.30	1.91	1.91	0.00	0.02	0.42	0.42	0.00
Naphthalene	385	61,700	0.04	0.24	0.24	0.00	0.00	0.05	0.05	0.00
Perylene	967	431	0.15	0.96	0.96	0.00	0.04	0.81	0.81	0.00
Phenanthrene	596	34,300	0.20	1.27	1.27	0.00	0.01	0.24	0.24	0.00
Pyrene	697	9,090	0.56	3.57	3.57	0.01	0.02	0.42	0.42	0.00
--	---	**ESBTU FCVi**	--	--	--	0.07	--	--	--	0.01

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-46**				**MLTC14-47**			
		Field Sample ID	**MLTC14-46-0305**				**MLTC14-47-SURF**			
		Sample Depth	**3-5**				**0-0.5**			
		Sample Date	**10/20/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	1.34	0.0134	---	---	14.1	0.141	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.04	0.04	0.00	0.05	0.34	0.34	0.00
2-Methylnaphthalene	447	154,800	0.00	0.03	0.03	0.00	0.09	0.62	0.62	0.00
Acenaphthene	491	33,400	0.00	0.00	0.00	0.00	0.05	0.34	0.34	0.00
Acenaphthylene	452	24,000	0.00	0.00	0.00	0.00	0.10	0.70	0.70	0.00
Anthracene	594	1,300	0.00	0.00	0.00	0.00	0.17	1.21	1.21	0.00
Benzo[a]anthracene	841	4,153	0.00	0.00	0.00	0.00	0.94	6.67	6.67	0.01
Benzo[a]pyrene	965	3,840	0.00	0.05	0.05	0.00	1.30	9.22	9.22	0.01
Benzo[b]fluoranthene	979	2,169	0.00	0.32	0.32	0.00	0.93	6.60	6.60	0.01
Benzo[e]pyrene	967	4,300	0.00	0.15	0.15	0.00	0.79	5.60	5.60	0.01
Benzo[g,h,i]perylene	1,095	648	0.00	0.11	0.11	0.00	0.94	6.67	6.67	0.01
Benzo[k]fluoranthene	981	1,220	0.00	0.00	0.00	0.00	1.10	7.80	7.80	0.01
C1 Chrysenes	929	--	0.00	0.31	0.31	0.00	1.00	7.09	7.09	0.01
C1 Fluorenes	611	--	0.00	0.00	0.00	0.00	0.05	0.36	0.36	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.00	0.30	0.30	0.00	1.50	10.64	10.64	0.01
C1-Naphthalenes	444	--	0.00	0.05	0.05	0.00	0.09	0.65	0.65	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.00	0.17	0.17	0.00	0.45	3.19	3.19	0.00
C2 Chrysenes	1,008	--	0.00	0.19	0.19	0.00	0.65	4.61	4.61	0.00
C2 Fluorenes	686	--	0.00	0.00	0.00	0.00	0.12	0.85	0.85	0.00
C2-Fluoranthenes/Pyrenes		--	0.00	0.30	0.30		0.86	6.10	6.10	
C2-Naphthalenes	510	--	0.00	0.20	0.20	0.00	0.25	1.77	1.77	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.01	0.50	0.50	0.00	0.60	4.26	4.26	0.01
C3 Chrysenes	1,112	--	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
C3 Fluorenes	769	--	0.00	0.00	0.00	0.00	0.18	1.28	1.28	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.00	0.33	0.33	0.00	0.56	3.97	3.97	0.00
C3-Naphthalenes	581	--	0.00	0.29	0.29	0.00	0.32	2.27	2.27	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.01	0.75	0.75	0.00	0.85	6.03	6.03	0.01
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.00	0.31	0.31	0.00	0.20	1.42	1.42	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.00	0.00	0.00	0.00	0.55	3.90	3.90	0.00
Chrysene	844	826	0.00	0.19	0.19	0.00	1.20	8.51	8.51	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.00	0.00	0.00	0.34	2.41	2.41	0.00
Fluoranthene	707	23,870	0.00	0.00	0.00	0.00	1.50	10.64	10.64	0.02
Fluorene	538	26,000	0.00	0.00	0.00	0.00	0.08	0.53	0.53	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.03	0.03	0.00	0.85	6.03	6.03	0.01
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	0.12	0.85	0.85	0.00
Perylene	967	431	0.05	3.36	3.36	0.00	0.31	2.20	2.20	0.00
Phenanthrene	596	34,300	0.00	0.00	0.00	0.00	0.51	3.62	3.62	0.01
Pyrene	697	9,090	0.00	0.27	0.27	0.00	1.10	7.80	7.80	0.01
--	---	**ESBTU FCVi**	--	--	--	0.01	--	--	--	0.17

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-47**				**MLTC14-47**			
		Field Sample ID	**MLTC14-47-0001**				**MLTC14-47-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/20/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	14.7	0.147	---	---	14.8	0.148	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.13	0.13	0.00	0.04	0.28	0.28	0.00
2-Methylnaphthalene	447	154,800	0.03	0.22	0.22	0.00	0.07	0.45	0.45	0.00
Acenaphthene	491	33,400	0.02	0.16	0.16	0.00	0.07	0.47	0.47	0.00
Acenaphthylene	452	24,000	0.05	0.34	0.34	0.00	0.10	0.65	0.65	0.00
Anthracene	594	1,300	0.09	0.58	0.58	0.00	0.22	1.49	1.49	0.00
Benzo[a]anthracene	841	4,153	0.54	3.67	3.67	0.00	1.20	8.11	8.11	0.01
Benzo[a]pyrene	965	3,840	0.69	4.69	4.69	0.00	1.40	9.46	9.46	0.01
Benzo[b]fluoranthene	979	2,169	0.69	4.69	4.69	0.00	1.50	10.14	10.14	0.01
Benzo[e]pyrene	967	4,300	0.47	3.20	3.20	0.00	0.96	6.49	6.49	0.01
Benzo[g,h,i]perylene	1,095	648	0.41	2.79	2.79	0.00	0.74	5.00	5.00	0.00
Benzo[k]fluoranthene	981	1,220	0.56	3.81	3.81	0.00	1.00	6.76	6.76	0.01
C1 Chrysenes	929	--	0.46	3.13	3.13	0.00	1.40	9.46	9.46	0.01
C1 Fluorenes	611	--	0.02	0.13	0.13	0.00	0.08	0.56	0.56	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.82	5.58	5.58	0.01	2.30	15.54	15.54	0.02
C1-Naphthalenes	444	--	0.04	0.24	0.24	0.00	0.08	0.53	0.53	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.21	1.43	1.43	0.00	0.89	6.01	6.01	0.01
C2 Chrysenes	1,008	--	0.32	2.18	2.18	0.00	1.10	7.43	7.43	0.01
C2 Fluorenes	686	--	0.04	0.30	0.30	0.00	0.23	1.55	1.55	0.00
C2-Fluoranthenes/Pyrenes		--	0.42	2.86	2.86		1.50	10.14	10.14	
C2-Naphthalenes	510	--	0.11	0.75	0.75	0.00	0.33	2.23	2.23	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.27	1.84	1.84	0.00	1.20	8.11	8.11	0.01
C3 Chrysenes	1,112	--	0.05	0.00	0.00	0.00	0.45	3.04	3.04	0.00
C3 Fluorenes	769	--	0.07	0.48	0.48	0.00	0.31	2.09	2.09	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.23	1.56	1.56	0.00	0.86	5.81	5.81	0.01
C3-Naphthalenes	581	--	0.13	0.88	0.88	0.00	0.56	3.78	3.78	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.44	2.99	2.99	0.00	2.00	13.51	13.51	0.02
C4 Chrysenes	1,214	--	0.05	0.00	0.00	0.00	0.13	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.08	0.57	0.57	0.00	0.44	2.97	2.97	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.27	1.84	1.84	0.00	1.20	8.11	8.11	0.01
Chrysene	844	826	0.66	4.49	4.49	0.01	1.60	10.81	10.81	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.14	0.95	0.95	0.00	0.26	1.76	1.76	0.00
Fluoranthene	707	23,870	0.81	5.51	5.51	0.01	1.60	10.81	10.81	0.02
Fluorene	538	26,000	0.04	0.24	0.24	0.00	0.13	0.88	0.88	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.38	2.59	2.59	0.00	0.68	4.59	4.59	0.00
Naphthalene	385	61,700	0.05	0.37	0.37	0.00	0.12	0.81	0.81	0.00
Perylene	967	431	0.14	0.95	0.95	0.00	0.28	1.89	1.89	0.00
Phenanthrene	596	34,300	0.28	1.90	1.90	0.00	0.84	5.68	5.68	0.01
Pyrene	697	9,090	0.58	3.95	3.95	0.01	1.30	8.78	8.78	0.01
--	---	**ESBTU FCVi**	--	--	--	0.08	--	--	--	0.22

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-47				MLTC14-47			
		Field Sample ID	MLTC14-47-0305				MLTC14-47-0507			
		Sample Depth	3-5				5-7			
		Sample Date	10/20/2014				10/20/2014			
	Coc, PAHi, FCVi[a] µg/g oc	Coc, PAHi, Maxi[a] µg/g oc	Conc µg/g dry wt.	Coc µg/g oc	Final Coc[b]	ESBTU FCVi	Conc µg/g dry wt.	Coc µg/g oc	Final Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	5.79	0.0579	---	---	2.69	0.0269	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.99	17.10	17.10	0.04	0.14	5.20	5.20	0.01
2-Methylnaphthalene	447	154,800	0.27	4.66	4.66	0.01	0.07	2.42	2.42	0.01
Acenaphthene	491	33,400	0.57	9.84	9.84	0.02	0.13	4.83	4.83	0.01
Acenaphthylene	452	24,000	0.37	6.39	6.39	0.01	0.10	3.64	3.64	0.01
Anthracene	594	1,300	5.20	89.81	89.81	0.15	1.40	52.04	52.04	0.09
Benzo[a]anthracene	841	4,153	14.00	241.80	241.80	0.29	5.20	193.31	193.31	0.23
Benzo[a]pyrene	965	3,840	7.10	122.63	122.63	0.13	2.30	85.50	85.50	0.09
Benzo[b]fluoranthene	979	2,169	6.40	110.54	110.54	0.11	2.30	85.50	85.50	0.09
Benzo[e]pyrene	967	4,300	8.40	145.08	145.08	0.15	3.60	133.83	133.83	0.14
Benzo[g,h,i]perylene	1,095	648	2.10	36.27	36.27	0.03	0.97	36.06	36.06	0.03
Benzo[k]fluoranthene	981	1,220	3.50	60.45	60.45	0.06	1.30	48.33	48.33	0.05
C1 Chrysenes	929	--	28.00	483.59	483.59	0.52	10.00	371.75	371.75	0.40
C1 Fluorenes	611	--	6.50	112.26	112.26	0.18	1.70	63.20	63.20	0.10
C1-Fluoranthenes/Pyrenes	770	--	65.00	1122.63	1122.63	1.46	25.00	929.37	929.37	1.21
C1-Naphthalenes	444	--	0.91	15.72	15.72	0.04	0.14	5.20	5.20	0.01
C1-Phenanthrenes/Anthracenes	670	--	71.00	1226.25	1226.25	1.83	22.00	817.84	817.84	1.22
C2 Chrysenes	1,008	--	16.00	276.34	276.34	0.27	6.00	223.05	223.05	0.22
C2 Fluorenes	686	--	11.00	189.98	189.98	0.28	3.40	126.39	126.39	0.18
C2-Fluoranthenes/Pyrenes		--	34.00	587.22	587.22		14.00	520.45	520.45	
C2-Naphthalenes	510	--	10.00	172.71	172.71	0.34	3.10	115.24	115.24	0.23
C2-Phenanthrenes/Anthracenes	746	--	42.00	725.39	725.39	0.97	13.00	483.27	483.27	0.65
C3 Chrysenes	1,112	--	3.50	60.45	60.45	0.05	1.50	55.76	55.76	0.05
C3 Fluorenes	769	--	9.30	160.62	160.62	0.21	2.80	104.09	104.09	0.14
C3-Fluoranthenes/Pyrenes	949	--	19.00	328.15	328.15	0.35	6.30	234.20	234.20	0.25
C3-Naphthalenes	581	--	15.00	259.07	259.07	0.45	5.10	189.59	189.59	0.33
C3-Phenanthrenes/Anthracenes	829	--	32.00	552.68	552.68	0.67	10.00	371.75	371.75	0.45
C4 Chrysenes	1,214	--	3.15	0.00	0.00	0.00	0.95	0.00	0.00	0.00
C4-Naphthalenes	657	--	7.90	136.44	136.44	0.21	2.80	104.09	104.09	0.16
C4-Phenanthrenes/Anthracenes	913	--	16.00	276.34	276.34	0.30	5.00	185.87	185.87	0.20
Chrysene	844	826	23.00	397.24	397.24	0.47	11.00	408.92	408.92	0.48
Dibenz[a,h]anthracene	1,123	2,389	1.60	27.63	27.63	0.02	0.62	23.05	23.05	0.02
Fluoranthene	707	23,870	10.00	172.71	172.71	0.24	3.60	133.83	133.83	0.19
Fluorene	538	26,000	3.00	51.81	51.81	0.10	0.72	26.77	26.77	0.05
Indeno[1,2,3-c,d]pyrene	1,115	--	1.60	27.63	27.63	0.02	0.65	24.16	24.16	0.02
Naphthalene	385	61,700	3.15	0.00	0.00	0.00	0.05	1.67	1.67	0.00
Perylene	967	431	0.78	13.47	13.47	0.01	0.19	7.06	7.06	0.01
Phenanthrene	596	34,300	54.00	932.64	932.64	1.56	15.00	557.62	557.62	0.94
Pyrene	697	9,090	26.00	449.05	449.05	0.64	10.00	371.75	371.75	0.53
--	---	**ESBTU FCVi**	--	--	--	11.82	--	--	--	8.52

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-48**				**MLTC14-48**			
		Field Sample ID	**MLTC14-48-SURF**				**MLTC14-48-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/22/2014**				**10/23/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	4.62	0.0462	---	---	4.74	0.0474	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.03	0.67	0.67	0.00	0.13	2.74	2.74	0.01
2-Methylnaphthalene	447	154,800	0.06	1.23	1.23	0.00	0.13	2.74	2.74	0.01
Acenaphthene	491	33,400	0.07	1.45	1.45	0.00	0.20	4.22	4.22	0.01
Acenaphthylene	452	24,000	0.08	1.73	1.73	0.00	0.28	5.91	5.91	0.01
Anthracene	594	1,300	0.29	6.28	6.28	0.01	1.20	25.32	25.32	0.04
Benzo[a]anthracene	841	4,153	1.00	21.65	21.65	0.03	3.80	80.17	80.17	0.10
Benzo[a]pyrene	965	3,840	1.00	21.65	21.65	0.02	2.90	61.18	61.18	0.06
Benzo[b]fluoranthene	979	2,169	1.00	21.65	21.65	0.02	2.50	52.74	52.74	0.05
Benzo[e]pyrene	967	4,300	0.73	15.80	15.80	0.02	2.00	42.19	42.19	0.04
Benzo[g,h,i]perylene	1,095	648	0.60	12.99	12.99	0.01	1.50	31.65	31.65	0.03
Benzo[k]fluoranthene	981	1,220	0.83	17.97	17.97	0.02	2.50	52.74	52.74	0.05
C1 Chrysenes	929	--	0.44	9.52	9.52	0.01	1.50	31.65	31.65	0.03
C1 Fluorenes	611	--	0.04	0.93	0.93	0.00	0.18	3.80	3.80	0.01
C1-Fluoranthenes/Pyrenes	770	--	1.30	28.14	28.14	0.04	4.50	94.94	94.94	0.12
C1-Naphthalenes	444	--	0.07	1.52	1.52	0.00	0.19	4.01	4.01	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.52	11.26	11.26	0.02	2.20	46.41	46.41	0.07
C2 Chrysenes	1,008	--	0.20	4.33	4.33	0.00	0.65	13.71	13.71	0.01
C2 Fluorenes	686	--	0.08	1.69	1.69	0.00	0.44	9.28	9.28	0.01
C2-Fluoranthenes/Pyrenes		--	0.50	10.82	10.82		1.70	35.86	35.86	
C2-Naphthalenes	510	--	0.22	4.76	4.76	0.01	0.90	18.99	18.99	0.04
C2-Phenanthrenes/Anthracenes	746	--	0.44	9.52	9.52	0.01	2.50	52.74	52.74	0.07
C3 Chrysenes	1,112	--	0.08	1.67	1.67	0.00	0.18	3.80	3.80	0.00
C3 Fluorenes	769	--	0.09	1.86	1.86	0.00	0.56	11.81	11.81	0.02
C3-Fluoranthenes/Pyrenes	949	--	0.21	4.55	4.55	0.00	0.80	16.88	16.88	0.02
C3-Naphthalenes	581	--	0.26	5.63	5.63	0.01	1.50	31.65	31.65	0.05
C3-Phenanthrenes/Anthracenes	829	--	0.49	10.61	10.61	0.01	2.60	54.85	54.85	0.07
C4 Chrysenes	1,214	--	0.12	0.00	0.00	0.00	0.33	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.16	3.46	3.46	0.01	1.10	23.21	23.21	0.04
C4-Phenanthrenes/Anthracenes	913	--	0.27	5.84	5.84	0.01	1.40	29.54	29.54	0.03
Chrysene	844	826	0.97	21.00	21.00	0.02	3.20	67.51	67.51	0.08
Dibenz[a,h]anthracene	1,123	2,389	0.16	3.46	3.46	0.00	0.45	9.49	9.49	0.01
Fluoranthene	707	23,870	1.50	32.47	32.47	0.05	5.60	118.14	118.14	0.17
Fluorene	538	26,000	0.12	2.60	2.60	0.00	0.53	11.18	11.18	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	0.53	11.47	11.47	0.01	1.40	29.54	29.54	0.03
Naphthalene	385	61,700	0.17	3.68	3.68	0.01	0.49	10.34	10.34	0.03
Perylene	967	431	0.27	5.84	5.84	0.01	0.78	16.46	16.46	0.02
Phenanthrene	596	34,300	0.77	16.67	16.67	0.03	2.70	56.96	56.96	0.10
Pyrene	697	9,090	1.60	34.63	34.63	0.05	4.60	97.05	97.05	0.14
--	---	**ESBTU FCVi**	--	--	--	0.45	--	--	--	1.57

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-48**				**MLTC14-48**			
		Field Sample ID	**MLTC14-48-0001FD**				**MLTC14-48-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/23/2014**				**10/23/2014**			
	Coc, PAHi, FCVi^a	**Coc, PAHi, Maxi^a**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc^b**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc^b**	**ESBTU FCVi**
Total Organic Carbon	--	--	8.6	0.086	---	---	8.16	0.0816	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.09	1.07	1.07	0.00	0.22	2.70	2.70	0.01
2-Methylnaphthalene	447	154,800	0.09	1.09	1.09	0.00	0.17	2.08	2.08	0.00
Acenaphthene	491	33,400	0.15	1.74	1.74	0.00	0.38	4.66	4.66	0.01
Acenaphthylene	452	24,000	0.18	2.09	2.09	0.00	0.30	3.68	3.68	0.01
Anthracene	594	1,300	0.75	8.72	8.72	0.01	1.90	23.28	23.28	0.04
Benzo[a]anthracene	841	4,153	2.70	31.40	31.40	0.04	4.40	53.92	53.92	0.06
Benzo[a]pyrene	965	3,840	1.90	22.09	22.09	0.02	3.10	37.99	37.99	0.04
Benzo[b]fluoranthene	979	2,169	1.90	22.09	22.09	0.02	3.00	36.76	36.76	0.04
Benzo[e]pyrene	967	4,300	1.40	16.28	16.28	0.02	2.20	26.96	26.96	0.03
Benzo[g,h,i]perylene	1,095	648	0.92	10.70	10.70	0.01	1.50	18.38	18.38	0.02
Benzo[k]fluoranthene	981	1,220	1.80	20.93	20.93	0.02	2.60	31.86	31.86	0.03
C1 Chrysenes	929	--	1.10	12.79	12.79	0.01	1.80	22.06	22.06	0.02
C1 Fluorenes	611	--	0.14	1.63	1.63	0.00	0.33	4.04	4.04	0.01
C1-Fluoranthenes/Pyrenes	770	--	3.60	41.86	41.86	0.05	6.10	74.75	74.75	0.10
C1-Naphthalenes	444	--	0.13	1.51	1.51	0.00	0.28	3.43	3.43	0.01
C1-Phenanthrenes/Anthracenes	670	--	1.60	18.60	18.60	0.03	3.40	41.67	41.67	0.06
C2 Chrysenes	1,008	--	0.50	5.81	5.81	0.01	0.73	8.95	8.95	0.01
C2 Fluorenes	686	--	0.31	3.60	3.60	0.01	0.64	7.84	7.84	0.01
C2-Fluoranthenes/Pyrenes		--	1.40	16.28	16.28		2.20	26.96	26.96	
C2-Naphthalenes	510	--	0.68	7.91	7.91	0.02	1.40	17.16	17.16	0.03
C2-Phenanthrenes/Anthracenes	746	--	1.70	19.77	19.77	0.03	3.50	42.89	42.89	0.06
C3 Chrysenes	1,112	--	0.16	1.86	1.86	0.00	0.29	3.55	3.55	0.00
C3 Fluorenes	769	--	0.38	4.42	4.42	0.01	0.76	9.31	9.31	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.59	6.86	6.86	0.01	1.00	12.25	12.25	0.01
C3-Naphthalenes	581	--	1.10	12.79	12.79	0.02	2.20	26.96	26.96	0.05
C3-Phenanthrenes/Anthracenes	829	--	2.00	23.26	23.26	0.03	3.70	45.34	45.34	0.05
C4 Chrysenes	1,214	--	0.23	0.00	0.00	0.00	0.45	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.87	10.12	10.12	0.02	1.50	18.38	18.38	0.03
C4-Phenanthrenes/Anthracenes	913	--	1.00	11.63	11.63	0.01	2.00	24.51	24.51	0.03
Chrysene	844	826	2.30	26.74	26.74	0.03	3.70	45.34	45.34	0.05
Dibenz[a,h]anthracene	1,123	2,389	0.27	3.14	3.14	0.00	0.41	5.02	5.02	0.00
Fluoranthene	707	23,870	3.80	44.19	44.19	0.06	7.70	94.36	94.36	0.13
Fluorene	538	26,000	0.39	4.53	4.53	0.01	0.96	11.76	11.76	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	0.87	10.12	10.12	0.01	1.40	17.16	17.16	0.02
Naphthalene	385	61,700	0.30	3.49	3.49	0.01	0.64	7.84	7.84	0.02
Perylene	967	431	0.53	6.16	6.16	0.01	0.89	10.91	10.91	0.01
Phenanthrene	596	34,300	2.00	23.26	23.26	0.04	4.90	60.05	60.05	0.10
Pyrene	697	9,090	3.70	43.02	43.02	0.06	6.70	82.11	82.11	0.12
--	---	**ESBTU FCVi**	--	--	--	0.62	--	--	--	1.23

Notes:

^{a}PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

^{b} COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-49**				**MLTC14-49**			
		Field Sample ID	**MLTC14-49-SURF**				**MLTC14-49-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/15/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	6.55	0.0655	---	---	5.66	0.0566	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.04	0.63	0.63	0.00	0.05	0.92	0.92	0.00
2-Methylnaphthalene	447	154,800	0.07	1.08	1.08	0.00	0.05	0.88	0.88	0.00
Acenaphthene	491	33,400	0.04	0.60	0.60	0.00	0.05	0.83	0.83	0.00
Acenaphthylene	452	24,000	0.05	0.76	0.76	0.00	0.03	0.51	0.51	0.00
Anthracene	594	1,300	0.16	2.44	2.44	0.00	0.10	1.77	1.77	0.00
Benzo[a]anthracene	841	4,153	0.62	9.47	9.47	0.01	0.38	6.71	6.71	0.01
Benzo[a]pyrene	965	3,840	0.78	11.91	11.91	0.01	0.37	6.54	6.54	0.01
Benzo[b]fluoranthene	979	2,169	0.72	10.99	10.99	0.01	0.39	6.89	6.89	0.01
Benzo[e]pyrene	967	4,300	0.52	7.94	7.94	0.01	0.29	5.12	5.12	0.01
Benzo[g,h,i]perylene	1,095	648	0.62	9.47	9.47	0.01	0.23	4.06	4.06	0.00
Benzo[k]fluoranthene	981	1,220	0.74	11.30	11.30	0.01	0.28	4.95	4.95	0.01
C1 Chrysenes	929	--	0.54	8.24	8.24	0.01	0.46	8.13	8.13	0.01
C1 Fluorenes	611	--	0.04	0.53	0.53	0.00	0.12	2.12	2.12	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.98	14.96	14.96	0.02	1.10	19.43	19.43	0.03
C1-Naphthalenes	444	--	0.08	1.25	1.25	0.00	0.07	1.22	1.22	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.34	5.19	5.19	0.01	0.75	13.25	13.25	0.02
C2 Chrysenes	1,008	--	0.31	4.73	4.73	0.00	0.63	11.13	11.13	0.01
C2 Fluorenes	686	--	0.08	1.21	1.21	0.00	0.34	6.01	6.01	0.01
C2-Fluoranthenes/Pyrenes		--	0.56	8.55	8.55		0.98	17.31	17.31	
C2-Naphthalenes	510	--	0.21	3.21	3.21	0.01	0.57	10.07	10.07	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.42	6.41	6.41	0.01	1.60	28.27	28.27	0.04
C3 Chrysenes	1,112	--	0.17	2.60	2.60	0.00	0.23	4.06	4.06	0.00
C3 Fluorenes	769	--	0.12	1.83	1.83	0.00	0.69	12.19	12.19	0.02
C3-Fluoranthenes/Pyrenes	949	--	0.35	5.34	5.34	0.01	0.91	16.08	16.08	0.02
C3-Naphthalenes	581	--	0.27	4.12	4.12	0.01	1.40	24.73	24.73	0.04
C3-Phenanthrenes/Anthracenes	829	--	0.64	9.77	9.77	0.01	2.80	49.47	49.47	0.06
C4 Chrysenes	1,214	--	0.13	0.00	0.00	0.00	0.14	2.47	2.47	0.00
C4-Naphthalenes	657	--	0.18	2.75	2.75	0.00	1.20	21.20	21.20	0.03
C4-Phenanthrenes/Anthracenes	913	--	0.45	6.87	6.87	0.01	1.90	33.57	33.57	0.04
Chrysene	844	826	0.86	13.13	13.13	0.02	0.50	8.83	8.83	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.21	3.21	3.21	0.00	0.09	1.63	1.63	0.00
Fluoranthene	707	23,870	1.30	19.85	19.85	0.03	0.72	12.72	12.72	0.02
Fluorene	538	26,000	0.07	1.07	1.07	0.00	0.11	1.94	1.94	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.57	8.70	8.70	0.01	0.21	3.71	3.71	0.00
Naphthalene	385	61,700	0.12	1.83	1.83	0.00	0.05	0.85	0.85	0.00
Perylene	967	431	0.21	3.21	3.21	0.00	0.08	1.48	1.48	0.00
Phenanthrene	596	34,300	0.48	7.33	7.33	0.01	0.35	6.18	6.18	0.01
Pyrene	697	9,090	0.92	14.05	14.05	0.02	0.54	9.54	9.54	0.01
--	---	**ESBTU FCVi**	--	--	--	0.26	--	--	--	0.44

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-49**				**MLTC14-49**			
		Field Sample ID	**MLTC14-49-0103**				**MLTC14-49-0103FD**			
		Sample Depth	**1-3**				**1-3**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.1	0.051	---	---	4.38	0.0438	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.12	2.35	2.35	0.01	0.03	0.71	0.71	0.00
2-Methylnaphthalene	447	154,800	0.12	2.35	2.35	0.01	0.06	1.28	1.28	0.00
Acenaphthene	491	33,400	0.09	1.80	1.80	0.00	0.03	0.75	0.75	0.00
Acenaphthylene	452	24,000	0.08	1.53	1.53	0.00	0.03	0.78	0.78	0.00
Anthracene	594	1,300	0.29	5.69	5.69	0.01	0.11	2.51	2.51	0.00
Benzo[a]anthracene	841	4,153	0.96	18.82	18.82	0.02	0.58	13.24	13.24	0.02
Benzo[a]pyrene	965	3,840	0.92	18.04	18.04	0.02	0.69	15.75	15.75	0.02
Benzo[b]fluoranthene	979	2,169	0.88	17.25	17.25	0.02	0.76	17.35	17.35	0.02
Benzo[e]pyrene	967	4,300	0.64	12.55	12.55	0.01	0.49	11.19	11.19	0.01
Benzo[g,h,i]perylene	1,095	648	0.60	11.76	11.76	0.01	0.59	13.47	13.47	0.01
Benzo[k]fluoranthene	981	1,220	0.68	13.33	13.33	0.01	0.61	13.93	13.93	0.01
C1 Chrysenes	929	--	1.00	19.61	19.61	0.02	0.40	9.13	9.13	0.01
C1 Fluorenes	611	--	0.31	6.08	6.08	0.01	0.03	0.73	0.73	0.00
C1-Fluoranthenes/Pyrenes	770	--	2.50	49.02	49.02	0.06	0.96	21.92	21.92	0.03
C1-Naphthalenes	444	--	0.18	3.53	3.53	0.01	0.06	1.35	1.35	0.00
C1-Phenanthrenes/Anthracenes	670	--	1.90	37.25	37.25	0.06	0.31	7.08	7.08	0.01
C2 Chrysenes	1,008	--	1.40	27.45	27.45	0.03	0.38	8.68	8.68	0.01
C2 Fluorenes	686	--	0.93	18.24	18.24	0.03	0.08	1.71	1.71	0.00
C2-Fluoranthenes/Pyrenes		--	2.30	45.10	45.10		0.66	15.07	15.07	
C2-Naphthalenes	510	--	1.30	25.49	25.49	0.05	0.20	4.57	4.57	0.01
C2-Phenanthrenes/Anthracenes	746	--	4.20	82.35	82.35	0.11	0.42	9.59	9.59	0.01
C3 Chrysenes	1,112	--	0.50	9.80	9.80	0.01	0.11	2.51	2.51	0.00
C3 Fluorenes	769	--	1.60	31.37	31.37	0.04	0.15	3.42	3.42	0.00
C3-Fluoranthenes/Pyrenes	949	--	2.20	43.14	43.14	0.05	0.44	10.05	10.05	0.01
C3-Naphthalenes	581	--	3.40	66.67	66.67	0.11	0.26	5.94	5.94	0.01
C3-Phenanthrenes/Anthracenes	829	--	6.30	123.53	123.53	0.15	0.90	20.55	20.55	0.02
C4 Chrysenes	1,214	--	0.31	6.08	6.08	0.01	0.10	2.19	2.19	0.00
C4-Naphthalenes	657	--	3.00	58.82	58.82	0.09	0.28	6.39	6.39	0.01
C4-Phenanthrenes/Anthracenes	913	--	4.30	84.31	84.31	0.09	0.64	14.61	14.61	0.02
Chrysene	844	826	1.20	23.53	23.53	0.03	0.73	16.67	16.67	0.02
Dibenz[a,h]anthracene	1,123	2,389	0.22	4.31	4.31	0.00	0.17	3.88	3.88	0.00
Fluoranthene	707	23,870	1.90	37.25	37.25	0.05	1.20	27.40	27.40	0.04
Fluorene	538	26,000	0.25	4.90	4.90	0.01	0.06	1.46	1.46	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.51	10.00	10.00	0.01	0.51	11.64	11.64	0.01
Naphthalene	385	61,700	0.11	2.16	2.16	0.01	0.08	1.85	1.85	0.00
Perylene	967	431	0.20	3.92	3.92	0.00	0.17	3.88	3.88	0.00
Phenanthrene	596	34,300	0.81	15.88	15.88	0.03	0.42	9.59	9.59	0.02
Pyrene	697	9,090	1.30	25.49	25.49	0.04	0.77	17.58	17.58	0.03
--	---	**ESBTU FCVi**	--	--	--	1.16	--	--	--	0.38

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-49**				**MLTC14-50**			
		Field Sample ID	**MLTC14-49-0305**				**MLTC14-50-SURF**			
		Sample Depth	**3-5**				**0-0.5**			
		Sample Date	**10/16/2014**				**10/16/2014**			
	Coc, PAHi, FCVi^a	**Coc, PAHi, Maxi^a**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc^b**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc^b**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.69	0.0369	---	---	2.92	0.0292	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.12	0.12	0.00	0.05	1.75	1.75	0.00
2-Methylnaphthalene	447	154,800	0.01	0.18	0.18	0.00	0.09	3.12	3.12	0.01
Acenaphthene	491	33,400	0.00	0.00	0.00	0.00	0.11	3.77	3.77	0.01
Acenaphthylene	452	24,000	0.00	0.00	0.00	0.00	0.11	3.77	3.77	0.01
Anthracene	594	1,300	0.00	0.00	0.00	0.00	0.52	17.81	17.81	0.03
Benzo[a]anthracene	841	4,153	0.00	0.09	0.09	0.00	1.30	44.52	44.52	0.05
Benzo[a]pyrene	965	3,840	0.00	0.09	0.09	0.00	1.50	51.37	51.37	0.05
Benzo[b]fluoranthene	979	2,169	0.00	0.08	0.08	0.00	1.00	34.25	34.25	0.03
Benzo[e]pyrene	967	4,300	0.00	0.08	0.08	0.00	0.90	30.82	30.82	0.03
Benzo[g,h,i]perylene	1,095	648	0.01	0.15	0.15	0.00	1.10	37.67	37.67	0.03
Benzo[k]fluoranthene	981	1,220	0.00	0.06	0.06	0.00	1.30	44.52	44.52	0.05
C1 Chrysenes	929	--	0.01	0.21	0.21	0.00	1.10	37.67	37.67	0.04
C1 Fluorenes	611	--	0.01	0.14	0.14	0.00	0.06	2.05	2.05	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.02	0.49	0.49	0.00	1.90	65.07	65.07	0.08
C1-Naphthalenes	444	--	0.01	0.22	0.22	0.00	0.10	3.25	3.25	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.03	0.76	0.76	0.00	0.70	23.97	23.97	0.04
C2 Chrysenes	1,008	--	0.02	0.51	0.51	0.00	0.39	13.36	13.36	0.01
C2 Fluorenes	686	--	0.01	0.24	0.24	0.00	0.10	3.42	3.42	0.00
C2-Fluoranthenes/Pyrenes		--	0.02	0.60	0.60		0.88	30.14	30.14	
C2-Naphthalenes	510	--	0.05	1.44	1.44	0.00	0.26	8.90	8.90	0.02
C2-Phenanthrenes/Anthracenes	746	--	0.03	0.92	0.92	0.00	0.63	21.58	21.58	0.03
C3 Chrysenes	1,112	--	0.01	0.18	0.18	0.00	0.16	5.48	5.48	0.00
C3 Fluorenes	769	--	0.01	0.35	0.35	0.00	0.14	4.79	4.79	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.02	0.62	0.62	0.00	0.42	14.38	14.38	0.02
C3-Naphthalenes	581	--	0.11	2.98	2.98	0.01	0.32	10.96	10.96	0.02
C3-Phenanthrenes/Anthracenes	829	--	0.07	1.92	1.92	0.00	0.59	20.21	20.21	0.02
C4 Chrysenes	1,214	--	0.01	0.17	0.17	0.00	0.17	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.08	2.25	2.25	0.00	0.20	6.85	6.85	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.04	1.11	1.11	0.00	0.30	10.27	10.27	0.01
Chrysene	844	826	0.01	0.19	0.19	0.00	1.50	51.37	51.37	0.06
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.02	0.02	0.00	0.37	12.67	12.67	0.01
Fluoranthene	707	23,870	0.00	0.09	0.09	0.00	2.20	75.34	75.34	0.11
Fluorene	538	26,000	0.00	0.04	0.04	0.00	0.14	4.79	4.79	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.04	0.04	0.00	0.95	32.53	32.53	0.03
Naphthalene	385	61,700	0.00	0.04	0.04	0.00	0.22	7.53	7.53	0.02
Perylene	967	431	0.00	0.08	0.08	0.00	0.37	12.67	12.67	0.01
Phenanthrene	596	34,300	0.01	0.30	0.30	0.00	1.00	34.25	34.25	0.06
Pyrene	697	9,090	0.01	0.14	0.14	0.00	1.60	54.79	54.79	0.08
--	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	1.00

Notes:

^{a}PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

^{b} COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-51**				**MLTC14-51**			
		Field Sample ID	**MLTC14-51-SURF**				**MLTC14-51-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/16/2014**				**10/17/2014**			
	Coc, PAHi, FCVi^{a} µg/g oc	**Coc, PAHi, Maxi^{a}** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc^{b}	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc^{b}	**ESBTU FCVi**
Total Organic Carbon	--	--	5.61	0.0561	---	---	2.65	0.0265	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.03	0.59	0.59	0.00	0.00	0.12	0.12	0.00
2-Methylnaphthalene	447	154,800	0.07	1.16	1.16	0.00	0.00	0.12	0.12	0.00
Acenaphthene	491	33,400	0.05	0.82	0.82	0.00	0.00	0.04	0.04	0.00
Acenaphthylene	452	24,000	0.21	3.74	3.74	0.01	0.00	0.14	0.14	0.00
Anthracene	594	1,300	0.44	7.84	7.84	0.01	0.00	0.14	0.14	0.00
Benzo[a]anthracene	841	4,153	2.20	39.22	39.22	0.05	0.02	0.64	0.64	0.00
Benzo[a]pyrene	965	3,840	2.40	42.78	42.78	0.04	0.02	0.72	0.72	0.00
Benzo[b]fluoranthene	979	2,169	1.50	26.74	26.74	0.03	0.02	0.57	0.57	0.00
Benzo[e]pyrene	967	4,300	1.40	24.96	24.96	0.03	0.01	0.53	0.53	0.00
Benzo[g,h,i]perylene	1,095	648	1.40	24.96	24.96	0.02	0.02	0.64	0.64	0.00
Benzo[k]fluoranthene	981	1,220	1.80	32.09	32.09	0.03	0.01	0.53	0.53	0.00
C1 Chrysenes	929	--	2.10	37.43	37.43	0.04	0.03	0.94	0.94	0.00
C1 Fluorenes	611	--	0.05	0.96	0.96	0.00	0.00	0.15	0.15	0.00
C1-Fluoranthenes/Pyrenes	770	--	3.50	62.39	62.39	0.08	0.04	1.47	1.47	0.00
C1-Naphthalenes	444	--	0.07	1.18	1.18	0.00	0.00	0.17	0.17	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.85	15.15	15.15	0.02	0.03	1.06	1.06	0.00
C2 Chrysenes	1,008	--	0.77	13.73	13.73	0.01	0.01	0.53	0.53	0.00
C2 Fluorenes	686	--	0.12	2.14	2.14	0.00	0.01	0.28	0.28	0.00
C2-Fluoranthenes/Pyrenes		--	1.40	24.96	24.96		0.03	1.02	1.02	
C2-Naphthalenes	510	--	0.18	3.21	3.21	0.01	0.02	0.60	0.60	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.96	17.11	17.11	0.02	0.03	1.28	1.28	0.00
C3 Chrysenes	1,112	--	0.25	4.46	4.46	0.00	0.01	0.38	0.38	0.00
C3 Fluorenes	769	--	0.14	2.50	2.50	0.00	0.01	0.35	0.35	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.65	11.59	11.59	0.01	0.02	0.75	0.75	0.00
C3-Naphthalenes	581	--	0.25	4.46	4.46	0.01	0.04	1.40	1.40	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.88	15.69	15.69	0.02	0.05	1.74	1.74	0.00
C4 Chrysenes	1,214	--	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.17	3.03	3.03	0.00	0.04	1.62	1.62	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.40	7.13	7.13	0.01	0.02	0.83	0.83	0.00
Chrysene	844	826	2.40	42.78	42.78	0.05	0.02	0.91	0.91	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.46	8.20	8.20	0.01	0.00	0.17	0.17	0.00
Fluoranthene	707	23,870	2.40	42.78	42.78	0.06	0.03	0.98	0.98	0.00
Fluorene	538	26,000	0.08	1.46	1.46	0.00	0.00	0.14	0.14	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.20	21.39	21.39	0.02	0.01	0.42	0.42	0.00
Naphthalene	385	61,700	0.15	2.67	2.67	0.01	0.00	0.10	0.10	0.00
Perylene	967	431	0.61	10.87	10.87	0.01	0.02	0.91	0.91	0.00
Phenanthrene	596	34,300	0.63	11.23	11.23	0.02	0.02	0.57	0.57	0.00
Pyrene	697	9,090	2.00	35.65	35.65	0.05	0.02	0.75	0.75	0.00
--	---	**ESBTU FCVi**	--	--	--	0.69	--	--	--	0.03

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-51**				**MLTC14-51**			
		Field Sample ID	**MLTC14-51-0103**				**MLTC14-51-0305**			
		Sample Depth	**1-3**				**3-5**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	1.57	0.0157	---	---	1.28	0.0128	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.18	0.18	0.00	0.00	0.09	0.09	0.00
2-Methylnaphthalene	447	154,800	0.00	0.17	0.17	0.00	0.00	0.08	0.08	0.00
Acenaphthene	491	33,400	0.00	0.11	0.11	0.00	0.00	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00
Anthracene	594	1,300	0.00	0.18	0.18	0.00	0.00	0.00	0.00	0.00
Benzo[a]anthracene	841	4,153	0.02	1.27	1.27	0.00	0.00	0.07	0.07	0.00
Benzo[a]pyrene	965	3,840	0.02	1.08	1.08	0.00	0.00	0.00	0.00	0.00
Benzo[b]fluoranthene	979	2,169	0.02	1.21	1.21	0.00	0.00	0.16	0.16	0.00
Benzo[e]pyrene	967	4,300	0.02	1.08	1.08	0.00	0.00	0.19	0.19	0.00
Benzo[g,h,i]perylene	1,095	648	0.02	1.27	1.27	0.00	0.00	0.22	0.22	0.00
Benzo[k]fluoranthene	981	1,220	0.02	1.21	1.21	0.00	0.00	0.09	0.09	0.00
C1 Chrysenes	929	--	0.03	1.85	1.85	0.00	0.01	0.56	0.56	0.00
C1 Fluorenes	611	--	0.00	0.24	0.24	0.00	0.00	0.12	0.12	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.04	2.80	2.80	0.00	0.01	0.78	0.78	0.00
C1-Naphthalenes	444	--	0.00	0.27	0.27	0.00	0.00	0.12	0.12	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.03	1.78	1.78	0.00	0.01	0.86	0.86	0.00
C2 Chrysenes	1,008	--	0.02	1.15	1.15	0.00	0.01	0.54	0.54	0.00
C2 Fluorenes	686	--	0.01	0.51	0.51	0.00	0.00	0.29	0.29	0.00
C2-Fluoranthenes/Pyrenes		--	0.03	1.85	1.85		0.01	0.86	0.86	
C2-Naphthalenes	510	--	0.02	0.96	0.96	0.00	0.01	0.45	0.45	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.04	2.48	2.48	0.00	0.02	1.64	1.64	0.00
C3 Chrysenes	1,112	--	0.01	0.83	0.83	0.00	0.01	0.45	0.45	0.00
C3 Fluorenes	769	--	0.01	0.61	0.61	0.00	0.01	0.41	0.41	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.02	1.46	1.46	0.00	0.01	0.86	0.86	0.00
C3-Naphthalenes	581	--	0.04	2.29	2.29	0.00	0.02	1.41	1.41	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.05	3.18	3.18	0.00	0.04	2.89	2.89	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.04	2.36	2.36	0.00	0.02	1.88	1.88	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.03	1.59	1.59	0.00	0.02	1.56	1.56	0.00
Chrysene	844	826	0.03	1.85	1.85	0.00	0.01	0.46	0.46	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.01	0.38	0.38	0.00	0.00	0.03	0.03	0.00
Fluoranthene	707	23,870	0.03	1.66	1.66	0.00	0.00	0.23	0.23	0.00
Fluorene	538	26,000	0.00	0.21	0.21	0.00	0.00	0.07	0.07	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.02	0.96	0.96	0.00	0.00	0.06	0.06	0.00
Naphthalene	385	61,700	0.00	0.15	0.15	0.00	0.00	0.00	0.00	0.00
Perylene	967	431	0.03	1.97	1.97	0.00	0.02	1.41	1.41	0.00
Phenanthrene	596	34,300	0.02	1.15	1.15	0.00	0.00	0.24	0.24	0.00
Pyrene	697	9,090	0.02	1.08	1.08	0.00	0.00	0.22	0.22	0.00
--	---	**ESBTU FCVi**	--	--	--	0.05	--	--	--	0.02

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-51**				**MLTC14-51**			
		Field Sample ID	**MLTC14-51-0507**				**MLTC14-51-0709**			
		Sample Depth	**5-7**				**7-9**			
		Sample Date	**10/17/2014**				**10/17/2014**			
	Coc, PAHi, FCVi^a	**Coc, PAHi, Maxi^a**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc^b**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc^b**	**ESBTU FCVi**
Total Organic Carbon	--	--	0.508	0.00508	---	---	1.31	0.0131	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylnaphthalene	447	154,800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acenaphthene	491	33,400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acenaphthylene	452	24,000	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00
Anthracene	594	1,300	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00
Benzo[a]anthracene	841	4,153	0.00	0.26	0.26	0.00	0.01	0.41	0.41	0.00
Benzo[a]pyrene	965	3,840	0.00	0.00	0.00	0.00	0.01	0.63	0.63	0.00
Benzo[b]fluoranthene	979	2,169	0.00	0.00	0.00	0.00	0.01	0.84	0.84	0.00
Benzo[e]pyrene	967	4,300	0.00	0.71	0.71	0.00	0.01	0.56	0.56	0.00
Benzo[g,h,i]perylene	1,095	648	0.00	0.93	0.93	0.00	0.01	0.57	0.57	0.00
Benzo[k]fluoranthene	981	1,220	0.00	0.00	0.00	0.00	0.01	0.44	0.44	0.00
C1 Chrysenes	929	--	0.01	2.56	2.56	0.00	0.01	0.50	0.50	0.00
C1 Fluorenes	611	--	0.00	0.45	0.45	0.00	0.00	0.05	0.05	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.02	3.74	3.74	0.00	0.01	0.84	0.84	0.00
C1-Naphthalenes	444	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.03	4.92	4.92	0.01	0.00	0.33	0.33	0.00
C2 Chrysenes	1,008	--	0.02	2.95	2.95	0.00	0.01	0.75	0.75	0.00
C2 Fluorenes	686	--	0.01	1.97	1.97	0.00	0.00	0.08	0.08	0.00
C2-Fluoranthenes/Pyrenes		--	0.02	4.72	4.72		0.01	0.58	0.58	
C2-Naphthalenes	510	--	0.01	2.36	2.36	0.00	0.00	0.22	0.22	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.06	11.42	11.42	0.02	0.01	0.53	0.53	0.00
C3 Chrysenes	1,112	--	0.01	2.56	2.56	0.00	0.00	0.32	0.32	0.00
C3 Fluorenes	769	--	0.01	2.76	2.76	0.00	0.00	0.12	0.12	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.02	3.94	3.94	0.00	0.01	0.62	0.62	0.00
C3-Naphthalenes	581	--	0.05	9.25	9.25	0.02	0.01	0.44	0.44	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.10	19.69	19.69	0.02	0.02	1.22	1.22	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.08	16.34	16.34	0.02	0.01	0.66	0.66	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.05	9.25	9.25	0.01	0.01	0.63	0.63	0.00
Chrysene	844	826	0.01	2.17	2.17	0.00	0.01	0.99	0.99	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.00
Fluoranthene	707	23,870	0.00	0.55	0.55	0.00	0.00	0.00	0.00	0.00
Fluorene	538	26,000	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.12	0.12	0.00	0.01	0.42	0.42	0.00
Naphthalene	385	61,700	0.00	0.20	0.20	0.00	0.00	0.02	0.02	0.00
Perylene	967	431	0.02	3.94	3.94	0.00	0.01	0.41	0.41	0.00
Phenanthrene	596	34,300	0.00	0.63	0.63	0.00	0.00	0.19	0.19	0.00
Pyrene	697	9,090	0.01	0.98	0.98	0.00	0.00	0.25	0.25	0.00
--	---	**ESBTU FCVi**	--	--	--	0.13	--	--	--	0.02

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-52**				**MLTC14-52**			
		Field Sample ID	**MLTC14-52-SURF**				**MLTC14-52-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/16/2014**				**10/17/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	2.07	0.0207	---	---	3.13	0.0313	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.02	0.87	0.87	0.00	0.02	0.00	0.00	0.00
2-Methylnaphthalene	447	154,800	0.03	1.59	1.59	0.00	0.01	0.19	0.19	0.00
Acenaphthene	491	33,400	0.03	1.55	1.55	0.00	0.01	0.28	0.28	0.00
Acenaphthylene	452	24,000	0.10	4.64	4.64	0.01	0.02	0.51	0.51	0.00
Anthracene	594	1,300	0.17	8.21	8.21	0.01	0.05	1.53	1.53	0.00
Benzo[a]anthracene	841	4,153	0.98	47.34	47.34	0.06	0.17	5.43	5.43	0.01
Benzo[a]pyrene	965	3,840	1.00	48.31	48.31	0.05	0.18	5.75	5.75	0.01
Benzo[b]fluoranthene	979	2,169	0.64	30.92	30.92	0.03	0.18	5.75	5.75	0.01
Benzo[e]pyrene	967	4,300	0.59	28.50	28.50	0.03	0.11	3.51	3.51	0.00
Benzo[g,h,i]perylene	1,095	648	0.65	31.40	31.40	0.03	0.09	2.81	2.81	0.00
Benzo[k]fluoranthene	981	1,220	0.77	37.20	37.20	0.04	0.13	4.15	4.15	0.00
C1 Chrysenes	929	--	0.98	47.34	47.34	0.05	0.10	3.19	3.19	0.00
C1 Fluorenes	611	--	0.03	1.26	1.26	0.00	0.01	0.29	0.29	0.00
C1-Fluoranthenes/Pyrenes	770	--	1.50	72.46	72.46	0.09	0.25	7.99	7.99	0.01
C1-Naphthalenes	444	--	0.04	1.69	1.69	0.00	0.01	0.22	0.22	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.35	16.91	16.91	0.03	0.08	2.46	2.46	0.00
C2 Chrysenes	1,008	--	0.31	14.98	14.98	0.01	0.06	1.88	1.88	0.00
C2 Fluorenes	686	--	0.05	2.22	2.22	0.00	0.02	0.54	0.54	0.00
C2-Fluoranthenes/Pyrenes		--	0.66	31.88	31.88		0.11	3.51	3.51	
C2-Naphthalenes	510	--	0.09	4.30	4.30	0.01	0.02	0.70	0.70	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.42	20.29	20.29	0.03	0.09	2.84	2.84	0.00
C3 Chrysenes	1,112	--	0.13	6.28	6.28	0.01	0.03	0.86	0.86	0.00
C3 Fluorenes	769	--	0.07	3.38	3.38	0.00	0.02	0.67	0.67	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.29	14.01	14.01	0.01	0.05	1.66	1.66	0.00
C3-Naphthalenes	581	--	0.13	6.28	6.28	0.01	0.05	1.57	1.57	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.40	19.32	19.32	0.02	0.12	3.83	3.83	0.00
C4 Chrysenes	1,214	--	0.10	0.00	0.00	0.00	0.01	0.35	0.35	0.00
C4-Naphthalenes	657	--	0.09	4.25	4.25	0.01	0.04	1.37	1.37	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.21	10.14	10.14	0.01	0.08	2.56	2.56	0.00
Chrysene	844	826	1.00	48.31	48.31	0.06	0.18	5.75	5.75	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.22	10.63	10.63	0.01	0.03	0.86	0.86	0.00
Fluoranthene	707	23,870	1.10	53.14	53.14	0.08	0.30	9.58	9.58	0.01
Fluorene	538	26,000	0.05	2.37	2.37	0.00	0.02	0.48	0.48	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.56	27.05	27.05	0.02	0.09	2.72	2.72	0.00
Naphthalene	385	61,700	0.07	3.57	3.57	0.01	0.02	0.51	0.51	0.00
Perylene	967	431	0.26	12.56	12.56	0.01	0.20	6.39	6.39	0.01
Phenanthrene	596	34,300	0.35	16.91	16.91	0.03	0.11	3.51	3.51	0.01
Pyrene	697	9,090	0.85	41.06	41.06	0.06	0.22	7.03	7.03	0.01
--	---	**ESBTU FCVi**	--	--	--	0.83	--	--	--	0.12

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-52**				**MLTC14-53**			
		Field Sample ID	**MLTC14-52-0103**				**MLTC14-53-SURF**			
		Sample Depth	**1-3**				**0-0.5**			
		Sample Date	**10/17/2014**				**10/20/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	0.386	0.00386	---	---	6.48	0.0648	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.00	0.09	0.09	0.00	1.40	21.60	21.60	0.05
2-Methylnaphthalene	447	154,800	0.00	0.00	0.00	0.00	1.50	23.15	23.15	0.05
Acenaphthene	491	33,400	0.00	0.04	0.04	0.00	18.00	277.78	277.78	0.57
Acenaphthylene	452	24,000	0.00	0.05	0.05	0.00	0.26	4.01	4.01	0.01
Anthracene	594	1,300	0.00	0.26	0.26	0.00	23.00	354.94	354.94	0.60
Benzo[a]anthracene	841	4,153	0.00	0.41	0.41	0.00	93.00	1435.19	1435.19	1.71
Benzo[a]pyrene	965	3,840	0.00	0.28	0.28	0.00	72.00	1111.11	1111.11	1.15
Benzo[b]fluoranthene	979	2,169	0.00	0.41	0.41	0.00	65.00	1003.09	1003.09	1.02
Benzo[e]pyrene	967	4,300	0.00	0.36	0.36	0.00	51.00	787.04	787.04	0.81
Benzo[g,h,i]perylene	1,095	648	0.00	0.36	0.36	0.00	42.00	648.15	648.00	0.59
Benzo[k]fluoranthene	981	1,220	0.00	0.44	0.44	0.00	84.00	1296.30	1220.00	1.24
C1 Chrysenes	929	--	0.00	0.49	0.49	0.00	28.00	432.10	432.10	0.47
C1 Fluorenes	611	--	0.00	0.13	0.13	0.00	20.00	0.00	0.00	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.01	1.32	1.32	0.00	72.00	1111.11	1111.11	1.44
C1-Naphthalenes	444	--	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.00	0.49	0.49	0.00	34.00	524.69	524.69	0.78
C2 Chrysenes	1,008	--	0.00	0.00	0.00	0.00	7.70	118.83	118.83	0.12
C2 Fluorenes	686	--	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	0.00	0.96	0.96		39.00	601.85	601.85	
C2-Naphthalenes	510	--	0.00	0.52	0.52	0.00	20.00	0.00	0.00	0.00
C2-Phenanthrenes/Anthracenes	746	--	0.00	0.88	0.88	0.00	12.00	185.19	185.19	0.25
C3 Chrysenes	1,112	--	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
C3 Fluorenes	769	--	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
C3-Naphthalenes	581	--	0.00	0.96	0.96	0.00	20.00	0.00	0.00	0.00
C3-Phenanthrenes/Anthracenes	829	--	0.01	1.40	1.40	0.00	20.00	0.00	0.00	0.00
C4 Chrysenes	1,214	--	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.00	0.60	0.60	0.00	20.00	0.00	0.00	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.00	1.11	1.11	0.00	20.00	0.00	0.00	0.00
Chrysene	844	826	0.00	0.70	0.70	0.00	110.00	1697.53	826.00	0.98
Dibenz[a,h]anthracene	1,123	2,389	0.00	0.07	0.07	0.00	12.00	185.19	185.19	0.16
Fluoranthene	707	23,870	0.00	0.91	0.91	0.00	300.00	4629.63	4629.63	6.55
Fluorene	538	26,000	0.00	0.18	0.18	0.00	15.00	231.48	231.48	0.43
Indeno[1,2,3-c,d]pyrene	1,115	--	0.00	0.25	0.25	0.00	37.00	570.99	570.99	0.51
Naphthalene	385	61,700	0.00	0.00	0.00	0.00	6.00	92.59	92.59	0.24
Perylene	967	431	0.01	3.63	3.63	0.00	21.00	324.07	324.07	0.34
Phenanthrene	596	34,300	0.00	0.57	0.57	0.00	210.00	3240.74	3240.74	5.44
Pyrene	697	9,090	0.00	0.78	0.78	0.00	210.00	3240.74	3240.74	4.65
--	---	**ESBTU FCVi**	--	--	--	0.02	--	--	--	30.06

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-53**				**MLTC14-53**			
		Field Sample ID	**MLTC14-53-0001**				**MLTC14-53-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	9.14	0.0914	---	---	11.5	0.115	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	4.10	0.00	0.00	0.00	2.40	20.87	20.87	0.05
2-Methylnaphthalene	447	154,800	4.10	0.00	0.00	0.00	4.10	35.65	35.65	0.08
Acenaphthene	491	33,400	3.40	37.20	37.20	0.08	0.78	6.78	6.78	0.01
Acenaphthylene	452	24,000	4.10	0.00	0.00	0.00	0.29	2.52	2.52	0.01
Anthracene	594	1,300	4.50	49.23	49.23	0.08	2.40	20.87	20.87	0.04
Benzo[a]anthracene	841	4,153	23.00	251.64	251.64	0.30	22.00	191.30	191.30	0.23
Benzo[a]pyrene	965	3,840	15.00	164.11	164.11	0.17	13.00	113.04	113.04	0.12
Benzo[b]fluoranthene	979	2,169	18.00	196.94	196.94	0.20	13.00	113.04	113.04	0.12
Benzo[e]pyrene	967	4,300	15.00	164.11	164.11	0.17	21.00	182.61	182.61	0.19
Benzo[g,h,i]perylene	1,095	648	9.40	102.84	102.84	0.09	8.50	73.91	73.91	0.07
Benzo[k]fluoranthene	981	1,220	13.00	142.23	142.23	0.14	3.80	33.04	33.04	0.03
C1 Chrysenes	929	--	16.00	175.05	175.05	0.19	56.00	486.96	486.96	0.52
C1 Fluorenes	611	--	1.20	13.13	13.13	0.02	4.40	38.26	38.26	0.06
C1-Fluoranthenes/Pyrenes	770	--	25.00	273.52	273.52	0.36	53.00	460.87	460.87	0.60
C1-Naphthalenes	444	--	0.68	7.44	7.44	0.02	4.30	37.39	37.39	0.08
C1-Phenanthrenes/Anthracenes	670	--	15.00	164.11	164.11	0.24	41.00	356.52	356.52	0.53
C2 Chrysenes	1,008	--	8.80	96.28	96.28	0.10	41.00	356.52	356.52	0.35
C2 Fluorenes	686	--	3.00	32.82	32.82	0.05	12.00	104.35	104.35	0.15
C2-Fluoranthenes/Pyrenes		--	16.00	175.05	175.05		44.00	382.61	382.61	
C2-Naphthalenes	510	--	4.00	43.76	43.76	0.09	44.00	382.61	382.61	0.75
C2-Phenanthrenes/Anthracenes	746	--	14.00	153.17	153.17	0.21	56.00	486.96	486.96	0.65
C3 Chrysenes	1,112	--	2.70	29.54	29.54	0.03	13.00	113.04	113.04	0.10
C3 Fluorenes	769	--	4.00	43.76	43.76	0.06	11.00	95.65	95.65	0.12
C3-Fluoranthenes/Pyrenes	949	--	7.40	80.96	80.96	0.09	26.00	226.09	226.09	0.24
C3-Naphthalenes	581	--	11.00	120.35	120.35	0.21	66.00	573.91	573.91	0.99
C3-Phenanthrenes/Anthracenes	829	--	13.00	142.23	142.23	0.17	56.00	486.96	486.96	0.59
C4 Chrysenes	1,214	--	4.10	0.00	0.00	0.00	4.50	39.13	39.13	0.03
C4-Naphthalenes	657	--	6.60	72.21	72.21	0.11	35.00	304.35	304.35	0.46
C4-Phenanthrenes/Anthracenes	913	--	6.70	73.30	73.30	0.08	27.00	234.78	234.78	0.26
Chrysene	844	826	26.00	284.46	284.46	0.34	30.00	260.87	260.87	0.31
Dibenz[a,h]anthracene	1,123	2,389	3.40	37.20	37.20	0.03	3.30	28.70	28.70	0.03
Fluoranthene	707	23,870	52.00	568.93	568.93	0.80	9.80	85.22	85.22	0.12
Fluorene	538	26,000	3.40	37.20	37.20	0.07	1.80	15.65	15.65	0.03
Indeno[1,2,3-c,d]pyrene	1,115	--	7.40	80.96	80.96	0.07	2.70	23.48	23.48	0.02
Naphthalene	385	61,700	0.66	7.22	7.22	0.02	2.05	0.00	0.00	0.00
Perylene	967	431	3.80	41.58	41.58	0.04	1.30	11.30	11.30	0.01
Phenanthrene	596	34,300	41.00	448.58	448.58	0.75	13.00	113.04	113.04	0.19
Pyrene	697	9,090	46.00	503.28	503.28	0.72	24.00	208.70	208.70	0.30
--	---	**ESBTU FCVi**	--	--	--	6.00	--	--	--	8.08

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-53**				**MLTC14-53**			
		Field Sample ID	**MLTC14-53-0305**				**MLTC14-53-0305FD**			
		Sample Depth	**3-5**				**3-5**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final Coc[b]**	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	8.21	0.0821	---	---	8.98	0.0898	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	1.60	19.49	19.49	0.04	1.50	16.70	16.70	0.04
2-Methylnaphthalene	447	154,800	2.20	26.80	26.80	0.06	2.20	24.50	24.50	0.05
Acenaphthene	491	33,400	0.85	0.00	0.00	0.00	0.56	6.24	6.24	0.01
Acenaphthylene	452	24,000	0.85	0.00	0.00	0.00	0.85	0.00	0.00	0.00
Anthracene	594	1,300	1.30	15.83	15.83	0.03	1.20	13.36	13.36	0.02
Benzo[a]anthracene	841	4,153	8.10	98.66	98.66	0.12	7.30	81.29	81.29	0.10
Benzo[a]pyrene	965	3,840	3.90	47.50	47.50	0.05	3.60	40.09	40.09	0.04
Benzo[b]fluoranthene	979	2,169	4.80	58.47	58.47	0.06	4.40	49.00	49.00	0.05
Benzo[e]pyrene	967	4,300	5.30	64.56	64.56	0.07	5.20	57.91	57.91	0.06
Benzo[g,h,i]perylene	1,095	648	2.60	31.67	31.67	0.03	2.00	22.27	22.27	0.02
Benzo[k]fluoranthene	981	1,220	1.90	23.14	23.14	0.02	1.80	20.04	20.04	0.02
C1 Chrysenes	929	--	16.00	194.88	194.88	0.21	15.00	167.04	167.04	0.18
C1 Fluorenes	611	--	1.80	21.92	21.92	0.04	2.00	22.27	22.27	0.04
C1-Fluoranthenes/Pyrenes	770	--	18.00	219.24	219.24	0.28	20.00	222.72	222.72	0.29
C1-Naphthalenes	444	--	2.50	30.45	30.45	0.07	2.50	27.84	27.84	0.06
C1-Phenanthrenes/Anthracenes	670	--	18.00	219.24	219.24	0.33	17.00	189.31	189.31	0.28
C2 Chrysenes	1,008	--	12.00	146.16	146.16	0.15	13.00	144.77	144.77	0.14
C2 Fluorenes	686	--	6.90	84.04	84.04	0.12	6.20	69.04	69.04	0.10
C2-Fluoranthenes/Pyrenes		--	18.00	219.24	219.24		17.00	189.31	189.31	
C2-Naphthalenes	510	--	22.00	267.97	267.97	0.53	21.00	233.85	233.85	0.46
C2-Phenanthrenes/Anthracenes	746	--	34.00	414.13	414.13	0.56	32.00	356.35	356.35	0.48
C3 Chrysenes	1,112	--	6.30	76.74	76.74	0.07	6.00	66.82	66.82	0.06
C3 Fluorenes	769	--	7.70	93.79	93.79	0.12	8.00	89.09	89.09	0.12
C3-Fluoranthenes/Pyrenes	949	--	14.00	170.52	170.52	0.18	14.00	155.90	155.90	0.16
C3-Naphthalenes	581	--	43.00	523.75	523.75	0.90	42.00	467.71	467.71	0.81
C3-Phenanthrenes/Anthracenes	829	--	39.00	475.03	475.03	0.57	44.00	489.98	489.98	0.59
C4 Chrysenes	1,214	--	2.40	29.23	29.23	0.02	2.10	23.39	23.39	0.02
C4-Naphthalenes	657	--	28.00	341.05	341.05	0.52	28.00	311.80	311.80	0.47
C4-Phenanthrenes/Anthracenes	913	--	22.00	267.97	267.97	0.29	24.00	267.26	267.26	0.29
Chrysene	844	826	10.00	121.80	121.80	0.14	9.30	103.56	103.56	0.12
Dibenz[a,h]anthracene	1,123	2,389	1.10	13.40	13.40	0.01	0.85	9.47	9.47	0.01
Fluoranthene	707	23,870	7.70	93.79	93.79	0.13	6.70	74.61	74.61	0.11
Fluorene	538	26,000	1.50	18.27	18.27	0.03	1.40	15.59	15.59	0.03
Indeno[1,2,3-c,d]pyrene	1,115	--	1.50	18.27	18.27	0.02	1.20	13.36	13.36	0.01
Naphthalene	385	61,700	0.85	0.00	0.00	0.00	0.85	0.00	0.00	0.00
Perylene	967	431	0.68	8.28	8.28	0.01	0.57	6.35	6.35	0.01
Phenanthrene	596	34,300	6.20	75.52	75.52	0.13	5.80	64.59	64.59	0.11
Pyrene	697	9,090	9.20	112.06	112.06	0.16	10.00	111.36	111.36	0.16
--	---	**ESBTU FCVi**	--	--	--	5.78	--	--	--	5.27

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-53**				**MLTC14-53**			
		Field Sample ID	**MLTC14-53-0507**				**MLTC14-53-0709**			
		Sample Depth	**5-7**				**7-9**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a] μg/g oc	**Coc, PAHi, Maxi[a]** μg/g oc	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final Coc[b]**	**ESBTU FCVi**	**Conc** μg/g dry wt.	**Coc** μg/g oc	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.9	0.059	---	---	2.22	0.0222	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)										
1-Methylnaphthalene	446	165,700	0.75	12.71	12.71	0.03	0.01	0.54	0.54	0.00
2-Methylnaphthalene	447	154,800	1.10	18.64	18.64	0.04	0.02	0.77	0.77	0.00
Acenaphthene	491	33,400	0.35	5.93	5.93	0.01	0.01	0.32	0.32	0.00
Acenaphthylene	452	24,000	0.60	0.00	0.00	0.00	0.01	0.23	0.23	0.00
Anthracene	594	1,300	0.97	16.44	16.44	0.03	0.02	0.68	0.68	0.00
Benzo[a]anthracene	841	4,153	5.10	86.44	86.44	0.10	0.09	3.92	3.92	0.00
Benzo[a]pyrene	965	3,840	3.30	55.93	55.93	0.06	0.06	2.61	2.61	0.00
Benzo[b]fluoranthene	979	2,169	3.30	55.93	55.93	0.06	0.06	2.84	2.84	0.00
Benzo[e]pyrene	967	4,300	2.80	47.46	47.46	0.05	0.06	2.88	2.88	0.00
Benzo[g,h,i]perylene	1,095	648	2.00	33.90	33.90	0.03	0.04	1.80	1.80	0.00
Benzo[k]fluoranthene	981	1,220	2.40	40.68	40.68	0.04	0.04	1.80	1.80	0.00
C1 Chrysenes	929	--	5.60	94.92	94.92	0.10	0.13	5.86	5.86	0.01
C1 Fluorenes	611	--	0.86	14.58	14.58	0.02	0.02	0.72	0.72	0.00
C1-Fluoranthenes/Pyrenes	770	--	11.00	186.44	186.44	0.24	0.20	9.01	9.01	0.01
C1-Naphthalenes	444	--	1.20	20.34	20.34	0.05	0.02	0.90	0.90	0.00
C1-Phenanthrenes/Anthracenes	670	--	9.60	162.71	162.71	0.24	0.17	7.66	7.66	0.01
C2 Chrysenes	1,008	--	4.20	71.19	71.19	0.07	0.10	4.50	4.50	0.00
C2 Fluorenes	686	--	2.90	49.15	49.15	0.07	0.04	1.98	1.98	0.00
C2-Fluoranthenes/Pyrenes		--	8.00	135.59	135.59		0.16	7.21	7.21	
C2-Naphthalenes	510	--	10.00	169.49	169.49	0.33	0.17	7.66	7.66	0.02
C2-Phenanthrenes/Anthracenes	746	--	16.00	271.19	271.19	0.36	0.24	10.81	10.81	0.01
C3 Chrysenes	1,112	--	2.10	35.59	35.59	0.03	0.05	2.21	2.21	0.00
C3 Fluorenes	769	--	3.80	64.41	64.41	0.08	0.05	2.43	2.43	0.00
C3-Fluoranthenes/Pyrenes	949	--	6.40	108.47	108.47	0.11	0.12	5.41	5.41	0.01
C3-Naphthalenes	581	--	19.00	322.03	322.03	0.55	0.32	14.41	14.41	0.02
C3-Phenanthrenes/Anthracenes	829	--	20.00	338.98	338.98	0.41	0.32	14.41	14.41	0.02
C4 Chrysenes	1,214	--	1.10	18.64	18.64	0.02	0.03	1.17	1.17	0.00
C4-Naphthalenes	657	--	12.00	203.39	203.39	0.31	0.22	9.91	9.91	0.02
C4-Phenanthrenes/Anthracenes	913	--	12.00	203.39	203.39	0.22	0.18	8.11	8.11	0.01
Chrysene	844	826	5.00	84.75	84.75	0.10	0.09	4.19	4.19	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.72	12.20	12.20	0.01	0.01	0.54	0.54	0.00
Fluoranthene	707	23,870	6.20	105.08	105.08	0.15	0.09	3.92	3.92	0.01
Fluorene	538	26,000	0.85	14.41	14.41	0.03	0.02	0.68	0.68	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.50	25.42	25.42	0.02	0.02	1.08	1.08	0.00
Naphthalene	385	61,700	0.26	4.41	4.41	0.01	0.01	0.26	0.26	0.00
Perylene	967	431	0.68	11.53	11.53	0.01	0.02	0.77	0.77	0.00
Phenanthrene	596	34,300	3.70	62.71	62.71	0.11	0.08	3.47	3.47	0.01
Pyrene	697	9,090	6.30	106.78	106.78	0.15	0.12	5.41	5.41	0.01
--	---	**ESBTU FCVi**	--	--	--	4.09	--	--	--	0.19

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-54				MLTC14-54			
		Field Sample ID	MLTC14-54-SURF				MLTC14-54-SURFFD			
		Sample Depth	0-0.5				0-0.5			
		Sample Date	10/20/2014				10/20/2014			
	Coc, PAHi, FCVi[a]	Coc, PAHi, Maxi[a]	Conc	Coc	Final		Conc	Coc	Final	
	µg/g oc	µg/g oc	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi	µg/g dry wt.	µg/g oc	Coc[b]	ESBTU FCVi
Total Organic Carbon	--	--	4.91	0.0491	---	---	10.1	0.101	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.09	1.83	1.83	0.00	0.10	0.95	0.95	0.00
2-Methylnaphthalene	447	154,800	0.19	3.87	3.87	0.01	0.18	1.78	1.78	0.00
Acenaphthene	491	33,400	0.26	5.30	5.30	0.01	0.28	2.77	2.77	0.01
Acenaphthylene	452	24,000	0.23	4.68	4.68	0.01	0.27	2.67	2.67	0.01
Anthracene	594	1,300	0.71	14.46	14.46	0.02	0.79	7.82	7.82	0.01
Benzo[a]anthracene	841	4,153	5.60	114.05	114.05	0.14	6.20	61.39	61.39	0.07
Benzo[a]pyrene	965	3,840	5.70	116.09	116.09	0.12	6.40	63.37	63.37	0.07
Benzo[b]fluoranthene	979	2,169	5.50	112.02	112.02	0.11	6.20	61.39	61.39	0.06
Benzo[e]pyrene	967	4,300	4.40	89.61	89.61	0.09	5.00	49.50	49.50	0.05
Benzo[g,h,i]perylene	1,095	648	3.80	77.39	77.39	0.07	4.20	41.58	41.58	0.04
Benzo[k]fluoranthene	981	1,220	4.80	97.76	97.76	0.10	5.30	52.48	52.48	0.05
C1 Chrysenes	929	--	3.50	71.28	71.28	0.08	4.10	40.59	40.59	0.04
C1 Fluorenes	611	--	0.13	2.65	2.65	0.00	0.15	1.49	1.49	0.00
C1-Fluoranthenes/Pyrenes	770	--	6.40	130.35	130.35	0.17	7.40	73.27	73.27	0.10
C1-Naphthalenes	444	--	0.20	4.07	4.07	0.01	0.20	1.98	1.98	0.00
C1-Phenanthrenes/Anthracenes	670	--	1.90	38.70	38.70	0.06	2.00	19.80	19.80	0.03
C2 Chrysenes	1,008	--	2.00	40.73	40.73	0.04	2.50	24.75	24.75	0.02
C2 Fluorenes	686	--	0.31	6.31	6.31	0.01	0.37	3.66	3.66	0.01
C2-Fluoranthenes/Pyrenes		--	3.00	61.10	61.10		3.70	36.63	36.63	
C2-Naphthalenes	510	--	0.59	12.02	12.02	0.02	0.69	6.83	6.83	0.01
C2-Phenanthrenes/Anthracenes	746	--	2.10	42.77	42.77	0.06	2.40	23.76	23.76	0.03
C3 Chrysenes	1,112	--	0.87	17.72	17.72	0.02	0.96	9.50	9.50	0.01
C3 Fluorenes	769	--	0.45	9.16	9.16	0.01	0.53	5.25	5.25	0.01
C3-Fluoranthenes/Pyrenes	949	--	1.70	34.62	34.62	0.04	2.20	21.78	21.78	0.02
C3-Naphthalenes	581	--	0.77	15.68	15.68	0.03	1.00	9.90	9.90	0.02
C3-Phenanthrenes/Anthracenes	829	--	2.70	54.99	54.99	0.07	3.30	32.67	32.67	0.04
C4 Chrysenes	1,214	--	0.23	4.68	4.68	0.00	0.42	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.46	9.37	9.37	0.01	0.71	7.03	7.03	0.01
C4-Phenanthrenes/Anthracenes	913	--	1.50	30.55	30.55	0.03	1.90	18.81	18.81	0.02
Chrysene	844	826	5.40	109.98	109.98	0.13	6.00	59.41	59.41	0.07
Dibenz[a,h]anthracene	1,123	2,389	1.10	22.40	22.40	0.02	1.20	11.88	11.88	0.01
Fluoranthene	707	23,870	6.90	140.53	140.53	0.20	7.20	71.29	71.29	0.10
Fluorene	538	26,000	0.33	6.72	6.72	0.01	0.36	3.56	3.56	0.01
Indeno[1,2,3-c,d]pyrene	1,115	--	3.20	65.17	65.17	0.06	3.50	34.65	34.65	0.03
Naphthalene	385	61,700	0.40	8.15	8.15	0.02	0.43	4.26	4.26	0.01
Perylene	967	431	1.40	28.51	28.51	0.03	1.60	15.84	15.84	0.02
Phenanthrene	596	34,300	2.70	54.99	54.99	0.09	2.90	28.71	28.71	0.05
Pyrene	697	9,090	6.60	134.42	134.42	0.19	7.50	74.26	74.26	0.11
--	---	**ESBTU FCVi**	--	--	--	2.06	--	--	--	1.12

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	MLTC14-54				MLTC14-54			
		Field Sample ID	MLTC14-54-0001				MLTC14-54-0103			
		Sample Depth	0-1				1-3			
		Sample Date	10/21/2014				10/21/2014			
	Coc, PAHi, FCVi[a] μg/g oc	**Coc, PAHi, Maxi[a] μg/g oc**	**Conc μg/g dry wt.**	**Coc μg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc μg/g dry wt.**	**Coc μg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	11.2	0.112	---	---	5.68	0.0568	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (μg/kg)										
1-Methylnaphthalene	446	165,700	0.60	5.36	5.36	0.01	0.66	11.62	11.62	0.03
2-Methylnaphthalene	447	154,800	0.42	3.75	3.75	0.01	0.26	4.58	4.58	0.01
Acenaphthene	491	33,400	0.51	4.55	4.55	0.01	0.33	5.81	5.81	0.01
Acenaphthylene	452	24,000	1.30	0.00	0.00	0.00	0.31	5.46	5.46	0.01
Anthracene	594	1,300	1.60	14.29	14.29	0.02	0.85	14.96	14.96	0.03
Benzo[a]anthracene	841	4,153	17.00	151.79	151.79	0.18	4.50	79.23	79.23	0.09
Benzo[a]pyrene	965	3,840	11.00	98.21	98.21	0.10	3.30	58.10	58.10	0.06
Benzo[b]fluoranthene	979	2,169	10.00	89.29	89.29	0.09	3.40	59.86	59.86	0.06
Benzo[e]pyrene	967	4,300	15.00	133.93	133.93	0.14	2.90	51.06	51.06	0.05
Benzo[g,h,i]perylene	1,095	648	6.40	57.14	57.14	0.05	1.70	29.93	29.93	0.03
Benzo[k]fluoranthene	981	1,220	5.00	44.64	44.64	0.05	2.60	45.77	45.77	0.05
C1 Chrysenes	929	--	35.00	312.50	312.50	0.34	4.90	86.27	86.27	0.09
C1 Fluorenes	611	--	2.00	17.86	17.86	0.03	0.78	13.73	13.73	0.02
C1-Fluoranthenes/Pyrenes	770	--	39.00	348.21	348.21	0.45	9.20	161.97	161.97	0.21
C1-Naphthalenes	444	--	0.73	6.52	6.52	0.01	0.65	11.44	11.44	0.03
C1-Phenanthrenes/Anthracenes	670	--	23.00	205.36	205.36	0.31	6.90	121.48	121.48	0.18
C2 Chrysenes	1,008	--	28.00	250.00	250.00	0.25	3.60	63.38	63.38	0.06
C2 Fluorenes	686	--	5.90	52.68	52.68	0.08	2.10	36.97	36.97	0.05
C2-Fluoranthenes/Pyrenes		--	33.00	294.64	294.64		6.60	116.20	116.20	
C2-Naphthalenes	510	--	12.00	107.14	107.14	0.21	7.30	128.52	128.52	0.25
C2-Phenanthrenes/Anthracenes	746	--	38.00	339.29	339.29	0.45	11.00	193.66	193.66	0.26
C3 Chrysenes	1,112	--	10.00	89.29	89.29	0.08	1.80	31.69	31.69	0.03
C3 Fluorenes	769	--	7.50	66.96	66.96	0.09	2.70	47.54	47.54	0.06
C3-Fluoranthenes/Pyrenes	949	--	20.00	178.57	178.57	0.19	4.90	86.27	86.27	0.09
C3-Naphthalenes	581	--	29.00	258.93	258.93	0.45	15.00	264.08	264.08	0.45
C3-Phenanthrenes/Anthracenes	829	--	48.00	428.57	428.57	0.52	18.00	316.90	316.90	0.38
C4 Chrysenes	1,214	--	3.50	31.25	31.25	0.03	0.79	13.91	13.91	0.01
C4-Naphthalenes	657	--	19.00	169.64	169.64	0.26	9.00	158.45	158.45	0.24
C4-Phenanthrenes/Anthracenes	913	--	23.00	205.36	205.36	0.22	10.00	176.06	176.06	0.19
Chrysene	844	826	21.00	187.50	187.50	0.22	4.20	73.94	73.94	0.09
Dibenz[a,h]anthracene	1,123	2,389	2.40	21.43	21.43	0.02	0.61	10.74	10.74	0.01
Fluoranthene	707	23,870	9.20	82.14	82.14	0.12	5.40	95.07	95.07	0.13
Fluorene	538	26,000	1.20	10.71	10.71	0.02	0.93	16.37	16.37	0.03
Indeno[1,2,3-c,d]pyrene	1,115	--	2.90	25.89	25.89	0.02	1.40	24.65	24.65	0.02
Naphthalene	385	61,700	0.42	3.75	3.75	0.01	0.28	4.93	4.93	0.01
Perylene	967	431	1.50	13.39	13.39	0.01	0.71	12.50	12.50	0.01
Phenanthrene	596	34,300	7.00	62.50	62.50	0.10	3.60	63.38	63.38	0.11
Pyrene	697	9,090	19.00	169.64	169.64	0.24	6.20	109.15	109.15	0.16
--	---	**ESBTU FCVi**	--	--	--	5.18	--	--	--	3.50

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
μg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-54**				**MLTC14-54**			
		Field Sample ID	**MLTC14-54-0305**				**MLTC14-54-0507**			
		Sample Depth	**3-5**				**5-7**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	4.94	0.0494	---	---	3	0.03	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.54	10.93	10.93	0.02	0.15	5.00	5.00	0.01
2-Methylnaphthalene	447	154,800	0.66	13.36	13.36	0.03	0.19	6.33	6.33	0.01
Acenaphthene	491	33,400	0.66	13.36	13.36	0.03	0.26	8.67	8.67	0.02
Acenaphthylene	452	24,000	0.43	8.70	8.70	0.02	0.18	6.00	6.00	0.01
Anthracene	594	1,300	2.40	48.58	48.58	0.08	0.78	26.00	26.00	0.04
Benzo[a]anthracene	841	4,153	7.30	147.77	147.77	0.18	2.70	90.00	90.00	0.11
Benzo[a]pyrene	965	3,840	5.10	103.24	103.24	0.11	1.90	63.33	63.33	0.07
Benzo[b]fluoranthene	979	2,169	3.90	78.95	78.95	0.08	1.70	56.67	56.67	0.06
Benzo[e]pyrene	967	4,300	3.70	74.90	74.90	0.08	1.30	43.33	43.33	0.04
Benzo[g,h,i]perylene	1,095	648	2.50	50.61	50.61	0.05	0.96	32.00	32.00	0.03
Benzo[k]fluoranthene	981	1,220	4.40	89.07	89.07	0.09	1.40	46.67	46.67	0.05
C1 Chrysenes	929	--	5.80	117.41	117.41	0.13	2.20	73.33	73.33	0.08
C1 Fluorenes	611	--	0.77	15.59	15.59	0.03	0.34	11.33	11.33	0.02
C1-Fluoranthenes/Pyrenes	770	--	15.00	303.64	303.64	0.39	6.20	206.67	206.67	0.27
C1-Naphthalenes	444	--	0.85	17.21	17.21	0.04	0.24	8.00	8.00	0.02
C1-Phenanthrenes/Anthracenes	670	--	9.00	182.19	182.19	0.27	3.50	116.67	116.67	0.17
C2 Chrysenes	1,008	--	4.20	85.02	85.02	0.08	1.40	46.67	46.67	0.05
C2 Fluorenes	686	--	1.40	28.34	28.34	0.04	0.63	21.00	21.00	0.03
C2-Fluoranthenes/Pyrenes		--	7.80	157.89	157.89		2.90	96.67	96.67	
C2-Naphthalenes	510	--	4.60	93.12	93.12	0.18	2.10	70.00	70.00	0.14
C2-Phenanthrenes/Anthracenes	746	--	9.80	198.38	198.38	0.27	3.80	126.67	126.67	0.17
C3 Chrysenes	1,112	--	1.80	36.44	36.44	0.03	0.59	19.67	19.67	0.02
C3 Fluorenes	769	--	1.70	34.41	34.41	0.04	0.63	21.00	21.00	0.03
C3-Fluoranthenes/Pyrenes	949	--	4.80	97.17	97.17	0.10	1.40	46.67	46.67	0.05
C3-Naphthalenes	581	--	5.30	107.29	107.29	0.18	2.50	83.33	83.33	0.14
C3-Phenanthrenes/Anthracenes	829	--	12.00	242.91	242.91	0.29	4.70	156.67	156.67	0.19
C4 Chrysenes	1,214	--	0.90	18.22	18.22	0.02	0.31	10.33	10.33	0.01
C4-Naphthalenes	657	--	3.30	66.80	66.80	0.10	1.30	43.33	43.33	0.07
C4-Phenanthrenes/Anthracenes	913	--	7.30	147.77	147.77	0.16	2.90	96.67	96.67	0.11
Chrysene	844	826	6.20	125.51	125.51	0.15	2.40	80.00	80.00	0.09
Dibenz[a,h]anthracene	1,123	2,389	0.80	16.19	16.19	0.01	0.29	9.67	9.67	0.01
Fluoranthene	707	23,870	9.50	192.31	192.31	0.27	3.10	103.33	103.33	0.15
Fluorene	538	26,000	1.20	24.29	24.29	0.05	0.36	12.00	12.00	0.02
Indeno[1,2,3-c,d]pyrene	1,115	--	2.10	42.51	42.51	0.04	0.79	26.33	26.33	0.02
Naphthalene	385	61,700	0.36	7.29	7.29	0.02	0.10	3.17	3.17	0.01
Perylene	967	431	1.20	24.29	24.29	0.03	0.38	12.67	12.67	0.01
Phenanthrene	596	34,300	6.60	133.60	133.60	0.22	2.00	66.67	66.67	0.11
Pyrene	697	9,090	9.80	198.38	198.38	0.28	4.10	136.67	136.67	0.20
--	---	**ESBTU FCVi**	--	--	--	4.04	--	--	--	2.55

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-55**				**MLTC14-55**			
		Field Sample ID	**MLTC14-55-SURF**				**MLTC14-55-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.19	0.0519	---	---	1.54	0.0154	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.09	1.64	1.64	0.00	0.01	0.65	0.65	0.00
2-Methylnaphthalene	447	154,800	0.16	3.08	3.08	0.01	0.02	1.04	1.04	0.00
Acenaphthene	491	33,400	0.12	2.31	2.31	0.00	0.02	1.23	1.23	0.00
Acenaphthylene	452	24,000	0.21	4.05	4.05	0.01	0.02	1.04	1.04	0.00
Anthracene	594	1,300	0.64	12.33	12.33	0.02	0.07	4.68	4.68	0.01
Benzo[a]anthracene	841	4,153	2.00	38.54	38.54	0.05	0.36	23.38	23.38	0.03
Benzo[a]pyrene	965	3,840	2.50	48.17	48.17	0.05	0.43	27.92	27.92	0.03
Benzo[b]fluoranthene	979	2,169	1.80	34.68	34.68	0.04	0.32	20.78	20.78	0.02
Benzo[e]pyrene	967	4,300	1.50	28.90	28.90	0.03	0.25	16.23	16.23	0.02
Benzo[g,h,i]perylene	1,095	648	1.90	36.61	36.61	0.03	0.29	18.83	18.83	0.02
Benzo[k]fluoranthene	981	1,220	2.60	50.10	50.10	0.05	0.44	28.57	28.57	0.03
C1 Chrysenes	929	--	1.60	30.83	30.83	0.03	0.23	14.94	14.94	0.02
C1 Fluorenes	611	--	0.11	2.12	2.12	0.00	0.03	2.01	2.01	0.00
C1-Fluoranthenes/Pyrenes	770	--	3.60	69.36	69.36	0.09	0.54	35.06	35.06	0.05
C1-Naphthalenes	444	--	0.20	3.85	3.85	0.01	0.02	1.36	1.36	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.97	18.69	18.69	0.03	0.13	8.44	8.44	0.01
C2 Chrysenes	1,008	--	0.79	15.22	15.22	0.02	0.12	7.79	7.79	0.01
C2 Fluorenes	686	--	0.18	3.47	3.47	0.01	0.05	3.18	3.18	0.00
C2-Fluoranthenes/Pyrenes		--	1.60	30.83	30.83		0.25	16.23	16.23	
C2-Naphthalenes	510	--	0.50	9.63	9.63	0.02	0.08	4.87	4.87	0.01
C2-Phenanthrenes/Anthracenes	746	--	1.10	21.19	21.19	0.03	0.18	11.69	11.69	0.02
C3 Chrysenes	1,112	--	0.49	9.44	9.44	0.01	0.07	4.55	4.55	0.00
C3 Fluorenes	769	--	0.26	5.01	5.01	0.01	0.07	4.22	4.22	0.01
C3-Fluoranthenes/Pyrenes	949	--	0.96	18.50	18.50	0.02	0.14	9.09	9.09	0.01
C3-Naphthalenes	581	--	0.56	10.79	10.79	0.02	0.13	8.44	8.44	0.01
C3-Phenanthrenes/Anthracenes	829	--	1.50	28.90	28.90	0.03	0.22	14.29	14.29	0.02
C4 Chrysenes	1,214	--	0.25	0.00	0.00	0.00	0.05	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.39	7.51	7.51	0.01	0.12	7.79	7.79	0.01
C4-Phenanthrenes/Anthracenes	913	--	1.10	21.19	21.19	0.02	0.14	9.09	9.09	0.01
Chrysene	844	826	2.70	52.02	52.02	0.06	0.49	31.82	31.82	0.04
Dibenz[a,h]anthracene	1,123	2,389	0.63	12.14	12.14	0.01	0.10	6.43	6.43	0.01
Fluoranthene	707	23,870	3.80	73.22	73.22	0.10	0.73	47.40	47.40	0.07
Fluorene	538	26,000	0.17	3.28	3.28	0.01	0.03	1.88	1.88	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	1.70	32.76	32.76	0.03	0.25	16.23	16.23	0.01
Naphthalene	385	61,700	0.32	6.17	6.17	0.02	0.03	1.69	1.69	0.00
Perylene	967	431	0.62	11.95	11.95	0.01	0.13	8.44	8.44	0.01
Phenanthrene	596	34,300	1.50	28.90	28.90	0.05	0.20	12.99	12.99	0.02
Pyrene	697	9,090	3.10	59.73	59.73	0.09	0.54	35.06	35.06	0.05
--	---	**ESBTU FCVi**	--	--	--	0.99	--	--	--	0.55

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-55**				**MLTC14-55**			
		Field Sample ID	**MLTC14-55-0001FD**				**MLTC14-55-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/21/2014**				**10/21/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc[b]	**ESBTU FCVi**
Total Organic Carbon	--	--	1.64	0.0164	---	---	2.7	0.027	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.01	0.54	0.54	0.00	0.04	1.33	1.33	0.00
2-Methylnaphthalene	447	154,800	0.01	0.73	0.73	0.00	0.06	2.04	2.04	0.00
Acenaphthene	491	33,400	0.02	1.16	1.16	0.00	0.04	1.59	1.59	0.00
Acenaphthylene	452	24,000	0.01	0.85	0.85	0.00	0.03	1.26	1.26	0.00
Anthracene	594	1,300	0.06	3.60	3.60	0.01	0.12	4.44	4.44	0.01
Benzo[a]anthracene	841	4,153	0.29	17.68	17.68	0.02	0.46	17.04	17.04	0.02
Benzo[a]pyrene	965	3,840	0.37	22.56	22.56	0.02	0.47	17.41	17.41	0.02
Benzo[b]fluoranthene	979	2,169	0.25	15.24	15.24	0.02	0.35	12.96	12.96	0.01
Benzo[e]pyrene	967	4,300	0.21	12.80	12.80	0.01	0.32	11.85	11.85	0.01
Benzo[g,h,i]perylene	1,095	648	0.28	17.07	17.07	0.02	0.34	12.59	12.59	0.01
Benzo[k]fluoranthene	981	1,220	0.39	23.78	23.78	0.02	0.47	17.41	17.41	0.02
C1 Chrysenes	929	--	0.20	12.20	12.20	0.01	0.62	22.96	22.96	0.02
C1 Fluorenes	611	--	0.03	1.83	1.83	0.00	0.15	5.56	5.56	0.01
C1-Fluoranthenes/Pyrenes	770	--	0.45	27.44	27.44	0.04	1.20	44.44	44.44	0.06
C1-Naphthalenes	444	--	0.02	1.16	1.16	0.00	0.07	2.74	2.74	0.01
C1-Phenanthrenes/Anthracenes	670	--	0.12	7.32	7.32	0.01	0.50	18.52	18.52	0.03
C2 Chrysenes	1,008	--	0.11	6.71	6.71	0.01	0.64	23.70	23.70	0.02
C2 Fluorenes	686	--	0.05	3.05	3.05	0.00	0.36	13.33	13.33	0.02
C2-Fluoranthenes/Pyrenes		--	0.23	14.02	14.02		1.10	40.74	40.74	
C2-Naphthalenes	510	--	0.07	4.33	4.33	0.01	0.39	14.44	14.44	0.03
C2-Phenanthrenes/Anthracenes	746	--	0.16	9.76	9.76	0.01	1.60	59.26	59.26	0.08
C3 Chrysenes	1,112	--	0.06	3.60	3.60	0.00	0.48	17.78	17.78	0.02
C3 Fluorenes	769	--	0.06	3.54	3.54	0.00	0.70	25.93	25.93	0.03
C3-Fluoranthenes/Pyrenes	949	--	0.11	6.71	6.71	0.01	0.90	33.33	33.33	0.04
C3-Naphthalenes	581	--	0.12	7.32	7.32	0.01	1.30	48.15	48.15	0.08
C3-Phenanthrenes/Anthracenes	829	--	0.19	11.59	11.59	0.01	2.80	103.70	103.70	0.13
C4 Chrysenes	1,214	--	0.06	0.00	0.00	0.00	0.08	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.12	7.32	7.32	0.01	1.40	51.85	51.85	0.08
C4-Phenanthrenes/Anthracenes	913	--	0.12	7.32	7.32	0.01	2.10	77.78	77.78	0.09
Chrysene	844	826	0.41	25.00	25.00	0.03	0.67	24.81	24.81	0.03
Dibenz[a,h]anthracene	1,123	2,389	0.09	5.24	5.24	0.00	0.10	3.70	3.70	0.00
Fluoranthene	707	23,870	0.60	36.59	36.59	0.05	0.79	29.26	29.26	0.04
Fluorene	538	26,000	0.03	1.52	1.52	0.00	0.07	2.48	2.48	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.24	14.63	14.63	0.01	0.28	10.37	10.37	0.01
Naphthalene	385	61,700	0.02	1.46	1.46	0.00	0.06	2.37	2.37	0.01
Perylene	967	431	0.11	6.71	6.71	0.01	0.14	5.19	5.19	0.01
Phenanthrene	596	34,300	0.17	10.37	10.37	0.02	0.25	9.26	9.26	0.02
Pyrene	697	9,090	0.46	28.05	28.05	0.04	0.72	26.67	26.67	0.04
--	---	**ESBTU FCVi**	--	--	--	0.45	--	--	--	0.96

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-55**				**MLTC14-56**			
		Field Sample ID	**MLTC14-55-0103FD**				**MLTC14-56-SURF**			
		Sample Depth	**1-3**				**0-0.5**			
		Sample Date	**10/21/2014**				**10/23/2014**			
	Coc, PAHi, FCVi^{a} µg/g oc	**Coc, PAHi, Maxi^{a}** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc^{b}	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Coc^{b}	**ESBTU FCVi**
Total Organic Carbon	--	--	2.96	0.0296	---	---	4.56	0.0456	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.04	1.28	1.28	0.00	6.50	0.00	0.00	0.00
2-Methylnaphthalene	447	154,800	0.06	2.16	2.16	0.00	6.50	0.00	0.00	0.00
Acenaphthene	491	33,400	0.05	1.59	1.59	0.00	2.30	50.44	50.44	0.10
Acenaphthylene	452	24,000	0.05	1.72	1.72	0.00	4.70	103.07	103.07	0.23
Anthracene	594	1,300	0.11	3.72	3.72	0.01	34.00	745.61	745.61	1.26
Benzo[a]anthracene	841	4,153	0.54	18.24	18.24	0.02	34.00	745.61	745.61	0.89
Benzo[a]pyrene	965	3,840	0.51	17.23	17.23	0.02	31.00	679.82	679.82	0.70
Benzo[b]fluoranthene	979	2,169	0.40	13.51	13.51	0.01	17.00	372.81	372.81	0.38
Benzo[e]pyrene	967	4,300	0.37	12.50	12.50	0.01	18.00	394.74	394.74	0.41
Benzo[g,h,i]perylene	1,095	648	0.33	11.15	11.15	0.01	17.00	372.81	372.81	0.34
Benzo[k]fluoranthene	981	1,220	0.51	17.23	17.23	0.02	40.00	877.19	877.19	0.89
C1 Chrysenes	929	--	0.66	22.30	22.30	0.02	15.00	328.95	328.95	0.35
C1 Fluorenes	611	--	0.19	6.42	6.42	0.01	1.60	35.09	35.09	0.06
C1-Fluoranthenes/Pyrenes	770	--	1.50	50.68	50.68	0.07	56.00	1228.07	1228.07	1.59
C1-Naphthalenes	444	--	0.08	2.77	2.77	0.01	6.50	0.00	0.00	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.58	19.59	19.59	0.03	17.00	372.81	372.81	0.56
C2 Chrysenes	1,008	--	0.82	27.70	27.70	0.03	4.90	107.46	107.46	0.11
C2 Fluorenes	686	--	0.46	15.54	15.54	0.02	6.50	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	1.20	40.54	40.54		13.00	285.09	285.09	
C2-Naphthalenes	510	--	0.48	16.22	16.22	0.03	4.20	92.11	92.11	0.18
C2-Phenanthrenes/Anthracenes	746	--	1.90	64.19	64.19	0.09	6.60	144.74	144.74	0.19
C3 Chrysenes	1,112	--	0.50	16.89	16.89	0.02	6.50	0.00	0.00	0.00
C3 Fluorenes	769	--	0.80	27.03	27.03	0.04	6.50	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	1.20	40.54	40.54	0.04	3.80	83.33	83.33	0.09
C3-Naphthalenes	581	--	1.60	54.05	54.05	0.09	2.50	54.82	54.82	0.09
C3-Phenanthrenes/Anthracenes	829	--	3.20	108.11	108.11	0.13	4.20	92.11	92.11	0.11
C4 Chrysenes	1,214	--	0.23	7.77	7.77	0.01	6.50	0.00	0.00	0.00
C4-Naphthalenes	657	--	1.60	54.05	54.05	0.08	6.50	0.00	0.00	0.00
C4-Phenanthrenes/Anthracenes	913	--	2.30	77.70	77.70	0.09	6.50	0.00	0.00	0.00
Chrysene	844	826	0.72	24.32	24.32	0.03	44.00	964.91	826.00	0.98
Dibenz[a,h]anthracene	1,123	2,389	0.11	3.72	3.72	0.00	5.50	120.61	120.61	0.11
Fluoranthene	707	23,870	0.93	31.42	31.42	0.04	89.00	1951.75	1951.75	2.76
Fluorene	538	26,000	0.09	2.94	2.94	0.01	11.00	241.23	241.23	0.45
Indeno[1,2,3-c,d]pyrene	1,115	--	0.28	9.46	9.46	0.01	15.00	328.95	328.95	0.30
Naphthalene	385	61,700	0.07	2.36	2.36	0.01	4.90	107.46	107.46	0.28
Perylene	967	431	0.16	5.41	5.41	0.01	10.00	219.30	219.30	0.23
Phenanthrene	596	34,300	0.25	8.45	8.45	0.01	46.00	1008.77	1008.77	1.69
Pyrene	697	9,090	0.87	29.39	29.39	0.04	59.00	1293.86	1293.86	1.86
--	---	**ESBTU FCVi**	--	--	--	1.02	--	--	--	17.10

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-56**				**MLTC14-56**			
		Field Sample ID	**MLTC14-56-0001**				**MLTC14-56-0103**			
		Sample Depth	**0-1**				**1-3**			
		Sample Date	**10/23/2014**				**10/23/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a] µg/g oc**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**	**Conc µg/g dry wt.**	**Coc µg/g oc**	**Final Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	3.65	0.0365	---	---	1.63	0.0163	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.07	1.92	1.92	0.00	0.00	0.23	0.23	0.00
2-Methylnaphthalene	447	154,800	0.07	1.89	1.89	0.00	0.00	0.20	0.20	0.00
Acenaphthene	491	33,400	0.48	13.15	13.15	0.03	0.01	0.67	0.67	0.00
Acenaphthylene	452	24,000	0.54	14.79	14.79	0.03	0.01	0.35	0.35	0.00
Anthracene	594	1,300	1.60	43.84	43.84	0.07	0.01	0.80	0.80	0.00
Benzo[a]anthracene	841	4,153	4.60	126.03	126.03	0.15	0.04	2.52	2.52	0.00
Benzo[a]pyrene	965	3,840	5.20	142.47	142.47	0.15	0.04	2.70	2.70	0.00
Benzo[b]fluoranthene	979	2,169	3.00	82.19	82.19	0.08	0.03	1.90	1.90	0.00
Benzo[e]pyrene	967	4,300	2.70	73.97	73.97	0.08	0.03	1.60	1.60	0.00
Benzo[g,h,i]perylene	1,095	648	2.40	65.75	65.75	0.06	0.03	1.53	1.53	0.00
Benzo[k]fluoranthene	981	1,220	6.00	164.38	164.38	0.17	0.06	3.37	3.37	0.00
C1 Chrysenes	929	--	3.10	84.93	84.93	0.09	0.04	2.45	2.45	0.00
C1 Fluorenes	611	--	0.13	3.56	3.56	0.01	0.01	0.33	0.33	0.00
C1-Fluoranthenes/Pyrenes	770	--	6.80	186.30	186.30	0.24	0.08	4.72	4.72	0.01
C1-Naphthalenes	444	--	0.19	5.21	5.21	0.01	0.01	0.35	0.35	0.00
C1-Phenanthrenes/Anthracenes	670	--	1.60	43.84	43.84	0.07	0.03	1.60	1.60	0.00
C2 Chrysenes	1,008	--	1.10	30.14	30.14	0.03	0.02	1.23	1.23	0.00
C2 Fluorenes	686	--	0.10	2.66	2.66	0.00	0.01	0.38	0.38	0.00
C2-Fluoranthenes/Pyrenes		--	2.30	63.01	63.01		0.04	2.45	2.45	
C2-Naphthalenes	510	--	0.45	12.33	12.33	0.02	0.02	0.98	0.98	0.00
C2-Phenanthrenes/Anthracenes	746	--	1.10	30.14	30.14	0.04	0.03	2.02	2.02	0.00
C3 Chrysenes	1,112	--	0.32	8.77	8.77	0.01	0.01	0.45	0.45	0.00
C3 Fluorenes	769	--	0.13	3.56	3.56	0.00	0.01	0.61	0.61	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.82	22.47	22.47	0.02	0.02	1.47	1.47	0.00
C3-Naphthalenes	581	--	0.37	10.14	10.14	0.02	0.03	1.53	1.53	0.00
C3-Phenanthrenes/Anthracenes	829	--	1.00	27.40	27.40	0.03	0.05	3.13	3.13	0.00
C4 Chrysenes	1,214	--	0.70	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.22	6.03	6.03	0.01	0.03	1.53	1.53	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.79	21.64	21.64	0.02	0.04	2.21	2.21	0.00
Chrysene	844	826	6.00	164.38	164.38	0.19	0.06	3.37	3.37	0.00
Dibenz[a,h]anthracene	1,123	2,389	0.77	21.10	21.10	0.02	0.01	0.42	0.42	0.00
Fluoranthene	707	23,870	8.70	238.36	238.36	0.34	0.10	5.83	5.83	0.01
Fluorene	538	26,000	0.78	21.37	21.37	0.04	0.02	0.98	0.98	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	2.30	63.01	63.01	0.06	0.02	1.41	1.41	0.00
Naphthalene	385	61,700	1.10	30.14	30.14	0.08	0.01	0.86	0.86	0.00
Perylene	967	431	1.50	41.10	41.10	0.04	0.03	1.96	1.96	0.00
Phenanthrene	596	34,300	2.20	60.27	60.27	0.10	0.05	2.76	2.76	0.00
Pyrene	697	9,090	6.20	169.86	169.86	0.24	0.07	4.23	4.23	0.01
--	---	**ESBTU FCVi**	--	--	--	2.54	--	--	--	0.08

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-57**				**MLTC14-57**				**MLTC14-57**			
		Field Sample ID	**MLTC14-57-SURF**				**MLTC14-57-0001**				**MLTC14-57-0103**			
		Sample Depth	**0-0.5**				**0-1**				**1-3**			
		Sample Date	**10/23/2014**				**10/23/2014**				**10/23/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**		**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**	**µg/g dry wt.**	**µg/g oc**	**Coc[b]**	**ESBTU FCVi**
Total Organic Carbon	--	--	4.66	0.0466	---	---	4.82	0.0482	---	---	3.13	0.0313	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)														
1-Methylnaphthalene	446	165,700	0.13	2.79	2.79	0.01	0.28	5.81	5.81	0.01	4.40	140.58	140.58	0.32
2-Methylnaphthalene	447	154,800	0.26	5.58	5.58	0.01	0.59	12.24	12.24	0.03	8.00	255.59	255.59	0.57
Acenaphthene	491	33,400	0.28	6.01	6.01	0.01	0.68	14.11	14.11	0.03	4.50	143.77	143.77	0.29
Acenaphthylene	452	24,000	0.37	7.94	7.94	0.02	0.25	5.19	5.19	0.01	8.70	277.96	277.96	0.61
Anthracene	594	1,300	1.10	23.61	23.61	0.04	0.69	14.32	14.32	0.02	13.00	415.34	415.34	0.70
Benzo[a]anthracene	841	4,153	2.50	53.65	53.65	0.06	2.30	47.72	47.72	0.06	7.00	223.64	223.64	0.27
Benzo[a]pyrene	965	3,840	2.90	62.23	62.23	0.06	2.80	58.09	58.09	0.06	5.80	185.30	185.30	0.19
Benzo[b]fluoranthene	979	2,169	2.30	49.36	49.36	0.05	1.90	39.42	39.42	0.04	3.20	102.24	102.24	0.10
Benzo[e]pyrene	967	4,300	1.80	38.63	38.63	0.04	1.70	35.27	35.27	0.04	3.50	111.82	111.82	0.12
Benzo[g,h,i]perylene	1,095	648	1.90	40.77	40.77	0.04	1.70	35.27	35.27	0.03	3.00	95.85	95.85	0.09
Benzo[k]fluoranthene	981	1,220	3.30	70.82	70.82	0.07	3.40	70.54	70.54	0.07	7.80	249.20	249.20	0.25
C1 Chrysenes	929	--	1.50	32.19	32.19	0.03	1.90	39.42	39.42	0.04	6.50	0.00	0.00	0.00
C1 Fluorenes	611	--	0.13	2.79	2.79	0.00	0.10	2.07	2.07	0.00	1.10	35.14	35.14	0.06
C1-Fluoranthenes/Pyrenes	770	--	3.80	81.55	81.55	0.11	3.50	72.61	72.61	0.09	15.00	479.23	479.23	0.62
C1-Naphthalenes	444	--	0.31	6.65	6.65	0.01	0.72	14.94	14.94	0.03	9.80	313.10	313.10	0.71
C1-Phenanthrenes/Anthracenes	670	--	1.10	23.61	23.61	0.04	1.00	20.75	20.75	0.03	6.90	220.45	220.45	0.33
C2 Chrysenes	1,008	--	0.67	14.38	14.38	0.01	0.63	13.07	13.07	0.01	6.50	0.00	0.00	0.00
C2 Fluorenes	686	--	0.14	3.00	3.00	0.00	0.10	2.03	2.03	0.00	6.50	0.00	0.00	0.00
C2-Fluoranthenes/Pyrenes		--	1.50	32.19	32.19		1.40	29.05	29.05		4.00	127.80	127.80	
C2-Naphthalenes	510	--	0.48	10.30	10.30	0.02	0.55	11.41	11.41	0.02	7.20	230.03	230.03	0.45
C2-Phenanthrenes/Anthracenes	746	--	1.30	27.90	27.90	0.04	0.89	18.46	18.46	0.02	3.50	111.82	111.82	0.15
C3 Chrysenes	1,112	--	0.42	9.01	9.01	0.01	0.33	0.00	0.00	0.00	6.50	0.00	0.00	0.00
C3 Fluorenes	769	--	0.16	3.43	3.43	0.00	0.33	0.00	0.00	0.00	6.50	0.00	0.00	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.74	15.88	15.88	0.02	0.57	11.83	11.83	0.01	6.50	0.00	0.00	0.00
C3-Naphthalenes	581	--	0.53	11.37	11.37	0.02	0.58	12.03	12.03	0.02	3.90	124.60	124.60	0.21
C3-Phenanthrenes/Anthracenes	829	--	1.00	21.46	21.46	0.03	0.93	19.29	19.29	0.02	3.70	118.21	118.21	0.14
C4 Chrysenes	1,214	--	0.35	0.00	0.00	0.00	0.33	0.00	0.00	0.00	6.50	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.38	8.15	8.15	0.01	0.33	0.00	0.00	0.00	6.50	0.00	0.00	0.00
C4-Phenanthrenes/Anthracenes	913	--	0.64	13.73	13.73	0.02	0.83	17.22	17.22	0.02	6.50	0.00	0.00	0.00
Chrysene	844	826	3.30	70.82	70.82	0.08	3.30	68.46	68.46	0.08	9.90	316.29	316.29	0.37
Dibenz[a,h]anthracene	1,123	2,389	0.63	13.52	13.52	0.01	0.49	10.17	10.17	0.01	1.20	38.34	38.34	0.03
Fluoranthene	707	23,870	5.90	126.61	126.61	0.18	5.30	109.96	109.96	0.16	24.00	766.77	766.77	1.08
Fluorene	538	26,000	0.57	12.23	12.23	0.02	0.71	14.73	14.73	0.03	14.00	447.28	447.28	0.83
Indeno[1,2,3-c,d]pyrene	1,115	--	1.90	40.77	40.77	0.04	1.70	35.27	35.27	0.03	2.60	83.07	83.07	0.07
Naphthalene	385	61,700	1.50	32.19	32.19	0.08	0.94	19.50	19.50	0.05	63.00	2012.78	2012.78	5.23
Perylene	967	431	0.82	17.60	17.60	0.02	0.84	17.43	17.43	0.02	3.20	102.24	102.24	0.11
Phenanthrene	596	34,300	2.40	51.50	51.50	0.09	2.50	51.87	51.87	0.09	32.00	1022.36	1022.36	1.72
Pyrene	697	9,090	3.70	79.40	79.40	0.11	3.90	80.91	80.91	0.12	17.00	543.13	543.13	0.78
--	---	**ESBTU FCVi**	--	--	--	1.39	--	--	--	1.27	--	--	--	15.53

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-58**				**MLTC14-58**			
		Field Sample ID	**MLTC14-58-SURF**				**MLTC14-58-0001**			
		Sample Depth	**0-0.5**				**0-1**			
		Sample Date	**10/23/2014**				**10/23/2014**			
	Coc, PAHi, FCVi[a] µg/g oc	**Coc, PAHi, Maxi[a]** µg/g oc	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Cocb	**ESBTU FCVi**	**Conc** µg/g dry wt.	**Coc** µg/g oc	**Final** Cocb	**ESBTU FCVi**
Total Organic Carbon	--	--	8.4	0.084	---	---	5.22	0.0522	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)										
1-Methylnaphthalene	446	165,700	0.15	1.79	1.79	0.00	0.35	6.70	6.70	0.02
2-Methylnaphthalene	447	154,800	0.27	3.21	3.21	0.01	0.69	13.22	13.22	0.03
Acenaphthene	491	33,400	0.36	4.29	4.29	0.01	0.79	15.13	15.13	0.03
Acenaphthylene	452	24,000	0.25	2.98	2.98	0.01	0.46	8.81	8.81	0.02
Anthracene	594	1,300	1.50	17.86	17.86	0.03	1.70	32.57	32.57	0.05
Benzo[a]anthracene	841	4,153	2.60	30.95	30.95	0.04	4.10	78.54	78.54	0.09
Benzo[a]pyrene	965	3,840	2.80	33.33	33.33	0.03	4.10	78.54	78.54	0.08
Benzo[b]fluoranthene	979	2,169	1.80	21.43	21.43	0.02	2.80	53.64	53.64	0.05
Benzo[e]pyrene	967	4,300	1.50	17.86	17.86	0.02	2.20	42.15	42.15	0.04
Benzo[g,h,i]perylene	1,095	648	1.60	19.05	19.05	0.02	2.40	45.98	45.98	0.04
Benzo[k]fluoranthene	981	1,220	3.10	36.90	36.90	0.04	4.30	82.38	82.38	0.08
C1 Chrysenes	929	--	1.60	19.05	19.05	0.02	2.60	49.81	49.81	0.05
C1 Fluorenes	611	--	0.22	2.62	2.62	0.00	0.41	7.85	7.85	0.01
C1-Fluoranthenes/Pyrenes	770	--	4.30	51.19	51.19	0.07	6.70	128.35	128.35	0.17
C1-Naphthalenes	444	--	0.32	3.81	3.81	0.01	0.81	15.52	15.52	0.03
C1-Phenanthrenes/Anthracenes	670	--	1.50	17.86	17.86	0.03	3.10	59.39	59.39	0.09
C2 Chrysenes	1,008	--	0.67	7.98	7.98	0.01	1.20	22.99	22.99	0.02
C2 Fluorenes	686	--	0.24	2.86	2.86	0.00	0.89	17.05	17.05	0.02
C2-Fluoranthenes/Pyrenes		--	1.50	17.86	17.86		2.70	51.72	51.72	
C2-Naphthalenes	510	--	0.86	10.24	10.24	0.02	2.30	44.06	44.06	0.09
C2-Phenanthrenes/Anthracenes	746	--	2.20	26.19	26.19	0.04	4.50	86.21	86.21	0.12
C3 Chrysenes	1,112	--	0.43	5.12	5.12	0.00	0.81	15.52	15.52	0.01
C3 Fluorenes	769	--	0.40	4.76	4.76	0.01	1.20	22.99	22.99	0.03
C3-Fluoranthenes/Pyrenes	949	--	0.70	8.33	8.33	0.01	1.40	26.82	26.82	0.03
C3-Naphthalenes	581	--	1.10	13.10	13.10	0.02	3.10	59.39	59.39	0.10
C3-Phenanthrenes/Anthracenes	829	--	1.70	20.24	20.24	0.02	4.00	76.63	76.63	0.09
C4 Chrysenes	1,214	--	0.39	0.00	0.00	0.00	0.80	0.00	0.00	0.00
C4-Naphthalenes	657	--	0.96	11.43	11.43	0.02	2.50	47.89	47.89	0.07
C4-Phenanthrenes/Anthracenes	913	--	1.20	14.29	14.29	0.02	2.70	51.72	51.72	0.06
Chrysene	844	826	3.30	39.29	39.29	0.05	4.80	91.95	91.95	0.11
Dibenz[a,h]anthracene	1,123	2,389	0.56	6.67	6.67	0.01	0.82	15.71	15.71	0.01
Fluoranthene	707	23,870	5.20	61.90	61.90	0.09	9.30	178.16	178.16	0.25
Fluorene	538	26,000	0.63	7.50	7.50	0.01	1.30	24.90	24.90	0.05
Indeno[1,2,3-c,d]pyrene	1,115	--	1.50	17.86	17.86	0.02	2.30	44.06	44.06	0.04
Naphthalene	385	61,700	0.49	5.83	5.83	0.02	0.90	17.24	17.24	0.04
Perylene	967	431	0.77	9.17	9.17	0.01	1.10	21.07	21.07	0.02
Phenanthrene	596	34,300	2.60	30.95	30.95	0.05	5.60	107.28	107.28	0.18
Pyrene	697	9,090	3.50	41.67	41.67	0.06	6.00	114.94	114.94	0.16
--	---	**ESBTU FCVi**	--	--	--	0.80	--	--	--	2.35

Notes:

[a] PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration
in sediment on an organic carbon basis; only the contribution up to the
maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the
PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-1 ESBTUS FOR PAHS

		Location ID	**MLTC14-58**			
		Field Sample ID	**MLTC14-58-0103**			
		Sample Depth	**1-3**			
		Sample Date	**10/23/2014**			
	Coc, PAHi, FCVi[a]	**Coc, PAHi, Maxi[a]**	**Conc**	**Coc**	**Final**	
	µg/g oc	**µg/g oc**	**µg/g dry wt.**	**µg/g oc**	**Cocb**	**ESBTU FCVi**
Total Organic Carbon	--	--	5.01	0.0501	---	---
Polycyclic Aromatic Hydrocarbons (PAH) (µg/kg)						
1-Methylnaphthalene	446	165,700	0.06	1.18	1.18	0.00
2-Methylnaphthalene	447	154,800	0.10	1.96	1.96	0.00
Acenaphthene	491	33,400	0.08	1.64	1.64	0.00
Acenaphthylene	452	24,000	0.04	0.76	0.76	0.00
Anthracene	594	1,300	0.13	2.59	2.59	0.00
Benzo[a]anthracene	841	4,153	0.25	4.99	4.99	0.01
Benzo[a]pyrene	965	3,840	0.24	4.79	4.79	0.00
Benzo[b]fluoranthene	979	2,169	0.18	3.59	3.59	0.00
Benzo[e]pyrene	967	4,300	0.14	2.79	2.79	0.00
Benzo[g,h,i]perylene	1,095	648	0.15	2.99	2.99	0.00
Benzo[k]fluoranthene	981	1,220	0.23	4.59	4.59	0.00
C1 Chrysenes	929	--	0.22	4.39	4.39	0.00
C1 Fluorenes	611	--	0.05	0.96	0.96	0.00
C1-Fluoranthenes/Pyrenes	770	--	0.49	9.78	9.78	0.01
C1-Naphthalenes	444	--	0.11	2.20	2.20	0.00
C1-Phenanthrenes/Anthracenes	670	--	0.32	6.39	6.39	0.01
C2 Chrysenes	1,008	--	0.12	2.40	2.40	0.00
C2 Fluorenes	686	--	0.13	2.59	2.59	0.00
C2-Fluoranthenes/Pyrenes		--	0.24	4.79	4.79	
C2-Naphthalenes	510	--	0.29	5.79	5.79	0.01
C2-Phenanthrenes/Anthracenes	746	--	0.54	10.78	10.78	0.01
C3 Chrysenes	1,112	--	0.09	1.70	1.70	0.00
C3 Fluorenes	769	--	0.16	3.19	3.19	0.00
C3-Fluoranthenes/Pyrenes	949	--	0.16	3.19	3.19	0.00
C3-Naphthalenes	581	--	0.43	8.58	8.58	0.01
C3-Phenanthrenes/Anthracenes	829	--	0.56	11.18	11.18	0.01
C4 Chrysenes	1,214	--	0.05	0.92	0.92	0.00
C4-Naphthalenes	657	--	0.38	7.58	7.58	0.01
C4-Phenanthrenes/Anthracenes	913	--	0.35	6.99	6.99	0.01
Chrysene	844	826	0.30	5.99	5.99	0.01
Dibenz[a,h]anthracene	1,123	2,389	0.05	1.08	1.08	0.00
Fluoranthene	707	23,870	0.59	11.78	11.78	0.02
Fluorene	538	26,000	0.11	2.20	2.20	0.00
Indeno[1,2,3-c,d]pyrene	1,115	--	0.14	2.79	2.79	0.00
Naphthalene	385	61,700	0.16	3.19	3.19	0.01
Perylene	967	431	0.07	1.36	1.36	0.00
Phenanthrene	596	34,300	0.41	8.18	8.18	0.01
Pyrene	697	9,090	0.36	7.19	7.19	0.01
--	---	**ESBTU FCVi**	--	--	--	0.22

Notes:

[a]PAHs and corresponding Coc PAHi, FCVi and Coc PAHi, Maxi values are from Table 3-4 in EPA, 2003).

[b] COC,PAHi,Maxi is the maximum solubility limited PAH concentration in sediment on an organic carbon basis; only the contribution up to the maximum COC,PAHi,Maxi is counted in the D ESBTUFCV for the PAH mixture (EPA, 2003, Section 4.3 and Section 6.3).

ESBTU= equilibrium sediment benchmark toxic unit.
FCV= final chronic value.
Koc = organic carbon-water partition coefficient.
µg/kg - micrograms per kilogram.

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

	Location ID:	MLTC14-01	MLTC14-01	MLTC14-03	MLTC14-04	MLTC14-05	MLTC14-06	MLTC14-07
	Sample Name:	MLTC14-01-SURF	MLTC14-01-SURF-FD	MLTC14-03-SURF	MLTC14-04-SURF	MLTC14-05-SURF	MLTC14-06-SURF	MLTC14-07-SURF
	Sample Date:	10/23/2014	10/23/2014	10/14/2014	10/14/2014	10/22/2014	10/14/2014	10/14/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**							
SEM/AVS Ratio	none	0.30	0.39	0.15	**1.50**	0.44	0.00	**1.36**
Σ SEM	µmole/g dry	0.091	1.8	1.1	0.054	0.014	0.21	0.5
AVS	µmole/g dry	6.2	5.5	10.3	3.8	4.9	0.63 U	5.2
foc	fraction	0.0253	0.0138	0.0985	0.0603	0.0415	0.0045	0.106
(Σ SEM - AVS) / foc	µmole/g dry	-241	-268	-93	-62	-118	-93	-44

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

	Location ID:	MLTC14-08	MLTC14-09	MLTC14-10	MLTC14-10	MLTC14-11	MLTC14-12
	Sample Name:	MLTC14-08-SURF	MLTC14-09-SURF	MLTC14-10-SURF	MLTC14-10-SURF-FD	MLTC14-11-SURF	MLTC14-12-SURF
	Sample Date:	10/14/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/15/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**						
SEM/AVS Ratio	none	**1.83**	0.74	0.04	0.06	0.19	0.22
Σ SEM	µmole/g dry	1.6	0.35	0.034	0.11	0.058	0.21
AVS	µmole/g dry	7.4	8.9	50.3 J+	36.6 J+	4.3 J+	16 J+
foc	fraction	0.0944	0.11	0.0711	0.065	0.0161	0.0666
(Σ SEM - AVS) / foc	µmole/g dry	-61	-78	-707	-561	-263	-237

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

Location ID:		MLTC14-12	MLTC14-13	MLTC14-14	MLTC14-15	MLTC14-16	MLTC14-17	MLTC14-18
Sample Name:		MLTC14-12-SURF-FD	MLTC14-13-SURF	MLTC14-14-SURF	MLTC14-15-SURF	MLTC14-16-SURF	MLTC14-17-SURF	MLTC14-18-SURF
Sample Date:		10/15/2014	10/22/2014	10/22/2014	10/22/2014	10/22/2014	10/20/2014	10/20/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**							
SEM/AVS Ratio	none	0.22	0.44	0.58	0.47	0.52	0.93	0.39
Σ SEM	µmole/g dry	0.01	0.014	3.4	4.4	2.8	0.59	1.1
AVS	µmole/g dry	19.2 J+	4.5	7.1	11.9	7.3	8.2	20
foc	fraction	0.0642	0.0552	0.0377	0.0405	0.0678	0.0761	0.1
(Σ SEM - AVS) / foc	µmole/g dry	-299	-81	-98	-185	-66	-100	-189

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

	Location ID:	MLTC14-19	MLTC14-21	MLTC14-22	MLTC14-25	MLTC14-26	MLTC14-31	MLTC14-32
	Sample Name:	MLTC14-19-SURF	MLTC14-21-SURF	MLTC14-22-SURF	MLTC14-25-SURF	MLTC14-26-SURF	MLTC14-31-SURF	MLTC14-32-SURF
	Sample Date:	10/20/2014	10/20/2014	10/20/2014	10/15/2014	10/15/2014	10/16/2014	10/16/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**							
SEM/AVS Ratio	none	0.05	0.37	0.11	0.10	0.28	0.00	**1.64**
Σ SEM	µmole/g dry	0.11	2.7	0.0066	0.41	0.29	1.5	0.023
AVS	µmole/g dry	33.9	10.5	30.9	26.3 J+	22.1 J+	0.82 U	4.8
foc	fraction	0.0308	0.0544	0.0603	0.066	0.11	0.0321	0.075
(Σ SEM - AVS) / foc	µmole/g dry	-1097	-143	-512	-392	-198	21	-64

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

	Location ID:	MLTC14-32	MLTC14-34	MLTC14-35	MLTC14-36	MLTC14-37	MLTC14-38	MLTC14-39
	Sample Name:	MLTC14-32-SURF-FD	MLTC14-34-SURF	MLTC14-35-SURF	MLTC14-36-SURF	MLTC14-37-SURF	MLTC14-38-SURF	MLTC14-39-SURF
	Sample Date:	10/16/2014	10/16/2014	10/16/2014	10/17/2014	10/17/2014	10/20/2014	10/16/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**							
SEM/AVS Ratio	none	**1.33**	0.00	0.44	0.57	**6.44**	**1.29**	0.21
Σ SEM	µmole/g dry	5.7	0.35	3.9	0.23	5.9	0.84	1.3
AVS	µmole/g dry	5.2	0.69 U	10.8	8.7	1 U	0.93	8.9
foc	fraction	0.0696	0.0471	0.0927	0.0517	0.104	0.0127	0.0422
(Σ SEM - AVS) / foc	µmole/g dry	7	-7	-74	-164	47	-7	-180

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

Location ID:		MLTC14-40	MLTC14-41	MLTC14-42	MLTC14-43	MLTC14-45	MLTC14-46	MLTC14-47
Sample Name:		MLTC14-40-SURF	MLTC14-41-SURF	MLTC14-42-SURF	MLTC14-43-SURF	MLTC14-45-SURF	MLTC14-46-SURF	MLTC14-47-SURF
Sample Date:		10/17/2014	10/17/2014	10/20/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**							
SEM/AVS Ratio	none	0.00	0.43	**2.35**	0.53	0.10	0.26	0.26
Σ SEM	µmole/g dry	0.057	0.022	3	0.13	0.037	0.014	3.8
AVS	µmole/g dry	2.7 U	1 U	1.7	7.3	6.8	15.3	18.9
foc	fraction	0.23	0.0439	0.0275	0.22	0.0143	0.213	0.141
(Σ SEM - AVS) / foc	µmole/g dry	-11	-22	47	-33	-473	-72	-107

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

	Location ID:	MLTC14-48	MLTC14-49	MLTC14-50	MLTC14-51	MLTC14-52	MLTC14-53	MLTC14-54
	Sample Name:	MLTC14-48-SURF	MLTC14-49-SURF	MLTC14-50-SURF	MLTC14-51-SURF	MLTC14-52-SURF	MLTC14-53-SURF	MLTC14-54-SURF
	Sample Date:	10/22/2014	10/15/2014	10/16/2014	10/16/2014	10/16/2014	10/20/2014	10/20/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**							
SEM/AVS Ratio	none	0.41	0.55	0.00	0.24	0.16	**1.02**	0.00
Σ SEM	µmole/g dry	0.0033	2.3	0.23	0.0065	0.019	0.32	0.46
AVS	µmole/g dry	5.6	5.8 J+	0.95 U	7.5	7.2	6.5	0.99 U
foc	fraction	0.0462	0.0655	0.0292	0.0561	0.0207	0.0648	0.0491
(Σ SEM - AVS) / foc	µmole/g dry	-121	-53	-25	-134	-347	-95	-11

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 4-2 ESBTUS FOR SEM/AVS METALS

	Location ID:	MLTC14-54	MLTC14-55	MLTC14-56	MLTC14-57	MLTC14-58
	Sample Name:	MLTC14-54-SURF-FD	MLTC14-55-SURF	MLTC14-56-SURF	MLTC14-57-SURF	MLTC14-58-SURF
	Sample Date:	10/20/2014	10/21/2014	10/23/2014	10/23/2014	10/23/2014
	Depth Interval (feet):	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Analyte	**Unit**					
SEM/AVS Ratio	none	**1.05**	0.50	0.92	**1.29**	0.68
Σ SEM	µmole/g dry	0.022	0.24	5.2	0.35	0.025
AVS	µmole/g dry	7.6	7.3	6.6	6.7	8.3
foc	fraction	0.101	0.0519	0.0456	0.0466	0.084
(Σ SEM - AVS) / foc	µmole/g dry	-75	-136	-31	-136	-99

NOTES:
AVS = Acid Volatile Sulfides
Bolded values exceed 1 SEM/AVS ratio
foc = fraction organic carbon
FD = Field Duplicate
SEM = Simultaneously Extracted Metals
TPH = Total Petroleum Hydrocarbons
µmole/g dry = micromole per gram dry weight basis
J = compound was detected, but result is below the reporting limit and greater than or equal to the method detection limit (value is estimated)
J+ = compound was detected, but result is below the reporting limit, greater than or equal to the method detection limit, and is biased high (value is estimated).
U = Indicates the analyte was analyzed but not detected

TABLE 5-1 PEC-Qs

Location ID	Field Sample ID	mean PEC-Q metals	PEC-Q Total 17PAHs	PEC-Q Total PCBs	mean PEC-Q
MLTC14-01	MLTC14-01-SURF	0.24	12.85	0.18	4.42
MLTC14-01	MLTC14-01-SURFFD	0.24	1.88	0.05	0.72
MLTC14-03	MLTC14-03-0001	0.27	0.14	0.15	0.19
MLTC14-03	MLTC14-03-0103	0.14	0.01	0.00	0.05
MLTC14-03	MLTC14-03-0305	0.20	0.00	0.06	0.09
MLTC14-03	MLTC14-03-0305FD	0.21	0.01	0.00	0.07
MLTC14-03	MLTC14-03-0507	0.15	0.00	0.00	0.05
MLTC14-03	MLTC14-03-0709	0.14	0.00	0.00	0.05
MLTC14-03	MLTC14-03-SURF	0.21	0.23	0.23	0.22
MLTC14-04	MLTC14-04-0001	3.56	0.89	7.62	4.02
MLTC14-04	MLTC14-04-0103	3.65	0.55	8.91	4.37
MLTC14-04	MLTC14-04-0305	2.88	0.62	4.13	2.54
MLTC14-04	MLTC14-04-0507	4.12	0.84	5.77	3.57
MLTC14-04	MLTC14-04-0709	3.74	0.54	17.46	7.24
MLTC14-04	MLTC14-04-0911	3.00	1.01	17.16	7.06
MLTC14-04	MLTC14-04-SURF	1.23	0.74	2.16	1.38
MLTC14-05	MLTC14-05-0001	0.15	0.01	0.00	0.05
MLTC14-05	MLTC14-05-0103	0.14	0.00	0.00	0.05
MLTC14-05	MLTC14-05-0305	0.12	0.00	0.00	0.04
MLTC14-05	MLTC14-05-0507	0.13	0.00	0.00	0.04
MLTC14-05	MLTC14-05-SURF	0.26	0.62	0.37	0.42
MLTC14-06	MLTC14-06-0001	0.08	0.01	0.00	0.03
MLTC14-06	MLTC14-06-0103	0.16	0.00	0.00	0.05
MLTC14-06	MLTC14-06-0305	0.13	0.00	0.00	0.04
MLTC14-06	MLTC14-06-0507	0.12	0.00	0.00	0.04
MLTC14-06	MLTC14-06-SURF	0.05	0.03	0.05	0.05
MLTC14-07	MLTC14-07-0001	1.67	0.05	10.12	3.95
MLTC14-07	MLTC14-07-0103	1.70	0.68	11.14	4.50
MLTC14-07	MLTC14-07-SURF	1.88	0.72	7.66	3.42
MLTC14-08	MLTC14-08-0001	2.49	0.59	21.45	8.17
MLTC14-08	MLTC14-08-0103	1.77	0.96	16.42	6.39
MLTC14-08	MLTC14-08-0305	2.18	0.97	11.60	4.92
MLTC14-08	MLTC14-08-SURF	2.26	0.83	18.96	7.35
MLTC14-09	MLTC14-09-0001	1.47	1.32	1.38	1.39
MLTC14-09	MLTC14-09-0103	1.10	0.94	0.61	0.88
MLTC14-09	MLTC14-09-0305	0.70	0.08	0.24	0.34
MLTC14-09	MLTC14-09-0507	1.67	0.42	0.69	0.93
MLTC14-09	MLTC14-09-0709	1.64	1.30	1.14	1.36
MLTC14-09	MLTC14-09-0911	1.51	1.45	0.67	1.21
MLTC14-09	MLTC14-09-SURF	0.76	1.29	0.83	0.96
MLTC14-10	MLTC14-10-0001	0.33	0.18	3.52	1.34
MLTC14-10	MLTC14-10-0103	0.82	0.49	0.12	0.48

TABLE 5-1 PEC-Qs

Location ID	Field Sample ID	mean PEC-Q metals	PEC-Q Total 17PAHs	PEC-Q Total PCBs	mean PEC-Q
MLTC14-10	MLTC14-10-0305	1.63	0.61	2.74	1.66
MLTC14-10	MLTC14-10-SURF	0.33	0.22	0.12	0.22
MLTC14-10	MLTC14-10-SURFFD	0.30	0.22	0.13	0.21
MLTC14-11	MLTC14-11-0001	0.09	0.00	0.00	0.03
MLTC14-11	MLTC14-11-0103	0.07	0.00	0.00	0.02
MLTC14-11	MLTC14-11-0305	0.06	0.00	0.00	0.02
MLTC14-11	MLTC14-11-0507	0.06	0.00	0.00	0.02
MLTC14-11	MLTC14-11-0709	0.08	0.00	0.00	0.03
MLTC14-11	MLTC14-11-SURF	0.11	0.07	0.15	0.11
MLTC14-12	MLTC14-12-0001	0.37	0.23	0.41	0.34
MLTC14-12	MLTC14-12-0103	1.36	0.24	1.46	1.02
MLTC14-12	MLTC14-12-0305	2.27	0.54	3.18	2.00
MLTC14-12	MLTC14-12-SURF	0.46	0.49	0.61	0.52
MLTC14-12	MLTC14-12-SURFFD	0.43	0.32	0.57	0.44
MLTC14-13	MLTC14-13-0001	0.22	1.20	0.16	0.53
MLTC14-13	MLTC14-13-0001FD	0.19	0.30	0.12	0.20
MLTC14-13	MLTC14-13-SURF	0.22	0.46	0.17	0.28
MLTC14-14	MLTC14-14-0001	1.33	1.17	1.88	1.46
MLTC14-14	MLTC14-14-0103	0.11	0.10	0.03	0.08
MLTC14-14	MLTC14-14-0305	0.08	0.00	0.00	0.03
MLTC14-14	MLTC14-14-0507	0.07	0.02	0.00	0.03
MLTC14-14	MLTC14-14-SURF	0.90	1.00	1.58	1.16
MLTC14-15	MLTC14-15-0001	0.31	1.25	0.41	0.66
MLTC14-15	MLTC14-15-0103	0.19	0.09	0.24	0.17
MLTC14-15	MLTC14-15-SURF	0.86	5.46	1.72	2.68
MLTC14-16	MLTC14-16-0001	1.46	0.84	5.38	2.56
MLTC14-16	MLTC14-16-0103	1.57	0.92	4.96	2.48
MLTC14-16	MLTC14-16-0305	1.79	1.46	1.92	1.72
MLTC14-16	MLTC14-16-0507	1.86	1.86	2.71	2.14
MLTC14-16	MLTC14-16-SURF	1.51	0.75	0.83	1.03
MLTC14-17	MLTC14-17-0001	1.64	1.34	1.35	1.44
MLTC14-17	MLTC14-17-0001FD	1.60	1.03	1.35	1.33
MLTC14-17	MLTC14-17-0103	1.44	1.54	0.67	1.22
MLTC14-17	MLTC14-17-0305	1.32	1.42	0.36	1.04
MLTC14-17	MLTC14-17-0305FD	1.17	1.28	0.40	0.95
MLTC14-17	MLTC14-17-0507	0.28	0.29	0.00	0.19
MLTC14-17	MLTC14-17-0709	0.35	1.22	0.00	0.52
MLTC14-17	MLTC14-17-SURF	1.58	1.55	3.68	2.27
MLTC14-18	MLTC14-18-0001	1.14	1.41	0.36	0.97
MLTC14-18	MLTC14-18-0103	0.12	0.05	0.00	0.06
MLTC14-18	MLTC14-18-0103FD	0.17	0.08	0.00	0.09
MLTC14-18	MLTC14-18-0305	0.11	0.01	0.00	0.04

TABLE 5-1 PEC-Qs

Location ID	Field Sample ID	mean PEC-Q metals	PEC-Q Total 17PAHs	PEC-Q Total PCBs	mean PEC-Q
MLTC14-18	MLTC14-18-SURF	1.17	1.78	0.89	1.28
MLTC14-19	MLTC14-19-0001	0.28	0.24	0.09	0.20
MLTC14-19	MLTC14-19-0103	0.22	0.44	0.09	0.25
MLTC14-19	MLTC14-19-SURF	0.37	0.22	0.10	0.23
MLTC14-21	MLTC14-21-SURF	0.49	0.54	0.61	0.54
MLTC14-22	MLTC14-22-SURF	0.68	0.32	0.75	0.58
MLTC14-25	MLTC14-25-0001	0.32	0.55	0.35	0.41
MLTC14-25	MLTC14-25-0103	0.40	2.13	0.86	1.13
MLTC14-25	MLTC14-25-0103FD	0.43	2.60	0.72	1.25
MLTC14-25	MLTC14-25-SURF	0.34	0.39	0.27	0.34
MLTC14-26	MLTC14-26-SURF	0.78	2.07	0.92	1.25
MLTC14-31	MLTC14-31-0001	0.83	1.13	0.70	0.89
MLTC14-31	MLTC14-31-0103	0.46	0.53	0.45	0.48
MLTC14-31	MLTC14-31-0305	1.61	3.07	2.28	2.32
MLTC14-31	MLTC14-31-SURF	0.29	0.16	0.33	0.26
MLTC14-32	MLTC14-32-0001	0.84	1.39	0.67	0.97
MLTC14-32	MLTC14-32-0103	1.07	1.93	1.76	1.59
MLTC14-32	MLTC14-32-SURF	0.74	0.82	0.64	0.73
MLTC14-32	MLTC14-32-SURFFD	0.71	1.00	0.97	0.90
MLTC14-34	MLTC14-34-SURF	0.34	0.97	0.75	0.69
MLTC14-35	MLTC14-35-0001	0.52	0.34	4.19	1.68
MLTC14-35	MLTC14-35-0103	0.34	0.00	0.01	0.12
MLTC14-35	MLTC14-35-0103FD	0.33	0.00	0.04	0.12
MLTC14-35	MLTC14-35-0305	0.32	0.00	0.00	0.11
MLTC14-35	MLTC14-35-SURF	0.56	0.52	2.53	1.20
MLTC14-36	MLTC14-36-0001	0.20	0.02	0.08	0.10
MLTC14-36	MLTC14-36-0103	0.21	0.00	0.00	0.07
MLTC14-36	MLTC14-36-SURF	0.51	1.09	0.91	0.83
MLTC14-37	MLTC14-37-0001	0.23	1.01	0.08	0.44
MLTC14-37	MLTC14-37-0103	0.21	0.03	0.04	0.09
MLTC14-37	MLTC14-37-SURF	0.67	2.72	1.82	1.74
MLTC14-38	MLTC14-38-SURF	0.15	0.55	0.20	0.30
MLTC14-39	MLTC14-39-SURF	0.28	1.09	0.56	0.64
MLTC14-40	MLTC14-40-0001	0.22	0.04	0.00	0.08
MLTC14-40	MLTC14-40-0103	0.19	0.00	0.00	0.06
MLTC14-40	MLTC14-40-0305	0.24	0.00	0.00	0.08
MLTC14-40	MLTC14-40-SURF	0.34	0.28	0.26	0.29
MLTC14-41	MLTC14-41-0001	0.13	0.03	0.00	0.05
MLTC14-41	MLTC14-41-0103	0.14	0.02	0.00	0.05
MLTC14-41	MLTC14-41-0103FD	0.15	0.01	0.62	0.26
MLTC14-41	MLTC14-41-0305	0.12	0.00	0.00	0.04
MLTC14-41	MLTC14-41-0305FD	0.12	0.00	0.00	0.04

TABLE 5-1 PEC-Qs

Location ID	Field Sample ID	mean PEC-Q metals	PEC-Q Total 17PAHs	PEC-Q Total PCBs	mean PEC-Q
MLTC14-41	MLTC14-41-0507	0.12	0.00	0.00	0.04
MLTC14-41	MLTC14-41-SURF	0.23	1.57	0.41	0.74
MLTC14-42	MLTC14-42-SURF	0.28	1.63	1.04	0.98
MLTC14-43	MLTC14-43-0001	0.24	0.04	0.00	0.09
MLTC14-43	MLTC14-43-0103	0.28	0.01	0.00	0.10
MLTC14-43	MLTC14-43-0305	0.22	0.00	0.00	0.07
MLTC14-43	MLTC14-43-SURF	0.45	0.71	0.52	0.56
MLTC14-45	MLTC14-45-0001	0.17	0.01	0.00	0.06
MLTC14-45	MLTC14-45-0103	0.22	0.00	0.00	0.07
MLTC14-45	MLTC14-45-SURF	0.22	0.14	0.14	0.17
MLTC14-46	MLTC14-46-0001	0.21	0.09	0.22	0.18
MLTC14-46	MLTC14-46-0001FD	0.30	0.22	0.28	0.26
MLTC14-46	MLTC14-46-0103	0.19	0.01	0.05	0.08
MLTC14-46	MLTC14-46-0305	0.16	0.00	0.00	0.05
MLTC14-46	MLTC14-46-SURF	0.57	0.48	0.69	0.58
MLTC14-47	MLTC14-47-0001	0.63	0.26	0.56	0.48
MLTC14-47	MLTC14-47-0103	0.85	0.56	0.71	0.71
MLTC14-47	MLTC14-47-0305	1.17	7.10	0.00	2.76
MLTC14-47	MLTC14-47-0507	0.42	2.43	0.01	0.95
MLTC14-47	MLTC14-47-SURF	0.64	0.50	0.70	0.61
MLTC14-48	MLTC14-48-0001	0.53	1.49	1.83	1.28
MLTC14-48	MLTC14-48-0001FD	0.47	1.05	1.80	1.11
MLTC14-48	MLTC14-48-0103	0.58	1.92	2.06	1.52
MLTC14-48	MLTC14-48-SURF	0.19	0.47	0.54	0.40
MLTC14-49	MLTC14-49-0001	0.44	0.20	0.64	0.42
MLTC14-49	MLTC14-49-0103	1.26	0.48	2.80	1.51
MLTC14-49	MLTC14-49-0103FD	1.40	0.32	2.75	1.49
MLTC14-49	MLTC14-49-0305	0.18	0.00	0.02	0.07
MLTC14-49	MLTC14-49-SURF	0.39	0.37	0.47	0.41
MLTC14-50	MLTC14-50-SURF	0.27	0.66	1.49	0.81
MLTC14-51	MLTC14-51-0001	0.11	0.01	0.00	0.04
MLTC14-51	MLTC14-51-0103	0.12	0.01	0.00	0.04
MLTC14-51	MLTC14-51-0305	0.09	0.00	0.00	0.03
MLTC14-51	MLTC14-51-0507	0.08	0.00	0.00	0.03
MLTC14-51	MLTC14-51-0709	0.21	0.00	0.00	0.07
MLTC14-51	MLTC14-51-SURF	0.23	0.85	0.34	0.47
MLTC14-52	MLTC14-52-0001	0.16	0.08	0.06	0.10
MLTC14-52	MLTC14-52-0103	0.20	0.00	0.00	0.07
MLTC14-52	MLTC14-52-SURF	0.18	0.38	0.13	0.23
MLTC14-53	MLTC14-53-0001	2.04	12.03	2.01	5.36
MLTC14-53	MLTC14-53-0103	2.04	6.78	1.97	3.60
MLTC14-53	MLTC14-53-0305	1.59	2.83	1.10	1.84

TABLE 5-1 PEC-Qs

Location ID	Field Sample ID	mean PEC-Q metals	PEC-Q Total 17PAHs	PEC-Q Total PCBs	mean PEC-Q
MLTC14-53	MLTC14-53-0305FD	1.60	2.63	1.19	1.81
MLTC14-53	MLTC14-53-0507	1.21	1.91	0.20	1.11
MLTC14-53	MLTC14-53-0709	0.29	0.03	0.00	0.11
MLTC14-53	MLTC14-53-SURF	0.83	56.96	0.56	19.45
MLTC14-54	MLTC14-54-0001	1.31	5.10	1.64	2.68
MLTC14-54	MLTC14-54-0103	1.24	1.75	0.56	1.18
MLTC14-54	MLTC14-54-0305	1.00	2.80	0.00	1.27
MLTC14-54	MLTC14-54-0507	0.40	1.02	0.00	0.47
MLTC14-54	MLTC14-54-SURF	0.91	2.34	1.04	1.43
MLTC14-54	MLTC14-54-SURFFD	0.87	2.58	1.09	1.52
MLTC14-55	MLTC14-55-0001	0.14	0.19	0.19	0.17
MLTC14-55	MLTC14-55-0001FD	0.08	0.16	0.18	0.14
MLTC14-55	MLTC14-55-0103	0.70	0.23	0.89	0.61
MLTC14-55	MLTC14-55-0103FD	0.69	0.26	0.70	0.55
MLTC14-55	MLTC14-55-SURF	0.42	1.13	0.32	0.62
MLTC14-56	MLTC14-56-0001	0.67	2.28	0.70	1.21
MLTC14-56	MLTC14-56-0103	0.08	0.02	0.03	0.05
MLTC14-56	MLTC14-56-SURF	0.87	20.21	1.07	7.38
MLTC14-57	MLTC14-57-0001	0.55	1.45	1.23	1.08
MLTC14-57	MLTC14-57-0103	0.54	9.86	2.96	4.45
MLTC14-57	MLTC14-57-SURF	0.44	1.53	1.24	1.07
MLTC14-58	MLTC14-58-0001	1.48	2.30	12.43	5.40
MLTC14-58	MLTC14-58-0103	0.35	0.15	1.05	0.52
MLTC14-58	MLTC14-58-SURF	0.89	1.41	3.98	2.09

mean PEC-Q = mean PEC-Q metals + PEC-Q Total 17PAHs + PEC-Q Total PCBs/3

Appendixes

Appendix A

Field Logbooks and Data Collection Forms

A1. Core Processing Logbook

CONTENTS

PAGE	REFERENCE	DATE

Location MLTC Date 10/15/14

Project / Client GLNPO

08:15 J.Cole + E.Cahoon meet K.Kowalk at Pilot House

0820 Health + Safety tailgate.

0835 Arrive on site.

0840 Set up core processing area.

0915 Open up MLTC14-07.

0920 Label + pack coolers w/ samples taken 10/14/14. (surface grabs).

0930 K.Kowalk home depot run for supplie

1000 MLTC14-07-0001 } collected

1010 MLTC14-07-0103 } 1-8oz

1020 Open up MLTC14-08.

1100 -08-0001

1110 -08-0103

1115 -08-0305

} collected 1-8oz

1120 Decon / clean up.

1150 Open up MLTC14-06

1215 06-0001

1220 06-0103

1225 06-0305

1230 06-0507

} collected 1-8oz

Location MLTC Date 10/15/14
Project / Client GLNPO

1250 Lunch
1400 Open up MLTC14-10
1435 10-0001 collected
1440 10-0103 1-8oz
1445 10-0305
1500 open up MLTC14-03
1530 03-0001
1535 03-0103
1540 03-0103 MS collected One 8oz
1545 03-0103 MSD from each interval
1555 03-0305
1600 03-0305 FD
1605 03-0507
1610 03-0709 archive in
1615 03-0911 truck
1600 Open up MLTC14-04
1620 04-0001
1625 04-0103
1630 04-0305 collected
1635 04-0507 1-8oz
1640 04-0709
1645 04-0911
1730 Opened up MLTC14-12
1750 12-0001 – One 8oz collected

Location MLTC 14 Date 10/15/14
Project / Client GLNPO

1755 12-0103 One 8oz collected
1800 12-0305
1805 Core processing side Cleanup
1815 leave side – workday done

Location MLTC Date 10-16-14
Project / Client GLNPO

0735 arrive on site
J. Cole, E. Cahoon, J. Moen
K. Kowalk
0740 Safety tailgate
0745 set up for processing
Raining and 55°F
0800 opened core MLTC14-09
0805 Art P. arrived w/ 8oz jars
0830 09-0001 } collected one 8oz jar
0835 09-0103
0840 09-0305
0845 09-0507
0850 09-0709 } collected one 8 oz jar
0855 09-0911 -archived
0935 Core 49 opened
1000 49-0001 } one 8oz jar Collected
1005 49-0103
1010 49-0103 FD
1015 49-0305
1030 opened core MLTC14-25
1045 25-0001 } collected one 8oz jar
1050 25-0103
1055 25-0305 } Not collected
1055 25-0103 FD - one 8oz collected

Location MLTC Date 10-16-14
Project / Client GLNPO

1115 opened core MLTC14-11
1135 11-0001 } Collected one 8 oz jar
1140 11-0103
1145 11-0305
1150 11-0507
1155 11-0709 — 0709 archived
1230 Break for lunch.
1430 Back on site. Pack up coolers,
1500 Courier Pick up.
1510 Open up MLTC14-31
1530 31-0001
1535 31-0103
1540 31-0305

1545 open up MLTC14-32
1600 32-0001
1605 32-0103
1630 Clean up core processing area, change plastic on floor, took out trash, disposed of core liners.
1715 Scan corelogs + log book
1730 K. Kowalk to pick up cores

Location MLTC
Date JC 10/16/14
Project / Client GLNPO

day of sampling.

1825 Leave site.

JAC

Location MLTC
Date 10/17/14
Project / Client GLNPO

0945 Arrive on site (J.Cole & E.Caha
K.Kowalk & J.Moen already
there.
0950 Safety tailgate
0955 ~50°F & cloudy.
1000 Fridge truck temperature:

1010 Open up MLTC14-35
1035 -35-0001
1040 -35-0103
1045 -35-0103FD
1050 -35-0305
collected 1-8oz jar
1055 Open up MLTC14-52
1115 52-0001
1120 52-0103
1125 52-0103MS
1130 52-0103MSD
collected 1-8oz jar
~~1135 52-0305 not~~ collected,
JAC Core only went to 3ft

1150 open up MLTC14-51
1215 -51-0001
1220 -51-0103
1225 -51-0305
collected 1-8oz jar

Location MLTC Date 10/17/14
Project / Client GLNPO

1230 51-0507 } collected 1-8oz
1235 51-0709 } jar
1300 Break for lunch.
1420 Back on site.
1445 Open up MLTC14-37
1500 -37-0001 } collected 1-8oz
1505 -37-0103 } jar
meanwhile...
1440 Pack cooler for courier.
1455 Courier pick up.
1505 Open up MLTC14-36
1525 -36-0001 } collected 1-8oz
1530 -36-0103 } jar
meanwhile...
1520 Open up MLTC14-40
1540 -40-0001 } collected
1545 -40-0103 } 8 oz
1550 -40-0305 } jar

1600 Open up MLTC14-41
1630 41-0001 } collected
1635 41-0103 + } 1-8oz
41-0103FD }
1640 41-0305 + } jar
41-0305FD }

Location MLTC Date 10/17/14
Project / Client GLNPO

1645 41-0507 } collected
1650 41-0709 } 1-8 oz
1655 41-0911 } jar
41-0709 + 41-0911 archived
1700 Clean up area.
1730 Scan corelogs + logbooks.
1745 Leave site.

JAC

Location MLTC Date 10/20/14

Project / Client GLNPO

0745 E. Cahoon + J. Cole arrive on site, Friday truck @ 39°F

0750 Safety tailgate.

0800 set up for day.

0820 Open MLTC14-45

0835 45-0001 } collected 1-8oz

0840 45-0103 } jar.

0900 ~~45~~ JAC Open up MLTC14-43

0920 JAC 43-0001 } collected 1-8oz

0925 JAC 43-0103 } jar

0930 43-0305 }

1000 Open up MLTC14-46

1020 -46-0001 + 46-0001FD } collected

1025 -46-0103, -46-0103MS, + } 1-8oz
-46-0103MSD } jar

1030 -46-0305

1100 Open up MLTC14-47

1125 -47-0001

1130 -47-0103

1135 -47-0305

1140 -47-0507

1200 Break for lunch.

1230 Arrive on site.

1240 Only 1 core collected
poor recovery

Location MLTC Date 10/20/14

Project / Client GLNPO

1250 Open up MLTC14-18

1310 18-0001 } collected

1315 18-0103 } 1-8oz
18-0103FD }

1320 18-0305 } jar
18-0305MS }
18-0305MSD }

1330 Pack coolers/ clean up core processing area.

1400 Scan logbook, core logs, data sheets.

1430 Courier pick up 4 coolers.

1440 Leave site

JAC

Location MLTC14 Date 10-21-14

Project / Client GLNPO

0745	E. Calhoon, J. Cole, J. Moen arrive on site, fridge truck @37°F	
0800	K. Kowalk arrives on site	
0800	Safety tailgate	
0810	Set up for day	
0815	Open MLTC 54	
0840	54 0001	collected one 8 oz
0845	54 0103	
0850	54 0305	
0855	54 0507	
0905	opened MLTC-53	
0950	53-0001	Collected one 8oz
0955	53 0103	
1000	53 0305	
1005	53 0507	
1010	53 0709 - 8oz collected and archived	
1015	53 0305 FD - collected one 8oz	
1020	Open MLTC 19	
1040	19 0001	Collected one 8oz
10:45	19-0103	
11:00	opened MLTC 14-17	
11:30	17 0001	Collected one 8oz
11:35	17 0103	
11:40	17 0305	
11:45	17 0507	

Location MLTC Date 10/21/14

Project / Client GLNPO

11:50	17 0507 MS	Collected one 8 oz
11:55	17 0507 MSD	
12:00	17 0709 - collected one 8oz - archive	
12:05	17 0305 FD	Collected one 8oz
12:10	17 0001 FD	
12:30	Break for lunch	
13:30	Back on site,	
13:50	Open up MLTC14-55	
1405	-55-0001 + -55-0001FD	collected 1 8 oz jar for each
1410	-55-0103 + -55-0103FD	
1420	Pack coolers + print Chains.	
1445	Clean up area. Trash.	
1500	courier pick up	
1510	leave site	

JAC

Location MLTC 14 Date 10-22-14

Project / Client GLNPO

0730 J. Cole arrives at processing site to help H. Williams load IDW

0745 J. Cole leaves processing site

12:40 J. Cole, J. Moen, E. Colham arrive at core processing site

12:45 Safety tailgate meeting
Weather is 65°F, Sunny

12:50 Open core MLTC14-15

13:15 15-0001 } Collected one

13:20 15-0103 and MS/MSD } 8oz jar per

13:30 J. Cole prepare surface samples for shipment

13:35 open MLTC-14

14:00 14-0001 } Collected one

14:05 14-0103 } 8 oz jar

14:10 14-0305 }

14:15 14-0507 }

14:30 open MLTC-16

14:50 16-0001 JTM

14:55 16-0103 JTM

15:00 16-0305

15:05 16-0507

15:20 Carrier Pickup
JTM

1530 Leave site

JAC

Location MLTC14 Date 10/23/14

Project / Client GLNPO

1045 Arrive on site.

1050 Fridge truck temp 39°F

1051 Safety tailgate

1055 Open up MLTC14-13

1110 13-0001 + 13-0001FD
1-8oz jar for each collected.

1115 MLTC14-05 opened

1135 05-0001 } collected

1140 05-0103 } 1-8oz
05-0103MS } jar for
05-0103MSD } each

1145 05-0305 }
05-0305MS }
05-0305MSD }

1150 05-0507 }

1200 Open up MLTC14-48

1220 48-0001 } collected
48-0001FD } 1 8oz

1225 48-0103 } jar

1230 Break for lunch

1330 Meet Mudpuppy at park to

1400 Pack coolers, make

1500 Counter Pick

1515- 1630 Pack up s

A2. Core Collection Logbook

10/14/14 MLTC 2014

Temp: 69°F @ 0800

Wind: very windy ~21 mph

Weather: Cloudy, light Sprinkles

Samplers: Hilary Williams - EA
Jessica Moen - EA

On Boat: Rose Ellison - EPA
Joe Bonem (Captain) - Cetacean
Stacy C. (Marine tech) - Marine, Inc.

0800 Met at Elizabeth Park Marina

0820 Health and Safety meeting

0851 MudPuppy leaves marina for location 03

0910 MudPuppy spudded @ MLTC14-03. Location is at corner of Grosse Ile Toll Bridge (north) and Grosse Ile Shore (east)

0917 ponar dropped to collect

0920 ponar samples collected

0924 vibra corer lowered

0935 core collected @ MLTC14-03 (10')

0956 Spudded @ MLTC14-06

1004 core collected @ MLTC14-06; refusal not met

1015 ponar collected (sample) @ MLTC14-06

HW

10/14/14 MLTC 2014

1041 Anchored @ MLTC14-04

1045 Ponar collected @ MLTC14-04

1050 Core A collected @ MLTC14-04

1105 2nd core - core B (15') collected @ -04

- Vibra core moved quickly and easily through sediment for both cores.
- Top of Core B is slough (~2 ft.)
- Might need to use bottom of Core B and top of core A

1130 Split Core B into 2 sections: 0-5' and 5-11'

1140 Anchors up (anchor in 25' of water, shallow, muckie.)

1200 MudPuppy breaks for lunch.

1300 Meet back @ Marina

1325 Mobilized from Marina to MLTC14-05

1341 MudPuppy anchored @ MLTC14-05, moved location ~334 ft. to West

1420 Little to no recovery after 2 cores; need to come back w/ core that has two baskets

1424 Pick up anchors, mobilize to MLTC14-07

1431 Stationed @ MLTC14-07

- no recovery w/ first core, moved location

HW

10/14/14

east to take 2nd core

1455 core collected @ MLTC14-07

1500 ponar collected @ MLTC14-07

1519 Mobilize to MLTC14-08

1535 Collect ponar @ MLTC14-08 + Duplicate

1555 Three attempts to collect core @ MLTC14-08 with little to no recovery each time

1558 Rained heavily from 1535-1545

1615 Could not get core recovery; 7 attempts. Probing felt hard rock bottom.

1630 Mobilized to MLTC14-08A

1639 Collected Core @ MLTC14-08A

1650 Collected ponar @ MLTC14-08A

1705 MudPuppy mobilized back to Marina

1725 crew packed up; offsite.

H. Williams

10/15/2014

Temp: 57°F @ 0809, 66°F @ 1655

Wind: Slight wind

Weather: mostly cloudy, looks like clearing

Samplers: Hilary Williams + J. Moen

On Boat: J. Bonem, R. Ellison, S. Coullard

Sam (DEQ) Noffke

0800 • Meet in Elizabeth park marina, load boat

0820 • MudPuppy out of Marina, headed to MLTC14-10

0835 • Anchored @ MLTC14-10; Stacy + Sam suiting up.

0848 • ponar dropped @ MLTC14-10

0850 • MLTC14-10-SURF collected
MLTC14-10-SURFFD collected

0902 • Core collected @ MLTC14-10 (3.5' driven)

0918 • raise anchors @ MLTC14-10

0930 • Anchor @ MLTC14-09

0940 • Core collected off W side of boat, 10' core, no refusal.

0955 • ponar sample collected off W side of boat

1005 • pull anchors; MudPuppy mob to MLTC14-11

1020 • probing around MLTC14-11 to find good
to sample - downstream of stormw

10/15/14 MLTC 2014

1030 • Anchored @ MLTC14-11

1035 • Collected ponar sample @ MLTC14-11

1045 • collected 10' core @ MLTC14-11 (8' driven)

1106 • Anchored @ MLTC14-12

1115 • collected 10' core @ MLTC14-12 (4.5' driven)

1125 • Collected ponar sample @ MLTC14-12

1141 • Pulled anchors, mob to MLTC-49

1155 • Collected ponar sample @ MLTC14-49

1203 • collected 10' core @ MLTC14-49 (3.75' driven)

1215 • pulling up anchors @ MLTC14-49, heading back to marina to break for lunch.

1230 • break for lunch

1352 • Return to MudPuppy (all except J. Moen, who is helping w/ core processing this afternoon).

1355 • MudPuppy mobilizes to MLTC14-23 can not sample due to utilities → cable and water main too close to bridge

1407 • MudPuppy mobilize to MLTC14-24

1416 • Mud Puppy anchored @ -24, strong current

1423 • Begin coring @ MLTC-24. After three attempts, had little to no recovery. Could not collect core.

1446 • ~~collect~~ could not collect ponar - all rock, poor recovery.

AW

10/15/14 MLTC 2014

1450 • Pull anchors from MLTC14-24. Could not collect any samples.

1456 • MudPuppy mobilize to MLTC14-25

1504 • Anchored @ MLTC14-25

1508 • collected ponar @ MLTC14-25

1520 • collected core (10') @ MLTC14-25 (25' driven; 25' recovered)

1530 • fixing windlass to prepare to leave location

1545 • picking up anchors. MudPuppy mob to MLTC14-26 by the Edison power plant - in channel

NOTE: Attempted 2nd location for MLTC14-24 between DTE water intake and DTE outfall 147 (former) bottom was rocky, sample not collected.

1618 • Attempted to collect core @ MLTC14-26; very poor recovery, rocky bottom. Did not collect core.

1618 • collect ponar @ MLTC14-26 + MS/MSD

1630 • Began probing in vicinity of proposed MLTC14-27. Felt hard bottom in proposed area, moved toward Trenton chann

AW

10/15/14 MLTC 2014

probing along the way. Continued to feel hard bottom.

1645 • Attempted to grab ponar in 3 locations, very poor recovery at each - some sand, mostly gravel, 2 invasive bivalves of some sort.

1653 • MudPuppy mob off -27 to marina.

1705 • Mud Puppy back @ Marina.

• Crew offsite for day.

H Williams

10/16/14 MLTC 2014

Temp: 57°F @ 0800, 62°F @ 1300
Wind: light wind
Weather: overcast
On-Boat: H. Williams, R. Ellison, J. Bonem, and S. Coullard.

0810 • MudPuppy leaves marina toward toll bridge to drop IDW from cores taken on 10/14 and 10/15.

0820 • Arrive @ MLTC14-04 to dispose of IDW

0835 • MudPuppy heads back to marina to drop off empty buckets.

0841 • Decided to drop off later (lunch time). Mob to MLTC14-29

0900 • Probing at MLTC14-29 has revealed rocky bottom - gravel, larger rocks. Probed close to shore and further out in channel, all same result. Taking a ponar to see what the material looks like (location further out in channel).

0904 • First ponar had no recovery.

0905 • Attempting 2nd ponar closer to shore btwn two boat docks.

0914 • Tried 3 attempts at second location

HW

closer to shore. No recovery - only vegetation and some large rocks seen. R. Ellison decided to abandon location.

0915 • MudPuppy mob to MLTC14-28
- Attempt probing to feel bottom - feeling rock and hard bottom all around location.
- Current really strong at this location.
- Maybe a natural elevation change causing it.

0920 • Moving on to MLTC14-30
- Probing around MLTC14-30 revealed a gravel and rock-filled bottom. Moving away from shore @ location proved to be the same.

0926 • Moving down the shoreline from -30 just before Humbug to see if there is any sediment there. Still rocky.
- General area around -28, -29, and -30 is very rocky and has a pretty strong current.

0930 • MudPuppy mobilizes to MLTC-33; some rocky bottom. Still in current.

0931 • MudPuppy mob to MLTC-31; anchored. probing revealed sediment.

AW

0945 • collected ponar @ MLTC14-31-SURF

1004 • collected 10' core (4' driven; 42" recovered)

1019 • Anchors pulled, MudPuppy to MLTC14-32

1025 • Anchored @ MLTC14-32

1029 • collected 10' core (2' driven; 19" recovered)

1035 • ponar collected @ MLTC14-32-SURF

1051 • Anchors pulled, mob to MLTC14-34

1102 • Anchored @ MLTC14-34

1110 • collected ponar @ MLTC14-34-SURF

1127 • could not collect core @ MLTC14-34. probing revealed rock, cobbles, and only some small spots of sand.

1129 • MudPuppy mob back to marina to break for lunch

1200 • Break for lunch

1315 • All back from lunch; MudPuppy mob to MLTC14-35
- J. Moen back on boat for afternoon - R. Ellison has conference call later.

1332 • Anchor @ MLTC14-35

1341 • collected 10' core @ -35 (3' driven, 42" recovered)
- slight sheen

1348 • collected ponar @ MLTC14-35-SURF

1400 • Anchors up; mob to MLTC14-50

AW

1405 • tried probing in location near proposed fishing pier (halfway btwn. 34 + shore)
• sandy and few rocks felt, gravel (trace) expected based on feeling of probe.
1410 • Mud Puppy mob to MLTC14-50
1420 • drop ponar; collect ponar sample @ MLTC14-50-SURF
• required a few ponar drops to get enough volume for sample jars. → even still, low volume
1435 • no core collected @ MLTC14-50; bottom sandy and rocky (per probing)
1443 • Mud Puppy pulls anchors; mob to gas station to fill tank on boat.
1500 • Mud Puppy done filling w/ gas; mob to MLTC14-39
1509 • Probing @ MLTC14-39 → rock bottom; current has picked up in main part of channel (surrounding -39).
1511 • Move to MLTC14-38 to probe there. Stacy felt sand and hard bottom. Maybe 2" of sand.
1515 • Per R. Ellison (who is on conference call) mob to MLTC14-45 (furthest S on Grosse Ile side), but try two locations (-51 and -52)

HW

first. They were taken off to make room for more samples in Black Lagoon, but since we have had no luck with some, we will try to get those (-51, -52).
1523 • Anchored @ MLTC14-51.
1530 • ponar collected @ MLTC14-51-SURF
1542 • Collected 10' core (7.5' driven; 94" recovered)
1556 • pull anchors, Mud Puppy mob to -52
1607 • Anchor @ MLTC14-52
1614 • collect 10' core (30" driven; 29" recovery) @ MLTC14-52
1620 • collect ponar @ MLTC14-52-SURF
1638 • Mobilize off of MLTC14-52
1643 • Mud Puppy back to MLTC14-39 to try to grab a ponar. Historical sample nearby had PAH hits.
1648 • Attempting to collect ponar.
1710 • ponar collected @ MLTC14-39
1720 • Mud Puppy pick up anchor; mob back to Marina.
• Kevin Kowalk will ~~come~~ meet us to pick up cores.
1735 • All crew offsite.

Hilary Williams

10/17/14 MLTC 2014

Temp: 57°F @ 0755, 61°F @ 1245
Wind: breezy
Weather: overcast, damp, water in channel choppy
On-Boat: H. Williams, R. Ellison, T. Bonem, S. Coullard

0805 • MudPuppy leaves marina, mob to MLTC14-37
0825 • Anchored @ MLTC14-37
0835 • collected ponar @ MLTC14-37-SURF
0844 • collected 10' core @ -37 (2.25' driven, 23" recovered)
0855 • pull up anchors @ MLTC14-37; MudPuppy mobilize to MLTC14-36
0905 • Anchored @ MLTC14-36; very shallow water (~2'10")
0910 • Collected ~~10~~ 7' HW core @ -36 (~2.5' driven, 28" recovered)
– stern anchor slipped while coring so boat moved; no impact to core quality
0917 • collected ponar @ MLTC14-36-SURF
0930 • Anchors pulled @ -36; mob to MLTC14-40
0948 • Anchored @ MLTC14-40
0955 • ponar collected @ MLTC14-40-SURF
1013 • collect 10' core @ -40 (3.5' driven, 48" recovered)
• location has lots of peat in ponar grab
1025 • Anchors up, MudPuppy mob to MLTC14-41
1042 • Anchor @ MLTC14-41 → on other side of island

HW

10/17/14 MLTC14

from Humbug marsh.
1047 • collect 10' core @ -41 (9' driven; 111" recovered)
1058 • collect ponar @ MLTC14-41-SURF
1119 • pull anchors, mob to ~~MLTC14-~~ HW marina for lunch break
1137 • Break for lunch; unload cores + ponar grabs
1245 • Back from lunch, J. Moen joined for second half of day.
1304 • MudPuppy to MLTC14-35 to drop off IDW from #25, 31, 32, 35 & 52
1315 • MudPuppy mob to MLTC14-42, too windy to try today; will grab at another time.
1323 • MudPuppy mob to MLTC14-43 @ bottom of Humbug marsh
1328 • Anchored @ MLTC14-43
1332 • Collected ponar @ MLTC14-43-SURF
1341 • collected 7' core @ MLTC14-43 (4.25' driven, 58" recovered)
1358 • MudPuppy pulls anchors; mob to MLTC14-46
1410 • Anchored at MLTC14-46
1415 • collected 10' core @ -46 (4.5' driven,
1422 • collected ponar @ MLTC14-46-SURF

HW

1445 • Had to fix knot in stern windlass.

1451 • Anchors up; MudPuppy mob to MLTC14-47

1514 • tied off @ MLTC14-47

1520 • Collected ponar @ -47 (SURF)

1531 • Collected 10' core @ -47 (6.75' driven, 100% recovered)

1540 • MudPuppy mob to MLTC14-42.

1545 • Probing @ -42 revealed ~6" sand, then rock in deeper area (~10ft. deep) - Need to confirm loc w/ Rose.

1550 • Mob to MLTC14-44 to probe

1600 • Probing @ MLTC14-44 revealed rock bottom. Probed all around waypoint; same result - all rock.

1611 • Mob to MLTC14-45 to probe - Rose wants sample along shore of Swan Island, so if we have to move -45 to find sediment, it is okay.

1617 • Anchor @ MLTC14-45

1621 • collected 10' core @ -45 (36" driven; 34" recovered)

1627 • collected ponar @ MLTC14-45-SURF

1650 • pull anchors, head back to marina.

1705 • MudPuppy back to Marina; crew offsite.

HWilliams

Temp: 49°F @ 0745, 57° @ 1315

Wind: light breeze

Weather: overcast, scattered showers

On-Boat: H.Williams, R. Ellison, J. Bonem,
S. Coullard, J. Moen, Neal Jonneik

0800 • R. Ellison gives site safety + health meeting for Neal Jonneik (CSC)

0812 • MudPuppy mob from Marina to MLTC14-38 to attempt ponar grab

0824 • MudPuppy anchored @ -38; J. Moen and S. Coullard don tyvek.

0840 • collect ponar @ MLTC14-38-SURF
• could not attempt core here. Probing revealed little to no sediment.

0850 • Decided not to return to MLTC14-44. S. Coullard noted rock bottom when probing @ location on Friday 10/17.

0851 • MudPuppy mob to MLTC14-42

0901 • Anchored @ MLTC14-42, probing revealed ~6" of sand

0908 • ponar collected @ MLTC14-42-SURF
• no core collected

0918 • Anchors pulled up @ MLTC14-42; MudPuppy mob to MLTC14-22

HW

10/20/14

0935 • tied off @ dock for MLTC14-22
0945 • collected ponar @ MLTC14-22-SURF
+ MS/MSD
1000 • collected 10' core @ -22 (1.5' driven; 0 recovery)
1005 • 2nd core, same result
1012 • 3rd core attempt, same result
• cores appeared to have layer of same
material as ponar on top of a clay
layer. The silt material was ~1.5' thick.
• core could not be collected at this location.
1023 • MudPuppy unties; mob to MLTC14-21
1028 • probing @ MLTC14-21 reveals rocky/gravel
bottom - fish substrate?
1032 • moving N along sea wall shows same thing
(habitat restoration @ Elizabeth Park)
• Moved past MLTC14-20 while probing - same
habitat restoration area
1038 • MudPuppy mob to MLTC14-18
• saw mink on shoreline by Elizabeth Park
1050 • Anchored @ MLTC14-18
1053 • collected 10' core @ -18 (5.5' driven, 62" recovery)
1100 • Collected ponar @ MLTC14-18-SURF
1118 • pull up anchors @ -18, petroleum odor
noticed when pulling anchors

HW

10/20/14

1120 • MudPuppy mob down canal to see if
we could fit under bridge; will
go under after lunch to probe.
1125 • MudPuppy mob to MLTC14-21 (or close)
to probe to try for a grab sample
(ponar)
• probing showed sand with a clay bottom
1137 • collected ponar @ MLTC14-21-SURF
1150 • MudPuppy mob back to marina
1200 • Break for lunch.
1315 • Back @ marina. Brought IDW, but
R. Ellison wants to dump tomorrow
so J. Moen picked up IDW.
• Mike Bryant (EPA) joined for afternoon;
J. Moen back to processing center for
afternoon.
1340 • MudPuppy out of marina; mob to
MLTC14-53 ; in canal running next to
Elizabeth Park
1406 • Anchor @ MLTC14-53; sheen noted
while probing for bottom
1415 • collect ponar @ MLTC14-53-SURF
1426 • collect 10' core @ -53 (7.5' driven;
87" recovered)

HW

*Dups taken @ -10, -12, -32, -54

10/20/14

1440 ◦ MudPuppy pulls up anchors from MLTC14-53, mob to MLTC14-~~20~~ 54; also in the canal, closer to the main channel.

1452 ◦ Anchored @ MLTC14-54

1456 ◦ collected 10' core @ -54 (6.5' driven, 70" recovered) – sheen noted on water when pulling up core.

1502 ◦ ponar MLTC14-54-SURF collected. + MLTC14-54-SURF FD

1524 ◦ pull anchors @ MLTC14-54; MudPuppy leaves canal to deeper open water so Joe can check anchor splices (frayed ropes keep getting stuck in windlass.

1545 ◦ MudPuppy mobilize to MLTC14-17

1554 ◦ tied off @ MLTC14-17.

1600 ◦ collected ponar MLTC14-17-SURF

1610 ◦ collected 10' core @ -17 (8' driven, 97" recovered) – sheen noted on water + on core.

1622 ◦ untie and MudPuppy mob to MLTC14-19.

1632 ◦ Anchor @ MLTC14-19

1638 ◦ collect 10' core @ -19 (18" drive, 18" recovery)

1642 ◦ collect ponar MLTC14-19-SURF

1655 ◦ pull anchors @ -19, mob back to marina. ◦ K. Kowalk picks up cores.

1720 ◦ crew offsite for night.

HWilliams

10/21/14

Temp: 49°F @ 0800

Wind: light right now, gusts expected

Weather: overcast, misty, scattered showers expected

On-Boat: H. Williams, R. Ellison, M. Bryant,
S. Caullard, J. Bonem and Justin

0805 ◦ Health & Safety meeting for Justin.

0820 ◦ MudPuppy mob from marina toward MLTC14-55 in black lagoon.

0835 ◦ Arrive @ black lagoon. Drop off IDW from locations 12 & 49, 11, and 9.

0849 ◦ Anchor @ MLTC14-55

0854 ◦ collect ponar MLTC14-55-SURF – attempted to – kept grabbing rocks that appear to be part of cap (2-4" cobbles), grabbed some sand that had a slight sheen, but not enough to sample.

0902 ◦ pulling anchors to try a new spot for MLTC14-55

0905 ◦ had to stop to pull geotech fabric out of prop

0915 ◦ Anchored @ new MLTC14-55

0920 ◦ drop ponar; collect MLTC14-55-SURF

HW

10/21/14

0934 • collect 10' core @ -55; 2.25' driven, 20" recovery.

0943 • pull anchors @ -55, MudPuppy mob to MLTC14-48

1000 • Anchored @ MLTC14-48 (middle of channel)
- Strong wind + current

1010 • pulling up anchors; wind and current too strong; boat being pushed around too much. Gusts of ~ 29 mph
• Will attempt location later.

1020 • MudPuppy mob back to Marina.

1145 • Per Kevin Kowalk who talked to R. Ellison, MudPuppy done on the water for the day - too windy.

HWilliams

10/22/14

Temp: 47°F @ 0750, 56°F @ 1310
Wind: light breeze (AM), breezy (PM)
Weather: Overcast (AM), sun (PM)
On-Boat: H. Williams, R. Ellison, M. Bryant, J. Bonem, S. Coullard, J. Felech

0810 • MudPuppy leaves marina to head south of free bridge - dropping off IDW.

0820 • MudPuppy arrives @ MLTC14-35 to drop IDW. M. Bryant donning tyvek.

0858 • MudPuppy arrives @ MLTC14-16 → location moved off of proposed point into marina to avoid utility lines.

0902 • collected ponar MLTC14-16-SURF HW

0920 • collected 10' core @ -16 (5.5' driven, 64" recovered - 97%)

0932 • MudPuppy unties from MLTC14-16; mob to MLTC14-15.

0945 • tie off @ MLTC14-15 → tried stern first, did not feel any sed. while probing.

0955 • tried to tie off @ MLTC14-15 w/ bow in first; successfully tied off. Probing revealed sed. off port side.

HW

1015 • collected 10' core @ -15 (2' driven; 20" recovered)
1025 • collected ponar MLTC14-15-SURF
1040 • Mud Puppy unties; mob to MLTC14-14
1045 • Mud Puppy arrives @ MLTC14-14
1051 • Anchored @ MLTC14-14
1055 • Collect MLTC14-14-SURF (ponar)
1105 • collect 10' core @ -14 – 1st attempt only had 1' driven, little recovery
1110 • moved location back a little; collected 10' core (6' driven, 65" recovered)
1126 • pull anchors @ MLTC14-14, mob to MLTC14-13
1130 • probing @ MLTC14-13 revealed coarse sand (~6"), some rock, sand (3")
1138 • Attempted to anchor @ -13, bow anchor starboard side got stuck - large knot in rope?, Mud Puppy mob back to marina.
1149 • Mud Puppy anchored @ marina.
1215 • crew break for lunch.
1330 • Everyone back on MudPuppy; MudPuppy leaves marina to head toward MLTC14-13
• R. Ellison back up front w/ tyvek.
1343 • Anchored @ MLTC14-13 (as close to it as possible with wind

AW

1344 • probing revealed sand on top of clay.
• location next to concrete pad of some sort on shore (lift station? stormwater outfall?) - bubbling noted in water
1350 • collect 10' core @ -13 (1.25' driven, 6" recovered)
1400 • collect ponar MLTC14-13-SURF
1416 • pull anchors; mob to MLTC14-48
1424 • anchored @ MLTC14-48 (west side of sand bar) → 1,000 ft. downstream of plotted location
1430 • collected ponar MLTC14-48-SURF
1441 • collected 10' core @ -48 (2.75' driven; 15" recovered)
1450 • pull anchors @ MLTC14-48, mob to MLTC14-05 by toll bridge
1506 • Anchored @ MLTC14-05
1512 • vibrocore sent down w/ 10' double catcher (6' drive, 67" recovery)
1525 • collect ponar MLTC14-05-SURF
1545 • pull anchors; MudPuppy mob to marina to pick up IDW from K. Kowalk
• Stopped @ -01 and -02 first to scope out conditions.
• probing revealed soft sandy layer on top

of clay; should be fine to sample.

1555 · Mob back to marina

1610 · Dropped off samples w/ K. Kowalk, picked up IDW

1616 · Mob to MLTC14-18 to dump IDW.

1625 · Done disposing of IDW. MudPuppy mob back to marina.

1631 · MudPuppy arrives back @ marina.

1650 · Crew off-site

Hilary Williams

Temp: 37°F @ 0800
Wind: slight breeze WNW 5-7 mph
Weather: clear skies, sun
On-Boat: H. Williams, J. Moen, R. Ellison,
S. Coullard, J. Bonem

0815 · MudPuppy leaves marina to mob toward MLTC14-01 and -02 in Monguagon Creek

0835 · Arrive @ MLTC14-01
· J. Moen + H. Williams calibrate PID

0852 · attempt to collect ponar @ originally plotted MLTC14-01; unable to get any recovery.

0859 · Moving slowly downstream to see if probing will find any spots w/ sed.

0905 · collect MLTC14-01-SURF from location ~60ft. downstream from the original location. + MLTC14-01-SURFFD
· core not possible here, hard bottom felt.

0920 · moving back toward channel while probing to find another potential location.

0938 · tied off to barge @ MLTC14-56 probing revealed soft sediment here.

10/23/14

0945 ◦ collected ponar - MLTC14-56-SURF

0955 ◦ collected 10' core (24" drive, 22" recovery) @-56

1000 ◦ Begin processing core on the boat; log sed.

1020 ◦ collect MLTC14-56-0001

1025 ◦ collect MLTC14-56-0103

1034 ◦ MudPuppy mob to MLTC14-57, probing revealed soft sed w/ some gravel

1035 ◦ tie off to other side of barge

1039 ◦ collect 10' core @-57 (3' driven, 30" recovered)

1043 ◦ Begin processing core on the MudPuppy; log sediment, composite samples

1045 ◦ Before processing, collect ponar MLTC14-57-SURF

1115 ◦ collect core sample MLTC14-57-0001

1120 ◦ collect core sample MLTC14-57-0103

* NOTE water where core was taken bubbled for a little while after core was removed - very gassy.

1130 ◦ MudPuppy mob from MLTC14-57 to MLTC14-58

1137 ◦ Anchor @ MLTC14-58 @ mouth of Monguagon Creek

1145 ◦ collect ponar MLTC14-58-SURF

1200 ◦ collect 10' core @ -58 (2.25' driven, 28" recovery)

HW

10/23/14

1210 ◦ begin processing core on the MudPuppy.

1220 ◦ collect MLTC14-58-0001

1225 ◦ collect MLTC14-58-0103

1235 ◦ MudPuppy pulls anchors @ MLTC14-58.

1240 ◦ MudPuppy anchors @ MLTC14-02 near mouth of Monguagon Creek, but out in main channel, just above seawall.

1250 ◦ Collect 10' core @ -02; no recovery

1253 ◦ move boat N toward toll bridge to try 2nd core.

1259 ◦ no recovery on 2nd core attempt.
◦ stay in same location; just try off of port side for 3rd attempt

1304 ◦ 3rd attempt resulted in no recovery.
◦ no core will be taken at this location.

1310 ◦ send ponar down, no recovery

1311 ◦ send ponar down off port side, no recovery
◦ both core & ponar would come back to surface completely clean - no clay or sediment on them at all.

1320 ◦ Mob to Rotary Park to pick up IDW from K. Kowalk.

HW

10/23/14 MLTC14-

1340 • pick up IDW from K. Kowalk

1342 • Dispose of IDW. @ MLTC14-13 area.

1345 • MudPuppy mob back to marina.

1400 • crew offsite; done with sampling.

Hilary Williams

A3. Field Data Collection Forms

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14 - 01 **Area** Monguagon Creek

Northing 42°10.4493 **Easting** 83°09.9783 (1st loc) **WGS84**
42°10.4432 (HW) 83°09.9589 (2nd loc) elevation : 180.01 m AMSL

Date Collected: 10-23-2014 **Time Collected:** ponar : 0852 (1st loc)
0905 (2nd loc)

Sample Collected By: H. Williams | R. Ellison / J. Moen

Water Depth: 3'2" (1st loc) **ft**
3' 1" (2nd loc)

Sediment Depth: no core attempted. Probing revealed ~3" of sandy sed.

Sediment Recovery: NA **% Recovery:** NA

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: [✓ YES] NO **Depth:** SURF

Sample Collected to refusal: YES [✓ NO]

Coordinates as proposed: [✓ YES] - see above - 2nd location for grab NO

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray sand, trace to little silt, trace organics, saturated, non-cohesive, no odor, slight sheen - not rainbow, but kind of milky

Comments/Remarks: 1st sediment location could not get any recovery in ponar ; moved downstream back toward channel to find a spot with good sed → 60' from original

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: HW MLTC14-~~28~~02 **Area** HW near mouth of Monguagon Creek ~~middle of channel btwn. Grosse Ile and power plant.~~

Northing 42°10.3884 N **Easting** 83°09.8323 W (1st run) **WGS84** elevation: 178.93 m AMSL

Date Collected: HW 10/~~22~~ 23/14 **Time Collected:** 1st 2nd 3rd core: 1250, 1259, 1304 ponar: 1st 1310, 1311

Sample Collected By: R. Ellison / H. Williams

Coords:

2nd run
N: 42°10.3947
E: 83°09.8348

3rd run
N: 42°10.3937
E: 83°09.8361

Water Depth: 32' 11" (1st loc) ft 2nd loc 31' 0" 3rd run: 28' 4"

Sediment Depth: 1st run: 0' 2nd run: 0' 3rd run: 0'

Sediment Recovery: 1st run: 0' 2nd run: 0' 3rd run: 0' **% Recovery:** 1st run: 0% 2nd run: 0% 3rd run: 0%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - no core collected @ this location after three attempts

Coordinates as proposed: [✓ YES] - slightly closer to Monguagon Creek NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) no ponar could be collected - all hard pan

Comments/Remarks: Strong current in channel @ this location.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14 - 03 **Area** GrosseIle Toll Bridge, near GrosseIle Shore

Northing 42°10'.3585N **Easting** 083°09'.5962W **WGS84**

Vertical/ did not Elevation Stab
≈175m MS
not taken at time of core collec

Date Collected: 10-14-2014 **Time Collected:** 0920-ponar 0935-core

Sample Collected By: Hilary Williams - ponar

Water Depth: 3 ft 6 in (42 in.) **ft**

Sediment Depth: 120, did not hit refusal

Sediment Recovery: 115 **% Recovery:** 95.8%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:**

Sample Collected to refusal: YES [✓ NO] — did not hit refusal

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) grey, silty sand. Saturated, Non-cohesive no odor detected

Comments/Remarks: When the spud was removed, a small sheen was observed

SIGNATURE:

Field Data Collection Form

Trenton Sho

DM #

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-04 **Area** South end of Sea wall (Sheetpiling)

Northing 42° 10.3243 N **Easting** 88° 09.8967 W **WGS84** Elevation: 179. m MSL

Date Collected: 10/14/14 **Time Collected:** ponar @ 1045 core A @ 1050 Core B

GPS antenn Offset @ 77 inch

Sample Collected By: Hilary Williams

Water Depth: 8 ft 1 inch **ft**

Sediment Depth: Core A = 10 ft Core B = 15 ft

Sediment Recovery: Core A: 120 inches core 2 = 133 inches **% Recovery:** Core A = 100% Core B = 73.88%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:**

Sample Collected to refusal: YES [✓ NO]

Coordinates as proposed: YES [✓ NO] - moved off of shore 15-20 feet

(New) **Northing** 42° 10.3243 N **Easting** 83° 09.8967 W **WGS84**

Sample Observations: (color, texture, odor) Chemical odor & slight sheen, grey to light brown, silt w/ trace sand & clay, pudding consistency

same odor as at atofina

Comments/Remarks: Core A - went to 10 feet w/ ease

Core B - 15 ft tube no refusal, no slowing down

recovery 11 ft (133 inches)

Core B split in two 0-5' and 5-11'

SIGNATURE: Jessi K

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-05 **Area** South of toll bridge - W side of channel

Northing 42°10.3001 N **Easting** 83°09.8766 W **WGS84**

elevation: 178.44 m AMSL

Date Collected: 10|22|14 **Time Collected:** core: 1512 ponar: 1525

Sample Collected By: H. Williams | R. Ellison

Water Depth: 27' 6" ft

Sediment Depth: 6' (72")

Sediment Recovery: 67" **% Recovery:** 93%

Drill Event: Initial [✓ Second] - tried previously but did not have double catcher in any of our cores.

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO clay

Coordinates as proposed: [✓ YES] - same location as previously attempted. NO

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to grey to light brown coarse sand, some shell fragments, trace silt, trace woody debris, trace piece of black rocky conglomerate (asphalt?), saturated, non-cohesive, no odor, no sheen.

Comments/Remarks: double catcher core used, clay in core is light brown in color

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-05 **Area** Grosse Ile Toll Bridge - toward mainland

Northing 42° 10.2985 N **Easting** 83°09.8784 W (1st) **WGS84**

42° 10. 2978 N 83°09. 8789 W (2nd)

elevation: 179.24 ~~ft~~ amsl (1s ru

179.11 ft. amsl (2nd run

Date Collected: 10/14/14 **Time Collected:** core: 1358

ponar:

Sample Collected By: H.Williams / J. Moen

Water Depth: 27' 11" ft

Sediment Depth: 1st run: 5' 2nd run:

Sediment Recovery: 1st run: ~2' 2nd run: ~1 ft **% Recovery:** 1st run: 0% 2nd run: 0%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH GRAB

Field duplicate: ~~YES~~ [✓ NO] HW **Depth:** ~~SURF~~ HW

Sample Collected to refusal: YES NO

Coordinates as proposed: YES [✓ NO] - see above (moved location ~330 ft. to West of proposed)

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor)

sample time:

Comments/Remarks: 1st run of vibracore lost, ~2 ft. of solid clay at bottom of core, most of that lost upon pulling out of water. 2nd core also lost recovery; will return to location when we have the supplies to create a double layer of core catcher

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC 14-06 **Area** near Gross Ile Shore

Northing 42°10.2484 N **Easting** 83°09.6264 W **WGS84** Flevation: 179.6

Date Collected: 10-14-14 **Time Collected:** ponar: 10:15 core: 10:04

Sample Collected By: Hilary Williams - ponar

Water Depth: 2ft 7inches **ft**

Sediment Depth: 7.5 ft (90 inches)

Sediment Recovery: 72 inches **% Recovery:** 80%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:**

Sample Collected to refusal: YES [✓ NO] Core was driven 7.5 ft

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) Sand trace silt, non cohesive, Saturated gry/brown, trace shells, noodor, no sheen

Comments/Remarks:

SIGNATURE: Jessica K R

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-07 **Area** South of Grosse Ile toll bridge

Northing 42°10.2449 N **Easting** 83°09.9161 W (1st run) **WGS84**
42°10.2447 N 83°09.91288 W (2nd run) elevation: 179.2 (1st run
in amsl
179.31 (2nd run)

Date Collected: 10/14/14 **Time Collected:** core: 1439
core2: 1455

Sample Collected By: H. Williams / J. Moen

Water Depth: 12'9" (1st run) **ft**
18'10" (2nd run)

Sediment Depth: 2nd run: 3.5' (42")

Sediment Recovery: 1st run: 6" 2nd run: 30" **% Recovery:** 71%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:**

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) dark gray to gray silty clay, trace sand, semi-cohesive, saturated, some large rocks, chemical odor, sheen noted

sample @ 1500

Comments/Remarks: 1st run: 6" of recovery - gravel and some larger rocks; moving location east and away from shoreline. Rocks had chemical odor, slight sheen noted on water.
2nd core: PAH smell, oil smell

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-08 **Area** West Shore of channel by McClouth Steel

Northing 42° 09.7198 N **Easting** 83° 09.9379 **WGS84**

elevation: 179.16 m amsl

Date Collected: 10/14/14 **Time Collected:** ponar: 1535

1st core: 1550

2nd core: 1552

3rd core: 1555

4th try: 1558

5th try: 1605 → moved location south

6th try: 1606

Sample Collected By: H. Williams / J. Moen

Water Depth: 14' ft

Sediment Depth:

Sediment Recovery: 1st run: 0" 2nd: 0" 3rd: 1.5', then lost 4th: 0' 5th: 0' **% Recovery:** 1st run: 0% 2nd run: 0% 3rd: 0% 4th: 0% 5th: 0%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: [✓ YES] NO **Depth:** SURF

Sample Collected to refusal: [✓ YES] - no core collected NO

Coordinates as proposed: [✓ YES] NO slightly north of proposed loc.

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray to light brown silty clay, trace sand, some organics (leaves), saturated, semi-cohesive, very slight odor - chemical, trace sheen on sediment in tray

Comments/Remarks: Moved to -08A to try to get good recovery in core

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-08A **Area** South of -08, next to seawall

Northing 42°09.6987 N **Easting** 83°09.9417 W **WGS84**

elevation: 179.72 m MSL

Date Collected: 10/14/14 **Time Collected:** core: 1639 ponar: 1650

Sample Collected By: H. Williams / J. Moen

Water Depth: 23' ft

Sediment Depth: 4.5' (54")

Sediment Recovery: 50" **% Recovery:** 93%

Drill Event: Initial [✓ Second] – location supplemental to MLTC14-08 for core collection

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:**

Sample Collected to refusal: [✓ YES] NO 4.5'

Coordinates as proposed: YES [✓ NO] – new location (08A)

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) ~~NA – ponar grab collected @ MLTC14-08~~ HW material appear to be different, decided to take pona

brown to gray silty clay, some sand, trace coarse gravel, slight chemical odor, few sheens when compositing, saturated, semi-cohesive, trace organics

Comments/Remarks:

This location is actually closer to the proposed MLTC14-08 than where the first MLTC14-08 ponar sample was taken.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-09 **Area** next to building w/ short stacks - McCloug property still - on mainland side

Northing 42°09.3207N **Easting** 83°10.0907W **WGS84**

elevation: 179.93 m AMSL

Date Collected: 10/15/14 **Time Collected:** core: 0940 ponar: 0955

Sample Collected By: J. Moen / S. Noffke

Water Depth: 9'5" **ft**

Sediment Depth: 120"

Sediment Recovery: 115" **% Recovery:** 96%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: ~~YES~~ HW [✓ NO] see comment section

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to trace gray, 90% silt, 10% sand, no sheen, no odor, saturated, non-cohesive

Comments/Remarks: core collected off W side of boot. To the N and E of boat, refusal was hit during probing. No refusal was hit off W side with a 10ft. core. Sheen noted in core (water inside the core).
*offset for elevation will be incorrect @ this location since core was taken off side of MudPuppy

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14 - 10 **Area** Across from McClouth - on Grosse Ile side of channel.

Northing 42°09.3147 **Easting** 83°09.8498 **WGS84**

elevation: 178.61 m AMSL

Date Collected: 10/15/14 **Time Collected:** ponar: 0848 core: 0902

Sample Collected By: J. Moen / S. Noffke

Water Depth: 6'0" ft

Sediment Depth: 3.5' (42")

Sediment Recovery: 34" **% Recovery:** 81%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ ~~VIBRACORE~~] DIRECT-PUSH [✓ GRAB]

Field duplicate: [✓ YES] NO **Depth:** MLTC14-10-SURF

Sample Collected to refusal [✓ YES] NO Hard Clay

Coordinates as proposed: YES [✓ NO] – location moved slightly to account for utilities. coordinates are above.

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray silt, trace sheen, no odor, some organics (macrophytes), soft, non-cohesive, saturated

Sample collected @ 0850

Comments/Remarks: Appears to be hard-pan clay right @ bottom of core

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-11 **Area** adjacent to Levy property, above black lagoon

Northing 42°09.1738 N **Easting** 83°10.2413 W **WGS84**

elevation: 178.96 M AMSL

Date Collected: 10/15/14 **Time Collected:** ponar: 1035 core: 1045

Sample Collected By: J. Moen / S. Noffke

Water Depth: 13' 7" **ft**

Sediment Depth: 8' (96")

Sediment Recovery: 86" **% Recovery:** 90%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: YES [✓ NO] → see above for coords. location just south of proposed.

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) dark brown, 70% sand, 30% silt, no odor, no sheen, saturated, non-cohesive

Sample collected @ 1035

Comments/Remarks: none.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-12 **Area** Black lagoon

Northing 42°09.1755 N **Easting** 83°10.3077 W (1st run) **WGS84**
42°09.1752 N 83°10.3073 W (2nd run)

elevation: 179.43 m MSL

Date Collected: 10/15/14 **Time Collected:** core: 1115
ponar: 1125

Sample Collected By: J. Moen / S. Noffke

Water Depth: 16'8" ft

Sediment Depth: 4.5' (54")

Sediment Recovery: 45" **% Recovery:** 83%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH GRAB

Field duplicate: [✓ YES] ~~NO~~ (HW) **Depth:** ~~NA~~ (HW) MLTC14-12-SURF

Sample Collected to refusal: [✓ YES] NO

gray clay on outside of core - not sure if any was captured in core, but that may have caused the refusal

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray to dark gray silt, trace sand and clay, saturated, semi-cohesive, no sheen, no odor

sample taken @ 1125

Comments/Remarks: none

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-13 **Area** W side of Trenton Channel

Northing 42°08.9696 N **Easting** 83°10.3619 w **WGS84**

elevation: 179.63 m AMSL

Date Collected: 10-22-2014 **Time Collected:** ponar: 1400 core: 1350

Sample Collected By: H. Williams / ~~M. Bryant~~ HW R. Ellison

Water Depth: 8'0" **ft**

Sediment Depth: ~1 - 1.25' (hard to measure - sample off port side)

Sediment Recovery: 6" **% Recovery:** 50%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] - close to originally plotted loc; a little off due to wind. NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to light brown to gray sand (coarse) and shell fragments, trace silt, saturated, non-cohesive, no odor, no sheen, trace plastic bits

Comments/Remarks: location near on-shore concrete pad of some sort (lift station? manhole? stormwater outfall?). Bubbling noted in water near the pad.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-14 **Area** W side of Trenton Channel

Northing 42°08.8919 **Easting** 83°10.4067 (1st run) **WGS84**
42°08.8916 83°10.4055 (2nd run)

elevation: 178.52 m AMSL

Date Collected: 10-22-14 **Time Collected:** ponar: 1055
core: 1105

Sample Collected By: H. Williams | M. Bryant

Water Depth: 2' 7" **ft**

Sediment Depth: 1st run: 1' 2nd run: 6' (72")

Sediment Recovery: 1st run: 0' 2nd run: 65" **% Recovery:** 1st run: 0% 2nd run: 90%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO - location moved slightly after 1st core had little recovery - hit rock see 2nd run coords above.

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray to dark gray silt, some clay, trace organics, soft, semi-cohesive, saturated, chemical odor (PAH?), sheen on sample.

Comments/Remarks: Sheen on water noted after anchoring - stirred up during anchoring

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-15 **Area** W side of Trenton Channel

Northing 42°06.6708 N **Easting** 83°10.4362 W **WGS84**

elevation: 179.65 m AMSL

Date Collected: 10-22-2014 **Time Collected:** core: 1015

ponar: 1025

Sample Collected By: H. Williams | M. Bryant

Water Depth: 11' 1" (stern first) 6' 7" (bow first) ft

Sediment Depth: 2' (24")

Sediment Recovery: 20" **% Recovery:** 83%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO — hit clay bottom

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt and sand, some organic debris (wood chips, sticks, pencil, pinecones), trace vegetation, saturated, non-cohesive, no odor, no sheen.

* no photo taken - forgot

Comments/Remarks: none

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-16 **Area** Marina on W side of Trenton Channel

Northing 42°08.4643 N **Easting** 83°10.5199 W **WGS84**

elevation: 178.08 m AMSL

Date Collected: 10/22/14 **Time Collected:** ponar: 0902 core: 0920

Sample Collected By: H. Williams / M. Bryant

Water Depth: 4' 7" ft

Sediment Depth: 5.5' (66")

Sediment Recovery: 64" **% Recovery:** 97%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO - location moved S into marina b/c proposed loc. was in

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray to dark gray clayey silt, trace subangular coarse gravel, trace organic layer on top of ponar, saturated, cohesive, strong chemical odor (hydrocarbon), little sheen.

Comments/Remarks: Sheen noted on water upon pulling out core.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-17 **Area** West Side of Trenton Channel

Northing 42°08.2689 N **Easting** 83°10.5506 W **WGS84**

elevation : 178.63 m AMSL

Date Collected: 10/20/14 **Time Collected:** ponar: 1600 core: 1010

Sample Collected By: H. Williams / R. Ellison

Water Depth: 7'10" **ft**

Sediment Depth: 8' (96")

Sediment Recovery: 97") **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: YES [✓ NO] - moved N - correct coordinates above.

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray to dark gray silt and clay, trace organics, clay does not mix with silt, saturated, cohesive, ~~no~~ mw odor (chemical), little sheen, overall greasy feel

Comments/Remarks: sheen noted in water when core pulled, core tube also greasy w/ sheen

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-18 **Area** core by channel going into Elizabeth Park

Northing 42°08.2162 N **Easting** 83°10.5859 W **WGS84**

elevation: 179.01 m AMSL

Date Collected: 10/20/14 **Time Collected:** core: 1053 ponar: 1100

Sample Collected By: H. Williams / J. Moen

Water Depth: 2' 6" **ft**

Sediment Depth: 5.5' (66")

Sediment Recovery: 62" **% Recovery:** 94%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO Clay

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) gray to black clay and silt, trace vegetation, saturated, cohesive, odor (chemical), sheen

Comments/Remarks: large amount of sheen noted in water when pulling core out.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-19 **Area** East side of Trenton Channel (Grosse Il

Northing 42° 08.1043 N **Easting** 83° 10.2444 W **WGS84**

elevation: 178.63 m AMSL

Date Collected: 10/20/14 **Time Collected:** ponar: 1642 core: 1638

Sample Collected By: H. Williams / R. Ellison

Water Depth: 5'9" ft

Sediment Depth: 1.5' (18")

Sediment Recovery: 18" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) gray silt, trace clay, trace tan silt on top of ponar sample, saturated, semi-cohesive, no odor, trace sheen, lots of vegetation

Comments/Remarks: none.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-21 **Area** just N of marina, adjacent to park building

Northing 42°07.~~8145~~ (HW) 8274 **Easting** 83°10.5839 **WGS84**

elevation: 180.10 m AMSL

Date Collected: 10/20/14 **Time Collected:** ponar: 1136 core: None taken

Sample Collected By: H.Williams / J. Moen

42°07.8283
83°10.5828

use these coords. collected again.

Water Depth: 4'10" ft

Sediment Depth: NA - not able to collect core - not enough sed.

Sediment Recovery: NA **% Recovery:** —

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - no core taken

Coordinates as proposed: [✓ YES] - see above NO

(New) **Northing** ____ **Easting** ____ **WGS84**

Sample Observations: (color, texture, odor) dark gray silt and vegetation, little clay, trace sand, semi-cohesive, saturated, trace sheen, no odor

Comments/Remarks: none

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-22 **Area** Elizabeth Park Marina

Northing 42° 07. 7879 N **Easting** 83°10.6129 (1st run) **WGS84**

42° 07. 7878 N 83°10.6134 (2nd run)

3rd run: 42°07.7884 83°10.6129

elevation: 179.0/ m AMSL

Date Collected: 10-20-2014 **Time Collected:** ponar: 0945 core: 1000

Sample Collected By: H. Williams / J. Moen

Water Depth: 7' 1" ft

Sediment Depth: 1st run: ~1.5' 2nd run: ~1.5' 3rd run: ~1'

Sediment Recovery: 1st run: 0 2nd run: 0 3rd run: 0 **% Recovery:** 1st run: 0% 2nd run: 0% 3rd run: 0%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] + MS/MSD **Depth:** SURF

Sample Collected to refusal: [✓ YES] NO clay

Coordinates as proposed: [✓ YES] NO

(New) Northing ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) gray silt, trace organics, trace clay, saturated, semi-cohesive, soft, some sheen, chemical odor.

Comments/Remarks: core: appeared to be same material as ponar grab on top of clay layer, layer was ~ 1.5'. Core could not be collected, even with double catcher-cores.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-24 **Area** Just north of free bridge - beyond water line

Northing 42°07.5798 N **Easting** 83°10.6558 W (1st run) **WGS84**
42°07.5809 N 83°10.6547 W (2nd run)

elevation: 178.44 m AMSL
179.54 m AMSL

Date Collected: 10/15/14 **Time Collected:** core: 1423

Sample Collected By: R. Ellison / H. Williams

Water Depth: 19' 9" ft

Sediment Depth: 1st run: 1' 2nd run: 6" 3rd run: 0'

Sediment Recovery: 1st run: 1' 2nd run: 6" 3rd run: 0' **% Recovery:** 1st run: 0% 2nd run: 0% 3rd run: 0%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] NA - could not collect core

Coordinates as proposed: [✓ YES] + [✓ NO] (Started at original proposed loc, then moved)

(New) 3rd run **Northing** 42°07.5813 N **Easting** 83°10.65168 W **WGS84**

Sample Observations: (color, texture, odor) Coarse gravel and rock. Could not collect sample.

Comments/Remarks: Very poor recovery in first 2 cores (hard bottom - rocks & gravel) - sheen and chemical odor noted. No core could be collected.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-25 **Area** N of free bridge - mainland side of channel

Northing 42°07.4181 N **Easting** 83°10.4576 W **WGS84**

elevation: 178.64 m AMSL

Date Collected: 10/15/14 **Time Collected:** ponar: 1508

Sample Collected By: R. Ellison / H. Williams

Water Depth: 6'8" ft

Sediment Depth: 2.25' (27")

Sediment Recovery: 25" **% Recovery:** 93%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt, little sand, some organics (veg.), saturated, non-cohesive, no odor, no sheen

Sample MLTC14-25-SURF @ 1508

Comments/Remarks: sheen noted in core.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-26 **Area** Channel by the Edison power plant

Northing 42°07.2589 **Easting** 83°10.9533 **WGS84** elevation: 192.38 m AMSL

NOTE: satellites low; coords may be off

Date Collected: 10/15/14 **Time Collected:** 1615: core attempt
ponar: 1618

Sample Collected By: R. Ellison / H. Williams

Water Depth: 6'9" ft

Sediment Depth: 6"

Sediment Recovery: 6" - washed out **% Recovery:** 0%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH GRAB

Field duplicate: [✓ YES] MS/MSD NO **Depth:** SURF

Sample Collected to refusal: YES [✓ NO] - not collected

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) gray to brown silt, trace sand, semi-cohesive, saturated, no odor, no sheen

Comments/Remarks: near stormwater/CSO in channel. No core was collected. Recovery was poor in coring attempt and probing revealed hard bottom surrounding location

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-27 **Area** DTE channel - near mouth

Northing 42°07.2328 **Easting** 83°10.7963 (1st run) **WGS84**
42°07.2306 83°10.7944 (2nd run) elevation: 178.87 m AMSL

Date Collected: 10/15/14 **Time Collected:** ponar: 1645

3rd run:
N: 42°07.2304
E: 83°10.7953

Sample Collected By: R.Ellison / H. Williams

Water Depth: 8.5ft. ft

Sediment Depth: NA - no core collected, hard bottom felt w/ probe

Sediment Recovery: — **% Recovery:** —

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - not collected

Coordinates as proposed: YES [✓ NO] - see above

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray sand, trace silt, gravel, shells, invasive bivalve species (little recovery in ponar)

Comments/Remarks: Probing around proposed location MLTC, Felt hard bottom & no sediments. Moved toward Trenton Channel, probing along the way, continued to feel hard bottom. No core collectedor attempted.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-29 **Area** opposite the power plant - Grosse Ile side of channel

Northing 42°07.0958 **Easting** 83°10.4755 (1st run) **WGS84**
42°07.15418 83°10.4516 (2nd run)

elevation: 179.23 m AMSL

Date Collected: 10/16/2014 **Time Collected:** 0905

Sample Collected By: R. Ellison | H. Williams

Water Depth: 1st loc = 12 ft. 2nd = 10' **ft**
HW

Sediment Depth: probing revealed rocky/gravel bottom, did not attempt core.

Sediment Recovery: NA **% Recovery:** NA

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] – no core collected

Coordinates as proposed: YES [✓ NO] – see above coords

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) large rocks and vegetation. No sediments grabbed. No sample collected

Comments/Remarks: 1st ponar drop out further in channel had no recovery.
2nd drop at location closer to shore → large rocks
3rd drop (same location as 2nd) → vegetation
4th drop (" ") → more vegetation

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-31 **Area** Humbug marsh area (just above)

Northing 42°06.9935 N **Easting** 83°10.8919 **WGS84**

elevation: 178.86 m AMSL

Date Collected: 10/16/14 **Time Collected:** ponar: 0945 core: 1004

Sample Collected By: R. Ellison/ H. Williams

Water Depth: 3'9" **ft**

Sediment Depth: 4' (48")

Sediment Recovery: 42" **% Recovery:** 88%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO hard refusal

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt and sand, saturated, non-cohesive, no odor, slight sheen noted, gravel (trace), some organics

Comments/Remarks: sheen noted when coring

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-32 **Area** Humbug marsh area

Northing 42°06.9577 N **Easting** 83°10.9531 W **WGS84**

elevation: 178.78 m AMSL

Date Collected: 10/16/2014 **Time Collected:** core: 1029 ponar: 1035

Sample Collected By: R. Ellison / H. Williams

Water Depth: 4'6" ft

Sediment Depth: 2' (24")

Sediment Recovery: 19" **% Recovery:** 79%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: [✓ YES] ~~NO~~ HW **Depth:** ~~NA~~ SURF

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray silt, some soft clay, trace sand, semi-cohesive, saturated, chemical odor, slight sheen

Comments/Remarks: sheen noted when coring (on water)

SIGNATURE:

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-34 **Area** Humbug marsh area - further out in channel

Northing 42°06.8585 N **Easting** 83°10.8937 **WGS84**

elevation: 180.22 m AMSL

Date Collected: 10/16/14 **Time Collected:** ponar: 1110

Sample Collected By: H.Williams / R. Ellison

Water Depth: 9'0" **ft**

Sediment Depth: not taking core @ this location

Sediment Recovery: NA **% Recovery:** NA

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - no sample collected

Coordinates as proposed: [✓ YES] NO

(New) Northing ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) brown and gray sand, trace silt, non-cohesive, saturated, no odor, no sheen

Comments/Remarks: no core collected due to sand and rock bottom. Probing revealed hard bottom w/ little to no sediment

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-35 **Area** Humbug marsh - by scenic lookout area

Northing 42°06.8661 N **Easting** 83°11.0980 W **WGS84**

elevation: 178.66 m AMSL

Date Collected: 10/16/14 **Time Collected:** core: 1341

ponar: 1348

Sample Collected By: R. Ellison | J. Moen

Water Depth: 3'6" **ft**

Sediment Depth: HW ~~3' (36")~~ 3.5' (42")

Sediment Recovery: 42" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO hard bottom - clay?

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray silt, trace sand, saturated, non-cohesive, slight sheen, no odor

Comments/Remarks: slight sheen seen on water when coring

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-36 **Area** Humbug marsh (N end)

Northing 42°06.8267 **Easting** 83°11.1281 **WGS84**

elevation: 178.54 m AMSL

Date Collected: 10/17/14 **Time Collected:** core: 0910
ponar: 0917

Sample Collected By: H. Williams / R. Ellison

Water Depth: 2' 10" ft

Sediment Depth: ~2.5' (30") → estimated; was not measured

Sediment Recovery: 28" **% Recovery:** 93%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO —

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt, some sand, vegetation, saturated, non-cohesive, no odor, trace sheen

Comments/Remarks: Stern anchor slipped during core; no impact to core quality (due to wind)

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-37 **Area** N of island in Humbug Marsh

Northing 42° 06.7736 N **Easting** 83° 11 .0386 W **WGS84**

elevation: 178.69 m AMSL

Date Collected: 10/17/2014 **Time Collected:** ponar: 0835 core: 0844

Sample Collected By: H. Williams / R. Ellison

Water Depth: 4'6" **ft**

Sediment Depth: 2.25' (27")

Sediment Recovery: 23" **% Recovery:** 85%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO

(New) Northing ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) gray to black silt, some sand, saturated, semi-cohesive, vegetation (organics), trace sheen, no odor

Comments/Remarks: none.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14 - 38 **Area** Gross Ile side of main channel; above Swan Island, below free bridge

Northing 42°06.7524 N **Easting** 83°10.5010 W **WGS84**

elevation: 178.94 m AMSL

Date Collected: 10/20/14 **Time Collected:** ponar: 0833

Sample Collected By: H. Williams / J. Moen

Water Depth: 11'5" **ft**

Sediment Depth: NA - sediments not deep enough to warrant coring.

Sediment Recovery: — **% Recovery:** —

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - no core collected —

Coordinates as proposed: [✓ YES] NO

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) tan to gray silt, some sand, trace black silt, some vegitation, trace sheen, no odor, saturated, non-cohesive.

Sample time 0840

Comments/Remarks: none.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-39 **Area** East side of channel - Gross Ile side

Northing 42°06.6161 **Easting** 83°10.5862 **WGS84**

elevation: 179.94 m AMSL

Date Collected: 10/16/14 **Time Collected:** ponar: 1710

Sample Collected By: J. Moen / H. Williams

Water Depth: ~15.6' ft

Sediment Depth: not collecting core at this location - hard bottom; but some sand/silt present in ~2" layer.

Sediment Recovery: — **% Recovery:** —

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - no core collected —

Coordinates as proposed: [✓ YES] NO

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) light brown/tan to gray silt, trace sand and clay, lots of vegetation, saturated, semi-cohesive, trace sheen, no odor.

Comments/Remarks: —

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-40 **Area** Humbug Marsh

Northing 42°06.5912 N **Easting** 83°11.3238 W **WGS84**

elevation: 178.22 m AMSL

Date Collected: 10/17/14 **Time Collected:** ponar: 0955 core: 1013

Sample Collected By: H. Williams | R. Ellison

Water Depth: 2' 3" ft

Sediment Depth: 3.5' (42")

Sediment Recovery: 48" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] + MS | MSD **Depth:** NA

Sample Collected to refusal: [✓ YES] NO —

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) dark brown to dark gray humis/peat, fibrous, silt, trace sand, rootlets throughout, trace sheen, no odor, mostly saturated, semi-cohesive

Comments/Remarks: none

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-41 **Area** E side of island btwn. main channel & Humbug marsh

Northing 42°06.4673 N **Easting** 83°11.0431 W **WGS84**

elevation: 177.86 m AMSL

Date Collected: 10/17/14 **Time Collected:** core : 1047 ponar : 1058

Sample Collected By: H. Williams / R. Ellison

Water Depth: 5'8" **ft**

Sediment Depth: 9' (108")

Sediment Recovery: 111" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO hard bottom - clay?

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt and peat, little brown clay, saturated, cohesive, no odor, slight sheen

Comments/Remarks: none

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-42 **Area** below Humbug marsh - just South of island

Northing 42°06.2455 **Easting** 83°11.1398 **WGS84**

elevation: 179.76 m AMSL

Date Collected: 10/20/14 **Time Collected:** 0908 (ponar)

Sample Collected By: H. Williams / J. Moen

Water Depth: 15' 1" ft

Sediment Depth: NA - not enough sediment to collect core

Sediment Recovery: — **% Recovery:** —

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - no core collected —

Coordinates as proposed: YES [✓ NO] - 300 ft. due S of plotted point

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray sand, some silt, trace shells and shell fragments, trace vegetation, no odor, no sheen, saturated, non-cohesive

Comments/Remarks: none.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-43 **Area** South of Humbug Creek, near Shipwreck

Northing 42° 06.1619 N **Easting** 83° 11.2906 W **WGS84**

Elevation: 178.35 m AMSL

Date Collected: 10/17/2014 **Time Collected:** ponar: 1332 core: 1341

Sample Collected By: J. Moen / H. Williams

Water Depth: 3' 6" ft

Sediment Depth: 4.25' (51")

Sediment Recovery: 59" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES NO

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) dark brown to gray peat and silt, little brown clay; trace vegetation, saturated, semi-cohesive to cohesive, no odor, very tiny spot of sheen

Comments/Remarks: none.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14 - 45 **Area** main Trenton Channel - E side, by Swan Island

Northing 42°06.0619 N **Easting** 83°10.5485 W **WGS84**

elevation: 178.35 m AMSL

Date Collected: 10/17/14 **Time Collected:** core: 1621 ponar: 1627

Sample Collected By: H. Williams | J. Moen

Water Depth: 6' 1" **ft**

Sediment Depth: 3' (36")

Sediment Recovery: 34" **% Recovery:** 94%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] - close NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) tan to gray silt, some gray clay with rust colored mottles, trace fine sand, no odor, slight sheen (very minute), cohesive, saturated

Comments/Remarks: none

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-46 **Area** Near boat marina, South of boat wreck

Northing 42°06.0331 N **Easting** 83° 11.3555 w **WGS84**

elevation: 177.89 m AMSL

Date Collected: 10/17/14 **Time Collected:** Core: ~~[illegible]~~ HW 1415 ponar: 1422

Sample Collected By: H. Williams | J. Moen

Water Depth: 3' 0" **ft**

Sediment Depth: 4.5' (54")

Sediment Recovery: 58" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO —

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray to dark brown peat and silt, trace sand, trace sheen, no odor, saturated, semi-cohesive

Comments/Remarks: ~~none~~ lots of small fish in the area - stunned when we anchored at spot?

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14 - 47 **Area** Channel in marina - near bridge

Northing 42°05.7419 **Easting** 83°11 .4288 **WGS84**

elevation: 178.37 m AMSL

Date Collected: 10/17/14 **Time Collected:** ponar: 1520 core: 1531

Sample Collected By: J. Moen / H. Williams

Water Depth: 4' 11" **ft**

Sediment Depth: 6.75' (81")

Sediment Recovery: 81" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO —

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) dark gray to dark brown silt, some fine fibrous organics, semi-cohesive, saturated, no odor, trace sheen

Comments/Remarks:

SIGNATURE:

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-48 **Area** near middle of Trenton channel

Northing 42°08.8602 N **Easting** 83°10.3152 W (ponar) **WGS84**
42°08.8603 N 83°10.3159 W (core)

elevation: 179.14 ~~[illegible]~~ HW m AMSL

Date Collected: 10-22-14 **Time Collected:** ponar: 1430
core: 1441

Sample Collected By: H. Williams / R. Ellison

Water Depth: 20' 2" **ft**

Sediment Depth: ~~3~~ HW 2.75' (33")

Sediment Recovery: 15" **% Recovery:** 45%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] – 1,000 ft. downstream of plotted location – see coordinates for actual field location above. NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to light gray vf. sand, trace to little silt, saturated, semi-cohesive, no odor, no sheen

Comments/Remarks: slight sheen noted on water after pulling core – not rainbow sheen – also noted on outside of core (beading of water)

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-49 **Area** Black lagoon - south of MLTC14-42

Northing 42°09.1606 N **Easting** 83°10.3219 W **WGS84**

elevation: 178.96 m AMSL

Date Collected: 10/15/14 **Time Collected:** ponar: 1155 core: 1203

Sample Collected By: J. Moen / S. Noffke

Water Depth: 17' 6" **ft**

Sediment Depth: 3 3/4' (45")

Sediment Recovery: 41" **% Recovery:** 91%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO clay noted btwn. catcher and tube

Coordinates as proposed: [✓ YES] NO

(New) **Northing** ______ **Easting** ______ **WGS84**

Sample Observations: (color, texture, odor) grey silt, trace sand, little clay, saturated, semi-cohesive, no sheen, no odor.

sample MLTC14-49-SURF@1155

Comments/Remarks:

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14 - 50 **Area** western side of channel

Northing 42°06.7302 N **Easting** 83°10.8045 W (ponar) **WGS84**

elevation: 178.89 m AMSL

Date Collected: 10/16/2014 **Time Collected:** ponar: 1420

Sample Collected By: J. Moen / R. Ellison

Water Depth: 12' 11" ft

Sediment Depth: no core collected here - probing revealed sandy bottom with rock and cobbles throughout. No sediments noted

Sediment Recovery: NA **% Recovery:** NA

Drill Event: [✓ Initial] Second

Sample Technique: VIBRACORE DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: YES [✓ NO] - no core collected, see above

Coordinates as proposed: [✓ YES] NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray sandy silt, some gravel, some vegetation, saturated, non-cohesive, trace sheen, no odor

Comments/Remarks: —

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-51 **Area** Across from Swan Island by Grosse Ile; next to small island

Northing 42°06.1917 **Easting** 83°10.6885 **WGS84**

elevation: 178.69 m AMSL

Date Collected: 10/16/14 **Time Collected:** ponar: 1530 core: 1542

Sample Collected By: J. Moen | H. Williams

Water Depth: 3' 2" ft

Sediment Depth: 7.5ft. (90")

Sediment Recovery: 94" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO Clay @ bottom of core,

Coordinates as proposed: YES [✓ NO] – approximate based on map

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) grey to dark brown silt, little sand, trace clay (soft), trace organics (black- potentially small wood chips or leaf litter), no vegetation, saturated, tw ~~[illegible]~~ semi-cohesive.

Comments/Remarks:

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-52 **Area** Off N end of Swan Island

Northing 42°06.2108 N **Easting** 83°10.5111 W **WGS84** elevation: 178.09 m AMSL

Date Collected: 10/16/14 **Time Collected:** core: 1614 ponar: 1620

Sample Collected By: J. Moen / H. Williams

Water Depth: 4'6" ft

Sediment Depth: 2.5' (30")

Sediment Recovery: 29" **% Recovery:** 97%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO gray clay @ bottom of core

Coordinates as proposed: YES [✓ NO] - approximate based on map.

(New) Northing ________ **Easting** ________ **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt, some black silt, little gray clay, saturated, semi-cohesive, no odor, no sheen

Comments/Remarks: —

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-53 **Area** Canal next to Elizabeth Park below outfall

Northing 42°07.7389 N **Easting** 83°11.0318 W **WGS84** elevation : 179.29 m AMSL

Date Collected: 10/20/2014 **Time Collected:** ponar: 1415 core : 1426

Sample Collected By: R. Ellison / H. Williams

Water Depth: 5'0" ft

Sediment Depth: 7.5' (90")

Sediment Recovery: 87" **% Recovery:** 97%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] NO – new location.

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt and sand, trace clay, trace organics, saturated, semi-cohesive, no odor, some sheen.

Comments/Remarks: none.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-54 **Area** Canal by Elizabethe Park

Northing 42°08.0935 N **Easting** 83°10.9099 W **WGS84**

elevation: 178.64 m AMSL

Date Collected: 10/20/14 **Time Collected:** core: 1456 ponar: 1502

Sample Collected By: H. Williams / R. Ellison

Water Depth: 4'9" ft

Sediment Depth: 6.5' (78")

Sediment Recovery: 70" **% Recovery:** 90%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: [✓ YES] NO **Depth:** SURF

Sample Collected to refusal: [✓ YES] NO ——

Coordinates as proposed: HW ~~YES~~ — new location [✓ NO]

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) gray silt, some brown to gray sand, trace black silty clay, trace organics, little sheen, no odor, semi-cohesive, saturated.

Comments/Remarks: lots of sheen noted in water as core was being pulled out. sheen in core as well.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-55 **Area** Black lagoon

Northing 42°09.1198 **Easting** 83°10.2947 (1st run ponar) **WGS84**

Date Collected: 10/21/2014 **Time Collected:** ponar: 0854 (1st run) 0920 (2nd run) core: 0934

Sample Collected By: H. Williams / R. Ellison

elevation: 179.52 m MSL

Water Depth: 17' 1" (1st location) ft
17' 0" (2nd location)

Sediment Depth: 2.25' (27")

Sediment Recovery: 20" **% Recovery:** 74%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] —new location, moved after ponar grab did not get much recovery NO

(New) **Northing** 42°09.1373 **Easting** 83°10.2905 **WGS84**

Sample Observations: (color, texture, odor) gray to dark gray silt, trace clay, trace sand, cohesive, saturated, no odor, little sheen, soft but able to hold form.

Comments/Remarks: ponar coordinates recorded → hitting rocks that appear to be part of a cap that was put in place during remediation activities, sand also collected, little bit of sheen.

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-56 **Area** Monguagon Creek

Northing 42°10.4304 **Easting** 83°09.8961 **WGS84**

elevation: 179.95 m AMSL

Date Collected: 10/22/14 **Time Collected:** ponar: 0945 core: 0955

Sample Collected By: H. Williams / R. Ellison

Water Depth: 4'11" ft

Sediment Depth: 2' (24")

Sediment Recovery: 22" **% Recovery:** 92%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] - new location NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) medium gray to dark gray clayey silt, trace organics, trace subangular coarse gravel, saturated, cohesive, chemical odor (strong - PAH?), slight sheen.

Comments/Remarks: core processed on boat: 1020 = MLTC14-56-0001
1025 = MLTC14-56-0103

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-57 **Area** Monguagon Creek

Northing 42°10.4348 **Easting** 83°09.8861 **WGS84**

elevation: 179.76 m AMSL

Date Collected: 10/23/14 **Time Collected:** core: 1039 ponar: 1045

Sample Collected By: H. Williams / R. Ellison

Water Depth: 4'5" ft

Sediment Depth: 3' (36")

Sediment Recovery: 30" **% Recovery:** 83%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO ———

Coordinates as proposed: [✓ YES] – new location NO

(New) Northing **Easting** **WGS84**

Sample Observations: (color, texture, odor) dark tan to gray silt, trace clay, saturated, semi-cohesive, chemical odor (PAH? sweet), slight film noted on surface (not full rainbow sheen - more milky)

Comments/Remarks: sediment very gassy - water where core was taken bubbled for awhile after removal

Core processed on boat: 1115: MLTC14-57-0001

1120: MLTC14-57-0103

SIGNATURE: Hilary Williams

Field Data Collection Form

Project Title Mid/Lower Trenton Channel Area Site Characterization

Sampling Location: MLTC14-58 **Area** Monguagon Creek

Northing 42°10.4244 **Easting** 83°09.8569 **WGS84**

elevation: 180.52 m AMSL

Date Collected: 10/23/14 **Time Collected:** ponar: 1145 core: 1200

Sample Collected By: H. Williams / R. Ellison

Water Depth: 7'5" ft

Sediment Depth: 2.25' (27")

Sediment Recovery: 28" **% Recovery:** 100%

Drill Event: [✓ Initial] Second

Sample Technique: [✓ VIBRACORE] DIRECT-PUSH [✓ GRAB]

Field duplicate: YES [✓ NO] **Depth:** NA

Sample Collected to refusal: [✓ YES] NO

Coordinates as proposed: [✓ YES] —new location NO

(New) **Northing** **Easting** **WGS84**

Sample Observations: (color, texture, odor) brown to gray silt, trace clay, trace black silt, saturated, semi-cohesive, chemical odor (PAH?), slight sheen on sample (not on water), trace green organics on surface of ponar (algae)

Comments/Remarks: sheen noted in ponar sample, but not on water.

SIGNATURE: Hilary Williams

Appendix B

Lithologic Core Logs

SEDIMENT BORING MLTC14-03

EA Engineering, Science, and Technology, Inc.

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/14/2014 9:30:00 AM
DATE LOGGED 10/15/2014 3:10:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 247475.791
EASTING* 13450441.44
ELEVATION (Sediment Surface) 175 ft (NAVD 88)
CORE RECOVERY 10 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	CLAYEY SILT: medium grey clayey silt, some fine to coarse grained sand, loose, soft, loose, trace shell fragments, wet	0.8
1					CL	SILTY CLAY: light brown/grey silty clay, trace fine to coarse sand, soft, medium plasticity, moist	2.3
2					CL	SILTY CLAY: medium brown silty clay, little fine to medium grained sand, some organics (rootlets), soft, slight plasticity, moist	3.0
3					ML	CLAYEY SILT: dark brown clayey silt, some organics (rootlets), peaty, loose, moist, slight organic odor	3.4
4 5 6					CL	SILTY CLAY: light brown/grey silty clay, trace very fine to fine grained sand, some organics (rootlets), very soft, slight-low plasticity, moist, slight organics odor	6.8
7 8 9					CL	SILTY CLAY: light brown/grey silty clay, soft, low-medium plasticity, very uniform/ homogeneous, moist	10.0
10 11 12 13 14 15						End of Boring at 10 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-04A

EA Engineering, Science, and Technology, Inc.

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/14/2014 10:50:00 AM
DATE LOGGED 10/15/2014 4:20:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 247248.676
EASTING* 13449086.89
ELEVATION (Sediment Surface) 179.03 ft (NAVD 88)
CORE RECOVERY 10 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	SILT: dark grey silt, little very fine to fine grained sand, trace organics, very loose, wet, slight organic odor	0.8
1							
2							
3							
4							
5					ML	CLAYEY SILT: dark grey clayey silt, trace very fine grained sand, trace fiberous material, loose, uniform/ homogeneous, slight hydrocarbon odor, wet	
6							
7							
8							
9							
10							10.0
						End of Boring at 10 ft.	
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-04B

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/14/2014 10:50:00 AM
DATE LOGGED 10/15/2014 5:00:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 247248.676
EASTING* 13449086.89
ELEVATION (Sediment Surface) 179.03 ft (NAVD 88)
CORE RECOVERY 11 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
1							
2							
3							
4							
5						SEE CORE LOG 04A	
6							
7							
8							
9							
10				▨	ML	CLAYEY SILT: light brown/grey clayey silt, little very fine to fine grained sand, loose, very uniform/ homogeneous, moist, slight hydrocarbon odor	10.0
11							11.0
12						End of Boring at 11 ft.	
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-05

PROJECT NAME Mid Lower Trenton Channel

DATE COLLECTED 10/22/2014 3:12:00 PM

DATE LOGGED 10/23/2014 11:25:00 AM

DRILLER EPA Mudpuppy II

DRILLING METHOD Vibracore

LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003

LOCATION Grosse Ile, Michigan

NORTHING* 247103.005

EASTING* 13449179.79

ELEVATION (Sediment Surface) 178.44 ft (NAVD 88)

CORE RECOVERY 5.75 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
1							
2							
3					SC	SANDY CLAY: light brown, medium to very coarse grained sand, little subrounded and subangular fine gravel, trace silt, small subrounded cobble @ 4.75' (~0.3' d), stiff, low-medium plasticity, moist, some thin laminations of pink/orange clay (native?)	
4							
5							
6						End of Boring at 5.75 ft.	5.8
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

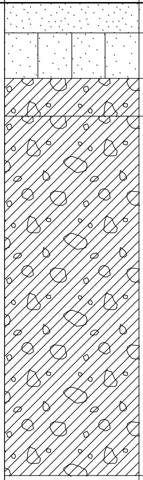
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-06

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/14/2014 10:05:00 AM
DATE LOGGED 10/15/2014 12:00:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 246805.198
EASTING* 13450314.6
ELEVATION (Sediment Surface) 179.68 ft (NAVD 88)
CORE RECOVERY 6.25 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					SP	SAND: grey fine to coarse grained sand, trace silt, loose, relatively well sorted, moist	0.4
					ML	CLAYEY SILT: dark grey clayey silt, some organics (rootlets), loose, soft, moist, slight organic odor	1.0
1					CL	SILTY CLAY: brownish grey silty clay, some organics (rootlets), soft, loose, slight plasticity, moist	1.5
2							
3							
4					CL	SILTY CLAY: light brown/grey silty clay, little organics (rootlets), very soft, loose, uniform/ homogeneous, low plasticity, moist	
5							
6							6.3
7						End of Boring at 6.25 ft.	
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-07

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/14/2014 2:55:00 PM
DATE LOGGED 10/15/2014 9:50:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 246764.221
EASTING* 13449020.7
ELEVATION (Sediment Surface) 179.31 ft (NAVD 88)
CORE RECOVERY 3 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
1					ML	CLAYEY SILT: medium grey clayey silt, trace coarse to very coarse grained sand, very loose, soft, wet, slight hydrocarbon odor	
2							
3							3.0
						End of Boring at 3 ft.	
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-08

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/14/2014 4:46:00 PM
DATE LOGGED 10/15/2014 10:55:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 243446.496
EASTING* 13448937.8
ELEVATION (Sediment Surface) 179.72 ft (NAVD 88)
CORE RECOVERY 4.75 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0 1 2 3 4				▨	ML	CLAYEY SILT: medium grey clayey silt, trace very fine sand, some fiberous material, very loose/ soft, wet, hydrocarbon odor	4.8
5 6 7 8 9 10 11 12 13 14 15						End of Boring at 4.75 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

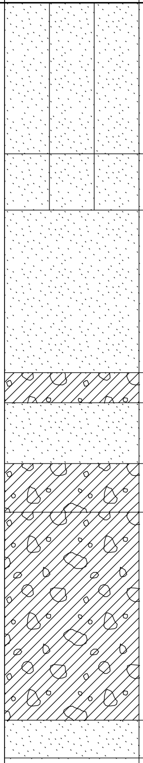
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-09

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/15/2014 9:40:00 AM
DATE LOGGED 10/16/2014 8:35:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 241141.3
EASTING* 13448297.25
ELEVATION (Sediment Surface) 179.93 ft (NAVD 88)
CORE RECOVERY 10 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0 1					SM	SILTY SAND: dark grey/black silty very fine to medium grained sand, some clay, loose, highly saturated, slight chemical odor, sheen (appearing as circular blebs on surface)	2.0
2					SM	SILTY SAND: dark grey/black silty very fine to medium grained sand, little clay, trace fine subrounded to subangular gravel, moderarely dense, saturated	2.8
3 4					SP	SAND: dark grey/black very fine to fine grained sand, trace silt, very well sorted, micaceous, dense, uniform/ homogeneous, wet, chemical odor	4.9
5					CL	CLAY: reddish brown clay (iron staining?), some thin sandy laminations, very soft, wet, chemical odor	5.3
6					SP	SAND: dark grey/black very fine to fine grained sand, trace silt, very well sorted, micaceous, dense, uniform/ homogeneous, wet, chemical odor	6.1
					CL	CLAY: reddish brown clay (iron staining?), very soft, wet	6.8
7 8 9					CL	CLAY: medium grey clay, slight plasticity, very soft, uniform/ homogeneous, wet, chemical odor	9.5
10					SP	SAND: dark grey/black very fine to fine grained sand, trace silt, stratified, well sorted, micaceous, dense, moist, chemical odor	10.0
11 12 13 14 15						End of Boring at 10 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-10

PROJECT NAME Mid Lower Trenton Channel

DATE COLLECTED 10/15/2014 9:02:00 AM

DATE LOGGED 10/15/2014 2:20:00 PM

DRILLER EPA Mudpuppy II

DRILLING METHOD Vibracore

LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003

LOCATION Grosse Ile, Michigan

NORTHING* 241120.385

EASTING* 13449386.34

ELEVATION (Sediment Surface) 178.6 ft (NAVD 88)

CORE RECOVERY 3.5 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	SILT: dark grey silt, little very fine grained sand, some organics (0-0.25'), trace organics (0.25-1.25'), loose, saturated, slight organic odor	1.3
1							
2					ML	SILT: dark grey silt, some clay, trace very fine grained sand, trace organics, very loose, moist, slight hydrocarbon odor	3.5
3							
4						End of Boring at 3.5 ft.	
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-11

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/15/2014 10:45:00 AM
DATE LOGGED 10/16/2014 11:20:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 240239.495
EASTING* 13447629.4
ELEVATION (Sediment Surface) 178.96 ft (NAVD 88)
CORE RECOVERY 7.75 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0 1 2 3 4 5				░	SP	SAND: light grey/brown very fine to fine grained sand, trace shell fragments, very well sorted, dense, uniform/ homogeneous, interstratified with thin (<0.1' thick) of light grey/brown clay, very soft, slight pasticity, lenticular morphology, uniform/ homogeneous, moist	6.0
6 7				⁙	SW	SAND: light grey/brown very fine to very coarse grained sand, trace fine angular gravel, little shell fragments, poorly sorted, dense, moist	7.8
8 9 10 11 12 13 14 15						End of Boring at 7.75 ft.	

NOTES:

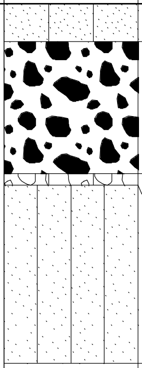
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-12

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/15/2014 11:15:00 AM
DATE LOGGED 10/15/2014 5:30:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 240243.762
EASTING* 13447331.03
ELEVATION (Sediment Surface) 179.43 ft (NAVD 88)
CORE RECOVERY 4.75 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					SM	SILT: light brown/grey silt, some fine to very coarse grained sand, very loose, saturated	0.5
1 2					GW	GRAVEL: medium grey coarse angular to subangular gravel, with pebbles in silty matrix, clast supported, very loose, saturated	2.3
					GM	SANDY GRAVEL: medium brown fine to very coarse grained sand, fine subrounded gravel, loose, moise	2.4
3 4					ML	CLAYEY SILT: black clayey silt, some very fine to very coarse grained sand, trace fiberous woody material, soft, moist, slight hydrocarbon odor, slight metallic sheen	4.8
5						End of Boring at 4.75 ft.	
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-13

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/22/2014 1:50:00 PM
DATE LOGGED 10/23/2014 11:05:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 238991.647
EASTING* 13447102
ELEVATION (Sediment Surface) 179.63 ft (NAVD 88)
CORE RECOVERY 0.75 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					GM	GRAVELLY SAND: grey fine subrounded to rounded gravel, fine to very coarse grained sand, trace organics (leafy debris), loose, wet, slight organic odor	0.8
1						End of Boring at 0.75 ft.	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-14

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/22/2014 11:05:00 AM
DATE LOGGED 10/22/2014 1:40:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 238515.157
EASTING* 13446911.68
ELEVATION (Sediment Surface) 178.52 ft (NAVD 88)
CORE RECOVERY 6 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	CLAYEY SILT: dark grey/black clayey silt, some very fine grained sand, trace organics (rootlets), trace small pebble (~0.25 diameter) @ 0-0.1', very loose, saturated, strong hydrocarbon odor	1.0
1					SM	SANDY SILT: medium grey very fine grained sand, come clay, trace shell fragments, very loose, saturated, hydrocarbon odor	1.5
2 3 4 5					SM	SANDY SILT: light brown very fine grained sand, little clay, trace fine and coarse rounded gravel, trace organics (rootlets), very uniform/ homogeneous texture, dense, moist	5.5
6					SM	SILTY SAND: light brown very fine to very coarse grained sand, little clay, trace shell fragments, loose, moist	6.0
7 8 9 10 11 12 13 14 15						End of Boring at 6 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-15

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/22/2014 10:15:00 AM
DATE LOGGED 10/22/2014 1:05:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 237172.266
EASTING* 13446791.93
ELEVATION (Sediment Surface) 179.65 ft (NAVD 88)
CORE RECOVERY 1.9 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0				░	SM	SANDY SILT: dark grey very fine to medium grained sand, abundant woody debris (sticks & twigs), very loose, saturated, slight organic odor	0.6
1				▨	CL	SANDY CLAY: light grey/brown fine to coarse grained sand, some fine and coarse subangular gravel, low pladticity, soft, moist	1.9
2						End of Boring at 1.9 ft.	
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

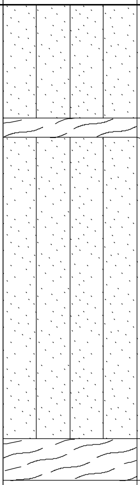
CT= Core Tube

SEDIMENT BORING MLTC14-16

EA Engineering, Science, and Technology, Inc.

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/22/2014 9:20:00 AM
DATE LOGGED 10/22/2014
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 235912.829
EASTING* 13446431.39
ELEVATION (Sediment Surface) 178.08 ft (NAVD 88)
CORE RECOVERY 6.3 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
1					ML	CLAYEY SILT: dark grey clayey silt, some very fine to fine grained sand, little fiberous material, very loose, saturated, strong hydrocarbon odor	1.5
2					SC	CLAYEY SAND: dark grey clayey very fine to coarse grained sand, some silt, very loose, saturated, hydrocarbon odor	1.8
3							
4					ML	CLAYEY SILT: dark grey clayey silt, some very fine grained sand, little organics (rootlets), very loose, uniform/ homogeneous texture, wet, hydrocarbon odor	
5							5.8
6					SC	CLAYEY SAND: dark grey clayey very fine to coarse grained sand, some silt, little woody debris, very loose, wet, hydrocarbon odor, sponge (0.08' diameter) @ 6.0'	6.3
7							
8						End of Boring at 6.3 ft.	
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

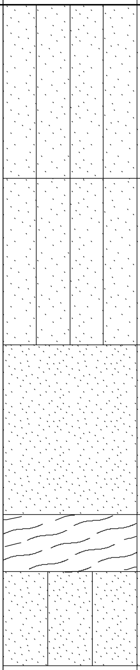
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-17

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/20/2014 4:10:00 PM
DATE LOGGED 10/21/2014 11:00:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 234724.195
EASTING* 13446309.42
ELEVATION (Sediment Surface) 178.63 ft (NAVD 88)
CORE RECOVERY 8.75 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
1					ML	CLAYEY SILT: dark grey clayey silt, trace very fine grained sand, trace fiberous material, very loose, saturated, hydrocarbon odor	
2							2.3
3					ML	CLAYEY SILT: medium grey/ brown clayey silt, trace very fine grained sand, trace fiberous material, very loose, uniform/ homogeneous texture, wet, hydrocarbon odor	
4							4.5
5							
6					SP	SAND: light brown very fine to fine grained sand, little clay, little silt, trace fine and coarse subrounded gravel, trace woody debris, very well sorted, uniform/ homogeneous texture, moist	6.8
7					SC	CLAYEY SAND: light brown clayey very fine grained sand, some silt, little fine and coarse angular gravel, slightly dense, moist	7.5
8					SM	CLAYEY SILTY SAND: grey/brown clayey silt very fine to fine grained sand, little fine and coarse angular to subangular gravel, loose, moist	8.8
9						End of Boring at 8.75 ft.	
10							
11							
12							
13							
14							
15							

NOTES:

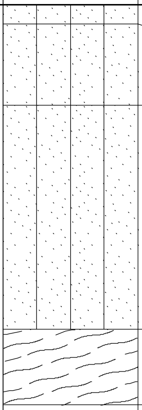
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-18

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/20/2014 10:53:00 AM
DATE LOGGED 10/20/2014 1:10:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 234401.889
EASTING* 13446154.39
ELEVATION (Sediment Surface) 179.01 ft (NAVD 88)
CORE RECOVERY 5.3 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	CLAYEY SILT: dark grey/black clayey silt, little organics (rootlets), very loose, wet, hydrocarbon odor	0.3
1					ML	CLAYEY SILT: medium grey clayey silt, trace very fine to medium grained sand, very loose, wet, hydrocarbon odor	1.3
2							
3					ML	CLAYEY SILT: light brown clayey silt, some very fine to fine grained sand, trace fine angular gravel, little organics (rootlets), fragment of woody debris (~0.2' diameter) @ 4.3', very loose, moist	4.3
4							
5					SC	CLAYEY SAND: light brown clayey very fine to fine grained sand, some silt, trace fine subangular gravel, trace organics (woody debris & rootlets), loose, moist	5.3
6						End of Boring at 5.3 ft.	
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-19

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/20/2014 4:38:00 PM
DATE LOGGED 10/21/2014 10:20:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 233744.193
EASTING* 13447707.66
ELEVATION (Sediment Surface) 178.63 ft (NAVD 88)
CORE RECOVERY 2 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0				▨			
1				▨	ML	CLAYEY SILT: medium grey clayey silt, trace very fine to medium grained sand, very loose, saturated, slight organic odor	
2							2.0
						End of Boring at 2 ft.	
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-25

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/15/2014 3:20:00 PM
DATE LOGGED 10/16/2014 10:30:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 229563.206
EASTING* 13446802.96
ELEVATION (Sediment Surface) 178.64 ft (NAVD 88)
CORE RECOVERY 3 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	CLAYEY SILT: brown clayey silt, some very fine to fine grained sand, trace organic debris, very loose, saturated	0.8
1 2 3					SM	SILTY SAND: brown silty very fine to fine grained sand, trace shell fragments @ 2.0-3.0', loose, very well sorted, wet	3.0
4 5 6 7 8 9 10 11 12 13 14 15						End of Boring at 3 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

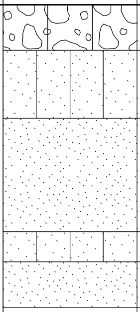
CT= Core Tube

SEDIMENT BORING MLTC14-31

EA Engineering, Science, and Technology, Inc.

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/16/2014 10:04:00 AM
DATE LOGGED 10/16/2014 3:20:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 226956.865
EASTING* 13444875.76
ELEVATION (Sediment Surface) 178.86 ft (NAVD 88)
CORE RECOVERY 4 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					GM	GRAVEL: medium grey coarse subrounded gravel and small pebbles in silty sand matrix, very fine to medium grained sand, loose, clast supported, well sorted matrix, wet	0.6
1					ML	SILT: dark grey silt, somevery fine to fine grained sand, very loose, uniform/ homogeneous texture, moist, slight hydrocarbon odor	1.5
2 3					SP	SAND: light brown/grey very fine grained sand, loose, very well sorted, uniform/ homogeneous, moist	3.0
					ML	CLAYEY SILT: black clayey silt, some very fine grained sand, instratified w/ thin laminations of very fine grained sand, low plasticity, very well sorted, moist	3.4
4					SP	SAND: black very fine to fine grained sand, very well sorted, loose, moist, slight hydrocarbon odor	4.0
5 6 7 8 9 10 11 12 13 14 15						End of Boring at 4 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-32

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/16/2014 10:29:00 AM
DATE LOGGED 10/16/2014 4:00:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 226735.557
EASTING* 13444602.1
ELEVATION (Sediment Surface) 178.78 ft (NAVD 88)
CORE RECOVERY 2.5 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0				▥	ML	SILT: dark grey silt, some very fine to fine grained sand, very loose, saturated	1.0
1 2				▒	SP	SAND: dark grey very fine grained sand, very well sorted, very loose, interstratified with dark grey silty very soft clay, wet	2.5
3 4 5 6 7 8 9 10 11 12 13 14 15						End of Boring at 2.5 ft.	

NOTES:

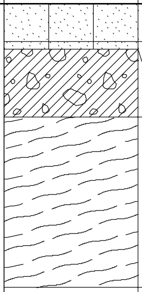
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-35

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/16/2014 1:41:00 PM
DATE LOGGED 10/17/2014 10:30:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 226170.059
EASTING* 13443954.72
ELEVATION (Sediment Surface) 178.66 ft (NAVD 88)
CORE RECOVERY 3.75 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					SM	SANDY SILT: dark grey sandy silt, very fine to medium grained sand, little organics (roots and shell fragments), very loose, saturated, slight hydrocarbon odor	0.5
					SM	SILTY SAND: dark grey silty very fine to medium grained sand, loose, relatively well sorted, wet, slight organic odor	0.6
1					CL	CLAY: medium grey clay, some very fine to medium grained sand, slight plasticity, very soft, uniform/ homogeneous, wet, chemical odor	1.5
2 3					SC	SANDY CLAY: light brown sandy clay, very fine to very coarse grained sand, some fine and coarse angular to subangular gravel, trace organics (rootlets), lenses of very loose dark grey fine to coarse grained sand, soft, slight plasticity, moist	3.8
4 5 6 7 8 9 10 11 12 13 14 15						End of Boring at 3.75 ft.	

NOTES:

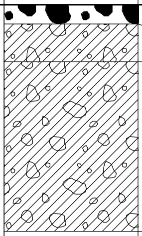
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-36

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 9:10:00 AM
DATE LOGGED 10/17/2014 3:15:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 225928.871
EASTING* 13443821.98
ELEVATION (Sediment Surface) 178.54 ft (NAVD 88)
CORE RECOVERY 3 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					GW	PEBBLES: small subrounded pebbles in a silty sand matrix, very fine to fine grained sand, clast supported, saturated	0.3
					CL	SILTY CLAY: dark grey silty clay, some organics (rootlets), trace very fine to fine grained sand, very soft, low plasticity, saturated, slight organic odor	0.8
1 2 3					CL	CLAY: light grey clay, some silt, little organics (rootlets), trace very fine to fine grained sand, very soft, medium plasticity, wet	3.0
4 5 6 7 8 9 10 11 12 13 14 15						End of Boring at 3 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

PAGE 1 of 1

SEDIMENT BORING MLTC14-37

EA Engineering, Science, and Technology, Inc.

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 8:44:00 AM
DATE LOGGED 10/17/2014 5:00:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 225612.074
EASTING* 13444231.21
ELEVATION (Sediment Surface) 178.69 ft (NAVD 88)
CORE RECOVERY 2.25 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					SM	SILTY SAND: dark grey silty very fine to medium grained sand, trace fine and coarse subrounded gravel, very loose, saturated	0.4
1					CL	CLAY: light grey clay, some very fine to fine grained sand, some fine angular gravel, trace coarse subangular gravel, soft, medium plasticity, wet	2.3
2							
3						End of Boring at 2.25 ft.	
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

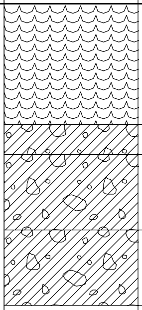
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-40

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 10:13:00 AM
DATE LOGGED 10/17/2014 3:35:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 224486.267
EASTING* 13442957.07
ELEVATION (Sediment Surface) 178.22 ft (NAVD 88)
CORE RECOVERY 4 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
1					OH	PEATY SILT: dark brown peaty silt, organics (rootlets, grass), very loose, wet, strong organic odor	1.6
2					CL	CLAY: dark grey clay, some silt, trace very fine to fine grained sand, some organics (rootlets & grass), very soft, slight plasticity, wet	2.0
					CL	CLAY: light grey clay, some silt, trace very fine grained sand, very soft, low plasticity, wet	3.0
3					CL	CLAY: light yellow/brown clay, some fine to very coarse grained sand, trace fine angular gravel, soft, medium plasticity, moist	4.0
4							
5						End of Boring at 4 ft.	
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

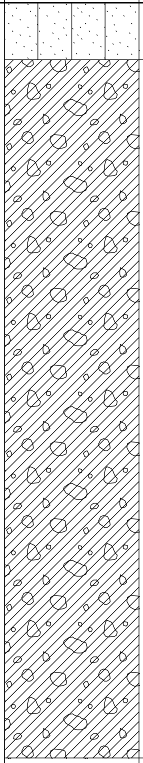
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-41

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 10:47:00 AM
DATE LOGGED 10/17/2014 4:15:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 223751.612
EASTING* 13444236.99
ELEVATION (Sediment Surface) 177.86 ft (NAVD 88)
CORE RECOVERY 10 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	SILT: brown silt, little very fine grained sand, some organics (rootlets), very loose, wet, slight organic odor	0.8
1 2 3 4 5 6 7 8 9					CL	CLAY: light brown clay, some silt, little very fine grained sand, very soft, medium plasticity, uniform/ homogeneous texture, very well sorted, moist	10.0
10 11 12 13 14 15						End of Boring at 10 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

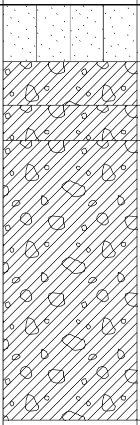
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-43

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 1:41:00 PM
DATE LOGGED 10/20/2014 9:10:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 221881.205
EASTING* 13443143.7
ELEVATION (Sediment Surface) 178.35 ft (NAVD 88)
CORE RECOVERY 5.5 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	CLAYEY SILT: dark grey clayey silt, some very fine to fine grained sand, some organics (rootlets), very loose, saturated, organic odor	0.8
1					CL	CLAY: grey silty clay, some rootlets, very soft, wet, slight organic odor	1.3
					CL	SILTY CLAY: dark grey silty clay, abundant rootlets, very soft, saturated, organic odor	1.8
2 3 4 5					CL	CLAY: light bluish grey clay, trace organics (rootlets), soft, medium plasticity, moist, slight organic odor	5.5
6 7 8 9 10 11 12 13 14 15						End of Boring at 5.5 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-45

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 4:21:00 PM
DATE LOGGED 10/20/2014 8:30:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 221321.128
EASTING* 13446508.5
ELEVATION (Sediment Surface) 178.35 ft (NAVD 88)
CORE RECOVERY 3 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0				▨	CL	SILTY CLAY: medium brown silty clay, trace organics (roots & rootlets), very soft, low plasticity, wet, organic odor, highly gradational contact w/ underlying clay	1.3
1							
2				▨	CL	CLAY: light bluish grey clay, trace fine and coarse rounded gravel, stiff, moist	3.0
3						End of Boring at 3 ft.	
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

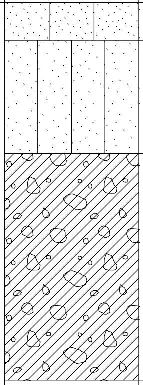
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-46

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 2:15:00 PM
DATE LOGGED 10/20/2014 10:30:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 221094.888
EASTING* 13442861.13
ELEVATION (Sediment Surface) 177.89 ft (NAVD 88)
CORE RECOVERY 5 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					SM	SILTY SAND: dark brown silty very fine to medium grained sand, some organics (rootlets), little shell fragments, loose, saturated, organic odor	0.5
1					ML	CLAYEY SILT: dark brown clayey silt, abundant organics/peat (rootlets), very loose, saturated, strong organic odor	2.0
2							
3					CL	CLAY: light brownish grey clay, trace organics (rootlets & grass), trace silt, soft, medium plasticity, moist	5.0
4							
5						End of Boring at 5 ft.	
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

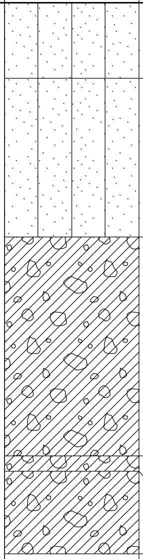
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-47

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/17/2014 3:30:00 PM
DATE LOGGED 10/20/2014 11:10:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 219321.778
EASTING* 13442554.32
ELEVATION (Sediment Surface) 178.37 ft (NAVD 88)
CORE RECOVERY 7.3 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	SILT: dark brown silt, little very fine grained sand, very loose, very well sorted, highly saturated, organic odor	1.0
1 2 3					ML	SILT: dark brown silt, little very fine grained sand, trace clay, abundant organics (rootlets), very loose, soft, saturated, organics odor (1.0-2.5'), slight hydrocarbon odor (2.5-3.1'), sharp contact with underlying clay	3.1
4 5 6					CL	SILTY CLAY: medium grey silty clay, some organics (rootlets), loose, slight plasticity, wet, hydrocarbon odor	6.0
					CL	SILTY CLAY: black silty clay, very soft, moist, slight hydrocarbon odor	6.2
7					CL	CLAY: light grey/brown clay, some fine to coarse grained sand, trace fine angular gravel, very soft, slight plasticity, moist	7.3
8 9 10 11 12 13 14 15						End of Boring at 7.3 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-48

PROJECT NAME Mid Lower Trenton Channel

DATE COLLECTED 10/22/2014 2:41:00 PM

DATE LOGGED 10/23/2014 12:10:00 PM

DRILLER EPA Mudpuppy II

DRILLING METHOD Vibracore

LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003

LOCATION Grosse Ile, Michigan

NORTHING* 238330.815

EASTING* 13447319.3

ELEVATION (Sediment Surface) 179.14 ft (NAVD 88)

CORE RECOVERY 1.75 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0							
1				░	SP	SAND: dark grey very fine to fine grained sand, little silt, trace shell fragments, medium density, micaceous, very well sorted, uniform/ homogeneous texture, wet, slight hydrocarbon odor	1.8
2						End of Boring at 1.75 ft.	
3							
4							
5							
6							
7							
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12							
13							
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15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

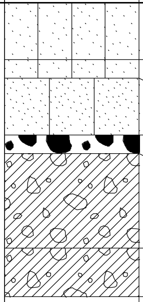
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-49

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/15/2014 12:03:00 PM
DATE LOGGED 10/16/2014 9:45:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 240154.16
EASTING* 13447266.31
ELEVATION (Sediment Surface) 178.96 ft (NAVD 88)
CORE RECOVERY 3.9 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15					ML	SILT: medium grey silt, some very fine grained sand, very loose, saturated	0.8
					ML	SILT: dark grey/ black silt, trace very fine grained sand, trace organics debris, very loose, saturated	1.0
					SM	SAND: medium grey very fine grained sand, little silt, trace coarse sand @ (1.25-1.75'), loose, well sorted, wet	1.8
					GW	SANDY GRAVEL: grey sandy gravel, very fine to medium grained sand, coarse angular to subangular gravel and small angular pebbles, clast supported, loose, wet	2.0
					CL	SILTY CLAY: black silty clay, little fine grained sand, very soft, moist, hydrocarbon odor, sharp contact w/ underlying clay	3.3
					CL	CLAY: light brown clay, some fine angular gravel, stiff, high plasticity, moist	3.9
						End of Boring at 3.9 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

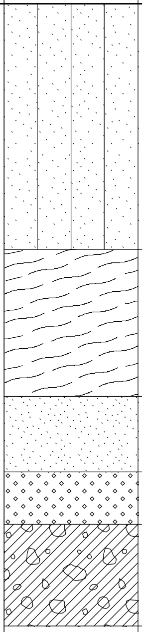
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-51

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/16/2014
DATE LOGGED 10/16/2014 12:10:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 222100.462
EASTING* 13445864.2
ELEVATION (Sediment Surface) 178.69 ft (NAVD 88)
CORE RECOVERY 8.25 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0 1 2 3					ML	CLAYEY SILT: medium grey/brown clayey silt, some organics (rootlets & grass), little very fine grained sand (0-2.25'), some very fine graines sand (2.25-3.25'), very loose, wet	3.3
4 5					SC	CLAYEY SAND: medium grey/brown clayey very fine grained sand, some silt, very loose, uniform/ homogeneous, moist	5.2
6					SP	SAND: medium grey/brown very fine to fine grained sand, some silt, little medium to very coarse grained sand, some shell fragments, relatively well sorted, loose, wet	6.2
					SW	SAND: medium grey/brown very fine to very coarse grained sand, some shell fragments, little silt, poorly sorted, very loose, wet	6.9
7 8					CL	SANDY CLAY: light grey/brown sandy clay, very fine to very coarse grained sand, some fine and coarse angular to subangular gravel, stiff, medium plasticity, moist	8.3
9 10 11 12 13 14 15						End of Boring at 8.25 ft.	

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-52

PROJECT NAME Mid Lower Trenton Channel

DATE COLLECTED 10/16/2014 4:14:00 PM

DATE LOGGED 10/17/2014 11:00:00 AM

DRILLER EPA Mudpuppy II

DRILLING METHOD Vibracore

LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003

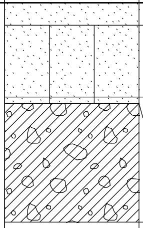
LOCATION Grosse Ile, Michigan

NORTHING* 222227.798

EASTING* 13446664.85

ELEVATION (Sediment Surface) 178.09 ft (NAVD 88)

CORE RECOVERY 2.9 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					SP	SAND: dark grey very fine grained sand, trace fine rounded gravel, very well sorted, loose, wet	0.3
1					SM	SILT: dark grey silt, some very fine to medium grained sand, very loose, uniform/ homogeneous, moist	1.3
					SM	SANDY SILT: dark grey sandy silt, very fine to medium grained sand, little fine subangular gravel, loose, moist	1.3
2					CL	CLAY: light bluish grey clay, some very fine to medium grained sand, trace fine angular to subangular gravel, little organics (grass), slight plasticity, soft, moist	2.9
3							
4						End of Boring at 2.9 ft.	
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NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

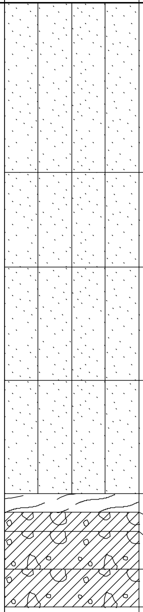
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-53

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/20/2014 2:26:00 PM
DATE LOGGED 10/21/2014 9:30:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 231474.819
EASTING* 13444179.59
ELEVATION (Sediment Surface) 179.29 ft (NAVD 88)
CORE RECOVERY 8 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0 1 2					ML	CLAYEY SILT: dark grey clayey silt, some very fine to medium grained sand, very loose, saturated, strong hydrocarbon odor	2.3
3					ML	CLAYEY SILT: grey clayey silt, some very fine to medium grained sand, very loose, wet, hydrocarbon odor	3.5
4 5					ML	CLAYEY SILT: grey clayey silt, trace very fine to fine grained sand, very loose, wet, hydrocarbon odor	5.0
6					ML	CLAYEY SILT: light brown clayey silt, very loose, uniform/ homogeneous, wet, slight hydrocarbon odor	6.5
					SC	CLAYEY SAND: brown clayey very fine to very coarse grained sand, some organics (rootlets), loose, moist	6.8
7					CL	CLAY: yellowish brown clay, trace very fine to medium grained sand, medium plasticity, soft, moist	7.0
					CL	SANDY CLAY: light brown sandy clay, very fine to medium grained sand, well sorted, very soft, moist	7.5
8					CL	CLAY: light greyish brown clay, trace fine and coarse angular gravel, medium plasticity, soft, moist	8.0
9 10 11 12 13 14 15						End of Boring at 8 ft.	

NOTES:

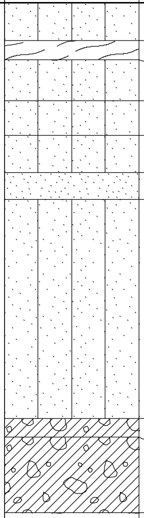
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-54

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/20/2014 2:56:00 PM
DATE LOGGED 10/21/2014 8:30:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 233636.069
EASTING* 13444700.36
ELEVATION (Sediment Surface) 178.64 ft (NAVD 88)
CORE RECOVERY 6.75 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	CLAYEY SILT: dark grey/black clayey silt, some very fine grained sand, trace organics, very loose, saturated, strong hydrocarbon odor, dark brown sheen	0.5
					SC	CLAYEY SAND: dark grey clayey very fine grained sand, loose, well sorted, wet, strong hydrocarbon odor, slight sheen	0.8
1					ML	CLAYEY SILT: dark grey clayey silt, some very fine grained sand, very loose, saturated, hydrocarbon odor, slight sheen	1.3
					ML	CLAYEY SILT: black clayey silt, little very fine grained sand, very loose, wet, hydrocarbon odor, slight sheen	1.8
2					ML	CLAYEY SILT: dark grey clayey silt, little very fine grained sand, very loose, wet, hydrocarbon odor, slight sheen	2.3
					SP	SAND: dark grey very fine grained sand, some clay, loose, micaceous, well sorted, wet, slight hydrocarbon odor	2.6
3 4 5					ML	CLAYEY SILT: dark grey clayey silt, little very fine grained sand, very loose, wet, hydrocarbon odor	5.5
					CL	CLAY: light brown clay, some silt, little medium to coarse grained sand, very soft, slight plasticity, wet	5.8
6					CL	SANDY CLAY: dark brown/grey sandy clay, very fine to very coarse grained sand, some silt, some organics (rootlets), very soft, low plasticity, moist, organic odor	6.8
7							
8							
9						End of Boring at 6.75 ft.	
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NOTES:

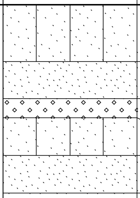
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-55

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/21/2014 9:34:00 AM
DATE LOGGED 10/21/2014 1:50:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 240014.672
EASTING* 13447410.21
ELEVATION (Sediment Surface) 179.52 ft (NAVD 88)
CORE RECOVERY 2.5 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	CLAYEY SILT: dark grey clayey silt, some very fine to very coarse grained sand, trace fine angular gravel, very loose, saturated	0.8
1					SP	SAND: brown fine grained sand, trace medium to coarse grained sand, trace fine subangular gravel, loose, well sorted, wet	1.3
					SW	GRAVELLY SAND: brown gravelly fine to coarse grained sand, fine and coarse subangular to subrounded gravel, trace shells (mollusks), loose, poorly sorted, wet	1.5
2					ML	CLAYEY SILT: black clayey silt, littler very fine to fine grained sand, very loose, wet, strong hydrocarbon odor	2.0
					SP	SAND: brown fine grained sand, trace medium to coarse grained sand, trace shell fragments, loose, well sorted, moist	2.5
3						End of Boring at 2.5 ft.	
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NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

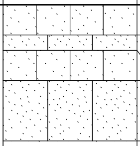
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-56

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/23/2014 9:55:00 AM
DATE LOGGED 10/23/2014 10:10:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 247893.061
EASTING* 13449080.41
ELEVATION (Sediment Surface) 179.95 ft (NAVD 88)
CORE RECOVERY 1.83 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	SILT: dark grey silt, trace sand, semi-cohesive, saturated, chemical odor, slight sheen	0.4
					SM	SAND & SILT: black/ dark grey sand and silt, trace angular to subangular gravel, non-cohesive, saturated, chemical odor	0.6
					ML	SILT: dark grey/grey silt, trace clay, cohesive, saturated, chemical odor	1.0
					SM	SAND & SILT: grey very fine sand and silt, trace clay, cohesive, moist, slight chemical odor	1.8
						End of Boring at 1.83 ft.	
1							
2							
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NOTES:

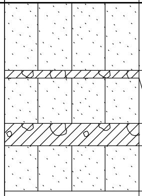
* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

SEDIMENT BORING MLTC14-57

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/23/2014 10:39:00 AM
DATE LOGGED 10/23/2014 10:50:00 AM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 247920.428
EASTING* 13449125.2
ELEVATION (Sediment Surface) 179.76 ft (NAVD 88)
CORE RECOVERY 2.5 ft



DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	SILT: dark grey/grey silt, trace clay, trace fiberous material, semi-cohesive, saturated, chemical odor, slight film	0.9
1					CL	CLAY: light grey clay, soft, cohesive, moist, chemical odor	1.0
					ML	SILT: dark grey/black silt, trace coarse grained sand, trace subangular gravel, soft, semi-cohesive, chemical odor	1.6
2					CL	CLAY: light grey clay, trace brown coarse sand, trace orange mottling, medium plasticity, cohesive, moist, chemical odor	1.9
					ML	SILT: black silt, trace clay (lumped in 0.15' clasts), soft, semi-cohesive, chemical odor	2.5
3							
4							
5						End of Boring at 2.5 ft.	
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

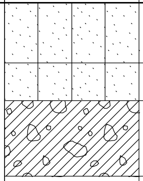
CT= Core Tube

EA Engineering, Science, and Technology, Inc.

SEDIMENT BORING MLTC14-58

PROJECT NAME Mid Lower Trenton Channel
DATE COLLECTED 10/23/2014 11:59:00 AM
DATE LOGGED 10/23/2014 12:10:00 PM
DRILLER EPA Mudpuppy II
DRILLING METHOD Vibracore
LOGGED BY E. Cahoon

PROJECT NUMBER 6256118.0003
LOCATION Grosse Ile, Michigan
NORTHING* 247859.152
EASTING* 13449258.01
ELEVATION (Sediment Surface) 180.52 ft (NAVD 88)
CORE RECOVERY 2.33 ft

DEPTH (ft)	SAMPLE INTERVAL (inches)	SAMPLE TYPE	SAMPLE SUBMITTED FOR ANALYSIS (Sample ID at sample depth)	GRAPHIC LOG	USCS CLASS	MATERIAL DESCRIPTION	Depth (ft)
0					ML	SILT: dark grey to black silt, trace subangular gravel, soft, semi-cohesive, saturated, chemical odor, slight sheen	0.8
1					ML	SILT: grey silt, trace subangular gravel, trace clay, soft, cohesive, saturated, chemical odor, slight sheen	1.3
2					CL	CLAY: grey clay with brown mottling, matrix supported with gravel, tightly packed, cohesive, moise, chemical odor	2.3
3						End of Boring at 2.33 ft.	
4							
5							
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12							
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15							

NOTES:

* Coordinates in Michigan State Plane North, ft NAD83

CT= Core Tube

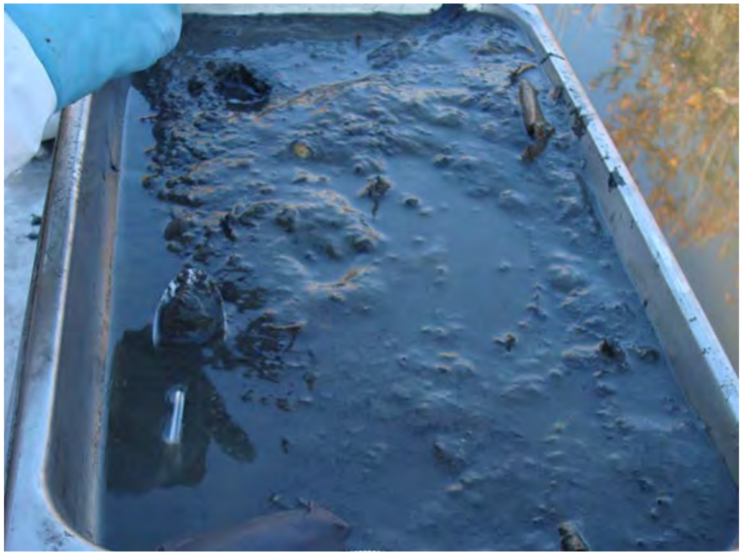
Appendix C

Core Photos

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-01-SURF



Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

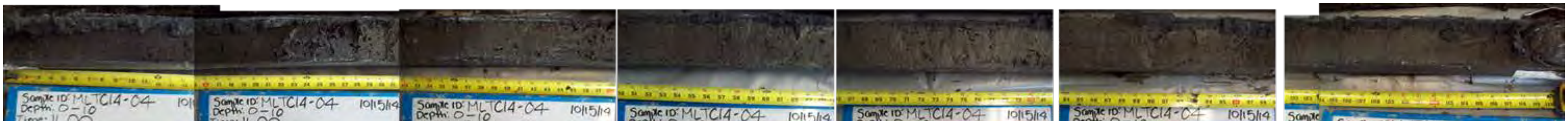
MLTC14-03

MLTC14-03-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-04



MLTC14-04-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-05

MLTC14-05-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

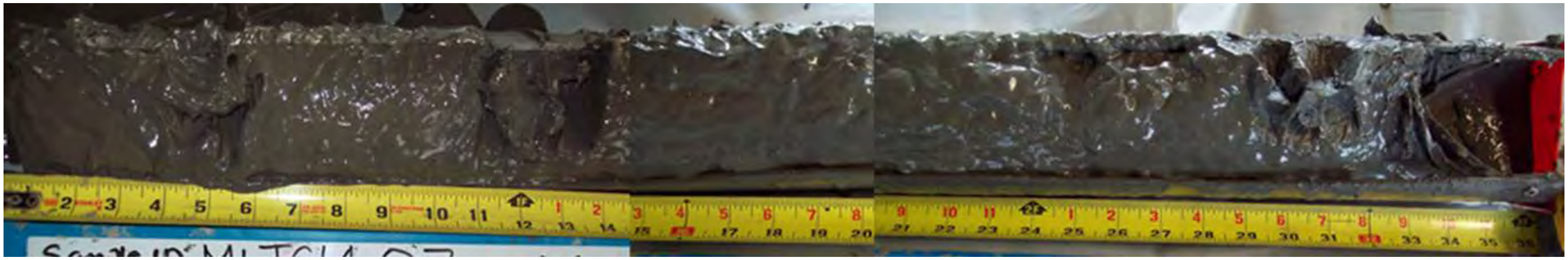
MLTC14-06

MLTC14-06-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-07



MLTC14-07-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-08

MLTC14-08-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-09

MLTC14-09-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-10

MLTC14-10-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-11

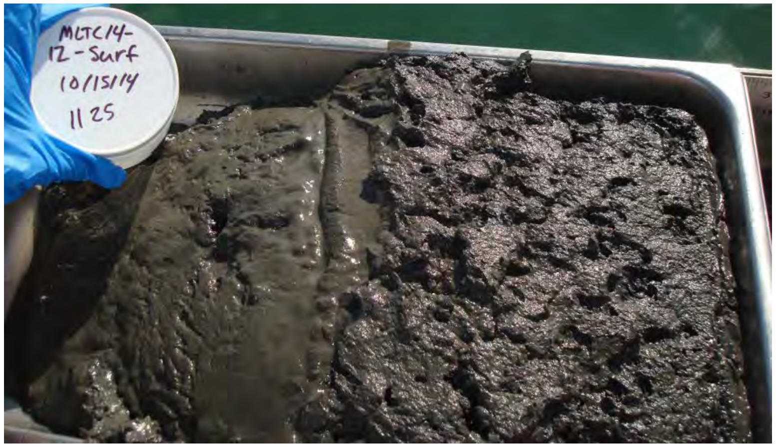
MLTC14-11-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-12

MLTC14-12-SURF



Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-13

MLTC14-13-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-14

MLTC14-14-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

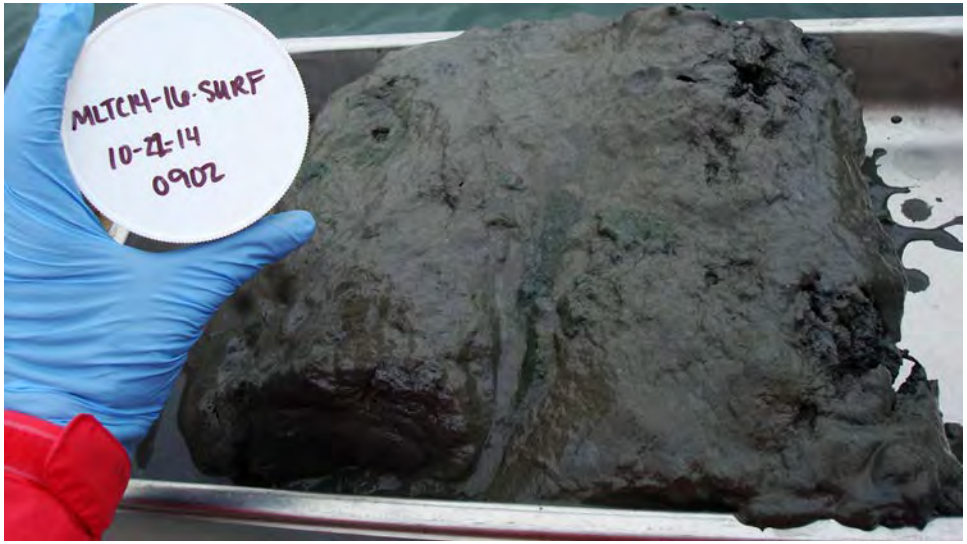
MLTC14-15

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-16

MLTC14-16-SURF



Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-17

MLTC14-17-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-18

MLTC14-18-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-19

MLTC14-19-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-21-SURF

Photographic Record

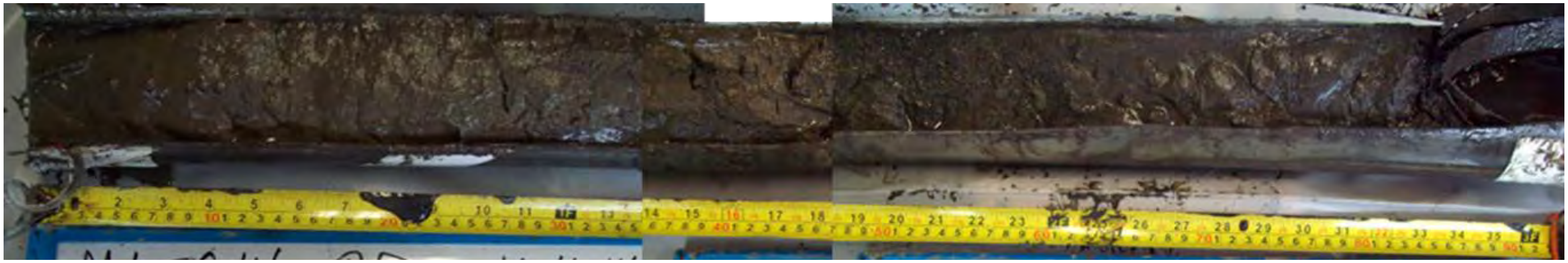
Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-22-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-25



MLTC14-25-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-26-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-31

MLTC14-31-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-32

MLTC14-32-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-34-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-35

MLTC14-35-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-36

MLTC14-36-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-37

MLTC14-37-SURF

Photographic Record

**Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014**

MLTC14-38-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

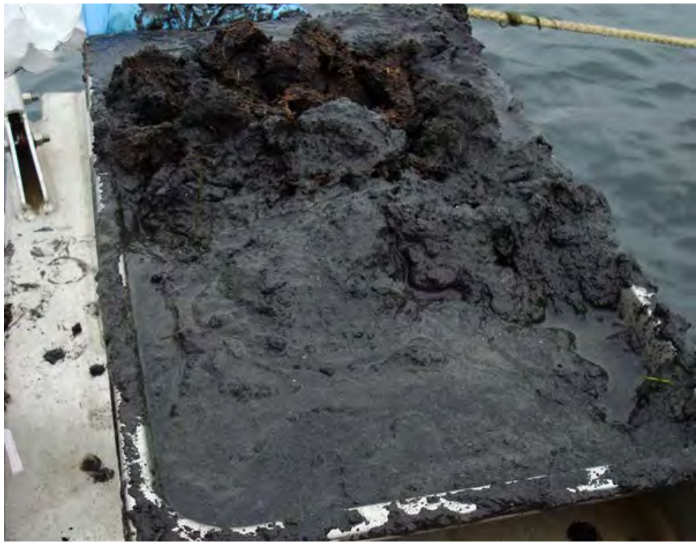
MLTC14-39-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-40

MLTC14-40-SURF



Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-41

MLTC14-41-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-42-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-43

MLTC14-43-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-45

MLTC14-45-SURF

EA Engineering, Science, and Technology, Inc.

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-46

MLTC14-46-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

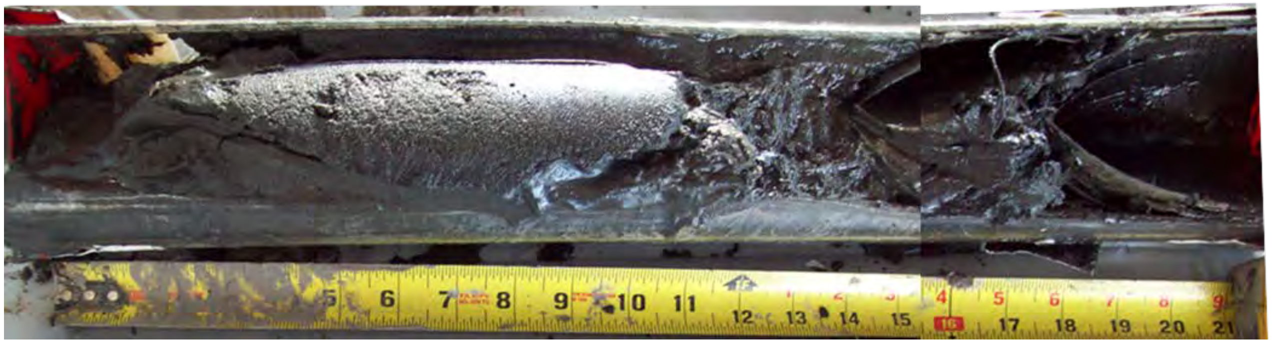
MLTC14-47

MLTC14-47-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-48



MLTC14-48-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-49

MLTC14-49-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-50-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-51

MLTC14-51-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-52

MLTC14-52-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-53

MLTC14-53-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-54

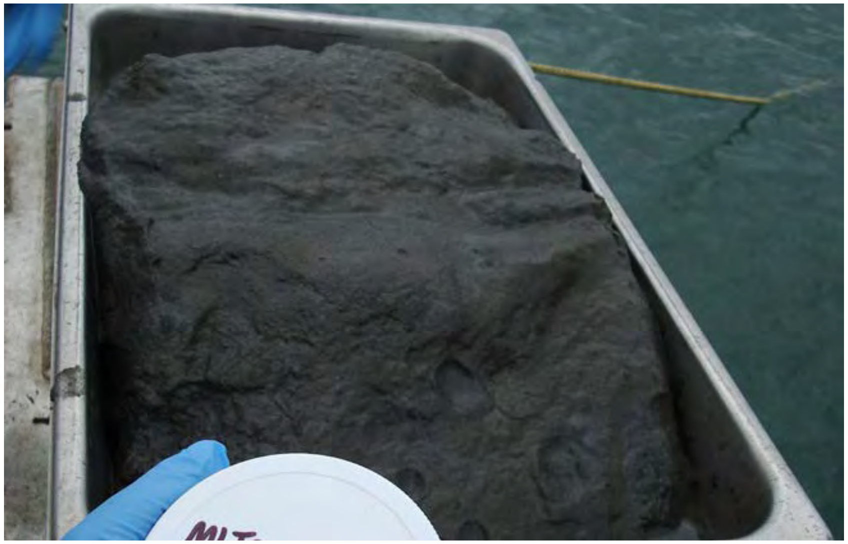
MLTC14-54-SURF

Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-55

MLTC14-55-SURF

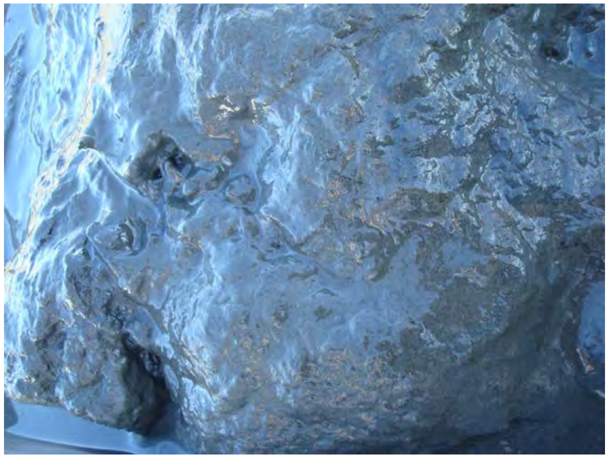


Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-56

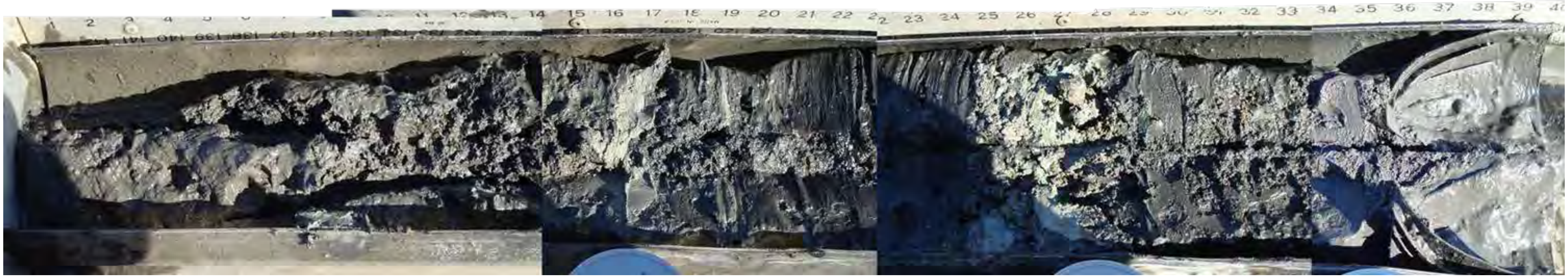
MLTC14-56-SURF



Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-57

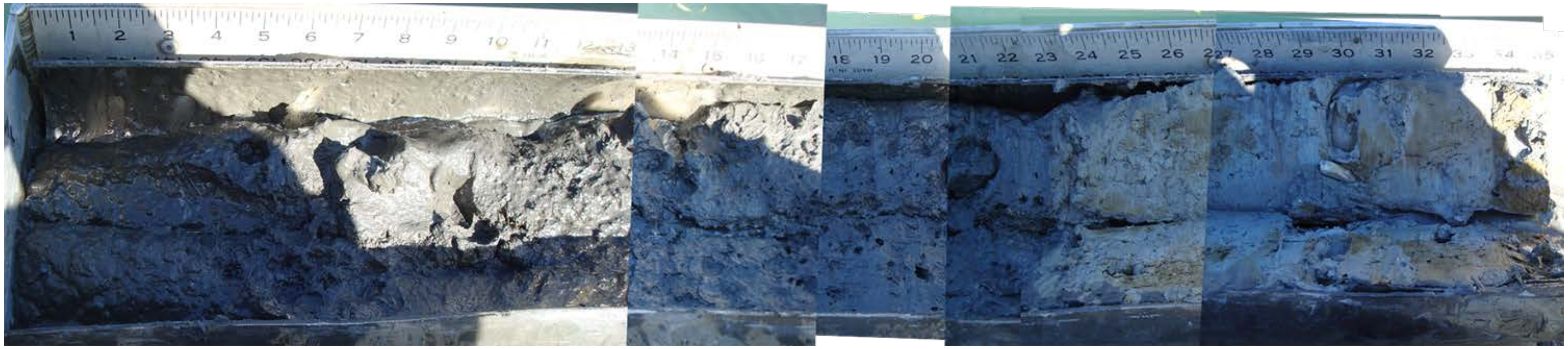


MLTC14-57-SURF

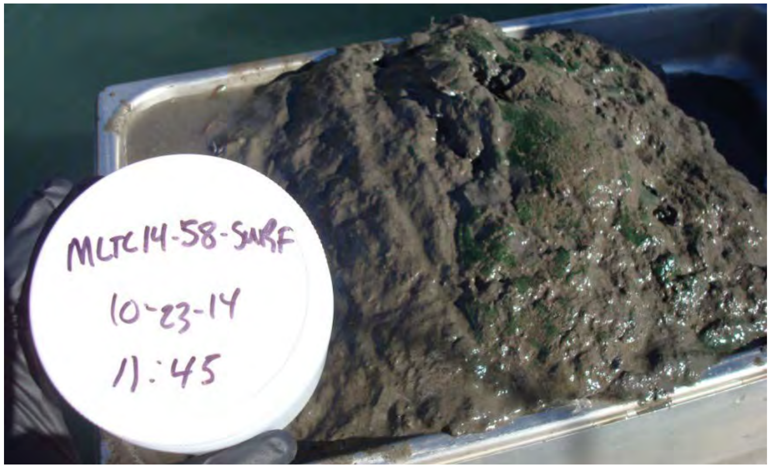
Photographic Record

Mid/Lower Trenton Channel Field Investigation
Grosse Ile, Michigan
October 2014

MLTC14-58



MLTC14-58-SURF



Appendix D

Particle Size Graphs

Particle Size of Soils by ASTM D422

Date Received: 10/24/2014

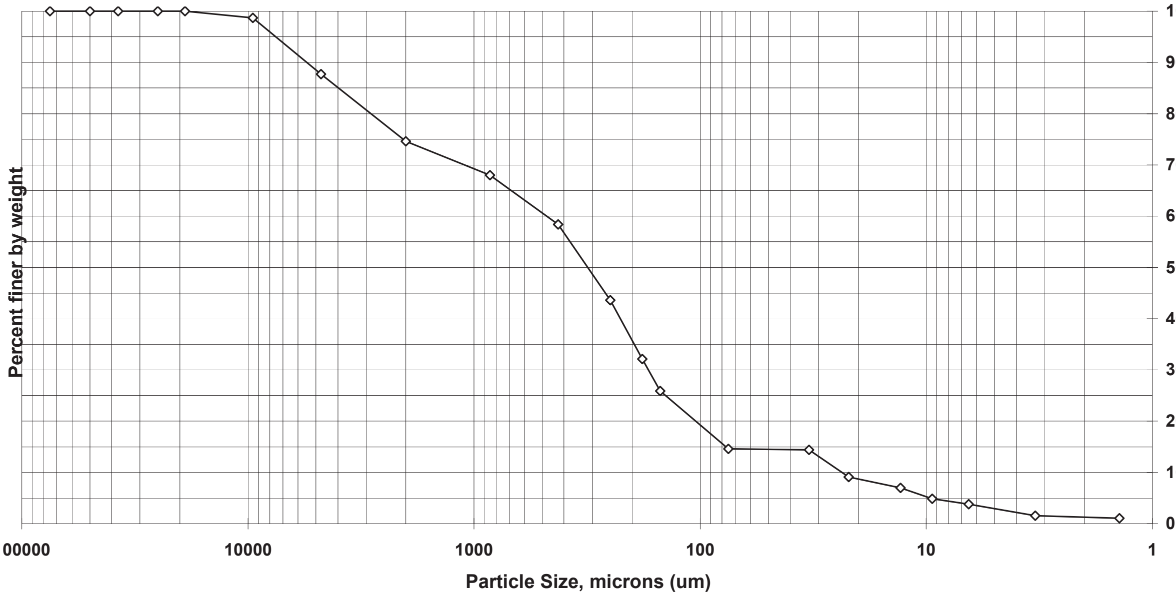
Sample ID: MLTC14-01-SURF **Percent Solids:** 57.4% **Start Date:** 11/4/2014

Lab ID: 200-24983-d-4 **Specific Gravity:** 2.650 **End Date:** 11/7/2014

Shape (> #10): subangular

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	98.7	1.3
#4	4750	87.7	11.0
#10	2000	74.6	13.1
#20	850	68.0	6.6
#40	425	58.4	9.6
#60	250	43.6	14.8
#80	180	32.1	11.5
#100	150	25.9	6.2
#200	75	14.6	11.3
Hyd1	33	14.4	0.2
Hyd2	22	9.1	5.3
Hyd3	13	7.0	2.1
Hyd4	9.4	4.9	2.1
Hyd5	6.5	3.8	1.1
Hyd6	3.3	1.6	2.3
Hyd7	1.4	1.1	0.5

Soil Classification	Percent of sample
Gravel	12.3
Sand	73.1
Coarse Sand	13.1
Medium Sand	16.2
Fine Sand	43.8
Silt	10.8
Clay	3.8

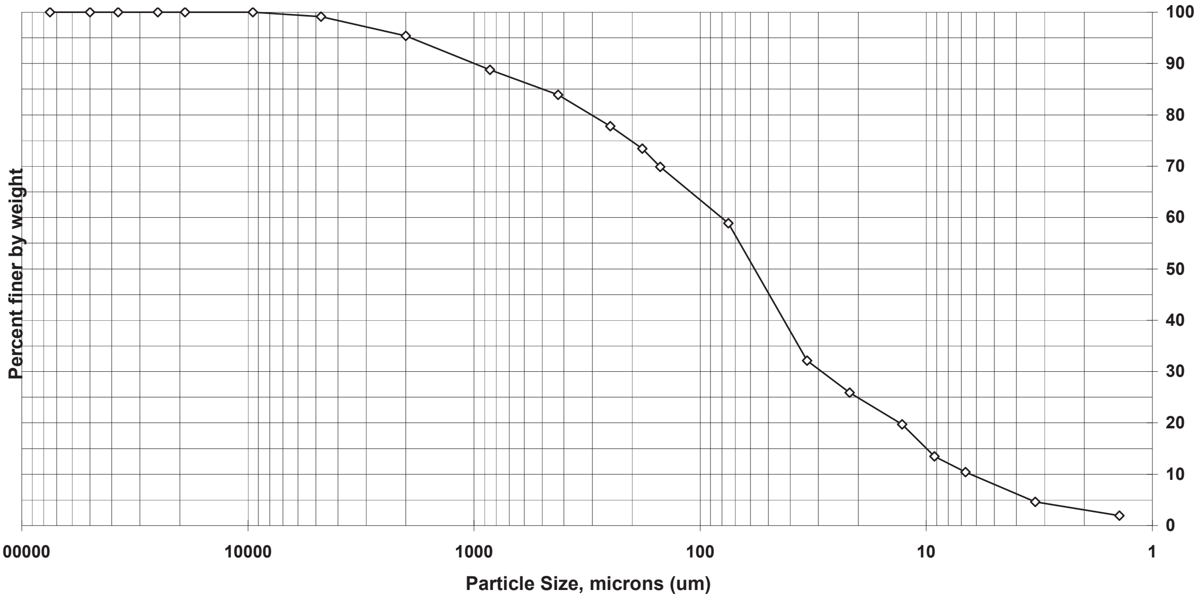
Particle Size of Soils by ASTM D422

				Date Received:	10/16/2014
Sample ID:	MLTC14-03-SURF	**Percent Solids:**	42.1%	**Start Date:**	11/3/2014
Lab ID:	200-24777-d-1	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): subrounded

Non-soil material: plant,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.1	0.9
#10	2000	95.4	3.7
#20	850	88.8	6.6
#40	425	83.9	4.9
#60	250	77.8	6.1
#80	180	73.4	4.4
#100	150	69.9	3.5
#200	75	58.9	11.0
Hyd1	33.7	32.1	26.8
Hyd2	21.8	25.9	6.2
Hyd3	12.8	19.7	6.2
Hyd4	9.2	13.5	6.2
Hyd5	6.7	10.4	3.1
Hyd6	3.3	4.6	5.8
Hyd7	1.4	1.9	2.7

Soil Classification	Percent of sample
Gravel	0.9
Sand	40.2
Coarse Sand	3.7
Medium Sand	11.5
Fine Sand	25.0
Silt	48.5
Clay	10.4

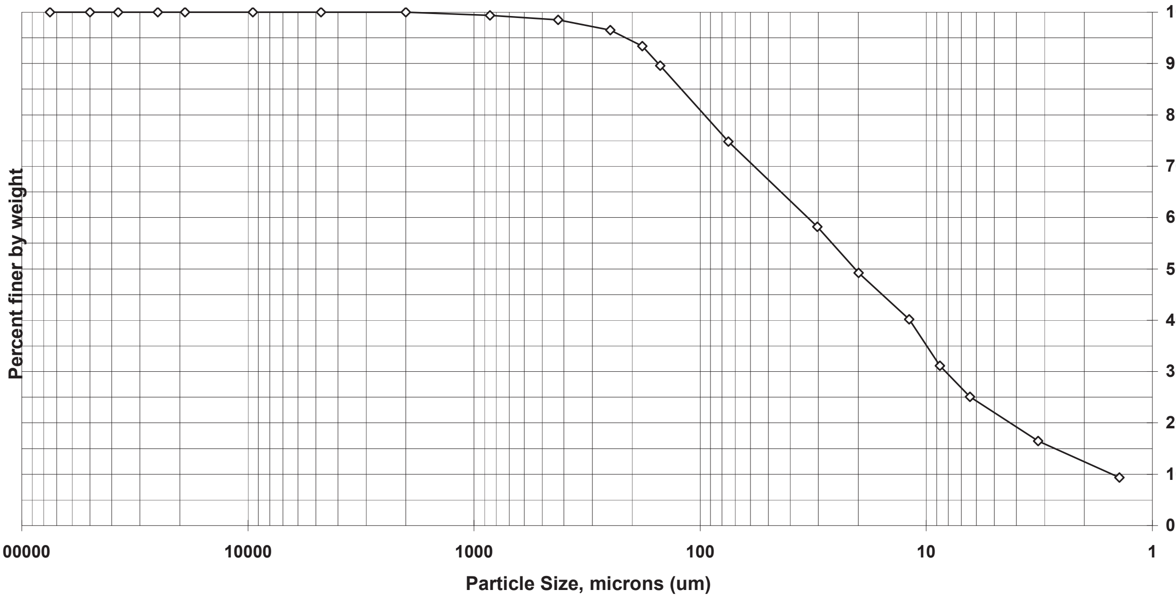
Particle Size of Soils by ASTM D422

				Date Received:	10/16/2014
Sample ID:	MLTC14-04-SURF	**Percent Solids:**	45.1%	**Start Date:**	11/3/2014
Lab ID:	200-24777-d-2	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): na

Non-soil material: na

Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.4	0.6
#40	425	98.5	0.9
#60	250	96.5	2.0
#80	180	93.4	3.1
#100	150	89.6	3.8
#200	75	74.8	14.8
Hyd1	30.3	58.2	16.6
Hyd2	19.9	49.2	9.0
Hyd3	11.9	40.2	9.0
Hyd4	8.7	31.1	9.1
Hyd5	6.4	25.1	6.0
Hyd6	3.2	16.5	8.6
Hyd7	1.4	9.4	7.1

Soil Classification	Percent of sample
Gravel	0.0
Sand	25.2
Coarse Sand	0.0
Medium Sand	1.5
Fine Sand	23.7
Silt	49.7
Clay	25.1

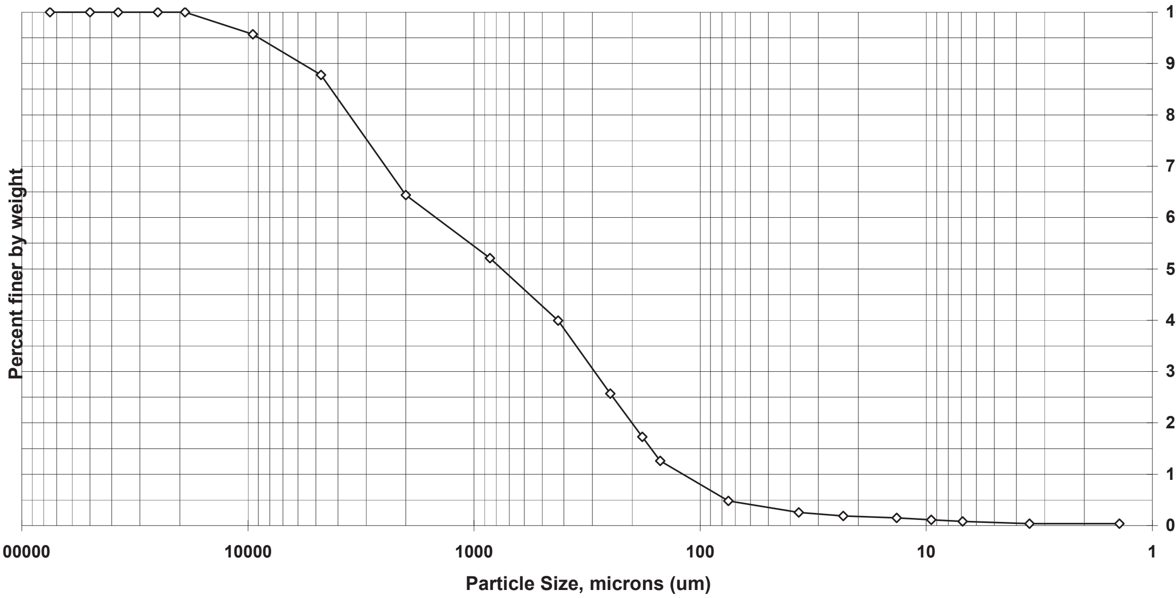
Particle Size of Soils by ASTM D422

				Date Received:	10/24/2014
Sample ID:	MLTC14-05-SURF	**Percent Solids:**	77.4%	**Start Date:**	11/4/2014
Lab ID:	200-24980-d-3	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	95.7	4.3
#4	4750	87.8	7.9
#10	2000	64.4	23.4
#20	850	52.1	12.3
#40	425	39.9	12.2
#60	250	25.7	14.2
#80	180	17.3	8.4
#100	150	12.6	4.7
#200	75	4.8	7.8
Hyd1	36.6	2.6	2.3
Hyd2	23.3	1.9	0.7
Hyd3	13.5	1.5	0.4
Hyd4	9.5	1.2	0.4
Hyd5	6.9	0.8	0.4
Hyd6	3.5	0.4	0.4
Hyd7	1.4	0.4	0.0

Soil Classification	Percent of sample
Gravel	12.2
Sand	83.0
Coarse Sand	23.4
Medium Sand	24.5
Fine Sand	35.1
Silt	4.0
Clay	0.8

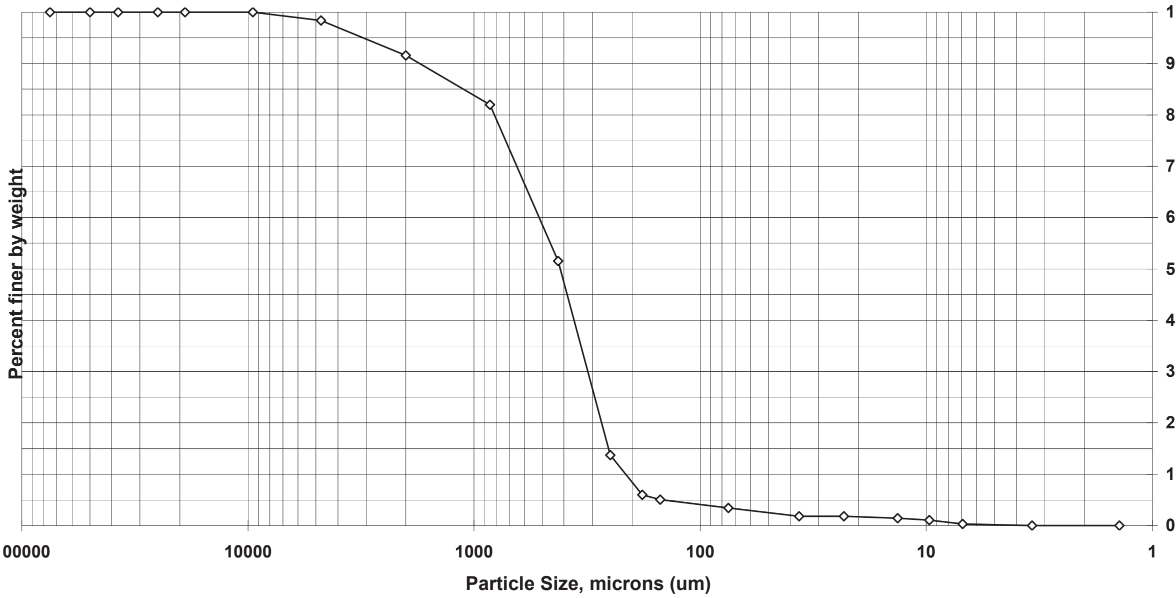
Particle Size of Soils by ASTM D422

				Date Received:	10/16/2014
Sample ID:	MLTC14-06-SURF	**Percent Solids:**	79.1%	**Start Date:**	11/3/2014
Lab ID:	200-24777-d-7	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): subrounded

Non-soil material: plant,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.4	1.6
#10	2000	91.6	6.8
#20	850	82.0	9.6
#40	425	51.5	30.5
#60	250	13.7	37.8
#80	180	6.0	7.7
#100	150	5.1	0.9
#200	75	3.4	1.6
Hyd1	36.5	1.8	1.7
Hyd2	23.1	1.8	0.0
Hyd3	13.4	1.4	0.4
Hyd4	9.7	1.0	0.4
Hyd5	6.9	0.3	0.7
Hyd6	3.4	0.0	0.3
Hyd7	1.4	0.0	0.0

Soil Classification	Percent of sample
Gravel	1.6
Sand	95.0
Coarse Sand	6.8
Medium Sand	40.1
Fine Sand	48.1
Silt	3.2
Clay	0.3

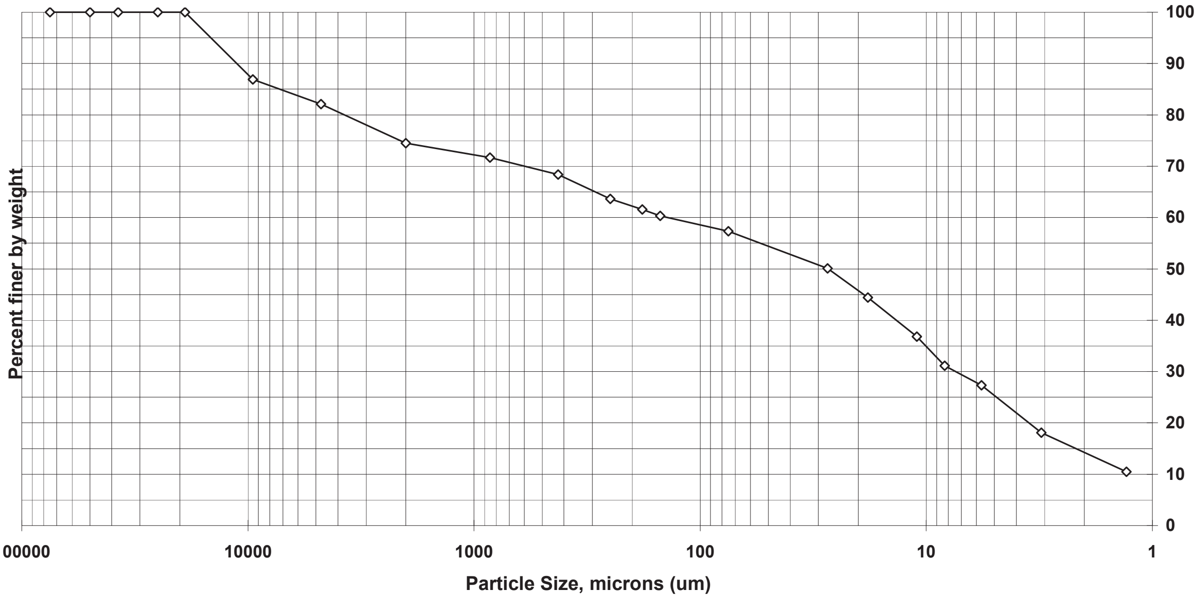
Particle Size of Soils by ASTM D422

				Date Received:	10/16/2014
Sample ID:	MLTC14-07-SURF	**Percent Solids:**	54.6%	**Start Date:**	11/3/2014
Lab ID:	200-24777-d-10	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): subangular

Non-soil material: shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	86.9	13.1
#4	4750	82.1	4.8
#10	2000	74.5	7.6
#20	850	71.7	2.8
#40	425	68.4	3.3
#60	250	63.6	4.8
#80	180	61.6	2.0
#100	150	60.3	1.3
#200	75	57.3	3.0
Hyd1	27.3	50.1	7.2
Hyd2	18.1	44.4	5.7
Hyd3	11	36.8	7.6
Hyd4	8.3	31.1	5.7
Hyd5	5.7	27.3	3.8
Hyd6	3.1	18.1	9.2
Hyd7	1.3	10.5	7.6

Soil Classification	Percent of sample
Gravel	17.9
Sand	24.8
Coarse Sand	7.6
Medium Sand	6.1
Fine Sand	11.1
Silt	30.0
Clay	27.3

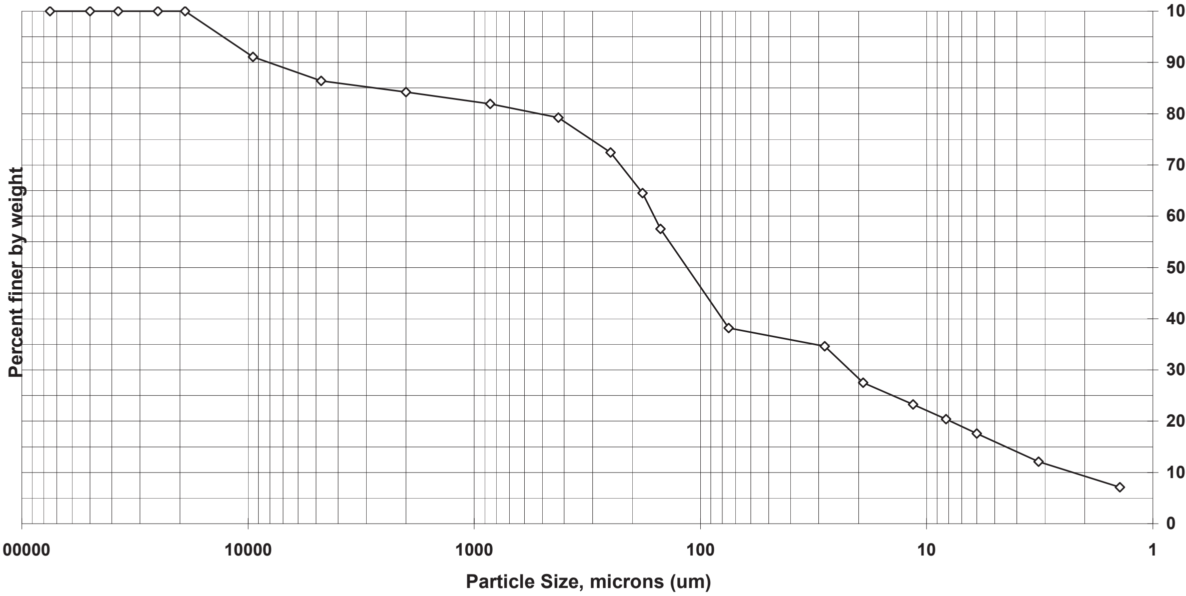
Particle Size of Soils by ASTM D422

				Date Received:	10/16/2014
Sample ID:	MLTC14-08-SURF	**Percent Solids:**	66.6%	**Start Date:**	11/3/2014
Lab ID:	200-24777-d-14	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): subangular

Non-soil material: plant

Hardness (> #10): hard



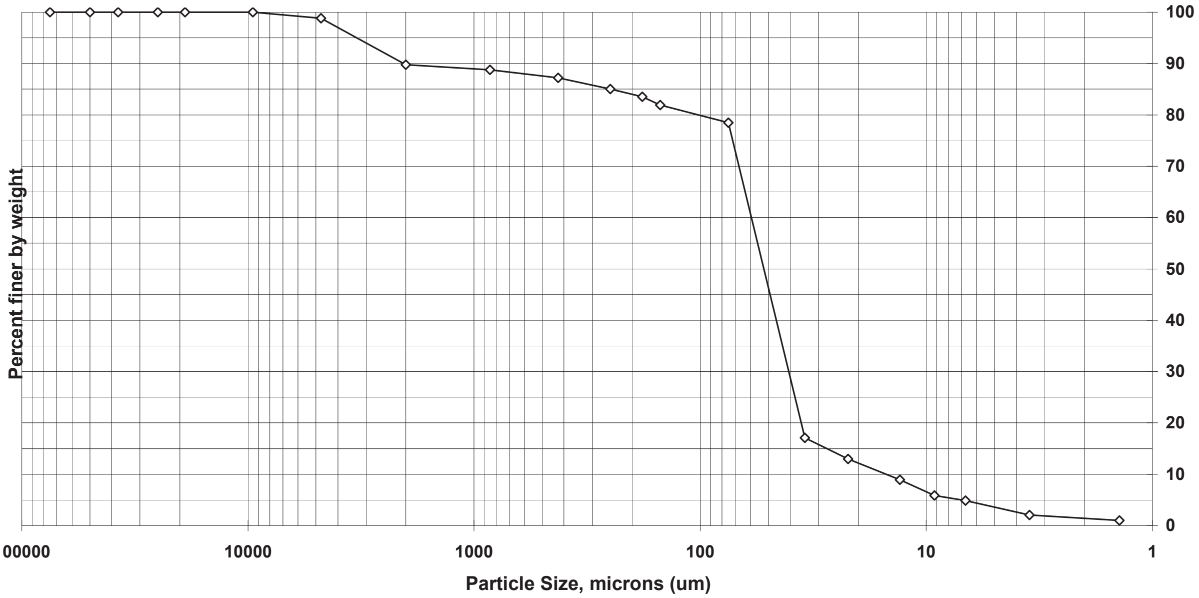
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	91.1	8.9
#4	4750	86.4	4.7
#10	2000	84.2	2.2
#20	850	81.9	2.3
#40	425	79.2	2.7
#60	250	72.4	6.8
#80	180	64.5	7.9
#100	150	57.5	7.0
#200	75	38.2	19.3
Hyd1	28.2	34.6	3.6
Hyd2	19.1	27.5	7.1
Hyd3	11.5	23.3	4.2
Hyd4	8.2	20.4	2.9
Hyd5	6	17.6	2.8
Hyd6	3.2	12.1	5.5
Hyd7	1.4	7.1	5.0

Soil Classification	Percent of sample
Gravel	13.6
Sand	48.2
Coarse Sand	2.2
Medium Sand	5.0
Fine Sand	41.0
Silt	20.6
Clay	17.6

Particle Size of Soils by ASTM D422

Date Received: 10/16/2014
Sample ID: MLTC14-09-SURF **Percent Solids:** 56.7% **Start Date:** 11/3/2014
Lab ID: 200-24777-d-15 **Specific Gravity:** 2.650 **End Date:** 11/5/2014

Shape (> #10): subrounded **Non-soil material:** plant,wood
Hardness (> #10): hard



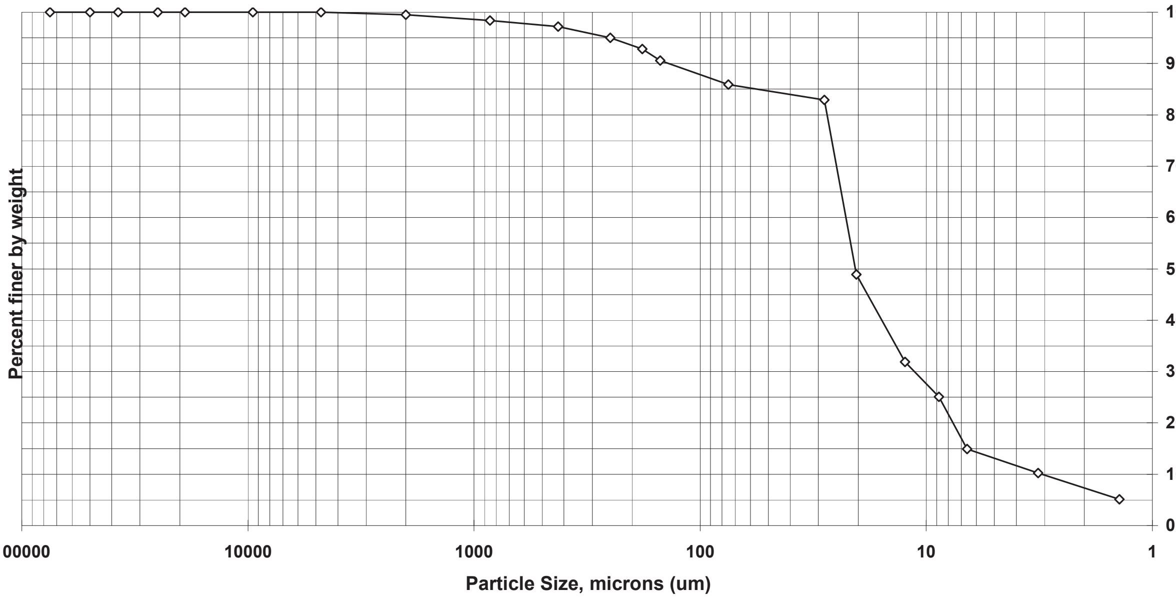
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.8	1.2
#10	2000	89.8	9.0
#20	850	88.8	1.0
#40	425	87.2	1.6
#60	250	85.0	2.2
#80	180	83.5	1.5
#100	150	81.9	1.6
#200	75	78.5	3.4
Hyd1	34.4	17.1	61.4
Hyd2	22.2	13.0	4.1
Hyd3	13.1	9.0	4.1
Hyd4	9.2	5.9	3.1
Hyd5	6.7	4.9	1.0
Hyd6	3.5	2.1	2.8
Hyd7	1.4	1.0	1.0

Soil Classification	Percent of sample
Gravel	1.2
Sand	20.3
Coarse Sand	9.0
Medium Sand	2.6
Fine Sand	8.7
Silt	73.6
Clay	4.9

Particle Size of Soils by ASTM D422

Date Received: 10/17/2014
Sample ID: MLTC14-10-SURF **Percent Solids:** 35.0% **Start Date:** 11/3/2014
Lab ID: 200-24822-d-4 **Specific Gravity:** 2.650 **End Date:** 11/5/2014

Shape (> #10): na **Non-soil material:** plant
Hardness (> #10): na



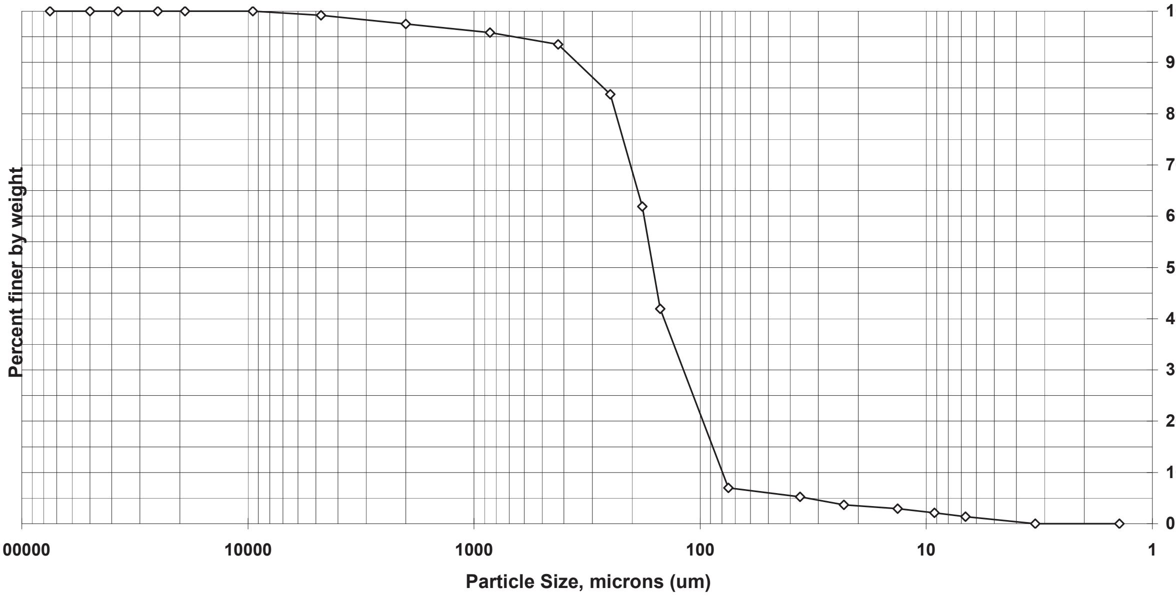
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.5	0.5
#20	850	98.4	1.1
#40	425	97.2	1.2
#60	250	95.0	2.2
#80	180	92.8	2.2
#100	150	90.6	2.2
#200	75	85.9	4.7
Hyd1	28.2	82.9	3.0
Hyd2	20.4	48.9	34.0
Hyd3	12.4	31.9	17.0
Hyd4	8.8	25.1	6.8
Hyd5	6.6	14.9	10.2
Hyd6	3.2	10.2	4.7
Hyd7	1.4	5.1	5.1

Soil Classification	Percent of sample
Gravel	0.0
Sand	14.1
Coarse Sand	0.5
Medium Sand	2.3
Fine Sand	11.3
Silt	71.0
Clay	14.9

Particle Size of Soils by ASTM D422

Date Received: 10/17/2014
Sample ID: MLTC14-11-SURF **Percent Solids:** 71.7% **Start Date:** 11/3/2014
Lab ID: 200-24822-d-6 **Specific Gravity:** 2.650 **End Date:** 11/5/2014

Shape (> #10): subangular **Non-soil material:** plant,shell
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.2	0.8
#10	2000	97.5	1.7
#20	850	95.8	1.7
#40	425	93.5	2.3
#60	250	83.8	9.7
#80	180	61.9	21.9
#100	150	41.9	20.0
#200	75	7.0	34.9
Hyd1	36.1	5.3	1.7
Hyd2	23.1	3.7	1.6
Hyd3	13.4	2.9	0.8
Hyd4	9.2	2.1	0.8
Hyd5	6.7	1.4	0.8
Hyd6	3.3	0.0	1.4
Hyd7	1.4	0.0	0.0

Soil Classification	Percent of sample
Gravel	0.8
Sand	92.2
Coarse Sand	1.7
Medium Sand	4.0
Fine Sand	86.5
Silt	5.6
Clay	1.4

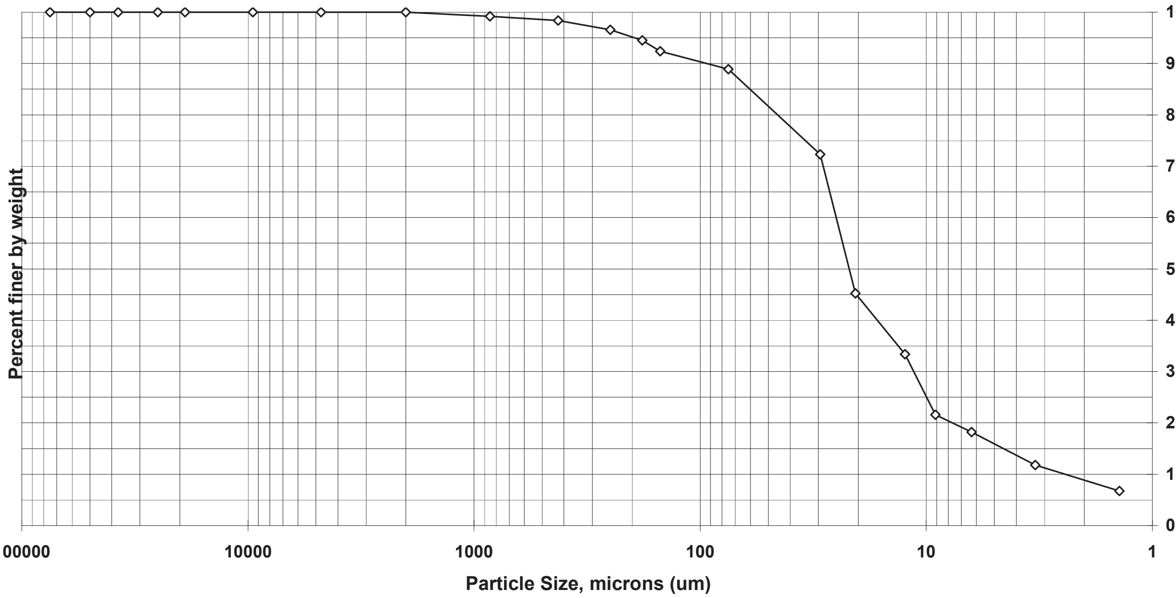
Particle Size of Soils by ASTM D422

				Date Received:	10/17/2014
Sample ID:	MLTC14-12-SURF	**Percent Solids:**	36.9%	**Start Date:**	11/3/2014
Lab ID:	200-24822-d-7	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): na

Non-soil material: na

Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.2	0.8
#40	425	98.4	0.8
#60	250	96.6	1.8
#80	180	94.5	2.1
#100	150	92.4	2.1
#200	75	88.9	3.5
Hyd1	29.4	72.3	16.6
Hyd2	20.6	45.2	27.1
Hyd3	12.4	33.4	11.8
Hyd4	9.1	21.6	11.8
Hyd5	6.3	18.2	3.4
Hyd6	3.3	11.8	6.4
Hyd7	1.4	6.8	5.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	11.1
Coarse Sand	0.0
Medium Sand	1.6
Fine Sand	9.5
Silt	70.7
Clay	18.2

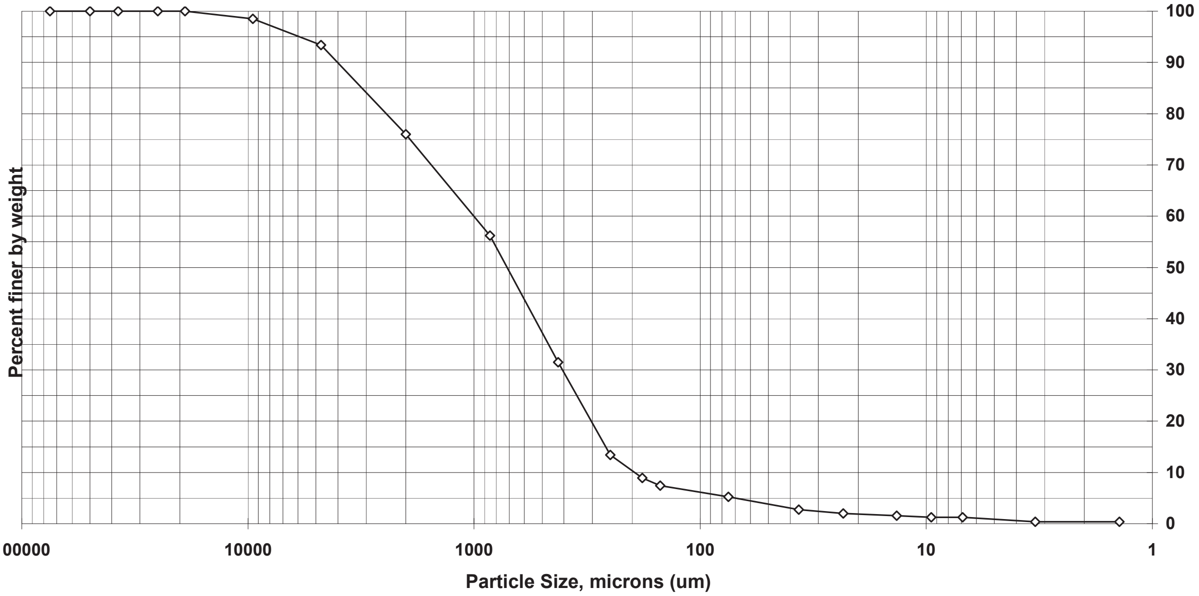
Particle Size of Soils by ASTM D422

				Date Received:	10/24/2014
Sample ID:	MLTC14-13-SURF	**Percent Solids:**	77.7%	**Start Date:**	11/4/2014
Lab ID:	200-24980-d-6	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subangular

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	98.5	1.5
#4	4750	93.4	5.1
#10	2000	76.0	17.4
#20	850	56.2	19.8
#40	425	31.5	24.7
#60	250	13.4	18.1
#80	180	8.9	4.5
#100	150	7.4	1.5
#200	75	5.3	2.2
Hyd1	36.6	2.7	2.5
Hyd2	23.3	2.0	0.8
Hyd3	13.5	1.6	0.4
Hyd4	9.5	1.2	0.4
Hyd5	6.9	1.2	0.0
Hyd6	3.3	0.4	0.8
Hyd7	1.4	0.4	0.0

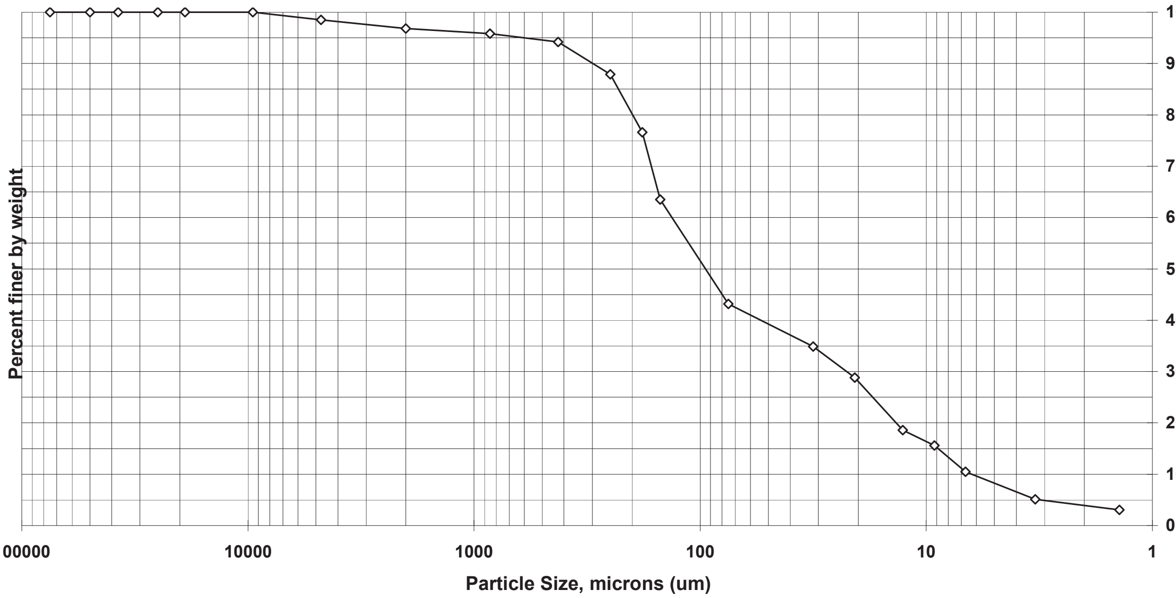
Soil Classification	Percent of sample
Gravel	6.6
Sand	88.2
Coarse Sand	17.4
Medium Sand	44.5
Fine Sand	26.3
Silt	4.0
Clay	1.2

Particle Size of Soils by ASTM D422

				Date Received:	10/23/2014
Sample ID:	MLTC14-14-SURF	**Percent Solids:**	49.5%	**Start Date:**	11/4/2014
Lab ID:	200-24949-d-9	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): angular

Non-soil material: plant,wood,shell
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.5	1.5
#10	2000	96.8	1.7
#20	850	95.8	1.0
#40	425	94.2	1.6
#60	250	87.9	6.3
#80	180	76.6	11.3
#100	150	63.5	13.1
#200	75	43.2	20.3
Hyd1	31.6	34.9	8.3
Hyd2	20.7	28.8	6.1
Hyd3	12.7	18.6	10.2
Hyd4	9.2	15.6	3.0
Hyd5	6.7	10.5	5.1
Hyd6	3.3	5.1	5.4
Hyd7	1.4	3.1	2.0

Soil Classification	Percent of sample
Gravel	1.5
Sand	55.3
Coarse Sand	1.7
Medium Sand	2.6
Fine Sand	51.0
Silt	32.7
Clay	10.5

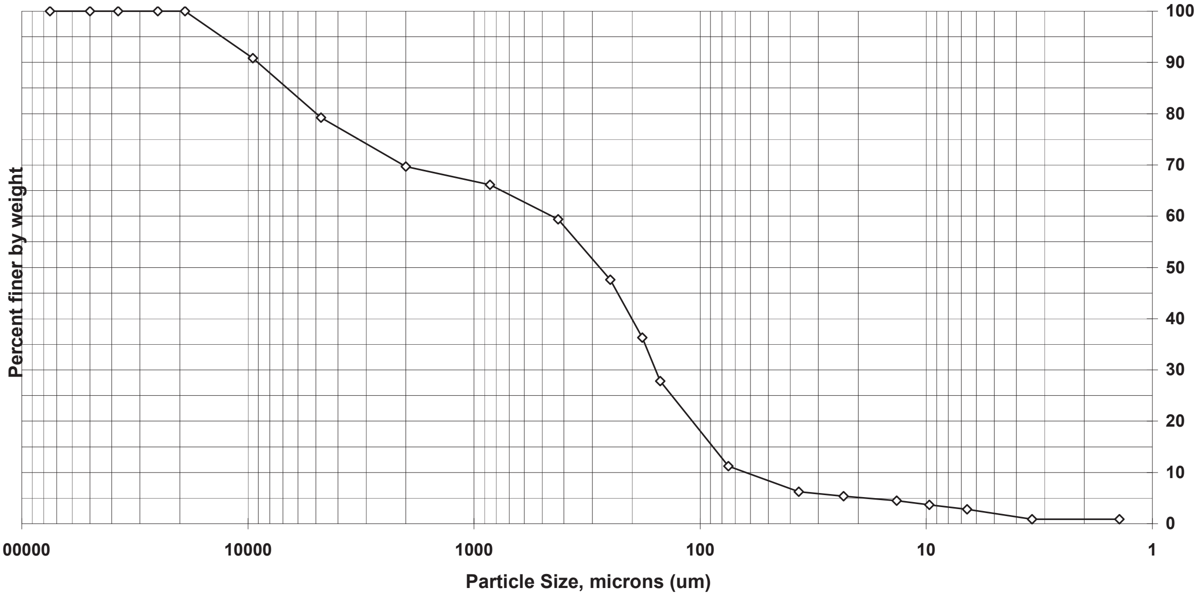
Particle Size of Soils by ASTM D422

				Date Received:	10/23/2014
Sample ID:	MLTC14-15-SURF	**Percent Solids:**	42.4%	**Start Date:**	11/4/2014
Lab ID:	200-24950-d-3	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subangular

Non-soil material: plant,wood,glass

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	90.8	9.2
#4	4750	79.2	11.6
#10	2000	69.7	9.5
#20	850	66.1	3.6
#40	425	59.4	6.7
#60	250	47.6	11.8
#80	180	36.3	11.3
#100	150	27.8	8.5
#200	75	11.2	16.6
Hyd1	36.6	6.2	5.0
Hyd2	23.2	5.4	0.9
Hyd3	13.5	4.5	0.9
Hyd4	9.7	3.7	0.9
Hyd5	6.6	2.8	0.9
Hyd6	3.4	0.9	1.9
Hyd7	1.4	0.9	0.0

Soil Classification	Percent of sample
Gravel	20.8
Sand	68.0
Coarse Sand	9.5
Medium Sand	10.3
Fine Sand	48.2
Silt	8.4
Clay	2.8

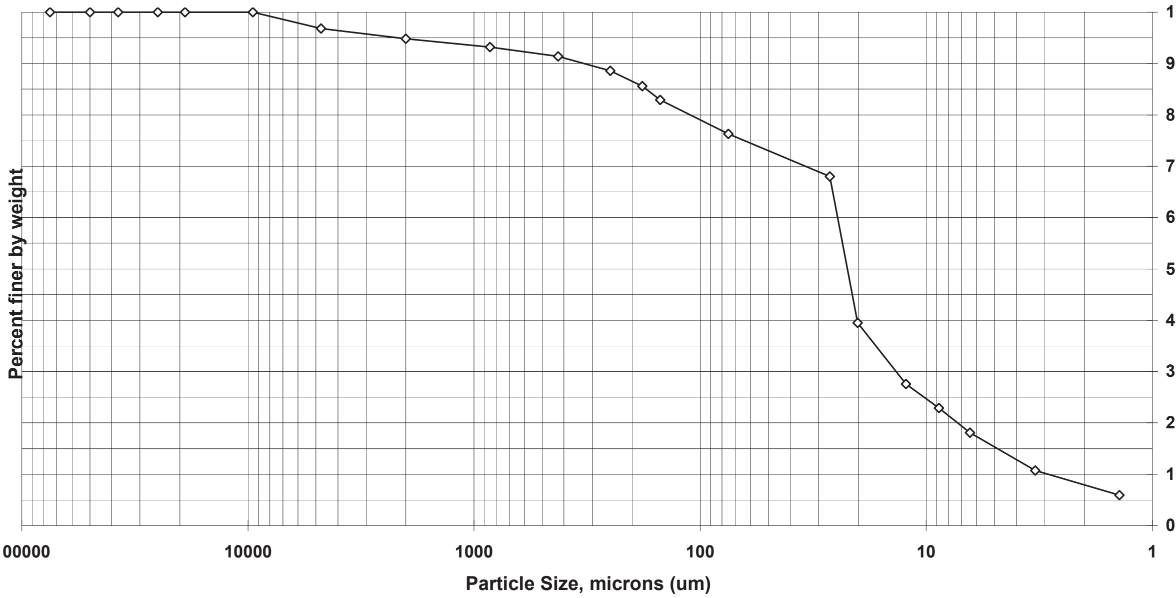
Particle Size of Soils by ASTM D422

				Date Received:	10/23/2014
Sample ID:	MLTC14-16-SURF	**Percent Solids:**	42.7%	**Start Date:**	11/4/2014
Lab ID:	200-24950-d-8	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subangular

Non-soil material: plant,wood

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	96.8	3.2
#10	2000	94.8	2.0
#20	850	93.2	1.6
#40	425	91.4	1.8
#60	250	88.6	2.8
#80	180	85.6	3.0
#100	150	82.9	2.7
#200	75	76.3	6.6
Hyd1	26.7	68.0	8.3
Hyd2	20.1	39.5	28.5
Hyd3	12.3	27.6	11.9
Hyd4	8.8	22.9	4.7
Hyd5	6.4	18.1	4.8
Hyd6	3.3	10.7	7.4
Hyd7	1.4	5.9	4.8

Soil Classification	Percent of sample
Gravel	3.2
Sand	20.5
Coarse Sand	2.0
Medium Sand	3.4
Fine Sand	15.1
Silt	58.2
Clay	18.1

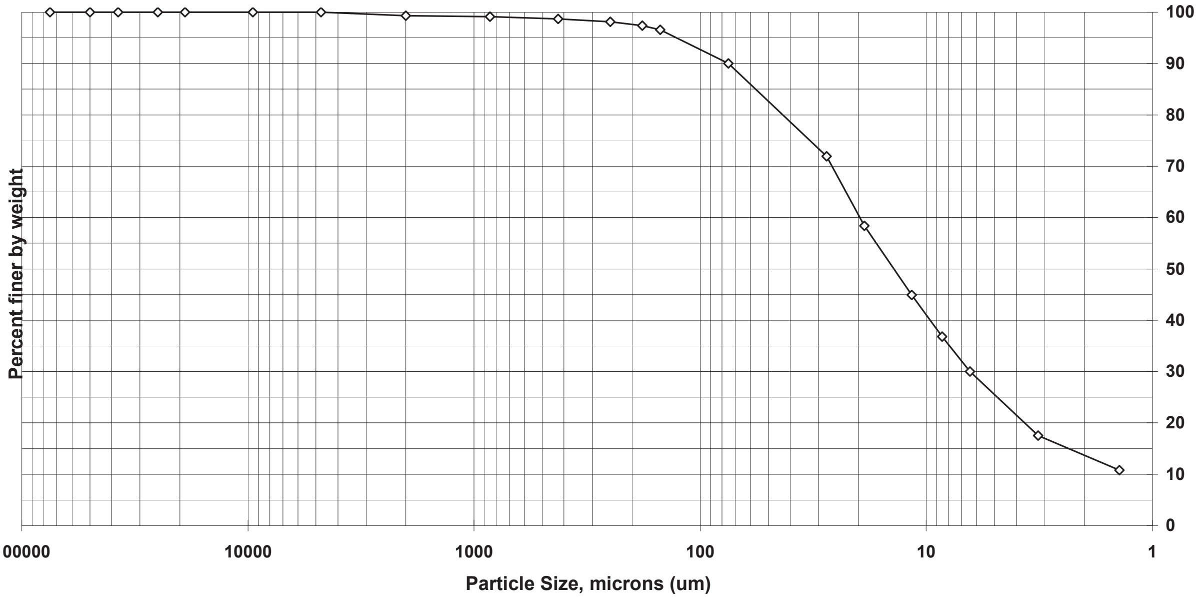
Particle Size of Soils by ASTM D422

				Date Received:	10/22/2014
Sample ID:	MLTC14-17-SURF	**Percent Solids:**	42.7%	**Start Date:**	11/3/2014
Lab ID:	200-24911-D-1	**Specific Gravity:**	2.650	**End Date:**	11/6/2014

Shape (> #10): na

Non-soil material: plant,wood

Hardness (> #10): na



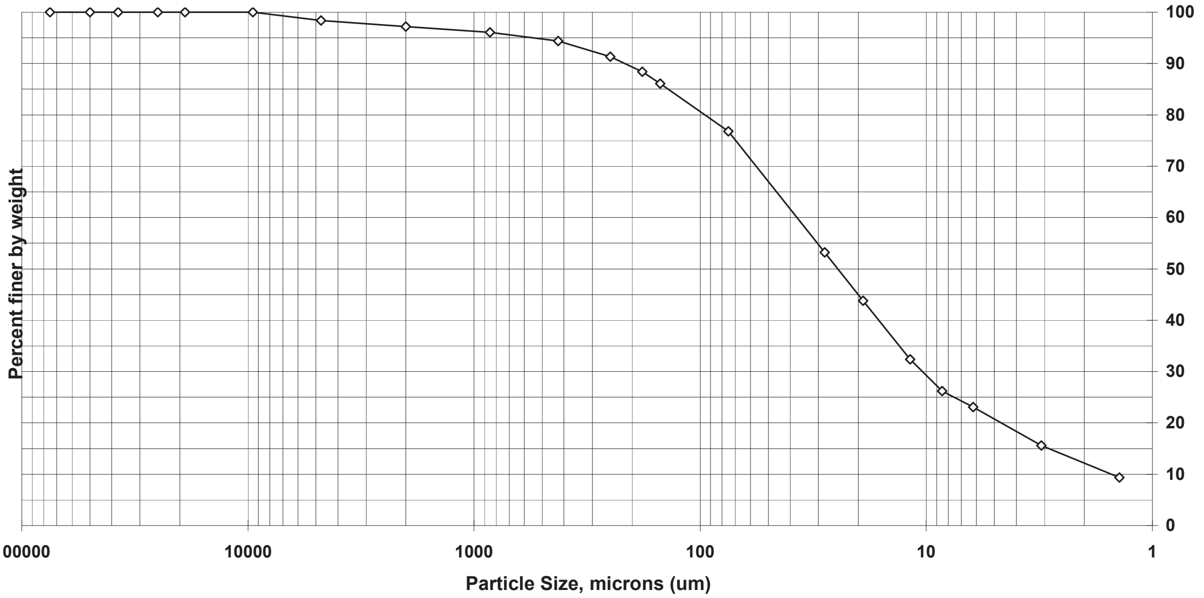
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.3	0.7
#20	850	99.1	0.2
#40	425	98.7	0.4
#60	250	98.1	0.6
#80	180	97.4	0.7
#100	150	96.6	0.8
#200	75	90.0	6.6
Hyd1	27.6	71.9	18.1
Hyd2	18.8	58.4	13.5
Hyd3	11.6	44.9	13.5
Hyd4	8.5	36.8	8.1
Hyd5	6.4	30.0	6.8
Hyd6	3.2	17.5	12.5
Hyd7	1.4	10.8	6.7

Soil Classification	Percent of sample
Gravel	0.0
Sand	10.0
Coarse Sand	0.7
Medium Sand	0.6
Fine Sand	8.7
Silt	60.0
Clay	30.0

Particle Size of Soils by ASTM D422

Date Received: 10/21/2014
Sample ID: MLTC14-18-SURF
Percent Solids: 48.2%
Start Date: 11/3/2014
Lab ID: 200-24894-D-2
Specific Gravity: 2.650
End Date: 11/6/2014

Shape (> #10): subangular
Non-soil material: plant,wood,shell
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.4	1.6
#10	2000	97.2	1.2
#20	850	96.1	1.1
#40	425	94.4	1.7
#60	250	91.3	3.1
#80	180	88.4	2.9
#100	150	86.1	2.3
#200	75	76.8	9.3
Hyd1	28.1	53.2	23.6
Hyd2	19	43.8	9.4
Hyd3	11.8	32.4	11.4
Hyd4	8.5	26.2	6.2
Hyd5	6.2	23.1	3.1
Hyd6	3.1	15.6	7.5
Hyd7	1.4	9.3	6.3

Soil Classification	Percent of sample
Gravel	1.6
Sand	21.6
Coarse Sand	1.2
Medium Sand	2.8
Fine Sand	17.6
Silt	53.7
Clay	23.1

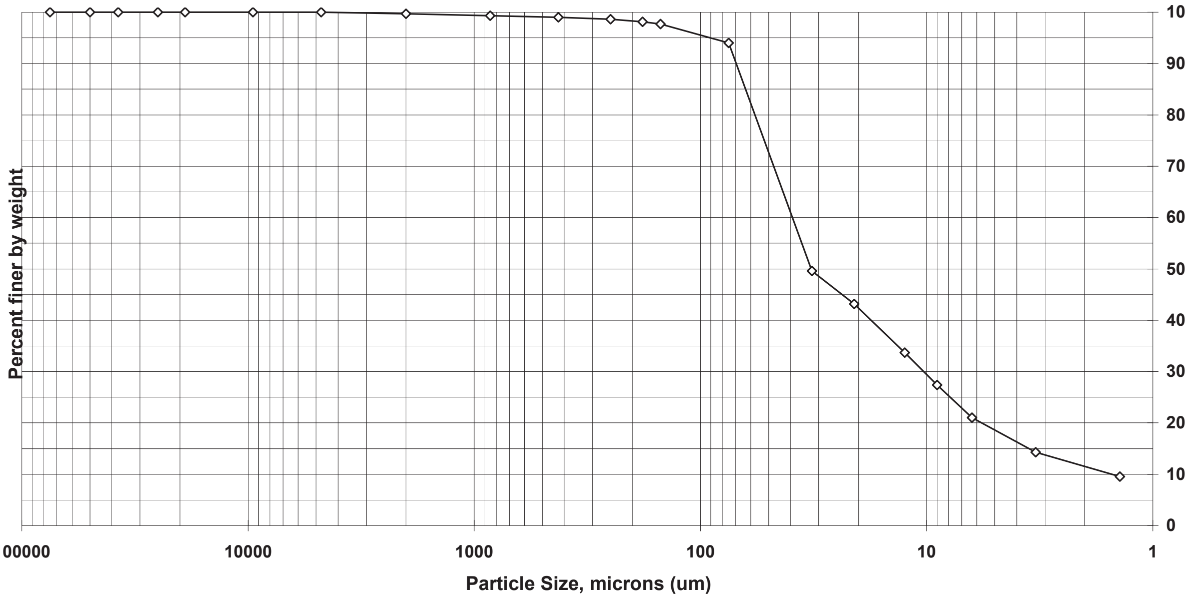
Particle Size of Soils by ASTM D422

				Date Received:	10/22/2014
Sample ID:	MLTC14-19-SURF	**Percent Solids:**	33.9%	**Start Date:**	11/3/2014
Lab ID:	200-24911-D-2	**Specific Gravity:**	2.650	**End Date:**	11/6/2014

Shape (> #10): na

Non-soil material: plant,wood

Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.7	0.3
#20	850	99.3	0.4
#40	425	99.0	0.3
#60	250	98.6	0.4
#80	180	98.1	0.5
#100	150	97.7	0.4
#200	75	94.0	3.7
Hyd1	32.2	49.6	44.4
Hyd2	20.9	43.2	6.4
Hyd3	12.5	33.7	9.5
Hyd4	9	27.4	6.3
Hyd5	6.3	21.0	6.4
Hyd6	3.3	14.3	6.7
Hyd7	1.4	9.5	4.8

Soil Classification	Percent of sample
Gravel	0.0
Sand	6.0
Coarse Sand	0.3
Medium Sand	0.7
Fine Sand	5.0
Silt	73.0
Clay	21.0

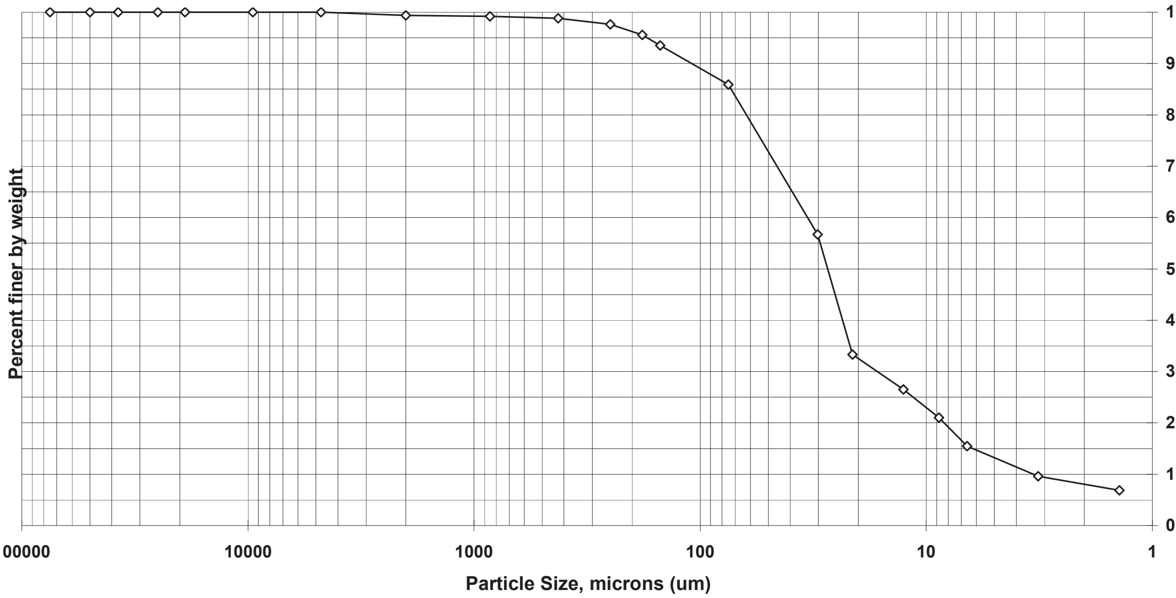
Particle Size of Soils by ASTM D422

				Date Received:	10/21/2014
Sample ID:	MLTC14-21-SURF	**Percent Solids:**	33.7%	**Start Date:**	11/3/2014
Lab ID:	200-24894-D-3	**Specific Gravity:**	2.650	**End Date:**	11/6/2014

Shape (> #10): na

Non-soil material: plant,wood

Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.4	0.6
#20	850	99.2	0.2
#40	425	98.8	0.4
#60	250	97.6	1.2
#80	180	95.6	2.0
#100	150	93.5	2.1
#200	75	85.9	7.6
Hyd1	30.2	56.7	29.2
Hyd2	21.2	33.3	23.4
Hyd3	12.6	26.5	6.8
Hyd4	8.8	21.0	5.5
Hyd5	6.6	15.5	5.5
Hyd6	3.2	9.6	5.9
Hyd7	1.4	6.9	2.8

Soil Classification	Percent of sample
Gravel	0.0
Sand	14.1
Coarse Sand	0.6
Medium Sand	0.6
Fine Sand	12.9
Silt	70.4
Clay	15.5

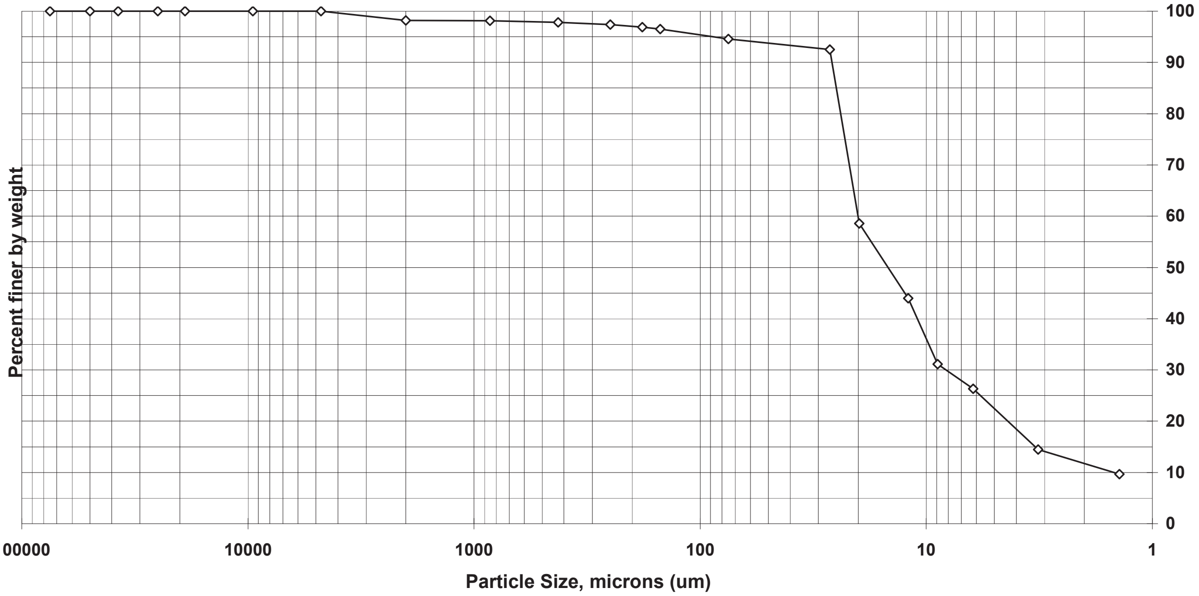
Particle Size of Soils by ASTM D422

				Date Received:	10/21/2014
Sample ID:	MLTC14-22-SURF	**Percent Solids:**	25.1%	**Start Date:**	11/3/2014
Lab ID:	200-24894-D-4	**Specific Gravity:**	2.650	**End Date:**	11/6/2014

Shape (> #10): na

Non-soil material: plant,wood

Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.2	1.8
#20	850	98.1	0.1
#40	425	97.8	0.3
#60	250	97.4	0.4
#80	180	96.9	0.5
#100	150	96.5	0.4
#200	75	94.6	1.9
Hyd1	26.7	92.5	2.1
Hyd2	19.8	58.6	33.9
Hyd3	12	44.0	14.6
Hyd4	8.9	31.1	12.9
Hyd5	6.2	26.3	4.8
Hyd6	3.2	14.5	11.8
Hyd7	1.4	9.7	4.8

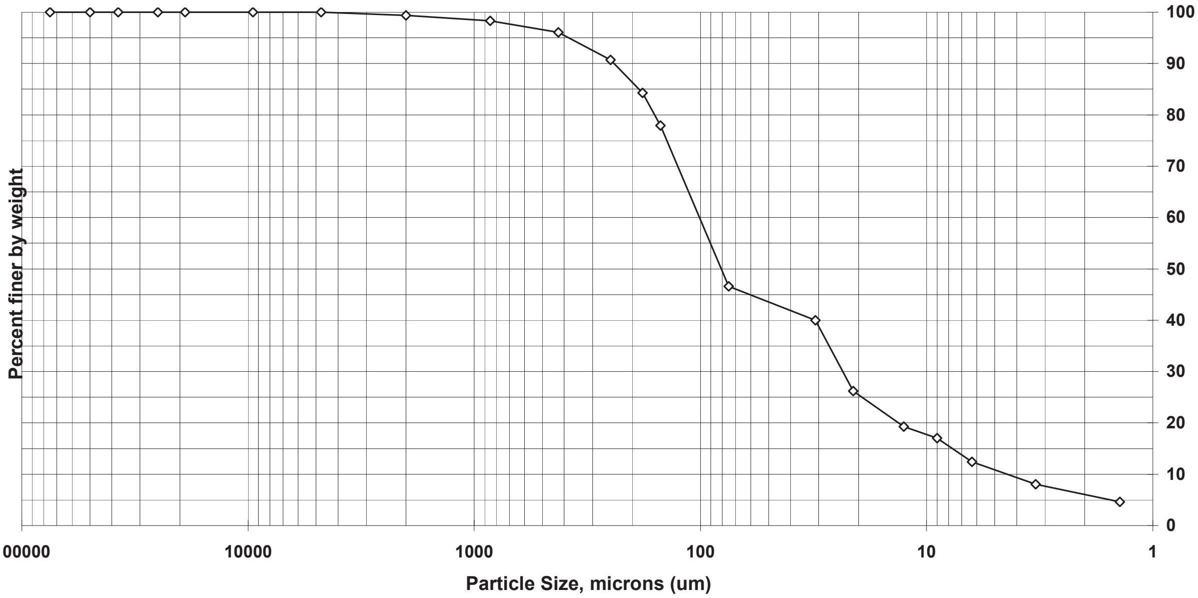
Soil Classification	Percent of sample
Gravel	0.0
Sand	5.4
Coarse Sand	1.8
Medium Sand	0.4
Fine Sand	3.2
Silt	68.3
Clay	26.3

Particle Size of Soils by ASTM D422

				Date Received:	10/17/2014
Sample ID:	MLTC14-25-SURF	**Percent Solids:**	47.2%	**Start Date:**	11/3/2014
Lab ID:	200-24822-d-19	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): na

Non-soil material: plant
Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.4	0.6
#20	850	98.3	1.1
#40	425	96.1	2.2
#60	250	90.7	5.4
#80	180	84.3	6.4
#100	150	77.9	6.4
#200	75	46.6	31.3
Hyd1	31	40.0	6.6
Hyd2	21.1	26.2	13.8
Hyd3	12.6	19.3	6.9
Hyd4	9	17.0	2.3
Hyd5	6.3	12.4	4.6
Hyd6	3.3	8.1	4.3
Hyd7	1.4	4.6	3.5

Soil Classification	Percent of sample
Gravel	0.0
Sand	53.4
Coarse Sand	0.6
Medium Sand	3.3
Fine Sand	49.5
Silt	34.2
Clay	12.4

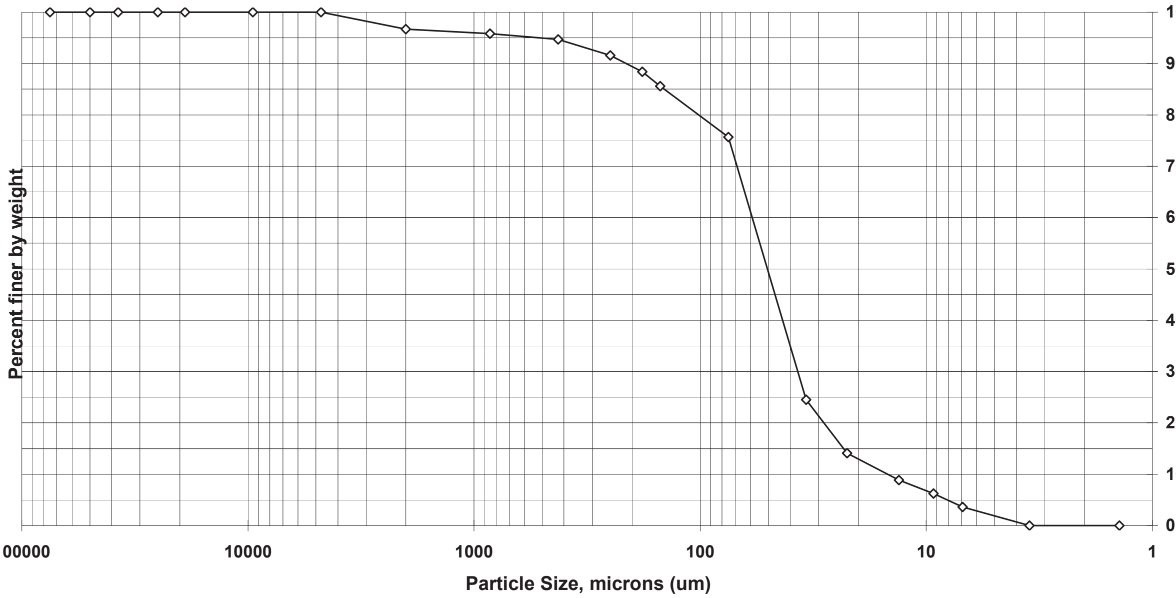
Particle Size of Soils by ASTM D422

				Date Received:	10/17/2014
Sample ID:	MLTC14-26-SURF	**Percent Solids:**	44.4%	**Start Date:**	11/3/2014
Lab ID:	200-24822-d-20	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): na

Non-soil material: plant,wood,shell

Hardness (> #10): na



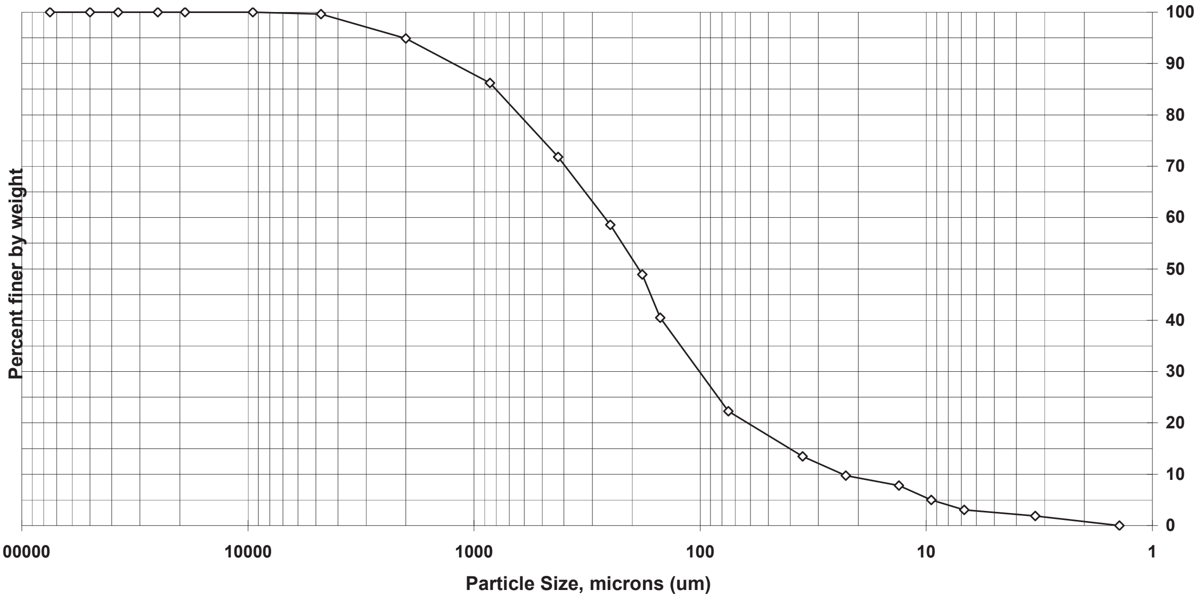
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	96.7	3.3
#20	850	95.8	0.9
#40	425	94.7	1.1
#60	250	91.6	3.1
#80	180	88.4	3.2
#100	150	85.6	2.8
#200	75	75.7	9.9
Hyd1	34	24.5	51.2
Hyd2	22.4	14.1	10.4
Hyd3	13.2	8.8	5.3
Hyd4	9.3	6.2	2.6
Hyd5	6.9	3.6	2.6
Hyd6	3.5	0.0	3.6
Hyd7	1.4	0.0	0.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	24.3
Coarse Sand	3.3
Medium Sand	2.0
Fine Sand	19.0
Silt	72.1
Clay	3.6

Particle Size of Soils by ASTM D422

Date Received: 10/17/2014
Sample ID: MLTC14-31-SURF **Percent Solids:** 60.8% **Start Date:** 11/3/2014
Lab ID: 200-24827-d-12 **Specific Gravity:** 2.650 **End Date:** 11/7/2014

Shape (> #10): subrounded **Non-soil material:** plant,wood,shell
Hardness (> #10): hard



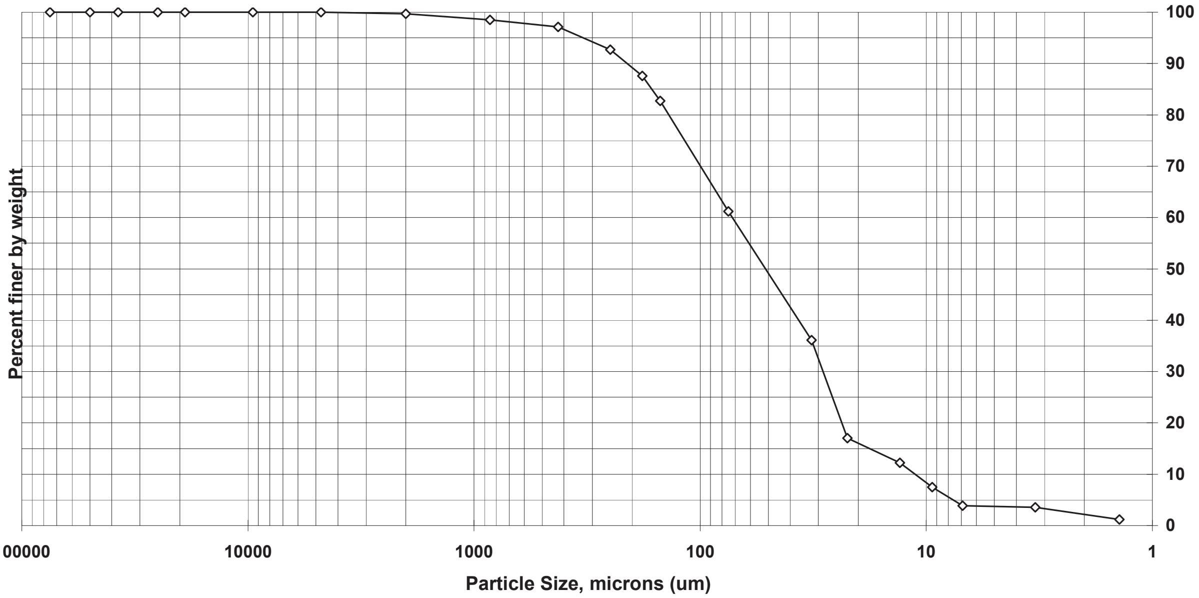
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	94.9	4.7
#20	850	86.2	8.7
#40	425	71.8	14.4
#60	250	58.6	13.2
#80	180	48.9	9.7
#100	150	40.5	8.4
#200	75	22.3	18.2
Hyd1	35.2	13.5	8.8
Hyd2	22.7	9.7	3.8
Hyd3	13.2	7.8	1.9
Hyd4	9.5	5.0	2.8
Hyd5	6.8	3.1	1.9
Hyd6	3.3	1.9	1.2
Hyd7	1.4	0.0	1.9

Soil Classification	Percent of sample
Gravel	0.4
Sand	77.3
Coarse Sand	4.7
Medium Sand	23.1
Fine Sand	49.5
Silt	19.2
Clay	3.1

Particle Size of Soils by ASTM D422

Date Received: 10/17/2014
Sample ID: MLTC14-32-SURF
Percent Solids: 49.4%
Start Date: 11/3/2014
Lab ID: 200-24827-d-13
Specific Gravity: 2.650
End Date: 11/7/2014

Shape (> #10): subrounded
Non-soil material: plant,wood,shell
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.7	0.3
#20	850	98.5	1.2
#40	425	97.1	1.4
#60	250	92.7	4.4
#80	180	87.6	5.1
#100	150	82.7	4.9
#200	75	61.2	21.5
Hyd1	32.2	36.1	25.1
Hyd2	22.3	17.0	19.1
Hyd3	13.1	12.2	4.8
Hyd4	9.4	7.5	4.7
Hyd5	6.9	3.9	3.6
Hyd6	3.3	3.6	0.3
Hyd7	1.4	1.2	2.4

Soil Classification	Percent of sample
Gravel	0.0
Sand	38.8
Coarse Sand	0.3
Medium Sand	2.6
Fine Sand	35.9
Silt	57.3
Clay	3.9

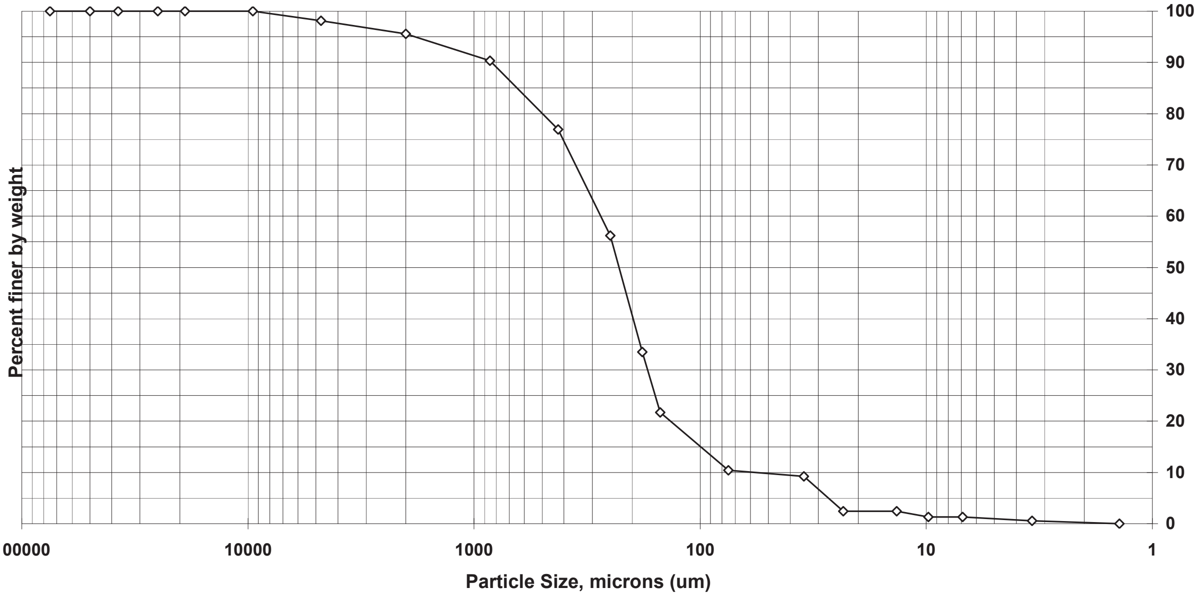
Particle Size of Soils by ASTM D422

				Date Received:	10/17/2014
Sample ID:	MLTC14-34-SURF	**Percent Solids:**	72.6%	**Start Date:**	11/3/2014
Lab ID:	200-24827-d-15	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.1	1.9
#10	2000	95.6	2.5
#20	850	90.3	5.3
#40	425	76.9	13.4
#60	250	56.2	20.7
#80	180	33.5	22.7
#100	150	21.7	11.8
#200	75	10.4	11.3
Hyd1	34.8	9.3	1.2
Hyd2	23.3	2.4	6.8
Hyd3	13.5	2.4	0.0
Hyd4	9.8	1.3	1.1
Hyd5	6.9	1.3	0.0
Hyd6	3.4	0.6	0.7
Hyd7	1.4	0.0	0.6

Soil Classification	Percent of sample
Gravel	1.9
Sand	87.7
Coarse Sand	2.5
Medium Sand	18.7
Fine Sand	66.5
Silt	9.1
Clay	1.3

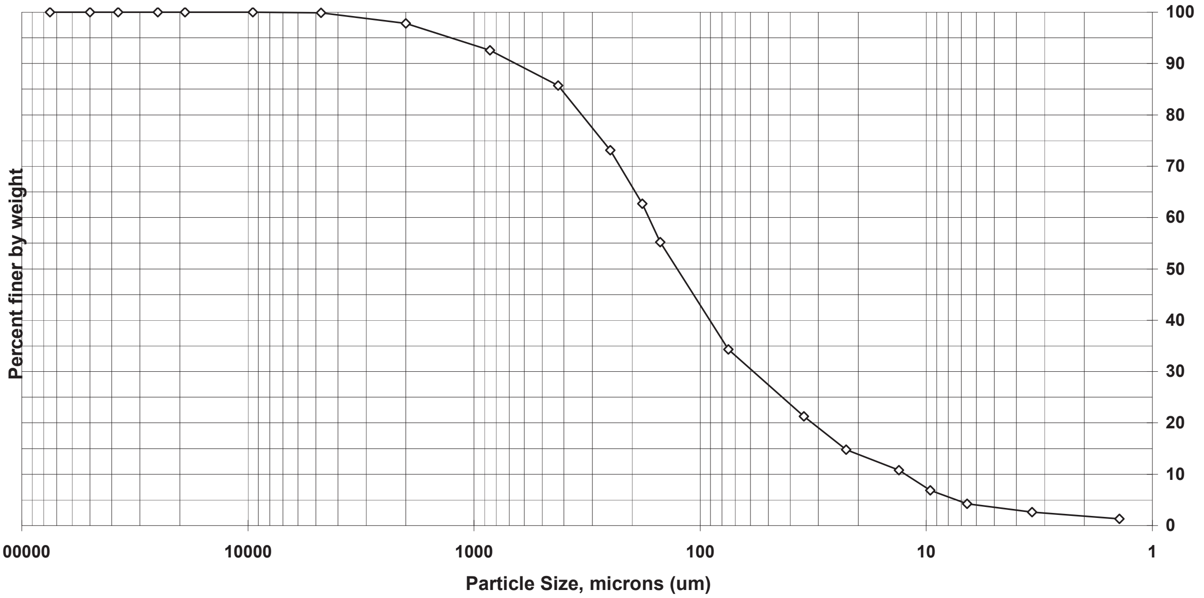
Particle Size of Soils by ASTM D422

				Date Received:	10/18/2014
Sample ID:	MLTC14-35-SURF	**Percent Solids:**	38.5%	**Start Date:**	11/3/2014
Lab ID:	200-24843-d-10	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: plant,wood,shell

Hardness (> #10): hard



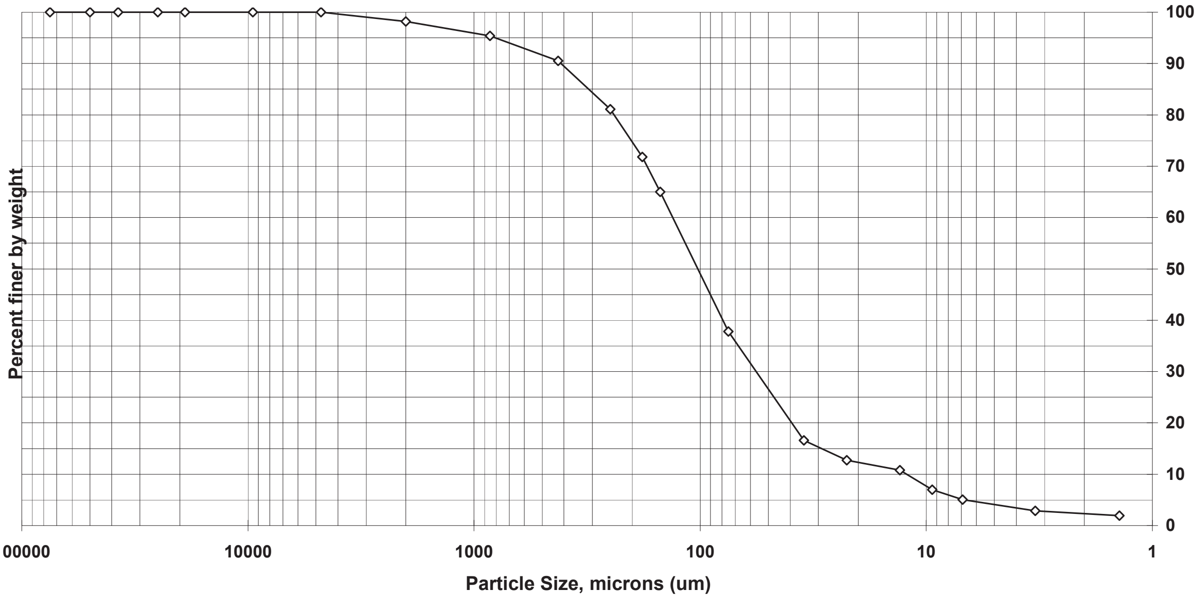
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.9	0.1
#10	2000	97.8	2.1
#20	850	92.6	5.2
#40	425	85.7	6.9
#60	250	73.1	12.6
#80	180	62.7	10.4
#100	150	55.2	7.5
#200	75	34.3	20.9
Hyd1	34.8	21.3	13.0
Hyd2	22.6	14.8	6.5
Hyd3	13.2	10.8	4.0
Hyd4	9.6	6.9	3.9
Hyd5	6.6	4.3	2.6
Hyd6	3.4	2.6	1.6
Hyd7	1.4	1.3	1.3

Soil Classification	Percent of sample
Gravel	0.1
Sand	65.6
Coarse Sand	2.1
Medium Sand	12.1
Fine Sand	51.4
Silt	30.0
Clay	4.3

Particle Size of Soils by ASTM D422

Date Received: 10/21/2014
Sample ID: MLTC14-36-SURF
Percent Solids: 49.8%
Start Date: 11/3/2014
Lab ID: 200-24887-D-8
Specific Gravity: 2.650
End Date: 11/6/2014

Shape (> #10): subrounded
Non-soil material: plant,wood
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.2	1.8
#20	850	95.4	2.8
#40	425	90.5	4.9
#60	250	81.1	9.4
#80	180	71.8	9.3
#100	150	65.0	6.8
#200	75	37.8	27.2
Hyd1	34.8	16.6	21.2
Hyd2	22.5	12.7	3.9
Hyd3	13.1	10.8	1.9
Hyd4	9.4	7.0	3.8
Hyd5	6.9	5.0	1.9
Hyd6	3.3	2.9	2.2
Hyd7	1.4	1.9	1.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	62.2
Coarse Sand	1.8
Medium Sand	7.7
Fine Sand	52.7
Silt	32.8
Clay	5.0

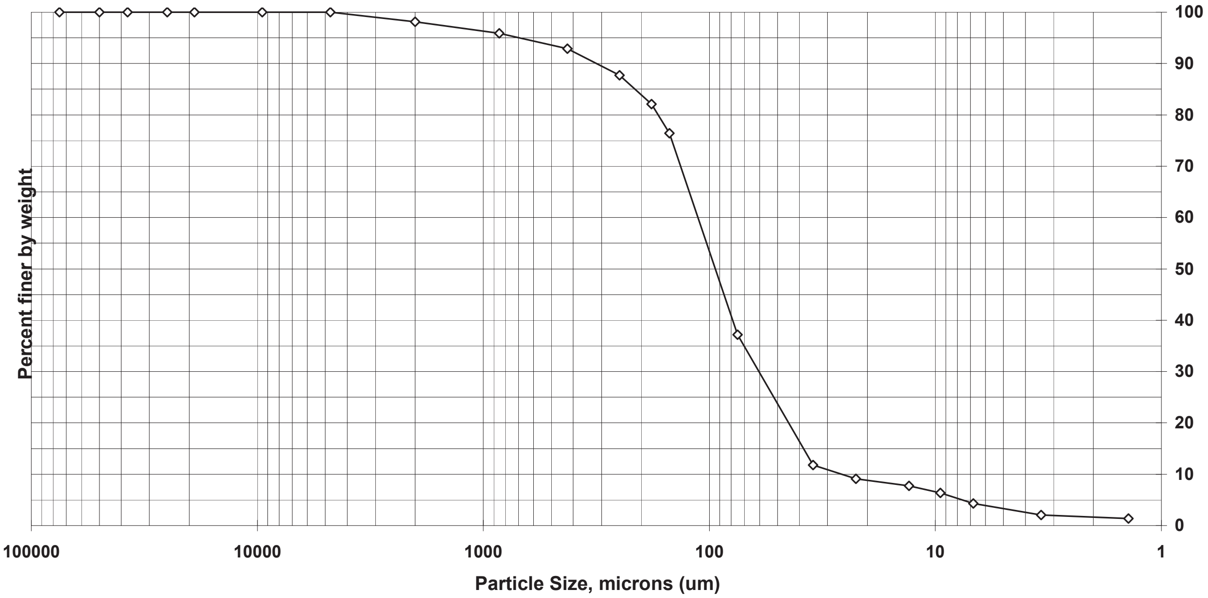
Particle Size of Soils by ASTM D422

				Date Received:	10/21/2014
Sample ID:	MLTC14-37-SURF	**Percent Solids:**	53.1%	**Start Date:**	11/3/2014
Lab ID:	200-24887-D-11	**Specific Gravity:**	2.650	**End Date:**	11/6/2014

Shape (> #10): subrounded

Non-soil material: plant,wood

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.1	1.9
#20	850	95.9	2.2
#40	425	92.9	3.0
#60	250	87.7	5.2
#80	180	82.1	5.6
#100	150	76.4	5.7
#200	75	37.2	39.2
Hyd1	34.8	11.8	25.4
Hyd2	22.5	9.1	2.7
Hyd3	13.1	7.7	1.4
Hyd4	9.5	6.4	1.4
Hyd5	6.8	4.3	2.1
Hyd6	3.4	2.1	2.2
Hyd7	1.4	1.4	0.7

Soil Classification	Percent of sample
Gravel	0.0
Sand	62.8
Coarse Sand	1.9
Medium Sand	5.2
Fine Sand	55.7
Silt	32.9
Clay	4.3

Particle Size of Soils by ASTM D422

Date Received: 10/21/2014

Sample ID: MLTC14-38-SURF

Percent Solids: 70.3%

Start Date: 11/3/2014

Lab ID: 200-24888-D-3

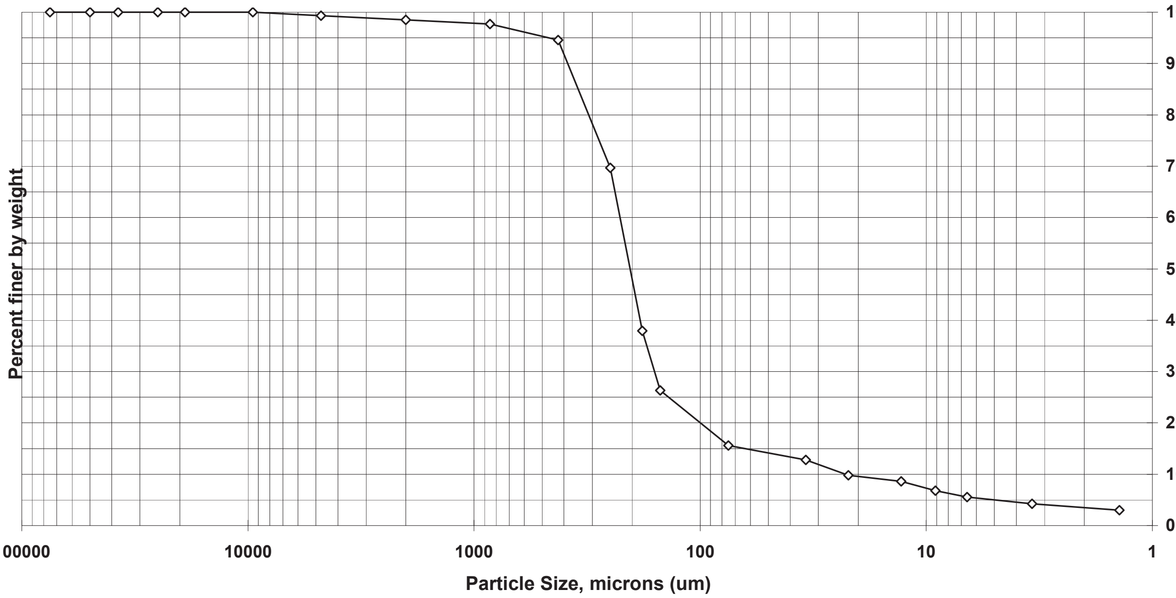
Specific Gravity: 2.650

End Date: 11/6/2014

Shape (> #10): subrounded

Non-soil material: plant,wood

Hardness (> #10): hard



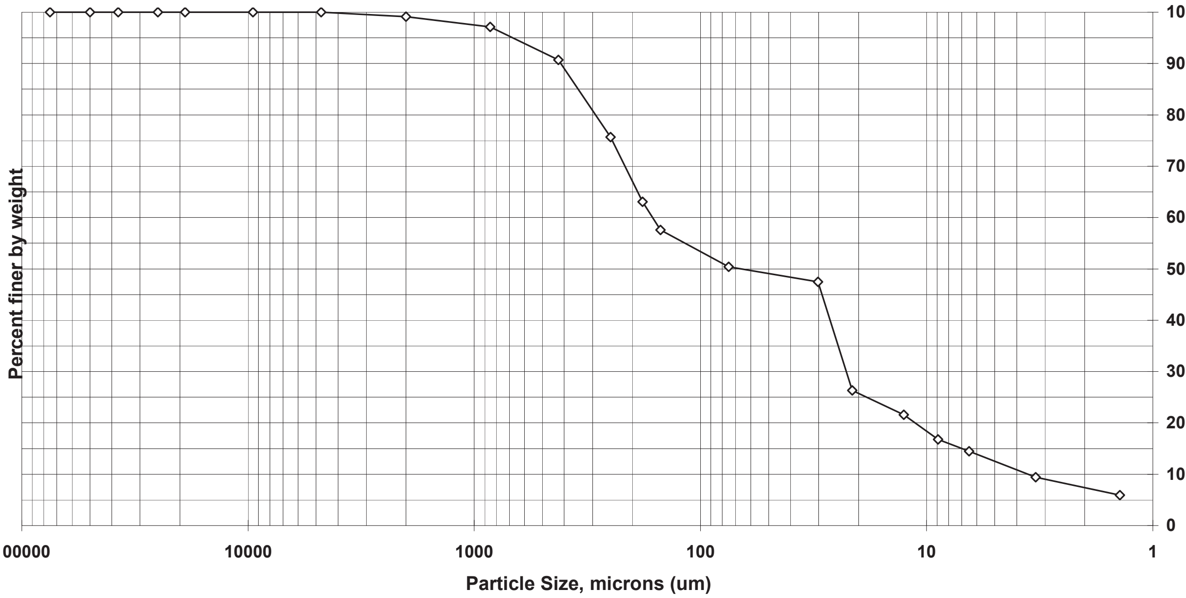
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.3	0.7
#10	2000	98.5	0.8
#20	850	97.7	0.8
#40	425	94.6	3.1
#60	250	69.7	24.9
#80	180	37.9	31.8
#100	150	26.3	11.6
#200	75	15.6	10.7
Hyd1	34.1	12.8	2.8
Hyd2	22.1	9.8	3.0
Hyd3	12.9	8.6	1.2
Hyd4	9.1	6.8	1.8
Hyd5	6.6	5.6	1.2
Hyd6	3.4	4.2	1.3
Hyd7	1.4	3.0	1.2

Soil Classification	Percent of sample
Gravel	0.7
Sand	83.7
Coarse Sand	0.8
Medium Sand	3.9
Fine Sand	79.0
Silt	10.0
Clay	5.6

Particle Size of Soils by ASTM D422

Date Received: 10/18/2014
Sample ID: MLTC14-39-SURF **Percent Solids:** 44.8% **Start Date:** 11/3/2014
Lab ID: 200-24843-d-11 **Specific Gravity:** 2.650 **End Date:** 11/7/2014

Shape (> #10): subrounded **Non-soil material:** plant,wood,shell
Hardness (> #10): hard



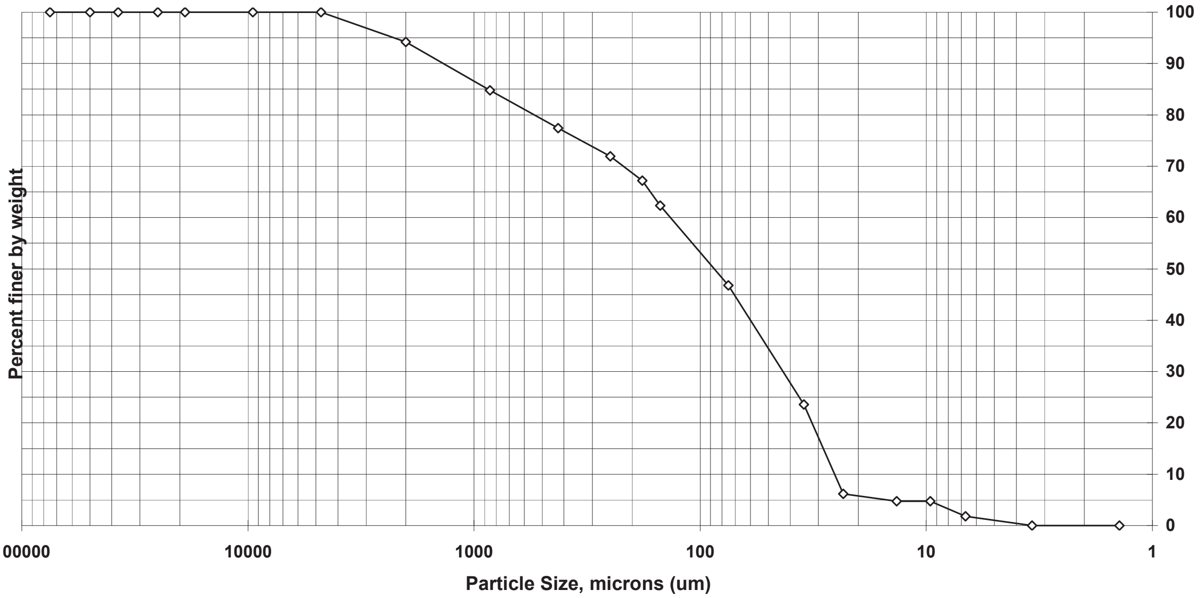
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.1	0.9
#20	850	97.1	2.0
#40	425	90.7	6.4
#60	250	75.7	15.0
#80	180	63.1	12.6
#100	150	57.6	5.5
#200	75	50.4	7.2
Hyd1	30.2	47.5	2.9
Hyd2	21.3	26.3	21.2
Hyd3	12.6	21.6	4.7
Hyd4	8.9	16.8	4.8
Hyd5	6.5	14.5	2.3
Hyd6	3.3	9.5	5.1
Hyd7	1.4	5.9	3.6

Soil Classification	Percent of sample
Gravel	0.0
Sand	49.6
Coarse Sand	0.9
Medium Sand	8.4
Fine Sand	40.3
Silt	35.9
Clay	14.5

Particle Size of Soils by ASTM D422

Date Received: 10/21/2014
Sample ID: MLTC14-40-SURF
Percent Solids: 23.7%
Start Date: 11/3/2014
Lab ID: 200-24885-d-1
Specific Gravity: 2.650
End Date: 11/7/2014

Shape (> #10): subrounded
Non-soil material: plant,wood,shell
Hardness (> #10): hard



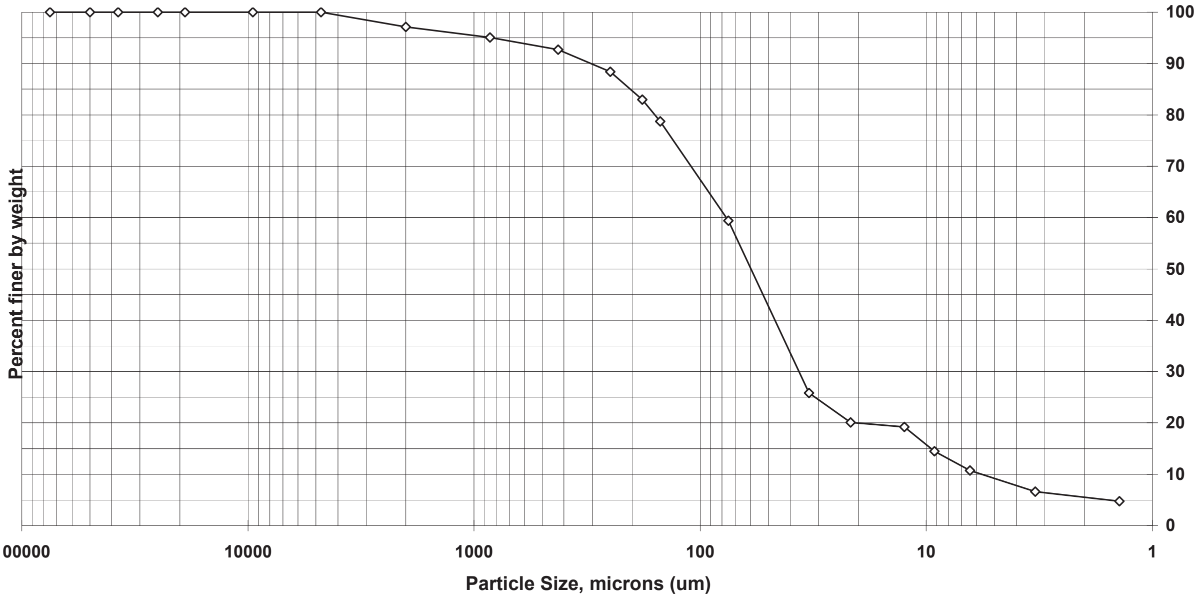
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	94.2	5.8
#20	850	84.8	9.4
#40	425	77.4	7.4
#60	250	71.9	5.5
#80	180	67.2	4.7
#100	150	62.3	4.9
#200	75	46.8	15.5
Hyd1	34.8	23.6	23.2
Hyd2	23.3	6.2	17.4
Hyd3	13.5	4.7	1.5
Hyd4	9.6	4.7	0.0
Hyd5	6.7	1.8	2.9
Hyd6	3.4	0.0	1.8
Hyd7	1.4	0.0	0.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	53.2
Coarse Sand	5.8
Medium Sand	16.8
Fine Sand	30.6
Silt	45.0
Clay	1.8

Particle Size of Soils by ASTM D422

Date Received: 10/21/2014
Sample ID: MLTC14-41-SURF **Percent Solids:** 45.9% **Start Date:** 11/3/2014
Lab ID: 200-24887-D-15 **Specific Gravity:** 2.650 **End Date:** 11/6/2014

Shape (> #10): subrounded **Non-soil material:** plant,wood
Hardness (> #10): hard



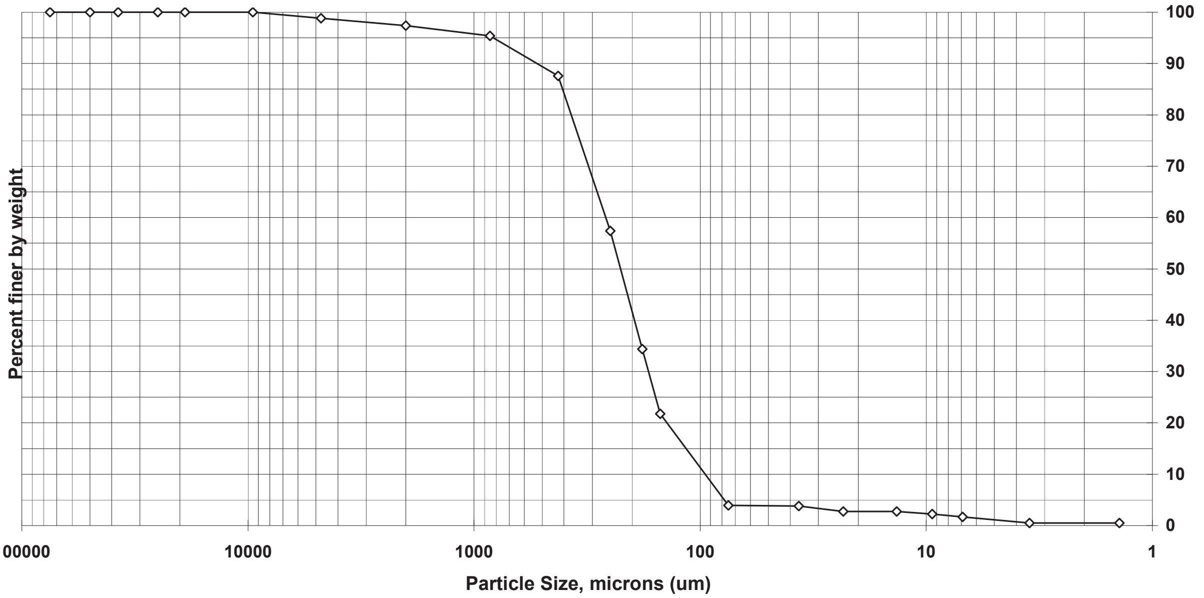
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	97.1	2.9
#20	850	95.1	2.0
#40	425	92.7	2.4
#60	250	88.4	4.3
#80	180	83.0	5.4
#100	150	78.7	4.3
#200	75	59.4	19.3
Hyd1	33	25.8	33.6
Hyd2	21.6	20.1	5.7
Hyd3	12.5	19.2	0.9
Hyd4	9.2	14.5	4.7
Hyd5	6.4	10.7	3.8
Hyd6	3.3	6.6	4.1
Hyd7	1.4	4.7	1.9

Soil Classification	Percent of sample
Gravel	0.0
Sand	40.6
Coarse Sand	2.9
Medium Sand	4.4
Fine Sand	33.3
Silt	48.7
Clay	10.7

Particle Size of Soils by ASTM D422

Sample ID: MLTC14-42-SURF
Lab ID: 200-24888-D-4
Percent Solids: 66.6%
Specific Gravity: 2.650
Date Received: 10/21/2014
Start Date: 11/3/2014
End Date: 11/6/2014

Shape (> #10): subrounded
Non-soil material: plant,wood
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.8	1.2
#10	2000	97.4	1.4
#20	850	95.4	2.0
#40	425	87.6	7.8
#60	250	57.4	30.2
#80	180	34.4	23.0
#100	150	21.8	12.6
#200	75	3.9	17.9
Hyd1	36.6	3.8	0.2
Hyd2	23.3	2.7	1.0
Hyd3	13.5	2.7	0.0
Hyd4	9.4	2.2	0.5
Hyd5	6.9	1.7	0.5
Hyd6	3.5	0.5	1.2
Hyd7	1.4	0.5	0.0

Soil Classification	Percent of sample
Gravel	1.2
Sand	94.9
Coarse Sand	1.4
Medium Sand	9.8
Fine Sand	83.7
Silt	2.3
Clay	1.7

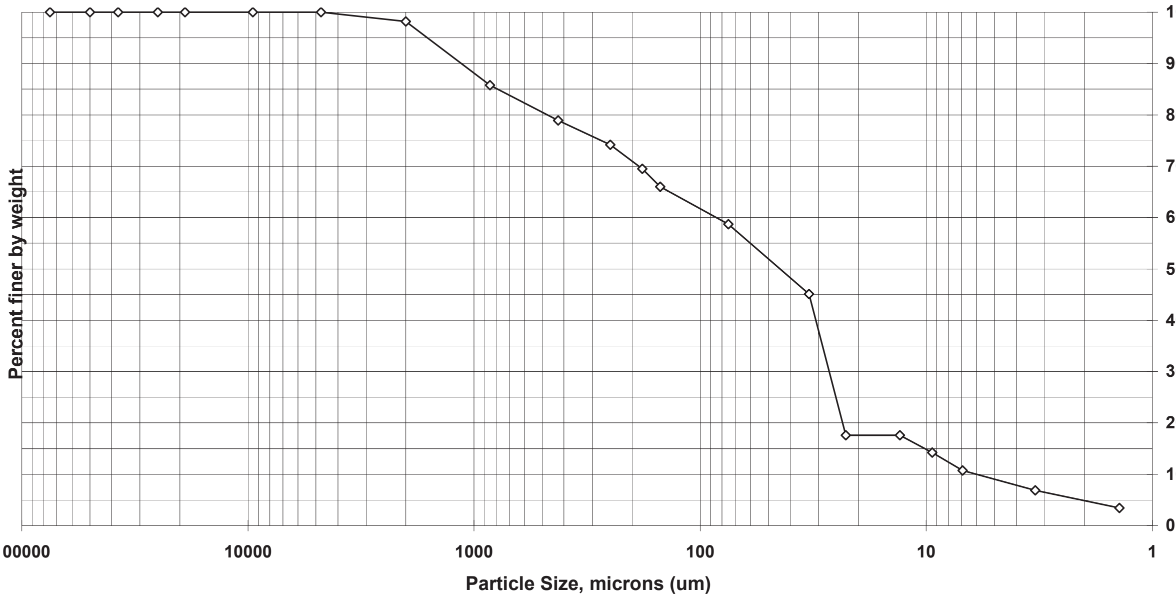
Particle Size of Soils by ASTM D422

				Date Received:	10/21/2014
Sample ID:	MLTC14-43-SURF	**Percent Solids:**	24.4%	**Start Date:**	11/3/2014
Lab ID:	200-24887-d-2	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.2	1.8
#20	850	85.8	12.4
#40	425	78.9	6.9
#60	250	74.2	4.7
#80	180	69.5	4.7
#100	150	66.0	3.5
#200	75	58.7	7.3
Hyd1	33	45.1	13.6
Hyd2	22.7	17.6	27.5
Hyd3	13.1	17.6	0.0
Hyd4	9.4	14.2	3.4
Hyd5	6.9	10.7	3.5
Hyd6	3.3	6.9	3.8
Hyd7	1.4	3.4	3.4

Soil Classification	Percent of sample
Gravel	0.0
Sand	41.3
Coarse Sand	1.8
Medium Sand	19.3
Fine Sand	20.2
Silt	48.0
Clay	10.7

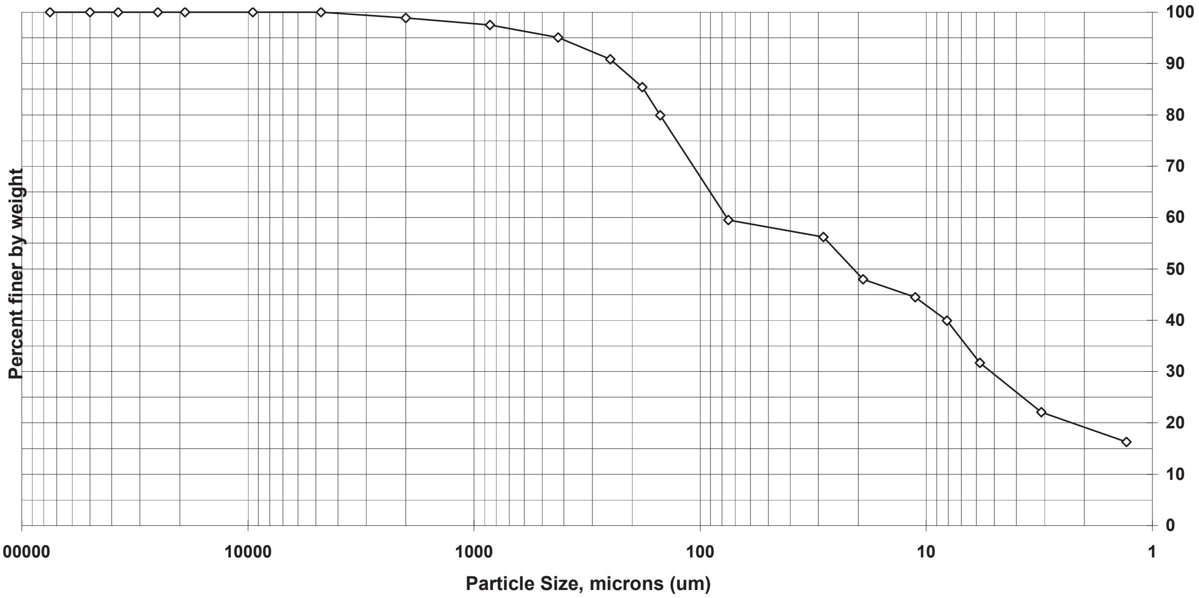
Particle Size of Soils by ASTM D422

				Date Received:	10/21/2014
Sample ID:	MLTC14-45-SURF	**Percent Solids:**	48.0%	**Start Date:**	11/3/2014
Lab ID:	200-24887-d-3	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.9	1.1
#20	850	97.5	1.4
#40	425	95.1	2.4
#60	250	90.8	4.3
#80	180	85.4	5.4
#100	150	79.9	5.5
#200	75	59.5	20.4
Hyd1	28.5	56.2	3.3
Hyd2	19	48.0	8.2
Hyd3	11.2	44.5	3.5
Hyd4	8.1	39.9	4.6
Hyd5	5.8	31.7	8.2
Hyd6	3.1	22.1	9.6
Hyd7	1.3	16.3	5.8

Soil Classification	Percent of sample
Gravel	0.0
Sand	40.5
Coarse Sand	1.1
Medium Sand	3.8
Fine Sand	35.6
Silt	27.8
Clay	31.7

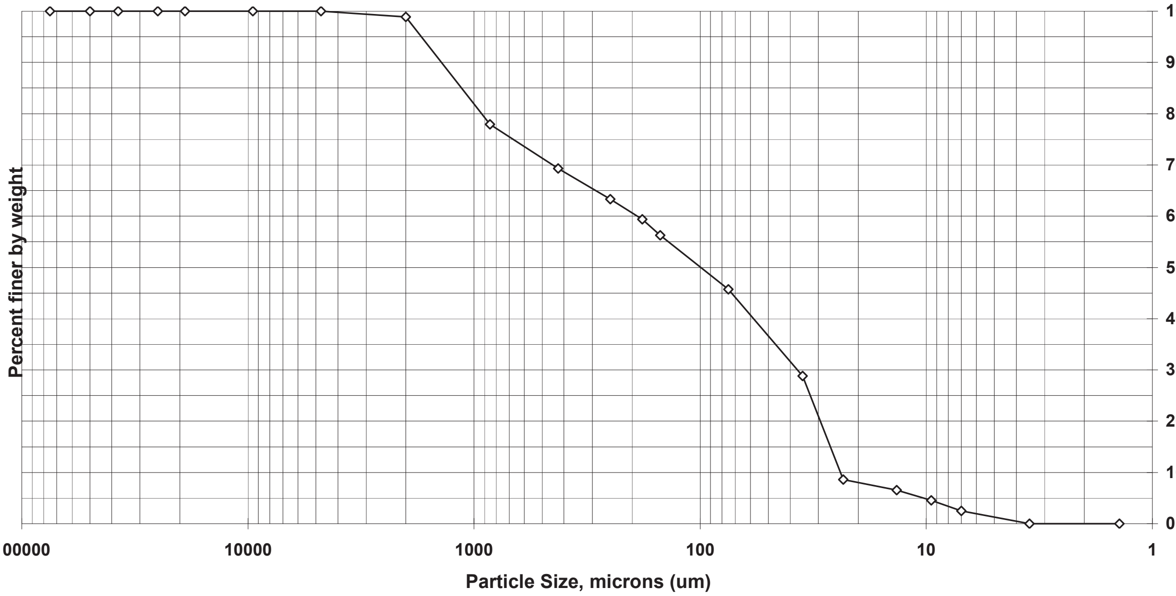
Particle Size of Soils by ASTM D422

				Date Received:	10/21/2014
Sample ID:	MLTC14-46-SURF	**Percent Solids:**	19.8%	**Start Date:**	11/3/2014
Lab ID:	200-24887-d-4	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.9	1.1
#20	850	77.9	21.0
#40	425	69.3	8.6
#60	250	63.3	6.0
#80	180	59.4	3.9
#100	150	56.3	3.1
#200	75	45.7	10.6
Hyd1	35.2	28.8	16.9
Hyd2	23.3	8.6	20.2
Hyd3	13.5	6.6	2.0
Hyd4	9.5	4.5	2.0
Hyd5	7	2.5	2.0
Hyd6	3.5	0.0	2.5
Hyd7	1.4	0.0	0.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	54.3
Coarse Sand	1.1
Medium Sand	29.6
Fine Sand	23.6
Silt	43.2
Clay	2.5

Particle Size of Soils by ASTM D422

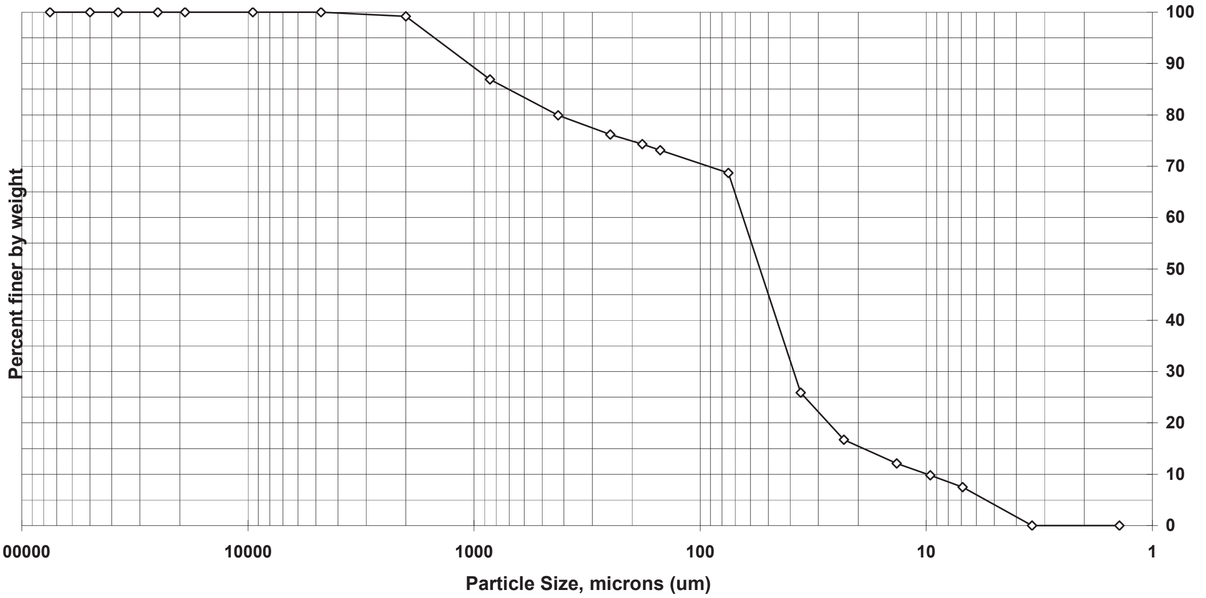
Date Received: 10/21/2014

Sample ID: MLTC14-47-SURF
Percent Solids: 20.5%
Start Date: 11/3/2014

Lab ID: 200-24887-D-5
Specific Gravity: 2.650
End Date: 11/6/2014

Shape (> #10): na

Non-soil material: plant,wood
Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.2	0.8
#20	850	86.9	12.3
#40	425	79.9	7.0
#60	250	76.2	3.7
#80	180	74.3	1.9
#100	150	73.1	1.2
#200	75	68.7	4.4
Hyd1	35.9	25.9	42.8
Hyd2	23.1	16.7	9.2
Hyd3	13.5	12.1	4.6
Hyd4	9.6	9.8	2.3
Hyd5	6.9	7.5	2.3
Hyd6	3.4	0.0	7.5
Hyd7	1.4	0.0	0.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	31.3
Coarse Sand	0.8
Medium Sand	19.3
Fine Sand	11.2
Silt	61.2
Clay	7.5

Particle Size of Soils by ASTM D422

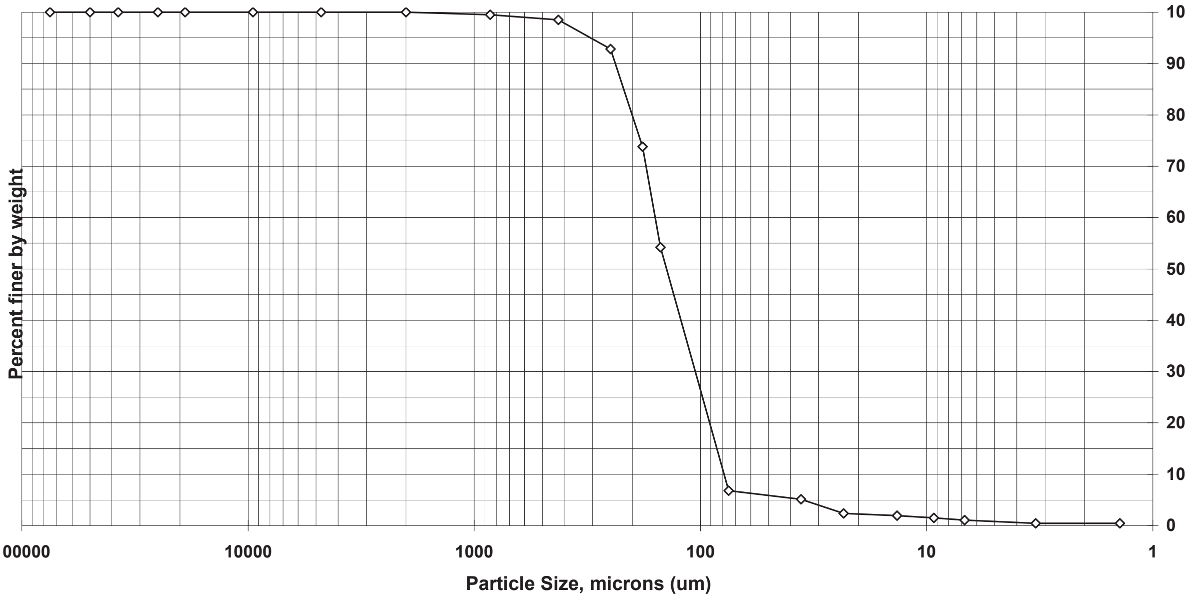
Sample ID: MLTC14-48-SURF
Lab ID: 200-24980-d-10

Percent Solids: 71.2%
Specific Gravity: 2.650

Date Received: 10/24/2014
Start Date: 11/4/2014
End Date: 11/7/2014

Shape (> #10): na

Non-soil material: na
Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.5	0.5
#40	425	98.5	1.0
#60	250	92.8	5.7
#80	180	73.8	19.0
#100	150	54.2	19.6
#200	75	6.8	47.4
Hyd1	35.9	5.1	1.7
Hyd2	23.3	2.4	2.7
Hyd3	13.5	1.9	0.5
Hyd4	9.3	1.5	0.5
Hyd5	6.8	1.0	0.5
Hyd6	3.3	0.5	0.6
Hyd7	1.4	0.5	0.0

Soil Classification	Percent of sample
Gravel	0.0
Sand	93.2
Coarse Sand	0.0
Medium Sand	1.5
Fine Sand	91.7
Silt	5.8
Clay	1.0

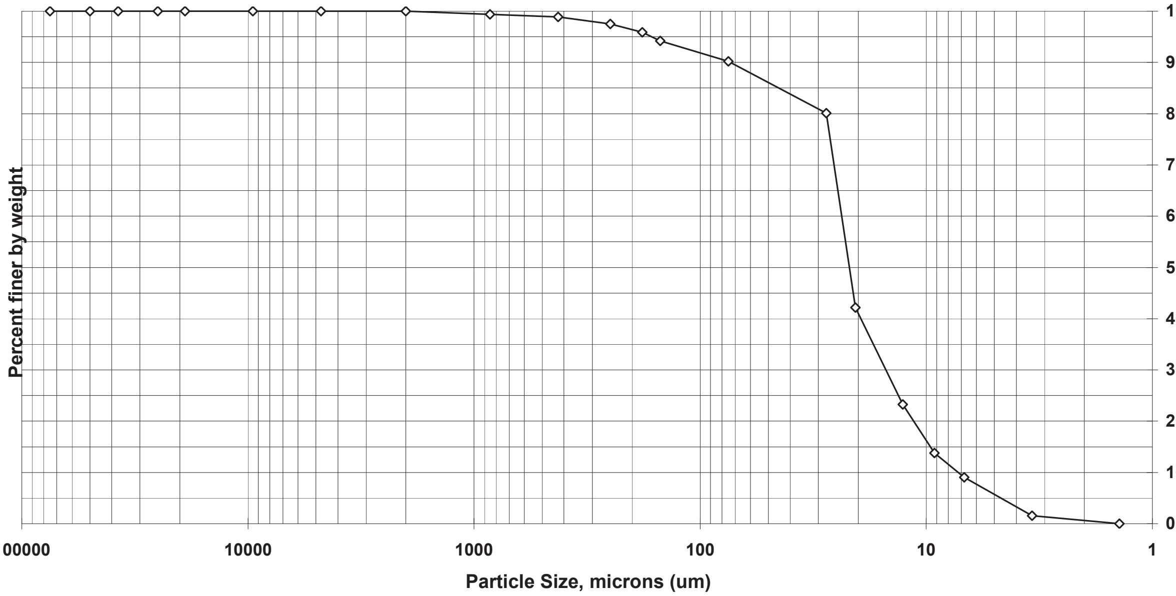
Particle Size of Soils by ASTM D422

				Date Received:	10/17/2014
Sample ID:	MLTC14-49-SURF	**Percent Solids:**	37.5%	**Start Date:**	11/3/2014
Lab ID:	200-24822-d-9	**Specific Gravity:**	2.650	**End Date:**	11/5/2014

Shape (> #10): na

Non-soil material: na

Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.4	0.6
#40	425	98.9	0.5
#60	250	97.5	1.4
#80	180	95.9	1.6
#100	150	94.2	1.7
#200	75	90.2	4.0
Hyd1	27.7	80.1	10.1
Hyd2	20.6	42.2	37.9
Hyd3	12.7	23.3	18.9
Hyd4	9.2	13.8	9.5
Hyd5	6.8	9.1	4.7
Hyd6	3.4	1.6	7.5
Hyd7	1.4	0.0	1.6

Soil Classification	Percent of sample
Gravel	0.0
Sand	9.8
Coarse Sand	0.0
Medium Sand	1.1
Fine Sand	8.7
Silt	81.1
Clay	9.1

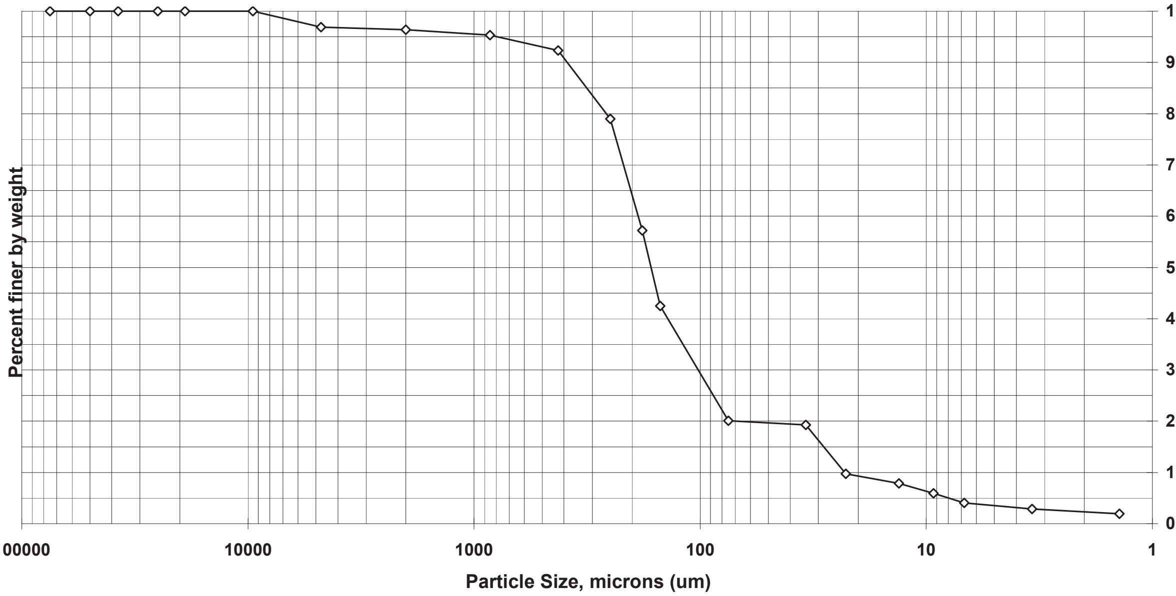
Particle Size of Soils by ASTM D422

				Date Received:	10/18/2014
Sample ID:	MLTC14-50-SURF	**Percent Solids:**	56.5%	**Start Date:**	11/3/2014
Lab ID:	200-24843-d-12	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	96.9	3.1
#10	2000	96.4	0.5
#20	850	95.3	1.1
#40	425	92.3	3.0
#60	250	79.0	13.3
#80	180	57.2	21.8
#100	150	42.5	14.7
#200	75	20.1	22.4
Hyd1	34.1	19.3	0.8
Hyd2	22.7	9.8	9.5
Hyd3	13.2	7.9	1.9
Hyd4	9.3	6.0	1.9
Hyd5	6.8	4.1	1.9
Hyd6	3.4	2.9	1.2
Hyd7	1.4	1.9	1.0

Soil Classification	Percent of sample
Gravel	3.1
Sand	76.8
Coarse Sand	0.5
Medium Sand	4.1
Fine Sand	72.2
Silt	16.1
Clay	4.1

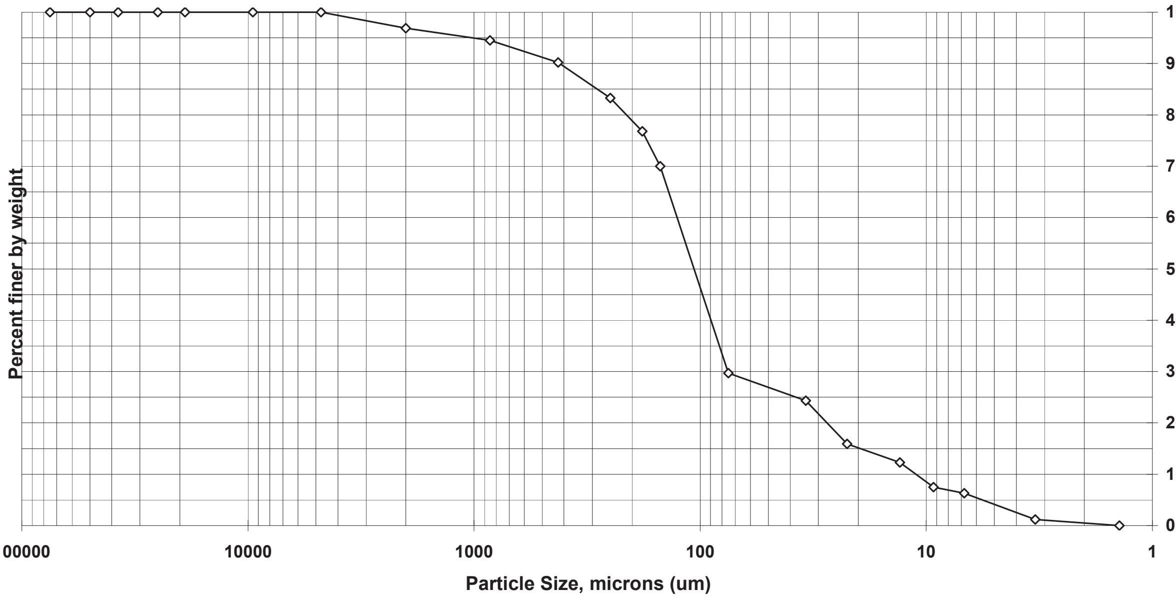
Particle Size of Soils by ASTM D422

				Date Received:	10/18/2014
Sample ID:	MLTC14-51-SURF	**Percent Solids:**	53.6%	**Start Date:**	11/3/2014
Lab ID:	200-24843-d-13	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subrounded

Non-soil material: plant,wood,shell

Hardness (> #10): hard



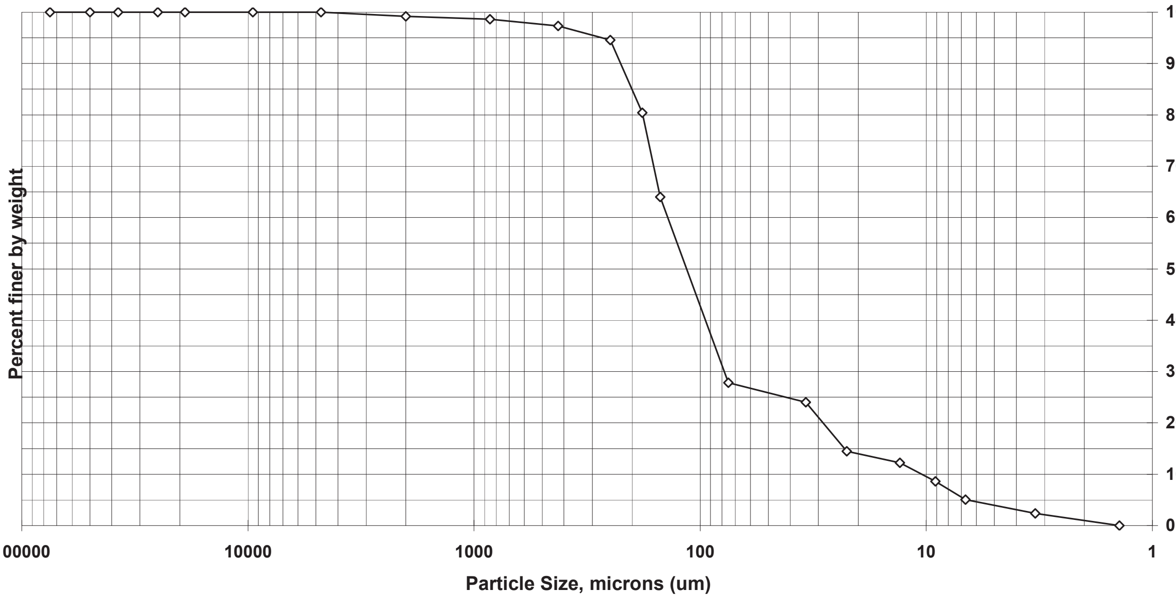
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	96.9	3.1
#20	850	94.5	2.4
#40	425	90.2	4.3
#60	250	83.3	6.9
#80	180	76.8	6.5
#100	150	70.0	6.8
#200	75	29.7	40.3
Hyd1	34.1	24.3	5.4
Hyd2	22.4	15.9	8.4
Hyd3	13.1	12.3	3.6
Hyd4	9.3	7.5	4.8
Hyd5	6.8	6.3	1.2
Hyd6	3.3	1.2	5.1
Hyd7	1.4	0.0	1.2

Soil Classification	Percent of sample
Gravel	0.0
Sand	70.3
Coarse Sand	3.1
Medium Sand	6.7
Fine Sand	60.5
Silt	23.4
Clay	6.3

Particle Size of Soils by ASTM D422

Date Received: 10/18/2014
Sample ID: MLTC14-52-SURF
Percent Solids: 54.0%
Start Date: 11/3/2014
Lab ID: 200-24843-d-14
Specific Gravity: 2.650
End Date: 11/7/2014

Shape (> #10): subrounded
Non-soil material: plant,wood,shell
Hardness (> #10): hard



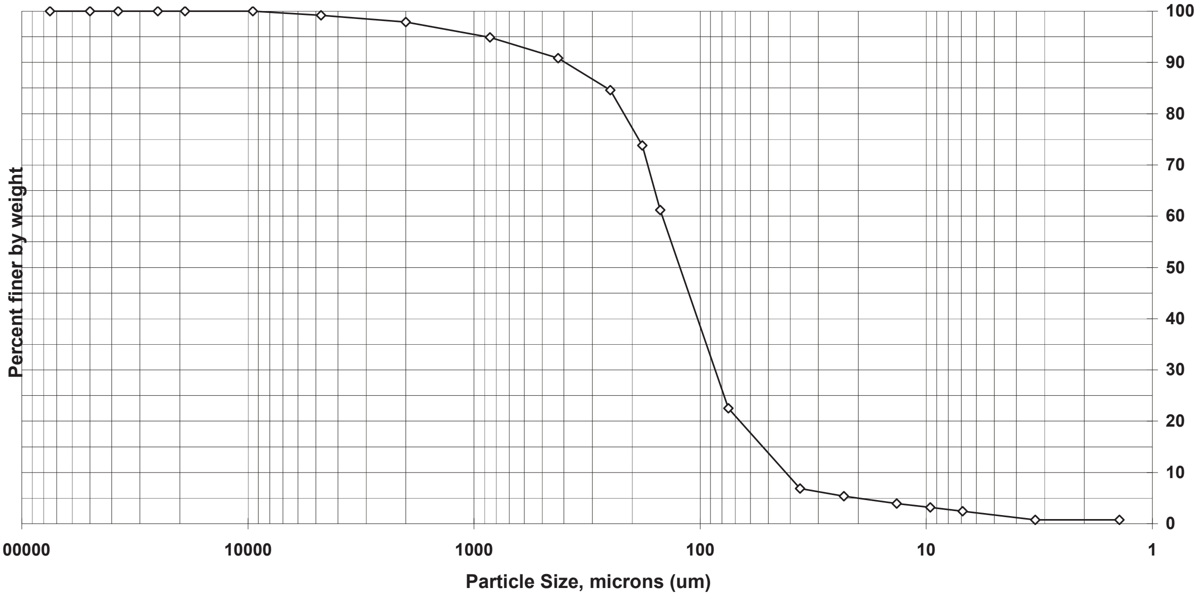
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.2	0.8
#20	850	98.6	0.6
#40	425	97.3	1.3
#60	250	94.6	2.7
#80	180	80.4	14.2
#100	150	64.0	16.4
#200	75	27.8	36.2
Hyd1	34.1	24.0	3.8
Hyd2	22.5	14.5	9.5
Hyd3	13.1	12.2	2.3
Hyd4	9.1	8.6	3.6
Hyd5	6.7	5.0	3.6
Hyd6	3.3	2.4	2.7
Hyd7	1.4	0.0	2.4

Soil Classification	Percent of sample
Gravel	0.0
Sand	72.2
Coarse Sand	0.8
Medium Sand	1.9
Fine Sand	69.5
Silt	22.8
Clay	5.0

Particle Size of Soils by ASTM D422

Date Received: 10/22/2014
Sample ID: MLTC14-53-SURF **Percent Solids:** 52.5% **Start Date:** 11/4/2014
Lab ID: 200-24911-d-8 **Specific Gravity:** 2.650 **End Date:** 11/7/2014

Shape (> #10): angular **Non-soil material:** plant,wood,shell
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.2	0.8
#10	2000	97.9	1.3
#20	850	94.9	3.0
#40	425	90.8	4.1
#60	250	84.6	6.2
#80	180	73.8	10.8
#100	150	61.2	12.6
#200	75	22.5	38.7
Hyd1	36.2	6.9	15.6
Hyd2	23.1	5.4	1.5
Hyd3	13.5	3.9	1.5
Hyd4	9.6	3.2	0.7
Hyd5	6.9	2.4	0.7
Hyd6	3.3	0.7	1.7
Hyd7	1.4	0.7	0.0

Soil Classification	Percent of sample
Gravel	0.8
Sand	76.7
Coarse Sand	1.3
Medium Sand	7.1
Fine Sand	68.3
Silt	20.1
Clay	2.4

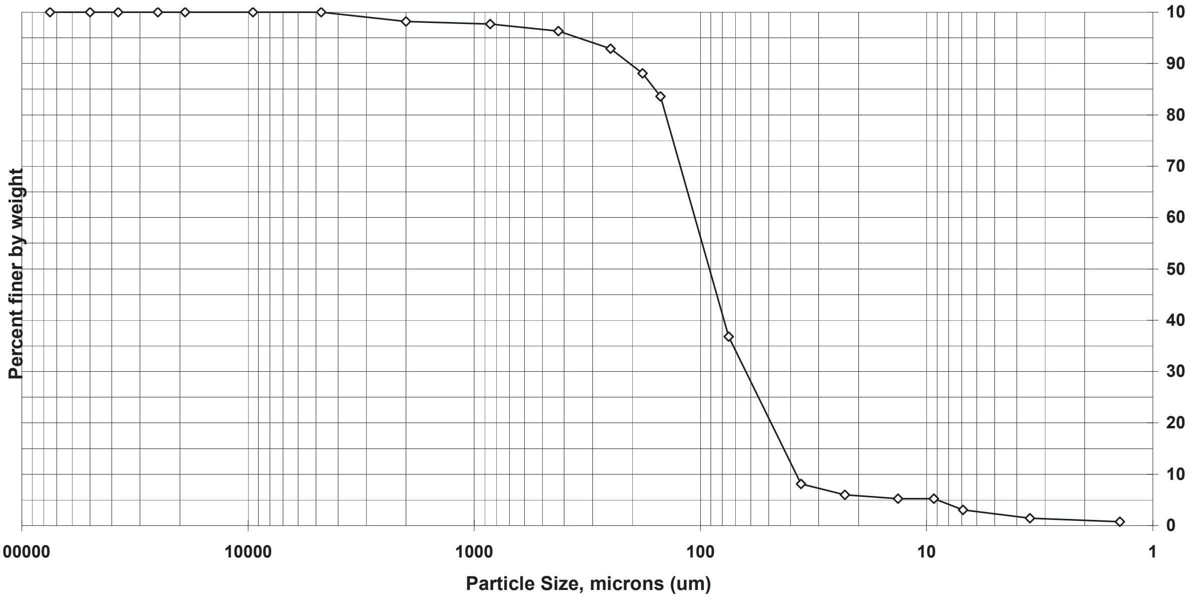
Particle Size of Soils by ASTM D422

				Date Received:	10/22/2014
Sample ID:	MLTC14-54-SURF	**Percent Solids:**	53.6%	**Start Date:**	11/3/2014
Lab ID:	200-24911-D-13	**Specific Gravity:**	2.650	**End Date:**	11/6/2014

Shape (> #10): na

Non-soil material: plant,wood

Hardness (> #10): na



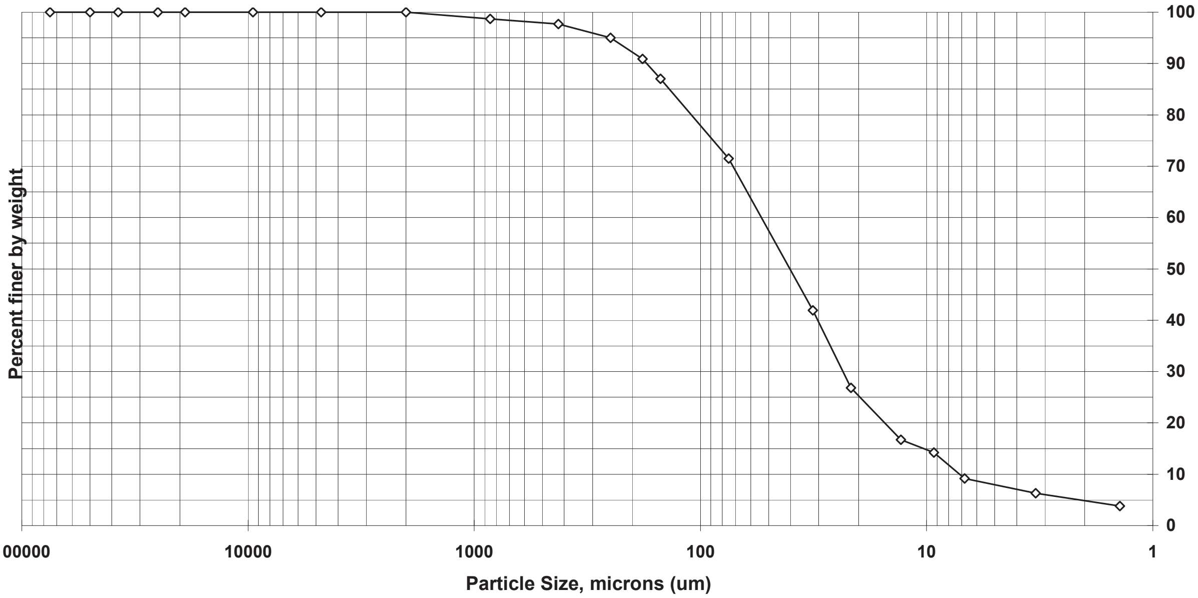
Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.2	1.8
#20	850	97.7	0.5
#40	425	96.3	1.4
#60	250	92.9	3.4
#80	180	88.1	4.8
#100	150	83.6	4.5
#200	75	36.8	46.8
Hyd1	35.9	8.1	28.7
Hyd2	23	6.0	2.2
Hyd3	13.4	5.3	0.7
Hyd4	9.3	5.3	0.0
Hyd5	6.9	3.1	2.2
Hyd6	3.5	1.5	1.6
Hyd7	1.4	0.7	0.7

Soil Classification	Percent of sample
Gravel	0.0
Sand	63.2
Coarse Sand	1.8
Medium Sand	1.9
Fine Sand	59.5
Silt	33.7
Clay	3.1

Particle Size of Soils by ASTM D422

Date Received: 10/22/2014
Sample ID: MLTC14-55-SURF **Percent Solids:** 41.9% **Start Date:** 11/4/2014
Lab ID: 200-24914-d-11 **Specific Gravity:** 2.650 **End Date:** 11/7/2014

Shape (> #10): na **Non-soil material:** na
Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	98.7	1.3
#40	425	97.7	1.0
#60	250	95.0	2.7
#80	180	90.9	4.1
#100	150	87.0	3.9
#200	75	71.5	15.5
Hyd1	31.8	41.9	29.6
Hyd2	21.6	26.8	15.1
Hyd3	13	16.7	10.1
Hyd4	9.3	14.2	2.5
Hyd5	6.8	9.1	5.1
Hyd6	3.3	6.3	2.8
Hyd7	1.4	3.8	2.5

Soil Classification	Percent of sample
Gravel	0.0
Sand	28.5
Coarse Sand	0.0
Medium Sand	2.3
Fine Sand	26.2
Silt	62.4
Clay	9.1

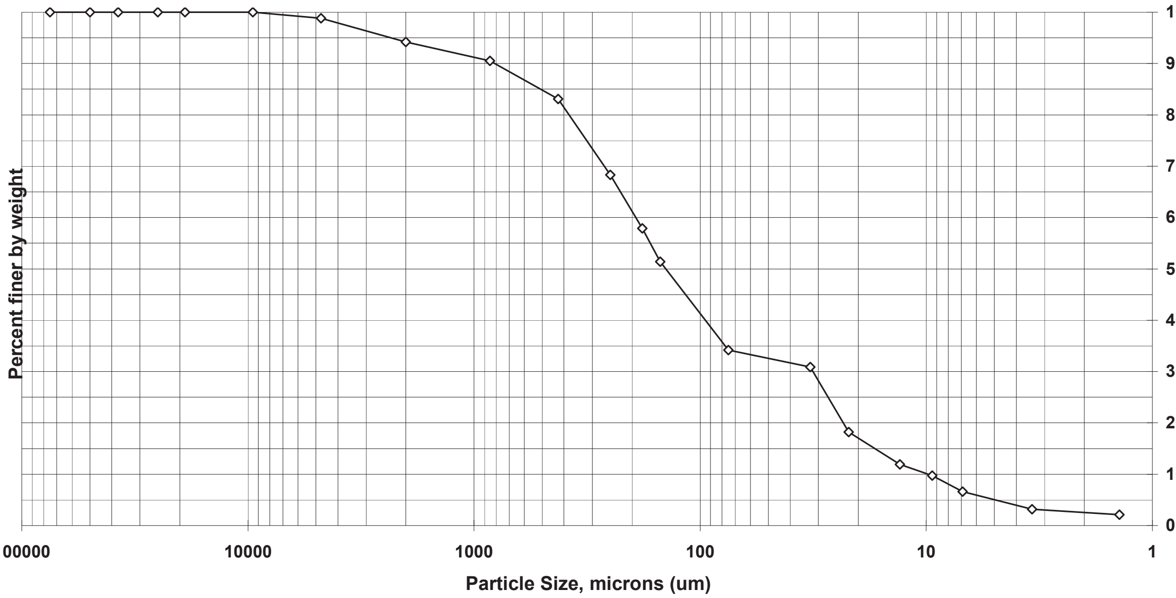
Particle Size of Soils by ASTM D422

				Date Received:	10/24/2014
Sample ID:	MLTC14-56-SURF	**Percent Solids:**	54.1%	**Start Date:**	11/4/2014
Lab ID:	200-24983-d-7	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): subangular

Non-soil material: plant,wood,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	98.8	1.2
#10	2000	94.2	4.6
#20	850	90.5	3.7
#40	425	83.1	7.4
#60	250	68.3	14.8
#80	180	57.9	10.4
#100	150	51.4	6.5
#200	75	34.2	17.2
Hyd1	32.6	30.9	3.3
Hyd2	22	18.2	12.7
Hyd3	13.1	11.9	6.3
Hyd4	9.4	9.8	2.1
Hyd5	6.9	6.6	3.2
Hyd6	3.4	3.2	3.4
Hyd7	1.4	2.1	1.1

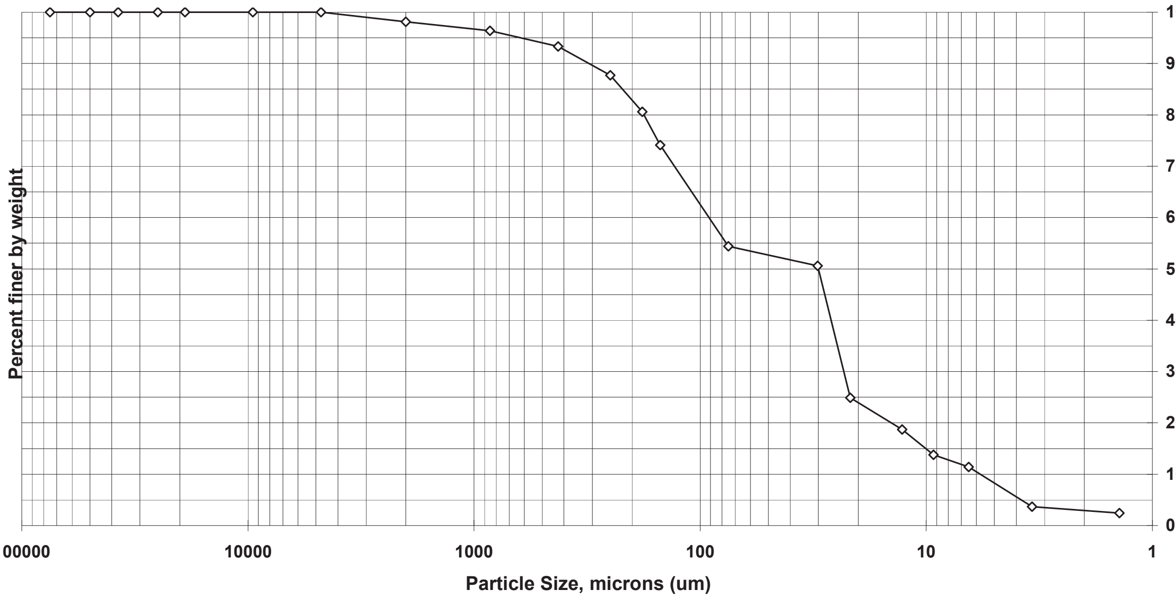
Soil Classification	Percent of sample
Gravel	1.2
Sand	64.6
Coarse Sand	4.6
Medium Sand	11.1
Fine Sand	48.9
Silt	27.6
Clay	6.6

Particle Size of Soils by ASTM D422

				Date Received:	10/24/2014
Sample ID:	MLTC14-57-SURF	**Percent Solids:**	42.6%	**Start Date:**	11/4/2014
Lab ID:	200-24983-d-10	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): na

Non-soil material: plant,wood
Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.1	1.9
#20	850	96.4	1.7
#40	425	93.3	3.1
#60	250	87.7	5.6
#80	180	80.6	7.1
#100	150	74.1	6.5
#200	75	54.4	19.7
Hyd1	30.2	50.6	3.8
Hyd2	21.7	24.9	25.7
Hyd3	12.8	18.7	6.2
Hyd4	9.3	13.8	4.9
Hyd5	6.5	11.4	2.4
Hyd6	3.4	3.7	7.7
Hyd7	1.4	2.5	1.2

Soil Classification	Percent of sample
Gravel	0.0
Sand	45.6
Coarse Sand	1.9
Medium Sand	4.8
Fine Sand	38.9
Silt	43.0
Clay	11.4

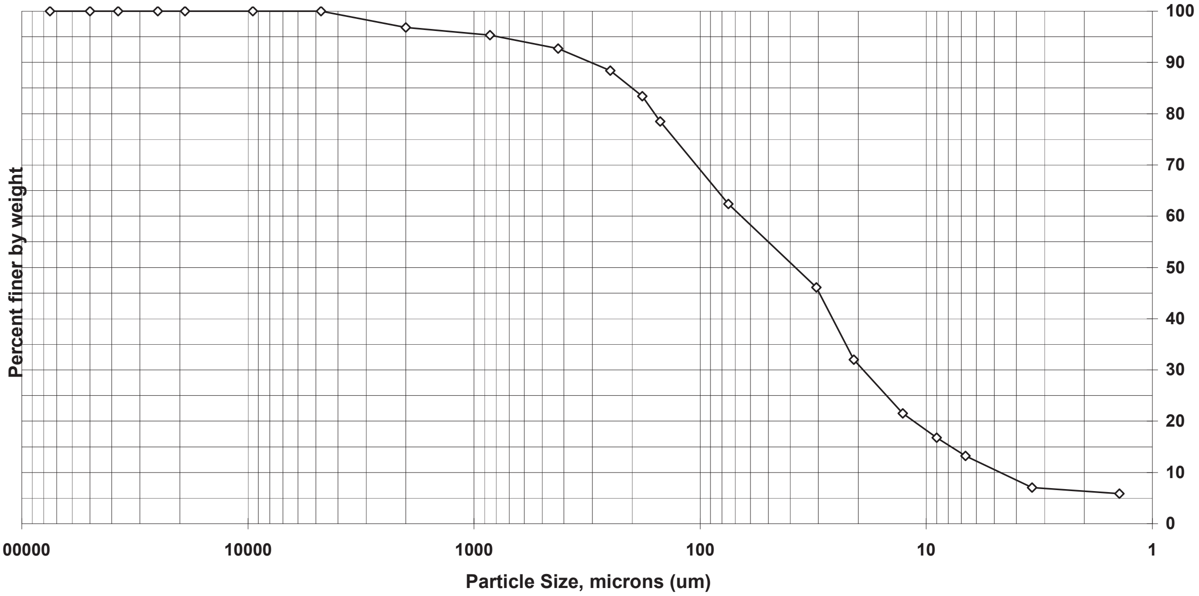
Particle Size of Soils by ASTM D422

				Date Received:	10/24/2014
Sample ID:	MLTC14-58-SURF	**Percent Solids:**	45.3%	**Start Date:**	11/4/2014
Lab ID:	200-24983-d-13	**Specific Gravity:**	2.650	**End Date:**	11/7/2014

Shape (> #10): na

Non-soil material: plant,wood,shell

Hardness (> #10): na



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	96.8	3.2
#20	850	95.3	1.5
#40	425	92.7	2.6
#60	250	88.4	4.3
#80	180	83.4	5.0
#100	150	78.5	4.9
#200	75	62.4	16.1
Hyd1	30.6	46.1	16.3
Hyd2	20.9	32.0	14.1
Hyd3	12.7	21.5	10.5
Hyd4	9	16.8	4.7
Hyd5	6.7	13.2	3.6
Hyd6	3.4	7.1	6.2
Hyd7	1.4	5.9	1.2

Soil Classification	Percent of sample
Gravel	0.0
Sand	37.6
Coarse Sand	3.2
Medium Sand	4.1
Fine Sand	30.3
Silt	49.2
Clay	13.2