SEDIMENT ASSESSMENT REPORT
HOWARD'S BAY – ST. LOUIS RIVER AOC
SUPERIOR, DOUGLAS COUNTY, WISCONSIN

Prepared for

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Great Lakes National Program Office
77 West Jackson Boulevard
Chicago, Illinois 60604

Prepared by

WESTON SOLUTIONS, INC.
20 North Wacker Drive, Suite 1210
Chicago, IL 60606

October 7, 2011

Date Prepared	October 7, 2011
TDD Number	S05-0008-1004-032
Document Control Number	1023-2A-AOMS
Contract Number	EP-S5-06-04
START Project Manager	Rick Mehl
Telephone No.	(312) 424-3312
U.S. EPA Task Monitor	Sara Goehl

TABLE OF CONTENTS

Section **Page**

EXECUTIVE SUMMARY…… ... ES-1

1. INTRODUCTION.....1

1.1 REPORT ORGANIZATION.....1

1.2 SITE DESCRIPTION.....1

1.3 SITE HISTORY.....2

1.4 PURPOSE OF STUDY/PROJECT OBJECTIVES.....2

1.5 CONTAMINANTS OF CONCERN/TARGET ANALYTES.....2

2. SITE CHARACTERIZATION ACTIVITIES.....4

2.1 SEDIMENT CHARACTERISTICS.....5

2.1.1 Area 1.....5

2.1.2 Area 2.....5

3. FIELD AND ANALYTICAL RESULTS.....7

3.1 AREA 1.....8

3.1.1 PAHs.....8

3.1.2 TAL Metals.....10

3.1.3 PCBs.....11

3.1.4 TCL Pesticides.....11

3.1.5 TPH.....12

3.1.6 Organotin.....13

3.1.7 AVS/SEM.....13

3.1.8 Physical Properties.....14

3.2 AREA 2.....14

3.2.1 PAHs.....14

3.2.2 TAL Metals.....15

3.2.3 PCBs.....17

3.2.4 TCL Pesticides.....17

3.2.5 TPH.....18

3.2.6 Organotin.....18

3.2.7 AVS/SEM.....19

3.2.8 Physical Properties.....19

4. DATA COMPLETENESS.....4-20

5. SUMMARY.....5-22

LIST OF TABLES

Table	Title
2-1	Sample Location Coordinates
2-2	Summary of Analyses
3-1a	Summary of Howard's Bay Sediment Samples
3-1b	Summary of Area 1 Sediment Samples
3-1c	Summary of Area 2 Sediment Samples
3-2a	Area 1 Sediment Analytical Results – PAHs
3-2b	Area 2 Sediment Analytical Results – PAHs
3-3a	Area 1 Sediment Analytical Results – TAL Metals
3-3b	Area 2 Sediment Analytical Results – TAL Metals
3-4a	Area 1 Sediment Analytical Results – PCB Aroclors
3-4b	Area 2 Sediment Analytical Results – PCB Aroclors
3-5a	Area 1 Sediment Analytical Results – TCL Pesticides
3-5b	Area 2 Sediment Analytical Results – TCL Pesticides
3-6a	Area 1 Sediment Analytical Results – TPH
3-6b	Area 2 Sediment Analytical Results – TPH
3-7a	Area 1 Sediment Analytical Results – Organotins
3-7b	Area 2 Sediment Analytical Results – Organotins
3-8a	Area 1 Sediment Analytical Results – AVS/SEM
3-8b	Area 2 Sediment Analytical Results – AVS/SEM
3-9a	Area 1 Sediment Analytical Results – Physical Properties
3-9b	Area 2 Sediment Analytical Results – Physical Properties

LIST OF FIGURES

Figure	Title
1-1	Site Location Map
1-2	Site Features Map
2-1	Sample Location Map
3-1	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines
3-2a	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – PAHs
3-2b	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – TAL Metals
3-2c	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – Total PCBs
3-2d	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – TCL Pesticides
3-2e	Sampling Results for Area 1 – TPH DRO
3-2f	Sampling Results for Area 1 – TPH ORO
3-2g	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – Organotin
3-3a	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – PAHs
3-3b	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – TAL Metals
3-3c	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – Total PCBs
3-3d	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – TCL Pesticides
3-3e	Sampling Results for Area 2 – TPH DRO
3-3f	Sampling Results for Area 2 – TPH ORO
3-3g	Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – Organotin

LIST OF APPENDICES

APPENDIX A – PHOTOGRAPHIC LOG

APPENDIX B – LABORATORY ANALYTICAL RESULTS, WESTON-PROCURED LABORATORIES

APPENDIX C – DATA VALIDATION REPORTS/SUMMARY REPORTS

ACRONYMS AND ABBREVIATIONS

%	percent
AOC	Area of Concern
AVS/SEM	Acid Volatile Sulfide/Simultaneously Extracted Metal
bss	Below sediment surface
CLP	U.S. EPA Contract Laboratory Program
DRO	Diesel Range Organic
GLLA	Great Lakes Legacy Act
GLNPO	Great Lakes National Program Office
MEC	Median Effect Concentration
mg/kg	Milligram per kilogram
µg/kg	Microgram per kilogram
µmole/g_{oc}	Micromole per gram of organic carbon
NFG	National Functional Guideline
ORO	Oil Range Organic
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated biphenyl
PEC	Probable Effect Concentration
QAPP	Quality Assurance Project Plan
RAP	Remedial Action Plan
R/V	Research Vessel
SQG	Sediment Quality Guideline
START	Superfund Technical Assistance and Response Team
S.U.	Standard Unit
TAL	Target Analyte List
TCL	Target Compound List
TDD	Technical Directive Document
TEC	Threshold Effect Concentration
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
U.S. EPA	United States Environmental Protection Agency
WDNR	Wisconsin Department of Natural Resources
WESTON	Weston Solutions, Inc.

EXECUTIVE SUMMARY

Weston Solutions, Inc. (WESTON®) has prepared this Sediment Assessment Report, which summarizes the site characterization activities for the Howard's Bay Site located in Superior, Douglas County, Wisconsin, as part of the St. Louis River Area of Concern (AOC) Great Lakes Legacy Act (GLLA) Project. The purpose of the Howard's Bay site characterization was to further define chemical contaminants in the sediment, locate contaminated areas of focus for additional evaluation, and identify priority areas for remediation and habitat restoration. The objectives of the site characterization activities were to collect geophysical and chemical samples needed to support project area characterization and potential remediation activities.

A total of 124 sediment samples (including duplicate samples) were collected from 42 sampling locations within Howard's Bay. Samples were typically collected from the following sampling intervals: 0 to 6 inches, 0 to 12 inches, 12 to 36 inches, 36 to 60 inches, and 60 to 96 inches below sediment surface (bss) where adequate recovery was available. If less than 12 inches of sediment was encountered in the bottom interval, it was included with the previous interval. If more than 12 inches of sediment was encountered in the bottom interval, it was considered a new interval. The surface interval, 0 to 6 inches, was collected using a ponar to ensure that the required sample volumes were obtained. In addition, the 6- to 12-inch interval, presented in the *Quality Assurance Project Plan (QAPP)* (WESTON, September 2010), was changed to the 0- to 12-inch interval to ensure that the required sample volumes were obtained. Sediment cores were typically completed with the Great Lakes National Program Office (GLNPO) research vessel (R/V) Mudpuppy II vibracoring system through the sediment depth to refusal or until native material was encountered. In shallower areas that were inaccessible with the Mudpuppy, sediment samples were collected using a vibracoring system mounted to a pontoon or hand-driven Lexan tubes.

All sediment samples were analyzed for target analyte list (TAL) metals, polycyclic aromatic hydrocarbons (PAH) 17 list, organotins, target compound list (TCL) pesticides, total organic carbon (TOC), grain size, and total petroleum hydrocarbons (TPH) as diesel range organics (DRO) corresponding to an alkaline range of C_{10} through C_{28}, and oil range organics (ORO)

corresponding to an alkaline range of C_{28} through C_{36}. In addition, approximately 30% of all sediment samples collected were analyzed for acid volatile sulfide/simultaneously extracted metal (AVS/SEM), PAH 34 list (in lieu of PAH 17 list at surface sediment samples 0 to 6 inches), and polychlorinated biphenyls (PCBs) as Aroclors.

The sample results for PAHs, TAL metals, PCB Aroclors, TCL pesticides, and organotins are compared to the Wisconsin Department of Natural Resources (WDNR) *Consensus-Based Sediment Quality Guidelines (SQGs)*. The sample results for TPH DRO, TPH ORO, AVS/SEM, TOC, and grain size are tabulated but are not compared to any numerical screening criteria. A summary of the Threshold Effect Concentration (TEC), Median Effect Concentration (MEC), and Probable Effect Concentration (PEC) exceedances is provided below for Areas 1 and 2.

Area 1

Exceedances of TECs were identified for the following:

- Total PAH 17 exceeded the TEC in 17 of 84 sediment samples. Total PAH 34 exceeded the TEC in 16 of 26 sediment samples. Individual PAHs: 1,2-benzphenanthracene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene exceeded the respective TEC in at least one sample.
- TAL metals exceeded the TEC in 78 of 84 sediment samples. Antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, and zinc concentrations exceeded the respective TEC in at least one sample.
- Total PCBs exceeded the TEC in 2 of 26 sediment samples.
- TCL pesticides exceeded the TEC in 7 of 84 sediment samples. Beta-BHC, 4,4'-DDD, 4,4'-DDT, endrin, and heptachlor epoxide concentrations exceeded the respective TEC in at least one sample.
- The organotin tributyltin exceeded the TEC in 32 of 84 sediment samples.

Exceedances of MECs were identified for the following:

- Total PAH 17 exceeded the MEC in 2 of 84 sediment samples. Total PAH 34 exceeded the MEC in 1 of 26 sample locations. Individual PAHs: 1,2-benzphenanthracene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene,

fluoranthene, fluorene, phenanthrene, and pyrene exceeded the respective MEC in at least one sample.

- TAL metals exceeded the MEC in 27 of 84 sediment samples. Antimony, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc concentrations exceeded the respective MEC in at least one sample.
- TCL pesticides exceeded the MEC in 2 of 84 sediment samples. 4,4'-DDT and heptachlor epoxide concentrations exceeded the respective MEC in at least one sample.
- The organotin tributyltin exceeded the MEC in 13 of 84 sediment samples.

Exceedances of PECs were identified for the following:

- Total PAH 34 exceeded the PEC in 1 of 26 sediment samples. Individual PAHs: 1,2-benzphenanthracene, acenaphthene, anthracene, benzo(a)anthracene, dibenzo(a,h)anthracene, fluoranthene, fluorene, phenanthrene, and pyrene exceeded the respective PEC in at least one sample.
- TAL metals exceeded the PEC in 14 of 84 sediment samples. Antimony, chromium, copper, iron, lead, mercury, and zinc concentrations exceeded the respective PEC in at least one sample.
- TCL pesticides exceeded the PEC in 1 of 84 sediment samples. 4,4'-DDT and heptachlor epoxide concentrations exceeded the respective PEC in one sample.
- The organotin tributyltin exceeded the PEC in 8 of 84 sediment samples.

Area 2

Exceedances of TECs were identified for the following:

- Total PAH 17 exceeded the TEC in 10 of 40 sediment samples. Total PAH 34 exceeded the TEC in 4 of 9 sample locations. Individual PAHs: 1,2-benzphenanthracene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene exceeded the respective TEC in at least one sample.
- TAL metals exceeded the TEC in 34 of 40 sediment samples. Antimony, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc concentrations exceeded the respective TEC in at least one sample.
- TCL pesticides exceeded the TEC in 1 of 40 sediment samples. Aldrin and gamma-chlordane concentrations exceeded the respective TEC in one sample.
- The organotin tributyltin exceeded the TEC in 8 of 40 sediment samples.

Exceedances of MECs were identified for the following:

- Individual PAHs: acenaphthene, anthracene, benzo(a)anthracene, dibenzo(a,h)anthracene, fluoranthene, naphthalene, phenanthrene, and pyrene exceeded the respective MEC in at least one sample.
- TAL metals exceeded the MEC in 24 of 40 sediment samples. Iron, lead, manganese, mercury, nickel, and zinc concentrations exceeded the respective MEC in at least one sample.
- TCL pesticides gamma-chlordane concentrations exceeded the MEC in one sample.
- The organotin tributyltin exceeded the MEC in 1 of 40 sediment samples.

Exceedances of PECs were identified for the following:

- Individual PAHs: acenaphthene, naphthalene, and phenanthrene exceeded the respective PEC in at least one sample.
- TAL metals exceeded the PEC in 12 of 40 sediment samples. Lead and manganese concentrations exceeded the respective PEC in at least one sample.
- TCL pesticide gamma-chlordane concentrations exceeded the in one sample.

1. INTRODUCTION

Weston Solutions, Inc. (WESTON®) has prepared this Sediment Assessment Report to summarize site characterization activities for Howard's Bay located in Superior, Douglas County, Wisconsin (**Figure 1-1**), as part of the St. Louis River Area of Concern (AOC) Great Lakes Legacy Act (GLLA) project. The objectives of the site characterization activities were to collect geophysical and chemical samples needed to support project area characterization and potential remediation activities. The data collection activities were conducted in accordance with the *Quality Assurance Project Plan (QAPP)* (WESTON, September 2010). WESTON prepared the *QAPP* report in response to a request from the United States Environmental Protection Agency (U.S. EPA) Great Lakes National Program Office (GLNPO) under the Superfund Technical Assessment and Response Team (START) III contract EP-S5-06-04, Technical Directive Document (TDD) No. S05-0008-1004-032.

1.1 REPORT ORGANIZATION

The Sediment Assessment Report is organized as follows and addresses the following:

- Section 1 – Introduction
- Section 2 – Site Characterization Activities
- Section 3 – Field and Analytical Results
- Section 4 – Data Completeness
- Section 5 – Summary

Photographs of sampling activities are included in **Appendix A**; laboratory analytical reports for the WESTON-procured laboratories are included in **Appendix B**; and data validation reports/summary reports are included in **Appendix C**.

1.2 SITE DESCRIPTION

Howard's Bay is located in the St. Louis River AOC, Superior, Douglas County, Wisconsin (**Figure 1-1**). The investigation area for Howard's Bay was segregated into Area 1 and Area 2 (**Figure 1-2**), where Area 1 has had limited investigation and Area 2 was last investigated in 2007.

The land use surrounding Howard's Bay is primarily industrial and commercial and includes an active ship yard. In general, sediments in the area were suspected to have elevated concentrations of oil and grease, mercury, and heavy metals.

1.3 SITE HISTORY

Contaminated sediments in the study area contribute to beneficial use impairments in the AOC. Impairment of beneficial use is defined as a change in the chemical, physical, or biological integrity of the Great Lakes ecosystem. The Remedial Action Plan (RAP) for the St. Louis River AOC identified the following beneficial use impairments in the AOC:

- Restrictions on fish and wildlife consumption
- Excessive loading of sediment and nutrients
- Degradation of fish and wildlife populations
- Beach closings
- Fish tumors or other deformities
- Degradation of aesthetics
- Degradation of benthos
- Restriction on dredging activities
- Loss of fish and wildlife habitat

In 2004, the St. Louis River Remedial Action Committee identified "clean-up all hotspot contaminated sediments sites by 2020" a goal as part of the AOC's delisting strategy and named Howard's Bay as a target for sediment remediation.

1.4 PURPOSE OF STUDY/PROJECT OBJECTIVES

The purpose of the Howard's Bay site characterization was to further define chemical contaminants in the sediment, locate contaminated areas of focus for additional evaluation, and identify priority areas for remediation and habitat restoration. The objectives of the site characterization activities were to collect geophysical and chemical samples needed to support project area characterization and potential remediation activities.

1.5 CONTAMINANTS OF CONCERN/TARGET ANALYTES

All sediment samples were analyzed for target analyte list (TAL) metals, polycyclic aromatic hydrocarbons (PAH) 17 list, organotins, target compound list (TCL) pesticides, total organic

carbon (TOC), grain size, and total petroleum hydrocarbons (TPH) as diesel range organics (DRO) corresponding to an alkaline range of C_{10} through C_{28}, and oil range organics (ORO) corresponding to an alkaline range of C_{28} through C_{36}. In addition, approximately 30% of all sediment samples collected were analyzed for acid volatile sulfide/simultaneously extracted metal (AVS/SEM), PAH 34 list (in lieu of PAH 17 list at surface sediment samples 0 to 6 inches), and polychlorinated biphenyls (PCBs) as Aroclors.

2. SITE CHARACTERIZATION ACTIVITIES

Sediment investigation activities were conducted from October 16 to 18, 2010. The sample collection procedures were detailed in the *QAPP* (WESTON, September 2010).

Sampling focused on known and suspected areas of deposition and contamination. The approximate area of the Howard's Bay project is 300 acres. The maximum water depth encountered during the sediment sampling was approximately 30 feet. The maximum sediment depth measured was 9.25 feet. The data collected during this characterization will be used to evaluate the locations of the most heavily contaminated sediments, and focus areas for further evaluation and/or remediation.

A total of 124 sediment samples (including duplicate samples) were collected from 42 sampling locations within Howard's Bay. **Table 2-1** presents the sediment sample location coordinates for Area 1 and Area 2. **Figure 2-1** presents the sediment sampling locations for Area 1 and Area 2.

Samples were typically collected from the following sampling intervals: 0 to 6 inches, 0 to 12 inches, 12 to 36 inches, 36 to 60 inches, and 60 to 96 inches below sediment surface (bss) where adequate recovery was available. If less than 12 inches of sediment was encountered in the bottom interval, it was included with the previous interval. If more than 12 inches of sediment was encountered in the bottom interval, it was considered a new interval. The surface interval, 0 to 6 inches, was collected using a ponar to ensure that the required sample volumes were obtained. In addition, the 6- to 12-inch interval, presented in the *QAPP*, was changed to the 0- to 12-inch interval to ensure that the required sample volumes were obtained. Sediment cores were typically completed with the GLNPO research vehicle (R/V) Mudpuppy II vibracoring system through the sediment depth to refusal or until native material was encountered. In shallower areas that were inaccessible with the Mudpuppy, sediment samples were collected using a vibracoring system mounted to a pontoon or hand-driven Lexan tubes.

Sediment collected from the sample depth interval, noted above, was homogenized and an aliquot of each sediment sample was submitted for laboratory analysis.

A total of 84 sediment samples (76 investigative and 8 duplicate) were collected from 26 locations within Area 1 and consisted of sample locations HB10-1-1 through HB10-1-8; HB10-

1-10 through HB10-1-17; HB10-1-20; HB10-1-21; HB10-1-23 through HB10-1-25; and HB10-1-27 through HB10-1-31. Location HB10-1-9 was not completed because pellets were encountered. Locations HB10-1-19 and HB10-1-22 were not completed because native material was encountered. A total of 40 sediment samples (35 investigative and 5 duplicate) were collected from 16 locations within Area 2 and consisted of sample locations HB10-2-18, HB10-2-26, and HB10-2-32 through HB10-2-45.

A U.S. EPA Contract Laboratory Program (CLP) laboratory performed the TAL metals, PCB Aroclors, PAHs (17 and 34 list), TCL pesticides, and AVS/SEM analyses. A WESTON-procured laboratory, TestAmerica Burlington in Burlington, Vermont, performed the grain size and organotin analyses. A WESTON-procured laboratory, Columbia Analytical Services in Kelso, Washington, performed TOC analysis. A WESTON-procured laboratory, TriMatrix Laboratories in Grand Rapids, Michigan, performed the TPH DRO and TPH ORO analyses. A summary of the sample information and analyses for Area 1 and Area 2 are presented on **Table 2-2**. The results of the sediment sampling investigation are discussed in Section 3.

2.1 SEDIMENT CHARACTERISTICS

2.1.1 Area 1

Sediment from Area 1 consisted mostly of dark brown silt with trace sands and trace organics (less than 10% organic materials present). Dark brown fine- to medium-grained sand was encountered in the areas of HB10-1-21 and HB10-1-26; black silt was encountered in the areas of HB10-1-24 and HB10-1-26; and red clay was encountered in the area of HB10-1-27. Depth of sediment recovery at Area 1 ranged from 6 inches to 9.25 feet. Additional detail regarding geologic profile, water depth, and sediment depth are included in the database deliverable.

2.1.2 Area 2

Sediment from Area 2 consisted mostly of dark brown silt with trace sands and trace organics (less than 10% organic materials present). Dark brown fine-grained sand was encountered in the area of HB10-2-35 and HB10-2-37, and red clay was encountered in the area of HB10-2-34. Depth of sediment recovery at Area 1 ranged from 6 inches to 4.92 feet. Additional detail

regarding geologic profile, water depth, and sediment depth are included in the database deliverable.

3. FIELD AND ANALYTICAL RESULTS

This section summarizes the results of the site characterization activities conducted from October 16 to 18, 2010. A total of 124 sediment samples (111 investigative and 13 duplicate) were collected from the 42 sampling locations within Howard's Bay. Analytical parameters for samples collected are as follows:

Analysis	Sample Depth (inches bss)	Area 1 No. Samples	Area 2 No. Samples	Total Sediment Samples
PAHs (17 list)	All depths	58	31	89
PAHs (34 list)	All depths	26	9	35
TAL Metals	All depths	84	40	124
PCB Aroclors	All depths	26	9	35
TCL Pesticides	All depths	84	40	124
TPH DRO/ORO	All depths	84	40	124
Organotin	All depths	84	40	124
Grain Size	All depths	76	35	111
TOC	All depths	84	39	123
AVS/SEM	All depths	26	9	35

The sample results for PAHs, TAL metals, PCB Aroclors, TCL pesticides, and organotins are compared to the Wisconsin Department of Natural Resources (WDNR) *Consensus-Based Sediment Quality Guidelines (SQGs)* - Threshold Effect Concentration (TEC), Median Effect Concentration (MEC), and Probable Effect Concentration (PEC). The TECs and PECs provide screening criteria to evaluate sediment chemistry data. TECs are defined as concentrations below which adverse effects are not expected to occur and PECs are defined as concentrations above which adverse effects are expected to occur more often than not. There is an incremental increase in toxicity as the contaminant concentrations increase between the TEC and PEC concentrations. The MEC is a concentration midway between the TEC and PEC concentrations.

The sediment sample concentrations for PAHs, PCB Aroclors, TCL pesticides, and organotins were normalized to 1% TOC to permit comparison to the screening criteria. **Tables 3-1a** through **3-1c** present a summary of the analytes by sediment depth interval and includes the number of samples analyzed per depth interval; the number of detected results; number and percent of non-detect results; maximum, minimum, and average detected concentrations;

screening criteria; and percent of samples exceeding the screening criteria. **Tables 3-2a** through **3-8a** present the analytical results for Area 1 and **Tables 3-2b** through **3-8b** present the analytical results for Area 2. The sample results for TOC, grain size, AVS/SEM, TPH DRO, and TPH ORO are tabulated but are not compared to any numerical screening criteria. **Figure 3-1** presents the sediment sampling exceedances for the entire sampling project. Analytical data and exceedances of applicable SQGs are discussed for Areas 1 and 2 in the following sections.

3.1 AREA 1

A total of 84 sediment samples (76 investigative and 8 duplicate) were collected from 26 locations within Area 1 and consisted of sample locations HB10-1-1 through HB10-1-8; HB10-1-10 through HB10-1-17; HB10-1-20; HB10-1-21; HB10-1-23 through HB10-1-25; and HB10-1-27 through HB10-1-31. **Table 3-1b** presents a summary of the analytes by sediment depth interval and includes the number of samples analyzed per depth interval; the number of detected results; number and percent of non-detect results; maximum, minimum, and average detected concentrations; screening criteria; and percent of samples exceeding the screening criteria. A comparison of the analytical data to the respective SQGs, when available, is discussed in the following sections per parameter group.

3.1.1 PAHs

PAH (17 list) and PAH (34 list) analyses were conducted on a total of 58 and 26 sediment samples from Area 1, respectively. All 38 PAHs were detected in the sediment samples.

Eighteen PAHs—1,2-benzphenanthracene (chrysene), 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene—were detected at concentrations that exceeded the TEC, MEC, and/or PEC screening criteria, summarized as follows:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (µg/kg)	No.	%	MEC (µg/kg)	No.	%	PEC (µg/kg)	No.	%	Result (µg/kg)	Sample ID
1,2-benzphenanthracene	**84**	**166**	**11**	**13.3**	**728**	**2**	**2.4**	**1290**	**1**	**1.2**	**1326**	**HB10-1-03-06**
2-methylnaphthalene	84	20.2	6	7.1	111	2	2.4	201	0	0.0	193	HB10-1-07-06
Acenaphthene	**84**	**6.7**	**35**	**41.7**	**48**	**5**	**6.0**	**89**	**1**	**1.2**	**355.3**	**HB10-1-07-06**
Acenaphthylene	83	5.9	26	31.2	67	1	1.2	128	0	0.0	105	HB10-1-03-06
Anthracene	**84**	**57.2**	**9**	**10.9**	**451**	**1**	**1.2**	**845**	**1**	**1.2**	**921.1**	**HB10-1-07-06**
Benzo(a)anthracene	**84**	**108**	**19**	**22.9**	**579**	**3**	**3.6**	**1050**	**2**	**2.4**	**1228.1**	**HB10-1-07-06**
Benzo(a)pyrene	84	150	16	19.3	800	2	2.4	1450	0	0.0	1105	HB10-1-03-06
Benzo(b)fluoranthene	84	240	6	7.1	6820	0	0.0	13400	0	0.0	1602.2	HB10-1-03-06
Benzo(e)pyrene	26	150	4	15.6	800	0	0.0	1450	0	0.0	482.5	HB10-1-07-06
Benzo(g,h,i)perylene	84	170	3	3.6	1685	0	0.0	3200	0	0.0	939.2	HB10-1-03-06
Benzo(k)fluoranthene	84	240	3	3.6	6820	0	0.0	13400	0	0.0	607.7	HB10-1-03-06
Dibenzo(a,h)anthracene	**84**	**33**	**9**	**10.8**	**84**	**2**	**2.4**	**135**	**1**	**1.2**	**143.7**	**HB10-1-03-06**
Fluoranthene	**84**	**423**	**11**	**13.1**	**1327**	**3**	**3.6**	**2230**	**2**	**2.4**	**3201.8**	**HB10-1-07-06**
Fluorene	**84**	**77.4**	**2**	**2.4**	**307**	**1**	**1.2**	**536**	**1**	**1.2**	**614**	**HB10-1-07-06**
Indeno(1,2,3-cd) pyrene	84	200	3	3.6	1700	0	0.0	3200	0	0.0	828.8	HB10-1-03-06
Naphthalene	83	176	2	2.5	369	0	0.0	561	0	0.0	270.7	HB10-1-03-06
Phenanthrene	**84**	**204**	**11**	**13.0**	**687**	**3**	**3.6**	**1170**	**1**	**1.2**	**3640.4**	**HB10-1-07-06**
Pyrene	**84**	**195**	**27**	**32.2**	**858**	**3**	**3.6**	**1520**	**2**	**2.4**	**2193**	**HB10-1-07-06**
Total PAHs 17	84	1610	17	20.4	12205	2	2.4	22800	0	0.0	17204	HB10-1-07-06
Total PAHs 34	**26**	**1610**	**16**	**61.5**	**12205**	**1**	**3.9**	**22800**	**1**	**3.9**	**22897**	**HB10-1-07-06**

Notes:
BOLD – Exceeds TEC, MEC, and PEC SQGs
SQG – Sediment Quality Guideline
µg/kg – Microgram per kilogram

Individual PAHs exceeded the TEC, MEC, and PEC SQGs throughout Area 1 at all depths. The complete PAH analytical results are presented on **Table 3-2a**. The calculated total PAH 17 concentration exceeded the SQGs in 17 of 84 samples. The calculated total PAH 34 concentration exceeded the SQGs in 16 of 26 samples. At least one PAH was detected at a concentration exceeding the respective TEC in 41 sediment samples and total PAHs 17 exceeded the TEC in 17 sediment samples. At least one PAH was detected at a concentration exceeding the respective MEC in five sediment samples (HB10-1-03-06, HB10-1-07-06, HB10-1-10-06, HB10-1-20-06, and HB10-1-29-36). At least one PAH was detected at a concentration exceeding the PEC in two sediment samples (HB10-1-03-06 and HB10-1-07-06). PAH concentrations were detected at HB10-1-3 and HB10-1-7, located in the northern portion of Area 1, exceeding TEC, MEC, and PEC as shown on **Figure 3-2a**.

PAH concentrations exceeding the PEC are limited to the surface sediment sample (0 to 6 inches bss) at HB10-1-3; however concentrations of PAHs exceeding the TEC were noted through the sediment core to 7 ft bss. PAH concentrations exceeding the SQGs are limited to upper one foot of sediment at HB10-1-7.

3.1.2 TAL Metals

TAL metals analysis was conducted on a total of 84 sediment samples from Area 1. All 23 TAL metals were detected in the sediment samples.

Twelve TAL metals—antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, and zinc—were detected at concentrations that exceeded the TEC, MEC, and/or PEC screening criteria as summarized below:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (mg/kg)	No.	%	MEC (mg/kg)	No.	%	PEC (mg/kg)	No.	%	Result (mg/kg)	Sample ID
Antimony	**84**	**2**	**13**	**15.5**	**13.5**	**1**	**1.1**	**25**	**1**	**1.1**	**38.5**	**HB10-1-24-36**
Arsenic	84	9.8	2	2.3	21.4	0	0.0	33	0	0.0	12.4	HB10-1-29-36
Cadmium	84	0.99	11	13.3	3	1	1.1	5	0	0.0	3.7	HB10-1-29-36
Chromium	**84**	**43**	**7**	**8.5**	**76.5**	**3**	**3.5**	**110**	**1**	**1.1**	**117**	**HB10-1-29-12**
Copper	**84**	**32**	**58**	**69.1**	**91**	**8**	**9.5**	**150**	**3**	**3.4**	**321**	**HB10-1-29-36**
Iron	**84**	**20000**	**63**	**74.7**	**30000**	**12**	**14.5**	**40000**	**1**	**1.1**	**41400**	**HB10-1-29-12**
Lead	**84**	**36**	**61**	**72.8**	**83**	**28**	**33.1**	**130**	**12**	**14.3**	**481**	**HB10-1-29-36**
Manganese	84	460	40	47.7	780	2	2.4	1100	0	0.0	891	HB10-1-29-12
Mercury	**84**	**0.18**	**58**	**69.0**	**0.64**	**14**	**16.8**	**1.1**	**6**	**7.2**	**58**	**HB10-1-16-31**
Nickel	84	23	43	51.1	36	5	6.1	49	0	0.0	44.4	HB10-1-29-12
Silver	84	1.6	2	2.3	1.9	0	0.0	2.2	0	0.0	1.8	HB10-1-29-36
Zinc	**84**	**120**	**51**	**60.6**	**290**	**10**	**12.1**	**460**	**6**	**7.2**	**945**	**HB10-1-29-36**

Notes:
BOLD – Exceeds TEC, MEC, and PEC SQGs
SQG – Sediment Quality Guideline
mg/kg – Milligram per kilogram

Individual TAL metals exceeded the TEC, MEC, and PEC SQGs throughout Area 1 at all depths. The complete TAL metals analytical results are presented on **Table 3-3a**. At least one metal was detected at a concentration exceeding the respective TEC in 78 sediment samples. At least one metal was detected at a concentration exceeding the respective MEC in 27 sediment samples. At least one metal was detected at a concentration exceeding the respective PEC in 14 sediment

samples collected from eight locations (HB10-1-13, HB10-1-15, HB10-1-16, HB10-1-24, and HB10-1-28 through HB10-1-31) as shown on **Figure 3-2b**.

3.1.3 PCBs

PCB Aroclors analysis was conducted on a total of 26 sediment samples from Area 1. Aroclor-1254 and Aroclor-1260 were the only Aroclors detected in the sediment samples.

Total PCBs were calculated, by WESTON, for each of the 26 sediment samples analyzed for PCB Aroclors by summing the detections for each sample. The total PCB concentrations that exceeded the TEC, MEC, and/or PEC screening criteria are summarized below:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (µg/kg)	No.	%	MEC (µg/kg)	No.	%	PEC (µg/kg)	No.	%	Result (µg/kg)	Sample ID
Total PCBs (Aroclors)	26	60	2	7.8	368	0	0.0	676	0	0.0	271	HB10-1-04-06

Notes:
SQG – Sediment Quality Guideline
µg/kg – Microgram per kilogram

The complete PCB Aroclors analytical results are presented on **Table 3-4a**. TEC exceedances of total PCBs were detected in two sediment samples (HB10-1-04-06 and HB10-1-21-23) as shown on **Figure 3-2c**. No MEC or PEC exceedances were detected in the sediment samples.

3.1.4 TCL Pesticides

TCL pesticide analysis was conducted on a total of 84 sediment samples from Area 1. Fifteen TCL pesticides were detected in the sediment samples:

- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Aldrin
- Alpha-BHC
- Beta-BHC
- Delta-BHC
- Endosulfan I
- Endosulfan Sulfate
- Endrin
- Endrin Aldehyde
- Endrin Ketone
- Gamma-BHC
- Heptachlor Epoxide
- Methoxyclor

Of the 15 TCL pesticides detected, five TCL pesticides—beta-BHC, 4,4'-DDD, 4,4-DDT, endrin, and heptachlor epoxide—were detected at concentrations that exceeded the TEC, MEC, and/or PEC screening criteria and are summarized below:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (µg/kg)	No.	%	MEC (µg/kg)	No.	%	PEC (µg/kg)	No.	%	Result (µg/kg)	Sample ID
Beta-BHC	84	5	1	1.2	108	0	0.0	210	0	0.0	11.049724	HB10-1-03-06
4,4'-DDD	84	4.9	1	1.1	16.5	0	0.0	28	0	0.0	8.4848485	HB10-1-29-36
4,4'-DDT	**84**	**4.2**	**5**	**6.1**	**33.6**	**2**	**2.3**	**63**	**1**	**1.2**	**77.348066**	**HB10-1-03-06**
Endrin	84	2.2	2	2.3	104.6	0	0.0	207	0	0.0	5.4901961	HB10-1-29-06
Heptachlor epoxide	**84**	**2.5**	**4**	**4.7**	**9.3**	**1**	**1.2**	**16**	**1**	**1.2**	**38.674033**	**HB10-1-03-06**

Notes:
BOLD – Exceeds TEC, MEC, and PEC SQGs
SQG – Sediment Quality Guideline
µg/kg – Microgram per kilogram

The complete TCL pesticides analytical results are presented on **Table 3-5a**. At least one pesticide was detected at a concentration exceeding the respective TEC in seven sediment samples collected from four locations (HB10-1-01-06, HB10-1-03-06, HB10-1-03-12, HB10-1-03-36, HB10-1-24-36, HB10-1-29-06, HB10-1-29-36). 4,4'-DDT was detected at concentrations exceeding the MEC in two sediment samples (HB10-1-03-06 and HB10-1-29-36) and heptachlor epoxide was detected at a concentration exceeding the MEC in one sediment sample (HB10-1-03-06). PEC exceedances of 4,4'-DDT and heptachlor epoxide were noted at HB10-1-03-06. TEC, MEC, and PEC exceedances are presented on **Figure 3-2d**.

3.1.5 TPH

TPH DRO and TPH ORO analysis were conducted on a total of 84 sediment samples from Area 1. TPH DRO was detected in 83 sediment samples with concentrations ranging from 11 to 730 mg/kg. The highest concentration was detected at sediment sample HB10-1-29-93. Ranges of TPH DRO concentrations and the highest detected values are presented on **Figure 3-2e**. TPH ORO was detected in all 84 sediment samples with concentrations ranging from 11 to 850 mg/kg. The highest concentration was detected at sediment sample HB10-1-24-36. Ranges of TPH ORO concentrations and the highest detected values are presented on **Figure 3-2f**. The complete TPH DRO and ORO analytical results are presented on **Table 3-6a**.

3.1.6 Organotin

Organotin analysis was conducted on a total of 84 sediment samples from Area 1. Of the four analyzed organotins, dibutyltin and tributyltin were detected in the sediment samples.

Tributyltin is the only organotin with an SQG. A summary of tributyltin concentrations that exceeded the TEC, MEC, and/or PEC screening criteria follows:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (µg/kg)	No.	%	MEC (µg/kg)	No.	%	PEC (µg/kg)	No.	%	Result (µg/kg)	Sample ID
Tributyltin	**84**	**0.52**	**32**	**38.1**	**1.73**	**13**	**15.7**	**2.94**	**8**	**9.6**	**64.59**	**HB10-1-28-06**

Notes:
BOLD – Exceeds TEC, MEC, and PEC SQGs
SQG – Sediment Quality Guideline
µg/kg – Microgram per kilogram

The complete organotin analytical results are presented on **Table 3-7a**. Tributyltin concentrations exceeded the TEC, MEC, and PEC levels in 32, 13, and 8 sediment samples, respectively.

TEC, MEC, and PEC exceedances were noted in the western portion of Area 1 (HB10-1-2, HB10-1-3, HB10-1-5, HB10-1-6, HB10-1-16, and HB10-1-28). Individual organotins exceeded the TEC, MEC, and PEC SQGs throughout Area 1 at all depths as shown on **Figure 3-2g**.

3.1.7 AVS/SEM

AVS/SEM analysis was conducted on a total of 26 sediment samples collected from Area 1. Measurement of AVS and SEM concentrations associated with AVS extraction can provide insight into the bioavailability of metals in anaerobic (anoxic) sediments (U.S. EPA, 2001). A model for predicting toxicity from divalent trace metals is based on the binding of these metals to AVS. When the sum of the moles of the SEM (including silver, cadmium, copper, nickel, lead, and zinc) is exceeded by the molar concentration of AVS, the metals are considered insoluble and largely unavailable to biota. However, if the AVS is less than the SEM, metals may or may not be toxic due to other controlling factors (such as TOC content) (U.S. EPA 2001).

Table 3-8a summarizes the derivation of the AVS/SEM values. The [(Sum SEM-AVS)/f_{oc}] yielded results less than 130 micromole per gram of organic carbon (µmole/g_{oc}) at all locations

except HB10-1-24-12 (2.9 µmole/g_{oc}), which indicates a low risk of adverse biological effects from metals. The AVS/SEM ratios yielded results less than 1 standard unit (S.U.) at all locations except HB10-1-24-12 (1.3 S.U.).

3.1.8 Physical Properties

Grain size analysis was conducted on a total of 76 sediment samples and TOC analysis was conducted on a total of 84 sediment samples collected from Area 1. The data are presented on **Table 3-9a**.

The geotechnical results for the 76 samples collected for grain size analysis indicate that the material sampled consisted primarily of sand and silt.

3.2 AREA 2

A total of 40 sediment samples (35 investigative and 5 duplicate) were collected from 16 locations within Area 2 and consisted of sample locations HB10-2-18, HB10-2-26, and HB10-2-32 through HB10-2-45. **Table 3-1c** presents a summary of the analytes by sediment depth interval and includes the number of samples analyzed per depth interval; the number of detected results; number and percent of non-detect results; maximum, minimum, and average detected concentrations; screening criteria; and percent of samples exceeding the screening criteria. A comparison of the analytical data to the respective SQGs, when available, is discussed in the following sections per parameter group.

3.2.1 PAHs

PAH (17 list) and PAH (34 list) analyses were conducted on a total of 31 and 9 sediment samples from Area 2, respectively. All 38 PAHs were detected in the sediment samples.

Fifteen PAHs—1,2-benzphenanthracene (chrysene), 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene—were detected at concentrations that exceeded the TEC, MEC, and/or PEC screening criteria as summarized below:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (µg/kg)	No.	%	MEC (µg/kg)	No.	%	PEC (µg/kg)	No.	%	Result (µg/kg)	Sample ID
1,2-benzphenanthracene	40	166	7	17.7	728	0	0.0	1290	0	0.0	567.38	HB10-2-37-06
2-methylnaphthalene	40	20.2	8	19.8	111	0	0.0	201	0	0.0	49.65	HB10-2-37-06
Acenaphthene	**40**	**6.7**	**18**	**45.0**	**48**	**3**	**7.8**	**89**	**1**	**2.6**	**90.66**	**HB10-2-32-06**
Acenaphthylene	40	5.9	17	42.8	67	0	0.0	128	0	0.0	19.39	HB10-2-37-06
Anthracene	40	57.2	5	12.8	451	1	2.6	845	0	0.0	472.81	HB10-2-37-06
Benzo(a)anthracene	40	108	10	24.9	579	1	2.6	1050	0	0.0	591.02	HB10-2-37-06
Benzo(a)pyrene	39	150	6	15.4	800	0	0.0	1450	0	0.0	496.45	HB10-2-37-06
Benzo(b)fluoranthene	39	240	1	2.6	6820	0	0.0	13400	0	0.0	347.39	HB10-2-38-38
Benzo(g,h,i)perylene	40	170	2	5.0	1685	0	0.0	3200	0	0.0	186.10	HB10-2-38-38
Dibenzo(a,h)anthracene	40	33	5	12.8	84	1	2.6	135	0	0.0	85.11	HB10-2-37-06
Fluoranthene	39	423	4	10.3	1327	1	2.6	2230	0	0.0	1560.3	HB10-2-37-06
Fluorene	40	77.4	2	5.2	307	0	0.0	536	0	0.0	81.723	HB10-2-41-06
Naphthalene	**40**	**176**	**1**	**2.6**	**369**	**1**	**2.6**	**561**	**1**	**2.6**	**1044**	**HB10-2-32-06**
Phenanthrene	**39**	**204**	**6**	**15.4**	**687**	**1**	**2.6**	**1170**	**1**	**2.6**	**1513**	**HB10-2-37-06**
Pyrene	39	195	12	30.6	858	1	2.6	1520	0	0.0	1016.5	HB10-2-37-06
Total PAHs 17	40	1610	10	24.9	12205	0	0.0	22800	0	0.0	7910.6	HB10-2-37-06
Total PAHs 34	9	1610	4	44.0	12205	0	0.0	22800	0	0.0	11521	HB10-2-37-06

Notes:
BOLD – Exceeds TEC, MEC, and PEC SQGs
SQG – Sediment Quality Guideline
µg/kg – Microgram per kilogram

Individual PAHs exceeded the TEC, MEC, and PEC SQGs throughout Area 2 at all depths. The complete PAH analytical results are presented on **Table 3-2b**. The calculated total PAHs 17 concentration exceeded the SQGs in 10 of 40 samples. The calculated total PAH 34 concentration exceeded the SQGs in 4 of 9 samples. At least one PAH was detected at a concentration exceeding the respective TEC in 25 sediment samples. At least one PAH was detected at a concentration exceeding the respective MEC in four sediment samples (HB10-2-32-06, HB10-2-37-06, HB10-2-41-06, and HB10-2-42-12). At least one PAH was detected at a concentration exceeding the respective PEC in two sediment samples (HB10-2-32-06 and HB10-2-37-06) as shown on **Figure 3-3a**.

3.2.2 TAL Metals

TAL metals analysis was conducted on a total of 40 sediment samples from Area 2. Twenty-one TAL metals were detected in the sediment samples:

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Calcium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Nickel
- Potassium
- Silver
- Thallium
- Vanadium
- Zinc

Of the 21 TAL metals detected, 10 TAL metals—antimony, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc—were detected at concentrations that exceeded the TEC, MEC, and/or PEC screening criteria as summarized below:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (mg/kg)	No.	%	MEC (mg/kg)	No.	%	PEC (mg/kg)	No.	%	Result (mg/kg)	Sample ID
Antimony	40	2	3	7.7	13.5	0	0.0	25	0	0.0	2.3	HB10-2-39-28
Cadmium	40	0.99	1	2.6	3	0	0.0	5	0	0.0	1.1	HB10-2-36-06DP
Chromium	40	43	4	9.8	76.5	0	0.0	110	0	0.0	50.5	HB10-2-39-28
Copper	40	32	25	62.8	91	0	0.0	150	0	0.0	67.2	HB10-2-38-12
Iron	40	20000	23	57.1	30000	10	25.1	40000	0	0.0	38000	HB10-2-43-06
Lead	**40**	**36**	**31**	**77.4**	**83**	**19**	**47.3**	**130**	**10**	**24.8**	**1140**	**HB10-2-45-06**
Manganese	**40**	**460**	**17**	**42.4**	**780**	**8**	**19.8**	**1100**	**2**	**5.3**	**1250**	**HB10-2-32-06**
Mercury	40	0.18	24	60.1	0.64	1	2.6	1.1	0	0.0	0.74	HB10-2-36-06DP
Nickel	40	23	22	54.7	36	1	2.5	49	0	0.0	42.8	HB10-2-39-28
Zinc	40	120	26	65.0	290	3	7.8	460	0	0.0	442	HB10-2-36-06

Notes:
BOLD – Exceeds TEC, MEC, and PEC SQGs
SQG – Sediment Quality Guideline
mg/kg – Milligram per kilogram

Individual TAL metals exceeded the TEC, MEC, and PEC SQGs throughout Area 2 at all depths. The complete TAL metals analytical results are presented on **Table 3-3b**. At least one TAL metal was detected at a concentration exceeding the respective TEC in 34 sediment samples. At least one TAL metal was detected at a concentration exceeding the respective MEC in 24 sediment samples. At least one TAL metal was detected at a concentration exceeding the respective PEC in 12 sediment samples collected from nine locations (HB10-2-32, HB10-2-34, HB10-2-36, HB10-2-38, HB10-2-40, HB10-2-41, HB10-2-42, HB10-2-44, and HB10-2-45) as shown on **Figure 3-3b**.

3.2.3 PCBs

PCB Aroclors analysis was conducted on a total of 9 sediment samples from Area 2 for the 0- to 6-inch bss sample interval. Aroclor-1254 and Aroclor-1260 were the only Aroclors detected in the sediment samples.

Total PCBs were calculated, by WESTON, for each of the nine sediment samples analyzed for PCB Aroclors by summing the detections for each sample. The complete PCB Aroclors analytical results are presented on **Table 3-4b**. No TEC, MEC, and PEC exceedances were detected in the sediment samples as shown on **Figure 3-3c**.

3.2.4 TCL Pesticides

TCL pesticide analysis was conducted on a total of 40 sediment samples from Area 2. Thirteen TCL pesticides were detected in the sediment samples:

- 4,4'-DDD
- 4,4'-DDT
- Aldrin
- Alpha-BHC
- Delta-BHC
- Dieldrin
- Gamma-Chlordane
- Endrin
- Endrin Ketone
- Endosulfan I
- Endosulfan Sulfate
- Heptachlor
- Heptachlor Epoxide

Of the 13 TCL pesticides detected, two TCL pesticides—aldrin and gamma-chlordane—were detected at concentrations that exceeded the TEC, MEC, and/or PEC screening criteria and are summarized below:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (µg/kg)	No.	%	MEC (µg/kg)	No.	%	PEC (µg/kg)	No.	%	Result (µg/kg)	Sample ID
Aldrin	40	2	1	2.6	41	0	0.0	80	0	0.0	14.58	HB10-2-35-12
Gamma-chlordane	**40**	**3.2**	**1**	**2.6**	**10.6**	**1**	**2.6**	**18**	**1**	**2.6**	**19.67**	**HB10-2-40-12**

Notes:
BOLD – Exceeds TEC, MEC, and PEC SQGs
SQG – Sediment Quality Guideline
µg/kg – Microgram per kilogram

The complete TCL pesticides analytical results are presented on **Table 3-5b**. Aldrin detected at a concentration exceeding the TEC in one sediment sample (HB10-2-35-12). Gamma-chlordane

was detected at a concentration exceeding the MEC and PEC in one sediment sample (HB10-2-40-12) as presented on **Figure 3-3d**.

3.2.5 TPH

TPH DRO and TPH ORO analysis were conducted on a total of 40 sediment samples from Area 2. TPH DRO was detected in all 40 sediment samples with concentrations ranging from 4 to 450 mg/kg. The highest concentration was detected at sediment sample HB10-2-36-06DP. Ranges of TPH DRO concentrations are presented on **Figure 3-3e**. TPH ORO was detected in 38 of the 40 sediment samples with concentrations ranging from 28 to 610 mg/kg. The highest concentration was detected at sediment sample HB10-2-43-22. Ranges of TPH ORO concentrations and the highest detected values are presented on **Figure 3-3f**. The complete TPH DRO and ORO analytical results are presented on **Table 3-6b**.

3.2.6 Organotin

Organotin analysis was conducted on a total of 40 sediment samples from Area 2. All four analyzed organotins were detected in the sediment samples. Tributyltin is the only organotin with an SQG and a summary of concentrations that exceeded the TEC, MEC, and/or PEC screening criteria follows:

Analyte	No. of Results	TEC Exceedances			MEC Exceedances			PEC Exceedances			Maximum Detection	
		TEC (µg/kg)	No.	%	MEC (µg/kg)	No.	%	PEC (µg/kg)	No.	%	Result (µg/kg)	Sample ID
Tributyltin	40	0.52	8	19.9	1.73	1	2.6	2.94	0	0.0	2.59	HB10-2-44-06

Notes:
SQG – Sediment Quality Guideline
µg/kg – Microgram per kilogram

The complete organotin analytical results are presented on **Table 3-7b**. Tributyltin concentrations exceeded the TEC in eight sediment samples (HB10-2-18-06, HB10-2-18-06DP, HB10-2-34-06, HB10-2-34-06DP, HB10-2-38-06, HB10-2-40-06, HB10-2-40-12, and HB10-2-44-06). Tributyltin exceeded the MEC in sample HB10-2-44-06 but did not exceed the PEC in any of the sediment samples. Individual organotins exceeded the TEC and MEC SQGs throughout Area 2 as shown on **Figure 3-3g**.

3.2.7 AVS/SEM

AVS/SEM analysis was conducted on a total of nine sediment samples collected from Area 2. Measurement of AVS and SEM concentrations associated with AVS extraction can provide insight into the bioavailability of metals in anaerobic (anoxic) sediments (U.S. EPA, 2001). A model for predicting toxicity from divalent trace metals is based on the binding of these metals to AVS. When the sum of the moles of the SEM (including silver, cadmium, copper, nickel, lead, and zinc) is exceeded by the molar concentration of AVS, the metals are considered insoluble and largely unavailable to biota. However, if the AVS is less than the SEM, metals may or may not be toxic due to other controlling factors (such as TOC content) (U.S. EPA, 2001).

Table 3-8b summarizes the derivation of the AVS/SEM values. The [(Sum SEM-AVS)/f_{oc}] yielded results less than 130 µmole/g_{oc} at all locations except HB10-2-37-06 (28.8 µmole/g_{oc}) and HB10-2-39-06 (2 µmole/g_{oc}), which indicates a low risk of adverse biological effects from metals. The AVS/SEM ratios yielded results less than 1 S.U. at all locations except HB10-2-37-06 (13.9 S.U.) and HB10-2-39-06 (2 S.U.).

3.2.8 Physical Properties

Grain size analysis was conducted on a total of 35 sediment samples and TOC analysis was conducted on a total of 39 sediment samples collected from Area 2. The data are presented on **Table 3-9b**.

The geotechnical results for the 35 samples collected for grain size analysis indicate that the material sampled consisted of sand and silt.

4. DATA COMPLETENESS

Data validation summaries were produced for each chemical group. Data generated through the U.S. EPA CLP had an initial performance assessment and compliance screening check that was performed and uploaded by the Sample Management Office to the Electronic Data Exchange and Evaluation System website. These checks were to confirm conformance with the U.S. EPA CLP National Functional Guidelines (NFGs). After this assessment was completed, U.S. EPA Region 5 Environmental Services Assistance Team completed full manual data validation of approximately 5% of the data generated by the U.S. EPA CLP (TAL metals, PCB Aroclors, PAHs, TCL pesticides, and AVS/SEM analyses). Data that was received from a subcontracted laboratory was run through the Automated Data Review checker. This was conducted for all parameters except grain size. WESTON completed a 5% full manual data validation for all of the analyses conducted by the WESTON-procured subcontractor laboratories (grain size, organotin, TOC, TPH DRO, and TPH ORO). The following are the general guidelines for the data validation:

- *NFGs for Superfund Organics Method Data Review,* U.S. EPA, June 2008
- *NFGs for Superfund Inorganics Method Data Review,* U.S. EPA, January 2010
- *NFGs for Inorganic Data Review,* U.S. EPA, January 2010
- *NFGs for Chlorinated Dioxin/Furan Data Review,* U.S. EPA September 2005
- Data not covered in the NFGs will be compared to the applicable analytical methods, the laboratory standard operating procedures, and guidelines described in the *QAPP* (WESTON, September 2010)

The data validation consisted of completing the GLNPO Quality Assurance/Quality Control checklist and preparing a data narrative summary report for each chemical parameter, which included the following completeness and usability components:

- Summary of Data Review
- Minor problems
  - Holding times
  - Matrix Spike/Matrix Spike Duplicates
  - Surrogates, as applicable
  - Calibration

  - Laboratory Control Samples
  - Field Replicate Results
- Data Quality Indicator Review
  - Sensitivity
  - Precision
  - Accuracy
  - Completeness

Overall, the data is considered usable for project decisions. All of the data validation summaries have been previously submitted to GLNPO; however, they are included in **Appendix C**.

5. SUMMARY

During the sediment investigation activities, a total of 124 sediment samples (including duplicates) were collected from 42 sampling locations within Howard's Bay. Samples were typically collected from the following sampling intervals: 0 to 6 inches, 0 to 12 inches, 12 to 36 inches, 36 to 60 inches, and 60 to 96 inches bss where adequate recovery was available. All sediment samples were analyzed for TAL metals, PAH 17 list, organotins, TCL pesticides, TOC, grain size, TPH DRO, and TPH ORO. In addition, approximately 30% of all sediment samples collected were analyzed for AVS/SEM, PAH 34 list (in lieu of PAH 17 list at surface sediment samples 0 to 6 inches), and PCB as Aroclors.

The sample results for TAL metals, PAHs, organotins, TCL pesticides, and PCB Aroclors were compared to the WDNR *Consensus-Based SQGs* (including TEC, MEC, and PEC). The sample results for TOC, grain size, AVS/SEM, TPH DRO, and TPH ORO are tabulated but are not compared to any numerical screening criteria. A summary of the TEC, MEC, and PEC exceedances is provided below for Areas 1 and 2.

Area 1

Exceedances of TECs were identified for the following:

- Total PAH 17 exceeded the TEC in 17 of 84 sediment samples. Total PAH 34 exceeded the TEC in 16 of 26 sediment samples. Individual PAHs: 1,2-benzphenanthracene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene exceeded the respective TEC in at least one sample.
- TAL metals exceeded the TEC in 78 of 84 sediment samples. Antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, and zinc concentrations exceeded the respective TEC in at least one sample.
- Total PCBs exceeded the TEC in 2 of 26 sediment samples.
- TCL pesticides exceeded the TEC in 7 of 84 sediment samples. Beta-BHC, 4,4'-DDD, 4,4'-DDT, endrin, and heptachlor epoxide concentrations exceeded the respective TEC in at least one sample.
- The organotin tributyltin exceeded the TEC in 32 of 84 sediment samples.

Exceedances of MECs were identified for the following:

- Total PAH 17 exceeded the MEC in 2 of 84 sediment samples. Total PAH 34 exceeded the MEC in 1 of 26 sample locations. Individual PAHs: 1,2-benzphenanthracene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluoranthene, fluorene, phenanthrene, and pyrene exceeded the respective MEC in at least one sample.
- TAL metals exceeded the MEC in 27 of 84 sediment samples. Antimony, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc concentrations exceeded the respective MEC in at least one sample.
- TCL pesticides exceeded the MEC in 2 of 84 sediment samples. 4,4'-DDT and heptachlor epoxide concentrations exceeded the respective MEC in at least one sample.
- The organotin tributyltin exceeded the MEC in 13 of 84 sediment samples.

Exceedances of PECs were identified for the following:

- Total PAH 34 exceeded the PEC in 1 of 26 sediment samples. Individual PAHs: 1,2-benzphenanthracene, acenaphthene, anthracene, benzo(a)anthracene, dibenzo(a,h)anthracene, fluoranthene, fluorene, phenanthrene, and pyrene exceeded the respective PEC in at least one sample.
- TAL metals exceeded the PEC in 14 of 84 sediment samples. Antimony, chromium, copper, iron, lead, mercury, and zinc concentrations exceeded the respective PEC in at least one sample.
- TCL pesticides exceeded the PEC in 1 of 84 sediment samples. 4,4'-DDT and heptachlor epoxide concentrations exceeded the respective PEC in one sample.
- The organotin tributyltin exceeded the PEC in 8 of 84 sediment samples.

Area 2

Exceedances of TECs were identified for the following:

- Total PAH 17 exceeded the TEC in 10 of 40 sediment samples. Total PAH 34 exceeded the TEC in 4 of 9 sample locations. Individual PAHs: 1,2-benzphenanthracene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene exceeded the respective TEC in at least one sample.
- TAL metals exceeded the TEC in 34 of 40 sediment samples. Antimony, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc concentrations exceeded the respective TEC in at least one sample.

- TCL pesticides exceeded the TEC in 1 of 40 sediment samples. Aldrin and gamma-chlordane concentrations exceeded the respective TEC in one sample.
- The organotin tributyltin exceeded the TEC in 8 of 40 sediment samples.

Exceedances of MECs were identified for the following:

- Individual PAHs: acenaphthene, anthracene, benzo(a)anthracene, dibenzo(a,h)anthracene, fluoranthene, naphthalene, phenanthrene, and pyrene exceeded the respective MEC in at least one sample.
- TAL metals exceeded the MEC in 24 of 40 sediment samples. Iron, lead, manganese, mercury, nickel, and zinc concentrations exceeded the respective MEC in at least one sample.
- TCL pesticides gamma-chlordane concentrations exceeded the MEC in one sample.
- The organotin tributyltin exceeded the MEC in 1 of 40 sediment samples.

Exceedances of PECs were identified for the following:

- Individual PAHs: acenaphthene, naphthalene, and phenanthrene exceeded the respective PEC in at least one sample.
- TAL metals exceeded the PEC in 12 of 40 sediment samples. Lead and manganese concentrations exceeded the respective PEC in at least one sample.
- TCL pesticide gamma-chlordane concentrations exceeded the in one sample.

TABLES

Table 2-1
Sample Location Coordinates
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Location ID	Latitude (D.d)	Longitude (D.d)
Area 1		
HB10-1-01	-92.09925185	46.74350580
HB10-1-02	-92.09969713	46.74264458
HB10-1-03	-92.09854912	46.74287782
HB10-1-04	-92.09750000	46.74291667
HB10-1-05	-92.09895418	46.74208100
HB10-1-06	-92.09797400	46.74222600
HB10-1-07	-92.09696720	46.74237277
HB10-1-08	-92.09583333	46.74245000
HB10-1-10	-92.09728010	46.74148902
HB10-1-11	-92.09621292	46.74182502
HB10-1-12	-92.09520000	46.74186667
HB10-1-13	-92.09661562	46.74098317
HB10-1-14	-92.09559431	46.74117317
HB10-1-15	-92.09453333	46.74130000
HB10-1-16	-92.09905167	46.74075000
HB10-1-17	-92.09599289	46.74049057
HB10-1-20	-92.09946667	46.73945000
HB10-1-21	-92.09636971	46.73981330
HB10-1-23	-92.09320000	46.74011667
HB10-1-24	-92.09635073	46.73914213
HB10-1-25	-92.09452860	46.73933310
HB10-1-27	-92.09247280	46.73949213
HB10-1-28	-92.09918333	46.73820000
HB10-1-29	-92.09616667	46.73801667
HB10-1-30	-92.09406632	46.73875902
HB10-1-31	-92.09315925	46.73897465
Area 2		
HB10-2-18	-92.08726283	46.73555410
HB10-2-26	-92.08408527	46.73410409
HB10-2-32	-92.09174208	46.73894317
HB10-2-33	-92.09024610	46.73908798
HB10-2-34	-92.09085018	46.73811295
HB10-2-35	-92.08935560	46.73829355
HB10-2-36	-92.08988295	46.73733570
HB10-2-37	-92.08845225	46.73738936
HB10-2-38	-92.08856818	46.73621638
HB10-2-39	-92.08753386	46.73670649
HB10-2-40	-92.08650308	46.73589400
HB10-2-41	-92.08576448	46.73510519
HB10-2-42	-92.08482537	46.73432143
HB10-2-43	-92.08370007	46.73372529
HB10-2-44	-92.08604608	46.73513842
HB10-2-45	-92.08523020	46.73429475

Notes:
D.d - Decimal Degrees
ID - Identification

Table 2-2
Summary of Analyses
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Location ID	Field Sample ID	Depth (inches bss)	Sample Date	PAH (17 List)	PAH (34 List)	TAL Metal	PCB Aroclor	TCL Pesticide	TPH DRO/ ORO	Organotins	Grain Size	TOC	AVS/ SEM
Area 1													
HB10-1-01	HB10-1-01-06	0 - 6	10/16/10	X		X		X	X	X	X	X	
HB10-1-01	HB10-1-01-12	0 - 12	10/16/10	X		X		X	X	X	X	X	
HB10-1-01	HB10-1-01-40	36 - 40	10/16/10	X		X		X	X	X	X	X	
HB10-1-02	HB10-1-02-06	0 - 6	10/16/10	X		X		X	X	X	X	X	
HB10-1-02	HB10-1-02-06DP	0 - 6	10/16/10	X		X		X	X	X		X	
HB10-1-02	HB10-1-02-23	12 - 23	10/16/10	X		X		X	X	X	X	X	
HB10-1-03	HB10-1-03-06	0 - 6	10/16/10	X		X		X	X	X	X	X	
HB10-1-03	HB10-1-03-12	0 - 12	10/16/10	X		X		X	X	X	X	X	
HB10-1-03	HB10-1-03-36	12 - 36	10/16/10	X		X		X	X	X	X	X	
HB10-1-03	HB10-1-03-60	36 - 60	10/16/10	X		X		X	X	X	X	X	
HB10-1-03	HB10-1-03-84	60 - 84	10/16/10	X		X		X	X	X	X	X	
HB10-1-04	HB10-1-04-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-04	HB10-1-04-12	0 - 12	10/17/10	X		X		X	X	X	X	X	
HB10-1-04	HB10-1-04-36	12 - 36	10/17/10	X		X		X	X	X	X	X	
HB10-1-04	HB10-1-04-50	36 - 50	10/17/10	X		X		X	X	X	X	X	
HB10-1-05	HB10-1-05-06	0 - 6	10/16/10		X	X	X	X	X	X	X	X	X
HB10-1-05	HB10-1-05-06DP	0 - 6	10/16/10		X	X	X	X	X	X		X	X
HB10-1-06	HB10-1-06-06	0 - 6	10/16/10	X		X		X	X	X	X	X	
HB10-1-06	HB10-1-06-06DP	0 - 6	10/16/10	X		X		X	X	X		X	
HB10-1-06	HB10-1-06-12	0 - 12	10/16/10	X		X		X	X	X	X	X	
HB10-1-06	HB10-1-06-36	12 - 36	10/16/10	X		X		X	X	X	X	X	
HB10-1-06	HB10-1-06-51	36 - 51	10/16/10	X		X		X	X	X	X	X	
HB10-1-07	HB10-1-07-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-07	HB10-1-07-12	0 - 12	10/17/10	X		X		X	X	X	X	X	
HB10-1-07	HB10-1-07-36	12 - 36	10/17/10	X		X		X	X	X	X	X	
HB10-1-07	HB10-1-07-64	60 - 64	10/17/10	X		X		X	X	X	X	X	
HB10-1-08	HB10-1-08-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-08	HB10-1-08-12	0 - 12	10/17/10	X		X		X	X	X	X	X	
HB10-1-08	HB10-1-08-36	12 - 36	10/17/10	X		X		X	X	X	X	X	
HB10-1-10	HB10-1-10-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-11	HB10-1-11-06	0 - 6	10/16/10		X	X	X	X	X	X	X	X	X
HB10-1-11	HB10-1-11-21	12 - 21	10/16/10	X		X		X	X	X	X	X	
HB10-1-12	HB10-1-12-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-12	HB10-1-12-12	0 - 12	10/17/10	X		X		X	X	X	X	X	
HB10-1-12	HB10-1-12-34	12 - 34	10/17/10	X		X		X	X	X	X	X	
HB10-1-13	HB10-1-13-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-13	HB10-1-13-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-1-13	HB10-1-13-36	12 - 36	10/18/10	X		X		X	X	X	X	X	
HB10-1-13	HB10-1-13-67	60 - 67	10/18/10	X		X		X	X	X	X	X	
HB10-1-14	HB10-1-14-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-14	HB10-1-14-12	0 - 12	10/17/10	X		X		X	X	X	X	X	
HB10-1-14	HB10-1-14-36	12 - 36	10/17/10	X		X		X	X	X	X	X	
HB10-1-14	HB10-1-14-66	60 - 66	10/17/10	X		X		X	X	X	X	X	
HB10-1-15	HB10-1-15-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-15	HB10-1-15-16	12 - 16	10/18/10	X		X		X	X	X	X	X	
HB10-1-16	HB10-1-16-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-16	HB10-1-16-12	0 - 12	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-16	HB10-1-16-31	12 - 31	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-17	HB10-1-17-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-20	HB10-1-20-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-21	HB10-1-21-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-21	HB10-1-21-23	12 - 23	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-23	HB10-1-23-06	0 - 6	10/17/10	X		X		X	X	X	X	X	
HB10-1-23	HB10-1-23-06DP	0 - 6	10/17/10	X		X		X	X	X		X	
HB10-1-23	HB10-1-23-12	0 - 12	10/17/10	X		X		X	X	X	X	X	
HB10-1-23	HB10-1-23-36	12 - 36	10/17/10	X		X		X	X	X	X	X	

Table 2-2
Summary of Analyses
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Location ID	Field Sample ID	Depth (inches bss)	Sample Date	PAH (17 List)	PAH (34 List)	TAL Metal	PCB Aroclor	TCL Pesticide	TPH DRO/ ORO	Organotins	Grain Size	TOC	AVS/ SEM
HB10-1-24	HB10-1-24-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-24	HB10-1-24-12	0 - 12	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-24	HB10-1-24-36	12 - 36	10/18/10		X	X	X	X	X	X	X	X	X
HB10-1-25	HB10-1-25-06	0 - 6	10/17/10	X		X		X	X	X	X	X	
HB10-1-25	HB10-1-25-06DP	0 - 6	10/17/10	X		X		X	X	X		X	
HB10-1-27	HB10-1-27-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-1-27	HB10-1-27-06DP	0 - 6	10/18/10	X		X		X	X	X		X	
HB10-1-28	HB10-1-28-06	0 - 6	10/17/10	X		X		X	X	X	X	X	
HB10-1-28	HB10-1-28-12	0 - 12	10/17/10	X		X		X	X	X	X	X	
HB10-1-28	HB10-1-28-36	12 - 36	10/17/10	X		X		X	X	X	X	X	
HB10-1-28	HB10-1-28-60	36 - 60	10/17/10	X		X		X	X	X	X	X	
HB10-1-28	HB10-1-28-84	60 - 84	10/17/10	X		X		X	X	X	X	X	
HB10-1-28	HB10-1-28-96	60 - 96	10/17/10	X		X		X	X	X	X	X	
HB10-1-29	HB10-1-29-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-29	HB10-1-29-12	0 - 12	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-29	HB10-1-29-36	12 - 36	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-29	HB10-1-29-60	36 - 60	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-29	HB10-1-29-93	60 - 93	10/17/10		X	X	X	X	X	X	X	X	X
HB10-1-30	HB10-1-30-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-1-30	HB10-1-30-06DP	0 - 6	10/18/10	X		X		X	X	X		X	
HB10-1-30	HB10-1-30-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-1-30	HB10-1-30-36	12 - 36	10/18/10	X		X		X	X	X	X	X	
HB10-1-30	HB10-1-30-60	36 - 60	10/18/10	X		X		X	X	X	X	X	
HB10-1-30	HB10-1-30-77	60 - 77	10/18/10	X		X		X	X	X	X	X	
HB10-1-31	HB10-1-31-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-1-31	HB10-1-31-06DP	0 - 6	10/18/10	X		X		X	X	X		X	
HB10-1-31	HB10-1-31-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-1-31	HB10-1-31-36	12 - 36	10/18/10	X		X		X	X	X	X	X	
Total number of samples analyzed for Area 1:				58	26	84	26	84	84	84	76	84	26
Area 2													
HB10-2-18	HB10-2-18-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-2-18	HB10-2-18-06DP	0 - 6	10/18/10	X		X		X	X	X		X	
HB10-2-26	HB10-2-26-06	0 - 6	10/16/10		X	X	X	X	X	X	X	X	X
HB10-2-26	HB10-2-26-17	12 - 17	10/16/10	X		X		X	X	X	X	X	
HB10-2-32	HB10-2-32-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-2-32	HB10-2-32-06DP	0 - 6	10/18/10	X		X		X	X	X		X	
HB10-2-33	HB10-2-33-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-2-33	HB10-2-33-22	12 - 22	10/18/10	X		X		X	X	X	X	X	
HB10-2-34	HB10-2-34-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-2-34	HB10-2-34-06DP	0 - 6	10/18/10	X		X		X	X	X		X	
HB10-2-35	HB10-2-35-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-2-35	HB10-2-35-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-2-35	HB10-2-35-30	12 - 30	10/18/10	X		X		X	X	X	X	X	
HB10-2-36	HB10-2-36-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-2-36	HB10-2-36-06DP	0 - 6	10/18/10	X		X		X	X	X		X	
HB10-2-37	HB10-2-37-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-2-37	HB10-2-37-23	12 - 23	10/18/10	X		X		X	X	X	X	X	
HB10-2-38	HB10-2-38-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-2-38	HB10-2-38-06DP	0 - 6	10/18/10	X		X		X	X	X			
HB10-2-38	HB10-2-38-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-2-38	HB10-2-38-38	36 - 38	10/18/10	X		X		X	X	X	X	X	
HB10-2-39	HB10-2-39-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-2-39	HB10-2-39-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-2-39	HB10-2-39-28	12 - 28	10/18/10	X		X		X	X	X	X	X	
HB10-2-40	HB10-2-40-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-2-40	HB10-2-40-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-2-40	HB10-2-40-36	12 - 36	10/18/10	X		X		X	X	X	X	X	

Table 2-2
Summary of Analyses
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Location ID	Field Sample ID	Depth (inches bss)	Sample Date	PAH (17 List)	PAH (34 List)	TAL Metal	PCB Aroclor	TCL Pesticide	TPH DRO/ ORO	Organotins	Grain Size	TOC	AVS/ SEM
HB10-2-40	HB10-2-40-48	36 - 48	10/18/10	X		X		X	X	X	X	X	
HB10-2-41	HB10-2-41-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-2-41	HB10-2-41-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-2-41	HB10-2-41-31	12 - 31	10/18/10	X		X		X	X	X	X	X	
HB10-2-42	HB10-2-42-06	0 - 6	10/18/10		X	X	X	X	X	X	X	X	X
HB10-2-42	HB10-2-42-12	0 - 12	10/18/10	X		X		X	X	X	X	X	
HB10-2-42	HB10-2-42-30	12 - 30	10/18/10	X		X		X	X	X	X	X	
HB10-2-43	HB10-2-43-06	0 - 6	10/17/10		X	X	X	X	X	X	X	X	X
HB10-2-43	HB10-2-43-22	12 - 22	10/17/10	X		X		X	X	X	X	X	
HB10-2-44	HB10-2-44-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-2-44	HB10-2-44-16	12 - 16	10/18/10	X		X		X	X	X	X	X	
HB10-2-45	HB10-2-45-06	0 - 6	10/18/10	X		X		X	X	X	X	X	
HB10-2-45	HB10-2-45-19	12 - 19	10/18/10	X		X		X	X	X	X	X	
Total number of samples analyzed for Area 2:				31	9	40	9	40	40	40	35	39	9
			Bay:	89	35	124	35	124	124	124	111	123	35

Notes:
AVS/SEM - Acid Volatile Sulfide/Simultaneously Extracted Metal
bss - below sediment surface
DP - Duplicate
DRO - Diesel Range Organic
ID - Identification
ORO - Oil Range Organic
PAH - Polycylic Aromatic Hydrocarbon
PCB - Polychlorinated Biphenyls
TAL - Target Analyte List
TCL - Target Compound List
TOC - Total Organic Carbon
TPH - Total Petroleum Hydrocarbon

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
PAHs (17 and 34 list) (µg/kg)														
ANTHRACENE, OCN	0-12	22	20	2	9.1	7.0	153.8	34.5	57.2	9	451	--	845	--
ANTHRACENE, OCN	0-6	55	53	2	3.6	2.5	921.1	66.4	57.2	11	451	4	845	2
ANTHRACENE, OCN	12-36	30	28	2	6.7	2.1	121.2	30.9	57.2	10	451	--	845	--
ANTHRACENE, OCN	36-60	9	6	3	33.3	8.9	106.7	30.6	57.2	11	451	--	845	--
ANTHRACENE, OCN	60-96	8	7	1	12.5	1.8	134.8	41.5	57.2	25	451	--	845	--
PYRENE, OCN	0-12	22	21	1	4.5	57.4	585.6	210.2	195	41	858	--	1520	--
PYRENE, OCN	0-6	54	54	0	0.0	12.2	2193.0	251.1	195	24	858	7	1520	4
PYRENE, OCN	12-36	30	29	1	3.3	14.8	666.7	181.5	195	37	858	--	1520	--
PYRENE, OCN	36-60	9	7	2	22.2	57.3	719.6	222.4	195	33	858	--	1520	--
PYRENE, OCN	60-96	8	8	0	0.0	8.8	510.6	186.2	195	38	858	--	1520	--
BENZO(G,H,I)PERYLENE, OCN	0-12	22	21	1	4.5	25.6	162.2	73.3	170	--	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	0-6	55	53	2	3.6	3.8	939.2	78.8	170	5	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	12-36	30	29	1	3.3	11.6	185.2	63.6	170	3	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	36-60	9	6	3	33.3	8.0	186.1	57.2	170	11	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	60-96	8	6	2	25.0	8.8	160.7	62.3	170	--	1685	--	3200	--
BENZO(E)PYRENE, OCN	0-12	3	3	0	0.0	59.2	85.4	71.7	150	--	800	--	1450	--
BENZO(E)PYRENE, OCN	0-6	25	23	2	8.0	4.5	482.5	85.6	150	12	800	--	1450	--
BENZO(E)PYRENE, OCN	12-36	4	4	0	0.0	27.0	169.7	100.1	150	25	800	--	1450	--
BENZO(E)PYRENE, OCN	36-60	1	1	0	0.0	93.3	93.3	93.3	150	--	800	--	1450	--
BENZO(E)PYRENE, OCN	60-96	1	1	0	0.0	120.6	120.6	120.6	150	--	800	--	1450	--
INDENO(1,2,3-CD)PYRENE, OCN	0-12	22	21	1	4.5	20.1	148.8	64.4	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	0-6	55	52	3	5.5	3.5	828.7	74.4	200	5	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	12-36	30	29	1	3.3	4.3	151.5	55.5	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	36-60	9	7	2	22.2	11.0	173.7	57.6	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	60-96	8	7	1	12.5	7.1	133.9	59.3	200	--	1700	--	3200	--
PERYLENE, OCN	0-12	3	2	1	33.3	23.3	26.1	24.7	NL	--	NL	--	NL	--
PERYLENE, OCN	0-6	26	23	3	11.5	2.6	210.5	43.8	NL	--	NL	--	NL	--
PERYLENE, OCN	12-36	4	2	2	50.0	24.5	74.1	49.3	NL	--	NL	--	NL	--
PERYLENE, OCN	36-60	1	1	0	0.0	36.7	36.7	36.7	NL	--	NL	--	NL	--
PERYLENE, OCN	60-96	1	1	0	0.0	46.8	46.8	46.8	NL	--	NL	--	NL	--
BENZO(B)FLUORANTHENE, OCN	0-12	22	21	1	4.5	40.2	292.8	114.9	240	5	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	0-6	54	53	1	1.9	7.6	1602.2	145.6	240	7	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	12-36	30	29	1	3.3	10.5	327.3	104.0	240	3	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	36-60	9	7	2	22.2	32.3	347.4	114.0	240	11	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	60-96	8	7	1	12.5	11.0	227.0	108.0	240	--	6820	--	13400	--
FLUORANTHENE, OCN	0-12	22	21	1	4.5	53.3	585.6	233.3	423	9	1327	--	2230	--
FLUORANTHENE, OCN	0-6	54	54	0	0.0	15.7	3201.8	316.8	423	15	1327	7	2230	4
FLUORANTHENE, OCN	12-36	30	29	1	3.3	16.7	848.5	201.9	423	3	1327	--	2230	--
FLUORANTHENE, OCN	36-60	9	7	2	22.2	70.1	744.4	239.6	423	22	1327	--	2230	--
FLUORANTHENE, OCN	60-96	8	8	0	0.0	10.6	617.0	217.7	423	25	1327	--	2230	--
BENZO(K)FLUORANTHENE, OCN	0-12	22	21	1	4.5	16.2	148.8	62.3	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	0-6	55	53	2	3.6	3.3	607.7	71.1	240	5	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	12-36	30	29	1	3.3	2.8	163.6	59.0	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	36-60	9	6	3	33.3	9.7	163.8	51.2	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	60-96	8	7	1	12.5	8.5	192.0	68.2	240	--	6820	--	13400	--
ACENAPHTHYLENE, OCN	0-12	22	19	3	13.6	2.5	21.2	6.5	5.9	27	67	--	128	--
ACENAPHTHYLENE, OCN	0-6	55	47	8	14.5	1.2	105.0	8.8	5.9	35	67	2	128	--
ACENAPHTHYLENE, OCN	12-36	29	27	2	6.9	0.6	18.5	5.8	5.9	38	67	--	128	--
ACENAPHTHYLENE, OCN	36-60	9	7	2	22.2	2.4	9.7	5.2	5.9	33	67	--	128	--
ACENAPHTHYLENE, OCN	60-96	8	7	1	12.5	0.7	10.7	6.9	5.9	50	67	--	128	--
1,2-BENZPHENANTHRACENE, OCN	0-12	22	21	1	4.5	36.9	315.3	110.2	166	14	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	0-6	55	55	0	0.0	5.8	1326.0	137.2	166	13	728	4	1290	2
1,2-BENZPHENANTHRACENE, OCN	12-36	30	29	1	3.3	8.0	290.9	94.6	166	13	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	36-60	9	7	2	22.2	34.5	421.8	120.9	166	22	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	60-96	8	8	0	0.0	3.5	234.0	92.2	166	25	728	--	1290	--
BENZO(A)PYRENE, OCN	0-12	22	21	1	4.5	38.2	261.9	108.6	150	18	800	--	1450	--
BENZO(A)PYRENE, OCN	0-6	54	54	0	0.0	5.8	1105.0	130.5	150	17	800	4	1450	--
BENZO(A)PYRENE, OCN	12-36	30	29	1	3.3	6.0	303.0	90.6	150	17	800	--	1450	--
BENZO(A)PYRENE, OCN	36-60	9	7	2	22.2	28.0	297.8	98.9	150	22	800	--	1450	--
BENZO(A)PYRENE, OCN	60-96	8	7	1	12.5	9.6	227.7	101.3	150	25	800	--	1450	--
DIBENZ(A,H)ANTHRACENE, OCN	0-12	22	20	2	9.1	5.4	72.1	19.0	33	14	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	0-6	55	52	3	5.5	1.9	143.6	20.5	33	11	84	5	135	2
DIBENZ(A,H)ANTHRACENE, OCN	12-36	30	28	2	6.7	2.2	43.2	16.4	33	10	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	36-60	9	6	3	33.3	3.0	57.1	18.1	33	11	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	60-96	8	7	1	12.5	2.3	44.6	16.0	33	12	84	--	135	--
BENZO(A)ANTHRACENE, OCN	0-12	22	21	1	4.5	32.8	292.8	103.7	108	27	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	0-6	55	54	1	1.8	5.8	1228.1	132.1	108	22	579	7	1050	4
BENZO(A)ANTHRACENE, OCN	12-36	30	29	1	3.3	6.0	303.0	85.1	108	20	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	36-60	9	7	2	22.2	32.3	397.0	112.1	108	22	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	60-96	8	8	0	0.0	3.5	212.8	81.6	108	38	579	--	1050	--
ACENAPHTHENE, OCN	0-12	22	19	3	13.6	2.0	62.5	10.9	6.7	41	48	5	89	--
ACENAPHTHENE, OCN	0-6	55	48	7	12.7	1.3	355.3	20.2	6.7	40	48	11	89	4
ACENAPHTHENE, OCN	12-36	30	26	4	13.3	2.5	51.5	10.8	6.7	50	48	3	89	--
ACENAPHTHENE, OCN	36-60	9	7	2	22.2	2.2	37.2	11.9	6.7	33	48	--	89	--
ACENAPHTHENE, OCN	60-96	8	7	1	12.5	0.5	40.4	13.8	6.7	50	48	--	89	--

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
PHENANTHRENE, OCN	0-12	22	21	1	4.5	21.3	528.8	122.3	204	14	687	--	1170	--
PHENANTHRENE, OCN	0-6	54	54	0	0.0	6.4	3640.4	211.5	204	13	687	7	1170	4
PHENANTHRENE, OCN	12-36	30	29	1	3.3	9.3	593.9	116.5	204	10	687	--	1170	--
PHENANTHRENE, OCN	36-60	9	7	2	22.2	30.6	620.3	167.9	204	22	687	--	1170	--
PHENANTHRENE, OCN	60-96	8	8	0	0.0	5.3	461.0	140.6	204	25	687	--	1170	--
FLUORENE, OCN	0-12	22	20	2	9.1	3.5	79.8	14.9	77.4	5	307	--	536	--
FLUORENE, OCN	0-6	55	49	6	10.9	1.9	614.0	27.8	77.4	5	307	2	536	2
FLUORENE, OCN	12-36	30	26	4	13.3	0.9	36.0	13.2	77.4	--	307	--	536	--
FLUORENE, OCN	36-60	9	7	2	22.2	4.1	47.1	16.3	77.4	--	307	--	536	--
FLUORENE, OCN	60-96	8	7	1	12.5	1.0	52.5	20.5	77.4	--	307	--	536	--
1-METHYLNAPHTHALENE, OCN	0-12	3	1	2	66.7	9.2	9.2	9.2	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	0-6	26	22	4	15.4	1.3	153.5	14.8	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	12-36	3	3	0	0.0	4.4	25.5	12.9	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	36-60	1	1	0	0.0	10.7	10.7	10.7	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	60-96	1	1	0	0.0	17.0	17.0	17.0	NL	--	NL	--	NL	--
NAPHTHALENE, OCN	0-12	22	20	2	9.1	4.0	55.8	14.6	176	--	369		561	--
NAPHTHALENE, OCN	0-6	55	49	6	10.9	1.9	1044.0	41.5	176	5	369	2	561	2
NAPHTHALENE, OCN	12-36	29	27	2	6.9	1.1	34.5	11.7	176	--	369	--	561	--
NAPHTHALENE, OCN	36-60	9	7	2	22.2	4.6	34.7	17.2	176	--	369	--	561	--
NAPHTHALENE, OCN	60-96	8	7	1	12.5	1.1	24.8	14.2	176	--	369	--	561	--
2-METHYLNAPHTHALENE, OCN	0-12	22	20	2	9.1	5.0	28.8	12.5	20.2	9	111	--	201	--
2-METHYLNAPHTHALENE, OCN	0-6	55	46	9	16.4	1.8	193.0	17.5	20.2	11	111	4	201	--
2-METHYLNAPHTHALENE, OCN	12-36	30	27	3	10.0	1.0	38.3	12.8	20.2	13	111	--	201	--
2-METHYLNAPHTHALENE, OCN	36-60	9	7	2	22.2	3.5	39.7	12.8	20.2	11	111	--	201	--
2-METHYLNAPHTHALENE, OCN	60-96	8	7	1	12.5	1.5	21.4	13.5	20.2	12	111	--	201	--
C1-CHRYSENES, OCN	0-12	3	3	0	0.0	57.5	168.5	97.1	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	0-6	26	26	0	0.0	4.5	570.2	89.2	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	12-36	4	4	0	0.0	54.0	139.4	97.4	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	36-60	1	1	0	0.0	93.3	93.3	93.3	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	60-96	1	1	0	0.0	113.5	113.5	113.5	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	0-12	3	3	0	0.0	118.5	359.6	199.9	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	0-6	26	26	0	0.0	10.5	1491.2	208.3	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	12-36	4	4	0	0.0	104.3	272.7	192.8	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	36-60	1	1	0	0.0	173.3	173.3	173.3	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	60-96	1	1	0	0.0	241.1	241.1	241.1	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	0-12	3	3	0	0.0	7.2	29.2	15.9	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	0-6	26	24	2	7.7	1.1	153.5	17.7	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	12-36	4	4	0	0.0	7.2	33.3	17.8	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	36-60	1	1	0	0.0	18.0	18.0	18.0	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	60-96	1	1	0	0.0	22.0	22.0	22.0	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	0-12	3	3	0	0.0	7.8	31.5	17.9	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	0-6	26	23	3	11.5	1.9	201.8	20.1	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	12-36	4	4	0	0.0	6.5	33.9	17.9	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	36-60	1	1	0	0.0	13.3	13.3	13.3	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	60-96	1	1	0	0.0	22.0	22.0	22.0	NL	--	NL	--	NL	--
C1-PHENANTHRENES /ANTHRACENES, OCN	0-12	3	3	0	0.0	64.6	247.2	135.8	NL	--	NL	--	NL	--
C1-PHENANTHRENES /ANTHRACENES, OCN	0-6	26	26	0	0.0	4.5	1228.1	140.6	NL	--	NL	--	NL	--
C1-PHENANTHRENES /ANTHRACENES, OCN	12-36	4	4	0	0.0	56.4	224.2	126.4	NL	--	NL	--	NL	--
C1-PHENANTHRENES /ANTHRACENES, OCN	36-60	1	1	0	0.0	140.0	140.0	140.0	NL	--	NL	--	NL	--
C1-PHENANTHRENES /ANTHRACENES, OCN	60-96	1	1	0	0.0	184.4	184.4	184.4	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	0-12	3	3	0	0.0	34.8	105.6	61.2	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	0-6	26	26	0	0.0	3.8	197.4	47.8	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	12-36	4	4	0	0.0	41.9	111.1	64.0	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	36-60	1	1	0	0.0	40.7	40.7	40.7	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	60-96	1	1	0	0.0	47.5	47.5	47.5	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	0-12	3	3	0	0.0	66.1	191.0	115.0	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	0-6	26	26	0	0.0	7.0	570.2	94.2	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	12-36	4	4	0	0.0	69.9	185.2	123.6	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	36-60	1	1	0	0.0	93.3	93.3	93.3	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	60-96	1	1	0	0.0	113.5	113.5	113.5	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	0-12	3	3	0	0.0	25.1	47.2	34.0	NL	--	NL	--	NL	--

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
C2-FLUORENES, OCN	0-6	26	25	1	3.8	2.3	83.3	19.1	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	12-36	4	4	0	0.0	17.2	54.5	37.7	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	36-60	1	1	0	0.0	28.0	28.0	28.0	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	60-96	1	1	0	0.0	24.1	24.1	24.1	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	0-12	3	3	0	0.0	25.2	49.4	33.9	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	0-6	26	25	1	3.8	3.2	193.0	26.9	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	12-36	4	4	0	0.0	13.5	72.7	38.4	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	36-60	1	1	0	0.0	42.0	42.0	42.0	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	60-96	1	1	0	0.0	51.1	51.1	51.1	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	0-12	3	3	0	0.0	87.0	247.2	145.5	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	0-6	26	26	0	0.0	4.9	438.6	85.5	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	12-36	4	4	0	0.0	83.4	170.4	137.7	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	36-60	1	1	0	0.0	106.7	106.7	106.7	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	60-96	1	1	0	0.0	113.5	113.5	113.5	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	0-12	3	3	0	0.0	24.3	89.9	51.8	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	0-6	26	24	2	7.7	4.5	162.3	47.4	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	12-36	4	4	0	0.0	38.5	96.3	56.7	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	36-60	1	1	0	0.0	37.3	37.3	37.3	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	60-96	1	1	0	0.0	41.1	41.1	41.1	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	0-12	3	3	0	0.0	39.1	125.8	75.3	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	0-6	26	26	0	0.0	4.9	241.2	53.1	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	12-36	4	4	0	0.0	57.7	133.3	83.1	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	36-60	1	1	0	0.0	50.7	50.7	50.7	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	60-96	1	1	0	0.0	52.5	52.5	52.5	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	0-12	3	3	0	0.0	47.8	87.6	61.3	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	0-6	26	20	6	23.1	3.6	59.6	25.2	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	12-36	4	4	0	0.0	34.4	96.3	71.7	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	36-60	1	1	0	0.0	50.7	50.7	50.7	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	60-96	1	1	0	0.0	47.5	47.5	47.5	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	0-12	3	3	0	0.0	39.5	53.9	45.9	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	0-6	26	25	1	3.8	3.6	118.4	24.7	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	12-36	4	4	0	0.0	16.0	121.2	64.5	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	36-60	1	1	0	0.0	73.3	73.3	73.3	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	60-96	1	1	0	0.0	62.4	62.4	62.4	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	0-12	3	3	0	0.0	67.0	200.0	124.3	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	0-6	26	26	0	0.0	6.6	175.4	56.1	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	12-36	4	4	0	0.0	88.3	200.0	120.8	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	36-60	1	1	0	0.0	80.0	80.0	80.0	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	60-96	1	1	0	0.0	69.5	69.5	69.5	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	0-12	3	3	0	0.0	15.7	47.2	27.5	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	0-6	26	20	6	23.1	2.6	70.2	22.2	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	12-36	4	4	0	0.0	18.4	60.0	30.9	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	36-60	1	1	0	0.0	18.0	18.0	18.0	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	60-96	1	1	0	0.0	16.3	16.3	16.3	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	0-12	3	3	0	0.0	44.9	52.1	47.7	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	0-6	26	24	2	7.7	2.3	52.6	17.8	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	12-36	4	4	0	0.0	17.2	103.0	64.4	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	36-60	1	1	0	0.0	56.0	56.0	56.0	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	60-96	1	1	0	0.0	40.4	40.4	40.4	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	0-12	3	3	0	0.0	35.7	182.0	91.7	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	0-6	26	26	0	0.0	4.0	101.0	36.5	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	12-36	4	4	0	0.0	48.5	111.1	73.3	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	36-60	1	1	0	0.0	48.7	48.7	48.7	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	60-96	1	1	0	0.0	52.5	52.5	52.5	NL	--	NL	--	NL	--
TOTAL PAHs 17, OCN	0-12	22	22	0	0.0	11.4	3419.8	1263.2	1610	23	12205	--	22800	--
TOTAL PAHs 17, OCN	0-6	55	55	0	0.0	78.6	17203.9	1732.8	1610	20	12205	4	22800	--

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
TOTAL PAHs 17, OCN	12-36	30	30	0	0.0	42.5	4153.9	1114.1	1610	23	12205	--	22800	--
TOTAL PAHs 17, OCN	36-60	9	9	0	0.0	23.4	4404.2	1057.9	1610	22	12205	--	22800	--
TOTAL PAHs 17, OCN	60-96	8	8	0	0.0	53.1	3029.8	1180.1	1610	25	12205	--	22800	--
TOTAL PAHs 34, OCN	0-12	3	3	0	0.0	1968.2	4170.8	2822.6	1610	100	12205	--	22800	--
TOTAL PAHs 34, OCN	0-6	26	26	0	0.0	162.9	22896.9	3209.6	1610	46	12205	4	22800	4
TOTAL PAHs 34, OCN	12-36	4	4	0	0.0	1261.5	5937.6	3311.2	1610	75	12205	--	22800	--
TOTAL PAHs 34, OCN	36-60	1	1	0	0.0	3221.3	3221.3	3221.3	1610	100	12205	--	22800	--
TOTAL PAHs 34, OCN	60-96	1	1	0	0.0	4327.7	4327.7	4327.7	1610	100	12205	--	22800	--
TAL Metals (mg/kg)														
ALUMINUM	0-12	22	22	0	0.0	6320.0	19400.0	11810.0	NL	--	NL	--	NL	--
ALUMINUM	0-6	55	55	0	0.0	2710.0	19100.0	11243.3	NL	--	NL	--	NL	--
ALUMINUM	12-36	30	30	0	0.0	3610.0	26500.0	12212.0	NL	--	NL	--	NL	--
ALUMINUM	36-60	9	9	0	0.0	6270.0	18800.0	12441.1	NL	--	NL	--	NL	--
ALUMINUM	60-96	8	8	0	0.0	4700.0	17300.0	11937.5	NL	--	NL	--	NL	--
IRON	0-12	22	22	0	0.0	13400.0	41400.0	23490.9	20000	68	30000	18	40000	5
IRON	0-6	55	55	0	0.0	7460.0	38000.0	23985.6	20000	75	30000	24	40000	--
IRON	12-36	30	30	0	0.0	9780.0	36500.0	23359.3	20000	70	30000	10	40000	--
IRON	36-60	9	9	0	0.0	12700.0	35400.0	21366.7	20000	44	30000	22	40000	--
IRON	60-96	8	8	0	0.0	10400.0	29800.0	20337.5	20000	62	30000	--	40000	--
LEAD	0-12	22	22	0	0.0	8.0	382.0	105.5	36	86	83	32	130	27
LEAD	0-6	55	55	0	0.0	14.0	1140.0	94.8	36	67	83	38	130	16
LEAD	12-36	30	30	0	0.0	4.6	481.0	94.9	36	80	83	43	130	17
LEAD	36-60	9	9	0	0.0	2.8	188.0	70.4	36	78	83	33	130	11
LEAD	60-96	8	8	0	0.0	2.9	308.0	84.6	36	62	83	38	130	12
MAGNESIUM	0-12	22	22	0	0.0	4270.0	12500.0	8274.5	NL	--	NL	--	NL	--
MAGNESIUM	0-6	55	55	0	0.0	1500.0	13200.0	7982.9	NL	--	NL	--	NL	--
MAGNESIUM	12-36	30	30	0	0.0	2150.0	16100.0	8375.7	NL	--	NL	--	NL	--
MAGNESIUM	36-60	9	9	0	0.0	3450.0	14900.0	9488.9	NL	--	NL	--	NL	--
MAGNESIUM	60-96	8	8	0	0.0	4050.0	11800.0	8162.5	NL	--	NL	--	NL	--
MANGANESE	0-12	22	22	0	0.0	191.0	891.0	426.1	460	41	780	5	1100	--
MANGANESE	0-6	55	55	0	0.0	79.5	1250.0	536.4	460	60	780	15	1100	4
MANGANESE	12-36	30	30	0	0.0	138.0	1040.0	425.5	460	37	780	3	1100	--
MANGANESE	36-60	9	9	0	0.0	188.0	521.0	358.9	460	44	780	--	1100	--
MANGANESE	60-96	8	8	0	0.0	175.0	437.0	337.6	460	--	780	--	1100	--
MERCURY	0-12	22	22	0	0.0	0.0	1.1	0.4	0.18	77	0.64	14	1.1	--
MERCURY	0-6	55	55	0	0.0	0.0	0.9	0.2	0.18	58	0.64	7	1.1	--
MERCURY	12-36	30	30	0	0.0	0.0	58.0	2.3	0.18	70	0.64	13	1.1	10
MERCURY	36-60	9	9	0	0.0	0.0	1.8	0.5	0.18	78	0.64	22	1.1	11
MERCURY	60-96	8	8	0	0.0	0.0	5.9	1.1	0.18	62	0.64	25	1.1	25
NICKEL	0-12	22	22	0	0.0	13.3	44.4	24.5	23	41	36	14	49	--
NICKEL	0-6	55	55	0	0.0	6.2	35.7	23.6	23	55	36	--	49	--
NICKEL	12-36	30	30	0	0.0	8.2	42.8	24.6	23	60	36	10	49	--
NICKEL	36-60	9	9	0	0.0	14.3	35.9	23.3	23	44	36	--	49	--
NICKEL	60-96	8	8	0	0.0	10.9	30.5	22.8	23	50	36	--	49	--
SILVER	0-12	22	3	19	86.4	0.0	0.5	0.2	1.6	--	1.9	--	2.2	--
SILVER	0-6	55	5	50	90.9	0.1	1.3	0.4	1.6	--	1.9	--	2.2	--
SILVER	12-36	30	7	23	76.7	0.0	1.8	0.6	1.6	3	1.9	--	2.2	--
SILVER	36-60	9	2	7	77.8	0.1	1.2	0.7	1.6	--	1.9	--	2.2	--
SILVER	60-96	8	3	5	62.5	0.0	1.7	0.7	1.6	12	1.9	--	2.2	--
SODIUM	0-12	22	1	21	95.5	2630.0	2630.0	2630.0	NL	--	NL	--	NL	--
SODIUM	0-6	55	1	54	98.2	1190.0	1190.0	1190.0	NL	--	NL	--	NL	--
SODIUM	12-36	30	1	29	96.7	3560.0	3560.0	3560.0	NL	--	NL	--	NL	--
SODIUM	36-60	9	1	8	88.9	2370.0	2370.0	2370.0	NL	--	NL	--	NL	--
SODIUM	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
THALLIUM	0-12	22	5	17	77.3	1.2	1.9	1.5	NL	--	NL	--	NL	--
THALLIUM	0-6	55	6	49	89.1	0.4	1.7	1.1	NL	--	NL	--	NL	--
THALLIUM	12-36	30	7	23	76.7	1.0	2.2	1.6	NL	--	NL	--	NL	--
THALLIUM	36-60	9	1	8	88.9	0.9	0.9	0.9	NL	--	NL	--	NL	--
THALLIUM	60-96	8	3	5	62.5	0.9	1.0	0.9	NL	--	NL	--	NL	--
ANTIMONY	0-12	22	22	0	0.0	0.8	4.1	1.6	2	18	13.5	--	25	--
ANTIMONY	0-6	55	55	0	0.0	0.4	3.2	1.4	2	7	13.5	--	25	--
ANTIMONY	12-36	30	29	1	3.3	0.7	38.5	2.8	2	17	13.5	3	25	3
ANTIMONY	36-60	9	9	0	0.0	0.7	5.3	1.8	2	22	13.5	--	25	--
ANTIMONY	60-96	8	7	1	12.5	0.4	2.3	1.5	2	12	13.5	--	25	--
ARSENIC	0-12	22	22	0	0.0	2.7	9.9	5.3	9.8	5	21.4	--	33	--
ARSENIC	0-6	55	55	0	0.0	1.8	8.8	5.2	9.8	--	21.4	--	33	--
ARSENIC	12-36	30	30	0	0.0	2.3	12.4	5.3	9.8	3	21.4	--	33	--
ARSENIC	36-60	9	9	0	0.0	2.3	8.6	4.5	9.8	--	21.4	--	33	--
ARSENIC	60-96	8	8	0	0.0	2.1	7.3	4.8	9.8	--	21.4	--	33	--
BARIUM	0-12	22	22	0	0.0	45.6	245.0	103.4	NL	--	NL	--	NL	--
BARIUM	0-6	55	55	0	0.0	16.2	285.0	107.4	NL	--	NL	--	NL	--
BARIUM	12-36	30	30	0	0.0	27.1	335.0	110.9	NL	--	NL	--	NL	--
BARIUM	36-60	9	9	0	0.0	43.8	303.0	122.1	NL	--	NL	--	NL	--
BARIUM	60-96	8	8	0	0.0	28.8	280.0	119.6	NL	--	NL	--	NL	--
BERYLLIUM	0-12	22	21	1	4.5	0.4	1.1	0.7	NL	--	NL	--	NL	--
BERYLLIUM	0-6	55	49	6	10.9	0.2	1.0	0.6	NL	--	NL	--	NL	--

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
BERYLLIUM	12-36	30	29	1	3.3	0.3	1.4	0.7	NL	--	NL	--	NL	--
BERYLLIUM	36-60	9	9	0	0.0	0.3	1.0	0.7	NL	--	NL	--	NL	--
BERYLLIUM	60-96	8	7	1	12.5	0.6	0.9	0.7	NL	--	NL	--	NL	--
CADMIUM	0-12	22	5	17	77.3	0.7	2.3	1.2	0.99	14	3	--	5	--
CADMIUM	0-6	55	5	50	90.9	0.6	1.7	1.2	0.99	7	3	--	5	--
CADMIUM	12-36	30	9	21	70.0	0.5	3.7	1.2	0.99	7	3	3	5	--
CADMIUM	36-60	9	2	7	77.8	1.1	2.0	1.6	0.99	22	3	--	5	--
CADMIUM	60-96	8	2	6	75.0	0.9	2.7	1.8	0.99	12	3	--	5	--
CHROMIUM	0-12	22	22	0	0.0	16.3	117.0	32.3	43	14	76.5	5	110	5
CHROMIUM	0-6	55	55	0	0.0	6.8	85.0	28.5	43	9	76.5	2	110	--
CHROMIUM	12-36	30	30	0	0.0	10.2	97.6	31.0	43	10	76.5	3	110	--
CHROMIUM	36-60	9	9	0	0.0	16.0	41.2	27.2	43	--	76.5	--	110	--
CHROMIUM	60-96	8	8	0	0.0	11.3	36.4	26.1	43	--	76.5	--	110	--
COBALT	0-12	22	20	2	9.1	5.7	13.6	9.6	NL	--	NL	--	NL	--
COBALT	0-6	55	48	7	12.7	3.2	14.0	9.3	NL	--	NL	--	NL	--
COBALT	12-36	30	28	2	6.7	5.3	17.1	9.6	NL	--	NL	--	NL	--
COBALT	36-60	9	7	2	22.2	6.4	13.4	10.1	NL	--	NL	--	NL	--
COBALT	60-96	8	6	2	25.0	5.3	11.8	9.3	NL	--	NL	--	NL	--
COPPER	0-12	22	22	0	0.0	16.4	178.0	50.1	32	73	91	9	150	5
COPPER	0-6	55	55	0	0.0	6.3	145.0	41.7	32	60	91	4	150	
COPPER	12-36	30	30	0	0.0	9.9	321.0	52.6	32	73	91	7	150	3
COPPER	36-60	9	9	0	0.0	10.5	114.0	43.9	32	56	91	11	150	
COPPER	60-96	8	8	0	0.0	8.0	179.0	54.3	32	88	91	12	150	12
VANADIUM	0-12	22	22	0	0.0	25.3	68.8	39.6	NL	--	NL	--	NL	--
VANADIUM	0-6	55	55	0	0.0	15.3	87.2	42.2	NL	--	NL	--	NL	--
VANADIUM	12-36	30	30	0	0.0	19.3	65.2	39.3	NL	--	NL	--	NL	--
VANADIUM	36-60	9	9	0	0.0	25.4	50.2	36.5	NL	--	NL	--	NL	--
VANADIUM	60-96	8	8	0	0.0	23.0	44.1	35.7	NL	--	NL	--	NL	--
ZINC	0-12	22	22	0	0.0	62.9	605.0	191.1	120	68	290	18	460	5
ZINC	0-6	55	55	0	0.0	33.1	487.0	150.9	120	55	290	7	460	2
ZINC	12-36	30	30	0	0.0	36.8	945.0	198.7	120	70	290	7	460	7
ZINC	36-60	9	9	0	0.0	40.1	656.0	198.3	120	67	290	22	460	11
ZINC	60-96	8	8	0	0.0	24.4	810.0	212.9	120	62	290	12	460	12
CALCIUM	0-12	22	22	0	0.0	3980.0	24100.0	10278.2	NL	--	NL	--	NL	--
CALCIUM	0-6	55	55	0	0.0	1230.0	22900.0	10988.4	NL	--	NL	--	NL	--
CALCIUM	12-36	30	30	0	0.0	3560.0	20200.0	10992.3	NL	--	NL	--	NL	--
CALCIUM	36-60	9	9	0	0.0	3730.0	25400.0	12748.9	NL	--	NL	--	NL	--
CALCIUM	60-96	8	8	0	0.0	6260.0	15300.0	11407.5	NL	--	NL	--	NL	--
SELENIUM	0-12	22	0	22	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	0-6	55	0	55	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	12-36	30	1	29	96.7	1.8	1.8	1.8	NL	--	NL	--	NL	--
SELENIUM	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
POTASSIUM	0-12	22	21	1	4.5	625.0	1850.0	1158.1	NL	--	NL	--	NL	--
POTASSIUM	0-6	55	45	10	18.2	506.0	2110.0	1322.1	NL	--	NL	--	NL	--
POTASSIUM	12-36	30	22	8	26.7	610.0	2450.0	1308.2	NL	--	NL	--	NL	--
POTASSIUM	36-60	9	8	1	11.1	584.0	1880.0	1287.9	NL	--	NL	--	NL	--
POTASSIUM	60-96	8	6	2	25.0	872.0	1560.0	1258.7	NL	--	NL	--	NL	--
PCB Aroclors (µg/kg)														
TOTAL PCBs, OCN	0-12	3	2	1	33.3	25.2	41.3	33.3	60	--	368	--	676	--
TOTAL PCBs, OCN	0-6	26	9	17	65.4	4.6	271.3	51.8	60	4	368	--	676	--
TOTAL PCBs, OCN	12-36	4	3	1	25.0	22.4	170.4	75.4	60	25	368	--	676	--
TOTAL PCBs, OCN	36-60	1	1	0	0.0	5.1	5.1	5.1	60	--	368	--	676	--
TOTAL PCBs, OCN	60-96	1	0	1	100.0	--	--	--	60	--	368	--	676	--
AROCLOR-1260, OCN	0-12	3	2	1	33.3	11.3	19.7	15.5	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	0-6	26	8	18	69.2	8.2	271.3	47.4	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	12-36	4	2	2	50.0	16.8	81.5	49.1	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	0-12	3	2	1	33.3	13.9	21.5	17.7	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	0-6	26	6	20	76.9	4.6	21.6	14.5	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	12-36	4	3	1	25.0	16.8	88.9	42.7	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	36-60	1	1	0	0.0	5.1	5.1	5.1	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	0-6	26	0	26	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	0-6	26	0	26	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	0-6	26	0	26	100.0	--	--	--	NL	--	NL	--	NL	--

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
AROCLOR-1232, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	0-6	26	0	26	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	0-6	26	0	26	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	0-6	26	0	26	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	0-6	26	0	26	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
TCL Pesticides (µg/kg)														
HEPTACHLOR EPOXIDE, OCN	0-12	22	2	20	90.9	1.0	3.8	2.4	2.5	5	9.3		16	
HEPTACHLOR EPOXIDE, OCN	0-6	55	4	51	92.7	0.6	38.7	10.7	2.5	4	9.3	2	16	2
HEPTACHLOR EPOXIDE, OCN	12-36	30	1	29	96.7	3.0	3.0	3.0	2.5	3	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	36-60	9	2	7	77.8	0.3	2.2	1.2	2.5	--	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	60-96	8	0	8	100.0	--	--	--	2.5	--	9.3	--	16	--
ENDOSULFAN SULFATE, OCN	0-12	22	1	21	95.5	0.5	0.5	0.5	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	0-6	55	3	52	94.5	0.9	5.5	3.3	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	12-36	30	2	28	93.3	0.8	1.7	1.3	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
ALDRIN, OCN	0-12	22	5	17	77.3	0.5	14.6	3.9	2	5	41	--	80	--
ALDRIN, OCN	0-6	55	4	51	92.7	0.5	1.4	0.9	2	--	41	--	80	--
ALDRIN, OCN	12-36	30	1	29	96.7	0.8	0.8	0.8	2	--	41	--	80	--
ALDRIN, OCN	36-60	9	1	8	88.9	0.6	0.6	0.6	2	--	41	--	80	--
ALDRIN, OCN	60-96	8	0	8	100.0	--	--	--	2	--	41	--	80	--
ALPHA-BHC, OCN	0-12	22	2	20	90.9	0.2	1.2	0.7	6	--	53	--	100	--
ALPHA-BHC, OCN	0-6	55	0	55	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	12-36	30	0	30	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	36-60	9	0	9	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	60-96	8	1	7	87.5	0.1	0.1	0.1	6	--	53	--	100	--
BETA-BHC, OCN	0-12	22	1	21	95.5	1.3	1.3	1.3	5	--	108	--	210	--
BETA-BHC, OCN	0-6	55	1	54	98.2	11.0	11.0	11.0	5	2	108	--	210	--
BETA-BHC, OCN	12-36	30	0	30	100.0	--	--	--	5	--	108	--	210	--
BETA-BHC, OCN	36-60	9	0	9	100.0	--	--	--	5	--	108	--	210	--
BETA-BHC, OCN	60-96	8	0	8	100.0	--	--	--	5	--	108	--	210	--
DELTA-BHC, OCN	0-12	22	0	22	100.0	--	--	--	3	--	62	--	120	--
DELTA-BHC, OCN	0-6	55	2	53	96.4	0.2	0.2	0.2	3	--	62	--	120	--
DELTA-BHC, OCN	12-36	30	1	29	96.7	0.3	0.3	0.3	3	--	62	--	120	--
DELTA-BHC, OCN	36-60	9	1	8	88.9	0.2	0.2	0.2	3	--	62	--	120	--
DELTA-BHC, OCN	60-96	8	0	8	100.0	--	--	--	3	--	62	--	120	--
ENDOSULFAN II, OCN	0-12	22	0	22	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	0-6	55	0	55	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	12-36	30	0	30	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
4,4'-DDT, OCN	0-12	22	5	17	77.3	1.0	6.9	2.9	4.2	5	33.6		63	--
4,4'-DDT, OCN	0-6	55	4	51	92.7	0.6	77.3	21.3	4.2	4	33.6	2	63	2
4,4'-DDT, OCN	12-36	30	4	26	86.7	1.1	47.3	14.4	4.2	7	33.6	3	63	--
4,4'-DDT, OCN	36-60	9	1	8	88.9	3.2	3.2	3.2	4.2	--	33.6	--	63	--
4,4'-DDT, OCN	60-96	8	1	7	87.5	2.6	2.6	2.6	4.2	--	33.6	--	63	--
ALPHA-CHLORDANE, OCN	0-12	22	0	22	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	0-6	55	0	55	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	12-36	30	0	30	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	36-60	9	0	9	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	60-96	8	0	8	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	0-12	22	1	21	95.5	19.7	19.7	19.7	3.2	5	10.6	5	18	5
GAMMA-CHLORDANE, OCN	0-6	55	0	55	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	12-36	30	0	30	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	36-60	9	0	9	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	60-96	8	0	8	100.0	--	--	--	3.2	--	10.6	--	18	--
ENDRIN KETONE, OCN	0-12	22	2	20	90.9	0.4	1.4	0.9	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	0-6	55	0	55	100.0	--	--	--	NL	--	NL	--	NL	--

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
ENDRIN KETONE, OCN	12-36	30	3	27	90.0	0.5	1.5	1.0	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	36-60	9	1	8	88.9	1.1	1.1	1.1	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	60-96	8	1	7	87.5	0.9	0.9	0.9	NL	--	NL	--	NL	--
GAMMA-BHC (LINDANE), OCN	0-12	22	0	22	100.0	--	--	--	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	0-6	55	0	55	100.0	--	--	--	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	12-36	30	1	29	96.7	0.6	0.6	0.6	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	36-60	9	1	8	88.9	0.4	0.4	0.4	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	60-96	8	0	8	100.0	--	--	--	3	--	4	--	5	--
DIELDRIN, OCN	0-12	22	0	22	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	0-6	55	1	54	98.2	0.7	0.7	0.7	1.9	--	32	--	62	--
DIELDRIN, OCN	12-36	30	0	30	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	36-60	9	0	9	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	60-96	8	0	8	100.0	--	--	--	1.9	--	32	--	62	--
ENDRIN, OCN	0-12	22	1	21	95.5	2.0	2.0	2.0	2.2	--	104.6	--	207	--
ENDRIN, OCN	0-6	55	4	51	92.7	0.6	5.5	2.4	2.2	2	104.6	--	207	--
ENDRIN, OCN	12-36	30	2	28	93.3	1.7	2.7	2.2	2.2	3	104.6	--	207	--
ENDRIN, OCN	36-60	9	1	8	88.9	1.1	1.1	1.1	2.2	--	104.6	--	207	--
ENDRIN, OCN	60-96	8	0	8	100.0	--	--	--	2.2	--	104.6	--	207	--
METHOXYCLOR, OCN	0-12	22	0	22	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	0-6	55	1	54	98.2	5.9	5.9	5.9	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	12-36	30	0	30	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	60-96	8	1	7	87.5	5.0	5.0	5.0	NL	--	NL	--	NL	--
4,4'-DDD, OCN	0-12	22	3	19	86.4	0.7	2.7	1.5	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	0-6	55	2	53	96.4	0.6	1.4	1.0	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	12-36	30	1	29	96.7	8.5	8.5	8.5	4.9	3	16.5	--	28	--
4,4'-DDD, OCN	36-60	9	1	8	88.9	2.2	2.2	2.2	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	60-96	8	2	6	75.0	1.8	3.6	2.7	4.9	--	16.5	--	28	--
4,4'-DDE, OCN	0-12	22	1	21	95.5	0.9	0.9	0.9	3.2	--	17	--	31	--
4,4'-DDE, OCN	0-6	55	1	54	98.2	2.3	2.3	2.3	3.2	--	17	--	31	--
4,4'-DDE, OCN	12-36	30	0	30	100.0	--	--	--	3.2	--	17	--	31	--
4,4'-DDE, OCN	36-60	9	1	8	88.9	2.2	2.2	2.2	3.2	--	17	--	31	--
4,4'-DDE, OCN	60-96	8	1	7	87.5	1.6	1.6	1.6	3.2	--	17	--	31	--
ENDRIN ALDEHYDE, OCN	0-12	22	2	20	90.9	0.9	0.9	0.9	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	0-6	55	4	51	92.7	1.1	4.1	2.3	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	12-36	30	1	29	96.7	1.0	1.0	1.0	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	0-12	22	1	21	95.5	0.6	0.6	0.6	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	0-6	55	0	55	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	12-36	30	0	30	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TOXAPHENE, OCN	0-12	22	0	22	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	0-6	55	0	55	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	12-36	30	0	30	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	36-60	9	0	9	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	60-96	8	0	8	100.0	--	--	--	1	--	1.5	--	2	--
ENDOSULFAN I, OCN	0-12	22	4	18	81.8	0.5	1.1	0.8	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	0-6	55	0	55	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	12-36	30	1	29	96.7	0.4	0.4	0.4	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TPH (mg/kg)														
DRO	0-12	22	22	0	0.0	16.0	430.0	152.3	NL	--	NL	--	NL	--
DRO	0-6	55	55	0	0.0	26.0	450.0	123.3	NL	--	NL	--	NL	--
DRO	12-36	30	30	0	0.0	4.0	540.0	164.1	NL	--	NL	--	NL	--
DRO	36-60	9	8	1	11.1	5.0	230.0	101.6	NL	--	NL	--	NL	--
DRO	60-96	8	8	0	0.0	11.0	730.0	202.8	NL	--	NL	--	NL	--
ORO	0-12	22	22	0	0.0	19.0	650.0	215.1	NL	--	NL	--	NL	--
ORO	0-6	55	55	0	0.0	24.0	700.0	179.9	NL	--	NL	--	NL	--
ORO	12-36	30	29	1	3.3	28.0	850.0	224.5	NL	--	NL	--	NL	--
ORO	36-60	9	8	1	11.1	11.0	260.0	115.8	NL	--	NL	--	NL	--
ORO	60-96	8	8	0	0.0	17.0	710.0	249.5	NL	--	NL	--	NL	--
Organotin (µg/kg)														
DIBUTYLTIN, OCN	0-12	22	6	16	72.7	0.6	1.1	0.9	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	0-6	55	17	38	69.1	0.2	7.7	1.3	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	12-36	30	4	26	86.7	0.4	0.9	0.7	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	36-60	9	1	8	88.9	1.0	1.0	1.0	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	0-12	22	0	22	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	0-6	55	0	55	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	12-36	30	0	30	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	0-12	22	0	22	100.0	--	--	--	NL	--	NL	--	NL	--

Table 3-1a
Summary of Howard's Bay Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
MONOBUTYLTIN, OCN	0-6	55	0	55	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	12-36	30	0	30	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	36-60	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TRIBUTYLTIN, OCN	0-12	22	9	13	59.1	0.4	5.7	2.0	0.52	36	1.73	14	2.94	14
TRIBUTYLTIN, OCN	0-6	55	30	25	45.5	0.3	64.6	4.0	0.52	47	1.73	13	2.94	7
TRIBUTYLTIN, OCN	12-36	30	6	24	80.0	0.3	3.7	1.8	0.52	17	1.73	10	2.94	3
TRIBUTYLTIN, OCN	36-60	9	1	8	88.9	2.8	2.8	2.8	0.52	11	1.73	11	2.94	--
TRIBUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	0.52	--	1.73	--	2.94	--

Notes:
% - Percent
"--" - Not Applicable
bss - below sediment surface
DL - Detection Limit
DRO - Diesel Range Organic
MEC - Median Effects Concentration
mg/kg - Milligram per kilogram
ND - Non-Detect
NL - Not Listed
OCN - Organic Carbon Normalized
ORO - Oil Range Organic
PAH - Polycylic Aromatic Hydrocarbon
PCB - Polychlorinated Biphenyls
PEC - Probable Effect Concentration
SQG - Sediment Quality Guidelines
TAL - Target Analyte List
TCL - Target Compound List
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
TPH - Total Petroleum Hydrocarbon
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources

TOTAL PAHs 17 - Calculated by WESTON (sum of detections plus 1/2 DL for NDs)
TOTAL PAHs 34 - Calculated by WESTON (sum of detections plus 1/2 DL for NDs)
TOTAL PCBs - Calculated by WESTON (sum of detections)

[1] WDNR Consensus-Based SQGs

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
PAHs (17 and 34 list) (µg/kg)														
ANTHRACENE, OCN	0-12	16	14	2	12.5	13.0	112.6	32.5	57.2	6	451	--	845	--
ANTHRACENE, OCN	0-6	34	32	2	5.9	2.5	921.1	75.9	57.2	12	451	3	845	3
ANTHRACENE, OCN	12-36	19	18	1	5.3	2.5	121.2	29.1	57.2	11	451	--	845	--
ANTHRACENE, OCN	36-60	7	5	2	28.6	8.9	29.6	15.4	57.2	--	451	--	845	--
ANTHRACENE, OCN	60-96	8	7	1	12.5	1.8	134.8	41.5	57.2	25	451	--	845	--
PYRENE, OCN	0-12	16	15	1	6.3	99.8	585.6	216.5	195	44	858	--	1520	--
PYRENE, OCN	0-6	34	34	0	0.0	12.2	2193.0	297.6	195	26	858	9	1520	6
PYRENE, OCN	12-36	19	19	0	0.0	14.8	666.7	159.9	195	32	858	--	1520	--
PYRENE, OCN	36-60	7	6	1	14.3	57.3	346.7	139.5	195	29	858	--	1520	--
PYRENE, OCN	60-96	8	8	0	0.0	8.8	510.6	186.2	195	38	858	--	1520	--
BENZO(G,H,I)PERYLENE, OCN	0-12	16	15	1	6.3	29.7	162.2	69.6	170	--	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	0-6	34	34	0	0.0	3.8	939.2	89.6	170	9	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	12-36	19	19	0	0.0	11.6	163.6	54.8	170	--	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	36-60	7	5	2	28.6	8.0	58.4	31.4	170	--	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	60-96	8	6	2	25.0	8.8	160.7	62.3	170	--	1685	--	3200	--
BENZO(E)PYRENE, OCN	0-12	3	3	0	0.0	59.2	85.4	71.7	150	--	800	--	1450	--
BENZO(E)PYRENE, OCN	0-6	17	17	0	0.0	4.5	482.5	98.6	150	18	800	--	1450	--
BENZO(E)PYRENE, OCN	12-36	4	4	0	0.0	27.0	169.7	100.1	150	25	800	--	1450	--
BENZO(E)PYRENE, OCN	36-60	1	1	0	0.0	93.3	93.3	93.3	150	--	800	--	1450	--
BENZO(E)PYRENE, OCN	60-96	1	1	0	0.0	120.6	120.6	120.6	150	--	800	--	1450	--
INDENO(1,2,3-CD)PYRENE, OCN	0-12	16	15	1	6.3	26.0	148.6	61.9	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	0-6	34	33	1	2.9	3.5	828.7	86.9	200	9	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	12-36	19	19	0	0.0	4.3	151.5	48.9	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	36-60	7	6	1	14.3	11.0	93.3	38.3	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	60-96	8	7	1	12.5	7.1	133.9	59.3	200	--	1700	--	3200	--
PERYLENE, OCN	0-12	3	2	1	33.3	23.3	26.1	24.7	NL	--	NL	--	NL	--
PERYLENE, OCN	0-6	17	16	1	5.9	3.3	210.5	48.0	NL	--	NL	--	NL	--
PERYLENE, OCN	12-36	4	2	2	50.0	24.5	74.1	49.3	NL	--	NL	--	NL	--
PERYLENE, OCN	36-60	1	1	0	0.0	36.7	36.7	36.7	NL	--	NL	--	NL	--
PERYLENE, OCN	60-96	1	1	0	0.0	46.8	46.8	46.8	NL	--	NL	--	NL	--
BENZO(B)FLUORANTHENE, OCN	0-12	16	15	1	6.3	50.1	292.8	112.4	240	6	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	0-6	34	34	0	0.0	7.6	1602.2	176.1	240	12	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	12-36	19	19	0	0.0	10.5	327.3	94.5	240	5	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	36-60	7	6	1	14.3	32.3	173.3	75.1	240	--	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	60-96	8	7	1	12.5	11.0	227.0	108.0	240	--	6820	--	13400	--
FLUORANTHENE, OCN	0-12	16	15	1	6.3	98.3	585.6	238.0	423	6	1327	--	2230	--
FLUORANTHENE, OCN	0-6	34	34	0	0.0	15.7	3201.8	376.2	423	18	1327	9	2230	6
FLUORANTHENE, OCN	12-36	19	19	0	0.0	16.7	848.5	188.1	423	5	1327	--	2230	--
FLUORANTHENE, OCN	36-60	7	6	1	14.3	70.1	433.3	155.5	423	14	1327	--	2230	--
FLUORANTHENE, OCN	60-96	8	8	0	0.0	10.6	617.0	217.7	423	25	1327	--	2230	--
BENZO(K)FLUORANTHENE, OCN	0-12	16	15	1	6.3	16.2	144.1	57.5	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	0-6	34	33	1	2.9	3.3	607.7	81.6	240	9	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	12-36	19	19	0	0.0	2.8	163.6	50.9	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	36-60	7	5	2	28.6	9.7	40.1	28.7	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	60-96	8	7	1	12.5	8.5	192.0	68.2	240	--	6820	--	13400	--
ACENAPHTHYLENE, OCN	0-12	16	13	3	18.8	3.0	21.2	6.8	5.9	31	67	--	128	--
ACENAPHTHYLENE, OCN	0-6	34	29	5	14.7	1.2	105.0	10.0	5.9	29	67	3	128	--
ACENAPHTHYLENE, OCN	12-36	18	18	0	0.0	0.6	11.5	5.0	5.9	28	67	--	128	--
ACENAPHTHYLENE, OCN	36-60	7	6	1	14.3	2.4	7.3	4.5	5.9	29	67	--	128	--
ACENAPHTHYLENE, OCN	60-96	8	7	1	12.5	0.7	10.7	6.9	5.9	50	67	--	128	--
1,2-BENZPHENANTHRACENE, OCN	0-12	16	15	1	6.3	50.1	315.3	109.9	166	6	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	0-6	34	34	0	0.0	5.8	1326.0	163.8	166	15	728	6	1290	3
1,2-BENZPHENANTHRACENE, OCN	12-36	19	19	0	0.0	8.0	290.9	83.1	166	11	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	36-60	7	6	1	14.3	34.5	173.3	70.8	166	14	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	60-96	8	8	0	0.0	3.5	234.0	92.2	166	25	728	--	1290	--
BENZO(A)PYRENE, OCN	0-12	16	15	1	6.3	44.5	247.7	104.3	150	19	800	--	1450	--
BENZO(A)PYRENE, OCN	0-6	34	34	0	0.0	5.8	1105.0	150.4	150	21	800	6	1450	--
BENZO(A)PYRENE, OCN	12-36	19	19	0	0.0	6.0	303.0	81.5	150	16	800	--	1450	--
BENZO(A)PYRENE, OCN	36-60	7	6	1	14.3	28.0	166.7	65.7	150	14	800	--	1450	--
BENZO(A)PYRENE, OCN	60-96	8	7	1	12.5	9.6	227.7	101.3	150	25	800	--	1450	--
DIBENZ(A,H)ANTHRACENE, OCN	0-12	16	14	2	12.5	5.4	72.1	18.4	33	12	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	0-6	34	31	3	8.8	4.2	143.6	22.1	33	12	84	6	135	3
DIBENZ(A,H)ANTHRACENE, OCN	12-36	19	18	1	5.3	2.2	38.2	13.6	33	11	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	36-60	7	5	2	28.6	3.0	23.3	10.3	33	--	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	60-96	8	7	1	12.5	2.3	44.6	16.0	33	12	84	--	135	--
BENZO(A)ANTHRACENE, OCN	0-12	16	15	1	6.3	48.2	292.8	99.5	108	19	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	0-6	34	34	0	0.0	5.8	1228.1	154.3	108	24	579	9	1050	6
BENZO(A)ANTHRACENE, OCN	12-36	19	19	0	0.0	6.0	303.0	77.2	108	21	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	36-60	7	6	1	14.3	32.3	160.0	64.6	108	14	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	60-96	8	8	0	0.0	3.5	212.8	81.6	108	38	579	--	1050	--
ACENAPHTHENE, OCN	0-12	16	14	2	12.5	3.5	29.3	9.0	6.7	44	48	--	89	--
ACENAPHTHENE, OCN	0-6	34	30	4	11.8	1.8	355.3	23.9	6.7	41	48	12	89	3
ACENAPHTHENE, OCN	12-36	19	18	1	5.3	2.5	51.5	10.0	6.7	42	48	5	89	--
ACENAPHTHENE, OCN	36-60	7	6	1	14.3	2.2	24.0	7.7	6.7	29	48	--	89	--
ACENAPHTHENE, OCN	60-96	8	7	1	12.5	0.5	40.4	13.8	6.7	50	48	--	89	--

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
PHENANTHRENE, OCN	0-12	16	15	1	6.3	40.5	315.3	116.4	204	12	687	--	1170	--
PHENANTHRENE, OCN	0-6	34	34	0	0.0	6.4	3640.4	245.1	204	15	687	9	1170	3
PHENANTHRENE, OCN	12-36	19	19	0	0.0	9.3	593.9	104.3	204	5	687	--	1170	--
PHENANTHRENE, OCN	36-60	7	6	1	14.3	30.6	280.0	92.5	204	14	687	--	1170	--
PHENANTHRENE, OCN	60-96	8	8	0	0.0	5.3	461.0	140.6	204	25	687	--	1170	--
FLUORENE, OCN	0-12	16	14	2	12.5	4.8	45.0	12.9	77.4	--	307	--	536	--
FLUORENE, OCN	0-6	34	31	3	8.8	2.9	614.0	36.1	77.4	6	307	3	536	3
FLUORENE, OCN	12-36	19	17	2	10.5	0.9	23.9	9.4	77.4	--	307	--	536	--
FLUORENE, OCN	36-60	7	6	1	14.3	4.1	33.3	11.2	77.4	--	307	--	536	--
FLUORENE, OCN	60-96	8	7	1	12.5	1.0	52.5	20.5	77.4	--	307	--	536	--
1-METHYLNAPHTHALENE, OCN	0-12	3	1	2	66.7	9.2	9.2	9.2	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	0-6	17	13	4	23.5	2.6	153.5	16.0	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	12-36	3	3	0	0.0	4.4	25.5	12.9	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	36-60	1	1	0	0.0	10.7	10.7	10.7	NL	--	NL	--	NL	--
1-METHYLNAPHTHALENE, OCN	60-96	1	1	0	0.0	17.0	17.0	17.0	NL	--	NL	--	NL	--
NAPHTHALENE, OCN	0-12	16	14	2	12.5	6.4	33.6	14.5	176	--	369	--	561	--
NAPHTHALENE, OCN	0-6	34	30	4	11.8	3.2	270.7	25.5	176	6	369	--	561	--
NAPHTHALENE, OCN	12-36	18	18	0	0.0	1.2	34.5	10.3	176	--	369	--	561	--
NAPHTHALENE, OCN	36-60	7	6	1	14.3	4.6	32.3	14.3	176	--	369	--	561	--
NAPHTHALENE, OCN	60-96	8	7	1	12.5	1.1	24.8	14.2	176	--	369	--	561	--
2-METHYLNAPHTHALENE, OCN	0-12	16	14	2	12.5	6.5	24.8	12.7	20.2	6	111	--	201	--
2-METHYLNAPHTHALENE, OCN	0-6	34	29	5	14.7	3.4	193.0	19.5	20.2	9	111	6	201	--
2-METHYLNAPHTHALENE, OCN	12-36	19	19	0	0.0	1.0	30.3	9.8	20.2	5	111	--	201	--
2-METHYLNAPHTHALENE, OCN	36-60	7	6	1	14.3	3.5	14.8	8.4	20.2	--	111	--	201	--
2-METHYLNAPHTHALENE, OCN	60-96	8	7	1	12.5	1.5	21.4	13.5	20.2	12	111	--	201	--
C1-CHRYSENES, OCN	0-12	3	3	0	0.0	57.5	168.5	97.1	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	0-6	17	17	0	0.0	4.5	570.2	87.2	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	12-36	4	4	0	0.0	54.0	139.4	97.4	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	36-60	1	1	0	0.0	93.3	93.3	93.3	NL	--	NL	--	NL	--
C1-CHRYSENES, OCN	60-96	1	1	0	0.0	113.5	113.5	113.5	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	0-12	3	3	0	0.0	118.5	359.6	199.9	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	0-6	17	17	0	0.0	10.5	1491.2	211.4	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	12-36	4	4	0	0.0	104.3	272.7	192.8	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	36-60	1	1	0	0.0	173.3	173.3	173.3	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	60-96	1	1	0	0.0	241.1	241.1	241.1	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	0-12	3	3	0	0.0	7.2	29.2	15.9	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	0-6	17	15	2	11.8	2.0	153.5	18.0	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	12-36	4	4	0	0.0	7.2	33.3	17.8	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	36-60	1	1	0	0.0	18.0	18.0	18.0	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	60-96	1	1	0	0.0	22.0	22.0	22.0	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	0-12	3	3	0	0.0	7.8	31.5	17.9	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	0-6	17	14	3	17.6	3.5	201.8	22.0	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	12-36	4	4	0	0.0	6.5	33.9	17.9	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	36-60	1	1	0	0.0	13.3	13.3	13.3	NL	--	NL	--	NL	--
C1-NAPHTHALENES, OCN	60-96	1	1	0	0.0	22.0	22.0	22.0	NL	--	NL	--	NL	--
C1-PHENANTHRENES/ ANTHRACENES, OCN	0-12	3	3	0	0.0	64.6	247.2	135.8	NL	--	NL	--	NL	--
C1-PHENANTHRENES/ ANTHRACENES, OCN	0-6	17	17	0	0.0	4.5	1228.1	142.1	NL	--	NL	--	NL	--
C1-PHENANTHRENES/ ANTHRACENES, OCN	12-36	4	4	0	0.0	56.4	224.2	126.4	NL	--	NL	--	NL	--
C1-PHENANTHRENES/ ANTHRACENES, OCN	36-60	1	1	0	0.0	140.0	140.0	140.0	NL	--	NL	--	NL	--
C1-PHENANTHRENES/ ANTHRACENES, OCN	60-96	1	1	0	0.0	184.4	184.4	184.4	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	0-12	3	3	0	0.0	34.8	105.6	61.2	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	0-6	17	17	0	0.0	3.8	197.4	41.7	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	12-36	4	4	0	0.0	41.9	111.1	64.0	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	36-60	1	1	0	0.0	40.7	40.7	40.7	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	60-96	1	1	0	0.0	47.5	47.5	47.5	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	0-12	3	3	0	0.0	66.1	191.0	115.0	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	0-6	17	17	0	0.0	7.0	570.2	92.7	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	12-36	4	4	0	0.0	69.9	185.2	123.6	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	36-60	1	1	0	0.0	93.3	93.3	93.3	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	60-96	1	1	0	0.0	113.5	113.5	113.5	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	0-12	3	3	0	0.0	25.1	47.2	34.0	NL	--	NL	--	NL	--

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
C2-FLUORENES, OCN	0-6	17	16	1	5.9	3.7	83.3	17.4	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	12-36	4	4	0	0.0	17.2	54.5	37.7	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	36-60	1	1	0	0.0	28.0	28.0	28.0	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	60-96	1	1	0	0.0	24.1	24.1	24.1	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	0-12	3	3	0	0.0	25.2	49.4	33.9	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	0-6	17	16	1	5.9	5.2	193.0	24.9	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	12-36	4	4	0	0.0	13.5	72.7	38.4	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	36-60	1	1	0	0.0	42.0	42.0	42.0	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	60-96	1	1	0	0.0	51.1	51.1	51.1	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	0-12	3	3	0	0.0	87.0	247.2	145.5	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	0-6	17	17	0	0.0	4.9	438.6	77.3	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	12-36	4	4	0	0.0	83.4	170.4	137.7	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	36-60	1	1	0	0.0	106.7	106.7	106.7	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	60-96	1	1	0	0.0	113.5	113.5	113.5	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	0-12	3	3	0	0.0	24.3	89.9	51.8	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	0-6	17	15	2	11.8	7.6	162.3	40.2	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	12-36	4	4	0	0.0	38.5	96.3	56.7	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	36-60	1	1	0	0.0	37.3	37.3	37.3	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	60-96	1	1	0	0.0	41.1	41.1	41.1	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	0-12	3	3	0	0.0	39.1	125.8	75.3	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	0-6	17	17	0	0.0	5.2	241.2	47.7	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	12-36	4	4	0	0.0	57.7	133.3	83.1	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	36-60	1	1	0	0.0	50.7	50.7	50.7	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	60-96	1	1	0	0.0	52.5	52.5	52.5	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	0-12	3	3	0	0.0	47.8	87.6	61.3	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	0-6	17	12	5	29.4	6.3	40.0	20.4	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	12-36	4	4	0	0.0	34.4	96.3	71.7	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	36-60	1	1	0	0.0	50.7	50.7	50.7	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	60-96	1	1	0	0.0	47.5	47.5	47.5	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	0-12	3	3	0	0.0	39.5	53.9	45.9	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	0-6	17	16	1	5.9	5.4	118.4	22.2	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	12-36	4	4	0	0.0	16.0	121.2	64.5	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	36-60	1	1	0	0.0	73.3	73.3	73.3	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	60-96	1	1	0	0.0	62.4	62.4	62.4	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	0-12	3	3	0	0.0	67.0	200.0	124.3	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	0-6	17	17	0	0.0	9.4	175.4	47.5	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	12-36	4	4	0	0.0	88.3	200.0	120.8	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	36-60	1	1	0	0.0	80.0	80.0	80.0	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	60-96	1	1	0	0.0	69.5	69.5	69.5	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	0-12	3	3	0	0.0	15.7	47.2	27.5	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	0-6	17	12	5	29.4	4.0	37.7	15.5	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	12-36	4	4	0	0.0	18.4	60.0	30.9	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	36-60	1	1	0	0.0	18.0	18.0	18.0	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	60-96	1	1	0	0.0	16.3	16.3	16.3	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	0-12	3	3	0	0.0	44.9	52.1	47.7	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	0-6	17	15	2	11.8	4.3	52.6	15.2	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	12-36	4	4	0	0.0	17.2	103.0	64.4	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	36-60	1	1	0	0.0	56.0	56.0	56.0	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	60-96	1	1	0	0.0	40.4	40.4	40.4	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	0-12	3	3	0	0.0	35.7	182.0	91.7	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	0-6	17	17	0	0.0	5.2	78.9	32.1	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	12-36	4	4	0	0.0	48.5	111.1	73.3	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	36-60	1	1	0	0.0	48.7	48.7	48.7	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	60-96	1	1	0	0.0	52.5	52.5	52.5	NL	--	NL	--	NL	--
TOTAL PAHs 17, OCN	0-12	16	16	0	0.0	11.4	3419.8	1222.6	1610	19	12205	--	22800	--
TOTAL PAHs 17, OCN	0-6	34	34	0	0.0	78.6	17203.9	2014.8	1610	21	12205	6	22800	--

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
TOTAL PAHs 17, OCN	12-36	19	19	0	0.0	99.4	4153.9	1030.3	1610	21	12205	--	22800	--
TOTAL PAHs 17, OCN	36-60	7	7	0	0.0	23.4	2083.3	726.5	1610	14	12205	--	22800	--
TOTAL PAHs 17, OCN	60-96	8	8	0	0.0	53.1	3029.8	1180.1	1610	25	12205	--	22800	--
TOTAL PAHs 34, OCN	0-12	3	3	0	0.0	1968.2	4170.8	2822.6	1610	100	12205	--	22800	--
TOTAL PAHs 34, OCN	0-6	17	17	0	0.0	162.9	22896.9	3421.0	1610	47	12205	6	22800	6
TOTAL PAHs 34, OCN	12-36	4	4	0	0.0	1261.5	5937.6	3311.2	1610	75	12205	--	22800	--
TOTAL PAHs 34, OCN	36-60	1	1	0	0.0	3221.3	3221.3	3221.3	1610	100	12205	--	22800	--
TOTAL PAHs 34, OCN	60-96	1	1	0	0.0	4327.7	4327.7	4327.7	1610	100	12205	--	22800	--
TAL Metals (mg/kg)														
ALUMINUM	0-12	16	16	0	0.0	6320.0	19400.0	12985.0	NL	--	NL	--	NL	--
ALUMINUM	0-6	34	34	0	0.0	4340.0	19100.0	11367.4	NL	--	NL	--	NL	--
ALUMINUM	12-36	19	19	0	0.0	5900.0	20700.0	13175.8	NL	--	NL	--	NL	--
ALUMINUM	36-60	7	7	0	0.0	7020.0	18800.0	13028.6	NL	--	NL	--	NL	--
ALUMINUM	60-96	8	8	0	0.0	4700.0	17300.0	11937.5	NL	--	NL	--	NL	--
IRON	0-12	16	16	0	0.0	13400.0	41400.0	25443.8	20000	81	30000	25	40000	6
IRON	0-6	34	34	0	0.0	11200.0	37000.0	23335.3	20000	76	30000	12	40000	--
IRON	12-36	19	19	0	0.0	11100.0	36500.0	24773.7	20000	84	30000	11	40000	--
IRON	36-60	7	7	0	0.0	13900.0	35400.0	21971.4	20000	43	30000	29	40000	--
IRON	60-96	8	8	0	0.0	10400.0	29800.0	20337.5	20000	62	30000		40000	--
LEAD	0-12	16	16	0	0.0	8.0	382.0	104.5	36	88	83	25	130	25
LEAD	0-6	34	34	0	0.0	22.3	294.0	63.4	36	62	83	26	130	6
LEAD	12-36	19	19	0	0.0	24.8	481.0	104.8	36	79	83	47	130	21
LEAD	36-60	7	7	0	0.0	6.2	188.0	82.8	36	86	83	43	130	14
LEAD	60-96	8	8	0	0.0	2.9	308.0	84.6	36	62	83	38	130	12
MAGNESIUM	0-12	16	16	0	0.0	5380.0	12500.0	9264.4	NL	--	NL	--	NL	--
MAGNESIUM	0-6	34	34	0	0.0	2640.0	12600.0	8369.1	NL	--	NL	--	NL	--
MAGNESIUM	12-36	19	19	0	0.0	3350.0	16100.0	9567.9	NL	--	NL	--	NL	--
MAGNESIUM	36-60	7	7	0	0.0	3450.0	14900.0	9232.9	NL	--	NL	--	NL	--
MAGNESIUM	60-96	8	8	0	0.0	4050.0	11800.0	8162.5	NL	--	NL	--	NL	--
MANGANESE	0-12	16	16	0	0.0	234.0	891.0	465.6	460	50	780	6	1100	--
MANGANESE	0-6	34	34	0	0.0	153.0	827.0	508.4	460	62	780	3	1100	--
MANGANESE	12-36	19	19	0	0.0	149.0	652.0	445.4	460	42	780	--	1100	--
MANGANESE	36-60	7	7	0	0.0	188.0	521.0	351.9	460	43	780	--	1100	--
MANGANESE	60-96	8	8	0	0.0	175.0	437.0	337.6	460	--	780	--	1100	--
MERCURY	0-12	16	16	0	0.0	0.1	1.1	0.4	0.18	81	0.64	19	1.1	--
MERCURY	0-6	34	34	0	0.0	0.1	0.9	0.2	0.18	53	0.64	9	1.1	--
MERCURY	12-36	19	19	0	0.0	0.1	58.0	3.6	0.18	84	0.64	21	1.1	16
MERCURY	36-60	7	7	0	0.0	0.0	1.8	0.5	0.18	86	0.64	29	1.1	14
MERCURY	60-96	8	8	0	0.0	0.0	5.9	1.1	0.18	62	0.64	25	1.1	25
NICKEL	0-12	16	16	0	0.0	13.3	44.4	27.1	23	50	36	19	49	--
NICKEL	0-6	34	34	0	0.0	9.0	35.5	23.1	23	44	36	--	49	--
NICKEL	12-36	19	19	0	0.0	12.4	40.9	26.5	23	68	36	11	49	--
NICKEL	36-60	7	7	0	0.0	16.0	35.9	24.2	23	43	36	--	49	--
NICKEL	60-96	8	8	0	0.0	10.9	30.5	22.8	23	50	36	--	49	--
SILVER	0-12	16	2	14	87.5	0.2	0.5	0.3	1.6	--	1.9	--	2.2	--
SILVER	0-6	34	4	30	88.2	0.1	1.3	0.5	1.6	--	1.9	--	2.2	--
SILVER	12-36	19	5	14	73.7	0.0	1.8	0.7	1.6	5	1.9	--	2.2	--
SILVER	36-60	7	2	5	71.4	0.1	1.2	0.7	1.6	--	1.9	--	2.2	--
SILVER	60-96	8	3	5	62.5	0.0	1.7	0.7	1.6	12	1.9	--	2.2	--
SODIUM	0-12	16	1	15	93.8	2630.0	2630.0	2630.0	NL	--	NL	--	NL	--
SODIUM	0-6	34	1	33	97.1	1190.0	1190.0	1190.0	NL	--	NL	--	NL	--
SODIUM	12-36	19	1	18	94.7	3560.0	3560.0	3560.0	NL	--	NL	--	NL	--
SODIUM	36-60	7	1	6	85.7	2370.0	2370.0	2370.0	NL	--	NL	--	NL	--
SODIUM	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
THALLIUM	0-12	16	4	12	75.0	1.2	1.9	1.5	NL	--	NL	--	NL	--
THALLIUM	0-6	34	5	29	85.3	0.7	1.7	1.3	NL	--	NL	--	NL	--
THALLIUM	12-36	19	5	14	73.7	1.2	2.2	1.7	NL	--	NL	--	NL	--
THALLIUM	36-60	7	1	6	85.7	0.9	0.9	0.9	NL	--	NL	--	NL	--
THALLIUM	60-96	8	3	5	62.5	0.9	1.0	0.9	NL	--	NL	--	NL	--
ANTIMONY	0-12	16	16	0	0.0	0.8	4.1	1.7	2	25	13.5	--	25	--
ANTIMONY	0-6	34	34	0	0.0	0.6	3.2	1.4	2	6	13.5	--	25	--
ANTIMONY	12-36	19	18	1	5.3	0.9	38.5	3.7	2	21	13.5	5	25	5
ANTIMONY	36-60	7	7	0	0.0	0.8	5.3	2.0	2	29	13.5	--	25	--
ANTIMONY	60-96	8	7	1	12.5	0.4	2.3	1.5	2	12	13.5	--	25	--
ARSENIC	0-12	16	16	0	0.0	2.8	9.9	5.7	9.8	6	21.4	--	33	--
ARSENIC	0-6	34	34	0	0.0	2.2	8.5	5.1	9.8	--	21.4	--	33	--
ARSENIC	12-36	19	19	0	0.0	3.2	12.4	5.7	9.8	5	21.4	--	33	--
ARSENIC	36-60	7	7	0	0.0	2.4	8.6	4.7	9.8	--	21.4	--	33	--
ARSENIC	60-96	8	8	0	0.0	2.1	7.3	4.8	9.8	--	21.4	--	33	--
BARIUM	0-12	16	16	0	0.0	45.6	245.0	113.2	NL	--	NL	--	NL	--
BARIUM	0-6	34	34	0	0.0	29.1	223.0	95.7	NL	--	NL	--	NL	--
BARIUM	12-36	19	19	0	0.0	45.6	335.0	121.0	NL	--	NL	--	NL	--
BARIUM	36-60	7	7	0	0.0	57.6	303.0	131.3	NL	--	NL	--	NL	--
BARIUM	60-96	8	8	0	0.0	28.8	280.0	119.6	NL	--	NL	--	NL	--
BERYLLIUM	0-12	16	15	1	6.3	0.4	1.1	0.7	NL	--	NL	--	NL	--
BERYLLIUM	0-6	34	29	5	14.7	0.2	1.0	0.6	NL	--	NL	--	NL	--

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
BERYLLIUM	12-36	19	19	0	0.0	0.4	1.4	0.8	NL	--	NL	--	NL	--
BERYLLIUM	36-60	7	7	0	0.0	0.5	1.0	0.7	NL	--	NL	--	NL	--
BERYLLIUM	60-96	8	7	1	12.5	0.6	0.9	0.7	NL	--	NL	--	NL	--
CADMIUM	0-12	16	4	12	75.0	0.8	2.3	1.4	0.99	19	3	--	5	--
CADMIUM	0-6	34	4	30	88.2	0.6	1.7	1.2	0.99	9	3	--	5	--
CADMIUM	12-36	19	6	13	68.4	0.5	3.7	1.4	0.99	11	3	5	5	--
CADMIUM	36-60	7	2	5	71.4	1.1	2.0	1.6	0.99	29	3	--	5	--
CADMIUM	60-96	8	2	6	75.0	0.9	2.7	1.8	0.99	12	3	--	5	--
CHROMIUM	0-12	16	16	0	0.0	23.4	117.0	36.6	43	19	76.5	6	110	6
CHROMIUM	0-6	34	34	0	0.0	10.1	85.0	28.3	43	6	76.5	3	110	--
CHROMIUM	12-36	19	19	0	0.0	14.0	97.6	33.7	43	11	76.5	5	110	--
CHROMIUM	36-60	7	7	0	0.0	19.7	41.2	29.0	43	--	76.5	--	110	--
CHROMIUM	60-96	8	8	0	0.0	11.3	36.4	26.1	43	--	76.5	--	110	--
COBALT	0-12	16	14	2	12.5	8.3	13.6	10.6	NL	--	NL	--	NL	--
COBALT	0-6	34	28	6	17.6	3.7	14.0	9.4	NL	--	NL	--	NL	--
COBALT	12-36	19	18	1	5.3	5.3	16.0	10.1	NL	--	NL	--	NL	--
COBALT	36-60	7	5	2	28.6	8.8	13.4	10.9	NL	--	NL	--	NL	--
COBALT	60-96	8	6	2	25.0	5.3	11.8	9.3	NL	--	NL	--	NL	--
COPPER	0-12	16	16	0	0.0	24.5	178.0	56.6	32	81	91	12	150	6
COPPER	0-6	34	34	0	0.0	10.6	145.0	40.9	32	56	91	6	150	--
COPPER	12-36	19	19	0	0.0	20.2	321.0	63.4	32	79	91	11	150	5
COPPER	36-60	7	7	0	0.0	19.4	114.0	48.6	32	57	91	14	150	--
COPPER	60-96	8	8	0	0.0	8.0	179.0	54.3	32	88	91	12	150	12
VANADIUM	0-12	16	16	0	0.0	25.3	68.8	42.7	NL	--	NL	--	NL	--
VANADIUM	0-6	34	34	0	0.0	19.2	59.1	39.0	NL	--	NL	--	NL	--
VANADIUM	12-36	19	19	0	0.0	23.5	59.8	40.8	NL	--	NL	--	NL	--
VANADIUM	36-60	7	7	0	0.0	25.4	50.2	37.8	NL	--	NL	--	NL	--
VANADIUM	60-96	8	8	0	0.0	23.0	44.1	35.7	NL	--	NL	--	NL	--
ZINC	0-12	16	16	0	0.0	86.4	605.0	209.8	120	81	290	19	460	6
ZINC	0-6	34	34	0	0.0	44.2	487.0	141.7	120	41	290	6	460	3
ZINC	12-36	19	19	0	0.0	71.4	945.0	229.4	120	74	290	11	460	11
ZINC	36-60	7	7	0	0.0	72.2	656.0	230.6	120	71	290	29	460	14
ZINC	60-96	8	8	0	0.0	24.4	810.0	212.9	120	62	290	12	460	12
CALCIUM	0-12	16	16	0	0.0	4760.0	24100.0	11471.9	NL	--	NL	--	NL	--
CALCIUM	0-6	34	34	0	0.0	4450.0	19500.0	10977.9	NL	--	NL	--	NL	--
CALCIUM	12-36	19	19	0	0.0	3770.0	20200.0	12826.3	NL	--	NL	--	NL	--
CALCIUM	36-60	7	7	0	0.0	3730.0	18000.0	11354.3	NL	--	NL	--	NL	--
CALCIUM	60-96	8	8	0	0.0	6260.0	15300.0	11407.5	NL	--	NL	--	NL	--
SELENIUM	0-12	16	0	16	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	0-6	34	0	34	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	12-36	19	1	18	94.7	1.8	1.8	1.8	NL	--	NL	--	NL	--
SELENIUM	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
POTASSIUM	0-12	16	16	0	0.0	625.0	1850.0	1258.4	NL	--	NL	--	NL	--
POTASSIUM	0-6	34	31	3	8.8	506.0	2110.0	1238.2	NL	--	NL	--	NL	--
POTASSIUM	12-36	19	16	3	15.8	610.0	2400.0	1346.3	NL	--	NL	--	NL	--
POTASSIUM	36-60	7	6	1	14.3	719.0	1880.0	1318.2	NL	--	NL	--	NL	--
POTASSIUM	60-96	8	6	2	25.0	872.0	1560.0	1258.7	NL	--	NL	--	NL	--
PCB Aroclors (µg/kg)														
AROCLOR-1260, OCN	0-12	3	2	1	33.3	11.3	19.7	15.5	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	0-6	17	6	11	64.7	9.8	271.3	58.8	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	12-36	4	2	2	50.0	16.8	81.5	49.1	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1260, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	0-12	3	2	1	33.3	13.9	21.5	17.7	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	0-6	17	4	13	76.5	4.6	21.6	14.4	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	12-36	4	3	1	25.0	16.8	88.9	42.7	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	36-60	1	1	0	0.0	5.1	5.1	5.1	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	0-6	17	0	17	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	0-6	17	0	17	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	0-6	17	0	17	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	0-6	17	0	17	100.0	--	--	--	NL	--	NL	--	NL	--

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
AROCLOR-1248, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	0-6	17	0	17	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	0-6	17	0	17	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	0-12	3	0	3	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	0-6	17	0	17	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	12-36	4	0	4	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	36-60	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	60-96	1	0	1	100.0	--	--	--	NL	--	NL	--	NL	--
TOTAL PCBs, OCN	0-12	3	2	1	33.3	25.2	41.3	33.3	60	--	368	--	676	--
TOTAL PCBs, OCN	0-6	17	7	10	58.8	4.6	271.3	58.6	60	6	368	--	676	--
TOTAL PCBs, OCN	12-36	4	3	1	25.0	22.4	170.4	75.4	60	25	368	--	676	--
TOTAL PCBs, OCN	36-60	1	1	0	0.0	5.1	5.1	5.1	60	--	368	--	676	--
TOTAL PCBs, OCN	60-96	1	0	1	100.0	--	--	--	60	--	368	--	676	--
TCL Pesticides (µg/kg)														
HEPTACHLOR EPOXIDE, OCN	0-12	16	2	14	87.5	1.0	3.8	2.4	2.5	6	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	0-6	34	2	32	94.1	2.8	38.7	20.7	2.5	6	9.3	3	16	3
HEPTACHLOR EPOXIDE, OCN	12-36	19	1	18	94.7	3.0	3.0	3.0	2.5	5	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	36-60	7	2	5	71.4	0.3	2.2	1.2	2.5	--	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	60-96	8	0	8	100.0	--	--	--	2.5	--	9.3	--	16	--
ENDOSULFAN SULFATE, OCN	0-12	16	0	16	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	0-6	34	2	32	94.1	0.9	3.4	2.2	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	12-36	19	1	18	94.7	1.7	1.7	1.7	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
ALDRIN, OCN	0-12	16	2	14	87.5	1.1	1.6	1.4	2	--	41	--	80	--
ALDRIN, OCN	0-6	34	3	31	91.2	0.5	1.4	1.0	2	--	41	--	80	--
ALDRIN, OCN	12-36	19	0	19	100.0	--	--	--	2	--	41	--	80	--
ALDRIN, OCN	36-60	7	0	7	100.0	--	--	--	2	--	41	--	80	--
ALDRIN, OCN	60-96	8	0	8	100.0	--	--	--	2	--	41	--	80	--
ALPHA-BHC, OCN	0-12	16	0	16	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	0-6	34	0	34	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	12-36	19	0	19	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	36-60	7	0	7	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	60-96	8	1	7	87.5	0.1	0.1	0.1	6	--	53	--	100	--
BETA-BHC, OCN	0-12	16	1	15	93.8	1.3	1.3	1.3	5	--	108	--	210	--
BETA-BHC, OCN	0-6	34	1	33	97.1	11.0	11.0	11.0	5	3	108	--	210	--
BETA-BHC, OCN	12-36	19	0	19	100.0	--	--	--	5	--	108	--	210	--
BETA-BHC, OCN	36-60	7	0	7	100.0	--	--	--	5	--	108	--	210	--
BETA-BHC, OCN	60-96	8	0	8	100.0	--	--	--	5	--	108	--	210	--
DELTA-BHC, OCN	0-12	16	0	16	100.0	--	--	--	3	--	62	--	120	--
DELTA-BHC, OCN	0-6	34	1	33	97.1	0.2	0.2	0.2	3	--	62	--	120	--
DELTA-BHC, OCN	12-36	19	1	18	94.7	0.3	0.3	0.3	3	--	62	--	120	--
DELTA-BHC, OCN	36-60	7	1	6	85.7	0.2	0.2	0.2	3	--	62	--	120	--
DELTA-BHC, OCN	60-96	8	0	8	100.0	--	--	--	3	--	62	--	120	--
ENDOSULFAN II, OCN	0-12	16	0	16	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	0-6	34	0	34	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	12-36	19	0	19	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
4,4'-DDT, OCN	0-12	16	5	11	68.8	1.0	6.9	2.9	4.2	6	33.6	--	63	--
4,4'-DDT, OCN	0-6	34	3	31	91.2	2.6	77.3	28.2	4.2	6	33.6	3	63	3
4,4'-DDT, OCN	12-36	19	4	15	78.9	1.1	47.3	14.4	4.2	11	33.6	5	63	--
4,4'-DDT, OCN	36-60	7	1	6	85.7	3.2	3.2	3.2	4.2	--	33.6	--	63	--
4,4'-DDT, OCN	60-96	8	1	7	87.5	2.6	2.6	2.6	4.2	--	33.6	--	63	--
ALPHA-CHLORDANE, OCN	0-12	16	0	16	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	0-6	34	0	34	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	12-36	19	0	19	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	36-60	7	0	7	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	60-96	8	0	8	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	0-12	16	0	16	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	0-6	34	0	34	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	12-36	19	0	19	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	36-60	7	0	7	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	60-96	8	0	8	100.0	--	--	--	3.2	--	10.6	--	18	--
ENDRIN KETONE, OCN	0-12	16	1	15	93.8	1.4	1.4	1.4	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	0-6	34	0	34	100.0	--	--	--	NL	--	NL	--	NL	--

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
ENDRIN KETONE, OCN	12-36	19	1	18	94.7	1.5	1.5	1.5	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	36-60	7	1	6	85.7	1.1	1.1	1.1	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	60-96	8	1	7	87.5	0.9	0.9	0.9	NL	--	NL	--	NL	--
GAMMA-BHC (LINDANE), OCN	0-12	16	0	16	100.0	--	--	--	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	0-6	34	0	34	100.0	--	--	--	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	12-36	19	1	18	94.7	0.6	0.6	0.6	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	36-60	7	1	6	85.7	0.4	0.4	0.4	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	60-96	8	0	8	100.0	--	--	--	3	--	4	--	5	--
DIELDRIN, OCN	0-12	16	0	16	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	0-6	34	0	34	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	12-36	19	0	19	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	36-60	7	0	7	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	60-96	8	0	8	100.0	--	--	--	1.9	--	32	--	62	--
ENDRIN, OCN	0-12	16	1	15	93.8	2.0	2.0	2.0	2.2	--	104.6	--	207	--
ENDRIN, OCN	0-6	34	2	32	94.1	1.8	5.5	3.7	2.2	3	104.6	--	207	--
ENDRIN, OCN	12-36	19	2	17	89.5	1.7	2.7	2.2	2.2	5	104.6	--	207	--
ENDRIN, OCN	36-60	7	1	6	85.7	1.1	1.1	1.1	2.2	--	104.6	--	207	--
ENDRIN, OCN	60-96	8	0	8	100.0	--	--	--	2.2	--	104.6	--	207	--
METHOXYCLOR, OCN	0-12	16	0	16	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	0-6	34	1	33	97.1	5.9	5.9	5.9	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	12-36	19	0	19	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	60-96	8	1	7	87.5	5.0	5.0	5.0	NL	--	NL	--	NL	--
4,4'-DDD, OCN	0-12	16	2	14	87.5	1.1	2.7	1.9	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	0-6	34	1	33	97.1	1.4	1.4	1.4	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	12-36	19	1	18	94.7	8.5	8.5	8.5	4.9	5	16.5	--	28	--
4,4'-DDD, OCN	36-60	7	1	6	85.7	2.2	2.2	2.2	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	60-96	8	2	6	75.0	1.8	3.6	2.7	4.9	--	16.5	--	28	--
4,4'-DDE, OCN	0-12	16	1	15	93.8	0.9	0.9	0.9	3.2	--	17	--	31	--
4,4'-DDE, OCN	0-6	34	1	33	97.1	2.3	2.3	2.3	3.2	--	17	--	31	--
4,4'-DDE, OCN	12-36	19	0	19	100.0	--	--	--	3.2	--	17	--	31	--
4,4'-DDE, OCN	36-60	7	1	6	85.7	2.2	2.2	2.2	3.2	--	17	--	31	--
4,4'-DDE, OCN	60-96	8	1	7	87.5	1.6	1.6	1.6	3.2	--	17	--	31	--
ENDRIN ALDEHYDE, OCN	0-12	16	2	14	87.5	0.9	0.9	0.9	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	0-6	34	4	30	88.2	1.1	4.1	2.3	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	12-36	19	1	18	94.7	1.0	1.0	1.0	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	0-12	16	0	16	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	0-6	34	0	34	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	12-36	19	0	19	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TOXAPHENE, OCN	0-12	16	0	16	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	0-6	34	0	34	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	12-36	19	0	19	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	36-60	7	0	7	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	60-96	8	0	8	100.0	--	--	--	1	--	1.5	--	2	--
ENDOSULFAN I, OCN	0-12	16	2	14	87.5	0.9	1.1	1.0	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	0-6	34	0	34	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	12-36	19	0	19	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TPH (mg/kg)														
DRO	0-12	16	16	0	0.0	16.0	350.0	148.6	NL	--	NL	--	NL	--
DRO	0-6	34	34	0	0.0	26.0	400.0	108.1	NL	--	NL	--	NL	--
DRO	12-36	19	19	0	0.0	32.0	540.0	164.7	NL	--	NL	--	NL	--
DRO	36-60	7	6	1	14.3	57.0	230.0	103.0	NL	--	NL	--	NL	--
DRO	60-96	8	8	0	0.0	11.0	730.0	202.8	NL	--	NL	--	NL	--
ORO	0-12	16	16	0	0.0	19.0	650.0	212.1	NL	--	NL	--	NL	--
ORO	0-6	34	34	0	0.0	24.0	700.0	157.6	NL	--	NL	--	NL	--
ORO	12-36	19	19	0	0.0	40.0	850.0	218.6	NL	--	NL	--	NL	--
ORO	36-60	7	7	0	0.0	11.0	260.0	112.3	NL	--	NL	--	NL	--
ORO	60-96	8	8	0	0.0	17.0	710.0	249.5	NL	--	NL	--	NL	--
Organotin (µg/kg)														
DIBUTYLTIN, OCN	0-12	16	5	11	68.8	0.8	1.1	0.9	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	0-6	34	12	22	64.7	0.2	7.7	1.5	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	12-36	19	4	15	78.9	0.4	0.9	0.7	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	36-60	7	1	6	85.7	1.0	1.0	1.0	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	0-12	16	0	16	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	0-6	34	0	34	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	12-36	19	0	19	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	0-12	16	0	16	100.0	--	--	--	NL	--	NL	--	NL	--

Table 3-1b
Summary of Area 1 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
MONOBUTYLTIN, OCN	0-6	34	0	34	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	12-36	19	0	19	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	36-60	7	0	7	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	NL	--	NL	--	NL	--
TRIBUTYLTIN, OCN	0-12	16	8	8	50.0	0.4	5.7	2.1	0.52	44	1.73	19	2.94	19
TRIBUTYLTIN, OCN	0-6	34	22	12	35.3	0.3	64.6	5.0	0.52	56	1.73	18	2.94	12
TRIBUTYLTIN, OCN	12-36	19	6	13	68.4	0.3	3.7	1.8	0.52	26	1.73	16	2.94	5
TRIBUTYLTIN, OCN	36-60	7	1	6	85.7	2.8	2.8	2.8	0.52	14	1.73	14	2.94	--
TRIBUTYLTIN, OCN	60-96	8	0	8	100.0	--	--	--	0.52	--	1.73	--	2.94	--

Notes:
% - Percent
"--" - Not Applicable
bss - below sediment surface
DL - Detection Limit
DRO - Diesel Range Organic
MEC - Median Effects Concentration
mg/kg - Milligram per kilogram
ND - Non-Detect
NL - Not Listed
OCN - Organic Carbon Normalized
ORO - Oil Range Organic
PAH - Polycylic Aromatic Hydrocarbon
PCB - Polychlorinated Biphenyls
PEC - Probable Effect Concentration
SQG - Sediment Quality Guidelines
TAL - Target Analyte List
TCL - Target Compound List
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
TPH - Total Petroleum Hydrocarbon
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources

TOTAL PAHs 17 - Calculated by WESTON (sum of detections plus 1/2 DL for NDs)
TOTAL PAHs 34 - Calculated by WESTON (sum of detections plus 1/2 DL for NDs)
TOTAL PCBs - Calculated by WESTON (sum of detections)

[1] WDNR Consensus-Based SQGs

Table 3-1c
Summary of Area 2 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
PAHs (17 and 34 list) (µg/kg)														
ANTHRACENE, OCN	0-12	6	6	0	0.0	7.0	153.8	39.1	57.2	17	451	--	845	--
ANTHRACENE, OCN	0-6	21	21	0	0.0	2.6	472.8	51.8	57.2	10	451	5	845	--
ANTHRACENE, OCN	12-36	11	10	1	9.1	2.1	80.5	34.0	57.2	9	451	--	845	--
ANTHRACENE, OCN	36-60	2	1	1	50.0	106.7	106.7	106.7	57.2	50	451	--	845	--
PYRENE, OCN	0-12	6	6	0	0.0	57.4	384.6	194.3	195	33	858	--	1520	--
PYRENE, OCN	0-6	20	20	0	0.0	24.6	1016.5	172.2	195	20	858	5	1520	--
PYRENE, OCN	12-36	11	10	1	9.1	35.1	432.1	222.6	195	45	858	--	1520	--
PYRENE, OCN	36-60	2	1	1	50.0	719.6	719.6	719.6	195	50	858	--	1520	--
BENZO(G,H,I)PERYLENE, OCN	0-12	6	6	0	0.0	25.6	160.7	82.4	170	--	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	0-6	21	19	2	9.5	7.4	142.5	59.5	170	--	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	12-36	11	10	1	9.1	17.1	185.2	80.3	170	9	1685	--	3200	--
BENZO(G,H,I)PERYLENE, OCN	36-60	2	1	1	50.0	186.1	186.1	186.1	170	50	1685	--	3200	--
BENZO(E)PYRENE, OCN	0-6	8	6	2	25.0	8.7	104.0	49.0	150	--	800	--	1450	--
INDENO(1,2,3-CD)PYRENE, OCN	0-12	6	6	0	0.0	20.1	148.8	70.8	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	0-6	21	19	2	9.5	7.2	119.7	52.7	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	12-36	11	10	1	9.1	13.5	135.8	67.9	200	--	1700	--	3200	--
INDENO(1,2,3-CD)PYRENE, OCN	36-60	2	1	1	50.0	173.7	173.7	173.7	200	--	1700	--	3200	--
PERYLENE, OCN	0-6	9	7	2	22.2	2.6	77.1	34.2	NL	--	NL	--	NL	--
BENZO(B)FLUORANTHENE, OCN	0-12	6	6	0	0.0	40.2	208.3	121.0	240	--	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	0-6	20	19	1	5.0	16.4	193.2	91.1	240	--	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	12-36	11	10	1	9.1	27.0	200.6	122.0	240	--	6820	--	13400	--
BENZO(B)FLUORANTHENE, OCN	36-60	2	1	1	50.0	347.4	347.4	347.4	240	50	6820	--	13400	--
FLUORANTHENE, OCN	0-12	6	6	0	0.0	53.3	528.8	221.6	423	17	1327	--	2230	--
FLUORANTHENE, OCN	0-6	20	20	0	0.0	26.8	1560.3	215.7	423	10	1327	5	2230	--
FLUORANTHENE, OCN	12-36	11	10	1	9.1	29.7	401.2	228.0	423	--	1327	--	2230	--
FLUORANTHENE, OCN	36-60	2	1	1	50.0	744.4	744.4	744.4	423	50	1327	--	2230	--
BENZO(K)FLUORANTHENE, OCN	0-12	6	6	0	0.0	20.1	148.8	74.4	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	0-6	21	20	1	4.8	5.1	139.6	53.7	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	12-36	11	10	1	9.1	11.7	153.3	74.5	240	--	6820	--	13400	--
BENZO(K)FLUORANTHENE, OCN	36-60	2	1	1	50.0	163.8	163.8	163.8	240	--	6820	--	13400	--
ACENAPHTHYLENE, OCN	0-12	6	6	0	0.0	2.5	14.9	5.7	5.9	17	67	--	128	--
ACENAPHTHYLENE, OCN	0-6	21	18	3	14.3	1.2	19.4	7.0	5.9	43	67	--	128	--
ACENAPHTHYLENE, OCN	12-36	11	9	2	18.2	1.9	18.5	7.3	5.9	55	67	--	128	--
ACENAPHTHYLENE, OCN	36-60	2	1	1	50.0	9.7	9.7	9.7	5.9	50	67	--	128	--
1,2-BENZPHENANTHRACENE, OCN	0-12	6	6	0	0.0	36.9	196.4	110.9	166	33	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	0-6	21	21	0	0.0	7.1	567.4	94.0	166	10	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	12-36	11	10	1	9.1	18.0	206.9	116.6	166	18	728	--	1290	--
1,2-BENZPHENANTHRACENE, OCN	36-60	2	1	1	50.0	421.8	421.8	421.8	166	50	728	--	1290	--
BENZO(A)PYRENE, OCN	0-12	6	6	0	0.0	38.2	261.9	119.3	150	17	800	--	1450	--
BENZO(A)PYRENE, OCN	0-6	20	20	0	0.0	13.4	496.5	96.8	150	10	800	--	1450	--
BENZO(A)PYRENE, OCN	12-36	11	10	1	9.1	21.6	216.0	108.0	150	18	800	--	1450	--
BENZO(A)PYRENE, OCN	36-60	2	1	1	50.0	297.8	297.8	297.8	150	50	800	--	1450	--
DIBENZ(A,H)ANTHRACENE, OCN	0-12	6	6	0	0.0	6.0	47.0	20.6	33	17	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	0-6	21	21	0	0.0	1.9	85.1	18.2	33	10	84	5	135	--
DIBENZ(A,H)ANTHRACENE, OCN	12-36	11	10	1	9.1	4.1	43.2	21.4	33	9	84	--	135	--
DIBENZ(A,H)ANTHRACENE, OCN	36-60	2	1	1	50.0	57.1	57.1	57.1	33	50	84	--	135	--
BENZO(A)ANTHRACENE, OCN	0-12	6	6	0	0.0	32.8	220.2	114.4	108	50	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	0-6	21	20	1	4.8	11.5	591.0	94.3	108	19	579	5	1050	--
BENZO(A)ANTHRACENE, OCN	12-36	11	10	1	9.1	17.1	195.4	100.1	108	18	579	--	1050	--
BENZO(A)ANTHRACENE, OCN	36-60	2	1	1	50.0	397.0	397.0	397.0	108	50	579	--	1050	--
ACENAPHTHENE, OCN	0-12	6	5	1	16.7	2.0	62.5	16.3	6.7	33	48	17	89	--
ACENAPHTHENE, OCN	0-6	21	18	3	14.3	1.3	90.7	14.0	6.7	38	48	10	89	5
ACENAPHTHENE, OCN	12-36	11	8	3	27.3	3.2	20.4	12.4	6.7	64	48	--	89	--
ACENAPHTHENE, OCN	36-60	2	1	1	50.0	37.2	37.2	37.2	6.7	50	48	--	89	--
PHENANTHRENE, OCN	0-12	6	6	0	0.0	21.3	528.8	137.2	204	17	687	--	1170	--
PHENANTHRENE, OCN	0-6	20	20	0	0.0	7.9	1513.0	154.3	204	10	687	5	1170	5
PHENANTHRENE, OCN	12-36	11	10	1	9.1	12.6	314.9	139.7	204	18	687	--	1170	--
PHENANTHRENE, OCN	36-60	2	1	1	50.0	620.3	620.3	620.3	204	50	687	--	1170	--
FLUORENE, OCN	0-12	6	6	0	0.0	3.5	79.8	19.6	77.4	17	307	--	536	--
FLUORENE, OCN	0-6	21	18	3	14.3	1.9	81.7	13.5	77.4	5	307	--	536	--
FLUORENE, OCN	12-36	11	9	2	18.2	7.2	36.0	20.5	77.4	--	307	--	536	--
FLUORENE, OCN	36-60	2	1	1	50.0	47.1	47.1	47.1	77.4	--	307	--	536	--
1-METHYLNAPHTHALENE, OCN	0-6	9	9	0	0.0	1.3	44.9	13.0	NL	--	NL	--	NL	--
NAPHTHALENE, OCN	0-12	6	6	0	0.0	4.0	55.8	14.8	176	--	369	--	561	--
NAPHTHALENE, OCN	0-6	21	19	2	9.5	1.9	1044.0	66.8	176	5	369	5	561	5
NAPHTHALENE, OCN	12-36	11	9	2	18.2	1.1	23.7	14.6	176	--	369	--	561	--
NAPHTHALENE, OCN	36-60	2	1	1	50.0	34.7	34.7	34.7	176	--	369	--	561	--
2-METHYLNAPHTHALENE, OCN	0-12	6	6	0	0.0	5.0	28.8	11.9	20.2	17	111	--	201	--
2-METHYLNAPHTHALENE, OCN	0-6	21	17	4	19.0	1.8	49.6	14.2	20.2	14	111	--	201	--
2-METHYLNAPHTHALENE, OCN	12-36	11	8	3	27.3	8.2	38.3	19.8	20.2	27	111	--	201	--
2-METHYLNAPHTHALENE, OCN	36-60	2	1	1	50.0	39.7	39.7	39.7	20.2	50	111	--	201	--
C1-CHRYSENES, OCN	0-6	9	9	0	0.0	6.4	378.3	93.1	NL	--	NL	--	NL	--
C1-FLUORANTHENES/ PYRENES, OCN	0-6	9	9	0	0.0	11.9	898.3	202.5	NL	--	NL	--	NL	--
C1-FLUORENES, OCN	0-6	9	9	0	0.0	1.1	78.0	17.1	NL	--	NL	--	NL	--

Table 3-1c
Summary of Area 2 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
C1-NAPHTHALENES, OCN	0-6	9	9	0	0.0	1.9	54.4	17.1	NL	--	NL	--	NL	--
C1-PHENANTHRENES/ ANTHRACENES, OCN	0-6	9	9	0	0.0	7.6	638.3	137.7	NL	--	NL	--	NL	--
C2-CHRYSENES, OCN	0-6	9	9	0	0.0	4.5	146.6	59.3	NL	--	NL	--	NL	--
C2-FLUORANTHENES/ PYRENES, OCN	0-6	9	9	0	0.0	7.4	307.3	97.2	NL	--	NL	--	NL	--
C2-FLUORENES, OCN	0-6	9	9	0	0.0	2.3	56.7	22.2	NL	--	NL	--	NL	--
C2-NAPHTHALENES, OCN	0-6	9	9	0	0.0	3.2	94.6	30.4	NL	--	NL	--	NL	--
C2-PHENANTHRENES/ ANTHRACENES, OCN	0-6	9	9	0	0.0	7.4	283.7	101.1	NL	--	NL	--	NL	--
C3-CHRYSENES, OCN	0-6	9	9	0	0.0	4.5	113.5	59.3	NL	--	NL	--	NL	--
C3-FLUORANTHENES/ PYRENES, OCN	0-6	9	9	0	0.0	4.9	153.7	63.2	NL	--	NL	--	NL	--
C3-FLUORENES, OCN	0-6	9	8	1	11.1	3.6	59.6	32.5	NL	--	NL	--	NL	--
C3-NAPHTHALENES, OCN	0-6	9	9	0	0.0	3.6	70.9	29.2	NL	--	NL	--	NL	--
C3-PHENANTHRENES/ ANTHRACENES, OCN	0-6	9	9	0	0.0	6.6	161.6	72.4	NL	--	NL	--	NL	--
C4-CHRYSENES, OCN	0-6	9	8	1	11.1	2.6	70.2	32.3	NL	--	NL	--	NL	--
C4-NAPHTHALENES, OCN	0-6	9	9	0	0.0	2.3	40.4	22.1	NL	--	NL	--	NL	--
C4-PHENANTHRENES/ ANTHRACENES, OCN	0-6	9	9	0	0.0	4.0	101.0	44.7	NL	--	NL	--	NL	--
TOTAL PAHs 17, OCN	0-12	6	6	0	0.0	405.2	2781.6	1371.7	1610	33	12205	--	22800	--
TOTAL PAHs 17, OCN	0-6	21	21	0	0.0	161.8	7910.6	1276.2	1610	19	12205	--	22800	--
TOTAL PAHs 17, OCN	12-36	11	11	0	0.0	42.5	2463.6	1259.0	1610	27	12205	--	22800	--
TOTAL PAHs 17, OCN	36-60	2	2	0	0.0	31.2	4404.2	2217.7	1610	50	12205	--	22800	--
TOTAL PAHs 34, OCN	0-6	9	9	0	0.0	244.8	11520.6	2810.1	1610	44	12205	--	22800	--
TAL Metals (mg/kg)														
ALUMINUM	0-12	6	6	0	0.0	6490.0	11100.0	8676.7	NL	--	NL	--	NL	--
ALUMINUM	0-6	21	21	0	0.0	2710.0	17900.0	11042.4	NL	--	NL	--	NL	--
ALUMINUM	12-36	11	11	0	0.0	3610.0	26500.0	10547.3	NL	--	NL	--	NL	--
ALUMINUM	36-60	2	2	0	0.0	6270.0	14500.0	10385.0	NL	--	NL	--	NL	--
IRON	0-12	6	6	0	0.0	13900.0	24800.0	18283.3	20000	33	30000	--	40000	--
IRON	0-6	21	21	0	0.0	7460.0	38000.0	25038.6	20000	71	30000	43	40000	--
IRON	12-36	11	11	0	0.0	9780.0	34600.0	20916.4	20000	45	30000	9	40000	--
IRON	36-60	2	2	0	0.0	12700.0	25800.0	19250.0	20000	50	30000	--	40000	--
LEAD	0-12	6	6	0	0.0	31.8	251.0	107.9	36	83	83	50	130	33
LEAD	0-6	21	21	0	0.0	14.0	1140.0	145.6	36	76	83	57	130	33
LEAD	12-36	11	11	0	0.0	4.6	186.0	77.8	36	82	83	36	130	9
LEAD	36-60	2	2	0	0.0	2.8	51.1	27.0	36	50	83	--	130	--
MAGNESIUM	0-12	6	6	0	0.0	4270.0	7960.0	5635.0	NL	--	NL	--	NL	--
MAGNESIUM	0-6	21	21	0	0.0	1500.0	13200.0	7357.6	NL	--	NL	--	NL	--
MAGNESIUM	12-36	11	11	0	0.0	2150.0	13100.0	6316.4	NL	--	NL	--	NL	--
MAGNESIUM	36-60	2	2	0	0.0	6970.0	13800.0	10385.0	NL	--	NL	--	NL	--
MANGANESE	0-12	6	6	0	0.0	191.0	495.0	321.0	460	17	780	--	1100	--
MANGANESE	0-6	21	21	0	0.0	79.5	1250.0	581.7	460	57	780	33	1100	10
MANGANESE	12-36	11	11	0	0.0	138.0	1040.0	391.0	460	27	780	9	1100	--
MANGANESE	36-60	2	2	0	0.0	281.0	486.0	383.5	460	50	780	--	1100	--
MERCURY	0-12	6	6	0	0.0	0.0	0.6	0.3	0.18	67	0.64	--	1.1	--
MERCURY	0-6	21	21	0	0.0	0.0	0.7	0.3	0.18	67	0.64	5	1.1	--
MERCURY	12-36	11	11	0	0.0	0.0	0.5	0.2	0.18	45	0.64	--	1.1	--
MERCURY	36-60	2	2	0	0.0	0.0	0.4	0.2	0.18	50	0.64	--	1.1	--
NICKEL	0-12	6	6	0	0.0	13.7	23.2	17.8	23	17	36	--	49	--
NICKEL	0-6	21	21	0	0.0	6.2	35.7	24.4	23	71	36	--	49	--
NICKEL	12-36	11	11	0	0.0	8.2	42.8	21.4	23	45	36	9	49	--
NICKEL	36-60	2	2	0	0.0	14.3	26.2	20.3	23	50	36	--	49	--
SILVER	0-12	6	1	5	83.3	0.0	0.0	0.0	1.6	--	1.9	--	2.2	--
SILVER	0-6	21	1	20	95.2	0.1	0.1	0.1	1.6	--	1.9	--	2.2	--
SILVER	12-36	11	2	9	81.8	0.1	0.1	0.1	1.6	--	1.9	--	2.2	--
SILVER	36-60	2	0	2	100.0	--	--	--	1.6	--	1.9	--	2.2	--
SODIUM	0-12	6	0	6	100.0	--	--	--	NL	--	NL	--	NL	--
SODIUM	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
SODIUM	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
SODIUM	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
THALLIUM	0-12	6	1	5	83.3	1.3	1.3	1.3	NL	--	NL	--	NL	--
THALLIUM	0-6	21	1	20	95.2	0.4	0.4	0.4	NL	--	NL	--	NL	--
THALLIUM	12-36	11	2	9	81.8	1.0	1.7	1.3	NL	--	NL	--	NL	--
THALLIUM	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
ANTIMONY	0-12	6	6	0	0.0	0.8	1.6	1.2	2	--	13.5	--	25	--
ANTIMONY	0-6	21	21	0	0.0	0.4	2.2	1.5	2	10	13.5	--	25	--
ANTIMONY	12-36	11	11	0	0.0	0.7	2.3	1.4	2	9	13.5	--	25	--
ANTIMONY	36-60	2	2	0	0.0	0.7	1.5	1.1	2	--	13.5	--	25	--
ARSENIC	0-12	6	6	0	0.0	2.7	6.4	4.2	9.8	--	21.4	--	33	--
ARSENIC	0-6	21	21	0	0.0	1.8	8.8	5.5	9.8	--	21.4	--	33	--
ARSENIC	12-36	11	11	0	0.0	2.3	5.7	4.5	9.8	--	21.4	--	33	--
ARSENIC	36-60	2	2	0	0.0	2.3	5.0	3.7	9.8	--	21.4	--	33	--
BARIUM	0-12	6	6	0	0.0	49.9	130.0	77.5	NL	--	NL	--	NL	--

Table 3-1c
Summary of Area 2 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
BARIUM	0-6	21	21	0	0.0	16.2	285.0	126.3	NL	--	NL	--	NL	--
BARIUM	12-36	11	11	0	0.0	27.1	190.0	93.6	NL	--	NL	--	NL	--
BARIUM	36-60	2	2	0	0.0	43.8	136.0	89.9	NL	--	NL	--	NL	--
BERYLLIUM	0-12	6	6	0	0.0	0.4	0.7	0.5	NL	--	NL	--	NL	--
BERYLLIUM	0-6	21	20	1	4.8	0.2	1.0	0.6	NL	--	NL	--	NL	--
BERYLLIUM	12-36	11	10	1	9.1	0.3	1.2	0.6	NL	--	NL	--	NL	--
BERYLLIUM	36-60	2	2	0	0.0	0.3	0.8	0.5	NL	--	NL	--	NL	--
CADMIUM	0-12	6	1	5	83.3	0.7	0.7	0.7	0.99	--	3	--	5	--
CADMIUM	0-6	21	1	20	95.2	1.1	1.1	1.1	0.99	5	3	--	5	--
CADMIUM	12-36	11	3	8	72.7	0.6	0.8	0.7	0.99	--	3	--	5	--
CADMIUM	36-60	2	0	2	100.0	--	--	--	0.99	--	3	--	5	--
CHROMIUM	0-12	6	6	0	0.0	16.3	27.0	20.9	43	--	76.5	--	110	--
CHROMIUM	0-6	21	21	0	0.0	6.8	46.8	28.9	43	14	76.5	--	110	--
CHROMIUM	12-36	11	11	0	0.0	10.2	50.5	26.4	43	9	76.5	--	110	--
CHROMIUM	36-60	2	2	0	0.0	16.0	25.7	20.9	43	--	76.5	--	110	--
COBALT	0-12	6	6	0	0.0	5.7	8.6	7.2	NL	--	NL	--	NL	--
COBALT	0-6	21	20	1	4.8	3.2	12.9	9.2	NL	--	NL	--	NL	--
COBALT	12-36	11	10	1	9.1	5.9	17.1	8.6	NL	--	NL	--	NL	--
COBALT	36-60	2	2	0	0.0	6.4	10.1	8.3	NL	--	NL	--	NL	--
COPPER	0-12	6	6	0	0.0	16.4	67.2	32.9	32	50	91	--	150	--
COPPER	0-6	21	21	0	0.0	6.3	74.3	43.1	32	67	91	--	150	--
COPPER	12-36	11	11	0	0.0	9.9	60.2	33.9	32	64	91	--	150	--
COPPER	36-60	2	2	0	0.0	10.5	44.5	27.5	32	50	91	--	150	--
VANADIUM	0-12	6	6	0	0.0	25.4	40.8	31.1	NL	--	NL	--	NL	--
VANADIUM	0-6	21	21	0	0.0	15.3	87.2	47.4	NL	--	NL	--	NL	--
VANADIUM	12-36	11	11	0	0.0	19.3	65.2	36.6	NL	--	NL	--	NL	--
VANADIUM	36-60	2	2	0	0.0	25.7	38.2	32.0	NL	--	NL	--	NL	--
ZINC	0-12	6	6	0	0.0	62.9	317.0	141.5	120	33	290	17	460	--
ZINC	0-6	21	21	0	0.0	33.1	442.0	165.7	120	76	290	10	460	--
ZINC	12-36	11	11	0	0.0	36.8	249.0	145.8	120	64	290	--	460	--
ZINC	36-60	2	2	0	0.0	40.1	130.0	85.1	120	50	290	--	460	--
CALCIUM METAL	0-12	6	6	0	0.0	3980.0	11900.0	7095.0	NL	--	NL	--	NL	--
CALCIUM METAL	0-6	21	21	0	0.0	1230.0	22900.0	11005.2	NL	--	NL	--	NL	--
CALCIUM METAL	12-36	11	11	0	0.0	3560.0	14800.0	7824.5	NL	--	NL	--	NL	--
CALCIUM METAL	36-60	2	2	0	0.0	9860.0	25400.0	17630.0	NL	--	NL	--	NL	--
SELENIUM	0-12	6	0	6	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
SELENIUM	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
POTASSIUM	0-12	6	5	1	16.7	661.0	1090.0	837.0	NL	--	NL	--	NL	--
POTASSIUM	0-6	21	14	7	33.3	721.0	2050.0	1507.9	NL	--	NL	--	NL	--
POTASSIUM	12-36	11	6	5	45.5	630.0	2450.0	1206.7	NL	--	NL	--	NL	--
POTASSIUM	36-60	2	2	0	0.0	584.0	1810.0	1197.0	NL	--	NL	--	NL	--
PCB Aroclors (µg/kg)														
AROCLOR-1260, OCN	0-6	9	2	7	77.8	8.2	18.6	13.4	NL	--	NL	--	NL	--
AROCLOR-1254, OCN	0-6	9	2	7	77.8	9.1	20.6	14.9	NL	--	NL	--	NL	--
AROCLOR-1268, OCN	0-6	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1221, OCN	0-6	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1232, OCN	0-6	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1248, OCN	0-6	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1016, OCN	0-6	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1262, OCN	0-6	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
AROCLOR-1242, OCN	0-6	9	0	9	100.0	--	--	--	NL	--	NL	--	NL	--
TOTAL PCBs, OCN	0-6	9	2	7	77.8	17.2	39.2	28.2	60	--	368	--	676	--
TCL Pesticides (µg/kg)														
HEPTACHLOR EPOXIDE, OCN	0-12	6	0	6	100.0	--	--	--	2.5	--	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	0-6	21	2	19	90.5	0.6	0.9	0.8	2.5	--	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	12-36	11	0	11	100.0	--	--	--	2.5	--	9.3	--	16	--
HEPTACHLOR EPOXIDE, OCN	36-60	2	0	2	100.0	--	--	--	2.5	--	9.3	--	16	--
ENDOSULFAN SULFATE, OCN	0-12	6	1	5	83.3	0.5	0.5	0.5	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	0-6	21	1	20	95.2	5.5	5.5	5.5	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	12-36	11	1	10	90.9	0.8	0.8	0.8	NL	--	NL	--	NL	--
ENDOSULFAN SULFATE, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
ALDRIN, OCN	0-12	6	3	3	50.0	0.5	14.6	5.5	2	17	41	--	80	--
ALDRIN, OCN	0-6	21	1	20	95.2	0.9	0.9	0.9	2	--	41	--	80	--
ALDRIN, OCN	12-36	11	1	10	90.9	0.8	0.8	0.8	2	--	41	--	80	--
ALDRIN, OCN	36-60	2	1	1	50.0	0.6	0.6	0.6	2	--	41	--	80	--
ALPHA-BHC, OCN	0-12	6	2	4	66.7	0.2	1.2	0.7	6	--	53	--	100	--
ALPHA-BHC, OCN	0-6	21	0	21	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	12-36	11	0	11	100.0	--	--	--	6	--	53	--	100	--
ALPHA-BHC, OCN	36-60	2	0	2	100.0	--	--	--	6	--	53	--	100	--
BETA-BHC, OCN	0-12	6	0	6	100.0	--	--	--	5	--	108	--	210	--
BETA-BHC, OCN	0-6	21	0	21	100.0	--	--	--	5	--	108	--	210	--
BETA-BHC, OCN	12-36	11	0	11	100.0	--	--	--	5	--	108	--	210	--
BETA-BHC, OCN	36-60	2	0	2	100.0	--	--	--	5	--	108	--	210	--
DELTA-BHC, OCN	0-12	6	0	6	100.0	--	--	--	3	--	62	--	120	--

Table 3-1c
Summary of Area 2 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
DELTA-BHC, OCN	0-6	21	1	20	95.2	0.2	0.2	0.2	3	--	62	--	120	--
DELTA-BHC, OCN	12-36	11	0	11	100.0	--	--	--	3	--	62	--	120	--
DELTA-BHC, OCN	36-60	2	0	2	100.0	--	--	--	3	--	62	--	120	--
ENDOSULFAN II, OCN	0-12	6	0	6	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN II, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
4,4'-DDT, OCN	0-12	6	0	6	100.0	--	--	--	4.2	--	33.6	--	63	--
4,4'-DDT, OCN	0-6	21	1	20	95.2	0.6	0.6	0.6	4.2	--	33.6	--	63	--
4,4'-DDT, OCN	12-36	11	0	11	100.0	--	--	--	4.2	--	33.6	--	63	--
4,4'-DDT, OCN	36-60	2	0	2	100.0	--	--	--	4.2	--	33.6	--	63	--
ALPHA-CHLORDANE, OCN	0-12	6	0	6	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	0-6	21	0	21	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	12-36	11	0	11	100.0	--	--	--	3.2	--	10.6	--	18	--
ALPHA-CHLORDANE, OCN	36-60	2	0	2	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	0-12	6	1	5	83.3	19.7	19.7	19.7	3.2	17	10.6	17	18	17
GAMMA-CHLORDANE, OCN	0-6	21	0	21	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	12-36	11	0	11	100.0	--	--	--	3.2	--	10.6	--	18	--
GAMMA-CHLORDANE, OCN	36-60	2	0	2	100.0	--	--	--	3.2	--	10.6	--	18	--
ENDRIN KETONE, OCN	0-12	6	1	5	83.3	0.4	0.4	0.4	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	12-36	11	2	9	81.8	0.5	1.1	0.8	NL	--	NL	--	NL	--
ENDRIN KETONE, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
GAMMA-BHC (LINDANE), OCN	0-12	6	0	6	100.0	--	--	--	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	0-6	21	0	21	100.0	--	--	--	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	12-36	11	0	11	100.0	--	--	--	3	--	4	--	5	--
GAMMA-BHC (LINDANE), OCN	36-60	2	0	2	100.0	--	--	--	3	--	4	--	5	--
DIELDRIN, OCN	0-12	6	0	6	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	0-6	21	1	20	95.2	0.7	0.7	0.7	1.9	--	32	--	62	--
DIELDRIN, OCN	12-36	11	0	11	100.0	--	--	--	1.9	--	32	--	62	--
DIELDRIN, OCN	36-60	2	0	2	100.0	--	--	--	1.9	--	32	--	62	--
ENDRIN, OCN	0-12	6	0	6	100.0	--	--	--	2.2	--	104.6	--	207	--
ENDRIN, OCN	0-6	21	2	19	90.5	0.6	1.7	1.2	2.2	--	104.6	--	207	--
ENDRIN, OCN	12-36	11	0	11	100.0	--	--	--	2.2	--	104.6	--	207	--
ENDRIN, OCN	36-60	2	0	2	100.0	--	--	--	2.2	--	104.6	--	207	--
METHOXYCLOR, OCN	0-12	6	0	6	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
METHOXYCLOR, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
4,4'-DDD, OCN	0-12	6	1	5	83.3	0.7	0.7	0.7	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	0-6	21	1	20	95.2	0.6	0.6	0.6	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	12-36	11	0	11	100.0	--	--	--	4.9	--	16.5	--	28	--
4,4'-DDD, OCN	36-60	2	0	2	100.0	--	--	--	4.9	--	16.5	--	28	--
4,4'-DDE, OCN	0-12	6	0	6	100.0	--	--	--	3.2	--	17	--	31	--
4,4'-DDE, OCN	0-6	21	0	21	100.0	--	--	--	3.2	--	17	--	31	--
4,4'-DDE, OCN	12-36	11	0	11	100.0	--	--	--	3.2	--	17	--	31	--
4,4'-DDE, OCN	36-60	2	0	2	100.0	--	--	--	3.2	--	17	--	31	--
ENDRIN ALDEHYDE, OCN	0-12	6	0	6	100.0	--	--	--	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
ENDRIN ALDEHYDE, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	0-12	6	1	5	83.3	0.6	0.6	0.6	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
HEPTACHLOR, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
TOXAPHENE, OCN	0-12	6	0	6	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	0-6	21	0	21	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	12-36	11	0	11	100.0	--	--	--	1	--	1.5	--	2	--
TOXAPHENE, OCN	36-60	2	0	2	100.0	--	--	--	1	--	1.5	--	2	--
ENDOSULFAN I, OCN	0-12	6	2	4	66.7	0.5	0.8	0.7	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	12-36	11	1	10	90.9	0.4	0.4	0.4	NL	--	NL	--	NL	--
ENDOSULFAN I, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
TPH (mg/kg)														
DRO	0-12	6	6	0	0.0	32.0	430.0	162.2	NL	--	NL	--	NL	--
DRO	0-6	21	21	0	0.0	28.0	450.0	148.0	NL	--	NL	--	NL	--
DRO	12-36	11	11	0	0.0	4.0	340.0	163.2	NL	--	NL	--	NL	--
DRO	36-60	2	2	0	0.0	5.0	190.0	97.5	NL	--	NL	--	NL	--
ORO	0-12	6	6	0	0.0	40.0	500.0	223.3	NL	--	NL	--	NL	--
ORO	0-6	21	21	0	0.0	52.0	540.0	215.8	NL	--	NL	--	NL	--
ORO	12-36	11	10	1	9.1	28.0	610.0	235.6	NL	--	NL	--	NL	--
ORO	36-60	2	1	1	50.0	140.0	140.0	140.0	NL	--	NL	--	NL	--
Organotin (µg/kg)														
DIBUTYLTIN, OCN	0-12	6	1	5	83.3	0.6	0.6	0.6	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	0-6	21	5	16	76.2	0.5	1.1	0.7	NL	--	NL	--	NL	--
DIBUTYLTIN, OCN	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--

Table 3-1c
Summary of Area 2 Sediment Samples
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Analyte	Depth (inches bss)	No. of Results	No. of Detects	No. of Non-Detects	% Non-Detect	Minimum Detection	Maximum Detection	Average Detection	TEC[1]	% Above TEC	MEC[1]	% Above MEC	PEC[1]	% Above PEC
DIBUTYLTIN, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	0-12	6	0	6	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
TETRABUTYLTIN, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	0-12	6	0	6	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	0-6	21	0	21	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	12-36	11	0	11	100.0	--	--	--	NL	--	NL	--	NL	--
MONOBUTYLTIN, OCN	36-60	2	0	2	100.0	--	--	--	NL	--	NL	--	NL	--
TRIBUTYLTIN, OCN	0-12	6	1	5	83.3	0.8	0.8	0.8	0.52	17	1.73	--	2.94	--
TRIBUTYLTIN, OCN	0-6	21	8	13	61.9	0.5	2.6	1.2	0.52	33	1.73	5	2.94	--
TRIBUTYLTIN, OCN	12-36	11	0	11	100.0	--	--	--	0.52	--	1.73	--	2.94	--
TRIBUTYLTIN, OCN	36-60	2	0	2	100.0	--	--	--	0.52	--	1.73	--	2.94	--

Notes:
% - Percent
"--" - Not Applicable
bss - below sediment surface
DL - Detection Limit
DRO - Diesel Range Organic
MEC - Median Effects Concentration
mg/kg - Milligram per kilogram
ND - Non-Detect
NL - Not Listed
OCN - Organic Carbon Normalized
ORO - Oil Range Organic
PAH - Polycylic Aromatic Hydrocarbon
PCB - Polychlorinated Biphenyls
PEC - Probable Effect Concentration
SQG - Sediment Quality Guidelines
TAL - Target Analyte List
TCL - Target Compound List
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
TPH - Total Petroleum Hydrocarbon
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources

TOTAL PAHs 17 - Calculated by WESTON (sum of detections plus 1/2 DL for NDs)
TOTAL PAHs 34 - Calculated by WESTON (sum of detections plus 1/2 DL for NDs)
TOTAL PCBs - Calculated by WESTON (sum of detections)

[1] WDNR Consensus-Based SQGs

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-01		HB10-1-01		HB10-1-01		HB10-1-02		HB10-1-02	
				Field Sample ID	HB10-1-01-06		HB10-1-01-12		HB10-1-01-40		HB10-1-02-06		HB10-1-02-06DP	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	0- 6		0- 12		36- 40		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	130	60.19	7.1 U	7.1 U	5.1 U	5.1 U	120	48.78	120	54.79
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	28	12.96	7.1 U	7.1 U	5.1 U	5.1 U	14 J	5.69	11 J	5.02
ACENAPHTHENE	6.7	48	89	µg/kg	17	**7.87**	7.1 U	7.1 U	5.1 U	5.1 U	7 U	7 U	9 J	4.11
ACENAPHTHYLENE	5.9	67	128	µg/kg	9	4.17	7.1 U	7.1 U	5.1 U	5.1 U	11	4.47	11 J	5.02
ANTHRACENE	57.2	451	845	µg/kg	46	21.30	7.1 U	7.1 U	5.1 U	5.1 U	35 J	14.23	37 J	16.89
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	110	50.93	7.1 U	7.1 U	5.1 U	5.1 U	110	44.72	110	50.23
BENZO(A)PYRENE	150	800	1450	µg/kg	97	44.91	7.1 U	7.1 U	5.1 U	5.1 U	59	23.98	59	26.94
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	120 J	55.56	7.1 U	7.1 U	5.1 U	5.1 U	130 J	52.85	110 J	50.23
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	74	34.26	7.1 U	7.1 U	5.1 U	5.1 U	13	5.28	11	5.02
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	49 J	22.69	7.1 U	7.1 U	5.1 U	5.1 U	36	14.63	36	16.44
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	18	8.33	7.1 U	7.1 U	5.1 U	5.1 U	11	4.47	11	5.02
FLUORANTHENE	423	1327	2230	µg/kg	340	157.41	7.1 U	7.1 U	5.1 U	5.1 U	220	89.43	230	105.02
FLUORENE	77.4	307	536	µg/kg	22	10.19	7.1 U	7.1 U	5.1 U	5.1 U	10	4.07	12 J	5.48
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	63	29.17	7.1 U	7.1 U	5.1 U	5.1 U	39	15.85	37	16.89
NAPHTHALENE	176	369	561	µg/kg	29	13.43	7.1 U	7.1 U	5.1 U	5.1 U	16 J	6.50	15 J	6.85
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	270	125.00	7.1 U	7.1 U	5.1 U	5.1 U	86	34.96	110	50.23
PYRENE	195	858	1520	µg/kg	240	111.11	7.1 U	7.1 U	5.1 U	5.1 U	170	69.11	180	82.19
TOTAL PAHs 17	1610	12205	22800	µg/kg	1662	769.44	60.35	11.37	43.35	23.43	1083.5	440.45	1109	506.39
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	--	--	--	--
TOC	NL	NL	NL	%	2.16		5.31		1.85		2.46		2.19	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-02		HB10-1-03		HB10-1-03		HB10-1-03		HB10-1-03	
				Field Sample ID	HB10-1-02-23		HB10-1-03-06		HB10-1-03-12		HB10-1-03-36		HB10-1-03-60	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	12- 23		0- 6		0- 12		12- 36		36- 60	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	110	49.55	240	**1325.97**	110	69.18	100	50.76	230	89.49
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	10 J	4.50	28	**154.70**	12	7.55	12	6.09	38	14.79
ACENAPHTHENE	6.7	48	89	µg/kg	6	2.70	12	**66.30**	7	4.40	7	3.55	24	**9.34**
ACENAPHTHYLENE	5.9	67	128	µg/kg	7	3.15	19	**104.97**	8	5.03	8	4.06	17	**6.61**
ANTHRACENE	57.2	451	845	µg/kg	30 J	13.51	59	**325.97**	32	20.13	29	14.72	76	29.57
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	100	45.05	210	**1160.22**	97	61.01	93	47.21	200	77.82
BENZO(A)PYRENE	150	800	1450	µg/kg	56	25.23	200	**1104.97**	88	55.35	85	43.15	190	73.93
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	140 J	63.06	290 J	**1602.21**	100 J	62.89	110 J	55.84	240 J	93.39
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	43	19.37	170	**939.23**	51	32.08	44	22.34	150	58.37
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	34	15.32	110 J	**607.73**	37	23.27	42	21.32	97 J	37.74
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	10	4.50	26	**143.65**	12	7.55	11	5.58	25	9.73
FLUORANTHENE	423	1327	2230	µg/kg	220	99.10	420	**2320.44**	230	144.65	190	96.45	450	175.10
FLUORENE	77.4	307	536	µg/kg	10	4.50	23	**127.07**	13	8.18	12	6.09	32	12.45
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	37	16.67	150	**828.73**	43	27.04	37	18.78	130	50.58
NAPHTHALENE	176	369	561	µg/kg	12 J	5.41	49	**270.72**	12	7.55	16	8.12	43	16.73
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	92	41.44	170	**939.23**	110	69.18	88	44.67	250	97.28
PYRENE	195	858	1520	µg/kg	200	90.09	370	**2044.20**	180	113.21	160	81.22	510	**198.44**
TOTAL PAHs 17	1610	12205	22800	µg/kg	1117	503.15	2546	**14066.30**	1142	718.24	1044	529.95	2702	1051.36
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	--	--	--	--
TOC	NL	NL	NL	%	2.22		0.181		1.59		1.97		2.57	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-03		HB10-1-04		HB10-1-04		HB10-1-04		HB10-1-04	
				Field Sample ID	HB10-1-03-84		HB10-1-04-06		HB10-1-04-12		HB10-1-04-36		HB10-1-04-50	
				Sample Date	10/16/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	60- 84		0- 6		0- 12		12- 36		36- 50	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	240	123.71	140	74.47	260	102.77	140	42.42	160	34.48
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	6.2	3.30	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	38	19.59	8.2	4.36	34	13.44	27	8.18	24	5.17
ACENAPHTHENE	6.7	48	89	µg/kg	15	**7.73**	11	5.85	29	**11.46**	34	**10.30**	11	2.37
ACENAPHTHYLENE	5.9	67	128	µg/kg	19	**9.79**	5.8	3.09	9.1	3.60	12	3.64	11	2.37
ANTHRACENE	57.2	451	845	µg/kg	61	31.44	28	14.89	88	34.78	36	10.91	78	16.81
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	210	**108.25**	140	74.47	240	94.86	130	39.39	150	32.33
BENZO(A)PYRENE	150	800	1450	µg/kg	210	108.25	150	79.79	220	86.96	130	39.39	130	28.02
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	260 J	134.02	180	95.74	220	86.96	150	45.45	150	32.33
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	98	52.13	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	160	82.47	83	44.15	140	55.34	95	28.79	90	19.40
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	110 J	56.70	42	22.34	150 J	59.29	64 J	19.39	45	9.70
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	62 J	32.98	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	120 J	63.83	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	9.5 J	5.05	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	8.7 J	4.63	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	77 J	40.96	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	52 J	27.66	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	92 J	48.94	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	17 J	9.04	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	17 J	9.04	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	73 J	38.83	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	51 J	27.13	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	67 J	35.64	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	30 J	15.96	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	19 J	10.11	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	66 J	35.11	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	32 J	17.02	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	17 J	9.04	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	55 J	29.26	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	23	11.86	16	8.51	26	10.28	16	4.85	14	3.02
FLUORANTHENE	423	1327	2230	µg/kg	460	237.11	330	175.53	990	391.30	290	87.88	420	90.52
FLUORENE	77.4	307	536	µg/kg	26	13.40	15	7.98	31	12.25	23	6.97	22	4.74
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	130	67.01	77	40.96	120	47.43	53	16.06	51	10.99
NAPHTHALENE	176	369	561	µg/kg	36	18.56	9.6	5.11	85	33.60	29	8.79	150	32.33
PERYLENE	NL	NL	NL	µg/kg	NA	NA	70	37.23	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	210	108.25	180	95.74	280	110.67	180	54.55	250	53.88
PYRENE	195	858	1520	µg/kg	380	**195.88**	300	159.57	840	**332.02**	280	84.85	410	88.36
TOTAL PAHs 17	1610	12205	22800	µg/kg	2588	1334.02	1715.6	912.55	3762.1	1487.00	1689	511.82	2166	466.81
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	2581.6	1373.19	--	--	--	--	--	--
TOC	NL	NL	NL	%	1.94		1.88		2.53		3.3		4.64	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-05		HB10-1-05		HB10-1-06		HB10-1-06		HB10-1-06	
				Field Sample ID	HB10-1-05-06		HB10-1-05-06DP		HB10-1-06-06		HB10-1-06-06DP		HB10-1-06-12	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	340	159.62	120	61.22	220	95.24	150	61.98	180	91.37
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	9.3	4.37	7.2	3.67	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	13	6.10	9.4	4.80	12	5.19	19 J	7.85	22 J	11.17
ACENAPHTHENE	6.7	48	89	µg/kg	24	**11.27**	12	6.12	7	3.03	23	**9.50**	15	**7.61**
ACENAPHTHYLENE	5.9	67	128	µg/kg	13	**6.10**	7.8	3.98	11	4.76	11	4.55	12	**6.09**
ANTHRACENE	57.2	451	845	µg/kg	120	56.34	44	22.45	44	19.05	83	34.30	54 J	27.41
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	330	**154.93**	120	61.22	200	86.58	140	57.85	160	81.22
BENZO(A)PYRENE	150	800	1450	µg/kg	370	**173.71**	130	66.33	170	73.59	120	49.59	150	76.14
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	430	201.88	150	76.53	240 J	103.90	150 J	61.98	190 J	96.45
BENZO(E)PYRENE	150	800	1450	µg/kg	230	107.98	86	43.88	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	220	103.29	79	40.31	66	28.57	26	10.74	110	55.84
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	200	93.90	53	27.04	59	25.54	59	24.38	73 J	37.06
C1-CHRYSENES	NL	NL	NL	µg/kg	93 J	43.66	53 J	27.04	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	200 J	93.90	100 J	51.02	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	10 J	4.69	7 J	3.57	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	14 J	6.57	10 J	5.10	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	97 J	45.54	58 J	29.59	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	44 J	20.66	28 J	14.29	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	97 J	45.54	55 J	28.06	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	12 J	5.63	7.3 J	3.72	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	17 J	7.98	13 J	6.63	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	62 J	29.11	39 J	19.90	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	41 J	19.25	26 J	13.27	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	47 J	22.07	30 J	15.31	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	15 J	7.04	12 J	6.12	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	34 J	15.96	24 J	12.24	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	29 J	13.62	12 J	6.12	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	12 J	5.63	8.4 J	4.29	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	30 J	14.08	22 J	11.22	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	38	17.84	17	8.67	17	7.36	18	7.44	22	11.17
FLUORANTHENE	423	1327	2230	µg/kg	970	**455.40**	320	163.27	380	164.50	350	144.63	360	182.74
FLUORENE	77.4	307	536	µg/kg	31	14.55	16	8.16	12	5.19	37	15.29	19	9.64
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	190	89.20	70	35.71	57	24.68	64	26.45	96	48.73
NAPHTHALENE	176	369	561	µg/kg	21	9.86	16	8.16	13	5.63	21 J	8.68	23 J	11.68
PERYLENE	NL	NL	NL	µg/kg	120 U	120 U	33	16.84	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	480	**225.35**	170	86.73	130	56.28	320	132.23	170	86.29
PYRENE	195	858	1520	µg/kg	660	**309.86**	240	122.45	310	134.20	270	111.57	450	**228.43**
TOTAL PAHs 17	1610	12205	22800	µg/kg	4450	**2089.20**	1574.2	803.16	1948	843.29	1861	769.01	2106	1069.04
TOTAL PAHs 34	1610	12205	22800	µg/kg	5440.05	**2554.01**	2106.45	1074.72	--	--	--	--	--	--
TOC	NL	NL	NL	%	2.13		1.96		2.31		2.42		1.97	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-06		HB10-1-06		HB10-1-07		HB10-1-07		HB10-1-07	
				Field Sample ID	HB10-1-06-36		HB10-1-06-51		HB10-1-07-06		HB10-1-07-12		HB10-1-07-36	
				Sample Date	10/16/2010		10/16/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	12- 36		36- 51		0- 6		0- 12		12- 36	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	170	38.81	130	41.40	2600	**1140.35**	300	108.70	260	81.50
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	350	153.51	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	21	4.79	17 J	5.41	440	**192.98**	45	16.30	23	7.21
ACENAPHTHENE	6.7	48	89	µg/kg	11	2.51	7	2.23	810	**355.26**	18	6.52	11	3.45
ACENAPHTHYLENE	5.9	67	128	µg/kg	14	3.20	9	2.87	110 U	110 U	24	**8.70**	16	5.02
ANTHRACENE	57.2	451	845	µg/kg	42	9.59	28	8.92	2100	**921.05**	93	33.70	54	16.93
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	150	34.25	110	35.03	2800	**1228.07**	270	97.83	270	84.64
BENZO(A)PYRENE	150	800	1450	µg/kg	160	36.53	96	30.57	2300	**1008.77**	260	94.20	240	75.24
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	210 J	47.95	130 J	41.40	2300	**1008.77**	270	97.83	270	84.64
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	1100	**482.46**	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	56	12.79	25	7.96	930	**407.89**	180	65.22	170	53.29
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	83 J	18.95	53	16.88	1100	**482.46**	170	61.59	180	56.43
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	1300 J	570.18	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	3400 J	1491.23	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	350 J	153.51	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	460 J	201.75	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	2800 J	1228.07	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	450 J	197.37	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	1300 J	570.18	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	190 J	83.33	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	440 J	192.98	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	1000 J	438.60	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	370 J	162.28	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	550 J	241.23	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	110 U	110 U	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	270 J	118.42	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	400 J	175.44	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	110 U	110 U	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	120 J	52.63	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	180 J	78.95	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	21	4.79	16	5.10	300	**131.58**	33	11.96	28	8.78
FLUORANTHENE	423	1327	2230	µg/kg	290	66.21	220	70.06	7300	**3201.75**	550	199.28	540	169.28
FLUORENE	77.4	307	536	µg/kg	16	3.65	13	4.14	1400	**614.04**	26	9.42	22	6.90
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	110	25.11	49	15.61	920	**403.51**	160	57.97	160	50.16
NAPHTHALENE	176	369	561	µg/kg	17	3.88	17 J	5.41	570	**250.00**	45	16.30	28	8.78
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	480	210.53	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	140	31.96	96	30.57	8300	**3640.35**	280	101.45	220	68.97
PYRENE	195	858	1520	µg/kg	280	63.93	180	57.32	5000	**2192.98**	590	**213.77**	540	169.28
TOTAL PAHs 17	1610	12205	22800	µg/kg	1791	408.90	1196	380.89	39225	**17203.95**	3314	1200.72	3032	950.47
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	52205	**22896.93**	--	--	--	--
TOC	NL	NL	NL	%	4.38		3.14		2.28		2.76		3.19	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-07		HB10-1-08		HB10-1-08		HB10-1-08		HB10-1-10	
				Field Sample ID	HB10-1-07-64		HB10-1-08-06		HB10-1-08-12		HB10-1-08-36		HB10-1-10-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/18/2010	
				Depth Interval	60- 64		0- 6		0- 12		12- 36		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	4	3.54	170	44.16	230	57.36	340	61.71	1200	**334.26**
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	20	5.19	NA	NA	NA	NA	63 U	63 U
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	4 U	4 U	27	7.01	26	6.48	84	15.25	63 U	63 U
ACENAPHTHENE	6.7	48	89	µg/kg	4 U	4 U	20 J	5.19	14	3.49	29	5.26	220	**61.28**
ACENAPHTHYLENE	5.9	67	128	µg/kg	4 U	4 U	20 J	5.19	12	2.99	25	4.54	63 U	63 U
ANTHRACENE	57.2	451	845	µg/kg	4 U	4 U	71 U	71 U	52	12.97	85	15.43	910	**253.48**
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	4	3.54	160	41.56	210	52.37	290	52.63	970	**270.19**
BENZO(A)PYRENE	150	800	1450	µg/kg	4 U	4 U	190	49.35	200	49.88	290	52.63	930	**259.05**
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	4 U	4 U	240	62.34	240	59.85	330	59.89	1000	**278.55**
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	130	33.77	NA	NA	NA	NA	540	**150.42**
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	4 U	4 U	120	31.17	140	34.91	210	38.11	420	116.99
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	4 UJ	4 U	95	24.68	65	16.21	180	32.67	480	133.70
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	180 J	46.75	NA	NA	NA	NA	420 J	116.99
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	350 J	90.91	NA	NA	NA	NA	1200 J	334.26
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	20 J	5.19	NA	NA	NA	NA	69 J	19.22
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	30 J	7.79	NA	NA	NA	NA	63 U	63 U
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	170 J	44.16	NA	NA	NA	NA	680 J	189.42
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	130 J	33.77	NA	NA	NA	NA	180 J	50.14
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	220 J	57.14	NA	NA	NA	NA	380 J	105.85
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	47 J	12.21	NA	NA	NA	NA	88 J	24.51
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	68 J	17.66	NA	NA	NA	NA	79 J	22.01
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	160 J	41.56	NA	NA	NA	NA	390 J	108.64
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	130 J	33.77	NA	NA	NA	NA	130 J	36.21
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	150 J	38.96	NA	NA	NA	NA	210 J	58.50
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	73 J	18.96	NA	NA	NA	NA	120 J	33.43
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	60 J	15.58	NA	NA	NA	NA	78 J	21.73
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	150 J	38.96	NA	NA	NA	NA	210 J	58.50
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	72 J	18.70	NA	NA	NA	NA	63 U	63 U
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	51 J	13.25	NA	NA	NA	NA	63 U	63 U
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	210 J	54.55	NA	NA	NA	NA	120 J	33.43
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	4 U	4 U	43	11.17	25	6.23	33	5.99	100	27.86
FLUORANTHENE	423	1327	2230	µg/kg	12	10.62	460	119.48	410	102.24	900	163.34	3900	**1086.35**
FLUORENE	77.4	307	536	µg/kg	4 U	4 U	35 J	9.09	20	4.99	42	7.62	200	55.71
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	4 U	4 U	120	31.17	120	29.93	170	30.85	420	116.99
NAPHTHALENE	176	369	561	µg/kg	4 U	4 U	25	6.49	37	9.23	110	19.96	63 U	63 U
PERYLENE	NL	NL	NL	µg/kg	NA	NA	110	28.57	NA	NA	NA	NA	240	66.85
PHENANTHRENE	204	687	1170	µg/kg	6	5.31	190	49.35	190	47.38	290	52.63	2300	**640.67**
PYRENE	195	858	1520	µg/kg	10	8.85	360	93.51	400	99.75	940	170.60	2600	**724.23**
TOTAL PAHs 17	1610	12205	22800	µg/kg	60	53.10	2310.5	600.13	2391	596.26	4348	789.11	15744.5	**4385.65**
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	4424.5	--	--	--	--	--	20351.5	**5668.94**
TOC	NL	NL	NL	%	1.13		3.85		4.01		5.51		3.59	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-11		HB10-1-11		HB10-1-12		HB10-1-12		HB10-1-12	
				Field Sample ID	HB10-1-11-06		HB10-1-11-21		HB10-1-12-06		HB10-1-12-12		HB10-1-12-34	
				Sample Date	10/16/2010		10/16/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		12- 21		0- 6		0- 12		12- 34	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	120 J	37.97	170	44.85	220	64.71	260	58.56	130	8.02
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	13	4.11	NA	NA	17	5.00	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	18	5.70	30 J	7.92	24	7.06	65	14.64	16	0.99
ACENAPHTHENE	6.7	48	89	µg/kg	9.8	3.10	13 J	3.43	14	4.12	18	4.05	9 U	9 U
ACENAPHTHYLENE	5.9	67	128	µg/kg	8.7	2.75	15 J	3.96	15	4.41	24	5.41	10	0.62
ANTHRACENE	57.2	451	845	µg/kg	35	11.08	42 J	11.08	56	16.47	69	15.54	41	2.53
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	120 J	37.97	160	42.22	190	55.88	230	51.80	97	5.99
BENZO(A)PYRENE	150	800	1450	µg/kg	130 J	41.14	150	39.58	220	64.71	260	58.56	98	6.05
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	160 J	50.63	200 J	52.77	280	82.35	290	65.32	170	10.49
BENZO(E)PYRENE	150	800	1450	µg/kg	90 J	28.48	NA	NA	150	44.12	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	81 J	25.63	44	11.61	130	38.24	180	40.54	200	12.35
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	61	19.30	75 J	19.79	120	35.29	150	33.78	45 J	2.78
C1-CHRYSENES	NL	NL	NL	µg/kg	76 J	24.05	NA	NA	140 J	41.18	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	150 J	47.47	NA	NA	270 J	79.41	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	11 J	3.48	NA	NA	15 J	4.41	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	19 J	6.01	NA	NA	25 J	7.35	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	78 J	24.68	NA	NA	120 J	35.29	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	59 J	18.67	NA	NA	100 J	29.41	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	110 J	34.81	NA	NA	170 J	50.00	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	23 J	7.28	NA	NA	34 J	10.00	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	30 J	9.49	NA	NA	43 J	12.65	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	88 J	27.85	NA	NA	110 J	32.35	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	57 J	18.04	NA	NA	100 J	29.41	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	75 J	23.73	NA	NA	120 J	35.29	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	46 J	14.56	NA	NA	57 J	16.76	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	33 J	10.44	NA	NA	44 J	12.94	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	76 J	24.05	NA	NA	100 J	29.41	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	35 J	11.08	NA	NA	54 J	15.88	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	27 J	8.54	NA	NA	33 J	9.71	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	57 J	18.04	NA	NA	78 J	22.94	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	20	6.33	24	6.33	38	11.18	27	6.08	35	2.16
FLUORANTHENE	423	1327	2230	µg/kg	250 J	79.11	370 J	97.63	520	152.94	440	99.10	270	16.67
FLUORENE	77.4	307	536	µg/kg	16	5.06	18 J	4.75	24	7.06	32	7.21	14	0.86
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	80 J	25.32	93	24.54	120	35.29	150	33.78	69	4.26
NAPHTHALENE	176	369	561	µg/kg	20	6.33	28 J	7.39	23	6.76	96	21.62	20	1.23
PERYLENE	NL	NL	NL	µg/kg	66 J	20.89	NA	NA	110	32.35	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	100 J	31.65	150	39.58	210	61.76	180	40.54	150	9.26
PYRENE	195	858	1520	µg/kg	240 J	75.95	320 J	84.43	410	120.59	500	112.61	240	14.81
TOTAL PAHs 17	1610	12205	22800	µg/kg	1469.5	465.03	1902	501.85	2614	768.82	2971	669.14	1609.5	99.35
TOTAL PAHs 34	1610	12205	22800	µg/kg	2472.5	782.44	--	--	4173	1227.35	--	--	--	--
TOC	NL	NL	NL	%	3.16		3.79		3.4		4.44		16.2	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-13		HB10-1-13		HB10-1-13		HB10-1-13		HB10-1-14	
				Field Sample ID	HB10-1-13-06		HB10-1-13-12		HB10-1-13-36		HB10-1-13-67		HB10-1-14-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	0- 6		0- 12		12- 36		60- 67		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	300	89.29	430	156.36	270	134.33	440	**196.43**	280	98.59
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	32	9.52	NA	NA	NA	NA	NA	NA	15	5.28
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	50	14.88	48	17.45	24	11.94	48	**21.43**	19	6.69
ACENAPHTHENE	6.7	48	89	µg/kg	46	**13.69**	32	**11.64**	38	**18.91**	50	**22.32**	21	**7.39**
ACENAPHTHYLENE	5.9	67	128	µg/kg	29	**8.63**	25	**9.09**	16	**7.96**	24	**10.71**	13	4.58
ANTHRACENE	57.2	451	845	µg/kg	110	32.74	110	40.00	110	54.73	150	**66.96**	98	34.51
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	230	68.45	430	**156.36**	280	**139.30**	360	**160.71**	300	105.63
BENZO(A)PYRENE	150	800	1450	µg/kg	300	89.29	530	**192.73**	340	**169.15**	510	**227.68**	310	109.15
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	320	95.24	430	156.36	380	189.05	430	191.96	370	130.28
BENZO(E)PYRENE	150	800	1450	µg/kg	200	59.52	NA	NA	NA	NA	NA	NA	200	70.42
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	200	59.52	400	145.45	240	119.40	360	160.71	160	56.34
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	160	47.62	330	120.00	310	154.23	430	191.96	170	59.86
C1-CHRYSENES	NL	NL	NL	µg/kg	200 J	59.52	NA	NA	NA	NA	NA	NA	140 J	49.30
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	380 J	113.10	NA	NA	NA	NA	NA	NA	250 J	88.03
C1-FLUORENES	NL	NL	NL	µg/kg	35 J	10.42	NA	NA	NA	NA	NA	NA	16 J	5.63
C1-NAPHTHALENES	NL	NL	NL	µg/kg	52 J	15.48	NA	NA	NA	NA	NA	NA	21 J	7.39
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	240 J	71.43	NA	NA	NA	NA	NA	NA	150 J	52.82
C2-CHRYSENES	NL	NL	NL	µg/kg	170 J	50.60	NA	NA	NA	NA	NA	NA	84 J	29.58
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	280 J	83.33	NA	NA	NA	NA	NA	NA	160 J	56.34
C2-FLUORENES	NL	NL	NL	µg/kg	81 J	24.11	NA	NA	NA	NA	NA	NA	33 J	11.62
C2-NAPHTHALENES	NL	NL	NL	µg/kg	100 J	29.76	NA	NA	NA	NA	NA	NA	37 J	13.03
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	280 J	83.33	NA	NA	NA	NA	NA	NA	140 J	49.30
C3-CHRYSENES	NL	NL	NL	µg/kg	160 J	47.62	NA	NA	NA	NA	NA	NA	82 J	28.87
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	200 J	59.52	NA	NA	NA	NA	NA	NA	86 J	30.28
C3-FLUORENES	NL	NL	NL	µg/kg	130 J	38.69	NA	NA	NA	NA	NA	NA	57 J	20.07
C3-NAPHTHALENES	NL	NL	NL	µg/kg	140 J	41.67	NA	NA	NA	NA	NA	NA	41 J	14.44
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	320 J	95.24	NA	NA	NA	NA	NA	NA	90 J	31.69
C4-CHRYSENES	NL	NL	NL	µg/kg	92 J	27.38	NA	NA	NA	NA	NA	NA	41 J	14.44
C4-NAPHTHALENES	NL	NL	NL	µg/kg	120 J	35.71	NA	NA	NA	NA	NA	NA	34 J	11.97
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	160 J	47.62	NA	NA	NA	NA	NA	NA	80 J	28.17
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	49	14.58	110	**40.00**	69	**34.33**	100	**44.64**	34	11.97
FLUORANTHENE	423	1327	2230	µg/kg	750	223.21	820	298.18	450	223.88	950	**424.11**	660	232.39
FLUORENE	77.4	307	536	µg/kg	57	16.96	45	16.36	48	23.88	99	44.20	27	9.51
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	200	59.52	330	120.00	200	99.50	300	133.93	160	56.34
NAPHTHALENE	176	369	561	µg/kg	53	15.77	40	14.55	24	11.94	42	18.75	18	6.34
PERYLENE	NL	NL	NL	µg/kg	120	35.71	NA	NA	NA	NA	NA	NA	140	49.30
PHENANTHRENE	204	687	1170	µg/kg	360	107.14	410	149.09	350	174.13	670	**299.11**	280	98.59
PYRENE	195	858	1520	µg/kg	540	160.71	750	**272.73**	470	**233.83**	870	**388.39**	630	**221.83**
TOTAL PAHs 17	1610	12205	22800	µg/kg	3754	1117.26	5270	**1916.36**	3619	**1800.50**	5833	**2604.02**	3550	1250.00
TOTAL PAHs 34	1610	12205	22800	µg/kg	6684	**1989.29**	--	--	--	--	--	--	5167	**1819.37**
TOC	NL	NL	NL	%	3.36		2.75		2.01		2.24		2.84	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-14		HB10-1-14		HB10-1-14		HB10-1-15		HB10-1-15	
				Field Sample ID	HB10-1-14-12		HB10-1-14-36		HB10-1-14-66		HB10-1-15-06		HB10-1-15-16	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		60- 66		0- 6		12- 16	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	190	69.09	260	65.33	280	63.35	9.9	5.76	260	23.64
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	27	9.82	43	10.80	54	12.22	4.3 U	4.3 U	33	3.00
ACENAPHTHENE	6.7	48	89	µg/kg	12 J	4.36	20	5.03	25	5.66	4.3 U	4.3 U	28	2.55
ACENAPHTHYLENE	5.9	67	128	µg/kg	9.8	3.56	21	5.28	18	4.07	4.3 U	4.3 U	24	2.18
ANTHRACENE	57.2	451	845	µg/kg	48	17.45	72	18.09	94	21.27	4.3 U	4.3 U	89 J	8.09
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	200	72.73	260	65.33	280	63.35	10	5.81	260	23.64
BENZO(A)PYRENE	150	800	1450	µg/kg	190	69.09	310	77.89	270	61.09	10	5.81	300	27.27
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	230	83.64	380	95.48	320	72.40	13	7.56	340	30.91
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	7.7	4.48	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	130	47.27	230	57.79	180	40.72	6.6	3.84	320	29.09
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	52	18.91	160	40.20	130	29.41	5.6	3.26	240	21.82
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	7.7 J	4.48	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	18 J	10.47	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	7.7 J	4.48	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	6.6 J	3.84	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	12 J	6.98	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	8.5 J	4.94	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	9 J	5.23	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	20 J	11.63	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	4.3 U	4.3 U	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	46 J	26.74	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	18	6.55	33	8.29	27 J	6.11	4.3 U	4.3 U	37	3.36
FLUORANTHENE	423	1327	2230	µg/kg	370	134.55	560	140.70	900	203.62	27	15.70	570	51.82
FLUORENE	77.4	307	536	µg/kg	18	6.55	28	7.04	34	7.69	4.3 U	4.3 U	41	3.73
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	120	43.64	200	50.25	160	36.20	6.1	3.55	170	15.45
NAPHTHALENE	176	369	561	µg/kg	35	12.73	36	9.05	50	11.31	4.3 U	4.3 U	33	3.00
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	5.6	3.26		NA
PHENANTHRENE	204	687	1170	µg/kg	160	58.18	240	60.30	320	72.40	11	6.40	340 J	30.91
PYRENE	195	858	1520	µg/kg	350	127.27	460	115.58	720	162.90	21	12.21	510	46.36
TOTAL PAHs 17	1610	12205	22800	µg/kg	2159.8	785.38	3313	832.41	3862	873.76	135.25	78.63	3595	326.82
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	280.25	162.94	--	--
TOC	NL	NL	NL	%	2.75		3.98		4.42		1.72		11	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-16		HB10-1-16		HB10-1-16		HB10-1-17		HB10-1-20	
				Field Sample ID	HB10-1-16-06		HB10-1-16-12		HB10-1-16-31		HB10-1-17-06		HB10-1-20-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 12		12- 31		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	400	**186.92**	700	157.30	320	39.26	150	18.32	1400	**673.08**
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	8.2	3.83	340 U	340 U	36	4.42	21	2.56	47 U	47 U
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	12	5.61	340 U	340 U	49	6.01	28	3.42	49	**23.56**
ACENAPHTHENE	6.7	48	89	µg/kg	30	**14.02**	340 U	340 U	56	**6.87**	16 J	1.95	140	**67.31**
ACENAPHTHYLENE	5.9	67	128	µg/kg	11	5.14	340 U	340 U	47	5.77	19 J	2.32	120	**57.69**
ANTHRACENE	57.2	451	845	µg/kg	120	56.07	340 U	340 U	160 U	160 U	61	7.45	610	**293.27**
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	330	**154.21**	620	**139.33**	340	41.72	140	17.09	1400	**673.08**
BENZO(A)PYRENE	150	800	1450	µg/kg	400	**186.92**	680	**152.81**	340	41.72	160	19.54	1400	**673.08**
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	480	224.30	680	152.81	390	47.85	200	24.42	1200	**576.92**
BENZO(E)PYRENE	150	800	1450	µg/kg	250	116.82	380	85.39	220	26.99	120	14.65	760	**365.38**
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	230	107.48	360	80.90	200	24.54	100	12.21	700	**336.54**
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	200	93.46	340 J	76.40	190	23.31	91	11.11	640	**307.69**
C1-CHRYSENES	NL	NL	NL	µg/kg	130 J	60.75	750 J	168.54	440 J	53.99	160 J	19.54	550 J	264.42
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	310 J	144.86	1600 J	359.55	850 J	104.29	260 J	31.75	1500 J	721.15
C1-FLUORENES	NL	NL	NL	µg/kg	19 J	8.88	130 J	29.21	59 J	7.24	16 J	1.95	67 J	32.21
C1-NAPHTHALENES	NL	NL	NL	µg/kg	12 J	5.61	140 J	31.46	53 J	6.50	29 J	3.54	51 J	24.52
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	140 J	65.42	1100 J	247.19	460 J	56.44	140 J	17.09	910 J	437.50
C2-CHRYSENES	NL	NL	NL	µg/kg	66 J	30.84	470 J	105.62	370 J	45.40	110 J	13.43	210 J	100.96
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	130 J	60.75	850 J	191.01	570 J	69.94	180 J	21.98	540 J	259.62
C2-FLUORENES	NL	NL	NL	µg/kg	21 J	9.81	210 J	47.19	140 J	17.18	44 J	5.37	67 J	32.21
C2-NAPHTHALENES	NL	NL	NL	µg/kg	21 J	9.81	220 J	49.44	110 J	13.50	57 J	6.96	59 J	28.37
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	93 J	43.46	1100 J	247.19	680 J	83.44	150 J	18.32	510 J	245.19
C3-CHRYSENES	NL	NL	NL	µg/kg	59 J	27.57	400 J	89.89	330 J	40.49	110 J	13.43	160 J	76.92
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	69 J	32.24	560 J	125.84	470 J	57.67	120 J	14.65	210 J	100.96
C3-FLUORENES	NL	NL	NL	µg/kg	38 J	17.76	390 J	87.64	280 J	34.36	67 J	8.18	47 U	47 U
C3-NAPHTHALENES	NL	NL	NL	µg/kg	20 J	9.35	240 J	53.93	130 J	15.95	58 J	7.08	67 J	32.21
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	60 J	28.04	890 J	200.00	720 J	88.34	140 J	17.09	220 J	105.77
C4-CHRYSENES	NL	NL	NL	µg/kg	25 J	11.68	210 J	47.19	160 J	19.63	68 J	8.30	47 U	47 U
C4-NAPHTHALENES	NL	NL	NL	µg/kg	14 J	6.54	200 J	44.94	140 J	17.18	48 J	5.86	46 J	22.12
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	57 J	26.64	810 J	182.02	640 J	78.53	140 J	17.09	95 J	45.67
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	120 U	120 U	340 U	340 U	160 U	160 U	39	4.76	160	**76.92**
FLUORANTHENE	423	1327	2230	µg/kg	1000	**467.29**	1700	382.02	870	106.75	350	42.74	3300	**1586.54**
FLUORENE	77.4	307	536	µg/kg	47	21.96	340 U	340 U	160 U	160 U	28 J	3.42	160	76.92
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	220	102.80	350	78.65	190	23.31	100	12.21	740	**355.77**
NAPHTHALENE	176	369	561	µg/kg	15	7.01	340 U	340 U	56	6.87	26	3.17	68	32.69
PERYLENE	NL	NL	NL	µg/kg	120	56.07	340 U	340 U	200	24.54	86	10.50	280	134.62
PHENANTHRENE	204	687	1170	µg/kg	430	200.93	1200	**269.66**	370	45.40	130	15.87	1800	**865.38**
PYRENE	195	858	1520	µg/kg	670	**313.08**	1500	**337.08**	690	84.66	280	34.19	2800	**1346.15**
TOTAL PAHs 17	1610	12205	22800	µg/kg	4655	**2175.23**	9320	**2094.38**	4348	533.50	1918	234.19	16687	**8022.60**
TOTAL PAHs 34	1610	12205	22800	µg/kg	6098	**2849.53**	18560	**4170.79**	10281	1261.47	3693	450.92	22237	**10690.87**
TOC	NL	NL	NL	%	2.14		4.45		8.15		8.19		2.08	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-21		HB10-1-21		HB10-1-23		HB10-1-23		HB10-1-23	
				Field Sample ID	HB10-1-21-06		HB10-1-21-23		HB10-1-23-06		HB10-1-23-06DP		HB10-1-23-12	
				Sample Date	10/18/2010		10/18/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		12- 23		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	63	74.20	180	133.33	170	37.61	180	41.57	270	50.09
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	4.4 J	5.18	23 R		NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	6.3 J	7.42	23 J	17.04	19	4.20	21	4.85	49	9.09
ACENAPHTHENE	6.7	48	89	µg/kg	7.8 J	**9.19**	27 J	**20.00**	8	1.77	10	2.31	19	3.53
ACENAPHTHYLENE	5.9	67	128	µg/kg	6.9 J	**8.13**	23 R		12	2.65	12	2.77	20	3.71
ANTHRACENE	57.2	451	845	µg/kg	27 J	31.80	110 J	**81.48**	46	10.18	46	10.62	120	22.26
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	54	63.60	180	**133.33**	170	37.61	170	39.26	260	48.24
BENZO(A)PYRENE	150	800	1450	µg/kg	62	73.03	210	**155.56**	160	35.40	150	34.64	240	44.53
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	79	93.05	240	177.78	170	37.61	190	43.88	270	50.09
BENZO(E)PYRENE	150	800	1450	µg/kg	45	53.00	180 J	133.33	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	44	51.83	160 J	118.52	100	22.12	100	23.09	160	29.68
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	42 U	42 U	130 J	96.30	54 J	11.95	59 J	13.63	140	25.97
C1-CHRYSENES	NL	NL	NL	µg/kg	67 J	78.92	170 J	125.93	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	120 J	141.34	340 J	251.85	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	8 J	9.42	27 J	20.00	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	6.7 J	7.89	24 J	17.78	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	58 J	68.32	170 J	125.93	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	55 J	64.78	150 J	111.11	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	83 J	97.76	250 J	185.19	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	22 J	25.91	64 J	47.41	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	16 J	18.85	50 J	37.04	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	75 J	88.34	230 J	170.37	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	52 J	61.25	130 J	96.30	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	63 J	74.20	180 J	133.33	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	34 J	40.05	130 J	96.30	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	25 J	29.45	77 J	57.04	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	83 J	97.76	270 J	200.00	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	32 J	37.69	81 J	60.00	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	23 J	27.09	88 J	65.19	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	55 J	64.78	150 J	111.11	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	14 J	16.49	40 J	29.63	19	4.20	18	4.16	29	5.38
FLUORANTHENE	423	1327	2230	µg/kg	150	176.68	470	348.15	290	64.16	300	69.28	530	98.33
FLUORENE	77.4	307	536	µg/kg	11 J	12.96	32 J	23.70	13	2.88	15	3.46	26	4.82
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	42 U	42 U	150 J	111.11	65	14.38	120	27.71	140	25.97
NAPHTHALENE	176	369	561	µg/kg	6.6 J	7.77	23 R		18	3.98	18	4.16	41	7.61
PERYLENE	NL	NL	NL	µg/kg	36 J	42.40	100 J	74.07	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	61	71.85	210	155.56	160	35.40	170	39.26	220	40.82
PYRENE	195	858	1520	µg/kg	120	141.34	370	**274.07**	310	68.58	330	76.21	550	102.04
TOTAL PAHs 17	1610	12205	22800	µg/kg	754.6	888.81	2532	**1875.56**	1784	394.69	1909	440.88	3084	572.17
TOTAL PAHs 34	1610	12205	22800	µg/kg	1561	**1838.63**	4940	**3659.26**	--	--	--	--	--	--
TOC	NL	NL	NL	%	0.849		1.35		4.52		4.33		5.39	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-23		HB10-1-24		HB10-1-24		HB10-1-24		HB10-1-25	
				Field Sample ID	HB10-1-23-36		HB10-1-24-06		HB10-1-24-12		HB10-1-24-36		HB10-1-25-06	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	12- 36		0- 6		0- 12		12- 36		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	330	44.96	200	36.04	490	87.97	680	113.90	140	35.62
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	16	2.88	51	9.16	53	8.88	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	92	12.53	22	3.96	86	15.44	88	14.74	23	5.85
ACENAPHTHENE	6.7	48	89	µg/kg	26	3.54	37 J	6.67	40	**7.18**	67	**11.22**	11	2.80
ACENAPHTHYLENE	5.9	67	128	µg/kg	37	5.04	12 J	2.16	32	5.75	37	**6.20**	9.4	2.39
ANTHRACENE	57.2	451	845	µg/kg	110	14.99	92	16.58	130	23.34	260	43.55	47	11.96
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	300	40.87	160	28.83	420	75.40	550	92.13	140	35.62
BENZO(A)PYRENE	150	800	1450	µg/kg	310	42.23	200	36.04	520	93.36	660	110.55	130	33.08
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	350	47.68	200	36.04	550	98.74	670	112.23	160	40.71
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	110	19.82	330	59.25	420	70.35	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	230	31.34	120	21.62	330	59.25	370	61.98	71	18.07
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	230	31.34	120	21.62	260	46.68	330	55.28	50	12.72
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	110 J	19.82	320 J	57.45	420 J	70.35	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	230 J	41.44	660 J	118.49	850 J	142.38	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	16 J	2.88	40 J	7.18	64 J	10.72	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	24 J	4.32	81 J	14.54	81 J	13.57	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	150 J	27.03	360 J	64.63	590 J	98.83	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	54 J	9.73	240 J	43.09	250 J	41.88	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	120 J	21.62	490 J	87.97	560 J	93.80	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	26 J	4.68	140 J	25.13	190 J	31.83	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	29 J	5.23	150 J	26.93	180 J	30.15	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	90 J	16.22	570 J	102.33	760 J	127.30	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	42 J	7.57	230 J	41.29	230 J	38.53	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	55 J	9.91	340 J	61.04	410 J	68.68	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	35 J	6.31	270 J	48.47	390 J	65.33	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	30 J	5.41	220 J	39.50	380 J	63.65	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	52 J	9.37	590 J	105.92	620 J	103.85	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	22 J	3.96	110 J	19.75	110 J	18.43	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	25 J	4.50	290 J	52.06	430 J	72.03	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	29 J	5.23	320 J	57.45	330 J	55.28	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	33	4.50	38 J	6.85	84	15.08	120	20.10	17	4.33
FLUORANTHENE	423	1327	2230	µg/kg	680	92.64	550	99.10	1200	215.44	1600	268.01	260	66.16
FLUORENE	77.4	307	536	µg/kg	44	5.99	46 J	8.29	54	9.69	82	13.74	16	4.07
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	210	28.61	110	19.82	340	61.04	410	68.68	60	15.27
NAPHTHALENE	176	369	561	µg/kg	140	19.07	28	5.05	92	16.52	82	13.74	31	7.89
PERYLENE	NL	NL	NL	µg/kg	NA	NA	64 J	11.53	130	23.34	230 U	230 U	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	370	50.41	310	55.86	470	84.38	720	120.60	130	33.08
PYRENE	195	858	1520	µg/kg	660	89.92	380	68.47	900	161.58	1200	**201.01**	280	71.25
TOTAL PAHs 17	1610	12205	22800	µg/kg	4152	565.67	2625	472.97	5998	1076.84	7926	1327.64	1575.4	400.87
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	3741	674.05	10963	**1968.22**	14248	**2386.60**	--	--
TOC	NL	NL	NL	%	7.34		5.55		5.57		5.97		3.93	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-25		HB10-1-27		HB10-1-27		HB10-1-28		HB10-1-28	
				Field Sample ID	HB10-1-25-06DP		HB10-1-27-06		HB10-1-27-06DP		HB10-1-28-06		HB10-1-28-12	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	200	53.91	79	14.85	110	13.85	540	129.19	430	101.42
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	23	6.20	8.9 U	8.9 U	9.1 U	9.1 U	39	9.33	40	9.43
ACENAPHTHENE	6.7	48	89	µg/kg	16	4.31	8.9 U	8.9 U	9.1 U	9.1 U	43	**10.29**	44	**10.38**
ACENAPHTHYLENE	5.9	67	128	µg/kg	13	3.50	8.9 U	8.9 U	9.4	1.18	39	**9.33**	34	**8.02**
ANTHRACENE	57.2	451	845	µg/kg	62	16.71	17	3.20	20	2.52	110	26.32	96	22.64
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	190	51.21	81	15.23	110	13.85	460	**110.05**	380	89.62
BENZO(A)PYRENE	150	800	1450	µg/kg	180	48.52	98	18.42	160	20.15	510	122.01	440	103.77
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	210	56.60	100	18.80	180	22.67	740	177.03	620	146.23
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	130	35.04	82	15.41	130	16.37	400	95.69	340	80.19
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	100	26.95	57	10.71	130	16.37	310	74.16	250	58.96
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	25	6.74	23	4.32	37	4.66	61	14.59	89 J	20.99
FLUORANTHENE	423	1327	2230	µg/kg	350	94.34	150	28.20	160	20.15	910	217.70	970 J	228.77
FLUORENE	77.4	307	536	µg/kg	23	6.20	8.9 U	8.9 U	9.1 U	9.1 U	55	13.16	59	13.92
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	110	29.65	62	11.65	110	13.85	330 J	78.95	280 J	66.04
NAPHTHALENE	176	369	561	µg/kg	22	5.93	8.9 U	8.9 U	9.1 U	9.1 U	42	10.05	36	8.49
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	200	53.91	56	10.53	63	7.93	480	114.83	430	101.42
PYRENE	195	858	1520	µg/kg	390	105.12	140	26.32	180	22.67	860	**205.74**	690 J	162.74
TOTAL PAHs 17	1610	12205	22800	µg/kg	2244	604.85	967.25	181.81	1417.6	178.54	5929	1418.42	5228	1233.02
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	--	--	--	--
TOC	NL	NL	NL	%	3.71		5.32		7.94		4.18		4.24	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-28		HB10-1-28		HB10-1-28		HB10-1-28		HB10-1-29	
				Field Sample ID	HB10-1-28-36		HB10-1-28-60		HB10-1-28-84		HB10-1-28-96		HB10-1-29-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	12- 36		36- 60		60- 84		60- 96		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	760 J	**177.16**	270 J	47.12	490	85.81	90 J	21.90	480	47.06
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	72 U	72 U
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	42	9.79	57	9.95	97	16.99	18	4.38	72 U	72 U
ACENAPHTHENE	6.7	48	89	µg/kg	68	**15.85**	29	5.06	91	**15.94**	15	3.65	81	**7.94**
ACENAPHTHYLENE	5.9	67	128	µg/kg	31	**7.23**	27	4.71	58	**10.16**	15	3.65	72 U	72 U
ANTHRACENE	57.2	451	845	µg/kg	190	44.29	64	11.17	160	28.02	27	6.57	240	23.53
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	600	**139.86**	250 J	43.63	440	77.06	83 J	20.19	450	44.12
BENZO(A)PYRENE	150	800	1450	µg/kg	600	139.86	280 J	48.87	500	87.57	96 J	23.36	460	45.10
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	640	149.18	330 J	57.59	530	92.82	110 J	26.76	560	54.90
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	290	28.43
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	440	102.56	200 J	34.90	390	68.30	53	12.90	250	24.51
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	350	81.59	230 J	40.14	410	71.80	53 J	12.90	250	24.51
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	230 J	22.55
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	510 J	50.00
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	72 U	72 U
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	72 U	72 U
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	350 J	34.31
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	130 J	12.75
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	270 J	26.47
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	95 J	9.31
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	88 J	8.63
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	280 J	27.45
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	72 U	72 U
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	140 J	13.73
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	140 J	13.73
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	130 J	12.75
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	210 J	20.59
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	72 U	72 U
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	120 J	11.76
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	220 J	21.57
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	120 J	27.97	58 J	10.12	100 J	17.51	13	3.16	72 U	72 U
FLUORANTHENE	423	1327	2230	µg/kg	1500 J	349.65	510 J	89.01	1100 J	192.64	180 J	43.80	1500	147.06
FLUORENE	77.4	307	536	µg/kg	89	20.75	47	8.20	120	21.02	16	3.89	96	9.41
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	370 J	86.25	160 J	27.92	310 J	54.29	41	9.98	240	23.53
NAPHTHALENE	176	369	561	µg/kg	36	8.39	53	9.25	110	19.26	24	5.84	98	9.61
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	110	10.78
PHENANTHRENE	204	687	1170	µg/kg	810	188.81	290 J	50.61	790	138.35	140 J	34.06	940	92.16
PYRENE	195	858	1520	µg/kg	1100 J	**256.41**	430 J	75.04	920 J	161.12	200 J	48.66	980	96.08
TOTAL PAHs 17	1610	12205	22800	µg/kg	7746	**1805.59**	3285	573.30	6616	1158.67	1174	285.64	6733	660.10
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	--	--	9744	955.29
TOC	NL	NL	NL	%	4.29		5.73		5.71		4.11		10.2	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-29		HB10-1-29		HB10-1-29		HB10-1-29		HB10-1-30	
				Field Sample ID	HB10-1-29-12		HB10-1-29-36		HB10-1-29-60		HB10-1-29-93		HB10-1-30-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		36- 60		60- 93		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	1400	121.74	4800	**290.91**	2600	**173.33**	3300	**234.04**	450	93.56
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	72 U	72 U	420	25.45	160	10.67	240	17.02	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	75	6.52	500	**30.30**	170	11.33	260	18.44	54	11.23
ACENAPHTHENE	6.7	48	89	µg/kg	190	**16.52**	850	**51.52**	360	**24.00**	570	**40.43**	23	4.78
ACENAPHTHYLENE	5.9	67	128	µg/kg	72 U	72 U	190	**11.52**	110	**7.33**	130	**9.22**	31	**6.44**
ANTHRACENE	57.2	451	845	µg/kg	610	53.04	2000	**121.21**	1400 U	1400 U	1900	**134.75**	110	22.87
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	1000	86.96	5000	**303.03**	2400	**160.00**	3000	**212.77**	380	79.00
BENZO(A)PYRENE	150	800	1450	µg/kg	1300	113.04	5000	**303.03**	2500	**166.67**	2700	**191.49**	560	116.42
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	1400	121.74	5400	**327.27**	2600	173.33	3200	226.95	560	116.42
BENZO(E)PYRENE	150	800	1450	µg/kg	810	70.43	2800	**169.70**	1400 J	93.33	1700	120.57	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	670	58.26	2700	163.64	1400 U	1400 U	1600 U	1600 U	410	85.24
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	610	53.04	2700	163.64	1400 U	1400 U	1500 J	106.38	460	95.63
C1-CHRYSENES	NL	NL	NL	µg/kg	750 J	65.22	2300 J	139.39	1400 J	93.33	1600 J	113.48	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	1400 J	121.74	4500 J	272.73	2600 J	173.33	3400 J	241.13	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	130 J	11.30	550 J	33.33	270 J	18.00	310 J	21.99	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	90 J	7.83	560 J	33.94	200 J	13.33	310 J	21.99	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	1100 J	95.65	3700 J	224.24	2100 J	140.00	2600 J	184.40	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	400 J	34.78	950 J	57.58	610 J	40.67	670 J	47.52	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	760 J	66.09	2400 J	145.45	1400 J	93.33	1600 J	113.48	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	340 J	29.57	900 J	54.55	420 J	28.00	340 J	24.11	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	290 J	25.22	1200 J	72.73	630 J	42.00	720 J	51.06	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	1000 J	86.96	2800 J	169.70	1600 J	106.67	1600 J	113.48	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	280 J	24.35	850 J	51.52	560 J	37.33	580 J	41.13	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	450 J	39.13	1200 J	72.73	760 J	50.67	740 J	52.48	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	550 J	47.83	1500 J	90.91	760 J	50.67	670 J	47.52	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	510 J	44.35	2000 J	121.21	1100 J	73.33	880 J	62.41	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	770 J	66.96	1500 J	90.91	1200 J	80.00	980 J	69.50	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	180 J	15.65	420 J	25.45	270 J	18.00	230 J	16.31	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	530 J	46.09	1700 J	103.03	840 J	56.00	570 J	40.43	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	410 J	35.65	800 J	48.48	730 J	48.67	740 J	52.48	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	170	14.78	630	**38.18**	350	23.33	370	26.24	120	24.95
FLUORANTHENE	423	1327	2230	µg/kg	3800	330.43	14000	**848.48**	6500	**433.33**	8700	**617.02**	830	172.56
FLUORENE	77.4	307	536	µg/kg	240	20.87	1800 U	1800 U	500	33.33	740	52.48	42	8.73
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	640	55.65	2500	151.52	1400 J	93.33	1500 J	106.38	350	72.77
NAPHTHALENE	176	369	561	µg/kg	74	6.43	570	34.55	260	17.33	350	24.82	43	8.94
PERYLENE	NL	NL	NL	µg/kg	300	26.09	1800 U	1800 U	550	36.67	660	46.81	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	2200	191.30	9800	**593.94**	4200	**280.00**	6500	**460.99**	340	70.69
PYRENE	195	858	1520	µg/kg	2600	**226.09**	11000	**666.67**	5200	**346.67**	7200	**510.64**	820	170.48
TOTAL PAHs 17	1610	12205	22800	µg/kg	17015	1479.57	68540	**4153.94**	31250	**2083.33**	42720	**3029.79**	5583	1160.71
TOTAL PAHs 34	1610	12205	22800	µg/kg	26780	**2328.70**	97970	**5937.58**	48320	**3221.33**	61020	**4327.66**	--	--
TOC	NL	NL	NL	%	11.5		16.5		15		14.1		4.81	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-30		HB10-1-30		HB10-1-30		HB10-1-30		HB10-1-30	
				Field Sample ID	HB10-1-30-06DP		HB10-1-30-12		HB10-1-30-36		HB10-1-30-60		HB10-1-30-77	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 12		12- 36		36- 60		60- 77	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	610	110.91	1400	**315.32**	1000	111.86	310	38.80	300	8.50
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	54	9.82	110	**24.77**	65	7.27	28	3.50	53	1.50
ACENAPHTHENE	6.7	48	89	µg/kg	31 J	5.64	130	**29.28**	93	**10.40**	24	3.00	19	0.54
ACENAPHTHYLENE	5.9	67	128	µg/kg	33	**6.00**	94	**21.17**	49	5.48	25	3.13	25	0.71
ANTHRACENE	57.2	451	845	µg/kg	160	29.09	500	**112.61**	240	26.85	84	10.51	63	1.78
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	510	92.73	1300	**292.79**	680	76.06	310	38.80	250	7.08
BENZO(A)PYRENE	150	800	1450	µg/kg	510	92.73	1100	**247.75**	810	90.60	370	46.31	340	9.63
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	620	112.73	1300	**292.79**	1000	111.86	420	52.57	390	11.05
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	490	89.09	720	162.16	660	73.83	290	36.30	310	8.78
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	600	109.09	640	144.14	460	51.45	310	38.80	300	8.50
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	140	25.45	320	**72.07**	170	19.02	85 U	85 U	80	2.27
FLUORANTHENE	423	1327	2230	µg/kg	1100	200.00	2600	**585.59**	2100	234.90	600	75.09	450	12.75
FLUORENE	77.4	307	536	µg/kg	50	9.09	200	45.05	110	12.30	35	4.38	35	0.99
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	440	80.00	660	148.65	520	58.17	250	31.29	250	7.08
NAPHTHALENE	176	369	561	µg/kg	44	8.00	110	24.77	74	8.28	37	4.63	40	1.13
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	460	83.64	1400	**315.32**	1400	156.60	340	42.55	220	6.23
PYRENE	195	858	1520	µg/kg	1000 J	181.82	2600	**585.59**	1800	**201.34**	570	71.34	470	13.31
TOTAL PAHs 17	1610	12205	22800	µg/kg	6852	1245.82	15184	**3419.82**	11231	1256.26	4045.5	506.32	3595	101.84
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	--	--	--	--
TOC	NL	NL	NL	%	5.5		4.44		8.94		7.99		35.3	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-31		HB10-1-31		HB10-1-31	
				Field Sample ID	HB10-1-31-06		HB10-1-31-06DP		HB10-1-31-12	
				Sample Date	10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**						
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	440	93.02	650	152.22	520	101.17
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	57	12.05	76	17.80	82	15.95
ACENAPHTHENE	6.7	48	89	µg/kg	24	5.07	38	**8.90**	28	5.45
ACENAPHTHYLENE	5.9	67	128	µg/kg	28	**5.92**	33	**7.73**	30	5.84
ANTHRACENE	57.2	451	845	µg/kg	100	21.14	220	51.52	100	19.46
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	390	82.45	650	**152.22**	470	91.44
BENZO(A)PYRENE	150	800	1450	µg/kg	530	112.05	750	**175.64**	650	126.46
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	690	145.88	810	189.70	590	114.79
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	330	69.77	310	72.60	500	97.28
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	370	78.22	530	124.12	450	87.55
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	110	23.26	160	**37.47**	150	29.18
FLUORANTHENE	423	1327	2230	µg/kg	590	124.74	1400	327.87	910	177.04
FLUORENE	77.4	307	536	µg/kg	39	8.25	65	15.22	60	11.67
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	340	71.88	420	98.36	430	83.66
NAPHTHALENE	176	369	561	µg/kg	44	9.30	58	13.58	60	11.67
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	300	63.42	590	138.17	410	79.77
PYRENE	195	858	1520	µg/kg	660	139.53	1300	**304.45**	890	173.15
TOTAL PAHs 17	1610	12205	22800	µg/kg	5042	1065.96	8060	**1887.59**	6330	1231.52
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--
TOC	NL	NL	NL	%	4.73		4.27		5.14	

Table 3-2a
Area 1 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-31	
				Field Sample ID	HB10-1-31-36	
				Sample Date	10/18/2010	
				Depth Interval	12- 36	
				Concentration	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**		
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	320	66.67
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	35	7.29
ACENAPHTHENE	6.7	48	89	µg/kg	18 J	3.75
ACENAPHTHYLENE	5.9	67	128	µg/kg	29	**6.04**
ANTHRACENE	57.2	451	845	µg/kg	76	15.83
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	290	60.42
BENZO(A)PYRENE	150	800	1450	µg/kg	350	72.92
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	410	85.42
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	290	60.42
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	290	60.42
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C3-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C4-PHENANTHRENES/	NL	NL	NL	µg/kg	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	79	16.46
FLUORANTHENE	423	1327	2230	µg/kg	540	112.50
FLUORENE	77.4	307	536	µg/kg	33	6.88
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	240	50.00
NAPHTHALENE	176	369	561	µg/kg	31	6.46
PERYLENE	NL	NL	NL	µg/kg	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	300	62.50
PYRENE	195	858	1520	µg/kg	520	108.33
TOTAL PAHs 17	1610	12205	22800	µg/kg	3851	802.29
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--
TOC	NL	NL	NL	%	4.8	

Notes:
Level II Concern: >TEC and ≤MEC

Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

"--" - Not Applicable
DP - Duplicate

ID - Identification
J - Estimated value
MEC - Median Effects Concentration
NA - Not Analyzed
NL - Not Listed
Norm. - Normalized to 1% TOC
PAH - Polycylic Aromatic Hydrocarbon
PEC - Probable Effect Concentration
SQG - Sediment Quality Guidelines
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources

TOTAL PAHs 17/34 - Calculated by WESTON
Sum of detections plus 1/2 DL for NDs

[1] WDNR Consensus-Based SQGs

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-18		HB10-2-18		HB10-2-26		HB10-2-26		HB10-2-32	
				Field Sample ID	HB10-2-18-06		HB10-2-18-06DP		HB10-2-26-06		HB10-2-26-17		HB10-2-32-06	
				Sample Date	10/18/2010		10/18/2010		10/16/2010		10/16/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		0- 6		12- 17		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	330	121.77	270	75.84	69 J	13.04	150	83.80	170	46.70
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	7	1.32	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	51	18.82	7.3 U	7.3 U	9.5	1.80	24 J	13.41	7.9 UJ	7.9 U
ACENAPHTHENE	6.7	48	89	µg/kg	14	5.17	7.3 U	7.3 U	6.9	1.30	18	**10.06**	330	**90.66**
ACENAPHTHYLENE	5.9	67	128	µg/kg	20	**7.38**	32	**8.99**	4.7 U	4.7 U	6	3.35	17 J	4.67
ANTHRACENE	57.2	451	845	µg/kg	52	19.19	32	8.99	14	2.65	47	26.26	59 J	16.21
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	310	**114.39**	260	73.03	61 J	11.53	130	72.63	210	57.69
BENZO(A)PYRENE	150	800	1450	µg/kg	390	143.91	340	95.51	71 J	13.42	120	67.04	220	60.44
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	450	166.05	440	123.60	97 J	18.34	160 J	89.39	310	85.16
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	46	8.70	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	320	118.08	280	78.65	39	7.37	40	22.35	160	43.96
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	340 J	125.46	210 J	58.99	27	5.10	63 J	35.20	130	35.71
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	34 J	6.43	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	63 J	11.91	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	5.7 J	1.08	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	10 J	1.89	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	40 J	7.56	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	24 J	4.54	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	39 J	7.37	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	12 J	2.27	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	17 J	3.21	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	39 J	7.37	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	24 J	4.54	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	26 J	4.91	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	19 J	3.59	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	19 J	3.59	NA	NA	NA	NA
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	35 J	6.62	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	14 J	2.65	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	12 J	2.27	NA	NA	NA	NA
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	21 J	3.97	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	63	23.25	46	12.92	10	1.89	18	10.06	58	15.93
FLUORANTHENE	423	1327	2230	µg/kg	450	166.05	400	112.36	170 J	32.14	350	195.53	350	96.15
FLUORENE	77.4	307	536	µg/kg	31	11.44	7.3 U	7.3 U	11	2.08	24	13.41	37 J	10.16
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	280	103.32	230	64.61	38	7.18	75	41.90	140	38.46
NAPHTHALENE	176	369	561	µg/kg	41	15.13	7.3 U	7.3 U	10	1.89	23 J	12.85	3800	**1043.96**
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	14	2.65	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	260	95.94	28	7.87	90 J	17.01	140	78.21	150	41.21
PYRENE	195	858	1520	µg/kg	460	169.74	390	109.55	130 J	24.57	290	162.01	340	93.41
TOTAL PAHs 17	1610	12205	22800	µg/kg	3862	1425.09	2972.6	835.00	855.75	161.77	1678	937.43	6488.9	**1782.66**
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	1294.95	244.79	--	--	--	--
TOC	NL	NL	NL	%	2.71		3.56		5.29		1.79		3.64	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-32		HB10-2-33		HB10-2-33		HB10-2-34		HB10-2-34	
				Field Sample ID	HB10-2-32-06DP		HB10-2-33-06		HB10-2-33-22		HB10-2-34-06		HB10-2-34-06DP	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		12- 22		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	240	70.59	55 J	55.56	330	87.53	220	53.40	230	70.77
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	7	7.07	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	25	7.35	10	10.10	31	8.22	43	10.44	43	13.23
ACENAPHTHENE	6.7	48	89	µg/kg	18	5.29	4.8	4.85	12	3.18	20	4.85	21	6.46
ACENAPHTHYLENE	5.9	67	128	µg/kg	18	5.29	6.1	**6.16**	28	**7.43**	18	4.37	18	5.54
ANTHRACENE	57.2	451	845	µg/kg	53	15.59	18	18.18	52	13.79	49	11.89	51	15.69
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	230	67.65	45 J	45.45	290	76.92	180	43.69	190	58.46
BENZO(A)PYRENE	150	800	1450	µg/kg	300	88.24	54 J	54.55	420	111.41	230	55.83	230	70.77
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	360	105.88	59 J	59.60	500	132.63	270	65.53	270	83.08
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	36 J	36.36	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	220	64.71	35 J	35.35	300	79.58	200	48.54	200	61.54
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	240	70.59	34	34.34	300	79.58	210	50.97	210	64.62
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	66 J	66.67	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	110 J	111.11	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	8.1 J	8.18	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	11 J	11.11	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	55 J	55.56	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	76 J	76.77	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	110 J	111.11	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	30 J	30.30	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	19 J	19.19	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	140 J	141.41	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	84 J	84.85	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	100 J	101.01	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	59 J	59.60	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	25 J	25.25	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	160 J	161.62	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	39 J	39.39	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	40 J	40.40	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	100 J	101.01	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	60	17.65	13	13.13	80	21.22	30	7.28	29	8.92
FLUORANTHENE	423	1327	2230	µg/kg	400	117.65	110 J	111.11	500	132.63	330	80.10	330	101.54
FLUORENE	77.4	307	536	µg/kg	27	7.94	8.2	8.28	27	7.16	35	8.50	37	11.38
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	180	52.94	38 J	38.38	260	68.97	160 J	38.83	150 J	46.15
NAPHTHALENE	176	369	561	µg/kg	46	13.53	9.4	9.49	28	7.43	32	7.77	32	9.85
PERYLENE	NL	NL	NL	µg/kg	NA	NA	28	28.28	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	230	67.65	44 J	44.44	210	55.70	180	43.69	190	58.46
PYRENE	195	858	1520	µg/kg	410	120.59	89 J	89.90	710	188.33	340	82.52	370	113.85
TOTAL PAHs 17	1610	12205	22800	µg/kg	3057	899.12	632.5	638.89	4078	1081.70	2547	618.20	2601	800.31
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	1708.6	**1725.86**	--	--	--	--	--	--
TOC	NL	NL	NL	%	3.4		0.99		3.77		4.12		3.25	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-35		HB10-2-35		HB10-2-35		HB10-2-36		HB10-2-36	
				Field Sample ID	HB10-2-35-06		HB10-2-35-12		HB10-2-35-30		HB10-2-36-06		HB10-2-36-06DP	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 12		12- 30		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	36 J	51.28	170	118.06	330	107.14	350	114.75	340	20.99
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	5.8	8.26	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	9.2	13.11	21	14.58	53	17.21	56	18.36	57 J	3.52
ACENAPHTHENE	6.7	48	89	µg/kg	5.6	**7.98**	9.1	6.32	51	**16.56**	23 J	**7.54**	21 J	1.30
ACENAPHTHYLENE	5.9	67	128	µg/kg	5.1	**7.26**	7.9	5.49	24	**7.79**	24	**7.87**	19 J	1.17
ANTHRACENE	57.2	451	845	µg/kg	14	19.94	30	20.83	120	38.96	49	16.07	48 J	2.96
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	32 J	45.58	170	**118.06**	270	87.66	290	95.08	230	14.20
BENZO(A)PYRENE	150	800	1450	µg/kg	39 J	55.56	210	145.83	260	84.42	390	127.87	390	24.07
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	50 J	71.23	220	152.78	260	84.42	490	160.66	590 J	36.42
BENZO(E)PYRENE	150	800	1450	µg/kg	30 J	42.74	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	30 J	42.74	170	118.06	210	68.18	300	98.36	280	17.28
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	27	38.46	160	111.11	180	58.44	260 J	85.25	220	13.58
C1-CHRYSENES	NL	NL	NL	µg/kg	40 J	56.98	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	61 J	86.89	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	4.6 J	6.55	NA	NA	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	8.9 J	12.68	NA	NA	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	35 J	49.86	NA	NA	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	34 J	48.43	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	49 J	69.80	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	10 J	14.25	NA	NA	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	19 J	27.07	NA	NA	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	36 J	51.28	NA	NA	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	32 J	45.58	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	33 J	47.01	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	13 J	18.52	NA	NA	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	15 J	21.37	NA	NA	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	36 J	51.28	NA	NA	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	16 J	22.79	NA	NA	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	11 J	15.67	NA	NA	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	31 J	44.16	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	9.7	13.82	29	20.14	59 J	19.16	100	32.79	70	4.32
FLUORANTHENE	423	1327	2230	µg/kg	89 J	126.78	240	166.67	400	129.87	500	163.93	450	27.78
FLUORENE	77.4	307	536	µg/kg	9.9	14.10	16	11.11	99	32.14	46	15.08	31 J	1.91
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	41	58.40	140 J	97.22	150 J	48.70	250	81.97	220	13.58
NAPHTHALENE	176	369	561	µg/kg	9.3	13.25	13	9.03	45	14.61	37	12.13	39 J	2.41
PERYLENE	NL	NL	NL	µg/kg	35	49.86	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	45 J	64.10	93	64.58	970	**314.94**	320	104.92	280	17.28
PYRENE	195	858	1520	µg/kg	70 J	99.72	240	166.67	710 J	**230.52**	540	177.05	490 J	30.25
TOTAL PAHs 17	1610	12205	22800	µg/kg	521.8	743.30	1939	1346.53	4191	1360.71	4025	1319.67	3775	233.02
TOTAL PAHs 34	1610	12205	22800	µg/kg	980.1	1396.15	--	--	--	--	--	--	--	--
TOC	NL	NL	NL	%	0.702		1.44		3.08		3.05		16.2	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-37		HB10-2-37		HB10-2-38		HB10-2-38		HB10-2-38	
				Field Sample ID	HB10-2-37-06		HB10-2-37-23		HB10-2-38-06		HB10-2-38-06DP		HB10-2-38-12	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		12- 23		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	240	**567.38**	130	**200.62**	76	13.57	400	7.14	280	84.34
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	19	44.92	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	21	**49.65**	9.3	14.35	7.6 U	7.6 U	74 U	74 U	34	10.24
ACENAPHTHENE	6.7	48	89	µg/kg	210 U	210 U	5.1	**7.87**	7.6 U	7.6 U	23	4.11	23 J	**6.93**
ACENAPHTHYLENE	5.9	67	128	µg/kg	8.2 J	**19.39**	12	**18.52**	7.6 U	7.6 U	28	5.00	16 J	4.82
ANTHRACENE	57.2	451	845	µg/kg	200 J	**472.81**	35	54.01	19	3.39	94	16.79	74	22.29
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	250	**591.02**	120	**185.19**	76 U	76 U	360	64.29	250	75.30
BENZO(A)PYRENE	150	800	1450	µg/kg	210 J	**496.45**	140	**216.05**	91	16.25	450	80.36	300	90.36
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	210 U	210 U	130	200.62	92	16.43	550	98.21	340	102.41
BENZO(E)PYRENE	150	800	1450	µg/kg	210 U	210 U	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	210 U	210 U	120	**185.19**	73	13.04	400	71.43	250	75.30
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	210 U	210 U	96	148.15	52	9.29	360	64.29	230	69.28
C1-CHRYSENES	NL	NL	NL	µg/kg	160 J	378.25	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	380 J	898.35	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	33 J	78.01	NA	NA	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	23 J	54.37	NA	NA	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	270 J	638.30	NA	NA	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	62 J	146.57	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	130 J	307.33	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	24 J	56.74	NA	NA	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	40 J	94.56	NA	NA	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	120 J	283.69	NA	NA	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	48 J	113.48	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	65 J	153.66	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	25 J	59.10	NA	NA	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	30 J	70.92	NA	NA	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	55 J	130.02	NA	NA	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	22 J	52.01	NA	NA	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	16 J	37.83	NA	NA	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	30 J	70.92	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	36 J	**85.11**	28	**43.21**	23	4.11	110	19.64	65	19.58
FLUORANTHENE	423	1327	2230	µg/kg	660	**1560.28**	260	401.23	150	26.79	630	112.50	470	141.57
FLUORENE	77.4	307	536	µg/kg	210 U	210 U	10	15.43	7.6 U	7.6 U	40	7.14	33 J	9.94
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	210 U	210 U	88 J	135.80	72	12.86	330	58.93	200	60.24
NAPHTHALENE	176	369	561	µg/kg	21	49.65	13	20.06	7.6 U	7.6 U	52	9.29	29	8.73
PERYLENE	NL	NL	NL	µg/kg	210 U	210 U	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	640	**1513.00**	120	185.19	77	13.75	310	55.36	260	78.31
PYRENE	195	858	1520	µg/kg	430	**1016.55**	280	**432.10**	140	25.00	630	112.50	490	147.59
TOTAL PAHs 17	1610	12205	22800	µg/kg	3346.2	**7910.64**	1596.4		922	164.64	4804	857.86	3344	1007.23
TOTAL PAHs 34	1610	12205	22800	µg/kg	4873.2	**11520.57**	--	--	--	--	--	--	--	--
TOC	NL	NL	NL	%	0.423		0.648		5.6		5.6*		3.32	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-38		HB10-2-39		HB10-2-39		HB10-2-39		HB10-2-40	
				Field Sample ID	HB10-2-38-38		HB10-2-39-06		HB10-2-39-12		HB10-2-39-28		HB10-2-40-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	36- 38		0- 6		0- 12		12- 28		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	1700	**421.84**	57 J	112.65	330	**196.43**	200	18.02	350	103.24
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	6.2 J	12.25	NA	NA	NA	NA	24	7.08
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	160	**39.70**	7.3 J	14.43	11	6.55	8.8 U	8.8 U	33	9.73
ACENAPHTHENE	6.7	48	89	µg/kg	150	**37.22**	5.7 J	**11.26**	6.7	3.99	8.8 U	8.8 U	25	**7.37**
ACENAPHTHYLENE	5.9	67	128	µg/kg	39	**9.68**	8.8 J	**17.39**	25	**14.88**	21	1.89	19	5.60
ANTHRACENE	57.2	451	845	µg/kg	430	**106.70**	23	45.45	37	22.02	23	2.07	140	41.30
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	1600	**397.02**	46 J	90.91	370	**220.24**	190	17.12	220	64.90
BENZO(A)PYRENE	150	800	1450	µg/kg	1200	**297.77**	55 J	108.70	440	**261.90**	240	21.62	160	47.20
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	1400	**347.39**	66 J	130.43	350	208.33	300	27.03	190	56.05
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	38 J	75.10	NA	NA	NA	NA	150 U	150 U
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	750	**186.10**	36 J	71.15	270	160.71	190	17.12	150 U	150 U
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	660	163.77	37 J	73.12	250	148.81	130	11.71	130	38.35
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	64 J	126.48	NA	NA	NA	NA	160 J	47.20
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	110 J	217.39	NA	NA	NA	NA	530 J	156.34
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	7.7 J	15.22	NA	NA	NA	NA	22 J	6.49
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	8 J	15.81	NA	NA	NA	NA	34 J	10.03
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	65 J	128.46	NA	NA	NA	NA	270 J	79.65
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	49 J	96.84	NA	NA	NA	NA	93 J	27.43
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	76 J	150.20	NA	NA	NA	NA	190 J	56.05
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	17 J	33.60	NA	NA	NA	NA	41 J	12.09
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	18 J	35.57	NA	NA	NA	NA	55 J	16.22
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	73 J	144.27	NA	NA	NA	NA	210 J	61.95
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	50 J	98.81	NA	NA	NA	NA	79 J	23.30
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	57 J	112.65	NA	NA	NA	NA	100 J	29.50
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	27 J	53.36	NA	NA	NA	NA	61 J	17.99
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	24 J	47.43	NA	NA	NA	NA	59 J	17.40
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	67 J	132.41	NA	NA	NA	NA	130 J	38.35
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	28 J	55.34	NA	NA	NA	NA	35 J	10.32
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	20 J	39.53	NA	NA	NA	NA	44 J	12.98
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	41 J	81.03	NA	NA	NA	NA	73 J	21.53
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	230	**57.07**	12 J	23.72	79	**47.02**	45	4.05	39	11.50
FLUORANTHENE	423	1327	2230	µg/kg	3000	**744.42**	130 J	256.92	620	369.05	330	29.73	570	168.14
FLUORENE	77.4	307	536	µg/kg	190	47.15	10 J	19.76	15	8.93	8.8 U	8.8 U	33	9.73
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	700	173.70	39 J	77.08	250	148.81	150	13.51	150 U	150 U
NAPHTHALENE	176	369	561	µg/kg	140	34.74	6.3 J	12.45	12	7.14	12	1.08	30	8.85
PERYLENE	NL	NL	NL	µg/kg	NA	NA	39 J	77.08	NA	NA	NA	NA	150 U	150 U
PHENANTHRENE	204	687	1170	µg/kg	2500	**620.35**	53 J	104.74	180	107.14	140	12.61	190	56.05
PYRENE	195	858	1520	µg/kg	2900	**719.60**	100 J	**197.63**	570	**339.29**	390	35.14	390	115.04
TOTAL PAHs 17	1610	12205	22800	µg/kg	17749	**4404.22**	692.1	1367.79	3815.7	**2271.25**	2374.2	213.89	2669	787.32
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	1430.5	**2827.08**	--	--	--	--	4682	1381.12
TOC	NL	NL	NL	%	4.03		0.506		1.68		11.1		3.39	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-40		HB10-2-40		HB10-2-40		HB10-2-41		HB10-2-41	
				Field Sample ID	HB10-2-40-12		HB10-2-40-36		HB10-2-40-48		HB10-2-41-06		HB10-2-41-12	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		36- 48		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	90	36.89	4.4 U	4.4 U	4.3 U	4.3 U	1400	**208.02**	74	37.19
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	170	25.26	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	15	6.15	4.4 U	4.4 U	4.3 U	4.3 U	190	**28.23**	10	5.03
ACENAPHTHENE	6.7	48	89	µg/kg	5.2 U	5.2 U	4.4 U	4.4 U	4.3 U	4.3 U	480	**71.32**	4	2.01
ACENAPHTHYLENE	5.9	67	128	µg/kg	6.2	2.54	4.4 U	4.4 U	4.3 U	4.3 U	47 J	**6.98**	5	2.51
ANTHRACENE	57.2	451	845	µg/kg	17	6.97	4.4 U	4.4 U	4.3 U	4.3 U	2000	**297.18**	17	8.54
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	80	32.79	4.4 U	4.4 U	4.3 U	4.3 U	1500	**222.88**	76	38.19
BENZO(A)PYRENE	150	800	1450	µg/kg	110	45.08	4.4 U	4.4 U	4.3 U	4.3 U	1300	**193.16**	76	38.19
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	120	49.18	4.4 U	4.4 U	4.3 U	4.3 U	1300	193.16	80	40.20
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	700	104.01	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	92	37.70	4.4 U	4.4 U	4.3 U	4.3 U	720	106.98	51	25.63
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	49	20.08	4.4 U	4.4 U	4.3 U	4.3 U	610	90.64	44 J	22.11
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	620 J	92.12	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	1700 J	252.60	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	180 J	26.75	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	220 J	32.69	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	1400 J	208.02	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	340 J	50.52	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	640 J	95.10	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	130 J	19.32	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	300 J	44.58	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	760 J	112.93	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	320 J	47.55	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	330 J	49.03	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	86 U	86 U	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	250 J	37.15	NA	NA
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	360 J	53.49	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	86 U	86 U	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	130 J	19.32	NA	NA
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	190 J	28.23	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	16	6.56	4.4 U	4.4 U	4.3 U	4.3 U	170	25.26	12	6.03
FLUORANTHENE	423	1327	2230	µg/kg	130	53.28	4.4 U	4.4 U	4.3 U	4.3 U	4400	**653.79**	140	70.35
FLUORENE	77.4	307	536	µg/kg	9.9	4.06	4.4 U	4.4 U	4.3 U	4.3 U	550	**81.72**	7	3.52
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	49	20.08	4.4 U	4.4 U	4.3 U	4.3 U	670	99.55	43	21.61
NAPHTHALENE	176	369	561	µg/kg	9.9	4.06	4.4 U	4.4 U	4.3 U	4.3 U	210	31.20	8	4.02
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	390	57.95	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	52	21.31	4.4 U	4.4 U	4.3 U	4.3 U	4000	**594.35**	46	23.12
PYRENE	195	858	1520	µg/kg	140	57.38	4.4 U	4.4 U	4.3 U	4.3 U	3300	**490.34**	140	70.35
TOTAL PAHs 17	1610	12205	22800	µg/kg	988.6	405.16	37.4	42.50	36.55	31.24	22847	**3394.80**	833	418.59
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	30733	**4566.57**	--	--
TOC	NL	NL	NL	%	2.44		0.886		1.17		6.73		1.99	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-41		HB10-2-42		HB10-2-42		HB10-2-42		HB10-2-43	
				Field Sample ID	HB10-2-41-31		HB10-2-42-06		HB10-2-42-12		HB10-2-42-30		HB10-2-43-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	12- 31		0- 6		0- 12		12- 30		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	78 J	69.64	300	33.94	2000	**192.31**	270	96.43	37	47.25
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	27	3.05	NA	NA	NA	NA	6.3	8.05
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	8 U	8 U	35	3.96	300	**28.85**	71	**25.36**	8	10.22
ACENAPHTHENE	6.7	48	89	µg/kg	8 U	8 U	29	3.28	650	**62.50**	37	**13.21**	6.5	**8.30**
ACENAPHTHYLENE	5.9	67	128	µg/kg	8 U	8 U	16	1.81	39	3.75	20	**7.14**	3.9 U	3.9 U
ANTHRACENE	57.2	451	845	µg/kg	20	17.86	70	7.92	1600	**153.85**	70	25.00	9.9	12.64
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	75 J	66.96	240	27.15	2100	**201.92**	240	85.71	31	39.59
BENZO(A)PYRENE	150	800	1450	µg/kg	86	76.79	300	33.94	1400	134.62	290	103.57	19 R	
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	100 J	89.29	370	41.86	1800	173.08	340	121.43	19 R	
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	240	27.15	NA	NA	NA	NA	19 R	
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	56	50.00	200	22.62	800	76.92	240	85.71	39	49.81
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	45	40.18	170	19.23	780	75.00	260	92.86	19	24.27
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	160 J	18.10	NA	NA	NA	NA	36 J	45.98
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	300 J	33.94	NA	NA	NA	NA	42 J	53.64
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	23 J	2.60	NA	NA	NA	NA	6.8 J	8.68
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	35 J	3.96	NA	NA	NA	NA	8.9 J	11.37
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	160 J	18.10	NA	NA	NA	NA	42 J	53.64
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	110 J	12.44	NA	NA	NA	NA	55 J	70.24
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	190 J	21.49	NA	NA	NA	NA	44 J	56.19
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	49 J	5.54	NA	NA	NA	NA	20 J	25.54
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	90 J	10.18	NA	NA	NA	NA	18 J	22.99
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	190 J	21.49	NA	NA	NA	NA	67 J	85.57
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	120 J	13.57	NA	NA	NA	NA	80 J	102.17
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	140 J	15.84	NA	NA	NA	NA	43 J	54.92
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	74 J	8.37	NA	NA	NA	NA	31 J	39.59
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	90 J	10.18	NA	NA	NA	NA	23 J	29.37
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	170 J	19.23	NA	NA	NA	NA	46 J	58.75
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	52 J	5.88	NA	NA	NA	NA	55 J	70.24
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	67 J	7.58	NA	NA	NA	NA	18 J	22.99
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	160 J	18.10	NA	NA	NA	NA	26 J	33.21
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	14	12.50	46	5.20	250 J	24.04	62	22.14	8.6	10.98
FLUORANTHENE	423	1327	2230	µg/kg	210 J	187.50	620	70.14	5500	**528.85**	710	253.57	19 R	
FLUORENE	77.4	307	536	µg/kg	12	10.71	42	4.75	830	**79.81**	60	21.43	8.2	10.47
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	49	43.75	220	24.89	800	76.92	190	67.86	28	35.76
NAPHTHALENE	176	369	561	µg/kg	8 U	8 U	24	2.71	580	55.77	45	16.07	7.1	9.07
PERYLENE	NL	NL	NL	µg/kg	NA	NA	75	8.48	NA	NA	NA	NA	12	15.33
PHENANTHRENE	204	687	1170	µg/kg	58	51.79	270	30.54	5500	**528.85**	270	96.43	19 R	
PYRENE	195	858	1520	µg/kg	170 J	151.79	480	54.30	4000	**384.62**	430	153.57	19 R	
TOTAL PAHs 17	1610	12205	22800	µg/kg	989	883.04	3432	388.24	28929	**2781.63**	3605	1287.50	204.25	260.86
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	5562	629.19	--	--	--	--	782.95	999.94
TOC	NL	NL	NL	%	1.12		8.84		10.4		2.8		0.783	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-43		HB10-2-44		HB10-2-44		HB10-2-45	
				Field Sample ID	HB10-2-43-22		HB10-2-44-06		HB10-2-44-16		HB10-2-45-06	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	12- 22		0- 6		12- 16		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**								
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	750	161.29	530	151.00	660	134.42	160	36.04
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	110	**23.66**	74	**21.08**	89	18.13	29	6.53
ACENAPHTHENE	6.7	48	89	µg/kg	95	**20.43**	25	**7.12**	51	**10.39**	14	3.15
ACENAPHTHYLENE	5.9	67	128	µg/kg	26	5.59	30	**8.55**	29	**5.91**	9.9	2.23
ANTHRACENE	57.2	451	845	µg/kg	210	45.16	110	31.34	180	36.66	48	10.81
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	490	105.38	440	**125.36**	530	107.94	150	33.78
BENZO(A)PYRENE	150	800	1450	µg/kg	520	111.83	460	131.05	490	99.80	170	38.29
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	830	178.49	620	176.64	610	124.24	190	42.79
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	420	90.32	500	142.45	480	97.76	160	36.04
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	320	68.82	490	139.60	280	57.03	140	31.53
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	100	21.51	140	**39.89**	140	28.51	21	4.73
FLUORANTHENE	423	1327	2230	µg/kg	1500	322.58	930	264.96	1200	244.40	290	65.32
FLUORENE	77.4	307	536	µg/kg	120	25.81	46	13.11	110	22.40	24	5.41
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	370	79.57	420	119.66	410	83.50	130 J	29.28
NAPHTHALENE	176	369	561	µg/kg	110	23.66	46	13.11	62	12.63	18	4.05
PERYLENE	NL	NL	NL	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	910	195.70	410	116.81	790	160.90	170	38.29
PYRENE	195	858	1520	µg/kg	1300	**279.57**	930	**264.96**	1200	**244.40**	250	56.31
TOTAL PAHs 17	1610	12205	22800	µg/kg	8181	**1759.35**	6201	**1766.67**	7311	1489.00	1973.9	444.57
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--	--	--	--	--	--	--
TOC	NL	NL	NL	%	4.65		3.51		4.91		4.44	

Table 3-2b
Area 2 Sediment Sample Analytical Results - PAHs
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-45	
				Field Sample ID	HB10-2-45-19	
				Sample Date	10/18/2010	
				Depth Interval	12- 19	
				Concentration	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**		
1,2-BENZPHENANTHRACENE	166	728	1290	µg/kg	540	**206.90**
1-METHYLNAPHTHALENE	NL	NL	NL	µg/kg	NA	NA
2-METHYLNAPHTHALENE	20.2	111	201	µg/kg	100	**38.31**
ACENAPHTHENE	6.7	48	89	µg/kg	45	**17.24**
ACENAPHTHYLENE	5.9	67	128	µg/kg	22	**8.43**
ANTHRACENE	57.2	451	845	µg/kg	210	**80.46**
BENZO(A)ANTHRACENE	108	579	1050	µg/kg	510	**195.40**
BENZO(A)PYRENE	150	800	1450	µg/kg	490	**187.74**
BENZO(B)FLUORANTHENE	240	6820	13400	µg/kg	450	172.41
BENZO(E)PYRENE	150	800	1450	µg/kg	NA	NA
BENZO(G,H,I)PERYLENE	170	1685	3200	µg/kg	280	107.28
BENZO(K)FLUORANTHENE	240	6820	13400	µg/kg	400	153.26
C1-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C1-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA
C1-FLUORENES	NL	NL	NL	µg/kg	NA	NA
C1-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C1-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA
C2-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C2-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA
C2-FLUORENES	NL	NL	NL	µg/kg	NA	NA
C2-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C2-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA
C3-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C3-FLUORANTHENES/PYRENES	NL	NL	NL	µg/kg	NA	NA
C3-FLUORENES	NL	NL	NL	µg/kg	NA	NA
C3-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C3-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA
C4-CHRYSENES	NL	NL	NL	µg/kg	NA	NA
C4-NAPHTHALENES	NL	NL	NL	µg/kg	NA	NA
C4-PHENANTHRENES/ ANTHRACENES	NL	NL	NL	µg/kg	NA	NA
DIBENZ(A,H)ANTHRACENE	33	84	135	µg/kg	82	31.42
FLUORANTHENE	423	1327	2230	µg/kg	1000	383.14
FLUORENE	77.4	307	536	µg/kg	94	36.02
INDENO(1,2,3-CD)PYRENE	200	1700	3200	µg/kg	250	95.79
NAPHTHALENE	176	369	561	µg/kg	59	22.61
PERYLENE	NL	NL	NL	µg/kg	NA	NA
PHENANTHRENE	204	687	1170	µg/kg	640	**245.21**
PYRENE	195	858	1520	µg/kg	910	**348.66**
TOTAL PAHs 17	1610	12205	22800	µg/kg	6082	**2330.27**
TOTAL PAHs 34	1610	12205	22800	µg/kg	--	--
TOC	NL	NL	NL	%	2.61	

Notes:

Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

"--" - Not Applicable

DP - Duplicate
ID - Identification
J - Estimated value
MEC - Median Effects Concentration
NA - Not Analyzed

NL - Not Listed
Norm. - Normalized to 1% TOC
PAH - Polycylic Aromatic Hydrocarbon

PEC - Probable Effect Concentration
SQG - Sediment Quality Guidelines
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources
TOTAL PAHs 17/34 - Calculated by WESTON
Sum of detections plus 1/2 DL for NDs
*TOC not analyzed, used result for investigative sample
[1] WDNR Consensus-Based SQGs

Table 3-3a
Area 1 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-01	HB10-1-01	HB10-1-01	HB10-1-02	HB10-1-02	HB10-1-02	HB10-1-03	HB10-1-03	HB10-1-03
				Field Sample ID	HB10-1-01-06	HB10-1-01-12	HB10-1-01-40	HB10-1-02-06	HB10-1-02-06DP	HB10-1-02-23	HB10-1-03-06	HB10-1-03-12	HB10-1-03-36
				Sample Date	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010
				Depth Interval	0- 6	0- 12	36- 40	0- 6	0- 6	12- 23	0- 6	0- 12	12- 36
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	14200	19400	14400	11100	12300	10300	9990	9640	10700
ANTIMONY	2	13.5	25	mg/kg	1.4 J	1.5 J	1.1 J	1.5 J	1.5 J	1.4 J	1.1 J	1.2 J	1.5 J
ARSENIC	9.8	21.4	33	mg/kg	3.8	2.9	2.6	4.7	4.8	4.2	4.2	4.4	4.7
BARIUM	NL	NL	NL	mg/kg	94.3	122	91	84.1	94.3	78.9	81.6	79.6	78.7
BERYLLIUM	NL	NL	NL	mg/kg	0.65 J	0.85 J	0.69 J	0.84 U	0.56 J	0.51 J	0.79 U	0.69 U	0.53 J
CADMIUM	0.99	3	5	mg/kg	0.86 U	1.1 U	0.7 U	0.84 U	0.81 U	0.75 U	0.79 U	0.69 U	0.62 U
CALCIUM	NL	NL	NL	mg/kg	7540	4760	3730	11800	14000	13000	11100	12300	14700
CHROMIUM	43	76.5	110	mg/kg	29.1	34.9	28.4	26.4	28.4	23.5	23.4	23.4	24.5
COBALT	NL	NL	NL	mg/kg	10.6	13	10.6	8.7	9.2	8.1	8.3	8.3	9
COPPER	32	91	150	mg/kg	26.4 J	24.5 J	19.4 J	31.7 J	30.9 J	27 J	26.3 J	25.7 J	**50.6 J**
IRON	20000	30000	40000	mg/kg	**21700**	**21900**	18100	**25000**	**24800**	**21300**	**21200**	**21000**	**23000**
LEAD	36	83	130	mg/kg	22.3	8	6.2	27.7	31.4	31.9	30.3	30.6	24.8
MAGNESIUM	NL	NL	NL	mg/kg	7840	7800	6530	9750	11200	10100	9110	9490	10900
MANGANESE	460	780	1100	mg/kg	334	247	188	**652**	**687**	**640**	**637**	**714**	**652**
MERCURY	0.18	0.64	1.1	mg/kg	**0.23**	0.06 J	0.028 J	0.15 J	0.12 J	**0.23**	0.12 J	0.14 J	0.1 J
NICKEL	23	36	49	mg/kg	**24.7**	**28.4**	22.2	20.6	22.7	19.8	20	20.7	22.8
POTASSIUM	NL	NL	NL	mg/kg	1290	1410	1020	1250	1340	1100	1110	1030	1170
SELENIUM	NL	NL	NL	mg/kg	6 U	7.4 U	4.9 U	5.9 U	5.7 U	5.3 U	5.5 U	4.8 U	4.3 U
SILVER	1.6	1.9	2.2	mg/kg	1.7 U	2.1 U	1.4 U	1.7 U	1.6 U	1.5 U	1.6 U	1.4 U	1.2 U
SODIUM	NL	NL	NL	mg/kg	862 U	1050 U	703 U	836 U	810 U	750 U	789 U	688 U	616 U
THALLIUM	NL	NL	NL	mg/kg	4.3 U	5.3 U	3.5 U	4.2 U	4.1 U	3.8 U	3.9 U	3.4 U	3.1 U
VANADIUM	NL	NL	NL	mg/kg	37.2	46.8	40.5	54.4	38.4	34.7	32.1	35.2	35.7
ZINC	120	290	460	mg/kg	113	105	72.2	120	116	108	103	94.6	101

				Location ID	HB10-1-03	HB10-1-03	HB10-1-04	HB10-1-04	HB10-1-04	HB10-1-04	HB10-1-05	HB10-1-05	HB10-1-06
				Field Sample ID	HB10-1-03-60	HB10-1-03-84	HB10-1-04-06	HB10-1-04-12	HB10-1-04-36	HB10-1-04-50	HB10-1-05-06	HB10-1-05-06DP	HB10-1-06-06
				Sample Date	10/16/2010	10/16/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/16/2010	10/16/2010	10/16/2010
				Depth Interval	36- 60	60- 84	0- 6	0- 12	12- 36	36- 50	0- 6	0- 6	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	11100	12500	5710	6320	13500	8480	13000	12900	11000
ANTIMONY	2	13.5	25	mg/kg	1.4 J	1.5 J	0.74 J	0.83 J	1.4 J	0.77 J	1.5 J	1.3 J	1.4 J
ARSENIC	9.8	21.4	33	mg/kg	4.3	4.8	2.8	2.8	4.4	2.4	5.1	5.2	4.4
BARIUM	NL	NL	NL	mg/kg	88.7	104	38.7	45.6	105	57.6	103	105	86.2
BERYLLIUM	NL	NL	NL	mg/kg	0.55 J	0.62 J	0.34 J	0.43 J	1.1	0.48 J	0.68 J	0.68	0.52 J
CADMIUM	0.99	3	5	mg/kg	0.73 U	0.72 U	0.63 U	0.62 U	0.71 U	0.69 U	0.75 U	0.64 U	0.87 U
CALCIUM	NL	NL	NL	mg/kg	16700	15300	7280	8030	15000	6310	16600	16700	9450
CHROMIUM	43	76.5	110	mg/kg	26.6	30.1	14.8	24.6	24.9	19.7	27.8	27.1	25.3
COBALT	NL	NL	NL	mg/kg	8.8	9.3	6.3 U	6.2 U	9.4	6.9 U	10.1	10.1	8.7 U
COPPER	32	91	150	mg/kg	30.9 J	**38.3 J**	17.6	27.9	**37.6**	23.2	**44.5**	**39.8**	28.4 J
IRON	20000	30000	40000	mg/kg	**21400**	**23400**	14300	13400	**22500**	13900	**26000**	**26400**	**22600**
LEAD	36	83	130	mg/kg	**59.8**	**45.8**	23.6	**36.2**	34.6	**54.5**	31.8	30.6	33.9
MAGNESIUM	NL	NL	NL	mg/kg	12000	11600	5360	5380	7470	5710	11300	11700	8400
MANGANESE	460	780	1100	mg/kg	**496**	406	244	234	**462**	219	**619**	**607**	**649**
MERCURY	0.18	0.64	1.1	mg/kg	**0.2**	**0.2**	0.061 J	0.15	**0.22**	**0.19**	0.094 J	0.16 J	0.14 J
NICKEL	23	36	49	mg/kg	22.1	**24.4**	12.9	13.3	22.4	16	**25.7**	**25.2**	20.9
POTASSIUM	NL	NL	NL	mg/kg	1210	1310	632 U	625	1120	719	1570	1540	1170
SELENIUM	NL	NL	NL	mg/kg	5.1 U	5.1 U	4.4 U	4.4 U	5 U	4.8 U	5.3 U	4.5 U	6.1 U
SILVER	1.6	1.9	2.2	mg/kg	1.5 U	0.21 J	1.3 U	1.2 U	1.4 U	1.4 U	1.5 U	1.3 U	1.7 U
SODIUM	NL	NL	NL	mg/kg	728 U	724 U	632 U	623 U	710 U	689 U	751 UJ	643 UJ	868 U
THALLIUM	NL	NL	NL	mg/kg	3.6 U	3.6 U	0.67 J	3.1 U	3.6 U	3.4 U	3.8 U	3.2 U	4.3 U
VANADIUM	NL	NL	NL	mg/kg	35.8	37.7	24.1	25.3	38.2	30.4	39.9	38.2	36.5
ZINC	120	290	460	mg/kg	**137**	**149**	84.7 J	86.4 J	103 J	75.2 J	117	108	110

Table 3-3a
Area 1 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-07	HB10-1-07	HB10-1-07	HB10-1-07	HB10-1-08
				Field Sample ID	HB10-1-06-06DP	HB10-1-06-12	HB10-1-06-36	HB10-1-06-51	HB10-1-07-06	HB10-1-07-12	HB10-1-07-36	HB10-1-07-64	HB10-1-08-06
				Sample Date	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010
				Depth Interval	0- 6	0- 12	12- 36	36- 51	0- 6	0- 12	12- 36	60- 64	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	11500	10900	13400	17200	8030	11900	11600	4700	10100
ANTIMONY	2	13.5	25	mg/kg	1.6 J	1.4 J	1.8 J	2 J	0.93 J	1.4 J	1.1 J	0.41 J	1.1 J
ARSENIC	9.8	21.4	33	mg/kg	4.9	4.2	5.1	5.8	3.7	5.3	4.4	2.1	3.9
BARIUM	NL	NL	NL	mg/kg	91.8	83.2	106	126	60.8	95.7	83.6	28.8	75.2
BERYLLIUM	NL	NL	NL	mg/kg	0.54 J	0.54 J	0.69	0.82	0.69 U	0.69 J	0.6 J	0.59 U	0.51 J
CADMIUM	0.99	3	5	mg/kg	0.83 U	0.68 U	0.71	0.79 U	0.69 U	0.79 U	0.75 U	0.59 U	0.92 U
CALCIUM	NL	NL	NL	mg/kg	9840	12100	14300	16600	8560	12400	12100	6260	9900
CHROMIUM	43	76.5	110	mg/kg	27.5	25.1	33.9	37.5	19.8	26.4	24.3	11.3	24.7
COBALT	NL	NL	NL	mg/kg	9.3	8.8	10.3	12.4	6.9 U	9.1	9.2	5.9 U	9.2 U
COPPER	32	91	150	mg/kg	31 J	**48.2 J**	**44.7 J**	**51.4 J**	23.3	**38.3**	**34.6**	8	32
IRON	20000	30000	40000	mg/kg	**24300**	**21300**	**25900**	**31100**	16700	**22600**	**20300**	10400	**20500**
LEAD	36	83	130	mg/kg	**72.5**	**44.3**	**58.9**	**60.8**	**36.1**	**49.8**	**52.9**	2.9	**46.4**
MAGNESIUM	NL	NL	NL	mg/kg	9070	10000	12100	14400	7110	9220	9840	4290	8600
MANGANESE	460	780	1100	mg/kg	**744**	**497**	447	**516**	365	395	343	175	301
MERCURY	0.18	0.64	1.1	mg/kg	**0.2**	**0.2**	**0.34**	**0.46**	**0.23**	**0.44**	**0.39**	0.015 J	0.16 J
NICKEL	23	36	49	mg/kg	22.1	21.5	**26.5**	**31.3**	17.4	**23.3**	**23.2**	10.9	20.4
POTASSIUM	NL	NL	NL	mg/kg	1200	1180	1380	1780	812	1170	1070	586 U	1070
SELENIUM	NL	NL	NL	mg/kg	5.8 U	4.7 U	4.4 U	5.5 U	4.8 U	5.5 U	5.3 U	4.1 U	6.4 U
SILVER	1.6	1.9	2.2	mg/kg	1.7 U	1.4 U	0.21 J	0.13 J	1.4 U	1.6 U	1.5 U	1.2 U	1.8 U
SODIUM	NL	NL	NL	mg/kg	833 U	677 U	621 U	791 U	689 UJ	792 UJ	754 UJ	586 UJ	921 U
THALLIUM	NL	NL	NL	mg/kg	4.2 U	3.4 U	3.1 U	4 U	3.4 U	4 U	3.8 U	2.9 U	4.6 U
VANADIUM	NL	NL	NL	mg/kg	38.4	34.2	38.1	48.2	28.4	35.1	35.2	23	34.2
ZINC	120	290	460	mg/kg	119	**122**	**198**	**202**	103	**177**	**142**	24.4	**125 J**

				Location ID	HB10-1-08	HB10-1-08	HB10-1-10	HB10-1-11	HB10-1-11	HB10-1-12	HB10-1-12	HB10-1-12	HB10-1-13
				Field Sample ID	HB10-1-08-12	HB10-1-08-36	HB10-1-10-06	HB10-1-11-06	HB10-1-11-21	HB10-1-12-06	HB10-1-12-12	HB10-1-12-34	HB10-1-13-06
				Sample Date	10/17/2010	10/17/2010	10/18/2010	10/16/2010	10/16/2010	10/17/2010	10/17/2010	10/17/2010	10/18/2010
				Depth Interval	0- 12	12- 36	0- 6	0- 6	12- 21	0- 6	0- 12	12- 34	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	10900	15800	10300 J-	11800	14000	8470	11100	10300	14600 J-
ANTIMONY	2	13.5	25	mg/kg	1.3 J	1.9 J	1.1 J-	1.6 J	1.7 J	0.93 J	1.3 J	18.6 UJ	2 J-
ARSENIC	9.8	21.4	33	mg/kg	4	5.7	5.7 J-	4.9	5.2	3.5	4.6	3.4	7.9 J-
BARIUM	NL	NL	NL	mg/kg	81.5	117	91.8 J-	87.8	107	57.4	83.3	70.9	121 J-
BERYLLIUM	NL	NL	NL	mg/kg	0.53 J	0.83	0.53 J-	0.61 J	0.73 J	0.45 J	0.62 J	0.54 J	0.9 J-
CADMIUM	0.99	3	5	mg/kg	0.91 U	0.9	1 U	0.84 U	0.8 U	0.65 U	0.88 U	1.6 U	0.88 U
CALCIUM	NL	NL	NL	mg/kg	9980	11800	9030 J-	8910	11000	6890	9340	9450	17400 J-
CHROMIUM	43	76.5	110	mg/kg	26.5	36.4	23.1 J-	27.6	35	20.7	26.2	22.6	32.3 J-
COBALT	NL	NL	NL	mg/kg	9.1 U	11.6	8.1 J-	9.3	10.5	7	9	8.5 J	10.5 J-
COPPER	32	91	150	mg/kg	**41.4**	**57.6**	30.4 J-	**33.7 J**	**45.5 J**	26.6	**40.2**	28.8 J	**44.2 J-**
IRON	20000	30000	40000	mg/kg	**21200**	**27400**	**22500 J-**	**23000**	**25200**	16600	19700	15700	**27000 J-**
LEAD	36	83	130	mg/kg	**50.9**	**88.6**	**38.5 J-**	**58.5**	**63**	**47.7**	**56.8**	34.6 J	**83.4 J-**
MAGNESIUM	NL	NL	NL	mg/kg	9010	12000	7520 J-	8690	10600	6340	8430	7290	9730 J-
MANGANESE	460	780	1100	mg/kg	311	391	**827 J-**	**510**	391	222	304	342	**702 J-**
MERCURY	0.18	0.64	1.1	mg/kg	**0.23**	**0.68**	**0.34 J-**	**0.32**	**0.37**	**0.21**	**0.59**	0.062 J-	**0.29 J-**
NICKEL	23	36	49	mg/kg	21.9	**30.4**	20.9 J-	22.7	**26.8**	17.3	22.4	20.4	**28.5 J-**
POTASSIUM	NL	NL	NL	mg/kg	1160	1610	1120 J-	1180	1300	860	1090	1550 U	1470 J-
SELENIUM	NL	NL	NL	mg/kg	6.4 U	5.1 U	7.1 R	5.9 U	5.6 U	4.5 U	6.2 U	10.9 U	6.2 R
SILVER	1.6	1.9	2.2	mg/kg	1.8 U	1.5 U	2 R	1.7 U	0.089 J	1.3 U	1.8 U	3.1 U	0.058 J-
SODIUM	NL	NL	NL	mg/kg	909 U	733 U	1010 UJ	842 U	798 U	649 U	881 U	1550 UJ	880 U
THALLIUM	NL	NL	NL	mg/kg	4.5 U	3.7 U	5.1 U	4.2 U	4 U	3.2 U	4.4 U	7.8 U	1.4 J-
VANADIUM	NL	NL	NL	mg/kg	35.3	44.5	34.3 J-	39.6	41.8	30.9	34.5	38.4	48.2 J-
ZINC	120	290	460	mg/kg	**131 J**	**244 J**	**125 J-**	**137**	**192**	108 J	**175 J**	109	**191 J-**

Table 3-3a
Area 1 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-13	HB10-1-13	HB10-1-13	HB10-1-14	HB10-1-14	HB10-1-14	HB10-1-14	HB10-1-15	HB10-1-15
				Field Sample ID	HB10-1-13-12	HB10-1-13-36	HB10-1-13-67	HB10-1-14-06	HB10-1-14-12	HB10-1-14-36	HB10-1-14-66	HB10-1-15-06	HB10-1-15-16
				Sample Date	10/18/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010
				Depth Interval	0- 12	12- 36	60- 67	0- 6	0- 12	12- 36	60- 66	0- 6	12- 16
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	14700 J-	12300 J-	10900 J-	9940	12800	11600	12300	4340	5900
ANTIMONY	2	13.5	25	mg/kg	1.8 J-	1.7 J-	1.5 J-	1.2 J	1.3 J	1.3 J	1.4 J	0.59 J	0.9 J
ARSENIC	9.8	21.4	33	mg/kg	8.2 J-	5.9 J-	6.1 J-	3.7	5.1	5.1	5.7	2.2	3.2
BARIUM	NL	NL	NL	mg/kg	123 J-	99.6 J-	89.3 J-	81.4	100	92.5	100	29.1	45.6
BERYLLIUM	NL	NL	NL	mg/kg	0.82 J-	0.72 J-	0.7 J-	0.5 J	0.63 J	0.61 J	0.69 J	0.24 J	0.36 J
CADMIUM	0.99	3	5	mg/kg	0.8 U	0.68 U	0.56 U	0.77 U	0.96 U	0.74 U	0.78 U	0.49 U	0.76 U
CALCIUM	NL	NL	NL	mg/kg	13000 J-	12800 J-	12900 J-	8490	10000	10600	13200	4450	3770
CHROMIUM	43	76.5	110	mg/kg	35.9 J-	31.1 J-	25.4 J-	24.3	29.8	27.7	30.8	10.7	14
COBALT	NL	NL	NL	mg/kg	11 J-	9.7 J-	8.2 J-	7.9	10	9	9.5	4.3 J	5.3 J
COPPER	32	91	150	mg/kg	**48.3 J-**	**36.7 J-**	**35.2 J-**	**33.2**	**37**	**40.1**	**48.7**	10.6 J	20.2 J
IRON	20000	30000	40000	mg/kg	**28600 J-**	**27100 J-**	**21100 J-**	**20800**	**25800**	**22900**	**22900**	11200	11100
LEAD	36	83	130	mg/kg	**81.4 J-**	**163 J-**	**63.9 J-**	**50.1**	**59.6**	**74.6**	**102**	24.1 J	**132 J**
MAGNESIUM	NL	NL	NL	mg/kg	10300 J-	8620 J-	7740 J-	7330	9430	8860	10000	2640	3350
MANGANESE	460	780	1100	mg/kg	**537 J-**	**607 J-**	379 J-	**502**	**635**	**471**	362	153	149
MERCURY	0.18	0.64	1.1	mg/kg	**0.45 J-**	**0.2 J-**	**0.34 J-**	**0.19 J**	**0.21**	**0.26**	**0.48**	0.059 J	0.15 J
NICKEL	23	36	49	mg/kg	**34.9 J-**	**26 J-**	22.1 J-	20.6	**25.8**	**23.4**	**24.6**	9.4	12.4
POTASSIUM	NL	NL	NL	mg/kg	1490 J-	1220 J-	1030 J-	1080	1330	1160	1220	488 U	761 U
SELENIUM	NL	NL	NL	mg/kg	5.6 R	4.8 R	3.9 R	5.4 U	6.7 U	5.2 U	5.5 U	3.4 U	5.3 U
SILVER	1.6	1.9	2.2	mg/kg	0.2 J-	0.047 J-	0.044 J-	1.5 U	1.9 U	1.5 U	1.6 U	0.98 U	1.5 U
SODIUM	NL	NL	NL	mg/kg	795 U	684 U	558 U	769 U	956 U	742 U	780 U	488 UJ	761 UJ
THALLIUM	NL	NL	NL	mg/kg	1.2 J-	1.2 J-	0.85 J-	0.92 J	1.3 J	1.3 J	1 J	2.4 U	3.8 U
VANADIUM	NL	NL	NL	mg/kg	68.8 J-	45.1 J-	35.5 J-	35.3	41.9	36.9	38.8	22.3	23.5
ZINC	120	290	460	mg/kg	**202 J-**	**154 J-**	**142 J-**	116 J	**140 J**	**141 J**	**173 J**	48.8	**127**

				Location ID	HB10-1-16	HB10-1-16	HB10-1-16	HB10-1-17	HB10-1-20	HB10-1-21	HB10-1-21	HB10-1-23	HB10-1-23
				Field Sample ID	HB10-1-16-06	HB10-1-16-12	HB10-1-16-31	HB10-1-17-06	HB10-1-20-06	HB10-1-21-06	HB10-1-21-23	HB10-1-23-06	HB10-1-23-06DP
				Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010
				Depth Interval	0- 6	0- 12	12- 31	0- 6	0- 6	0- 6	12- 23	0- 6	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	8710	11600	16100	10900	8180	6960	8340	7130	8530
ANTIMONY	2	13.5	25	mg/kg	1.1 J	1.1 J	1.8 J	1.4 J	1 J	0.83 J	1.2 J	1 J	0.63 J
ARSENIC	9.8	21.4	33	mg/kg	3.5	4.3	5.6	4.4	3.9	3.9	3.8	3.7	5.2
BARIUM	NL	NL	NL	mg/kg	68.8	81.7	124	92.7	64.4	52	60.8	51.8	60.7
BERYLLIUM	NL	NL	NL	mg/kg	0.59	0.7 J	0.96	0.6 J	0.49 J	0.78	0.71	0.83 U	0.81 U
CADMIUM	0.99	3	5	mg/kg	0.53 U	0.85 U	0.7 U	0.78 U	0.55 U	0.48 U	0.48 U	0.83 U	0.81 U
CALCIUM	NL	NL	NL	mg/kg	15700	9120	11800	9520	14900	12400	12700	5730	6790
CHROMIUM	43	76.5	110	mg/kg	18.7	23.4	29.5	27.2	18.3	10.1	15.4	17.5	20.5
COBALT	NL	NL	NL	mg/kg	6.9	8.9	11.7	8.9	6.5	3.7 J	5.8	8.3 U	8.1 U
COPPER	32	91	150	mg/kg	**32.7 J**	**40.8 J**	**63.1 J**	**34.1**	27.3 J	**89.2 J**	23 J	21.7	26.8
IRON	20000	30000	40000	mg/kg	**22700**	**23500**	**27600**	**23700**	18200	13400	16400	14800	17200
LEAD	36	83	130	mg/kg	32.8 J	**68 J**	**79.5 J**	**115**	**36.2 J**	25.6 J	**39.9 J**	32.7	**58.7**
MAGNESIUM	NL	NL	NL	mg/kg	7060	7450	10200	7480	7730	2780	4020	5200	5970
MANGANESE	460	780	1100	mg/kg	372	329	411	**693**	397	331	383	233	252
MERCURY	0.18	0.64	1.1	mg/kg	0.11 J	**0.3**	**58**	**0.25**	0.074 J	0.12 J	**0.29**	0.12 J	0.13 J
NICKEL	23	36	49	mg/kg	16.3	21.7	**29.2**	**24.7**	16.3	9	14.8	15.5	18
POTASSIUM	NL	NL	NL	mg/kg	911	1010	1360	1060	793	506	610	825 U	842
SELENIUM	NL	NL	NL	mg/kg	3.7 U	5.9 U	4.9 U	5.5 U	3.8 U	3.3 U	3.4 U	5.8 U	5.7 U
SILVER	1.6	1.9	2.2	mg/kg	1.1 U	1.7 U	1.4 U	1.6 U	1.1 U	0.95 U	0.97 U	1.7 U	1.6 U
SODIUM	NL	NL	NL	mg/kg	527 UJ	849 UJ	699 UJ	785 U	546 UJ	477 UJ	483 UJ	825 UJ	810 UJ
THALLIUM	NL	NL	NL	mg/kg	2.6 U	4.2 U	3.5 U	3.9 U	2.7 U	2.4 U	2.4 U	4.1 U	4 U
VANADIUM	NL	NL	NL	mg/kg	28.5	34.9	44.4	47.9	31.6	19.2	27.8	26.4	31.1
ZINC	120	290	460	mg/kg	81.1	**168**	**243**	**129 J**	96.4	44.2	71.4	84.7	101

Table 3-3a
Area 1 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-23	HB10-1-23	HB10-1-24	HB10-1-24	HB10-1-24	HB10-1-25	HB10-1-25	HB10-1-27	HB10-1-27
				Field Sample ID	HB10-1-23-12	HB10-1-23-36	HB10-1-24-06	HB10-1-24-12	HB10-1-24-36	HB10-1-25-06	HB10-1-25-06DP	HB10-1-27-06	HB10-1-27-06DP
				Sample Date	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010
				Depth Interval	0- 12	12- 36	0- 6	0- 12	12- 36	0- 6	0- 6	0- 6	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	10900	15800	15700 J-	17800 J-	16200 J-	13800	15300	18700 J-	19100 J-
ANTIMONY	2	13.5	25	mg/kg	0.92 J	1.7 J	**3.2 J-**	**4.1 J-**	**38.5 J-**	1.3 J	1.8 J	1.6 J-	1.9 J-
ARSENIC	9.8	21.4	33	mg/kg	4.4	5.1	8.5 J-	9.1 J-	8.6 J-	5.7	6.3	5.2 J-	4.7 J-
BARIUM	NL	NL	NL	mg/kg	83.2	129	169 J-	189 J-	221 J-	114	124	178 J-	155 J-
BERYLLIUM	NL	NL	NL	mg/kg	0.6 J	0.82 J	1 J-	1.1 J-	1.2 J-	0.68 J	0.74 J	0.91 J-	0.96 J-
CADMIUM	0.99	3	5	mg/kg	0.85 U	0.85	**1.3 J-**	**1.3 J-**	**1.8 J-**	0.99 U	1.1 U	0.93 U	0.82 U
CALCIUM	NL	NL	NL	mg/kg	7320	8780	11100 J-	10300 J-	13000 J-	10400	11000	14500 J-	12600 J-
CHROMIUM	43	76.5	110	mg/kg	26.2	33	**55.5 J-**	**58.6 J-**	**57.9 J-**	34.8	37.8	37 J-	37.7 J-
COBALT	NL	NL	NL	mg/kg	8.9	11.2	12.3 J-	13.6 J-	11.5 J-	11.2	12.1	14 J-	13.9 J-
COPPER	32	91	150	mg/kg	**39.6**	**53 J**	**102 J-**	**115 J-**	**144 J-**	**45.2 J**	**51.4 J**	**37.7 J-**	**38.7 J-**
IRON	20000	30000	40000	mg/kg	19300	**26700**	**36900 J-**	**39300 J-**	**29500 J-**	**30600**	**33100**	**27500 J-**	**29200 J-**
LEAD	36	83	130	mg/kg	**81.6**	**123 J**	**208 J-**	**234 J-**	**207 J-**	**84.3 J**	**89.4 J**	**46.8 J-**	26.4 J-
MAGNESIUM	NL	NL	NL	mg/kg	7410	9730	9420 J-	10100 J-	8940 J-	10000	10900	11300 J-	12600 J-
MANGANESE	460	780	1100	mg/kg	276	348	**603 J-**	**619 J-**	441 J-	**708**	**759**	**480 J-**	**522 J-**
MERCURY	0.18	0.64	1.1	mg/kg	**0.45**	**0.47**	**0.74 J-**	**0.67 J-**	**2.5 J-**	**0.26**	**0.28**	0.11 J-	0.075 J-
NICKEL	23	36	49	mg/kg	22.2	**28.5**	**34.4 J-**	**37 J-**	**32.9 J-**	**30.1**	**32.2**	**35.2 J-**	**35.5 J-**
POTASSIUM	NL	NL	NL	mg/kg	1120	1460	1480 J-	1710 J-	1460 J-	1440	1540	1980 J-	2110 J-
SELENIUM	NL	NL	NL	mg/kg	5.9 U	5.9 U	6.7 R	6.2 R	5.7 R	6.9 U	7.5 U	6.5 R	5.8 R
SILVER	1.6	1.9	2.2	mg/kg	1.7 U	1.7 U	0.4 J-	0.46 J-	1.6 J-	2 U	2.1 U	1.9 R	1.6 R
SODIUM	NL	NL	NL	mg/kg	845 U	842 UJ	957 U	882 U	816 U	989 UJ	1060 UJ	934 UJ	824 UJ
THALLIUM	NL	NL	NL	mg/kg	4.2 U	4.2 U	1.7 J-	1.6 J-	1.7 J-	4.9 U	5.3 U	4.7 U	4.1 U
VANADIUM	NL	NL	NL	mg/kg	34.7	42.2	57.4 J-	56.2 J-	45.9 J-	58.1	59.1	48.8 J-	49.3 J-
ZINC	120	290	460	mg/kg	**154 J**	**238**	**366 J-**	**424 J-**	**553 J-**	**181**	**186**	103 J-	91.2 J-

				Location ID	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-29	HB10-1-29	HB10-1-29
				Field Sample ID	HB10-1-28-06	HB10-1-28-12	HB10-1-28-36	HB10-1-28-60	HB10-1-28-84	HB10-1-28-96	HB10-1-29-06	HB10-1-29-12	HB10-1-29-36
				Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010
				Depth Interval	0- 6	0- 12	12- 36	36- 60	60- 84	60- 96	0- 6	0- 12	12- 36
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	10600	10500	14500	18800	16800	17300	13100	14400	12400
ANTIMONY	2	13.5	25	mg/kg	1.1 J	1.3 J	1.8 J	**2.3 J**	**2.3 J**	1.3 J	**3.1 J**	**3.5 J**	**3.5 J**
ARSENIC	9.8	21.4	33	mg/kg	4.2	4.9	6.4	8.6	7.3	5.2	8.4	9.1	**12.4**
BARIUM	NL	NL	NL	mg/kg	89.8	91.7	118	153	144	120	223	245	335
BERYLLIUM	NL	NL	NL	mg/kg	0.54 J	0.57 J	0.77 J	0.97	0.88	0.79	0.99	1 J	1.4 J
CADMIUM	0.99	3	5	mg/kg	0.76 U	0.71 U	0.91 U	**1.1**	0.93	0.78 U	**1.7**	**2.3**	**3.7**
CALCIUM	NL	NL	NL	mg/kg	15500	18000	20200	18000	13800	8640	19500	24100	16700
CHROMIUM	43	76.5	110	mg/kg	25.3	27.3	35.2	41.2	36.4	31.5	**85**	**117**	**97.6**
COBALT	NL	NL	NL	mg/kg	8	8.3	11.2	13.4	11.5	11.8	11.1	12.6	13.9 U
COPPER	32	91	150	mg/kg	**40.2**	**44.9**	**57.2**	**67**	**56**	**37.3**	**145**	**178**	**321**
IRON	20000	30000	40000	mg/kg	**21800**	**21500**	**29000**	**35400**	**29800**	**26200**	**37000**	**41400**	**33400**
LEAD	36	83	130	mg/kg	**60.3**	**71.5**	**84.2**	**84.5**	**112**	35.9	**294**	**382**	**481**
MAGNESIUM	NL	NL	NL	mg/kg	9320	11100	13900	14900	11800	10200	8320	9410	6370
MANGANESE	460	780	1100	mg/kg	385	373	**464**	**521**	374	336	**717**	**891**	**578**
MERCURY	0.18	0.64	1.1	mg/kg	**0.23**	**0.34**	**0.62**	**0.78**	**1.8**	0.13 J	**0.88**	**0.82**	**1.9**
NICKEL	23	36	49	mg/kg	21.1	22.1	**30.2**	**35.9**	**30.5**	**29.4**	**34.5**	**44.4**	**38.8**
POTASSIUM	NL	NL	NL	mg/kg	1090	1070	1490	1880	1560	1560	1140	1230	1390 U
SELENIUM	NL	NL	NL	mg/kg	5.4 U	5 U	6.4 U	6.6 U	5.4 U	5.5 U	5.5 U	8.5 U	1.8 J
SILVER	1.6	1.9	2.2	mg/kg	1.5 U	1.4 U	1.8 U	1.9 U	1.5 U	1.6 U	1.6 U	2.4 U	**1.8 J**
SODIUM	NL	NL	NL	mg/kg	765 UJ	715 UJ	908 UJ	947 UJ	772 UJ	785 UJ	1190	2630	3560
THALLIUM	NL	NL	NL	mg/kg	3.8 U	3.6 U	4.5 U	4.7 U	3.9 U	3.9 U	1.6 J	1.9 J	1.9 J
VANADIUM	NL	NL	NL	mg/kg	31.1	33.1	43.8	50.2	43.8	44.1	56.8	63.9	59.8
ZINC	120	290	460	mg/kg	**190**	**203**	**259**	**344**	**270**	98.2	**487 J**	**605 J**	**945 J**

Table 3-3a
Area 1 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-29	HB10-1-29	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-31
				Field Sample ID	HB10-1-29-60	HB10-1-29-93	HB10-1-30-06	HB10-1-30-06DP	HB10-1-30-12	HB10-1-30-36	HB10-1-30-60	HB10-1-30-77	HB10-1-31-06
				Sample Date	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
				Depth Interval	36- 60	60- 93	0- 6	0- 6	0- 12	12- 36	36- 60	60- 77	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	7020	10200	12600 J-	13600 J-	16600 J-	16900 J-	14200 J-	10800 J-	11700 J-
ANTIMONY	2	13.5	25	mg/kg	**5.3 J**	2 J	1.7 J-	1.9 J-	**2.2 J-**	**2.1 J-**	1.3 J-	29.2 R	1.4 J-
ARSENIC	9.8	21.4	33	mg/kg	5.1	4.8	7.7 J-	7.6 J-	7.2 J-	6.2 J-	4 J-	2.6 J-	7.6 J-
BARIUM	NL	NL	NL	mg/kg	303 J	280	101 J-	116 J-	147 J-	141 J-	99.8 J-	90.5 J-	109 J-
BERYLLIUM	NL	NL	NL	mg/kg	0.64 J	0.74 J	0.73 J-	0.78 J-	1 J-	1 J-	0.68 J-	0.61 J-	0.72 J-
CADMIUM	0.99	3	5	mg/kg	**2**	**2.7**	**1.1 J-**	0.8 U	0.83 J-	0.69 U	0.64 U	2.4 U	0.61 J-
CALCIUM	NL	NL	NL	mg/kg	10600	8960	8170 J-	8770 J-	10400 J-	12600 J-	7540 J-	12200 J-	9820 J-
CHROMIUM	43	76.5	110	mg/kg	22.5	25.5	30.4 J-	32.4 J-	34.9 J-	35.1 J-	27.1 J-	17.9 J-	29.8 J-
COBALT	NL	NL	NL	mg/kg	12.2 U	8.6 U	10.7 J-	11.6 J-	13.5 J-	13.3 J-	9.2 J-	5.3 J-	9.7 J-
COPPER	32	91	150	mg/kg	**114**	**179**	**45.2 J-**	**55.3 J-**	**69.8 J-**	**58.5 J-**	**34.3 J-**	**32.2 J-**	**44 J-**
IRON	20000	30000	40000	mg/kg	14000	18500	**25400 J-**	**27600 J-**	**31400 J-**	**29200 J-**	19900 J-	10400 J-	**24400 J-**
LEAD	36	83	130	mg/kg	**188**	**308**	**93.8 J-**	**98.6 J-**	**167 J-**	**130 J-**	**126 J-**	6.5 J-	**97.6 J-**
MAGNESIUM	NL	NL	NL	mg/kg	3450	5620	8560 J-	9040 J-	11200 J-	11400 J-	7640 J-	4050 J-	8550 J-
MANGANESE	460	780	1100	mg/kg	230	232	**467 J-**	**610 J-**	**498 J-**	429 J-	293 J-	437 J-	446 J-
MERCURY	0.18	0.64	1.1	mg/kg	**1.8 J**	**5.9**	**0.46 J-**	**0.65 J-**	**1.1 J-**	**0.45 J-**	**0.36 J-**	0.075 J-	**0.43 J-**
NICKEL	23	36	49	mg/kg	16.8	22.4	**27.6 J-**	**31.6 J-**	**35 J-**	**33.9 J-**	**24.9 J-**	18.4 J-	**25.7 J-**
POTASSIUM	NL	NL	NL	mg/kg	1220 U	872	1340 J-	1490 J-	1660 J-	1630 J-	1300 J-	2430 U	1260 J-
SELENIUM	NL	NL	NL	mg/kg	8.5 U	6 U	4.6 R	5.6 R	5.6 R	4.8 R	4.5 R	17 R	7.7 R
SILVER	1.6	1.9	2.2	mg/kg	1.2 J	**1.7 J**	1.3 J-	0.058 J-	1.6 R	1.4 R	1.3 R	4.9 R	2.2 U
SODIUM	NL	NL	NL	mg/kg	2370	860 U	656 UJ	797 UJ	794 UJ	690 UJ	645 UJ	2430 UJ	1100 UJ
THALLIUM	NL	NL	NL	mg/kg	0.89 J	0.89 J	3.3 U	4 U	4 U	3.5 U	3.2 U	12.2 U	5.5 U
VANADIUM	NL	NL	NL	mg/kg	25.4	33.6	41.1 J-	44.3 J-	49.8 J-	47 J-	33.8 J-	28.8 J-	38.5 J-
ZINC	120	290	460	mg/kg	**656 J**	**810 J**	**190 J-**	**195 J-**	**260 J-**	**224 J-**	**128 J-**	36.9 J-	**193 J-**

				Location ID	HB10-1-31	HB10-1-31	HB10-1-31
				Field Sample ID	HB10-1-31-06DP	HB10-1-31-12	HB10-1-31-36
				Sample Date	10/18/2010	10/18/2010	10/18/2010
				Depth Interval	0- 6	0- 12	12- 36
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**			
ALUMINUM	NL	NL	NL	mg/kg	12600 J-	18300 J-	20700 J-
ANTIMONY	2	13.5	25	mg/kg	1.3 J-	**2.2 J-**	**2.1 J-**
ARSENIC	9.8	21.4	33	mg/kg	5.8 J-	**9.9 J-**	8.8 J-
BARIUM	NL	NL	NL	mg/kg	100 J-	159 J-	185 J-
BERYLLIUM	NL	NL	NL	mg/kg	0.61 J-	0.98 J-	1.1 J-
CADMIUM	0.99	3	5	mg/kg	0.93 U	**1 J-**	0.52 J-
CALCIUM	NL	NL	NL	mg/kg	8910 J-	12400 J-	19400 J-
CHROMIUM	43	76.5	110	mg/kg	29.9 J-	**45.5 J-**	39.5 J-
COBALT	NL	NL	NL	mg/kg	9.7 J-	13.6 J-	16 J-
COPPER	32	91	150	mg/kg	**42 J-**	**85.3 J-**	**61.7 J-**
IRON	20000	30000	40000	mg/kg	**25300 J-**	**35200 J-**	**36500 J-**
LEAD	36	83	130	mg/kg	**64.8 J-**	**251 J-**	**88 J-**
MAGNESIUM	NL	NL	NL	mg/kg	8630 J-	12500 J-	16100 J-
MANGANESE	460	780	1100	mg/kg	**557 J-**	**589 J-**	**514 J-**
MERCURY	0.18	0.64	1.1	mg/kg	**0.37 J-**	**0.58 J-**	**0.3 J-**
NICKEL	23	36	49	mg/kg	**27.2 J-**	**38.3 J-**	**40.9 J-**
POTASSIUM	NL	NL	NL	mg/kg	1340 J-	1850 J-	2400 J-
SELENIUM	NL	NL	NL	mg/kg	6.5 R	6.5 R	6.7 R
SILVER	1.6	1.9	2.2	mg/kg	1.9 U	1.9 U	1.9 R
SODIUM	NL	NL	NL	mg/kg	927 UJ	935 UJ	957 UJ
THALLIUM	NL	NL	NL	mg/kg	4.6 U	4.7 U	2.2 J-
VANADIUM	NL	NL	NL	mg/kg	45.4 J-	53.8 J-	53.1 J-
ZINC	120	290	460	mg/kg	**156 J-**	**309 J-**	**206 J-**

Notes:
Level II Concern: >TEC and≤MEC
Level III Concern: >MEC and≤PEC
Level IV Concern: >PEC

DP - Duplicate
ID - Identification
J - Estimated value
J- - Estimated value low
MEC - Median Effects Concentration
mg/kg - Milligram per kilogram
NL - Not Listed
PEC - Probable Effect Concentration
R - Not detected
SQG - Sediment Quality Guidelines
TAL - Target Analyte List
TEC - Threshold Effects Concentration
U - Not detected
UJ - Not detected, Estimated value
WDNR - Wisconsin Department of Natural Resources
[1] WDNR Consensus-Based SQGs

Table 3-3b
Area 2 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-18	HB10-2-18	HB10-2-26	HB10-2-26	HB10-2-32	HB10-2-32	HB10-2-33	HB10-2-33	HB10-2-34
				Field Sample ID	HB10-2-18-06	HB10-2-18-06DP	HB10-2-26-06	HB10-2-26-17	HB10-2-32-06	HB10-2-32-06DP	HB10-2-33-06	HB10-2-33-22	HB10-2-34-06
				Sample Date	10/18/2010	10/18/2010	10/16/2010	10/16/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
				Depth Interval	0- 6	0- 6	0- 6	12- 17	0- 6	0- 6	0- 6	12- 22	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	12700 J-	12200 J-	5380	3610	16400 J-	15400 J-	4040 J-	13400 J-	17900
ANTIMONY	2	13.5	25	mg/kg	1.8 J-	1.3 J-	1 J	0.76 J	1.8 J-	1.8 J-	0.54 J-	1.6 J-	**2.2 J**
ARSENIC	9.8	21.4	33	mg/kg	6.5 J-	5.5 J-	3	2.3	7 J-	6.5 J-	2.6 J-	5.7 J-	7.1
BARIUM	NL	NL	NL	mg/kg	179 J-	187 J-	59.2	27.1	142 J-	146 J-	25.8 J-	104 J-	140
BERYLLIUM	NL	NL	NL	mg/kg	0.59 J-	0.59 J-	0.63 U	0.6 U	0.81 J-	0.77 J-	0.22 J-	0.72 J-	0.94 J
CADMIUM	0.99	3	5	mg/kg	0.92 U	0.74 U	0.63 U	0.6 U	1.1 U	1.2 U	0.47 U	0.66 U	1 U
CALCIUM	NL	NL	NL	mg/kg	8960 J-	9990 J-	10100 J	3560	13700 J-	12400 J-	1920 J-	6990 J-	18500
CHROMIUM	43	76.5	110	mg/kg	28.6 J-	28.2 J-	20.4	10.2	35.4 J-	34.2 J-	9.6 J-	28 J-	**44.9**
COBALT	NL	NL	NL	mg/kg	10.1 J-	9.3 J-	6.3 U	6 U	12.4 J-	12 J-	4.4 J-	10.2 J-	12.9
COPPER	32	91	150	mg/kg	**52.1 J-**	**63.1 J-**	29.2 J	11.9 J	**46.7 J-**	**45.9 J-**	12.1 J-	**40.7 J-**	**60.6 J**
IRON	####	####	####	mg/kg	**29600 J-**	**26700 J-**	16100	9780	**32600 J-**	**30900 J-**	9460 J-	**22300 J-**	**33600**
LEAD	36	83	130	mg/kg	**91 J-**	**106 J-**	**54.5**	**57.1**	**57.3 J-**	**61.3 J-**	31.1 J-	**78.5 J-**	**148 J**
MAGNESIUM	NL	NL	NL	mg/kg	7490 J-	7220 J-	3390	2150	11700 J-	11200 J-	2330 J-	8340 J-	12300
MANGANESE	460	780	1100	mg/kg	**1010 J-**	**666 J-**	349	138	**1250 J-**	**1130 J-**	111 J-	304 J-	**858**
MERCURY	0.18	0.64	1.1	mg/kg	**0.25 J-**	**0.31 J-**	**0.21**	0.048 J	**0.22 J-**	**0.21 J-**	0.086 J-	**0.45 J-**	**0.29**
NICKEL	23	36	49	mg/kg	**27 J-**	**26.4 J-**	12	8.2	**32.2 J-**	**32.5 J-**	9 J-	**24.5 J-**	**35.7**
POTASSIUM	NL	NL	NL	mg/kg	1230 J-	1140 J-	629 U	605 U	1980 J-	1810 J-	472 U	1380 J-	2050
SELENIUM	NL	NL	NL	mg/kg	6.4 R	5.2 R	4.4 U	4.2 U	7.4 R	8.3 R	3.3 R	4.6 R	7 U
SILVER	1.6	1.9	2.2	mg/kg	1.8 R	1.5 R	1.3 U	1.2 U	2.1 R	2.4 R	0.94 R	1.3 R	2 U
SODIUM	NL	NL	NL	mg/kg	919 UJ	745 UJ	629 U	605 U	1050 UJ	1180 UJ	472 U	660 U	1000 UJ
THALLIUM	NL	NL	NL	mg/kg	4.6 U	3.7 U	3.1 U	3 U	5.3 U	5.9 U	0.39 J-	0.98 J-	5 U
VANADIUM	NL	NL	NL	mg/kg	53.5 J-	55.4 J-	23.8	19.3	52.5 J-	53 J-	18 J-	36.9 J-	63.4
ZINC	120	290	460	mg/kg	**147 J-**	**153 J-**	**131**	69.7	**177 J-**	**155 J-**	51.1 J-	**168 J-**	**180**

				Location ID	HB10-2-34	HB10-2-35	HB10-2-35	HB10-2-35	HB10-2-36	HB10-2-36	HB10-2-37	HB10-2-37	HB10-2-38
				Field Sample ID	HB10-2-34-06DP	HB10-2-35-06	HB10-2-35-12	HB10-2-35-30	HB10-2-36-06	HB10-2-36-06DP	HB10-2-37-06	HB10-2-37-23	HB10-2-38-06
				Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
				Depth Interval	0- 6	0- 6	0- 12	12- 30	0- 6	0- 6	0- 6	12- 23	0- 6
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	16100	3010 J-	6490 J-	11700 J-	12400 J-	17000 J-	2710 J-	15400 J-	14900 J-
ANTIMONY	2	13.5	25	mg/kg	1.9 J	0.43 J-	0.8 J-	1.4 J-	1.5 J-	**2.1 J-**	0.39 J-	1.8 J-	1.8 J-
ARSENIC	9.8	21.4	33	mg/kg	7.5	2 J-	3.5 J-	5.4 J-	6 J-	8.8 J-	1.8 J-	5.1 J-	6.8 J-
BARIUM	NL	NL	NL	mg/kg	134	25 J-	49.9 J-	104 J-	109 J-	155 J-	16.2 J-	146 J-	182 J-
BERYLLIUM	NL	NL	NL	mg/kg	0.84 J	0.17 J-	0.36 J-	0.69 J-	0.67 J-	0.96 J-	0.16 J-	0.72 J-	0.75 J-
CADMIUM	0.99	3	5	mg/kg	0.89 U	0.5 U	0.49 U	0.71 J-	0.63 U	**1.1 J-**	0.44 U	1.6 U	0.94 U
CALCIUM	NL	NL	NL	mg/kg	12400	1810 J-	3980 J-	8030 J-	11100 J-	14100 J-	1230 J-	10500 J-	10500 J-
CHROMIUM	43	76.5	110	mg/kg	37.8	7.7 J-	16.3 J-	26.1 J-	30.4 J-	**46.8 J-**	6.8 J-	30.1 J-	36.9 J-
COBALT	NL	NL	NL	mg/kg	12.2	3.2 J-	5.7 J-	9.2 J-	9.3 J-	12.9 J-	3.2 J-	8.9 J-	11.9 J-
COPPER	32	91	150	mg/kg	**55.9 J**	7.9 J-	21.8 J-	**47.9 J-**	**49.3 J-**	**74.3 J-**	6.3 J-	**34.8 J-**	**58 J-**
IRON	####	####	####	mg/kg	**31300**	7890 J-	13900 J-	**21300 J-**	**24800 J-**	**33700 J-**	7460 J-	**29200 J-**	**32400 J-**
LEAD	36	83	130	mg/kg	**96.9 J**	17.1 J-	**45 J-**	**95.6 J-**	**121 J-**	**180 J-**	14 J-	20.9 J-	**111 J-**
MAGNESIUM	NL	NL	NL	mg/kg	11200	1750 J-	4270 J-	8070 J-	9570 J-	13200 J-	1500 J-	6600 J-	9910 J-
MANGANESE	460	780	1100	mg/kg	**648**	124 J-	191 J-	283 J-	398 J-	**529 J-**	79.5 J-	**1040 J-**	**889 J-**
MERCURY	0.18	0.64	1.1	mg/kg	**0.36**	0.035 J-	0.15 J-	**0.41 J-**	**0.4 J-**	**0.74 J-**	0.02 J-	0.13 J-	**0.4 J-**
NICKEL	23	36	49	mg/kg	**34.1**	6.8 J-	13.7 J-	22.9 J-	**25.1 J-**	**35.2 J-**	6.2 J-	**25.3 J-**	**33.2 J-**
POTASSIUM	NL	NL	NL	mg/kg	1800	501 U	690 J-	1240 J-	1340 J-	1890 J-	439 U	1580 U	1660 J-
SELENIUM	NL	NL	NL	mg/kg	6.2 U	3.5 R	3.4 R	4 R	4.4 R	6.8 R	3.1 R	11 R	6.5 R
SILVER	1.6	1.9	2.2	mg/kg	1.8 U	1 R	0.97 R	0.1 J-	0.1 J-	1.9 U	0.88 R	3.2 R	1.9 R
SODIUM	NL	NL	NL	mg/kg	893 UJ	501 U	486 U	573 U	632 UJ	970 UJ	439 U	1580 U	935 UJ
THALLIUM	NL	NL	NL	mg/kg	4.5 U	2.5 U	2.4 U	2.9 U	3.2 U	4.9 U	2.2 U	7.9 U	4.7 U
VANADIUM	NL	NL	NL	mg/kg	62.8	15.3 J-	25.4 J-	34.1 J-	37.7 J-	50.8 J-	17.3 J-	51.2 J-	59.6 J-
ZINC	120	290	460	mg/kg	**183**	36.3 J-	81.1 J-	**211 J-**	**442 J-**	**421 J-**	33.1 J-	86.7 J-	**190 J-**

Table 3-3b
Area 2 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-38	HB10-2-38	HB10-2-38	HB10-2-39	HB10-2-39	HB10-2-39	HB10-2-40	HB10-2-40	HB10-2-40
				Field Sample ID	HB10-2-38-06DP	HB10-2-38-12	HB10-2-38-38	HB10-2-39-06	HB10-2-39-12	HB10-2-39-28	HB10-2-40-06	HB10-2-40-12	HB10-2-40-36
				Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
				Depth Interval	0- 6	0- 12	36- 38	0- 6	0- 12	12- 28	0- 6	0- 12	12- 36
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	15400 J-	11100 J-	14500 J-	4210 J-	7440 J-	26500 J-	12900 J-	10100 J-	5810 J-
ANTIMONY	2	13.5	25	mg/kg	2 J-	1.6 J-	1.5 J-	0.7 J-	0.88 J-	**2.3 J-**	1.7 J-	1.5 J-	0.68 J-
ARSENIC	9.8	21.4	33	mg/kg	7 J-	6.4 J-	5 J-	2.5 J-	2.7 J-	5.6 J-	6.1 J-	4.4 J-	2.5 J-
BARIUM	NL	NL	NL	mg/kg	230 J-	130 J-	136 J-	29.6 J-	56.6 J-	190 J-	166 J-	92.1 J-	37.1 J-
BERYLLIUM	NL	NL	NL	mg/kg	0.78 J-	0.67 J-	0.79 J-	0.23 J-	0.38 J-	1.2 J-	0.62 J-	0.46 J-	0.25 J-
CADMIUM	0.99	3	5	mg/kg	0.93 U	0.66 J-	0.53 U	0.44 U	0.53 U	1.4 U	1 U	0.89 U	0.63 U
CALCIUM	NL	NL	NL	mg/kg	11100 J-	8950 J-	25400 J-	2140 J-	5670 J-	11100 J-	8460 J-	6920 J-	7090 J-
CHROMIUM	43	76.5	110	mg/kg	38.6 J-	24.7 J-	25.7 J-	11 J-	16.4 J-	**50.5 J-**	31.6 J-	27 J-	15.2 J-
COBALT	NL	NL	NL	mg/kg	12.8 J-	8.6 J-	10.1 J-	4.4 J-	6.5 J-	17.1 J-	10.3 J-	8.5 J-	5.9 J-
COPPER	32	91	150	mg/kg	**60.9 J-**	**67.2 J-**	**44.5 J-**	12.2 J-	16.4 J-	**48.3 J-**	**60.5 J-**	**36.8 J-**	9.9 J-
IRON	####	####	####	mg/kg	**33300 J-**	**24800 J-**	**25800 J-**	11300 J-	14000 J-	**34600 J-**	**29400 J-**	**21200 J-**	12400 J-
LEAD	36	83	130	mg/kg	**133 J-**	**179 J-**	**51.1 J-**	28.8 J-	31.8 J-	**65.4 J-**	**147 J-**	**104 J-**	4.6 J-
MAGNESIUM	NL	NL	NL	mg/kg	10500 J-	7960 J-	13800 J-	2570 J-	5290 J-	13100 J-	7870 J-	6570 J-	5410 J-
MANGANESE	460	780	1100	mg/kg	**880 J-**	**495 J-**	**486 J-**	139 J-	208 J-	**486 J-**	**469 J-**	346 J-	219 J-
MERCURY	0.18	0.64	1.1	mg/kg	**0.38 J-**	**0.61 J-**	**0.42 J-**	0.082 J-	**0.27 J-**	0.17 J-	**0.43 J-**	**0.52 J-**	0.014 J-
NICKEL	23	36	49	mg/kg	**34.5 J-**	**23.2 J-**	**26.2 J-**	10.1 J-	15 J-	**42.8 J-**	**29 J-**	22.5 J-	13.2 J-
POTASSIUM	NL	NL	NL	mg/kg	1690 J-	1090 J-	1810 J-	440 U	661 J-	2450 J-	1330 J-	1020 J-	634 U
SELENIUM	NL	NL	NL	mg/kg	6.5 R	4.1 R	3.7 R	3.1 R	3.7 R	10 R	7.2 R	6.2 R	4.4 R
SILVER	1.6	1.9	2.2	mg/kg	1.9 R	1.2 U	1.1 U	0.88 R	1.1 R	2.9 R	2.1 R	1.8 R	1.3 R
SODIUM	NL	NL	NL	mg/kg	928 UJ	581 UJ	528 UJ	440 U	527 U	1430 U	1030 UJ	891 UJ	634 UJ
THALLIUM	NL	NL	NL	mg/kg	4.6 U	1.3 J-	2.6 U	2.2 U	2.6 U	1.7 J-	5.2 U	4.5 U	3.2 U
VANADIUM	NL	NL	NL	mg/kg	59.5 J-	35.8 J-	38.2 J-	25.4 J-	26.6 J-	65.2 J-	58.3 J-	40.8 J-	26 J-
ZINC	120	290	460	mg/kg	**198 J-**	**317 J-**	**130 J-**	62.1 J-	62.9 J-	**141 J-**	**167 J-**	119 J-	36.8 J-

				Location ID	HB10-2-40	HB10-2-41	HB10-2-41	HB10-2-41	HB10-2-42	HB10-2-42	HB10-2-42	HB10-2-43	HB10-2-43
				Field Sample ID	HB10-2-40-48	HB10-2-41-06	HB10-2-41-12	HB10-2-41-31	HB10-2-42-06	HB10-2-42-12	HB10-2-42-30	HB10-2-43-06	HB10-2-43-22
				Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010
				Depth Interval	36- 48	0- 6	0- 12	12- 31	0- 6	0- 12	12- 30	0- 6	12- 22
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**									
ALUMINUM	NL	NL	NL	mg/kg	6270 J-	14200	7810	6500	5600 J-	9120 J-	8170 J-	9040	8490
ANTIMONY	2	13.5	25	mg/kg	0.71 J-	2 J	1.1 J	0.86 J	1 J-	1.4 J-	1.3 J-	1.8 J	1.6 J
ARSENIC	9.8	21.4	33	mg/kg	2.3 J-	7.1	3.6	3.3	3.9 J-	4.6 J-	4.5 J-	6.1	5
BARIUM	NL	NL	NL	mg/kg	43.8 J-	166	56.1	42.5	52.3 J-	80.3 J-	112 J-	57	109
BERYLLIUM	NL	NL	NL	mg/kg	0.26 J-	0.73 J	0.4 J	0.32 J	0.41 J-	0.58 J-	0.5 J-	0.53 J	0.5 J
CADMIUM	0.99	3	5	mg/kg	0.51 U	1.2 U	0.64 U	0.63 U	0.56 U	0.71 U	0.64 U	0.97 U	0.79
CALCIUM	NL	NL	NL	mg/kg	9860 J-	10500	5150	4440	16700 J-	11900 J-	7040 J-	11600	14800
CHROMIUM	43	76.5	110	mg/kg	16 J-	36.4	18.5	18.1	15.4 J-	22.7 J-	24.5 J-	**43.9**	35.4
COBALT	NL	NL	NL	mg/kg	6.4 J-	11.2 J	7.1	6.5	5.2 J-	6.9 J-	6.7 J-	11.9	7.4 J
COPPER	32	91	150	mg/kg	10.5 J-	**54.1 J**	19 J	15.3 J	28.3 J-	**35.9 J-**	**36.4 J-**	**57.1**	**60.2 J**
IRON	####	####	####	mg/kg	12700 J-	**33000**	17800	15500	13900 J-	18000 J-	18800 J-	**38000**	**27800**
LEAD	36	83	130	mg/kg	2.8 J-	**148 J**	**36.5 J**	**41 J**	**47 J-**	**251 J-**	**74.5 J-**	27.1	**114 J**
MAGNESIUM	NL	NL	NL	mg/kg	6970 J-	8440	5180	4640	3060 J-	4540 J-	4720 J-	8010	5740
MANGANESE	460	780	1100	mg/kg	281 J-	**492**	269	224	240 J-	417 J-	312 J-	**1070**	**728**
MERCURY	0.18	0.64	1.1	mg/kg	0.0085 J-	**0.33**	0.048 J	0.098 J	0.18 J-	**0.32 J-**	**0.35 J-**	0.037 J	0.17
NICKEL	23	36	49	mg/kg	14.3 J-	**29.7**	16.5	14.8	11.9 J-	16 J-	18.5 J-	**29.3**	**23.7**
POTASSIUM	NL	NL	NL	mg/kg	584 J-	1440	640 U	633 U	564 U	724 J-	667 J-	975 U	751 U
SELENIUM	NL	NL	NL	mg/kg	3.6 R	8.2 U	4.5 U	4.4 U	3.9 R	5 R	4.5 R	6.8 U	5.3 U
SILVER	1.6	1.9	2.2	mg/kg	1 R	2.3 U	1.3 U	1.3 U	1.1 R	0.045 J-	1.3 R	1.9 U	1.5 U
SODIUM	NL	NL	NL	mg/kg	511 UJ	1170 UJ	640 UJ	633 UJ	564 U	709 U	637 U	975 UJ	751 UJ
THALLIUM	NL	NL	NL	mg/kg	2.6 U	5.9 U	3.2 U	3.2 U	2.8 U	3.5 U	3.2 U	4.9 U	3.8 U
VANADIUM	NL	NL	NL	mg/kg	25.7 J-	60.8	31	28.3	21.7 J-	27 J-	38.3 J-	66.1	38.6
ZINC	120	290	460	mg/kg	40.1 J-	**204**	81.7	66.1	106 J-	**187 J-**	**165 J-**	**139**	**232**

Table 3-3b
Area 2 Sediment Sample Analytical Results - TAL Metals
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-44	HB10-2-44	HB10-2-45	HB10-2-45
				Field Sample ID	HB10-2-44-06	HB10-2-44-16	HB10-2-45-06	HB10-2-45-19
				Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010
				Depth Interval	0- 6	12- 16	0- 6	12- 19
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**				
ALUMINUM	NL	NL	NL	mg/kg	10400 J-	9120 J-	10000	7320
ANTIMONY	2	13.5	25	mg/kg	1.5 J-	1.3 J-	1.6 J	1.4 J
ARSENIC	9.8	21.4	33	mg/kg	7.3 J-	5.2 J-	5	4.7
BARIUM	NL	NL	NL	mg/kg	166 J-	75 J-	285	83.1
BERYLLIUM	NL	NL	NL	mg/kg	0.54 J-	0.51 J-	0.68	0.47 J
CADMIUM	0.99	3	5	mg/kg	0.66 U	0.61 J-	0.54 U	0.58 U
CALCIUM	NL	NL	NL	mg/kg	21000 J-	6650 J-	22900	5870
CHROMIUM	43	76.5	110	mg/kg	27.3 J-	25.1 J-	35.2	26.7
COBALT	NL	NL	NL	mg/kg	8.7 J-	8 J-	6.4	6.4
COPPER	32	91	150	mg/kg	**39.7 J-**	**38.6 J-**	30.2 J	29.2 J
IRON	####	####	####	mg/kg	**28200 J-**	19500 J-	**22200**	18900
LEAD	36	83	130	mg/kg	**298 J-**	**118 J-**	**1140 J**	**186 J**
MAGNESIUM	NL	NL	NL	mg/kg	6560 J-	6290 J-	4740	4420
MANGANESE	460	780	1100	mg/kg	432 J-	274 J-	453	293
MERCURY	0.18	0.64	1.1	mg/kg	**0.26 J-**	**0.41 J-**	0.13 J	**0.26**
NICKEL	23	36	49	mg/kg	**26.3 J-**	**25.6 J-**	**25.4**	16.1
POTASSIUM	NL	NL	NL	mg/kg	1030 J-	873 J-	721	630
SELENIUM	NL	NL	NL	mg/kg	4.6 R	3.9 R	3.8 U	4.1 U
SILVER	1.6	1.9	2.2	mg/kg	1.3 R	0.055 J-	1.1 U	1.2 U
SODIUM	NL	NL	NL	mg/kg	656 UJ	550 UJ	536 UJ	581 UJ
THALLIUM	NL	NL	NL	mg/kg	3.3 U	2.8 U	2.7 U	2.9 U
VANADIUM	NL	NL	NL	mg/kg	53.6 J-	34.4 J-	87.2	30
ZINC	120	290	460	mg/kg	**150 J-**	**178 J-**	**154**	**249**

Notes:
Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

DP - Duplicate
ID - Identification
J - Estimated value
J- - Estimated value low
MEC - Median Effects Concentration
mg/kg - Milligram per kilogram
NL - Not Listed
PEC - Probable Effect Concentration
R - Not detected
SQG - Sediment Quality Guidelines
TAL - Target Analyte List
TEC - Threshold Effects Concentration
U - Not detected
UJ - Not detected, Estimated value
WDNR - Wisconsin Department of Natural Resources
[1] WDNR Consensus-Based SQGs

Table 3-4a
Area 1 Sediment Sample Analytical Results - PCB Aroclors
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-04		HB10-1-05		HB10-1-05		HB10-1-07		HB10-1-08	
				Field Sample ID	HB10-1-04-06		HB10-1-05-06		HB10-1-05-06DP		HB10-1-07-06		HB10-1-08-06	
				Sample Date	10/17/2010		10/16/2010		10/16/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
AROCLOR-1016	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
AROCLOR-1221	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
AROCLOR-1232	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
AROCLOR-1242	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
AROCLOR-1248	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
AROCLOR-1254	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
AROCLOR-1260	NL	NL	NL	µg/kg	510	271	57 U	57 U	58 U	58 U	38 J	16.7	75 U	75 U
AROCLOR-1262	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
AROCLOR-1268	NL	NL	NL	µg/kg	45 U	45 U	57 U	57 U	58 U	58 U	53 U	53 U	75 U	75 U
TOTAL PCBs	60	368	676	µg/kg	510	**271**	0 U	0 U	0 U	0 U	38	16.7	0 U	0 U
TOC	NL	NL	NL	%	1.88		2.13		1.96		2.28		3.85	

				Location ID	HB10-1-10		HB10-1-11		HB10-1-12		HB10-1-13		HB10-1-14	
				Field Sample ID	HB10-1-10-06		HB10-1-11-06		HB10-1-12-06		HB10-1-13-06		HB10-1-14-06	
				Sample Date	10/18/2010		10/16/2010		10/17/2010		10/18/2010		10/17/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
AROCLOR-1016	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	66 U	66 U	65 U	65 U
AROCLOR-1221	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	66 U	66 U	65 U	65 U
AROCLOR-1232	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	66 U	66 U	65 U	65 U
AROCLOR-1242	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	66 U	66 U	65 U	65 U
AROCLOR-1248	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	66 U	66 U	65 U	65 U
AROCLOR-1254	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	55 U	55 U	72 J	21.4	64 U	64 U
AROCLOR-1260	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	61 J	18.2	65 U	65 U
AROCLOR-1262	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	66 U	66 U	65 U	65 U
AROCLOR-1268	NL	NL	NL	µg/kg	69 U	69 U	65 U	65 U	54 U	54 U	66 U	66 U	65 U	65 U
TOTAL PCBs	60	368	676	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	133	39.6	0 U	0 U
TOC	NL	NL	NL	%	3.59		3.16		3.4		3.36		2.84	

Table 3-4a
Area 1 Sediment Sample Analytical Results - PCB Aroclors
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-15		HB10-1-16		HB10-1-16		HB10-1-16		HB10-1-17	
				Field Sample ID	HB10-1-15-06		HB10-1-16-06		HB10-1-16-12		HB10-1-16-31		HB10-1-17-06	
				Sample Date	10/18/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 6		0- 6		12- 31		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
AROCLOR-1016	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
AROCLOR-1221	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
AROCLOR-1232	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
AROCLOR-1242	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
AROCLOR-1248	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
AROCLOR-1254	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	38 J	4.6
AROCLOR-1260	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
AROCLOR-1262	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
AROCLOR-1268	NL	NL	NL	µg/kg	46 U	46 U	47 U	47 U	56 U	56 U	63 U	63 U	66 U	66 U
TOTAL PCBs	60	368	676	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	38	4.6
TOC	NL	NL	NL	%	1.72		2.14		4.45		8.15		8.19	

				Location ID	HB10-1-20		HB10-1-21		HB10-1-21		HB10-1-24		HB10-1-24	
				Field Sample ID	HB10-1-20-06		HB10-1-21-06		HB10-1-21-23		HB10-1-24-06		HB10-1-24-12	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		12- 23		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
AROCLOR-1016	NL	NL	NL	µg/kg	49 U	49 U	40 U	40 U	50 U	50 U	74 U	74 U	78 U	78 U
AROCLOR-1221	NL	NL	NL	µg/kg	49 U	49 U	40 U	40 U	50 U	50 U	74 U	74 U	78 U	78 U
AROCLOR-1232	NL	NL	NL	µg/kg	49 U	49 U	40 U	40 U	50 U	50 U	74 U	74 U	78 U	78 U
AROCLOR-1242	NL	NL	NL	µg/kg	49 U	49 U	40 U	40 U	50 U	50 U	74 U	74 U	78 U	78 U
AROCLOR-1248	NL	NL	NL	µg/kg	49 U	49 U	40 U	40 U	50 U	50 U	74 U	74 U	78 U	78 U
AROCLOR-1254	NL	NL	NL	µg/kg	48 U	48 U	40 U	40 U	120	88.9	120	21.6	120	21.5
AROCLOR-1260	NL	NL	NL	µg/kg	39 J	18.8	40 U	40 U	110	81.5	100 J	18.0	110 J	19.7
AROCLOR-1262	NL	NL	NL	µg/kg	49 U	49 U	40 U	40 U	50 U	50 U	74 U	74 U	78 U	78 U
AROCLOR-1268	NL	NL	NL	µg/kg	49 U	49 U	40 U	40 U	50 U	50 U	74 U	74 U	78 U	78 U
TOTAL PCBs	60	368	676	µg/kg	39	18.8	0 U	0 U	230	**170.4**	220	39.6	230	41.3
TOC	NL	NL	NL	%	2.08		0.849		1.35		5.55		5.57	

Table 3-4a
Area 1 Sediment Sample Analytical Results - PCB Aroclors
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-24		HB10-1-29		HB10-1-29		HB10-1-29		HB10-1-29	
				Field Sample ID	HB10-1-24-36		HB10-1-29-06		HB10-1-29-12		HB10-1-29-36		HB10-1-29-60	
				Sample Date	10/18/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	12- 36		0- 6		0- 12		12- 36		36- 60	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
AROCLOR-1016	NL	NL	NL	µg/kg	68 U	68 U	71 U	71 U	80 U	80 U	97 U	97 U	78 U	78 U
AROCLOR-1221	NL	NL	NL	µg/kg	68 U	68 U	71 U	71 U	80 U	80 U	97 U	97 U	78 U	78 U
AROCLOR-1232	NL	NL	NL	µg/kg	68 U	68 U	71 U	71 U	80 U	80 U	97 U	97 U	78 U	78 U
AROCLOR-1242	NL	NL	NL	µg/kg	68 U	68 U	71 U	71 U	80 U	80 U	97 U	97 U	78 U	78 U
AROCLOR-1248	NL	NL	NL	µg/kg	68 U	68 U	71 U	71 U	80 U	80 U	97 U	97 U	78 U	78 U
AROCLOR-1254	NL	NL	NL	µg/kg	100	16.8	100	9.8	160	13.9	370	22.4	77 J	5.1
AROCLOR-1260	NL	NL	NL	µg/kg	100 J	16.8	100	9.8	130	11.3	97 U	97 U	78 U	78 U
AROCLOR-1262	NL	NL	NL	µg/kg	68 U	68 U	71 U	71 U	80 U	80 U	97 U	97 U	78 U	78 U
AROCLOR-1268	NL	NL	NL	µg/kg	68 U	68 U	71 U	71 U	80 U	80 U	97 U	97 U	78 U	78 U
TOTAL PCBs	60	368	676	µg/kg	200	33.5	200	19.6	290	25.2	370	22.4	77	5.1
TOC	NL	NL	NL	%	5.97		10.2		11.5		16.5		15	

				Location ID	HB10-1-29	
				Field Sample ID	HB10-1-29-93	
				Sample Date	10/17/2010	
				Depth Interval	60- 93	
				Concentration	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**		
AROCLOR-1016	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1221	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1232	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1242	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1248	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1254	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1260	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1262	NL	NL	NL	µg/kg	75 U	75 U
AROCLOR-1268	NL	NL	NL	µg/kg	75 U	75 U
TOTAL PCBs	60	368	676	µg/kg	0 U	0 U
TOC	NL	NL	NL	%	14.1	

Notes:
Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

DP - Duplicate
ID - Identification
J - Estimated value
MEC - Median Effects Concentration
NL - Not Listed
Norm. - Normalized to 1% TOC
PCB - Polychlorinated Biphenyl
PEC - Probable Effect Concentration
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources
TOTAL PCBs - Calculated by WESTON (sum of detections)
[1] WDNR Consensus-Based SQGs

Table 3-4b
Area 2 Sediment Sample Analytical Results - PCB Aroclors
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-26		HB10-2-33		HB10-2-35		HB10-2-37		HB10-2-39	
				Field Sample ID	HB10-2-26-06		HB10-2-33-06		HB10-2-35-06		HB10-2-37-06		HB10-2-39-06	
				Sample Date	10/16/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
AROCLOR-1016	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1221	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1232	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1242	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1248	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1254	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1260	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1262	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
AROCLOR-1268	NL	NL	NL	µg/kg	49 U	49 U	47 U	47 U	43 U	43 U	42 U	42 U	40 U	40 U
TOTAL PCBs	60	368	676	µg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
TOC	NL	NL	NL	%	5.29		0.99		0.702		0.423		0.506	

				Location ID	HB10-2-40		HB10-2-41		HB10-2-42		HB10-2-43	
				Field Sample ID	HB10-2-40-06		HB10-2-41-06		HB10-2-42-06		HB10-2-43-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**								
AROCLOR-1016	NL	NL	NL	µg/kg	72 U	72 U	89 U	89 U	44 U	44 U	41 U	41 U
AROCLOR-1221	NL	NL	NL	µg/kg	72 U	72 U	89 U	89 U	44 U	44 U	41 U	41 U
AROCLOR-1232	NL	NL	NL	µg/kg	72 U	72 U	89 U	89 U	44 U	44 U	41 U	41 U
AROCLOR-1242	NL	NL	NL	µg/kg	72 U	72 U	89 U	89 U	44 U	44 U	41 U	41 U
AROCLOR-1248	NL	NL	NL	µg/kg	72 U	72 U	89 U	89 U	44 U	44 U	41 U	41 U
AROCLOR-1254	NL	NL	NL	µg/kg	70 J	20.6	61 J	9.1	44 U	44 U	41 U	41 U
AROCLOR-1260	NL	NL	NL	µg/kg	63 J	18.6	55 J	8.2	44 U	44 U	41 U	41 U
AROCLOR-1262	NL	NL	NL	µg/kg	72 U	72 U	89 U	89 U	44 U	44 U	41 U	41 U
AROCLOR-1268	NL	NL	NL	µg/kg	72 U	72 U	89 U	89 U	44 U	44 U	41 U	41 U
TOTAL PCBs	60	368	676	µg/kg	133	39.2	116	17.2	0 U	0 U	0 U	0 U
TOC	NL	NL	NL	%	3.39		6.73		8.84		0.783	

Notes:
Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

DP - Duplicate
ID - Identification
J - Estimated value
MEC - Median Effects Concentration
NL - Not Listed
Norm. - Normalized to 1% TOC
PCB - Polychlorinated Biphenyl
PEC - Probable Effect Concentration
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon (refer to Table 3-8b for TOC data)
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources
TOTAL PCBs - Calculated by WESTON (sum of detections)
[1] WDNR Consensus-Based SQGs

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-01		HB10-1-01		HB10-1-01		HB10-1-02		HB10-1-02	
				Field Sample ID	HB10-1-01-06		HB10-1-01-12		HB10-1-01-40		HB10-1-02-06		HB10-1-02-06DP	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	0- 6		0- 12		36- 40		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	6.6 U	6.6 U	6 J	1.1	4 J	2.2	7 U	7 U	7 U	7 U
4,4'-DDE	3.2	17	31	µg/kg	5 J	2.3	5 J	0.94	4 J	2.2	7 U	7 U	7 U	7 U
4,4'-DDT	4.2	33.6	63	µg/kg	10 J	**4.6**	9 J	1.7	6 J	3.2	7 U	7 U	7 U	7 U
ALDRIN	2	41	80	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
ALPHA-BHC	6	53	100	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
BETA-BHC	5	108	210	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
DELTA-BHC	3	62	120	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
DIELDRIN	1.9	32	62	µg/kg	6.6 U	6.6 U	7.1 U	7.1 U	5.2 U	5.2 U	7 U	7 U	7 U	7 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
ENDOSULFAN II	NL	NL	NL	µg/kg	6.6 U	6.6 U	7.1 U	7.1 U	5.2 U	5.2 U	7 U	7 U	7 U	7 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	6.6 U	6.6 U	7.1 U	7.1 U	5.2 U	5.2 U	7 U	7 U	7 U	7 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4 J	1.9	5 J	0.94	5.2 U	5.2 U	7 U	7 U	7 U	7 U
ENDRIN KETONE	NL	NL	NL	µg/kg	6.6 U	6.6 U	7.1 U	7.1 U	5.2 U	5.2 U	7 U	7 U	7 U	7 U
ENDRIN	2.2	104.6	207	µg/kg	6.6 U	6.6 U	7.1 U	7.1 U	5.2 U	5.2 U	7 U	7 U	7 U	7 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 R	3.6 R
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	6 NJ	**2.8**	3.6 R	3.6 R	4 J	2.2	3.6 U	3.6 U	3.6 U	3.6 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.4 U	3.4 U	3.6 U	3.6 U	2.7 U	2.7 U	3.6 U	3.6 U	3.6 U	3.6 U
METHOXYCLOR	NL	NL	NL	µg/kg	34 U	34 U	36 U	36 U	27 U	27 U	36 U	36 U	36 U	36 U
TOXAPHENE	1	1.5	2	µg/kg	340 U	340 U	360 U	360 U	270 U	270 U	360 U	360 U	360 U	360 U
TOC	NL	NL	NL	%	2.16		5.31		1.85		2.46		2.19	

				Location ID	HB10-1-02		HB10-1-03		HB10-1-03		HB10-1-03		HB10-1-03	
				Field Sample ID	HB10-1-02-23		HB10-1-03-06		HB10-1-03-12		HB10-1-03-36		HB10-1-03-60	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	12- 23		0- 6		0- 12		12- 36		36- 60	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 U	5.9 U	5.5 UJ	5.5 UJ
4,4'-DDE	3.2	17	31	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 U	5.9 U	5.5 UJ	5.5 UJ
4,4'-DDT	4.2	33.6	63	µg/kg	5.7 U	5.7 U	14 J	**77.3**	11 J	**6.9**	12 J	**6.1**	5.5 UJ	5.5 UJ
ALDRIN	2	41	80	µg/kg	2.9 U	2.9 U	3.9 U	3.9 U	3.1 U	3.1 U	3 U	3 U	2.8 UJ	2.8 UJ
ALPHA-BHC	6	53	100	µg/kg	2.9 U	2.9 U	3.9 U	3.9 U	3.1 U	3.1 U	3 U	3 U	2.8 UJ	2.8 UJ
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.9 U	2.9 U	3.9 U	3.9 U	3.1 U	3.1 U	3 U	3 U	2.8 UJ	2.8 UJ
BETA-BHC	5	108	210	µg/kg	2.9 U	2.9 U	2 J	**11.0**	2 J	1.3	3 U	3 U	2.8 UJ	2.8 UJ
DELTA-BHC	3	62	120	µg/kg	2.9 U	2.9 U	3.9 U	3.9 U	3.1 U	3.1 U	3 U	3 U	2.8 UJ	2.8 UJ
DIELDRIN	1.9	32	62	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 UJ	5.9 UJ	5.5 UJ	5.5 UJ
ENDOSULFAN I	NL	NL	NL	µg/kg	2.9 U	2.9 U	3.9 U	3.9 U	3.1 U	3.1 U	3 U	3 U	2.8 UJ	2.8 UJ
ENDOSULFAN II	NL	NL	NL	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 U	5.9 U	5.5 UJ	5.5 UJ
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 U	5.9 U	5.5 UJ	5.5 UJ
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 U	5.9 U	5.5 UJ	5.5 UJ
ENDRIN KETONE	NL	NL	NL	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 U	5.9 U	5.5 UJ	5.5 UJ
ENDRIN	2.2	104.6	207	µg/kg	5.7 U	5.7 U	7.6 U	7.6 U	6.1 U	6.1 U	5.9 U	5.9 U	5.5 UJ	5.5 UJ
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.9 U	2.9 U	3.9 U	3.9 U	3.1 U	3.1 U	3 U	3 U	2.8 UJ	2.8 UJ
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2.9 U	2.9 U	3.9 R	3.9 R	3.1 R	3.1 R	3 R	3 R	2.8 UJ	2.8 UJ
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.9 U	2.9 U	7	**38.7**	6	**3.8**	6 J	**3.0**	2.8 UJ	2.8 UJ
HEPTACHLOR	NL	NL	NL	µg/kg	2.9 U	2.9 U	3.9 U	3.9 U	3.1 U	3.1 U	3 U	3 U	2.8 UJ	2.8 UJ
METHOXYCLOR	NL	NL	NL	µg/kg	29 U	29 U	39 U	39 U	31 U	31 U	30 U	30 U	28 UJ	28 UJ
TOXAPHENE	1	1.5	2	µg/kg	290 U	290 U	390 U	390 U	310 U	310 U	300 U	300 U	280 UJ	280 UJ
TOC	NL	NL	NL	%	2.22		0.181		1.59		1.97		2.57	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-03		HB10-1-04		HB10-1-04		HB10-1-04		HB10-1-04	
				Field Sample ID	HB10-1-03-84		HB10-1-04-06		HB10-1-04-12		HB10-1-04-36		HB10-1-04-50	
				Sample Date	10/16/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	60- 84		0- 6		0- 12		12- 36		36- 50	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	7 J	3.6	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
4,4'-DDE	3.2	17	31	µg/kg	4.9 U	4.9 U	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
4,4'-DDT	4.2	33.6	63	µg/kg	5 NJ	2.6	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
ALDRIN	2	41	80	µg/kg	2.5 U	2.5 U	2.7 NJ	1.4	2.8 NJ	1.1	2.8 U	2.8 U	2.7 U	2.7 U
ALPHA-BHC	6	53	100	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
BETA-BHC	5	108	210	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
DELTA-BHC	3	62	120	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
DIELDRIN	1.9	32	62	µg/kg	4.9 U	4.9 U	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
ENDOSULFAN II	NL	NL	NL	µg/kg	4.9 U	4.9 U	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	4.9 U	4.9 U	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4.9 U	4.9 U	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
ENDRIN KETONE	NL	NL	NL	µg/kg	4.9 U	4.9 U	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
ENDRIN	2.2	104.6	207	µg/kg	4.9 U	4.9 U	4.5 U	4.5 U	5.4 U	5.4 U	5.4 U	5.4 U	5.2 U	5.2 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
HEPTACHLOR	NL	NL	NL	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U
METHOXYCLOR	NL	NL	NL	µg/kg	25 U	25 U	23 UJ	23 UJ	28 UJ	28 UJ	28 UJ	28 UJ	27 UJ	27 UJ
TOXAPHENE	1	1.5	2	µg/kg	250 U	250 U	230 U	230 U	280 U	280 U	280 U	280 U	270 U	270 U
TOC	NL	NL	NL	%	1.94		1.88		2.53		3.3		4.64	

				Location ID	HB10-1-05		HB10-1-05		HB10-1-06		HB10-1-06		HB10-1-06	
				Field Sample ID	HB10-1-05-06		HB10-1-05-06DP		HB10-1-06-06		HB10-1-06-06DP		HB10-1-06-12	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
4,4'-DDE	3.2	17	31	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
4,4'-DDT	4.2	33.6	63	µg/kg	5 U	5 U	5 U	5 U	6 J	2.6	6.9 U	6.9 U	4 J	2.0
ALDRIN	2	41	80	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
ALPHA-BHC	6	53	100	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
BETA-BHC	5	108	210	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
DELTA-BHC	3	62	120	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
DIELDRIN	1.9	32	62	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
ENDOSULFAN II	NL	NL	NL	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
ENDRIN KETONE	NL	NL	NL	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
ENDRIN	2.2	104.6	207	µg/kg	5 U	5 U	5 U	5 U	6.6 U	6.6 U	6.9 U	6.9 U	5.7 U	5.7 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2 R	2 R	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
HEPTACHLOR	NL	NL	NL	µg/kg	2 U	2 U	3 U	3 U	3.4 U	3.4 U	3.6 U	3.6 U	2.9 U	2.9 U
METHOXYCLOR	NL	NL	NL	µg/kg	29 U	29 U	30 U	30 U	34 U	34 U	36 U	36 U	29 U	29 U
TOXAPHENE	1	1.5	2	µg/kg	290 U	290 U	300 U	300 U	340 U	340 U	360 U	360 U	290 U	290 U
TOC	NL	NL	NL	%	2.13		1.96		2.31		2.42		1.97	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-06		HB10-1-06		HB10-1-07		HB10-1-07		HB10-1-07	
				Field Sample ID	HB10-1-06-36		HB10-1-06-51		HB10-1-07-06		HB10-1-07-12		HB10-1-07-36	
				Sample Date	10/16/2010		10/16/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	12- 36		36- 51		0- 6		0- 12		12- 36	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
4,4'-DDE	3.2	17	31	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
4,4'-DDT	4.2	33.6	63	µg/kg	5 J	1.1	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
ALDRIN	2	41	80	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
ALPHA-BHC	6	53	100	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
BETA-BHC	5	108	210	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
DELTA-BHC	3	62	120	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
DIELDRIN	1.9	32	62	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
ENDOSULFAN II	NL	NL	NL	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
ENDRIN KETONE	NL	NL	NL	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
ENDRIN	2.2	104.6	207	µg/kg	5.6 U	5.6 U	5.8 U	5.8 U	5 U	5 U	5 U	5 U	5 U	5 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.9 U	2.9 U	1 J	0.32	2 U	2 U	3 U	3 U	3 U	3 U
HEPTACHLOR	NL	NL	NL	µg/kg	2.9 U	2.9 U	3 U	3 U	2 U	2 U	3 U	3 U	3 U	3 U
METHOXYCLOR	NL	NL	NL	µg/kg	29 U	29 U	30 U	30 U	27 U	27 U	30 U	30 U	30 U	30 U
TOXAPHENE	1	1.5	2	µg/kg	290 U	290 U	300 U	300 U	270 U	270 U	300 U	300 U	300 U	300 U
TOC	NL	NL	NL	%	4.38		3.14		2.28		2.76		3.19	

				Location ID	HB10-1-07		HB10-1-08		HB10-1-08		HB10-1-08		HB10-1-10	
				Field Sample ID	HB10-1-07-64		HB10-1-08-06		HB10-1-08-12		HB10-1-08-36		HB10-1-10-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/18/2010	
				Depth Interval	60- 64		0- 6		0- 12		12- 36		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	4 U	4 U	7.4 U	7.4 U	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
4,4'-DDE	3.2	17	31	µg/kg	4 U	4 U	7.4 U	7.4 U	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
4,4'-DDT	4.2	33.6	63	µg/kg	4 U	4 U	7.4 U	7.4 U	4 J	1.0	6.2 UJ	6.2 UJ	6.9 U	6.9 U
ALDRIN	2	41	80	µg/kg	2 U	2 U	3.8 U	3.8 U	6.5 J	1.6	3.2 UJ	3.2 UJ	3.5 R	3.5 R
ALPHA-BHC	6	53	100	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
BETA-BHC	5	108	210	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
DELTA-BHC	3	62	120	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
DIELDRIN	1.9	32	62	µg/kg	4 U	4 U	7.4 U	7.4 U	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
ENDOSULFAN II	NL	NL	NL	µg/kg	4 U	4 U	7.4 U	7.4 U	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	4 U	4 U	13 NJ	3.4	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4 U	4 U	8.1	2.1	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
ENDRIN KETONE	NL	NL	NL	µg/kg	4 U	4 U	7.4 U	7.4 U	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
ENDRIN	2.2	104.6	207	µg/kg	4 U	4 U	7.4 U	7.4 U	7.1 U	7.1 U	6.2 UJ	6.2 UJ	6.9 U	6.9 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
HEPTACHLOR	NL	NL	NL	µg/kg	2 U	2 U	3.8 U	3.8 U	3.7 U	3.7 U	3.2 UJ	3.2 UJ	3.5 U	3.5 U
METHOXYCLOR	NL	NL	NL	µg/kg	21 U	21 U	38 UJ	38 UJ	37 UJ	37 UJ	32 UJ	32 UJ	35 UJ	35 UJ
TOXAPHENE	1	1.5	2	µg/kg	210 U	210 U	380 U	380 U	370 U	370 U	320 UJ	320 UJ	350 U	350 U
TOC	NL	NL	NL	%	1.13		3.85		4.01		5.51		3.59	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-11		HB10-1-11		HB10-1-12		HB10-1-12		HB10-1-12	
				Field Sample ID	HB10-1-11-06		HB10-1-11-21		HB10-1-12-06		HB10-1-12-12		HB10-1-12-34	
				Sample Date	10/16/2010		10/16/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		12- 21		0- 6		0- 12		12- 34	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
4,4'-DDE	3.2	17	31	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
4,4'-DDT	4.2	33.6	63	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
ALDRIN	2	41	80	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
ALPHA-BHC	6	53	100	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
BETA-BHC	5	108	210	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
DELTA-BHC	3	62	120	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
DIELDRIN	1.9	32	62	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
ENDOSULFAN II	NL	NL	NL	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
ENDRIN KETONE	NL	NL	NL	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
ENDRIN	2.2	104.6	207	µg/kg	6.5 U	6.5 U	6 U	6 U	5.3 U	5.3 U	6.1 UJ	6.1 UJ	9 U	9 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.3 U	3.3 U	3.1 U	3.1 U	2.8 U	2.8 U	3.2 UJ	3.2 UJ	5 U	5 U
METHOXYCLOR	NL	NL	NL	µg/kg	33 U	33 U	31 U	31 U	28 UJ	28 UJ	32 UJ	32 UJ	50 U	50 U
TOXAPHENE	1	1.5	2	µg/kg	330 U	330 U	310 U	310 U	280 U	280 U	320 UJ	320 UJ	500 U	500 U
TOC	NL	NL	NL	%	3.16		3.79		3.4		4.44		16.2	

				Location ID	HB10-1-13		HB10-1-13		HB10-1-13		HB10-1-13		HB10-1-14	
				Field Sample ID	HB10-1-13-06		HB10-1-13-12		HB10-1-13-36		HB10-1-13-67		HB10-1-14-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	0- 6		0- 12		12- 36		60- 67		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
4,4'-DDE	3.2	17	31	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
4,4'-DDT	4.2	33.6	63	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
ALDRIN	2	41	80	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
ALPHA-BHC	6	53	100	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
BETA-BHC	5	108	210	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
DELTA-BHC	3	62	120	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
DIELDRIN	1.9	32	62	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
ENDOSULFAN II	NL	NL	NL	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
ENDRIN KETONE	NL	NL	NL	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
ENDRIN	2.2	104.6	207	µg/kg	6.7 U	6.7 U	6.6 U	6.6 U	5.3 U	5.3 U	4.9 U	4.9 U	6.5 U	6.5 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.5 U	3.5 U	3.4 U	3.4 U	2.7 U	2.7 U	2.5 U	2.5 U	3.3 U	3.3 U
METHOXYCLOR	NL	NL	NL	µg/kg	35 UJ	35 UJ	34 UJ	34 UJ	27 UJ	27 UJ	25 UJ	25 UJ	33 UJ	33 UJ
TOXAPHENE	1	1.5	2	µg/kg	350 U	350 U	340 U	340 U	270 U	270 U	250 U	250 U	330 U	330 U
TOC	NL	NL	NL	%	3.36		2.75		2.01		2.24		2.84	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-14		HB10-1-14		HB10-1-14		HB10-1-15		HB10-1-15	
				Field Sample ID	HB10-1-14-12		HB10-1-14-36		HB10-1-14-66		HB10-1-15-06		HB10-1-15-16	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		60- 66		0- 6		12- 16	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	7 U	7 U
4,4'-DDE	3.2	17	31	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	7 U	7 U
4,4'-DDT	4.2	33.6	63	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	7 U	7 U
ALDRIN	2	41	80	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
ALPHA-BHC	6	53	100	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
BETA-BHC	5	108	210	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
DELTA-BHC	3	62	120	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
DIELDRIN	1.9	32	62	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	7 U	7 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
ENDOSULFAN II	NL	NL	NL	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	7 U	7 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	19 J	1.7
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	7 U	7 U
ENDRIN KETONE	NL	NL	NL	µg/kg	6.1 U	6.1 U	5.9 U	5.9 U	6 U	6 U	4 U	4 U	7 U	7 U
ENDRIN	2.2	104.6	207	µg/kg	6.1 U	6.1 U	6.9	1.7	6 U	6 U	4 U	4 U	7 U	7 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.1 U	3.1 U	3.1 R	3.1 R	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2 U	2 U	3.6 U	3.6 U
METHOXYCLOR	NL	NL	NL	µg/kg	31 UJ	31 UJ	31 UJ	31 UJ	31 UJ	31 UJ	24 U	24 U	36 UJ	36 UJ
TOXAPHENE	1	1.5	2	µg/kg	310 U	310 U	310 U	310 U	310 U	310 U	240 U	240 U	360 U	360 U
TOC	NL	NL	NL	%	2.75		3.98		4.42		1.72		11	

				Location ID	HB10-1-16		HB10-1-16		HB10-1-16		HB10-1-17		HB10-1-20	
				Field Sample ID	HB10-1-16-06		HB10-1-16-12		HB10-1-16-31		HB10-1-17-06		HB10-1-20-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 12		12- 31		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
4,4'-DDE	3.2	17	31	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
4,4'-DDT	4.2	33.6	63	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
ALDRIN	2	41	80	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
ALPHA-BHC	6	53	100	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
BETA-BHC	5	108	210	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
DELTA-BHC	3	62	120	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
DIELDRIN	1.9	32	62	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
ENDOSULFAN II	NL	NL	NL	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
ENDRIN KETONE	NL	NL	NL	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
ENDRIN	2.2	104.6	207	µg/kg	4 U	4 U	5 U	5 U	6 U	6 U	6.7 U	6.7 U	4 U	4 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
HEPTACHLOR	NL	NL	NL	µg/kg	2 U	2 U	2 U	2 U	3 U	3 U	3.4 U	3.4 U	2 U	2 U
METHOXYCLOR	NL	NL	NL	µg/kg	24 U	24 U	29 U	29 U	32 U	32 U	34 UJ	34 UJ	25 U	25 U
TOXAPHENE	1	1.5	2	µg/kg	240 U	240 U	290 U	290 U	320 U	320 U	340 U	340 U	250 U	250 U
TOC	NL	NL	NL	%	2.14		4.45		8.15		8.19		2.08	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-21		HB10-1-21		HB10-1-23		HB10-1-23		HB10-1-23	
				Field Sample ID	HB10-1-21-06		HB10-1-21-23		HB10-1-23-06		HB10-1-23-06DP		HB10-1-23-12	
				Sample Date	10/18/2010		10/18/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		12- 23		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
4,4'-DDE	3.2	17	31	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
4,4'-DDT	4.2	33.6	63	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
ALDRIN	2	41	80	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	4 J	0.88	3 U	3 U	3.1 U	3.1 U
ALPHA-BHC	6	53	100	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
BETA-BHC	5	108	210	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
DELTA-BHC	3	62	120	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	1 J	0.22	3 U	3 U	3.1 U	3.1 U
DIELDRIN	1.9	32	62	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
ENDOSULFAN II	NL	NL	NL	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	4 J	0.92	6.1 U	6.1 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
ENDRIN KETONE	NL	NL	NL	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
ENDRIN	2.2	104.6	207	µg/kg	4 U	4 U	5.1 U	5.1 U	6 U	6 U	6 U	6 U	6.1 U	6.1 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
HEPTACHLOR	NL	NL	NL	µg/kg	2.1 U	2.1 U	2.6 U	2.6 U	3 U	3 U	3 U	3 U	3.1 U	3.1 U
METHOXYCLOR	NL	NL	NL	µg/kg	21 UJ	21 UJ	26 UJ	26 UJ	33 U	33 U	32 U	32 U	31 UJ	31 UJ
TOXAPHENE	1	1.5	2	µg/kg	210 U	210 U	260 U	260 U	330 U	330 U	320 U	320 U	310 U	310 U
TOC	NL	NL	NL	%	0.849		1.35		4.52		4.33		5.39	

				Location ID	HB10-1-23		HB10-1-24		HB10-1-24		HB10-1-24		HB10-1-25	
				Field Sample ID	HB10-1-23-36		HB10-1-24-06		HB10-1-24-12		HB10-1-24-36		HB10-1-25-06	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	12- 36		0- 6		0- 12		12- 36		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	6 U	6 U	7.6 NJ	1.4	7.7 R	7.7 R	6.9 R	6.9 R	7.3 R	7.3 R
4,4'-DDE	3.2	17	31	µg/kg	6 U	6 U	7.5 U	7.5 U	7.7 U	7.7 U	6.9 U	6.9 U	7.3 R	7.3 R
4,4'-DDT	4.2	33.6	63	µg/kg	6 U	6 U	7.5 U	7.5 U	7.7 R	7.7 R	6.9 U	6.9 U	7.3 R	7.3 R
ALDRIN	2	41	80	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 U	3.8 U
ALPHA-BHC	6	53	100	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 U	3.8 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 R	3.8 R
BETA-BHC	5	108	210	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 R	3.8 R
DELTA-BHC	3	62	120	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 U	3.8 U
DIELDRIN	1.9	32	62	µg/kg	6 U	6 U	7.5 U	7.5 U	7.7 U	7.7 U	6.9 U	6.9 U	7.3 R	7.3 R
ENDOSULFAN I	NL	NL	NL	µg/kg	3 U	3 U	3.9 U	3.9 U	6.1 NJ	1.1	3.5 U	3.5 U	3.8 R	3.8 R
ENDOSULFAN II	NL	NL	NL	µg/kg	6 U	6 U	7.5 U	7.5 U	7.7 U	7.7 U	6.9 U	6.9 U	7.3 R	7.3 R
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	6 U	6 U	7.5 U	7.5 U	7.7 U	7.7 U	6.9 U	6.9 U	7.3 U	7.3 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	6 U	6 U	7.5 U	7.5 U	7.7 U	7.7 U	6.9 U	6.9 U	16 NJ	4.1
ENDRIN KETONE	NL	NL	NL	µg/kg	6 U	6 U	7.5 U	7.5 U	7.6 J	1.4	8.7	1.4573	7.3 U	7.3 U
ENDRIN	2.2	104.6	207	µg/kg	6 U	6 U	7.5 U	7.5 U	11 J	2.0	16	**2.7**	7.3 R	7.3 R
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 U	3.8 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 R	3.5 R	3.8 R	3.8 R
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 U	3.8 U
HEPTACHLOR	NL	NL	NL	µg/kg	3 U	3 U	3.9 U	3.9 U	4 U	4 U	3.5 U	3.5 U	3.8 U	3.8 U
METHOXYCLOR	NL	NL	NL	µg/kg	35 U	35 U	39 UJ	39 UJ	40 UJ	40 UJ	35 UJ	35 UJ	38 UJ	38 UJ
TOXAPHENE	1	1.5	2	µg/kg	350 U	350 U	390 U	390 U	400 U	400 U	350 U	350 U	380 U	380 U
TOC	NL	NL	NL	%	7.34		5.55		5.57		5.97		3.93	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-25		HB10-1-27		HB10-1-27		HB10-1-28		HB10-1-28	
				Field Sample ID	HB10-1-25-06DP		HB10-1-27-06		HB10-1-27-06DP		HB10-1-28-06		HB10-1-28-12	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
4,4'-DDE	3.2	17	31	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
4,4'-DDT	4.2	33.6	63	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
ALDRIN	2	41	80	µg/kg	2 J	0.54	4.6 U	4.6 U	4.7 U	4.7 U	3.9 R	3.9 R	3.2 U	3.2 U
ALPHA-BHC	6	53	100	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 U	3.9 U	3.2 U	3.2 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 U	3.9 U	3.2 U	3.2 U
BETA-BHC	5	108	210	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 R	3.9 R	3.2 U	3.2 U
DELTA-BHC	3	62	120	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 R	3.9 R	3.2 U	3.2 U
DIELDRIN	1.9	32	62	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 U	3.9 U	3.2 U	3.2 U
ENDOSULFAN II	NL	NL	NL	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
ENDRIN KETONE	NL	NL	NL	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 U	7.6 U	6.3 U	6.3 U
ENDRIN	2.2	104.6	207	µg/kg	7.4 U	7.4 U	8.9 U	8.9 U	9.2 U	9.2 U	7.6 J	1.8	6.3 U	6.3 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 U	3.9 U	3.2 U	3.2 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 U	3.9 U	3.2 U	3.2 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 U	3.9 U	3.2 U	3.2 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.8 U	3.8 U	4.6 U	4.6 U	4.7 U	4.7 U	3.9 U	3.9 U	3.2 U	3.2 U
METHOXYCLOR	NL	NL	NL	µg/kg	38 UJ	38 UJ	46 U	46 U	47 U	47 U	39 UJ	39 UJ	32 UJ	32 UJ
TOXAPHENE	1	1.5	2	µg/kg	380 U	380 U	460 U	460 U	470 U	470 U	390 U	390 U	320 U	320 U
TOC	NL	NL	NL	%	3.71		5.32		7.94		4.18		4.24	

				Location ID	HB10-1-28		HB10-1-28		HB10-1-28		HB10-1-28		HB10-1-29	
				Field Sample ID	HB10-1-28-36		HB10-1-28-60		HB10-1-28-84		HB10-1-28-96		HB10-1-29-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	12- 36		36- 60		60- 84		60- 96		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
4,4'-DDD	4.9	16.5	28	µg/kg	6.2 U	6.2 U	6.6 R	6.6 R	10	1.8	5.9 U	5.9 U	7.2 R	7.2 R
4,4'-DDE	3.2	17	31	µg/kg	6.2 U	6.2 U	6.6 U	6.6 U	9.3 J	1.6	5.9 U	5.9 U	7.2 R	7.2 R
4,4'-DDT	4.2	33.6	63	µg/kg	13 J	3.0	6.6 U	6.6 U	6.6 U	6.6 U	5.9 U	5.9 U	7.2 R	7.2 R
ALDRIN	2	41	80	µg/kg	3.2 U	3.2 U	3.4 R	3.4 R	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
ALPHA-BHC	6	53	100	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
BETA-BHC	5	108	210	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
DELTA-BHC	3	62	120	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
DIELDRIN	1.9	32	62	µg/kg	6.2 U	6.2 U	6.6 U	6.6 U	6.6 U	6.6 U	5.9 U	5.9 U	7.2 R	7.2 R
ENDOSULFAN I	NL	NL	NL	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 R	3.7 R
ENDOSULFAN II	NL	NL	NL	µg/kg	6.2 U	6.2 U	6.6 U	6.6 U	6.6 U	6.6 U	5.9 U	5.9 U	7.2 R	7.2 R
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	6.2 U	6.2 U	6.6 U	6.6 U	6.6 U	6.6 U	5.9 U	5.9 U	7.2 U	7.2 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4.4 J	1.0	6.6 U	6.6 U	6.6 U	6.6 U	5.9 U	5.9 U	11 NJ	1.1
ENDRIN KETONE	NL	NL	NL	µg/kg	6.2 U	6.2 U	6.6 U	6.6 U	6.6 U	6.6 U	5.9 U	5.9 U	7.2 U	7.2 U
ENDRIN	2.2	104.6	207	µg/kg	6.2 U	6.2 U	6.3 J	1.1	6.6 U	6.6 U	5.9 U	5.9 U	56 J	**5.5**
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.2 R	3.2 R	3.4 U	3.4 U	3.4 R	3.4 R	3 U	3 U	3.7 R	3.7 R
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.2 U	3.2 U	3.4 U	3.4 U	3.4 U	3.4 U	3 U	3 U	3.7 U	3.7 U
METHOXYCLOR	NL	NL	NL	µg/kg	32 UJ	32 UJ	34 UJ	34 UJ	34 UJ	34 UJ	30 UJ	30 UJ	60 J	5.8824
TOXAPHENE	1	1.5	2	µg/kg	320 U	320 U	340 U	340 U	340 U	340 U	300 U	300 U	370 U	370 U
TOC	NL	NL	NL	%	4.29		5.73		5.71		4.11		10.2	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-29		HB10-1-29		HB10-1-29		HB10-1-29		HB10-1-30	
				Field Sample ID	HB10-1-29-12		HB10-1-29-36		HB10-1-29-60		HB10-1-29-93		HB10-1-30-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		36- 60		60- 93		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	31	2.7	140 NJ	**8.5**	7.8 R	7.8 R	7.5 R	7.5 R	6.1 U	6.1 U
4,4'-DDE	3.2	17	31	µg/kg	7.8 R	7.8 R	19 R	19 R	7.8 U	7.8 U	7.5 R	7.5 R	6.1 U	6.1 U
4,4'-DDT	4.2	33.6	63	µg/kg	35	3.0	780	**47.3**	7.8 R	7.8 R	7.5 R	7.5 R	6.1 U	6.1 U
ALDRIN	2	41	80	µg/kg	4 U	4 U	9.9 U	9.9 U	4 UJ	4 UJ	3.9 U	3.9 U	3.1 U	3.1 U
ALPHA-BHC	6	53	100	µg/kg	4 U	4 U	9.9 U	9.9 U	4 U	4 U	2.1 J	0.15	3.1 U	3.1 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	4 U	4 U	9.9 U	9.9 U	4 U	4 U	3.9 U	3.9 U	3.1 U	3.1 U
BETA-BHC	5	108	210	µg/kg	4 U	4 U	9.9 U	9.9 U	4 U	4 U	3.9 U	3.9 U	3.1 U	3.1 U
DELTA-BHC	3	62	120	µg/kg	4 U	4 U	5.1 J	0.31	2.3 J	0.15	3.9 U	3.9 U	3.1 U	3.1 U
DIELDRIN	1.9	32	62	µg/kg	7.8 R	7.8 R	19 U	19 U	7.8 U	7.8 U	7.5 R	7.5 R	6.1 U	6.1 U
ENDOSULFAN I	NL	NL	NL	µg/kg	10 NJ	0.87	9.9 U	9.9 U	4 U	4 U	3.9 R	3.9 R	3.1 U	3.1 U
ENDOSULFAN II	NL	NL	NL	µg/kg	7.8 U	7.8 U	19 U	19 U	7.8 U	7.8 U	7.5 UJ	7.5 UJ	6.1 U	6.1 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	7.8 U	7.8 U	19 U	19 U	7.8 R	7.8 R	7.5 R	7.5 R	6.1 U	6.1 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	10 J	0.87	19 U	19 U	7.8 U	7.8 U	7.5 UJ	7.5 UJ	6.1 U	6.1 U
ENDRIN KETONE	NL	NL	NL	µg/kg	7.8 U	7.8 U	19 U	19 U	16	1.07	13 NJ	0.92	6.1 U	6.1 U
ENDRIN	2.2	104.6	207	µg/kg	7.8 U	7.8 U	19 U	19 U	7.8 UJ	7.8 UJ	7.5 R	7.5 R	6.1 U	6.1 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	4 U	4 U	10	0.61	5.7 J	0.38	3.9 U	3.9 U	3.1 U	3.1 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	4 R	4 R	99 U	99 U	4 U	4 U	3.9 R	3.9 R	3.1 U	3.1 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	4 U	4 U	9.9 U	9.9 U	4 U	4 U	3.9 U	3.9 U	3.1 U	3.1 U
HEPTACHLOR	NL	NL	NL	µg/kg	4 U	4 U	9.9 U	9.9 U	4 U	4 U	3.9 U	3.9 U	3.1 U	3.1 U
METHOXYCLOR	NL	NL	NL	µg/kg	40 UJ	40 UJ	99 U	99 U	40 UJ	40 UJ	71 NJ	5.0	31 UJ	31 UJ
TOXAPHENE	1	1.5	2	µg/kg	400 U	400 U	990 U	990 U	400 U	400 U	390 U	390 U	310 U	310 U
TOC	NL	NL	NL	%	11.5		16.5		15		14.1		4.81	

				Location ID	HB10-1-30		HB10-1-30		HB10-1-30		HB10-1-30		HB10-1-30	
				Field Sample ID	HB10-1-30-06DP		HB10-1-30-12		HB10-1-30-36		HB10-1-30-60		HB10-1-30-77	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 12		12- 36		36- 60		60- 77	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
4,4'-DDE	3.2	17	31	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
4,4'-DDT	4.2	33.6	63	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
ALDRIN	2	41	80	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
ALPHA-BHC	6	53	100	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
BETA-BHC	5	108	210	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
DELTA-BHC	3	62	120	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
DIELDRIN	1.9	32	62	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
ENDOSULFAN II	NL	NL	NL	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
ENDRIN KETONE	NL	NL	NL	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
ENDRIN	2.2	104.6	207	µg/kg	6.1 U	6.1 U	6.3 U	6.3 U	6.6 U	6.6 U	8.7 U	8.7 U	7.1 U	7.1 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.1 U	3.1 U	3.2 U	3.2 U	3.4 U	3.4 U	4.5 U	4.5 U	3.7 U	3.7 U
METHOXYCLOR	NL	NL	NL	µg/kg	31 UJ	31 UJ	32 UJ	32 UJ	34 U	34 U	45 U	45 U	37 U	37 U
TOXAPHENE	1	1.5	2	µg/kg	310 U	310 U	320 U	320 U	340 U	340 U	450 U	450 U	370 U	370 U
TOC	NL	NL	NL	%	5.5		4.44		8.94		7.99		35.3	

Table 3-5a
Area 1 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-31		HB10-1-31		HB10-1-31		HB10-1-31	
				Field Sample ID	HB10-1-31-06		HB10-1-31-06DP		HB10-1-31-12		HB10-1-31-36	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		0- 12		12- 36	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**								
4,4'-DDD	4.9	16.5	28	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
4,4'-DDE	3.2	17	31	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
4,4'-DDT	4.2	33.6	63	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
ALDRIN	2	41	80	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
ALPHA-BHC	6	53	100	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
BETA-BHC	5	108	210	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
DELTA-BHC	3	62	120	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
DIELDRIN	1.9	32	62	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
ENDOSULFAN I	NL	NL	NL	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
ENDOSULFAN II	NL	NL	NL	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
ENDRIN KETONE	NL	NL	NL	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
ENDRIN	2.2	104.6	207	µg/kg	7.7 U	7.7 U	7.6 U	7.6 U	6.9 U	6.9 U	6 U	6 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	4 U	4 U	3.9 U	3.9 U	5.2	1.01	3.1 U	3.1 U
HEPTACHLOR	NL	NL	NL	µg/kg	4 U	4 U	3.9 U	3.9 U	3.5 U	3.5 U	3.1 U	3.1 U
METHOXYCLOR	NL	NL	NL	µg/kg	40 UJ	40 UJ	39 UJ	39 UJ	35 UJ	35 UJ	31 U	31 U
TOXAPHENE	1	1.5	2	µg/kg	400 U	400 U	390 U	390 U	350 U	350 U	310 U	310 U
TOC	NL	NL	NL	%	4.73		4.27		5.14		4.8	

Notes:
Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

DP - Duplicate
ID - Identification
J - Estimated value
MEC - Median Effects Concentration
N - Evidence of compound
NL - Not Listed
Norm. - Normalized to 1% TOC
PEC - Probable Effect Concentration
R - Not detected
SQG - Sediment Quality Guidelines
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TCL - Target Compound List
TOC - Total Organic Carbon
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources
[1] WDNR Consensus-Based SQGs

Table 3-5b
Area 2 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-18		HB10-2-18		HB10-2-26		HB10-2-26		HB10-2-32	
				Field Sample ID	HB10-2-18-06		HB10-2-18-06DP		HB10-2-26-06		HB10-2-26-17		HB10-2-32-06	
				Sample Date	10/18/2010		10/18/2010		10/16/2010		10/16/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		0- 6		12- 17		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	4.2 U	4.2 U	8 U	8 U
4,4'-DDE	3.2	17	31	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	4.2 U	4.2 U	8 U	8 U
4,4'-DDT	4.2	33.6	63	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	3 J	0.57	4.2 U	4.2 U	8 U	8 U
ALDRIN	2	41	80	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
ALPHA-BHC	6	53	100	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
BETA-BHC	5	108	210	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
DELTA-BHC	3	62	120	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	1 J	0.19	2.2 U	2.2 U	4.1 U	4.1 U
DIELDRIN	1.9	32	62	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	4.2 U	4.2 U	8 U	8 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
ENDOSULFAN II	NL	NL	NL	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	4.2 U	4.2 U	8 U	8 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	4.2 U	4.2 U	8 U	8 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	4.2 U	4.2 U	8 U	8 U
ENDRIN KETONE	NL	NL	NL	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	2 J	1.12	8 U	8 U
ENDRIN	2.2	104.6	207	µg/kg	7.5 U	7.5 U	7.2 U	7.2 U	4.8 U	4.8 U	4.2 U	4.2 U	8 U	8 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.4 J	0.89	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.9 U	3.9 U	3.7 U	3.7 U	2.5 U	2.5 U	2.2 U	2.2 U	4.1 U	4.1 U
METHOXYCLOR	NL	NL	NL	µg/kg	39 U	39 U	37 U	37 U	25 U	25 U	22 U	22 U	41 U	41 U
TOXAPHENE	1	1.5	2	µg/kg	390 U	390 U	370 U	370 U	250 U	250 U	220 U	220 U	410 U	410 U
TOC	NL	NL	NL	%	2.71		3.56		5.29		1.79		3.64	

				Location ID	HB10-2-32		HB10-2-33		HB10-2-33		HB10-2-34		HB10-2-34	
				Field Sample ID	HB10-2-32-06DP		HB10-2-33-06		HB10-2-33-22		HB10-2-34-06		HB10-2-34-06DP	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		12- 22		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
4,4'-DDD	4.9	16.5	28	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
4,4'-DDE	3.2	17	31	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
4,4'-DDT	4.2	33.6	63	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
ALDRIN	2	41	80	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
ALPHA-BHC	6	53	100	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
BETA-BHC	5	108	210	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
DELTA-BHC	3	62	120	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
DIELDRIN	1.9	32	62	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
ENDOSULFAN I	NL	NL	NL	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
ENDOSULFAN II	NL	NL	NL	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
ENDRIN KETONE	NL	NL	NL	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	6.6 U	6.6 U	7 U	7 U
ENDRIN	2.2	104.6	207	µg/kg	7.6 U	7.6 U	4.7 U	4.7 U	5.3 U	5.3 U	7.2	1.7	7 U	7 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
HEPTACHLOR	NL	NL	NL	µg/kg	3.9 U	3.9 U	2.4 U	2.4 U	2.7 U	2.7 U	3.4 U	3.4 U	3.6 U	3.6 U
METHOXYCLOR	NL	NL	NL	µg/kg	39 U	39 U	24 UJ	24 UJ	27 UJ	27 UJ	34 UJ	34 UJ	36 UJ	36 UJ
TOXAPHENE	1	1.5	2	µg/kg	390 U	390 U	240 U	240 U	270 U	270 U	340 U	340 U	360 U	360 U
TOC	NL	NL	NL	%	3.4		0.99		3.77		4.12		3.25	

Table 3-5b
Area 2 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-35		HB10-2-35		HB10-2-35		HB10-2-36		HB10-2-36	
				Field Sample ID	HB10-2-35-06		HB10-2-35-12		HB10-2-35-30		HB10-2-36-06		HB10-2-36-06DP	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 12		12- 30		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**						**Unit**					
4,4'-DDD	4.9	16.5	28	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
4,4'-DDE	3.2	17	31	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
4,4'-DDT	4.2	33.6	63	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
ALDRIN	2	41	80	µg/kg	2.2 U	2.2 U	21	**14.6**	2.6 J	0.84	3.2 U	3.2 U	3.7 U	3.7 U
ALPHA-BHC	6	53	100	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
BETA-BHC	5	108	210	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
DELTA-BHC	3	62	120	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
DIELDRIN	1.9	32	62	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	1.3 J	0.42	3.2 U	3.2 U	3.7 U	3.7 U
ENDOSULFAN II	NL	NL	NL	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
ENDRIN KETONE	NL	NL	NL	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
ENDRIN	2.2	104.6	207	µg/kg	4.2 U	4.2 U	4.7 U	4.7 U	5 U	5 U	6.1 U	6.1 U	7.1 U	7.1 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
HEPTACHLOR	NL	NL	NL	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	2.6 U	2.6 U	3.2 U	3.2 U	3.7 U	3.7 U
METHOXYCLOR	NL	NL	NL	µg/kg	22 UJ	22 UJ	24 UJ	24 UJ	26 UJ	26 UJ	32 U	32 U	37 U	37 U
TOXAPHENE	1	1.5	2	µg/kg	220 U	220 U	240 U	240 U	260 U	260 U	320 U	320 U	370 U	370 U
TOC	NL	NL	NL	%	0.702		1.44		3.08		3.05		16.2	

				Location ID	HB10-2-37		HB10-2-37		HB10-2-38		HB10-2-38		HB10-2-38	
				Field Sample ID	HB10-2-37-06		HB10-2-37-23		HB10-2-38-06		HB10-2-38-06DP		HB10-2-38-12	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		12- 23		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**						**Unit**					
4,4'-DDD	4.9	16.5	28	µg/kg	4.1 U	4.1 U	4.3 R	4.3 R	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
4,4'-DDE	3.2	17	31	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
4,4'-DDT	4.2	33.6	63	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
ALDRIN	2	41	80	µg/kg	2.1 U	2.1 U	2.2 R	2.2 R	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
ALPHA-BHC	6	53	100	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
BETA-BHC	5	108	210	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
DELTA-BHC	3	62	120	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
DIELDRIN	1.9	32	62	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
ENDOSULFAN II	NL	NL	NL	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
ENDRIN KETONE	NL	NL	NL	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
ENDRIN	2.2	104.6	207	µg/kg	4.1 U	4.1 U	4.3 U	4.3 U	7.5 U	7.5 U	7.5 U	7.5 U	5.6 U	5.6 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
HEPTACHLOR	NL	NL	NL	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	3.9 U	3.9 U	3.8 U	3.8 U	2.9 U	2.9 U
METHOXYCLOR	NL	NL	NL	µg/kg	21 UJ	21 UJ	22 UJ	22 UJ	39 U	39 U	38 U	38 U	29 U	29 U
TOXAPHENE	1	1.5	2	µg/kg	210 U	210 U	220 U	220 U	390 U	390 U	380 U	380 U	290 U	290 U
TOC	NL	NL	NL	%	0.423		0.648		5.6		5.6*		3.32	

Table 3-5b
Area 2 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-38		HB10-2-39		HB10-2-39		HB10-2-39		HB10-2-40	
				Field Sample ID	HB10-2-38-38		HB10-2-39-06		HB10-2-39-12		HB10-2-39-28		HB10-2-40-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	36- 38		0- 6		0- 12		12- 28		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**					**Unit**						
4,4'-DDD	4.9	16.5	28	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
4,4'-DDE	3.2	17	31	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
4,4'-DDT	4.2	33.6	63	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
ALDRIN	2	41	80	µg/kg	2.6 J	0.65	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
ALPHA-BHC	6	53	100	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
BETA-BHC	5	108	210	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
DELTA-BHC	3	62	120	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
DIELDRIN	1.9	32	62	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
ENDOSULFAN II	NL	NL	NL	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	5 U	5 U	2.8 J	5.5	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
ENDRIN KETONE	NL	NL	NL	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
ENDRIN	2.2	104.6	207	µg/kg	5 U	5 U	4 U	4 U	4.4 U	4.4 U	8.8 U	8.8 U	7.2 U	7.2 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	2.1 J	0.62
HEPTACHLOR	NL	NL	NL	µg/kg	2.6 U	2.6 U	2.1 U	2.1 U	2.3 U	2.3 U	4.5 U	4.5 U	3.7 U	3.7 U
METHOXYCLOR	NL	NL	NL	µg/kg	26 U	26 U	21 U	21 U	23 UJ	23 UJ	45 UJ	45 UJ	37 U	37 U
TOXAPHENE	1	1.5	2	µg/kg	260 U	260 U	210 U	210 U	230 U	230 U	450 U	450 U	370 U	370 U
TOC	NL	NL	NL	%	4.03		0.506		1.68		11.1		3.39	

				Location ID	HB10-2-40		HB10-2-40		HB10-2-40		HB10-2-41		HB10-2-41	
				Field Sample ID	HB10-2-40-12		HB10-2-40-36		HB10-2-40-48		HB10-2-41-06		HB10-2-41-12	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		36- 48		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**					**Unit**						
4,4'-DDD	4.9	16.5	28	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
4,4'-DDE	3.2	17	31	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
4,4'-DDT	4.2	33.6	63	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
ALDRIN	2	41	80	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	3	1.5
ALPHA-BHC	6	53	100	µg/kg	2.9 J	1.2	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
BETA-BHC	5	108	210	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
DELTA-BHC	3	62	120	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
DIELDRIN	1.9	32	62	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	1 J	0.50
ENDOSULFAN II	NL	NL	NL	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
ENDRIN KETONE	NL	NL	NL	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	8 U	8 U	4 U	4 U
ENDRIN	2.2	104.6	207	µg/kg	5.3 U	5.3 U	4.4 U	4.4 U	4.4 U	4.4 U	4 J	0.59	4 U	4 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	48 J	**19.7**	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
HEPTACHLOR	NL	NL	NL	µg/kg	2.7 U	2.7 U	2.3 U	2.3 U	2.2 U	2.2 U	4 U	4 U	2 U	2 U
METHOXYCLOR	NL	NL	NL	µg/kg	27 U	27 U	23 U	23 U	22 U	22 U	45 U	45 U	24 U	24 U
TOXAPHENE	1	1.5	2	µg/kg	270 U	270 U	230 U	230 U	220 U	220 U	450 U	450 U	240 U	240 U
TOC	NL	NL	NL	%	2.44		0.886		1.17		6.73		1.99	

Table 3-5b
Area 2 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-41		HB10-2-42		HB10-2-42		HB10-2-42		HB10-2-43	
				Field Sample ID	HB10-2-41-31		HB10-2-42-06		HB10-2-42-12		HB10-2-42-30		HB10-2-43-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	12- 31		0- 6		0- 12		12- 30		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**						**Unit**					
4,4'-DDD	4.9	16.5	28	µg/kg	4 U	4 U	4.3 U	4.3 U	6.8 J	0.65	4.4 U	4.4 U	4 U	4 U
4,4'-DDE	3.2	17	31	µg/kg	4 U	4 U	4.3 U	4.3 U	4.8 R	4.8 R	4.4 U	4.4 U	4 U	4 U
4,4'-DDT	4.2	33.6	63	µg/kg	4 U	4 U	4.3 U	4.3 U	4.8 U	4.8 U	4.4 U	4.4 U	4 U	4 U
ALDRIN	2	41	80	µg/kg	2 U	2 U	2.2 U	2.2 U	5.3 J	0.51	2.2 U	2.2 U	2 U	2 U
ALPHA-BHC	6	53	100	µg/kg	2 U	2 U	2.2 U	2.2 U	2.2 J	0.21	2.2 U	2.2 U	2 U	2 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	2.2 U	2.2 U	2.5 U	2.5 U	2.2 U	2.2 U	2 U	2 U
BETA-BHC	5	108	210	µg/kg	2 U	2 U	2.2 U	2.2 U	2.5 R	2.5 R	2.2 U	2.2 U	2 U	2 U
DELTA-BHC	3	62	120	µg/kg	2 U	2 U	2.2 U	2.2 U	2.5 R	2.5 R	2.2 U	2.2 U	2 U	2 U
DIELDRIN	1.9	32	62	µg/kg	4 U	4 U	4.3 U	4.3 U	4.8 U	4.8 U	4.4 U	4.4 U	4 U	4 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2 U	2 U	2.2 U	2.2 U	8.6	0.83	2.2 U	2.2 U	2 U	2 U
ENDOSULFAN II	NL	NL	NL	µg/kg	4 U	4 U	4.3 U	4.3 U	4.8 U	4.8 U	4.4 U	4.4 U	4 U	4 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	4 U	4 U	4.3 U	4.3 U	5.3 NJ	0.51	4.4 U	4.4 U	4 U	4 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	4 U	4 U	4.3 U	4.3 U	4.8 U	4.8 U	4.4 U	4.4 U	4 U	4 U
ENDRIN KETONE	NL	NL	NL	µg/kg	4 U	4 U	4.3 U	4.3 U	4.1 J	0.39	4.4 U	4.4 U	4 U	4 U
ENDRIN	2.2	104.6	207	µg/kg	4 U	4 U	4.3 U	4.3 U	4.8 R	4.8 R	4.4 U	4.4 U	4 U	4 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2 U	2 U	2.2 U	2.2 U	2.5 R	2.5 R	2.2 U	2.2 U	2 U	2 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	2.2 U	2.2 U	2.5 R	2.5 R	2.2 U	2.2 U	2 U	2 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2 U	2 U	2.2 U	2.2 U	2.5 R	2.5 R	2.2 U	2.2 U	2 U	2 U
HEPTACHLOR	NL	NL	NL	µg/kg	2 U	2 U	2.2 U	2.2 U	6	0.58	2.2 U	2.2 U	2 U	2 U
METHOXYCLOR	NL	NL	NL	µg/kg	22 U	22 U	22 U	22 U	25 U	25 U	22 U	22 U	21 U	21 U
TOXAPHENE	1	1.5	2	µg/kg	220 U	220 U	220 U	220 U	250 U	250 U	220 U	220 U	210 U	210 U
TOC	NL	NL	NL	%	1.12		8.84		10.4		2.8		0.783	

				Location ID	HB10-2-43		HB10-2-44		HB10-2-44		HB10-2-45		HB10-2-45	
				Field Sample ID	HB10-2-43-22		HB10-2-44-06		HB10-2-44-16		HB10-2-45-06		HB10-2-45-19	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	12- 22		0- 6		12- 16		0- 6		12- 19	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**						**Unit**					
4,4'-DDD	4.9	16.5	28	µg/kg	5 U	5 U	6.3 U	6.3 U	5.4 U	5.4 U	2.5 J	0.56	5.2 U	5.2 U
4,4'-DDE	3.2	17	31	µg/kg	5 U	5 U	6.3 U	6.3 U	5.4 U	5.4 U	4.5 U	4.5 U	5.2 U	5.2 U
4,4'-DDT	4.2	33.6	63	µg/kg	5 U	5 U	6.3 U	6.3 U	5.4 U	5.4 U	4.5 U	4.5 U	5.2 U	5.2 U
ALDRIN	2	41	80	µg/kg	2 R	2 R	3.2 U	3.2 U	2.8 U	2.8 U	3.8	0.86	2.7 U	2.7 U
ALPHA-BHC	6	53	100	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
ALPHA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
BETA-BHC	5	108	210	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
DELTA-BHC	3	62	120	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
DIELDRIN	1.9	32	62	µg/kg	5 U	5 U	6.3 U	6.3 U	5.4 U	5.4 U	3.1 J	0.70	5.2 U	5.2 U
ENDOSULFAN I	NL	NL	NL	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
ENDOSULFAN II	NL	NL	NL	µg/kg	5 U	5 U	6.3 U	6.3 U	5.4 U	5.4 U	4.5 U	4.5 U	5.2 U	5.2 U
ENDOSULFAN SULFATE	NL	NL	NL	µg/kg	5 U	5 U	6.3 U	6.3 U	3.9 J	0.79	4.5 U	4.5 U	5.2 U	5.2 U
ENDRIN ALDEHYDE	NL	NL	NL	µg/kg	5 U	5 U	6.3 U	6.3 U	5.4 U	5.4 U	4.5 U	4.5 U	5.2 U	5.2 U
ENDRIN KETONE	NL	NL	NL	µg/kg	5 U	5 U	6.3 U	6.3 U	2.7 J	0.55	4.5 U	4.5 U	5.2 U	5.2 U
ENDRIN	2.2	104.6	207	µg/kg	5 U	5 U	6.3 U	6.3 U	5.4 U	5.4 U	4.5 U	4.5 U	5.2 U	5.2 U
GAMMA-BHC (LINDANE)	3	4	5	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
GAMMA-CHLORDANE	3.2	10.6	18	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 R	2.8 R	2.3 R	2.3 R	2.7 U	2.7 U
HEPTACHLOR EPOXIDE	2.5	9.3	16	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
HEPTACHLOR	NL	NL	NL	µg/kg	2 U	2 U	3.2 U	3.2 U	2.8 U	2.8 U	2.3 U	2.3 U	2.7 U	2.7 U
METHOXYCLOR	NL	NL	NL	µg/kg	28 U	28 U	32 UJ	32 UJ	28 UJ	28 UJ	23 UJ	23 UJ	27 UJ	27 UJ
TOXAPHENE	1	1.5	2	µg/kg	280 U	280 U	320 U	320 U	280 U	280 U	230 U	230 U	270 U	270 U
TOC	NL	NL	NL	%	4.65		3.51		4.91		4.44		2.61	

Table 3-5b
Area 2 Sediment Sample Analytical Results - TCL Pesticides
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Notes:

Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

DP - Duplicate
ID - Identification
J - Estimated value
MEC - Median Effects Concentration
N - Evidence of compound
NL - Not Listed
Norm. - Normalized to 1% TOC
PEC - Probable Effect Concentration
R - Not detected
SQG - Sediment Quality Guidelines
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TCL - Target Compound List
TOC - Total Organic Carbon
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources
*TOC not analyzed, used result for investigative sample
[1] WDNR Consensus-Based SQGs

Table 3-6a
Area 1 Sediment Sample Analytical Results - TPH
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-01	HB10-1-01	HB10-1-01	HB10-1-02	HB10-1-02	HB10-1-02	HB10-1-03	HB10-1-03
	Field Sample ID	HB10-1-01-06	HB10-1-01-12	HB10-1-01-40	HB10-1-02-06	HB10-1-02-06DP	HB10-1-02-23	HB10-1-03-06	HB10-1-03-12
	Sample Date	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010
	Depth Interval	0- 6	0- 12	36- 40	0- 6	0- 6	12- 23	0- 6	0- 12
Chemical Name	Unit								
DRO	mg/kg	50	16	9.2 UJ	47	81	57	57	32
ORO	mg/kg	56	19 J	11 J	67	120	72	95	44

	Location ID	HB10-1-03	HB10-1-03	HB10-1-03	HB10-1-04	HB10-1-04	HB10-1-04	HB10-1-04	HB10-1-05
	Field Sample ID	HB10-1-03-36	HB10-1-03-60	HB10-1-03-84	HB10-1-04-06	HB10-1-04-12	HB10-1-04-36	HB10-1-04-50	HB10-1-05-06
	Sample Date	10/16/2010	10/16/2010	10/16/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/16/2010
	Depth Interval	12- 36	36- 60	60- 84	0- 6	0- 12	12- 36	36- 50	0- 6
Chemical Name	Unit								
DRO	mg/kg	66	61	61	29	92	76	81	37
ORO	mg/kg	87	69	81	46	150	100	100	72

	Location ID	HB10-1-05	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-07	HB10-1-07
	Field Sample ID	HB10-1-05-06DP	HB10-1-06-06	HB10-1-06-06DP	HB10-1-06-12	HB10-1-06-36	HB10-1-06-51	HB10-1-07-06	HB10-1-07-12
	Sample Date	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/17/2010	10/17/2010
	Depth Interval	0- 6	0- 6	0- 6	0- 12	12- 36	36- 51	0- 6	0- 12
Chemical Name	Unit								
DRO	mg/kg	52	48	66	64	130	96	73	160
ORO	mg/kg	75	64	110	110	150	110	99	180

	Location ID	HB10-1-07	HB10-1-07	HB10-1-08	HB10-1-08	HB10-1-08	HB10-1-10	HB10-1-11	HB10-1-11
	Field Sample ID	HB10-1-07-36	HB10-1-07-64	HB10-1-08-06	HB10-1-08-12	HB10-1-08-36	HB10-1-10-06	HB10-1-11-06	HB10-1-11-21
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/16/2010	10/16/2010
	Depth Interval	12- 36	60- 64	0- 6	0- 12	12- 36	0- 6	0- 6	12- 21
Chemical Name	Unit								
DRO	mg/kg	32	11	65	83	430	130	140	340
ORO	mg/kg	40	17	110	140	650	230	170	430

	Location ID	HB10-1-12	HB10-1-12	HB10-1-12	HB10-1-13	HB10-1-13	HB10-1-13	HB10-1-13	HB10-1-14
	Field Sample ID	HB10-1-12-06	HB10-1-12-12	HB10-1-12-34	HB10-1-13-06	HB10-1-13-12	HB10-1-13-36	HB10-1-13-67	HB10-1-14-06
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/17/2010
	Depth Interval	0- 6	0- 12	12- 34	0- 6	0- 12	12- 36	60- 67	0- 6
Chemical Name	Unit								
DRO	mg/kg	98	270	220	110	350	78	180	67
ORO	mg/kg	180	310	250	130	650	94	200	90

	Location ID	HB10-1-14	HB10-1-14	HB10-1-14	HB10-1-15	HB10-1-15	HB10-1-16	HB10-1-16	HB10-1-16
	Field Sample ID	HB10-1-14-12	HB10-1-14-36	HB10-1-14-66	HB10-1-15-06	HB10-1-15-16	HB10-1-16-06	HB10-1-16-12	HB10-1-16-31
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	0- 12	12- 36	60- 66	0- 6	12- 16	0- 6	0- 12	12- 31
Chemical Name	Unit								
DRO	mg/kg	110	70	160	39	180 B	83 B	120 B	100 B
ORO	mg/kg	150	91	210	51	230	94	140	110

Table 3-6a
Area 1 Sediment Sample Analytical Results - TPH
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-17	HB10-1-20	HB10-1-21	HB10-1-21	HB10-1-23	HB10-1-23	HB10-1-23	HB10-1-23
	Field Sample ID	HB10-1-17-06	HB10-1-20-06	HB10-1-21-06	HB10-1-21-23	HB10-1-23-06	HB10-1-23-06DP	HB10-1-23-12	HB10-1-23-36
	Sample Date	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	0- 6	0- 6	0- 6	12- 23	0- 6	0- 6	0- 12	12- 36
Chemical Name	**Unit**								
DRO	mg/kg	110	130 B	92 B	120 B	59	81	170	140
ORO	mg/kg	160	190	110	160	86	110	220	150

	Location ID	HB10-1-24	HB10-1-24	HB10-1-24	HB10-1-25	HB10-1-25	HB10-1-27	HB10-1-28	HB10-1-28
	Field Sample ID	HB10-1-24-06	HB10-1-24-12	HB10-1-24-36	HB10-1-25-06	HB10-1-25-06DP	HB10-1-27-06DP	HB10-1-28-06	HB10-1-28-12
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/18/2010	10/17/2010	10/17/2010
	Depth Interval	0- 6	0- 12	12- 36	0- 6	0- 6	0- 6	0- 6	0- 12
Chemical Name	**Unit**								
DRO	mg/kg	400	170	540	160	99	26	160	350
ORO	mg/kg	520	300	850	240	150	31	230	460

	Location ID	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-29	HB10-1-29	HB10-1-29	HB10-1-29
	Field Sample ID	HB10-1-28-36	HB10-1-28-60	HB10-1-28-84	HB10-1-28-96	HB10-1-29-06	HB10-1-29-12	HB10-1-29-36	HB10-1-29-60
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	12- 36	36- 60	60- 84	60- 96	0- 6	0- 12	12- 36	36- 60
Chemical Name	**Unit**								
DRO	mg/kg	180	230	170	60	110	100	100	93
ORO	mg/kg	250	260	17 J	71	140	150	120	160

	Location ID	HB10-1-29	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-31
	Field Sample ID	HB10-1-29-93	HB10-1-30-06	HB10-1-30-06DP	HB10-1-30-12	HB10-1-30-36	HB10-1-30-60	HB10-1-30-77	HB10-1-31-06
	Sample Date	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	60- 93	0- 6	0- 6	0- 12	12- 36	36- 60	60- 77	0- 6
Chemical Name	**Unit**								
DRO	mg/kg	730	130	240 J	140	170	57	250	200
ORO	mg/kg	690	190	380	180	210	76	710	240

	Location ID	HB10-1-31	HB10-1-31	HB10-1-31
	Field Sample ID	HB10-1-31-06DP	HB10-1-31-12	HB10-1-31-36
	Sample Date	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 12	12- 36
Chemical Name	**Unit**			
DRO	mg/kg	380	150	100 J
ORO	mg/kg	700	190	110

Notes:
B - Analyte found in method blank
DRO - Diesel Range Organic
ID - Identification
J - Estimated value
mg/kg - Milligram per kilogram
NL - Not Listed
ORO - Oil Range Organic
TPH - Total Petroleum Hydrocarbon
U - Not detected

Table 3-6b
Area 2 Sediment Sample Analytical Results - TPH
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-2-18	HB10-2-18	HB10-2-26	HB10-2-26	HB10-2-32	HB10-2-32	HB10-2-33	HB10-2-33
	Field Sample ID	HB10-2-18-06	HB10-2-18-06DP	HB10-2-26-06	HB10-2-26-17	HB10-2-32-06	HB10-2-32-06DP	HB10-2-33-06	HB10-2-33-22
	Sample Date	10/18/2010	10/18/2010	10/16/2010	10/16/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 6	0- 6	12- 17	0- 6	0- 6	0- 6	12- 22
Chemical Name	Unit								
DRO	mg/kg	140	220	200 J	200	120 B	70 B	43	76
ORO	mg/kg	230	380	350	290	160	97	52	89

	Location ID	HB10-2-34	HB10-2-34	HB10-2-35	HB10-2-35	HB10-2-35	HB10-2-36	HB10-2-36	HB10-2-37
	Field Sample ID	HB10-2-34-06	HB10-2-34-06DP	HB10-2-35-06	HB10-2-35-12	HB10-2-35-30	HB10-2-36-06	HB10-2-36-06DP	HB10-2-37-06
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 6	0- 6	0- 12	12- 30	0- 6	0- 6	0- 6
Chemical Name	Unit								
DRO	mg/kg	120 B	260 B	28	94	160	390	450	47
ORO	mg/kg	150	340	54	140	68	500	540	96

	Location ID	HB10-2-37	HB10-2-38	HB10-2-38	HB10-2-38	HB10-2-38	HB10-2-39	HB10-2-39	HB10-2-39
	Field Sample ID	HB10-2-37-23	HB10-2-38-06	HB10-2-38-06DP	HB10-2-38-12	HB10-2-38-38	HB10-2-39-06	HB10-2-39-12	HB10-2-39-28
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	12- 23	0- 6	0- 6	0- 12	36- 38	0- 6	0- 12	12- 28
Chemical Name	Unit								
DRO	mg/kg	60	73	150	430 B	190 B	44	32	25
ORO	mg/kg	81	100	220	500	140	63	40	28

	Location ID	HB10-2-40	HB10-2-40	HB10-2-40	HB10-2-40	HB10-2-41	HB10-2-41	HB10-2-41	HB10-2-42
	Field Sample ID	HB10-2-40-06	HB10-2-40-12	HB10-2-40-36	HB10-2-40-48	HB10-2-41-06	HB10-2-41-12	HB10-2-41-31	HB10-2-42-06
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 12	12- 36	36- 48	0- 6	0- 12	12- 31	0- 6
Chemical Name	Unit								
DRO	mg/kg	50	91	4 J	5 J	250 B	66 B	110 B	72
ORO	mg/kg	80	140	13 U	13 U	380	100	140	140

	Location ID	HB10-2-42	HB10-2-42	HB10-2-43	HB10-2-43	HB10-2-44	HB10-2-44	HB10-2-45	HB10-2-45
	Field Sample ID	HB10-2-42-12	HB10-2-42-30	HB10-2-43-06	HB10-2-43-22	HB10-2-44-06	HB10-2-44-16	HB10-2-45-06	HB10-2-45-19
	Sample Date	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 12	12- 30	0- 6	12- 22	0- 6	12- 16	0- 6	12- 19
Chemical Name	Unit								
DRO	mg/kg	260	190	130	340 B	120	340	130 B	290 B
ORO	mg/kg	420	270	270	610	160	420	170	360

Notes:
B - Analyte found in method blank
DRO - Diesel Range Organic
ID - Identification
J - Estimated value
mg/kg - Milligram per kilogram
NL - Not Listed
ORO - Oil Range Organic
TPH - Total Petroleum Hydrocarbon
U - Not detected

Table 3-7a
Area 1 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-01		HB10-1-01		HB10-1-01		HB10-1-02		HB10-1-02	
				Field Sample ID	HB10-1-01-06		HB10-1-01-12		HB10-1-01-40		HB10-1-02-06		HB10-1-02-06DP	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	0- 6		0- 12		36- 40		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.5 U	2.5 U	2.6 U	2.6 U	2.2 U	2.2 U	2.7 U	2.7 U	2.8 U	2.8 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	9.6 UJ	9.6 UJ	10 UJ	10 UJ	8.3 UJ	8.3 UJ	11 UJ	11 UJ	11 UJ	11 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.3 U	3.3 U	3.4 U	3.4 U	2.8 U	2.8 U	3.6 U	3.6 U	3.7 U	3.7 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.9 U	2.9 U	3 U	3 U	2.5 U	2.5 U	4	**1.63**	2.8 J	**1.28**
TOC	NL	NL	NL	%	2.16		5.31		1.85		2.46		2.19	

				Location ID	HB10-1-02		HB10-1-03		HB10-1-03		HB10-1-03		HB10-1-03	
				Field Sample ID	HB10-1-02-23		HB10-1-03-06		HB10-1-03-12		HB10-1-03-36		HB10-1-03-60	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	12- 23		0- 6		0- 12		12- 36		36- 60	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.7 J	0.77	1.4 J	7.7	1.4 J	0.88	1.2 J	0.61	2.5	0.97
MONOBUTYLTIN	NL	NL	NL	µg/kg	9.0 UJ	9.0 UJ	10 UJ	10 UJ	8.5 UJ	8.5 UJ	8.6 UJ	8.6 UJ	8.4 UJ	8.4 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.1 U	3.1 U	3.5 U	3.5 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	8.2	**3.7**	3.7	**20.4**	5.1	**3.2**	4.4	**2.2**	7.3	**2.8**
TOC	NL	NL	NL	%	2.22		0.181		1.59		1.97		2.57	

				Location ID	HB10-1-03		HB10-1-04		HB10-1-04		HB10-1-04		HB10-1-04	
				Field Sample ID	HB10-1-03-84		HB10-1-04-06		HB10-1-04-12		HB10-1-04-36		HB10-1-04-50	
				Sample Date	10/16/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	60- 84		0- 6		0- 12		12- 36		36- 50	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.1 U	2.3 U	2.3 U	1.9 U	1.9 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	7.5 UJ	7.5 UJ	7.4 UJ	7.4 UJ	7.9 UJ	7.9 UJ	8.8 UJ	8.8 UJ	7.2 UJ	7.2 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.7 U	2.7 U	3 U	3 U	2.5 U	2.5 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.2 U	2.2 U	2.2	**1.2**	1.5 J	**0.59**	2.6 U	2.6 U	2.2 U	2.2 U
TOC	NL	NL	NL	%	1.94		1.88		2.53		3.3		4.64	

				Location ID	HB10-1-05		HB10-1-05		HB10-1-06		HB10-1-06		HB10-1-06	
				Field Sample ID	HB10-1-05-06		HB10-1-05-06DP		HB10-1-06-06		HB10-1-06-06DP		HB10-1-06-12	
				Sample Date	10/16/2010		10/16/2010		10/16/2010		10/16/2010		10/16/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.6 J	0.75	1.7 J	0.87	2.7 U	2.7 U	1.5 J	0.62	2.2 J	1.1
MONOBUTYLTIN	NL	NL	NL	µg/kg	10 UJ	10 UJ	9.8 UJ	9.8 UJ	10 UJ	10 UJ	10 UJ	10 UJ	9.6 UJ	9.6 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.4 U	3.4 U	3.3 U	3.3 U	3.5 U	3.5 U	3.4 U	3.4 U	3.3 U	3.3 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	4.1	**1.9**	6.8	**3.5**	2.1 J	**0.91**	2.3 J	**0.95**	6.4	**3.2**
TOC	NL	NL	NL	%	2.13		1.96		2.31		2.42		1.97	

Table 3-7a
Area 1 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-06		HB10-1-06		HB10-1-07		HB10-1-07		HB10-1-07	
				Field Sample ID	HB10-1-06-36		HB10-1-06-51		HB10-1-07-06		HB10-1-07-12		HB10-1-07-36	
				Sample Date	10/16/2010		10/16/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	12- 36		36- 51		0- 6		0- 12		12- 36	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.1 U	2.1 U	2.3 U	2.3 U	1.2 J	0.53	2.2 U	2.2 U	2.2 U	2.2 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	8.1 UJ	8.1 UJ	8.8 UJ	8.8 UJ	8.3 UJ	8.3 UJ	8.5 UJ	8.5 UJ	8.3 UJ	8.3 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.7 U	2.7 U	3 U	3 U	2.8 U	2.8 U	2.9 U	2.9 U	2.8 U	2.8 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.4 U	2.4 U	2.7 U	2.7 U	1.9 J	**0.83**	2.6 U	2.6 U	2.5 U	2.5 U
TOC	NL	NL	NL	%	4.38		3.14		2.28		2.76		3.19	

				Location ID	HB10-1-07		HB10-1-08		HB10-1-08		HB10-1-08		HB10-1-10	
				Field Sample ID	HB10-1-07-64		HB10-1-08-06		HB10-1-08-12		HB10-1-08-36		HB10-1-10-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/18/2010	
				Depth Interval	60- 64		0- 6		0- 12		12- 36		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.6 U	1.6 U	2.6 J	0.68	3.1 B	0.77	2.7 U	2.7 U	2.9 U	2.9 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	6.0 UJ	6.0 UJ	13 UJ	13 UJ	9.9 UJ	9.9 UJ	10 UJ	10 UJ	11 UJ	11 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.1 U	2.1 U	4.5 U	4.5 U	3.4 U	3.4 U	3.5 U	3.5 U	3.8 U	3.8 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	1.8 U	1.8 U	2.8 J	**0.73**	3.7	**0.92**	1.5 J	0.27	3.4 U	3.4 U
TOC	NL	NL	NL	%	1.13		3.85		4.01		5.51		3.59	

				Location ID	HB10-1-11		HB10-1-11		HB10-1-12		HB10-1-12		HB10-1-12	
				Field Sample ID	HB10-1-11-06		HB10-1-11-21		HB10-1-12-06		HB10-1-12-12		HB10-1-12-34	
				Sample Date	10/16/2010		10/16/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		12- 21		0- 6		0- 12		12- 34	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.6 U	2.6 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	3.3 U	3.3 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	10 UJ	10 UJ	9.0 UJ	9.0 UJ	8.9 UJ	8.9 UJ	8.8 UJ	8.8 UJ	13 UJ	13 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.4 U	3.4 U	3.1 U	3.1 U	3 U	3 U	3 U	3 U	4.3 U	4.3 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	3 U	3 U	2.7 U	2.7 U	2.7 U	2.7 U	2.6 U	2.6 U	3.8 UJ	3.8 UJ
TOC	NL	NL	NL	%	3.16		3.79		3.4		4.44		16.2	

				Location ID	HB10-1-13		HB10-1-13		HB10-1-13		HB10-1-13		HB10-1-14	
				Field Sample ID	HB10-1-13-06		HB10-1-13-12		HB10-1-13-36		HB10-1-13-67		HB10-1-14-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	0- 6		0- 12		12- 36		60- 67		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.8 U	2.8 U	2.5 U	2.5 U	2.3 U	2.3 U	2.2 U	2.2 U	2.7 UJ	2.7 UJ
MONOBUTYLTIN	NL	NL	NL	µg/kg	11 UJ	11 UJ	9.7 UJ	9.7 UJ	8.9 UJ	8.9 UJ	8.6 UJ	8.6 UJ	10 UJ	10 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.7 U	3.7 U	3.3 U	3.3 U	3 U	3 U	2.9 U	2.9 U	3.5 U	3.5 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	3 J	**0.89**	2.9 U	2.9 U	3.8	**1.9**	2.6 U	2.6 U	2.7 J	**0.95**
TOC	NL	NL	NL	%	3.36		2.75		2.01		2.24		2.84	

Table 3-7a
Area 1 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-14		HB10-1-14		HB10-1-14		HB10-1-15		HB10-1-15	
				Field Sample ID	HB10-1-14-12		HB10-1-14-36		HB10-1-14-66		HB10-1-15-06		HB10-1-15-16	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		60- 66		0- 6		12- 16	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.1 J	0.76	3.7 B	0.93	2.3 U	2.3 U	1.8 J	1.0	3.3 U	3.3 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	9.4 UJ	9.4 UJ	9.1 UJ	9.1 UJ	8.8 UJ	8.8 UJ	7.6 UJ	7.6 UJ	13 UJ	13 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.2 U	3.2 U	3.1 U	3.1 U	3 U	3 U	2.6 U	2.6 U	4.3 U	4.3 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	4.6	**1.7**	6.4	**1.6**	2.6 U	2.6 U	2.3 U	2.3 U	3.8 U	3.8 U
TOC	NL	NL	NL	%	2.75		3.98		4.42		1.72		11	

				Location ID	HB10-1-16		HB10-1-16		HB10-1-16		HB10-1-17		HB10-1-20	
				Field Sample ID	HB10-1-16-06		HB10-1-16-12		HB10-1-16-31		HB10-1-17-06		HB10-1-20-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 12		12- 31		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	2	0.93	2.3 U	2.3 U	2.5 U	2.5 U	1.4 J	0.17	2.1	1.0
MONOBUTYLTIN	NL	NL	NL	µg/kg	7.3 UJ	7.3 UJ	8.8 UJ	8.8 UJ	9.7 UJ	9.7 UJ	11 UJ	11 UJ	8.0 UJ	8.0 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.5 U	2.5 U	3 U	3 U	3.3 U	3.3 U	3.7 U	3.7 U	2.7 U	2.7 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	9.2	**4.3**	6	**1.3**	2.9 U	2.9 U	2.2 J	0.27	5.7	**2.7**
TOC	NL	NL	NL	%	2.14		4.45		8.15		8.19		2.08	

				Location ID	HB10-1-21		HB10-1-21		HB10-1-23		HB10-1-23		HB10-1-23	
				Field Sample ID	HB10-1-21-06		HB10-1-21-23		HB10-1-23-06		HB10-1-23-06DP		HB10-1-23-12	
				Sample Date	10/18/2010		10/18/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		12- 23		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.6 U	1.6 U	1.6 U	1.6 U	2.8 U	2.8 U	2.8 U	2.8 U	2.5 U	2.5 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	6.2 UJ	6.2 UJ	6.3 UJ	6.3 UJ	11 UJ	11 UJ	11 UJ	11 UJ	9.4 UJ	9.4 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.1 U	2.1 U	2.1 U	2.1 U	3.7 U	3.7 U	3.6 U	3.6 U	3.2 U	3.2 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	1.9 U	1.9 U	1.9 U	1.9 U	3.3 U	3.3 U	3.2 U	3.2 U	2.8 U	2.8 U
TOC	NL	NL	NL	%	0.849		1.35		4.52		4.33		5.39	

				Location ID	HB10-1-23		HB10-1-24		HB10-1-24		HB10-1-24		HB10-1-25	
				Field Sample ID	HB10-1-23-36		HB10-1-24-06		HB10-1-24-12		HB10-1-24-36		HB10-1-25-06	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	12- 36		0- 6		0- 12		12- 36		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	2.7 U	2.7 U	3 U	3 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	10 UJ	10 UJ	11 UJ	11 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	4.1 U	4.1 U	4 U	4 U	4 U	4 U	3.5 U	3.5 U	3.9 U	3.9 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	3.6 U	3.6 U	2.0 J	0.36	2.0 J	0.36	3.1 U	3.1 U	3.1 J	**0.79**
TOC	NL	NL	NL	%	7.34		5.55		5.57		5.97		3.93	

Table 3-7a
Area 1 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-25		HB10-1-27		HB10-1-27		HB10-1-28		HB10-1-28	
				Field Sample ID	HB10-1-25-06DP		HB10-1-27-06		HB10-1-27-06DP		HB10-1-28-06		HB10-1-28-12	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/17/2010		10/17/2010	
				Depth Interval	0- 6		0- 6		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.9 U	2.9 U	3.6 U	3.6 U	3.3 U	3.3 U	14	3.3	4.6	1.1
MONOBUTYLTIN	NL	NL	NL	µg/kg	11 UJ	11 UJ	14 UJ	14 UJ	13 UJ	13 UJ	51 UJ	51 UJ	10 UJ	10 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.8 U	3.8 U	4.7 U	4.7 U	4.3 U	4.3 U	17 U	17 U	3.5 U	3.5 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.6 J	**0.70**	4.1 U	4.1 U	3.8 U	3.8 U	270	**64.6**	24	**5.7**
TOC	NL	NL	NL	%	3.71		5.32		7.94		4.18		4.24	

				Location ID	HB10-1-28		HB10-1-28		HB10-1-28		HB10-1-28		HB10-1-29	
				Field Sample ID	HB10-1-28-36		HB10-1-28-60		HB10-1-28-84		HB10-1-28-96		HB10-1-29-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/17/2010	
				Depth Interval	12- 36		36- 60		60- 84		60- 96		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.6 J	0.37	2.7 U	2.7 U	2.5 U	2.5 U	2.3 U	2.3 U	2.5 J	0.25
MONOBUTYLTIN	NL	NL	NL	µg/kg	9.4 UJ	9.4 UJ	10 UJ	10 UJ	9.8 UJ	9.8 UJ	8.8 UJ	8.8 UJ	13 UJ	13 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.2 U	3.2 U	3.5 U	3.5 U	3.3 U	3.3 U	3 U	3 U	4.4 U	4.4 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	3.8	**0.89**	3.1 U	3.1 U	2.9 U	2.9 U	2.7 U	2.7 U	3.1 J	0.30
TOC	NL	NL	NL	%	4.29		5.73		5.71		4.11		10.2	

				Location ID	HB10-1-29		HB10-1-29		HB10-1-29		HB10-1-29		HB10-1-30	
				Field Sample ID	HB10-1-29-12		HB10-1-29-36		HB10-1-29-60		HB10-1-29-93		HB10-1-30-06	
				Sample Date	10/17/2010		10/17/2010		10/17/2010		10/17/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		36- 60		60- 93		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	3.1 U	3.1 U	3.5 U	3.5 U	3.1 UJ	3.1 UJ	3.2 U	3.2 U	2.6 U	2.6 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	12 UJ	12 UJ	14 UJ	14 UJ	12 UJ	12 UJ	12 UJ	12 UJ	10 UJ	10 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	4.1 U	4.1 U	4.6 U	4.6 U	4.1 UJ	4.1 UJ	4.2 U	4.2 U	3.4 U	3.4 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	3.6 U	3.6 U	4.1 U	4.1 U	3.6 UJ	3.6 UJ	3.7 U	3.7 U	3 U	3 U
TOC	NL	NL	NL	%	11.5		16.5		15		14.1		4.81	

				Location ID	HB10-1-30		HB10-1-30		HB10-1-30		HB10-1-30		HB10-1-30	
				Field Sample ID	HB10-1-30-06DP		HB10-1-30-12		HB10-1-30-36		HB10-1-30-60		HB10-1-30-77	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 12		12- 36		36- 60		60- 77	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.5 U	2.5 U	2.8 U	2.8 U	2.5 U	2.5 U	4.3 U	4.3 U	8.6 U	8.6 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	9.7 UJ	9.7 UJ	11 UJ	11 UJ	9.5 UJ	9.5 UJ	16 UJ	16 UJ	33 UJ	33 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	3.3 U	3.3 U	3.7 U	3.7 U	3.2 U	3.2 U	5.6 U	5.6 U	11 U	11 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.9 U	2.9 U	3.3 U	3.3 U	2.9 U	2.9 U	4.9 U	4.9 U	9.9 U	9.9 U
TOC	NL	NL	NL	%	5.5		4.44		8.94		7.99		35.3	

Table 3-7a
Area 1 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-1-31		HB10-1-31		HB10-1-31		HB10-1-31	
				Field Sample ID	HB10-1-31-06		HB10-1-31-06DP		HB10-1-31-12		HB10-1-31-36	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		0- 12		12- 36	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**								
DIBUTYLTIN	NL	NL	NL	µg/kg	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U	2.6 U	2.5 U	2.5 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	13 UJ	13 UJ	13 UJ	13 UJ	10 UJ	10 UJ	9.6 UJ	9.6 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	4.3 U	4.3 U	4.4 U	4.4 U	3.4 U	3.4 U	3.2 U	3.2 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	3.3 J	**0.70**	3.7 J	**0.87**	3 U	3 U	2.9 U	2.9 U
TOC	NL	NL	NL	%	4.73		4.27		5.14		4.8	

Notes:
Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

B - Analyte found in method blank
DP - Duplicate
ID - Identification
J - Estimated value
MEC - Median Effects Concentration
NL - Not Listed
Norm. - Normalized to 1% TOC
PEC - Probable Effect Concentration
SQG - Sediment Quality Guidelines
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources
[1] WDNR Consensus-Based SQGs

Table 3-7b
Area 2 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-18		HB10-2-18		HB10-2-26		HB10-2-26		HB10-2-32	
				Field Sample ID	HB10-2-18-06		HB10-2-18-06DP		HB10-2-26-06		HB10-2-26-17		HB10-2-32-06	
				Sample Date	10/18/2010		10/18/2010		10/16/2010		10/16/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		0- 6		12- 17		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	3.1 J	1.1	2.6 U	2.6 U	2.1 U	2.1 U	1.7 U	1.7 U	3.2 U	3.2 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	19 UJ	19 UJ	10 UJ	10 UJ	7.9 UJ	7.9 UJ	6.6 UJ	6.6 UJ	12 UJ	12 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	6.3 U	6.3 U	3.4 U	3.4 U	2.7 U	2.7 U	2.2 U	2.2 U	4.2 U	4.2 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	4.2 J	**1.5**	3.1	**0.87**	2.4 U	2.4 U	2 U	2 U	3.7 U	3.7 U
TOC	NL	NL	NL	%	2.71		3.56		5.29		1.79		3.64	

				Location ID	HB10-2-32		HB10-2-33		HB10-2-33		HB10-2-34		HB10-2-34	
				Field Sample ID	HB10-2-32-06DP		HB10-2-33-06		HB10-2-33-22		HB10-2-34-06		HB10-2-34-06DP	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 6		12- 22		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	3.6 U	3.6 U	1.9 U	1.9 U	2.1 U	2.1 U	2.7 U	2.7 U	1.6 J	0.49
MONOBUTYLTIN	NL	NL	NL	µg/kg	14 UJ	14 UJ	7.3 UJ	7.3 UJ	7.9 UJ	7.9 UJ	10 UJ	10 UJ	9.5 UJ	9.5 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	4.7 U	4.7 U	2.5 U	2.5 U	2.7 U	2.7 U	3.5 U	3.5 U	3.2 U	3.2 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	4.1 U	4.1 U	2.2 U	2.2 U	2.4 U	2.4 U	2.9 J	**0.70**	3.8	**1.2**
TOC	NL	NL	NL	%	3.4		0.99		3.77		4.12		3.25	

				Location ID	HB10-2-35		HB10-2-35		HB10-2-35		HB10-2-36		HB10-2-36	
				Field Sample ID	HB10-2-35-06		HB10-2-35-12		HB10-2-35-30		HB10-2-36-06		HB10-2-36-06DP	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		0- 12		12- 30		0- 6		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.8 U	1.8 U	1.9 U	1.9 U	2 U	2 U	2.7 U	2.7 U	2.7 U	2.7 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	7.1 UJ	7.1 UJ	7.5 UJ	7.5 UJ	7.8 UJ	7.8 UJ	10 UJ	10 UJ	10 UJ	10 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.4 U	2.4 U	2.5 U	2.5 U	2.6 U	2.6 U	3.5 U	3.5 U	3.6 U	3.6 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.1 U	2.1 U	2.2 U	2.2 U	2.3 U	2.3 U	3.1 U	3.1 U	3.1 U	3.1 U
TOC	NL	NL	NL	%	0.702		1.44		3.08		3.05		16.2	

				Location ID	HB10-2-37		HB10-2-37		HB10-2-38		HB10-2-38		HB10-2-38	
				Field Sample ID	HB10-2-37-06		HB10-2-37-23		HB10-2-38-06		HB10-2-38-06DP		HB10-2-38-12	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 6		12- 23		0- 6		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	**TEC[1]**	**MEC[1]**	**PEC[1]**	**Unit**										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.7 U	1.7 U	1.8 U	1.8 U	2.7 J	0.48	3.2 U	3.2 U	2.3 U	2.3 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	6.4 UJ	6.4 UJ	7.0 UJ	7.0 UJ	12 UJ	12 UJ	12 UJ	12 UJ	8.8 UJ	8.8 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.2 U	2.2 U	2.4 U	2.4 U	4.2 U	4.2 U	4.1 U	4.1 U	3 U	3 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	1.9 U	1.9 U	2.1 U	2.1 U	4.2	**0.75**	2.9 J	0.52	2.6 U	2.6 U
TOC	NL	NL	NL	%	0.423		0.648		5.6		5.6*		3.32	

Table 3-7b
Area 2 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

				Location ID	HB10-2-38		HB10-2-39		HB10-2-39		HB10-2-39		HB10-2-40	
				Field Sample ID	HB10-2-38-38		HB10-2-39-06		HB10-2-39-12		HB10-2-39-28		HB10-2-40-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	36- 38		0- 6		0- 12		12- 28		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.9 U	1.9 U	1.7 U	1.7 U	1.9 U	1.9 U	3 U	3 U	2.4 J	2.4 J
MONOBUTYLTIN	NL	NL	NL	µg/kg	7.3 UJ	7.3 UJ	6.6 UJ	6.6 UJ	7.1 UJ	7.1 UJ	11 UJ	11 UJ	11 UJ	11 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.5 U	2.5 U	2.3 U	2.3 U	2.4 U	2.4 U	3.9 U	3.9 U	3.9 U	3.9 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.2 U	2.2 U	2 U	2 U	2.1 U	2.1 U	3.4 U	3.4 U	3.8	**1.1**
TOC	NL	NL	NL	%	4.03		0.506		1.68		11.1		3.39	

				Location ID	HB10-2-40		HB10-2-40		HB10-2-40		HB10-2-41		HB10-2-41	
				Field Sample ID	HB10-2-40-12		HB10-2-40-36		HB10-2-40-48		HB10-2-41-06		HB10-2-41-12	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	0- 12		12- 36		36- 48		0- 6		0- 12	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.4 J	0.57	1.8 U	1.8 U	2.1 U	2.1 U	3.7 U	3.7 U	1.8 U	1.8 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	8.2 UJ	8.2 UJ	6.9 UJ	6.9 UJ	7.9 UJ	7.9 UJ	14 UJ	14 UJ	7.1 UJ	7.1 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.8 U	2.8 U	2.4 U	2.4 U	2.7 U	2.7 U	4.8 U	4.8 U	2.4 U	2.4 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	1.9 J	**0.78**	2.1 U	2.1 U	2.4 U	2.4 U	4.2 U	4.2 U	2.1 U	2.1 U
TOC	NL	NL	NL	%	2.44		0.886		1.17		6.73		1.99	

				Location ID	HB10-2-41		HB10-2-42		HB10-2-42		HB10-2-42		HB10-2-43	
				Field Sample ID	HB10-2-41-31		HB10-2-42-06		HB10-2-42-12		HB10-2-42-30		HB10-2-43-06	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010		10/17/2010	
				Depth Interval	12- 31		0- 6		0- 12		12- 30		0- 6	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	1.7 U	1.7 U	1.9 U	1.9 U	2 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	6.6 UJ	6.6 UJ	7.4 UJ	7.4 UJ	7.8 UJ	7.8 UJ	7.3 UJ	7.3 UJ	7.1 UJ	7.1 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.2 U	2.2 U	2.5 U	2.5 U	2.7 U	2.7 U	2.5 U	2.5 U	2.4 U	2.4 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2 U	2 U	2.2 U	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.1 U	2.1 U
TOC	NL	NL	NL	%	1.12		8.84		10.4		2.8		0.783	

				Location ID	HB10-2-43		HB10-2-44		HB10-2-44		HB10-2-45		HB10-2-45	
				Field Sample ID	HB10-2-43-22		HB10-2-44-06		HB10-2-44-16		HB10-2-45-06		HB10-2-45-19	
				Sample Date	10/17/2010		10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				Depth Interval	12- 22		0- 6		12- 16		0- 6		12- 19	
				Concentration	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC	SS Conc.	Norm. 1% TOC
Chemical Name	TEC[1]	MEC[1]	PEC[1]	Unit										
DIBUTYLTIN	NL	NL	NL	µg/kg	2.1 U	2.1 U	3.1	0.88	2 U	2 U	2.2 U	2.2 U	1.9 U	1.9 U
MONOBUTYLTIN	NL	NL	NL	µg/kg	8.0 UJ	8.0 UJ	11 UJ	11 UJ	7.9 UJ	7.9 UJ	8.4 UJ	8.4 UJ	7.3 UJ	7.3 UJ
TETRABUTYLTIN	NL	NL	NL	µg/kg	2.7 U	2.7 U	3.6 U	3.6 U	2.7 U	2.7 U	2.9 U	2.9 U	2.5 U	2.5 U
TRIBUTYLTIN	0.52	1.73	2.94	µg/kg	2.4 U	2.4 U	9.1	**2.6**	2.4 U	2.4 U	2.5 U	2.5 U	2.2 U	2.2 U
TOC	NL	NL	NL	%	4.65		3.51		4.91		4.44		2.61	

Table 3-7b
Area 2 Sediment Sample Analytical Results - Organotins
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

Notes:
Level II Concern: >TEC and ≤MEC
Level III Concern: >MEC and ≤PEC
Level IV Concern: >PEC

B - Analyte found in method blank
DP - Duplicate
ID - Identification
J - Estimated value
MEC - Median Effects Concentration
NL - Not Listed
Norm. - Normalized to 1% TOC
PEC - Probable Effect Concentration
SQG - Sediment Quality Guidelines
SS Conc. - Study Site Concentration
TEC - Threshold Effects Concentration
TOC - Total Organic Carbon
U - Not detected
µg/kg - Microgram per kilogram
WDNR - Wisconsin Department of Natural Resources
*TOC not analyzed, used result for investigative sample
[1] WDNR Consensus-Based SQGs

Table 3-8a
Area 1 Sediment Sample Analytical Results - AVS/SEM
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-04	HB10-1-05	HB10-1-05	HB10-1-07	HB10-1-08	HB10-1-10	HB10-1-11
	Field Sample ID	HB10-1-04-06	HB10-1-05-06	HB10-1-05-06DP	HB10-1-07-06	HB10-1-08-06	HB10-1-10-06	HB10-1-11-06
	Sample Date	10/17/2010	10/16/2010	10/16/2010	10/17/2010	10/17/2010	10/18/2010	10/16/2010
	Depth Interval	0- 6	0- 6	0- 6	0- 6	0- 6	0- 6	0- 6
Chemical Name	**Unit**							
CADMIUM, AVS	µmole/g	0.00068	0.0018	0.0018	0.0025	0.0013	0.0016	0.0022
COPPER, AVS	µmole/g	0.0082	0.0443	0.0485	0.0226	0.0128	0.0363	0.0505
LEAD, AVS	µmole/g	0.037	0.057	0.064	0.076	0.039	0.059	0.084
NICKEL, AVS	µmole/g	0.012	0.031	0.027	0.029	0.015	0.024	0.032
SILVER, AVS	µmole/g	0.0013 U	0.0026 U	0.0023 U	0.002 U	0.0021 U	0.0029 U	0.0025 U
SULFIDE-AV	µmole/g	2.79	4.23	3.75	1.71	3.55	1.81	1.63
ZINC, AVS	µmole/g	0.301	0.488	0.447	0.624	0.327	0.434	0.598
Ratio of SEM/AVS	S.U.	0.128630824	0.147068558	0.15688	0.440994152	0.111295775	0.306574586	0.470368098
SEM - AVS	µmole/g	-2.43112	-3.6079	-3.1617	-0.9559	-3.1549	-1.2551	-0.8633
Sum SEM	µmole/g	0.35888	0.6221	0.5883	0.7541	0.3951	0.5549	0.7667
(Sum SEM - AVS)/f_{oc}	µmole/g_{oc}	-45.95689981	-169.3849765	-161.3112245	-41.9254386	-81.94545455	-34.96100279	-27.31962025

	Location ID	HB10-1-12	HB10-1-13	HB10-1-14	HB10-1-15	HB10-1-16	HB10-1-16	HB10-1-16
	Field Sample ID	HB10-1-12-06	HB10-1-13-06	HB10-1-14-06	HB10-1-15-06	HB10-1-16-06	HB10-1-16-12	HB10-1-16-31
	Sample Date	10/17/2010	10/18/2010	10/17/2010	10/18/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	0- 6	0- 6	0- 6	0- 6	0- 6	0- 12	12- 31
Chemical Name	**Unit**							
CADMIUM, AVS	µmole/g	0.0017	0.0024	0.00093 U	0.0006 U	0.00079 U	0.0023 U	0.003 U
COPPER, AVS	µmole/g	0.0256	0.0528	0.0183	0.005 J	0.0152 J	0.0411 J	0.101 J
LEAD, AVS	µmole/g	0.061	0.105	0.039	0.012 J	0.026 J	0.103 J	0.138 J
NICKEL, AVS	µmole/g	0.018	0.036	0.016	0.005 U	0.014	0.031	0.04
SILVER, AVS	µmole/g	0.0016 U	0.0026 U	0.002 U	0.0013 U	0.0013 U	0.0023 U	0.0026 U
SULFIDE-AV	µmole/g	0.75	3.55	1.11	0.285	3.74	3.22	2.02
ZINC, AVS	µmole/g	0.393	0.675	0.287	0.0843	0.224	0.868	1.18
Ratio of SEM/AVS	S.U.	0.665733333	0.245408451	0.324594595	0.355438596	0.074652406	0.323944099	0.722277228
SEM - AVS	µmole/g	-0.2507	-2.6788	-0.7497	-0.1837	-3.4608	-2.1769	-0.561
Sum SEM	µmole/g	0.4993	0.8712	0.3603	0.1013	0.2792	1.0431	1.459
(Sum SEM - AVS)/f_{oc}	µmole/g_{oc}	-7.373529412	-79.72619048	-26.39788732	-10.68023256	-161.7196262	-48.91910112	-6.883435583

Table 3-8a
Area 1 Sediment Sample Analytical Results - AVS/SEM
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-17	HB10-1-20	HB10-1-21	HB10-1-21	HB10-1-24	HB10-1-24	HB10-1-24
	Field Sample ID	HB10-1-17-06	HB10-1-20-06	HB10-1-21-06	HB10-1-21-23	HB10-1-24-06	HB10-1-24-12	HB10-1-24-36
	Sample Date	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 6	0- 6	12- 23	0- 6	0- 12	12- 36
Chemical Name	**Unit**							
CADMIUM, AVS	µmole/g	0.0013	0.00095 U	0.00049 U	0.00082 U	0.0033	0.0015	0.0055
COPPER, AVS	µmole/g	0.0318	0.0145 J	0.0189 J	0.0235 J	0.0437	0.0878	0.0701
LEAD, AVS	µmole/g	0.056	0.027 J	0.036 J	0.047 J	0.172	0.113	0.288
NICKEL, AVS	µmole/g	0.02	0.012	0.007	0.012	0.045	0.013	0.044
SILVER, AVS	µmole/g	0.0019 U	0.0013 U	0.001 U	0.0013 U	0.003 U	0.0032 U	0.0027 U
SULFIDE-AV	µmole/g	1.1	1.65	2.3	2.17	5.1	0.626	9.42
ZINC, AVS	µmole/g	0.355	0.253	0.127	0.312	1.28	0.57	2.24
Ratio of SEM/AVS	S.U.	0.421909091	0.185757576	0.082130435	0.181797235	0.302745098	1.254472843	0.281061571
SEM - AVS	µmole/g	-0.6359	-1.3435	-2.1111	-1.7755	-3.556	0.1593	-6.7724
Sum SEM	µmole/g	0.4641	0.3065	0.1889	0.3945	1.544	0.7853	2.6476
(Sum SEM - AVS)/f_{oc}	µmole/g_{oc}	-7.764346764	-64.59134615	-248.6572438	-131.5185185	-64.07207207	2.859964093	-113.440536

	Location ID	HB10-1-29	HB10-1-29	HB10-1-29	HB10-1-29	HB10-1-29
	Field Sample ID	HB10-1-29-06	HB10-1-29-12	HB10-1-29-36	HB10-1-29-60	HB10-1-29-93
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	0- 6	0- 12	12- 36	36- 60	60- 93
Chemical Name	**Unit**					
CADMIUM, AVS	µmole/g	0.0068	0.009	0.0106	0.0097	0.0017
COPPER, AVS	µmole/g	0.125	0.0804	0.0163	0.0313	0.0237
LEAD, AVS	µmole/g	0.309	0.561	0.35	0.442	0.083
NICKEL, AVS	µmole/g	0.054	0.084	0.042	0.045	0.01
SILVER, AVS	µmole/g	0.0032 U	0.0031 U	0.0038 U	0.0032 U	0.0021 U
SULFIDE-AV	µmole/g	7.5	23	23.6	18.2	5.81
ZINC, AVS	µmole/g	2.19	3.18	4.9	4.82	1.18
Ratio of SEM/AVS	S.U.	0.357973333	0.170191304	0.225377119	0.293846154	0.223476764
SEM - AVS	µmole/g	-4.8152	-19.0856	-18.2811	-12.852	-4.5116
Sum SEM	µmole/g	2.6848	3.9144	5.3189	5.348	1.2984
(Sum SEM - AVS)/f_{oc}	µmole/g_{oc}	-47.20784314	-165.9617391	-110.7945455	-85.68	-31.99716312

Notes:
AVS/SEM - Acid Volatile Sulfide/Simultaneously Extracted Metal
DP - Duplicate
f_{oc} - Fraction of organic carbon
g_{oc} - Gram of organic carbon
S.U. - Standard Unit
U - Not detected
µmole/g - Micromole per gram

Table 3-8b
Area 2 Sediment Sample Analytical Results - AVS/SEM
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-2-26	HB10-2-33	HB10-2-35	HB10-2-37	HB10-2-39	HB10-2-40
	Field Sample ID	HB10-2-26-06	HB10-2-33-06	HB10-2-35-06	HB10-2-37-06	HB10-2-39-06	HB10-2-40-06
	Sample Date	10/16/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 6	0- 6	0- 6	0- 6	0- 6
Chemical Name	**Unit**						
CADMIUM, AVS	µmole/g	0.0019	0.00076 U	0.00058 U	0.00054 U	0.00057 U	0.002
COPPER, AVS	µmole/g	0.0481 J	0.0094	0.0082	0.0134	0.0191	0.0541
LEAD, AVS	µmole/g	0.098 J	0.027	0.019	0.028	0.041	0.152
NICKEL, AVS	µmole/g	0.015	0.008	0.005	0.004 U	0.005	0.041
SILVER, AVS	µmole/g	0.0021 U	0.0016 U	0.0012 U	0.0011 U	0.0012 U	0.0028 U
SULFIDE-AV	µmole/g	5.38	1.48	1.46	0.02 U	0.114	2.41
ZINC, AVS	µmole/g	0.661	0.207	0.0992	0.0905	0.16	0.727
Ratio of SEM/AVS	S.U.	0.153159851	0.169864865	0.09	13.19	1.974561404	0.405020747
SEM - AVS	µmole/g	-4.556	-1.2286	-1.3286	0.1219	0.1111	-1.4339
Sum SEM	µmole/g	0.824	0.2514	0.1314	0.1319	0.2251	0.9761
(Sum SEM - AVS)/f_{oc}	µmole/g_{oc}	-86.12476371	-124.1010101	-189.2592593	28.8179669	21.95652174	-42.2979351

	Location ID	HB10-2-41	HB10-2-42	HB10-2-43
	Field Sample ID	HB10-2-41-06	HB10-2-42-06	HB10-2-43-06
	Sample Date	10/18/2010	10/18/2010	10/17/2010
	Depth Interval	0- 6	0- 6	0- 6
Chemical Name	**Unit**			
CADMIUM, AVS	µmole/g	0.0012 U	0.0014	0.00092
COPPER, AVS	µmole/g	0.0274 J	0.0335	0.0594
LEAD, AVS	µmole/g	0.058 J	0.08	0.021
NICKEL, AVS	µmole/g	0.014	0.014	0.013
SILVER, AVS	µmole/g	0.0026 U	0.0024 U	0.0011 U
SULFIDE-AV	µmole/g	2	4.87	0.62
ZINC, AVS	µmole/g	0.352	0.584	0.27
Ratio of SEM/AVS	S.U.	0.2257	0.146386037	0.587612903
SEM - AVS	µmole/g	-1.5486	-4.1571	-0.25568
Sum SEM	µmole/g	0.4514	0.7129	0.36432
(Sum SEM - AVS)/f_{oc}	µmole/g_{oc}	-23.01040119	-47.0260181	-32.65389527

Notes:
AVS/SEM - Acid Volatile Sulfide/Simultaneously Extracted Metal
DP - Duplicate
f_{oc} - Fraction of organic carbon
g_{oc} - Gram of organic carbon
S.U. - Standard Unit
U - Not detected
µmole/g - Micromole per gram

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-01	HB10-1-01	HB10-1-01	HB10-1-02	HB10-1-02	HB10-1-02	HB10-1-03
	Field Sample ID	HB10-1-01-06	HB10-1-01-12	HB10-1-01-40	HB10-1-02-06	HB10-1-02-06DP	HB10-1-02-23	HB10-1-03-06
	Sample Date	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010
	Depth Interval	0- 6	0- 12	36- 40	0- 6	0- 6	12- 23	0- 6
Chemical Name	**Unit**							
Grain Size								
GRAVEL	%	6	3.7	0.5	0	NA	0	2.5
SAND	%	35.1	12.9	40.2	24.4	NA	26.8	25.5
SILT	%	36.3	50.8	26.3	52.7	NA	55	53.4
CLAY	%	22.6	32.6	33	22.9	NA	18.2	18.6
COARSE SAND	%	2.6	0.3	1.2	0	NA	0	0.3
MEDIUM SAND	%	13.9	1	11.5	1.1	NA	1.3	0.6
FINE SAND	%	18.6	11.6	27.5	23.3	NA	25.5	24.6
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	95.1	100	100	100	NA	100	98.9
SIEVE SIZE #4 - % FINER	% PASSED	94	96.3	99.5	100	NA	100	97.5
SIEVE SIZE #10 - % FINER	% PASSED	91.4	96	98.3	100	NA	100	97.2
SIEVE SIZE #20 - % FINER	% PASSED	86.3	95.6	94.9	99.5	NA	99.4	97.1
SIEVE SIZE #40 - % FINER	% PASSED	77.5	95	86.8	98.9	NA	98.7	96.6
SIEVE SIZE #60 - % FINER	% PASSED	68.8	93.9	74.9	97.9	NA	97.5	93.7
SIEVE SIZE #80 - % FINER	% PASSED	64.2	92.8	69.3	94	NA	92.6	88.7
SIEVE SIZE #100 - % FINER	% PASSED	62.9	91.9	67.1	92.5	NA	90.9	86.2
SIEVE SIZE #200 - % FINER	% PASSED	58.9	83.4	59.3	75.6	NA	73.2	72
HYDROMETER READING 1 - % FINER	% PASSED	43.8	50.9	46.9	44.3	NA	43.4	39.8
HYDROMETER READING 2 - % FINER	% PASSED	39.2	47.3	44.3	38.2	NA	35	34.2
HYDROMETER READING 3 - % FINER	% PASSED	33.2	41.9	40.6	32.1	NA	28	27.1
HYDROMETER READING 4 - % FINER	% PASSED	27.2	38.3	36.8	26	NA	23.8	21.4
HYDROMETER READING 5 - % FINER	% PASSED	22.6	32.6	33	22.9	NA	18.2	18.6
HYDROMETER READING 6 - % FINER	% PASSED	16.9	25.6	26.7	17	NA	15.6	14.4
HYDROMETER READING 7 - % FINER	% PASSED	10.6	18.1	18.9	12.5	NA	12.8	9.9
TOC								
TOC	%	2.16	5.31	1.85	2.46	2.19	2.22	0.181

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-03	HB10-1-03	HB10-1-03	HB10-1-03	HB10-1-04	HB10-1-04	HB10-1-04	HB10-1-04
	Field Sample ID	HB10-1-03-12	HB10-1-03-36	HB10-1-03-60	HB10-1-03-84	HB10-1-04-06	HB10-1-04-12	HB10-1-04-36	HB10-1-04-50
	Sample Date	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	0- 12	12- 36	36- 60	60- 84	0- 6	0- 12	12- 36	36- 50
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0.5	0	0	0.2	1.3	5.8	3	2.2
SAND	%	35.9	30.9	21.3	34	64.1	56	53.6	56.1
SILT	%	43.4	49.7	49.2	43.4	29.1	30.8	26.4	19.7
CLAY	%	20.2	19.4	29.5	22.4	5.5	7.4	17	22
COARSE SAND	%	0.2	0	0	0.4	1.4	4.2	3.4	2.6
MEDIUM SAND	%	1.2	1.5	0.6	4.2	6.4	8.7	10.6	13.1
FINE SAND	%	34.5	29.4	20.7	29.4	56.3	43.1	39.6	40.4
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	100	100	99.8	100	97.9	99	98.3
SIEVE SIZE #4 - % FINER	% PASSED	99.5	100	100	99.8	98.7	94.2	97	97.8
SIEVE SIZE #10 - % FINER	% PASSED	99.3	100	100	99.4	97.3	90	93.6	95.2
SIEVE SIZE #20 - % FINER	% PASSED	99.1	99.8	100	98.4	95.2	86.1	89.7	90.5
SIEVE SIZE #40 - % FINER	% PASSED	98.1	98.5	99.4	95.2	90.9	81.3	83	82.1
SIEVE SIZE #60 - % FINER	% PASSED	95.3	95.8	98.2	91.3	81.4	71.4	69.1	66.8
SIEVE SIZE #80 - % FINER	% PASSED	84.9	88.5	94.5	84.1	68.6	60.7	58	55.6
SIEVE SIZE #100 - % FINER	% PASSED	81.7	86.5	93.2	82.4	61.6	55.9	53.8	51.6
SIEVE SIZE #200 - % FINER	% PASSED	63.6	69.1	78.7	65.8	34.6	38.2	43.4	41.7
HYDROMETER READING 1 - % FINER	% PASSED	47.2	37.7	54.4	39.6	13.1	15.7	30.4	34.5
HYDROMETER READING 2 - % FINER	% PASSED	36.4	32	45	34.3	10.1	13.8	25.9	30.4
HYDROMETER READING 3 - % FINER	% PASSED	28.3	26.3	37.3	27.7	7	10.2	22.6	26.2
HYDROMETER READING 4 - % FINER	% PASSED	22.9	21.7	32.6	23.7	5.5	8.4	19.2	24.1
HYDROMETER READING 5 - % FINER	% PASSED	20.2	19.4	29.5	22.4	5.5	7.4	17	22
HYDROMETER READING 6 - % FINER	% PASSED	15	15.1	22	17.4	3.2	4.7	12.5	15.6
HYDROMETER READING 7 - % FINER	% PASSED	12.4	10.5	14.2	12.1	2.4	2.9	8	10.6
TOC									
TOC	%	1.59	1.97	2.57	1.94	1.88	2.53	3.3	4.64

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-05	HB10-1-05	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-06	HB10-1-07
	Field Sample ID	HB10-1-05-06	HB10-1-05-06DP	HB10-1-06-06	HB10-1-06-06DP	HB10-1-06-12	HB10-1-06-36	HB10-1-06-51	HB10-1-07-06
	Sample Date	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/16/2010	10/17/2010
	Depth Interval	0- 6	0- 6	0- 6	0- 6	0- 12	12- 36	36- 51	0- 6
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	12.3	NA	0.1	NA	0	3.4	0	0.4
SAND	%	32.3	NA	36.4	NA	25.5	18.9	10.8	41.2
SILT	%	29.1	NA	40.1	NA	46.3	50.5	48.5	38.4
CLAY	%	26.3	NA	23.4	NA	28.2	27.2	40.7	20
COARSE SAND	%	1.1	NA	0.6	NA	0.7	1.5	0	1.5
MEDIUM SAND	%	5.9	NA	1	NA	3.9	1.3	0.3	7.4
FINE SAND	%	25.3	NA	34.8	NA	20.9	16.1	10.5	32.3
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	NA	100	NA	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	NA	100	NA	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	NA	100	NA	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	NA	100	NA	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	NA	100	NA	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	87.8	NA	100	NA	100	100	100	100
SIEVE SIZE #4 - % FINER	% PASSED	87.7	NA	99.9	NA	100	96.6	100	99.6
SIEVE SIZE #10 - % FINER	% PASSED	86.6	NA	99.3	NA	99.3	95.1	100	98.1
SIEVE SIZE #20 - % FINER	% PASSED	84.8	NA	99.1	NA	97.9	94.5	100	95.5
SIEVE SIZE #40 - % FINER	% PASSED	80.7	NA	98.3	NA	95.4	93.8	99.7	90.7
SIEVE SIZE #60 - % FINER	% PASSED	74.6	NA	95.4	NA	92.9	93	99.1	83.2
SIEVE SIZE #80 - % FINER	% PASSED	68.3	NA	79.6	NA	87.4	90.6	96.7	73.8
SIEVE SIZE #100 - % FINER	% PASSED	65.8	NA	76	NA	86	89.6	95.9	70.2
SIEVE SIZE #200 - % FINER	% PASSED	55.4	NA	63.5	NA	74.5	77.7	89.2	58.4
HYDROMETER READING 1 - % FINER	% PASSED	39.5	NA	42.2	NA	46.5	50.5	67.4	39
HYDROMETER READING 2 - % FINER	% PASSED	36.3	NA	36.7	NA	40.7	42.7	57.3	32.1
HYDROMETER READING 3 - % FINER	% PASSED	33	NA	29.9	NA	33.9	35	52.2	28.1
HYDROMETER READING 4 - % FINER	% PASSED	29.7	NA	25.9	NA	30.5	29.8	45.8	23
HYDROMETER READING 5 - % FINER	% PASSED	26.3	NA	23.4	NA	28.2	27.2	40.7	20
HYDROMETER READING 6 - % FINER	% PASSED	20.7	NA	19.3	NA	25	20.9	32	15.1
HYDROMETER READING 7 - % FINER	% PASSED	15.2	NA	13.8	NA	17.1	14.5	24.4	10.1
TOC									
TOC	%	2.13	1.96	2.31	2.42	1.97	4.38	3.14	2.28

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-07	HB10-1-07	HB10-1-07	HB10-1-08	HB10-1-08	HB10-1-08	HB10-1-10	HB10-1-11
	Field Sample ID	HB10-1-07-12	HB10-1-07-36	HB10-1-07-64	HB10-1-08-06	HB10-1-08-12	HB10-1-08-36	HB10-1-10-06	HB10-1-11-06
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/16/2010
	Depth Interval	0- 12	12- 36	60- 64	0- 6	0- 12	12- 36	0- 6	0- 6
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0.9	0	0	0	0.1	0	1.3	0
SAND	%	33.6	30.7	58.3	26.7	16.6	23.7	44.3	38
SILT	%	39.8	52.7	36.7	58.1	64.1	45.2	38.7	34.8
CLAY	%	25.7	16.6	5	15.2	19.2	31.1	15.7	27.2
COARSE SAND	%	0.4	0.2	0	0.2	0.1	0.1	0.6	0
MEDIUM SAND	%	6	1.6	0.5	1.7	1.2	3	2.7	3.4
FINE SAND	%	27.2	28.9	57.8	24.8	15.3	20.6	41	34.6
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	100	100	100	99.9	100	99.4	100
SIEVE SIZE #4 - % FINER	% PASSED	99.1	100	100	100	99.9	100	98.7	100
SIEVE SIZE #10 - % FINER	% PASSED	98.7	99.8	100	99.8	99.8	99.9	98.1	100
SIEVE SIZE #20 - % FINER	% PASSED	97.2	99.5	99.9	99.2	99.2	98.9	97.5	99.2
SIEVE SIZE #40 - % FINER	% PASSED	92.7	98.2	99.5	98.1	98.6	96.9	95.4	96.6
SIEVE SIZE #60 - % FINER	% PASSED	85.5	95.9	94.9	95.5	97	93.1	83.6	90.5
SIEVE SIZE #80 - % FINER	% PASSED	77.6	89.1	80.6	91	94.6	88.6	67.3	76.3
SIEVE SIZE #100 - % FINER	% PASSED	74.9	85.7	70.3	88.8	93.4	86.4	62.6	72.9
SIEVE SIZE #200 - % FINER	% PASSED	65.5	69.3	41.7	73.3	83.3	76.3	54.4	62
HYDROMETER READING 1 - % FINER	% PASSED	47.3	39	15.9	28.9	39.4	53.5	39.2	47.3
HYDROMETER READING 2 - % FINER	% PASSED	41.9	31.3	10.4	23.4	31.8	46.5	33.7	41.6
HYDROMETER READING 3 - % FINER	% PASSED	36.6	24.5	7.7	18	25.5	39.5	25.3	33
HYDROMETER READING 4 - % FINER	% PASSED	31.2	19.7	6.4	16.6	21.7	35.3	19.8	30.1
HYDROMETER READING 5 - % FINER	% PASSED	25.7	16.6	5	15.2	19.2	31.1	15.7	27.2
HYDROMETER READING 6 - % FINER	% PASSED	20.3	12.7	3.5	9.5	13.9	23.8	12.7	21.7
HYDROMETER READING 7 - % FINER	% PASSED	13.6	8.9	2.8	4.3	9.1	15.6	8.6	16
TOC									
TOC	%	2.76	3.19	1.13	3.85	4.01	5.51	3.59	3.16

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-11	HB10-1-12	HB10-1-12	HB10-1-12	HB10-1-13	HB10-1-13	HB10-1-13	HB10-1-13
	Field Sample ID	HB10-1-11-21	HB10-1-12-06	HB10-1-12-12	HB10-1-12-34	HB10-1-13-06	HB10-1-13-12	HB10-1-13-36	HB10-1-13-67
	Sample Date	10/16/2010	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	12- 21	0- 6	0- 12	12- 34	0- 6	0- 12	12- 36	60- 67
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0.2	0	0	17.2	2.3	2.5	0	0.2
SAND	%	23.5	41	29.3	23.6	40.8	32.6	46	46.2
SILT	%	44	42.4	46.7	31.9	32.7	35.4	33	34.7
CLAY	%	32.3	16.6	24	27.3	24.2	29.5	21	18.9
COARSE SAND	%	0.5	0.3	0.3	3.3	1	2.3	0.5	0.5
MEDIUM SAND	%	2.5	2.2	1.9	3.1	5.8	4.3	3.3	3.7
FINE SAND	%	20.5	38.5	27.1	17.2	34	26	42.2	42
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	94.7	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	100	100	87.5	98.2	100	100	100
SIEVE SIZE #4 - % FINER	% PASSED	99.8	100	100	82.8	97.7	97.5	100	99.8
SIEVE SIZE #10 - % FINER	% PASSED	99.3	99.7	99.7	79.5	96.7	95.2	99.5	99.3
SIEVE SIZE #20 - % FINER	% PASSED	98.6	98.7	98.8	78.3	95.4	94.3	98.9	98.7
SIEVE SIZE #40 - % FINER	% PASSED	96.8	97.5	97.8	76.4	90.9	90.9	96.2	95.6
SIEVE SIZE #60 - % FINER	% PASSED	93.7	90	93.5	73.2	78.2	81.5	82.7	80.3
SIEVE SIZE #80 - % FINER	% PASSED	86.3	80.3	87.6	70.3	66.3	72.6	67.5	65.1
SIEVE SIZE #100 - % FINER	% PASSED	84.4	75.4	84.6	68.7	62.9	70.2	62.9	61
SIEVE SIZE #200 - % FINER	% PASSED	76.3	59	70.7	59.2	56.9	64.9	54	53.6
HYDROMETER READING 1 - % FINER	% PASSED	56.6	30.2	40.6	47.3	42.6	48.5	39.1	35.6
HYDROMETER READING 2 - % FINER	% PASSED	50.1	26.3	34.4	41.9	38.3	44.7	35.5	32.7
HYDROMETER READING 3 - % FINER	% PASSED	40.4	22.4	30.2	36.4	31.8	39.6	28.2	26.8
HYDROMETER READING 4 - % FINER	% PASSED	37.2	20.5	27.1	31	26.4	34.6	24.6	21.8
HYDROMETER READING 5 - % FINER	% PASSED	32.3	16.6	24	27.3	24.2	29.5	21	18.9
HYDROMETER READING 6 - % FINER	% PASSED	26.1	12.6	17.6	20.3	18.8	21.7	15.9	14.9
HYDROMETER READING 7 - % FINER	% PASSED	18	8.9	11.6	13.1	12.3	15.6	11.1	10
TOC									
TOC	%	3.79	3.4	4.44	16.2	3.36	2.75	2.01	2.24

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-14	HB10-1-14	HB10-1-14	HB10-1-14	HB10-1-15	HB10-1-15	HB10-1-16	HB10-1-16
	Field Sample ID	HB10-1-14-06	HB10-1-14-12	HB10-1-14-36	HB10-1-14-66	HB10-1-15-06	HB10-1-15-16	HB10-1-16-06	HB10-1-16-12
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010
	Depth Interval	0- 6	0- 12	12- 36	60- 66	0- 6	12- 16	0- 6	0- 12
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0.1	0	1.7	0	2.7	7.6	3.9	4.7
SAND	%	43.8	36	41.5	27.8	79.7	62.1	61.3	48.8
SILT	%	40.8	41.2	36.9	42.6	14.1	14.7	25.7	26.7
CLAY	%	15.3	22.8	19.9	29.6	3.5	15.6	9.1	19.8
COARSE SAND	%	0.3	0.2	0.4	0.1	1.7	8.2	3.2	5.7
MEDIUM SAND	%	0.8	0.8	2.2	1.2	5.7	9.1	9.1	7.2
FINE SAND	%	42.7	35	38.9	26.5	72.3	44.8	49	35.9
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	100	98.8	100	98.7	96.3	99.4	100
SIEVE SIZE #4 - % FINER	% PASSED	99.9	100	98.3	100	97.3	92.4	96.1	95.3
SIEVE SIZE #10 - % FINER	% PASSED	99.6	99.8	97.9	99.9	95.6	84.2	92.9	89.6
SIEVE SIZE #20 - % FINER	% PASSED	99.6	99.7	97.6	99.7	94.4	80.8	89.9	86
SIEVE SIZE #40 - % FINER	% PASSED	98.8	99	95.7	98.7	89.9	75.1	83.8	82.4
SIEVE SIZE #60 - % FINER	% PASSED	91.6	92.5	83.8	93.1	66	61.7	72.3	71.8
SIEVE SIZE #80 - % FINER	% PASSED	77.1	81	70	85.4	45.3	46.3	59.4	58.7
SIEVE SIZE #100 - % FINER	% PASSED	70.5	76.2	65.3	82.2	35.9	40.7	53.4	54.4
SIEVE SIZE #200 - % FINER	% PASSED	56.1	64	56.8	72.2	17.6	30.3	34.8	46.5
HYDROMETER READING 1 - % FINER	% PASSED	32.5	47.9	40.8	51.3	6.9	23.8	15.6	34
HYDROMETER READING 2 - % FINER	% PASSED	28.2	42.9	36.4	42.6	6.2	21	14	30.7
HYDROMETER READING 3 - % FINER	% PASSED	23.9	32.8	29.8	36.1	5.6	18.3	11.5	26.3
HYDROMETER READING 4 - % FINER	% PASSED	17.4	27.8	24.3	31.7	4.9	16.9	9.9	23.1
HYDROMETER READING 5 - % FINER	% PASSED	15.3	22.8	19.9	29.6	3.5	15.6	9.1	19.8
HYDROMETER READING 6 - % FINER	% PASSED	11	16.5	15.5	21.8	2.8	12.8	6.6	14.3
HYDROMETER READING 7 - % FINER	% PASSED	8.8	12.8	11.2	14.3	2.3	9.8	5.2	11.1
TOC									
TOC	%	2.84	2.75	3.98	4.42	1.72	11	2.14	4.45

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-16	HB10-1-17	HB10-1-20	HB10-1-21	HB10-1-21	HB10-1-23	HB10-1-23	HB10-1-23
	Field Sample ID	HB10-1-16-31	HB10-1-17-06	HB10-1-20-06	HB10-1-21-06	HB10-1-21-23	HB10-1-23-06	HB10-1-23-06DP	HB10-1-23-12
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	12- 31	0- 6	0- 6	0- 6	12- 23	0- 6	0- 6	0- 12
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	2.8	1.5	1.5	14.1	14.6	0.2	NA	1.6
SAND	%	29.4	49.9	60.3	78.4	68.6	47.8	NA	37.3
SILT	%	42	31.4	26	3.5	6.3	40.6	NA	34.4
CLAY	%	25.8	17.2	12.2	4	10.5	11.4	NA	26.7
COARSE SAND	%	3.2	0.6	0.6	7.2	4	0.4	NA	0.9
MEDIUM SAND	%	3.6	5.3	3	20.6	12.4	4	NA	9.2
FINE SAND	%	22.6	44	56.7	50.6	52.2	43.4	NA	27.2
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	NA	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	NA	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	NA	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	NA	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	93.6	100	NA	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	98.6	99.1	93.1	87.6	100	NA	100
SIEVE SIZE #4 - % FINER	% PASSED	97.2	98.5	98.5	85.9	85.4	99.8	NA	98.4
SIEVE SIZE #10 - % FINER	% PASSED	94	97.9	97.9	78.7	81.4	99.4	NA	97.5
SIEVE SIZE #20 - % FINER	% PASSED	92.5	96.3	96.7	70.5	76.7	98.9	NA	94.1
SIEVE SIZE #40 - % FINER	% PASSED	90.4	92.6	94.9	58.1	69	95.4	NA	88.3
SIEVE SIZE #60 - % FINER	% PASSED	85.2	75.6	84.8	34	47.6	82.7	NA	78.3
SIEVE SIZE #80 - % FINER	% PASSED	77.3	61.4	68	15.9	28.6	72.5	NA	71.7
SIEVE SIZE #100 - % FINER	% PASSED	74.5	57	60.3	11.5	23.4	68.2	NA	69.5
SIEVE SIZE #200 - % FINER	% PASSED	67.8	48.6	38.2	7.4	16.8	52	NA	61.1
HYDROMETER READING 1 - % FINER	% PASSED	45.4	33.2	21.4	6.1	15.6	21.3	NA	42.8
HYDROMETER READING 2 - % FINER	% PASSED	40.5	28.2	18.7	5.6	14.1	19.1	NA	35.9
HYDROMETER READING 3 - % FINER	% PASSED	34.4	24.2	15	4.5	14.1	14.7	NA	31.3
HYDROMETER READING 4 - % FINER	% PASSED	29.5	21.2	14	4	11.2	12.5	NA	29
HYDROMETER READING 5 - % FINER	% PASSED	25.8	17.2	12.2	4	10.5	11.4	NA	26.7
HYDROMETER READING 6 - % FINER	% PASSED	18.5	13	8.5	2.8	8.2	9	NA	20.9
HYDROMETER READING 7 - % FINER	% PASSED	13.6	9.2	6.8	2.2	6	5.7	NA	14
TOC									
TOC	%	8.15	8.19	2.08	0.849	1.35	4.52	4.33	5.39

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-23	HB10-1-24	HB10-1-24	HB10-1-24	HB10-1-25	HB10-1-25	HB10-1-27	HB10-1-27
	Field Sample ID	HB10-1-23-36	HB10-1-24-06	HB10-1-24-12	HB10-1-24-36	HB10-1-25-06	HB10-1-25-06DP	HB10-1-27-06	HB10-1-27-06DP
	Sample Date	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010
	Depth Interval	12- 36	0- 6	0- 12	12- 36	0- 6	0- 6	0- 6	0- 6
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0.2	1.9	0.5	0.5	0	NA	0.8	NA
SAND	%	26.2	39.1	25.5	39.6	31.8	NA	12.9	NA
SILT	%	40.6	44.1	45.3	35.3	43.7	NA	36.3	NA
CLAY	%	33	14.9	28.7	24.6	24.5	NA	50	NA
COARSE SAND	%	0.4	0.5	0.5	0.3	0.4	NA	0.7	NA
MEDIUM SAND	%	1.7	1.7	1.5	1.5	3.1	NA	1.6	NA
FINE SAND	%	24.1	36.9	23.5	37.8	28.3	NA	10.6	NA
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	NA	100	NA
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	NA	100	NA
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	NA	100	NA
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	NA	100	NA
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	100	NA	100	NA
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	98.1	100	100	100	NA	100	NA
SIEVE SIZE #4 - % FINER	% PASSED	99.8	98.1	99.5	99.5	100	NA	99.2	NA
SIEVE SIZE #10 - % FINER	% PASSED	99.4	97.6	99	99.2	99.6	NA	98.5	NA
SIEVE SIZE #20 - % FINER	% PASSED	98.9	97.3	98.6	98.9	98.9	NA	98	NA
SIEVE SIZE #40 - % FINER	% PASSED	97.7	95.9	97.5	97.7	96.5	NA	96.9	NA
SIEVE SIZE #60 - % FINER	% PASSED	91.2	89.8	93.3	89.8	89.8	NA	94.2	NA
SIEVE SIZE #80 - % FINER	% PASSED	82.4	78.6	86	77.6	81.7	NA	92.2	NA
SIEVE SIZE #100 - % FINER	% PASSED	79.6	73.1	82.9	72.6	78.5	NA	91.3	NA
SIEVE SIZE #200 - % FINER	% PASSED	73.6	59	74	59.9	68.2	NA	86.3	NA
HYDROMETER READING 1 - % FINER	% PASSED	54.4	41.2	58.4	46	43.4	NA	69.3	NA
HYDROMETER READING 2 - % FINER	% PASSED	49.4	34.6	52.4	41.1	40.7	NA	65.5	NA
HYDROMETER READING 3 - % FINER	% PASSED	43.1	24.1	43.5	33.5	34	NA	61.7	NA
HYDROMETER READING 4 - % FINER	% PASSED	38	18.8	36.1	28.4	29.9	NA	57.9	NA
HYDROMETER READING 5 - % FINER	% PASSED	33	14.9	28.7	24.6	24.5	NA	50	NA
HYDROMETER READING 6 - % FINER	% PASSED	25.4	9.6	21	16.9	19.1	NA	38.6	NA
HYDROMETER READING 7 - % FINER	% PASSED	18.1	7	13.6	11.9	13.9	NA	23.4	NA
TOC									
TOC	%	7.34	5.55	5.57	5.97	3.93	3.71	5.32	7.94

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-28	HB10-1-29	HB10-1-29
	Field Sample ID	HB10-1-28-06	HB10-1-28-12	HB10-1-28-36	HB10-1-28-60	HB10-1-28-84	HB10-1-28-96	HB10-1-29-06	HB10-1-29-12
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010	10/17/2010
	Depth Interval	0- 6	0- 12	12- 36	36- 60	60- 84	60- 96	0- 6	0- 12
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0	0	0	0.9	0.6	0	0.8	2.3
SAND	%	20	19.7	19.4	8.3	15.9	33.3	47.2	40
SILT	%	56.6	59.3	52.3	58.3	42.7	24	39.5	42.4
CLAY	%	23.4	21	28.3	32.5	40.8	42.7	12.5	15.3
COARSE SAND	%	0	0	0	0.1	0	0.4	0.7	3.6
MEDIUM SAND	%	1.9	1.2	1.6	0.9	1.6	1.5	4.9	6.5
FINE SAND	%	18.1	18.5	17.8	7.3	14.3	31.4	41.6	29.9
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	100	100	99.1	100	100	99.7	100
SIEVE SIZE #4 - % FINER	% PASSED	100	100	100	99.1	99.4	100	99.2	97.7
SIEVE SIZE #10 - % FINER	% PASSED	100	100	100	99	99.4	99.6	98.5	94.1
SIEVE SIZE #20 - % FINER	% PASSED	99.4	99.7	99.3	98.7	98.9	99	96.8	92.4
SIEVE SIZE #40 - % FINER	% PASSED	98.1	98.8	98.4	98.1	97.8	98.1	93.6	87.6
SIEVE SIZE #60 - % FINER	% PASSED	94.6	96.7	96.1	97	95.5	92.9	84.9	79.2
SIEVE SIZE #80 - % FINER	% PASSED	91.3	94.1	93.3	95.9	93.2	81.5	74.2	72.1
SIEVE SIZE #100 - % FINER	% PASSED	89.9	92.7	91.8	95.4	92.1	76.8	69	69.1
SIEVE SIZE #200 - % FINER	% PASSED	80	80.3	80.6	90.8	83.5	66.7	52	57.7
HYDROMETER READING 1 - % FINER	% PASSED	49.1	45	54.9	58	67.2	58.7	27.1	31.6
HYDROMETER READING 2 - % FINER	% PASSED	45.1	38.1	47.3	52.5	61	55.5	26	26.2
HYDROMETER READING 3 - % FINER	% PASSED	34.2	29	37.2	43.6	51.7	50.8	18.2	20.7
HYDROMETER READING 4 - % FINER	% PASSED	28.8	24.4	32.1	37	45.5	46.1	14.7	16.6
HYDROMETER READING 5 - % FINER	% PASSED	23.4	21	28.3	32.5	40.8	42.7	12.5	15.3
HYDROMETER READING 6 - % FINER	% PASSED	17.8	16.2	21.7	24.6	32.8	34.8	9.1	9.8
HYDROMETER READING 7 - % FINER	% PASSED	12.4	10.5	14.1	16.8	22	23.8	5.8	7.1
TOC									
TOC	%	4.18	4.24	4.29	5.73	5.71	4.11	10.2	11.5

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-29	HB10-1-29	HB10-1-29	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30	HB10-1-30
	Field Sample ID	HB10-1-29-36	HB10-1-29-60	HB10-1-29-93	HB10-1-30-06	HB10-1-30-06DP	HB10-1-30-12	HB10-1-30-36	HB10-1-30-60
	Sample Date	10/17/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	12- 36	36- 60	60- 93	0- 6	0- 6	0- 12	12- 36	36- 60
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	3.6	2.2	1.6	0.5	NA	1.4	0	0
SAND	%	30.5	49	49.4	40.7	NA	36.4	24.3	17.9
SILT	%	48.2	39	36.4	35.9	NA	41	46.2	44.9
CLAY	%	17.7	9.8	12.6	22.9	NA	21.2	29.5	37.2
COARSE SAND	%	1.4	3.5	4.8	1	NA	1	0.6	1.1
MEDIUM SAND	%	4.5	5.6	6.4	3.2	NA	2.6	1.5	2.7
FINE SAND	%	24.6	39.9	38.2	36.5	NA	32.8	22.2	14.1
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	NA	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	97.2	100	100	100	NA	100	100	100
SIEVE SIZE #4 - % FINER	% PASSED	96.4	97.8	98.4	99.5	NA	98.6	100	100
SIEVE SIZE #10 - % FINER	% PASSED	95	94.3	93.6	98.5	NA	97.6	99.4	98.9
SIEVE SIZE #20 - % FINER	% PASSED	93.8	93.1	92.1	97.6	NA	96.7	99	98.3
SIEVE SIZE #40 - % FINER	% PASSED	90.5	88.7	87.2	95.3	NA	95	97.9	96.2
SIEVE SIZE #60 - % FINER	% PASSED	84.8	79.3	77.1	86.1	NA	88.2	94.8	92.8
SIEVE SIZE #80 - % FINER	% PASSED	79.6	68.5	66.6	74.3	NA	78.2	88.5	89.5
SIEVE SIZE #100 - % FINER	% PASSED	77.2	63.5	62.2	69.7	NA	73.9	85.5	88.2
SIEVE SIZE #200 - % FINER	% PASSED	65.9	48.8	49	58.8	NA	62.2	75.7	82.1
HYDROMETER READING 1 - % FINER	% PASSED	40.6	24.2	26.5	36.6	NA	36	50.4	58.9
HYDROMETER READING 2 - % FINER	% PASSED	32.6	19.4	21.8	33.2	NA	32.9	44.9	51.7
HYDROMETER READING 3 - % FINER	% PASSED	25.8	16.2	17.2	29.8	NA	27.6	39.4	48
HYDROMETER READING 4 - % FINER	% PASSED	21.8	13	15.7	25.3	NA	23.5	33.9	40.8
HYDROMETER READING 5 - % FINER	% PASSED	17.7	9.8	12.6	22.9	NA	21.2	29.5	37.2
HYDROMETER READING 6 - % FINER	% PASSED	12.4	8	9.2	18.4	NA	17	22.6	29.6
HYDROMETER READING 7 - % FINER	% PASSED	8.3	4.8	6.2	12.8	NA	11.8	15.7	22.4
TOC									
TOC	%	16.5	15	14.1	4.81	5.5	4.44	8.94	7.99

Table 3-9a
Area 1 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-1-30	HB10-1-31	HB10-1-31	HB10-1-31	HB10-1-31
	Field Sample ID	HB10-1-30-77	HB10-1-31-06	HB10-1-31-06DP	HB10-1-31-12	HB10-1-31-36
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	60- 77	0- 6	0- 6	0- 12	12- 36
Chemical Name	**Unit**					
Grain Size						
GRAVEL	%	25.6	0.9	NA	0.2	0.6
SAND	%	31.4	18.7	NA	19.4	13.3
SILT	%	41.7	52.5	NA	40.7	40.5
CLAY	%	1.3	27.9	NA	39.7	45.6
COARSE SAND	%	16.1	0.7	NA	0.6	0.8
MEDIUM SAND	%	4.1	1.3	NA	2.1	2
FINE SAND	%	11.2	16.7	NA	16.7	10.5
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	NA	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	NA	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	NA	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	NA	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	NA	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	99.3	NA	100	100
SIEVE SIZE #4 - % FINER	% PASSED	74.4	99.1	NA	99.8	99.4
SIEVE SIZE #10 - % FINER	% PASSED	58.3	98.4	NA	99.2	98.6
SIEVE SIZE #20 - % FINER	% PASSED	57.8	98	NA	98.4	97.7
SIEVE SIZE #40 - % FINER	% PASSED	54.2	97.1	NA	97.1	96.6
SIEVE SIZE #60 - % FINER	% PASSED	50.6	94.8	NA	93.5	94.5
SIEVE SIZE #80 - % FINER	% PASSED	48.5	90.8	NA	89.3	92
SIEVE SIZE #100 - % FINER	% PASSED	47.5	88.9	NA	87.5	90.9
SIEVE SIZE #200 - % FINER	% PASSED	43	80.4	NA	80.4	86.1
HYDROMETER READING 1 - % FINER	% PASSED	25	53.9	NA	65.6	70.7
HYDROMETER READING 2 - % FINER	% PASSED	9.6	47.4	NA	58.8	63.4
HYDROMETER READING 3 - % FINER	% PASSED	9.6	39.3	NA	50.6	56.2
HYDROMETER READING 4 - % FINER	% PASSED	9.6	32.8	NA	43.8	52.6
HYDROMETER READING 5 - % FINER	% PASSED	1.3	27.9	NA	39.7	45.6
HYDROMETER READING 6 - % FINER	% PASSED	-2.6	19.8	NA	30.2	36.6
HYDROMETER READING 7 - % FINER	% PASSED	-6.4	14.9	NA	23.4	31.1
TOC						
TOC	%	35.3	4.73	4.27	5.14	4.8

Notes:
% - Percent
DP - Duplicate
NA - Not Analyzed
TOC - Total Organic Carbon

Table 3-9b
Area 2 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-2-18	HB10-2-18	HB10-2-26	HB10-2-26	HB10-2-32	HB10-2-32	HB10-2-33	HB10-2-33
	Field Sample ID	HB10-2-18-06	HB10-2-18-06DP	HB10-2-26-06	HB10-2-26-17	HB10-2-32-06	HB10-2-32-06DP	HB10-2-33-06	HB10-2-33-22
	Sample Date	10/18/2010	10/18/2010	10/16/2010	10/16/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 6	0- 6	12- 17	0- 6	0- 6	0- 6	12- 22
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	8	NA	4.1	0.1	1.1	NA	0	0.1
SAND	%	47	NA	80.3	84	30.6	NA	87.8	18
SILT	%	29.1	NA	9.9	9.5	43.9	NA	6.4	36.3
CLAY	%	15.9	NA	5.7	6.4	24.4	NA	5.8	45.6
COARSE SAND	%	1.8	NA	2.5	0.4	3.4	NA	0.2	0.5
MEDIUM SAND	%	5.4	NA	10.9	2.4	2.2	NA	3.4	1.6
FINE SAND	%	39.8	NA	66.9	81.2	25	NA	84.2	15.9
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	NA	100	100	100	NA	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	NA	100	100	100	NA	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	NA	100	100	100	NA	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	NA	100	100	100	NA	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	NA	100	100	100	NA	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	95	NA	96.9	100	100	NA	100	100
SIEVE SIZE #4 - % FINER	% PASSED	92	NA	95.9	99.9	98.9	NA	100	99.9
SIEVE SIZE #10 - % FINER	% PASSED	90.2	NA	93.4	99.5	95.5	NA	99.8	99.4
SIEVE SIZE #20 - % FINER	% PASSED	88.1	NA	89.6	98.4	95.1	NA	99.3	98.8
SIEVE SIZE #40 - % FINER	% PASSED	84.8	NA	82.5	97.1	93.3	NA	96.4	97.8
SIEVE SIZE #60 - % FINER	% PASSED	76.2	NA	63.2	85.6	89.3	NA	68.3	93.5
SIEVE SIZE #80 - % FINER	% PASSED	64.3	NA	40.4	56.2	82.3	NA	32.5	88.4
SIEVE SIZE #100 - % FINER	% PASSED	58.9	NA	30.4	39.6	79	NA	20.7	86.6
SIEVE SIZE #200 - % FINER	% PASSED	45	NA	15.6	15.9	68.3	NA	12.2	81.9
HYDROMETER READING 1 - % FINER	% PASSED	31.4	NA	11.3	10.8	37.6	NA	9.5	69.4
HYDROMETER READING 2 - % FINER	% PASSED	28.8	NA	9.4	9.9	35.2	NA	8.3	65.1
HYDROMETER READING 3 - % FINER	% PASSED	23.5	NA	9.4	9	32.8	NA	7.6	58.7
HYDROMETER READING 4 - % FINER	% PASSED	19.7	NA	7.6	7.3	28	NA	6.4	50.2
HYDROMETER READING 5 - % FINER	% PASSED	15.9	NA	5.7	6.4	24.4	NA	5.8	45.6
HYDROMETER READING 6 - % FINER	% PASSED	13.2	NA	3.8	5.5	18.3	NA	4.5	34.9
HYDROMETER READING 7 - % FINER	% PASSED	8.1	NA	2.9	3.7	13.5	NA	3.2	26.3
TOC									
TOC	%	2.71	3.56	5.29	1.79	3.64	3.4	0.99	3.77

Table 3-9b
Area 2 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-2-34	HB10-2-34	HB10-2-35	HB10-2-35	HB10-2-35	HB10-2-36	HB10-2-36	HB10-2-37
	Field Sample ID	HB10-2-34-06	HB10-2-34-06DP	HB10-2-35-06	HB10-2-35-12	HB10-2-35-30	HB10-2-36-06	HB10-2-36-06DP	HB10-2-37-06
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 6	0- 6	0- 12	12- 30	0- 6	0- 6	0- 6
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0.6	NA	0	0.3	0	0.2	NA	0
SAND	%	30.9	NA	89.1	72.9	35.3	28.7	NA	96.2
SILT	%	38.8	NA	6	14.5	35.9	39.6	NA	2.2
CLAY	%	29.7	NA	4.9	12.3	28.8	31.5	NA	1.6
COARSE SAND	%	0.5	NA	0.6	0.6	0.3	0.7	NA	0.8
MEDIUM SAND	%	3.2	NA	7.2	5	1.9	2.1	NA	5.8
FINE SAND	%	27.2	NA	81.3	67.3	33.1	25.9	NA	89.6
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	NA	100	100	100	100	NA	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	NA	100	100	100	100	NA	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	NA	100	100	100	100	NA	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	NA	100	100	100	100	NA	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	NA	100	100	100	100	NA	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	NA	100	100	100	100	NA	100
SIEVE SIZE #4 - % FINER	% PASSED	99.4	NA	100	99.7	100	99.8	NA	100
SIEVE SIZE #10 - % FINER	% PASSED	98.9	NA	99.4	99.1	99.7	99.1	NA	99.2
SIEVE SIZE #20 - % FINER	% PASSED	97.9	NA	98.6	98.6	99.1	98.4	NA	98.1
SIEVE SIZE #40 - % FINER	% PASSED	95.7	NA	92.2	94.1	97.8	97	NA	93.4
SIEVE SIZE #60 - % FINER	% PASSED	89.3	NA	58.2	71.1	89.8	92.4	NA	65.3
SIEVE SIZE #80 - % FINER	% PASSED	80.1	NA	25.2	43.9	75.3	84.4	NA	25.8
SIEVE SIZE #100 - % FINER	% PASSED	76.8	NA	16.6	35	70.8	81.3	NA	12.8
SIEVE SIZE #200 - % FINER	% PASSED	68.5	NA	10.9	26.8	64.7	71.1	NA	3.8
HYDROMETER READING 1 - % FINER	% PASSED	50.1	NA	6.9	20	48.8	55.6	NA	2.6
HYDROMETER READING 2 - % FINER	% PASSED	42.5	NA	6.2	18.3	42.1	48.6	NA	2.1
HYDROMETER READING 3 - % FINER	% PASSED	37.4	NA	6.2	16.6	37.1	42.7	NA	2.1
HYDROMETER READING 4 - % FINER	% PASSED	32.3	NA	4.9	13.1	32.1	35.7	NA	2.1
HYDROMETER READING 5 - % FINER	% PASSED	29.7	NA	4.9	12.3	28.8	31.5	NA	1.6
HYDROMETER READING 6 - % FINER	% PASSED	23.4	NA	3.5	9.6	21.9	25.7	NA	1.1
HYDROMETER READING 7 - % FINER	% PASSED	16.8	NA	2.1	7	15.2	17.3	NA	0.6
TOC									
TOC	%	4.12	3.25	0.702	1.44	3.08	3.05	16.2	0.423

Table 3-9b
Area 2 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-2-37	HB10-2-38	HB10-2-38	HB10-2-38	HB10-2-38	HB10-2-39	HB10-2-39	HB10-2-39
	Field Sample ID	HB10-2-37-23	HB10-2-38-06	HB10-2-38-06DP	HB10-2-38-12	HB10-2-38-38	HB10-2-39-06	HB10-2-39-12	HB10-2-39-28
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	12- 23	0- 6	0- 6	0- 12	36- 38	0- 6	0- 12	12- 28
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	3.3	0.2	NA	0.4	1.6	0	0.4	0.2
SAND	%	53.4	30	NA	43.1	30.2	95.9	53.7	16.5
SILT	%	31.4	46.2	NA	36.2	41	2.5	34.9	47.6
CLAY	%	11.9	23.6	NA	20.3	27.2	1.6	11	35.7
COARSE SAND	%	1.3	0.7	NA	1.3	0.7	1	0.6	1.3
MEDIUM SAND	%	2.4	1.8	NA	4.1	3.9	16.6	4.1	0.8
FINE SAND	%	49.7	27.5	NA	37.7	25.6	78.3	49	14.4
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	NA	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	NA	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	NA	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	NA	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	NA	100	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	98.2	100	NA	100	100	100	100	100
SIEVE SIZE #4 - % FINER	% PASSED	96.7	99.8	NA	99.6	98.4	100	99.6	99.8
SIEVE SIZE #10 - % FINER	% PASSED	95.4	99.1	NA	98.3	97.7	99	99	98.5
SIEVE SIZE #20 - % FINER	% PASSED	94.5	98.3	NA	97.1	97	96.5	98.4	98.4
SIEVE SIZE #40 - % FINER	% PASSED	93	97.3	NA	94.2	93.8	82.4	94.9	97.7
SIEVE SIZE #60 - % FINER	% PASSED	85.6	93.7	NA	86.2	86.3	25.7	76.3	94.4
SIEVE SIZE #80 - % FINER	% PASSED	67.8	86.6	NA	74.6	76.3	8.9	63.3	91.2
SIEVE SIZE #100 - % FINER	% PASSED	58.5	83.1	NA	69.6	73.3	6.1	58.1	89.8
SIEVE SIZE #200 - % FINER	% PASSED	43.3	69.8	NA	56.5	68.2	4.1	45.9	83.3
HYDROMETER READING 1 - % FINER	% PASSED	21.3	45.6	NA	40.4	49.5	2.6	25.5	56.5
HYDROMETER READING 2 - % FINER	% PASSED	18.2	40.4	NA	34.5	44.7	2.6	20.9	50.1
HYDROMETER READING 3 - % FINER	% PASSED	14.4	33.9	NA	27.4	36.8	2.6	16.3	45.3
HYDROMETER READING 4 - % FINER	% PASSED	13.8	27.5	NA	22.7	30.4	2.6	13.3	40.5
HYDROMETER READING 5 - % FINER	% PASSED	11.9	23.6	NA	20.3	27.2	1.6	11	35.7
HYDROMETER READING 6 - % FINER	% PASSED	8.8	17.1	NA	15.6	20.9	0.6	8.7	29.1
HYDROMETER READING 7 - % FINER	% PASSED	5.7	14.5	NA	13.2	16.1	0.6	5.6	19.7
TOC									
TOC	%	0.648	5.6		3.32	4.03	0.506	1.68	11.1

Table 3-9b
Area 2 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

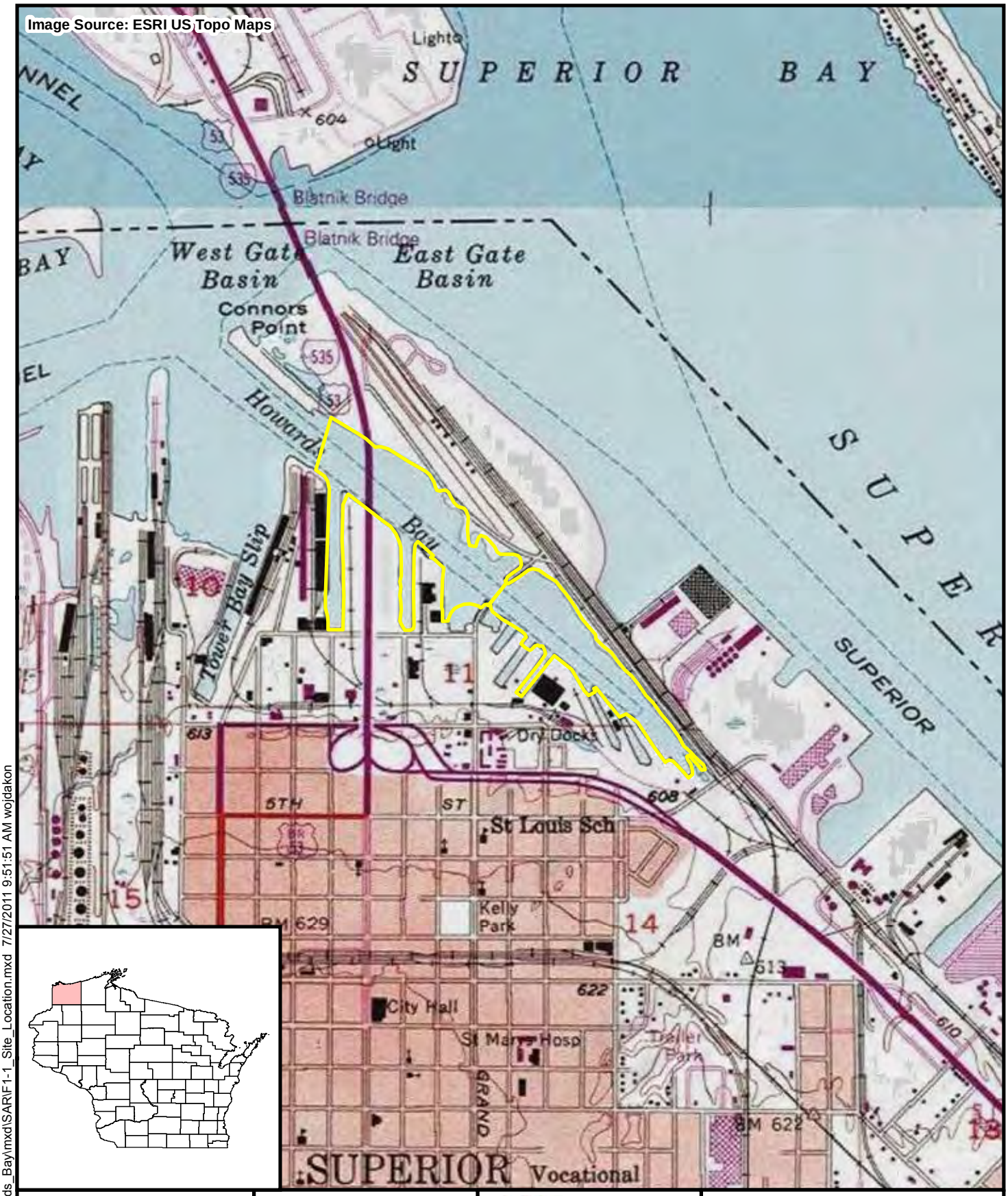
	Location ID	HB10-2-40	HB10-2-40	HB10-2-40	HB10-2-40	HB10-2-41	HB10-2-41	HB10-2-41	HB10-2-42
	Field Sample ID	HB10-2-40-06	HB10-2-40-12	HB10-2-40-36	HB10-2-40-48	HB10-2-41-06	HB10-2-41-12	HB10-2-41-31	HB10-2-42-06
	Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 6	0- 12	12- 36	36- 48	0- 6	0- 12	12- 31	0- 6
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	0	0	0.3	0	0	1.1	0.5	8.6
SAND	%	36.4	32.3	26.4	28.8	24.3	65.1	65.6	78.5
SILT	%	45.3	48.8	61.2	59.3	48.1	25.2	25.3	8.1
CLAY	%	18.3	18.9	12.1	11.9	27.6	8.6	8.6	4.8
COARSE SAND	%	0.2	0.1	0.1	0.2	0.5	5.8	2.9	7.5
MEDIUM SAND	%	2.3	1.9	0.3	0.5	2.1	29.5	24.4	17.9
FINE SAND	%	33.9	30.3	26	28.1	21.7	29.8	38.3	53.1
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	94.5
SIEVE SIZE #4 - % FINER	% PASSED	100	100	99.7	100	100	98.9	99.5	91.4
SIEVE SIZE #10 - % FINER	% PASSED	99.8	99.9	99.6	99.8	99.5	93.1	96.6	83.9
SIEVE SIZE #20 - % FINER	% PASSED	98.9	99.4	99.4	99.7	99	80.4	87.6	77
SIEVE SIZE #40 - % FINER	% PASSED	97.5	98	99.3	99.3	97.4	63.6	72.2	66
SIEVE SIZE #60 - % FINER	% PASSED	89.5	93.5	99	98.8	93.7	53.7	61.3	45
SIEVE SIZE #80 - % FINER	% PASSED	79.5	85.9	97.1	97.4	88.3	47.6	53.6	28.4
SIEVE SIZE #100 - % FINER	% PASSED	75.7	82.2	94.6	95.4	85.4	44.6	49.6	21.4
SIEVE SIZE #200 - % FINER	% PASSED	63.6	67.7	73.3	71.2	75.7	33.8	33.9	12.9
HYDROMETER READING 1 - % FINER	% PASSED	37.6	43	38	38.3	44.9	21.7	22.9	8.9
HYDROMETER READING 2 - % FINER	% PASSED	35.2	37	29.9	26.5	39.2	17.1	17	8.3
HYDROMETER READING 3 - % FINER	% PASSED	27.9	27.1	20.3	19.2	34.8	12.5	12.8	6.6
HYDROMETER READING 4 - % FINER	% PASSED	23.1	23.1	17	15.6	32	10.2	9.5	6
HYDROMETER READING 5 - % FINER	% PASSED	18.3	18.9	12.1	11.9	27.6	8.6	8.6	4.8
HYDROMETER READING 6 - % FINER	% PASSED	13.5	14.1	8.2	8.3	20.4	5.5	6	3
HYDROMETER READING 7 - % FINER	% PASSED	11.1	11.1	5.8	6.5	13.5	4.1	4.3	1.3
TOC									
TOC	%	3.39	2.44	0.886	1.17	6.73	1.99	1.12	8.84

Table 3-9b
Area 2 Sediment Sample Analytical Results - Physical Properties
Howard's Bay-St. Louis River AOC
Superior, Douglas County, Wisconsin

	Location ID	HB10-2-42	HB10-2-42	HB10-2-43	HB10-2-43	HB10-2-44	HB10-2-44	HB10-2-45	HB10-2-45
	Field Sample ID	HB10-2-42-12	HB10-2-42-30	HB10-2-43-06	HB10-2-43-22	HB10-2-44-06	HB10-2-44-16	HB10-2-45-06	HB10-2-45-19
	Sample Date	10/18/2010	10/18/2010	10/17/2010	10/17/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
	Depth Interval	0- 12	12- 30	0- 6	12- 22	0- 6	12- 16	0- 6	12- 19
Chemical Name	**Unit**								
Grain Size									
GRAVEL	%	3.1	12.1	17.5	4.3	2.7	4.8	24.9	6.5
SAND	%	74.7	65	80.5	71.4	49.9	47.1	55.6	64.3
SILT	%	15.2	13	1.5	10.6	28.6	29.7	14.6	18.2
CLAY	%	7	9.9	0.5	13.7	18.8	18.4	4.9	11
COARSE SAND	%	5.3	14.4	11.2	4.9	2.6	0.9	19.9	5.6
MEDIUM SAND	%	7.3	20.5	45.7	18.3	9.5	6.7	18.4	9.4
FINE SAND	%	62.1	30.1	23.6	48.2	37.8	39.5	17.3	49.3
SIEVE SIZE 3 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 2 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1.5 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 1 INCH - % FINER	% PASSED	100	100	100	100	100	100	100	100
SIEVE SIZE 0.75 INCH - % FINER	% PASSED	100	100	91.7	100	100	100	97.2	100
SIEVE SIZE 0.375 INCH - % FINER	% PASSED	99.2	97.2	87.7	99.4	100	95.4	88.5	96
SIEVE SIZE #4 - % FINER	% PASSED	96.9	87.9	82.5	95.7	97.3	95.2	75.1	93.5
SIEVE SIZE #10 - % FINER	% PASSED	91.6	73.5	71.3	90.8	94.7	94.3	55.2	87.9
SIEVE SIZE #20 - % FINER	% PASSED	89	64.2	51	82.8	91.4	92.9	45.8	84.4
SIEVE SIZE #40 - % FINER	% PASSED	84.3	53	25.6	72.5	85.2	87.6	36.8	78.5
SIEVE SIZE #60 - % FINER	% PASSED	69.1	42.7	9.9	56.8	75.6	78	29.4	68.7
SIEVE SIZE #80 - % FINER	% PASSED	51.2	35.2	4.6	42.6	64.9	67.3	24.6	54.4
SIEVE SIZE #100 - % FINER	% PASSED	41	31.5	3.4	37.2	59	61.5	22.8	45.8
SIEVE SIZE #200 - % FINER	% PASSED	22.2	22.9	2	24.3	47.4	48.1	19.5	29.2
HYDROMETER READING 1 - % FINER	% PASSED	14.5	18.1	1.3	23.4	33.1	32.8	9.1	19.3
HYDROMETER READING 2 - % FINER	% PASSED	12.3	15.9	1.3	20.5	31	26.9	8	17.6
HYDROMETER READING 3 - % FINER	% PASSED	10	12.9	1.3	17.6	24.9	24.3	6.5	14.3
HYDROMETER READING 4 - % FINER	% PASSED	8.5	11.4	0.5	16.6	21.9	19.6	6	12.7
HYDROMETER READING 5 - % FINER	% PASSED	7	9.9	0.5	13.7	18.8	18.4	4.9	11
HYDROMETER READING 6 - % FINER	% PASSED	4.8	7.7	0.5	10.8	15.6	14.6	3.8	8.4
HYDROMETER READING 7 - % FINER	% PASSED	3.2	5.4	0.5	7.1	10.5	9.9	2.7	5.9
TOC									
TOC	%	10.4	2.8	0.783	4.65	3.51	4.91	4.44	2.61

Notes:
% - Percent
DP - Duplicate
NA - Not Analyzed
TOC - Total Organic Carbon

FIGURES



FILE: D:\Howards_Bay\mxd\SAR\F1-1_Site_Location.mxd 7/27/2011 9:51:51 AM wojdakon

Legend

Project Area

0 2,000 Feet

N

Prepared for:
U.S. EPA REGION V

Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC

20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 1
Site Location Map
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F1-2_Site_Features.mxd 10/3/2011 11:13:14 AM wojdakon

Prepared for:
U.S. EPA REGION V

Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 2
Site Features Map
Howard's Bay
Superior, Douglas County, Wisconsin

Legend

- Sampling Locations
- Shipping Fairways
- Area 1
- Area 2

0 500 Feet

N

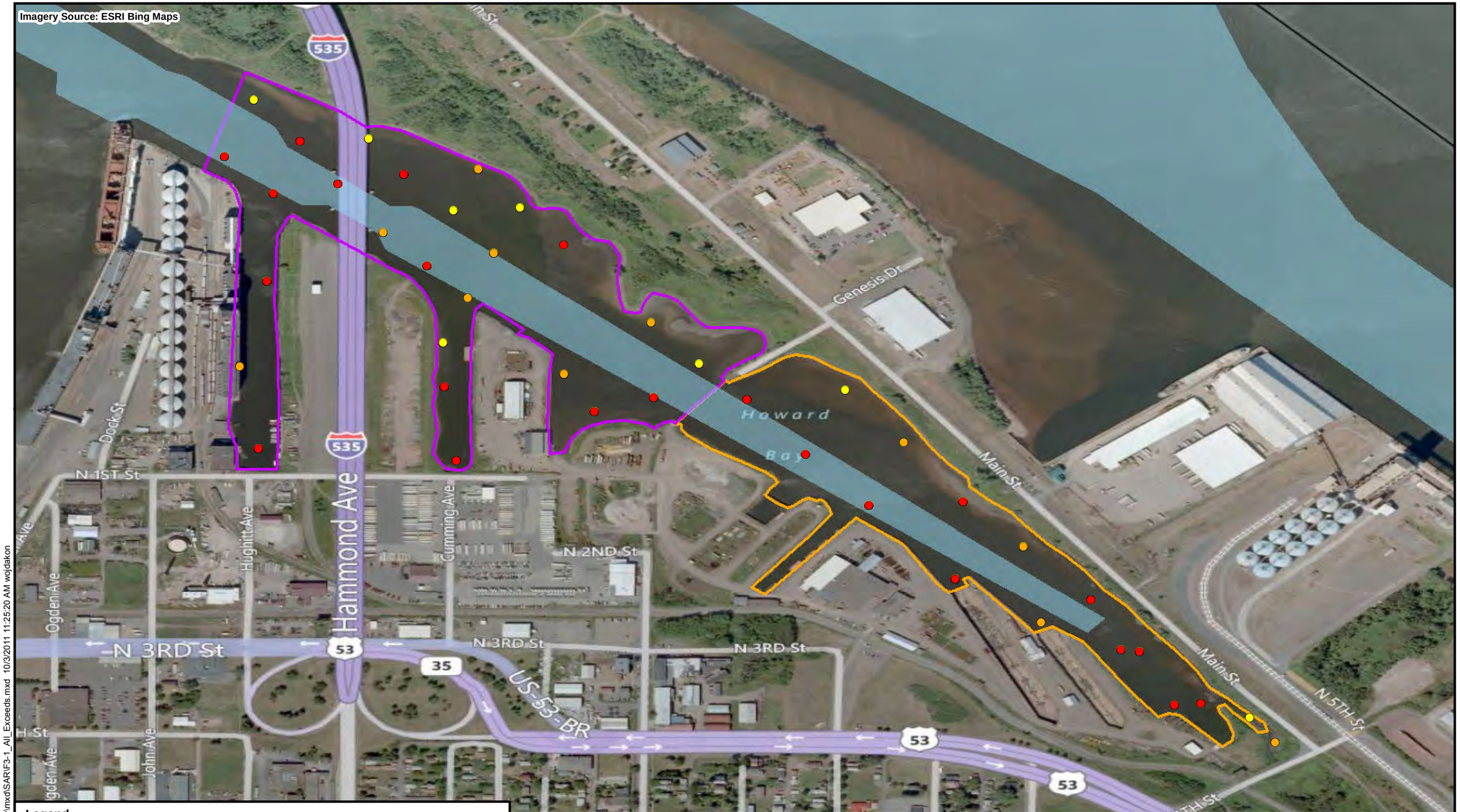
Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 2-1
Sampling Locations Map
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F2-1_Sampling_Locations.mxd 10/3/2011 11:15:40 AM wojdakon

Imagery Source: ESRI Bing Maps



Legend

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 500 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-1
Sampling Results Exceeding the
WDNR Consensus-Based Sediment Quality Guidelines
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-1_All_Exceeds.mxd 10/3/2011 11:25:20 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-1-03 10/16/10

Depth	Parameter	Result	[Criteria]
0-6	1,2-BENZPHENANTHRACENE	1326	[1290]
0-6	BENZO(A)ANTHRACENE	1160	[1050]
0-6	DIBENZ(A,H)ANTHRACENE	144	[135]
0-6	FLUORANTHENE	2320	[2230]
0-6	PYRENE	2044	[1520]

HB10-1-07 10/17/10

Depth	Parameter	Result	[Criteria]
0-6	ACENAPHTHENE	355	[89]
0-6	ANTHRACENE	921	[845]
0-6	BENZO(A)ANTHRACENE	1228	[1050]
0-6	FLUORANTHENE	3202	[2230]
0-6	FLUORENE	614	[536]
0-6	PHENANTHRENE	3640	[1170]
0-6	PYRENE	2193	[1520]
0-6	TOTAL PAHS 34	22897	[22800]

Legend

Note: Site study concentrations normalized to 1% TOC

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-2a
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – PAHs
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-2a_Area_1_Exceeds_PAHs.mxd 10/3/2011 11:49:28 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-1-13 10/18/10

Depth	Parameter	Result		[Criteria]
12-36	LEAD	163	J-	[130]

HB10-1-15 10/18/10

Depth	Parameter	Result		[Criteria]
12-16	LEAD	132	J	[130]

HB10-1-16 10/17/10

Depth	Parameter	Result	[Criteria]
12-31	MERCURY	58	[1.1]

HB10-1-31 10/18/10

Depth	Parameter	Result		[Criteria]
0-12	LEAD	251	J-	[130]

HB10-1-30 10/18/10

Depth	Parameter	Result		[Criteria]
0-12	LEAD	167	J-	[130]

HB10-1-28 10/17/10

Depth	Parameter	Result	[Criteria]
60-84	MERCURY	1.8	[1.1]

HB10-1-29 10/17/10

Depth	Parameter	Result		[Criteria]
0-6	LEAD	294		[130]
0-6	ZINC	487	J	[460]
0-12	CHROMIUM	117		[110]
0-12	COPPER	178		[150]
0-12	IRON	41400		[40000]
0-12	LEAD	382		[130]
0-12	ZINC	605	J	[460]
12-36	COPPER	321		[150]
12-36	LEAD	481		[130]
12-36	MERCURY	1.9		[1.1]
12-36	ZINC	945	J	[460]
36-60	LEAD	188		[130]
36-60	MERCURY	1.8	J	[1.1]
36-60	ZINC	656	J	[460]
60-93	COPPER	179		[150]
60-93	LEAD	308		[130]
60-93	MERCURY	5.9		[1.1]
60-93	ZINC	810	J	[460]

HB10-1-24 10/18/10

Depth	Parameter	Result		[Criteria]
0-6	LEAD	208	J-	[130]
0-12	LEAD	234	J-	[130]
12-36	ANTIMONY	38.5	J-	[25]
12-36	LEAD	207	J-	[130]
12-36	MERCURY	2.5	J-	[1.1]
12-36	ZINC	553	J-	[460]

Legend

Note: Site study concentrations normalized to 1% TOC

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC

- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-2b
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – TAL Metals
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-2b_Area_1_Exceeds_Metals.mxd 10/3/2011 11:32:54 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-1-04 10/17/10

Depth	Parameter	Result	[Criteria]
0-6	TOTAL PCBS	271	[60]

HB10-1-21 10/18/10

Depth	Parameter	Result	[Criteria]
12-23	TOTAL PCBS	170	[60]

Legend

Note: Site study concentrations normalized to 1% TOC

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-2c
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – Total PCBs
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SARIF3-2c_Area_1_Exceeds_PCB.mxd 10/3/2011 11:52:40 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-1-03 10/16/10

Depth	Parameter	Result	[Criteria]
0-6	4,4'-DDT	77.3	[63]
0-6	HEPTACHLOR EPOXIDE	38.7	[16]

FILE: D:\Howards_Bay\mxd\SAR\F3-2d_Area_1_Exceeds_Pest.mxd 10/3/2011 11:53:05 AM wojdakon

Legend

Note: Site study concentrations normalized to 1% TOC

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-2d
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guideliness for Area 1 – TCL Pesticides
Howard's Bay
Superior, Douglas County, Wisconsin

Imagery Source: ESRI Bing Maps

HB10-1-24 10/18/10

Depth	Parameter	Result
12-36	DIESEL RANGE ORGANICS	540

HB10-1-29 10/17/10

Depth	Parameter	Result
60-93	DIESEL RANGE ORGANICS	730

Legend

TPH DRO (mg/kg)
- 0 - 99
- 99 - 499
- > 499
- Non-Detect

- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-2e
Sampling Results for Area 1 – TPH DRO
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-2e_Area_1_TPH_DRO.mxd 10/3/2011 11:42:21 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-1-08 10/17/10

Depth	Parameter	Result
12-36	OIL RANGE ORGANICS	650

HB10-1-31 10/18/10

Depth	Parameter	Result
0-6	OIL RANGE ORGANICS	700

HB10-1-13 10/18/10

Depth	Parameter	Result
0-12	OIL RANGE ORGANICS	650

HB10-1-24 10/18/10

Depth	Parameter	Result
0-6	OIL RANGE ORGANICS	520
12-36	OIL RANGE ORGANICS	850

HB10-1-30 10/18/10

Depth	Parameter	Result
60-77	OIL RANGE ORGANICS	710

HB10-1-29 10/17/10

Depth	Parameter	Result
60-93	OIL RANGE ORGANICS	690

Legend

TPH ORO (mg/kg)

- 0 - 99
- 99 - 499
- > 499
- Non-Detect

- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-2f
Sampling Results for Area 1 – TPH ORO
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SARIF3-2f_Area_1_TPH_ORO.mxd 10/3/2011 11:43:00 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-1-03 10/16/10

Depth	Parameter	Result	[Criteria]
0-6	TRIBUTYLTIN	20.4	[2.94]
0-12	TRIBUTYLTIN	3.21	[2.94]

HB10-1-02 10/16/10

Depth	Parameter	Result	[Criteria]
12-23	TRIBUTYLTIN	3.69	[2.94]

HB10-1-06 10/16/10

Depth	Parameter	Result	[Criteria]
0-12	TRIBUTYLTIN	3.25	[2.94]

HB10-1-05 10/16/10

Depth	Parameter	Result	[Criteria]
0-6	TRIBUTYLTIN	3.47	[2.94]

HB10-1-16 10/17/10

Depth	Parameter	Result	[Criteria]
0-6	TRIBUTYLTIN	4.3	[2.94]

HB10-1-28 10/17/10

Depth	Parameter	Result	[Criteria]
0-6	TRIBUTYLTIN	64.6	[2.94]
0-12	TRIBUTYLTIN	5.66	[2.94]

01 02 03 04 05 06 07 08 10 11 12 13 14 15 16 17 20 21 23 24 25 27 28 29 30 31

Howard Bay

Johnna Blatnik Bridge

Hammond Ave

Main St

N 1ST St

N 2ND St

Genesis Dr

Dock St

Superior Bay

Legend

Note: Site study concentrations normalized to 1% TOC

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-2g
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 1 – Organotins
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-2g_Area_1_Exceeds_TBT.mxd 10/3/2011 11:53:38 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-2-32 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	ACENAPHTHENE	90.7	[89]
0-6	NAPHTHALENE	1044	[561]

HB10-2-37 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	PHENANTHRENE	1513	[1170]

Legend

Note: Site study concentrations normalized to 1% TOC

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-3a
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – PAHs
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-3a_Area_2_Exceeds_PAHs.mxd 10/3/2011 11:55:37 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-2-32 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	MANGANESE	1250 J-	[1100]
0-6	MANGANESE	1130 J-	[1100]

HB10-2-34 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	LEAD	148 J	[130]

HB10-2-36 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	LEAD	180 J-	[130]

HB10-2-38 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	LEAD	133 J-	[130]
0-12	LEAD	179 J-	[130]

HB10-2-40 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	LEAD	147 J-	[130]

HB10-2-41 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	LEAD	148 J	[130]

HB10-2-42 10/18/10

Depth	Parameter	Result	[Criteria]
0-12	LEAD	251 J-	[130]

HB10-2-44 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	LEAD	298 J-	[130]

HB10-2-45 10/18/10

Depth	Parameter	Result	[Criteria]
0-6	LEAD	1140 J	[130]
12-19	LEAD	186 J	[130]

Legend

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

N

0 400 Feet

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-3b
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guideliness for Area 2 – TAL Metals
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-3b_Area_2_Exceeds_Metals.mxd 10/3/2011 11:56:16 AM wojdakon

Imagery Source: ESRI Bing Maps

Howard Bay

Superior Bay

Main St

Genesis Dr

Superior Bay

Lamboni Ave

N 1ST St

N 2ND St

Cumming Ave

N 3RD St

3RD St

US-53-BR

Baxter Ave

Grand Ave

Clough Ave

N 4TH St

53

N 5TH St

Weeks Ave

Fisher Ave

E 2ND St

33

35

37

39

40

41

42

26

43

Legend

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-3c
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – Total PCBs
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-3c_Area_2_Exceeds_PCB.mxd 10/3/2011 11:58:05 AM wojdakon

Imagery Source: ESRI Bing Maps

HB10-2-40 10/18/10

Depth	Parameter	Result	[Criteria]
0-12	GAMMA-CHLORDANE	19.7	[18]

Legend

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-3d
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – TCL Pesticides
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-3d_Area_2_Exceeds_Pest.mxd 10/3/2011 12:03:41 PM wojdakon

Imagery Source: ESRI Bing Maps

Legend

TPH ORO (mg/kg)
- 0 - 99
- 99 - 499
- > 499
- Non-Detect

- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-3e
Sampling Results for Area 2 – TPH DRO
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-3e_Area_2_TPH_DRO.mxd 10/3/2011 12:05:36 PM wojdakon

Imagery Source: ESRI Bing Maps

HB10-2-36 10/18/10

Depth	Parameter	Result
0-6	OIL RANGE ORGANICS	500
0-6	OIL RANGE ORGANICS	540

HB10-2-38 10/18/10

Depth	Parameter	Result
0-12	OIL RANGE ORGANICS	500

HB10-2-43 10/17/10

Depth	Parameter	Result
12-22	OIL RANGE ORGANICS	610

Legend

TPH ORO (mg/kg)
- 0 - 99
- 99 - 499
- > 499
- Non-Detect

- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-3f
Sampling Results for Area 2 – TPH ORO
Howard's Bay
Superior, Douglas County, Wisconsin

FILE: D:\Howards_Bay\mxd\SAR\F3-3f_Area_2_TPH_ORO.mxd 10/3/2011 12:05:58 PM wojdakon

Imagery Source: ESRI Bing Maps

Main St
Genesis Dr
Superior Bay
S u p e r i o r
B a y
Howard
Bay
Main St
ST St
N 2ND St
Cumming Ave
N 3RD St
Baxter Ave
Clough Ave
3RD St
US-53-BR
53
N 4TH St
Grand Ave
Cumming Ave
Baxter Ave
N 5TH St
Weeks Ave
Fisher Ave
E 2ND St
Main St
N 5TH St

32 33 34 35 36 37 38 39 40 18 44 41 45 42 26 43

FILE: D:\Howards_Bay\mxd\SAR\F3-3g_Area_2_Exceeds_TBT.mxd 10/6/2011 3:29:50 PM wojdakon

Legend

- Level IV Concern: >PEC
- Level III Concern: >MEC and <=PEC
- Level II Concern: >TEC and <=MEC
- Level I Concern: <=TEC
- Shipping Fairways
- Area 1
- Area 2

0 400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1004-032
DCN: 1023-2A-AOMS

Prepared By:
WESTON SOLUTIONS, INC.
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Figure 3-3g
Sampling Results Exceeding the WDNR Consensus-Based Sediment Quality Guidelines for Area 2 – Organotins
Howard's Bay
Superior, Douglas County, Wisconsin

APPENDIX A
PHOTOGRAPHIC LOG

Site: Howard's Bay Site
Photograph No.: 1 **Date:** 10/17/10
Direction: Southeast **Photographer:** Tim Walls
Subject: Howard's Bay Core Location HB-19.

Site: Howard's Bay Site
Photograph No.: 2 **Date:** 10/17/10
Direction: Southeast **Photographer:** Tim Walls
Subject: Howard's Bay Core Location HB-19.

Site: Howard's Bay Site
Photograph No.: 3 **Date:** 10/17/10
Direction: Not Applicable (NA) **Photographer:** Tyler Ziebell
Subject: Howard's Bay Core Location HB-29.

Site: Howard's Bay Site
Photograph No.: 4 **Date:** 10/17/10
Direction: NA **Photographer:** Tyler Ziebell
Subject: Howard's Bay Core Location HB-29.

Site: Howard's Bay Site
Photograph No.: 5 **Date:** 10/17/10
Direction: NA **Photographer:** Tim Walls
Subject: Howard's Bay Core Location HB-9.

Site: Howard's Bay Site
Photograph No.: 6 **Date:** 10/17/10
Direction: NA **Photographer:** Tim Walls
Subject: Howard's Bay Core Location HB-9; note taconite pellets.

Site: Howard's Bay Site
Photograph No.: 7 **Date:** 10/18/10
Direction: NA **Photographer:** Jon Colomb
Subject: Howard's Bay Core Location HB-30.

Site: Howard's Bay Site
Photograph No.: 8 **Date:** 10/18/10
Direction: NA **Photographer:** Jon Colomb
Subject: Howard's Bay Core Location HB-30; note wood fragments.

Site: Howard's Bay Site
Photograph No.: 9 **Date:** 10/18/10
Direction: NA **Photographer:** Jon Colomb
Subject: Howard's Bay Core Location HB-13.

Site: Howard's Bay Site
Photograph No.: 10 **Date:** 10/18/10
Direction: NA **Photographer:** Jon Colomb
Subject: Howard's Bay Core Location HB-13.

Site: Howard's Bay Site
Photograph No.: 11 **Date:** 10/18/10
Direction: NA **Photographer:** Jon Colomb
Subject: Howard's Bay Core Location HB-43.

Site: Howard's Bay Site
Photograph No.: 12 **Date:** 10/18/10
Direction: NA **Photographer:** Jon Colomb
Subject: Howard's Bay Core Location HB-39.