SEDIMENT ASSESSMENT REPORT
SWAN CREEK
MAUMEE RIVER AREA OF CONCERN
TOLEDO, LUCAS COUNTY, OHIO

Prepared for

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ACRONYMS AND ABBREVIATIONS

%	Percent
µg/kg	Microgram per kilogram
ADR	Automated Data Review
AOC	Area of Concern
bss	Below sediment surface
BUI	Beneficial use impairment
cfs	Cubic foot per second
CLP	Contract Laboratory Program
COPC	Contaminant of potential concern
CSO	Combined sewer overflow
DO	Dissolved oxygen
DRO	Diesel-range organics
ESL	Ecological Screening Level
EXES	Exchange and Evaluation System
GLLA	Great Lakes Legacy Act
GLNPO	Great Lakes National Program Office
GPS	Global positioning system
mg/kg	Milligram per kilogram
NFG	National Functional Guideline
Ohio EPA	Ohio Environmental Protection Agency
ORO	Oil-range organics
ORP	Oxidation-reduction potential
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PEC	Probable Effect Concentration
QA	Quality assurance
QC	Quality control
QAPP	Quality Assurance Project Plan
QHEI	Qualitative Habitat Evaluation Index
RAP	Remedial Action Plan
RPD	relative percent difference
Shaw	Shaw Environmental and Infrastructure, Inc.
SMO	Sample Management Office
SOP	Standard operating procedure
SRV	Sediment Reference Value
START	Superfund Technical Assistance and Response Team
SVOC	Semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TDD	Technical Direction Document
TOC	Total organic carbon
TPH	Total petroleum hydrocarbons
U.S. EPA	United States Environmental Protection Agency
WESTON	Weston Solutions, Inc.

EXECUTIVE SUMMARY

Weston Solutions, Inc. (WESTON®) has prepared this Sediment Assessment Report to summarize site characterization activities for the Swan Creek project area in Toledo, Lucas County, Ohio as part of the Maumee River Area of Concern (AOC) United States Environmental Protection Agency (U.S. EPA) Great Lakes National Program Office (GLNPO) Great Lakes Legacy Act (GLLA) Project. The purpose of the GLLS project is to further define chemical contaminants in sediment, locate contaminated areas for additional evaluation, attempt to identify any ongoing sources, and perform a preliminary habitat assessment. The data collection activities were conducted in accordance with WESTON's Quality Assurance Project Plan (QAPP) dated July 2011. The objective of the site characterization activities was to collect samples for chemical and physical properties analysis needed to support project area characterization and potential remediation activities.

When the Maumee River AOC was designated, it was primarily due to the large problem of agricultural runoff. However, upon further investigation, more problems were discovered, including former dumps and contaminated industrial sites, combined sewer overflows (CSO), and disposal of dredged materials.

The Swan Creek watershed drains 205 square miles. Its headwaters rise in Henry, Fulton, and western Lucas Counties. Over 200 miles of creeks and ditches drain the watershed. Swan Creek itself is approximately 40 miles long. The Swan Creek project area includes the lower reach of Swan Creek from the North Hawley Street Bridge (River Mile 2.6) to the confluence with the Maumee River (River Mile 0.0).

A total of 100 sediment samples (including field split and duplicate samples) were collected from 35 sampling locations within the Swan Creek project area. The sampling design for Swan Creek originally was based on establishing 20 transects centered approximately 750 feet apart along the 2.6-mile length of the Swan Creek project area. Three sediment sampling locations were projected along each transect, one at the middle of the creek and two approximately 5 feet from each bank. However, because of the lack of sediment deposition, three sediment sampling

locations for each transect were not feasible, and many locations had to be relocated between the proposed transects.

Where sediment recovery was adequate, samples typically were collected from the following intervals: 0 to 6, 6 to 24, 24 to 48, and 48 to 72 inches below sediment surface (bss). Samples from the surface interval from 0 to 6 inches were collected using a ponar. Except for the surface interval, each sampling interval was at least 12 inches long. Sediment cores typically were collected from a 20-foot, pontoon boat mounted vibracoring system to refusal or until native material was encountered.

All sediment samples were analyzed for the following contaminants of potential concern (COPC): semivolatile organic compounds (SVOC), Target Analyte List (TAL) metals (including mercury), and total petroleum hydrocarbons (TPH) as diesel-range organics (DRO) and oil-range organics (ORO). In addition, approximately 10 percent (%) of all sediment samples collected were analyzed for the extended list of polycyclic aromatic hydrocarbons (PAH) and Target Compound List (TCL) polychlorinated biphenyl (PCB) Aroclors. All sediment samples also were analyzed for physical properties, including percent (%) moisture, total organic carbon (TOC), and grain size.

The sample results for SVOCs, PAHs (extended list 34), TAL metals (including mercury), and PCBs were compared to Probable Effect Concentrations (PEC) set forth in the document "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (by D.D. MacDonald, et. al., dated 2000). The metals results were also compared to Ohio-specific Sediment Reference Values (SRV) set forth in the "Ohio Ecological Risk Assessment Guidance Document" dated February 2003, revised April 2008. Ecological Screening Levels (ESL) for sediment as set forth in U.S. EPA Region 5's "Ecological Screening Levels" dated 2003 were presented as a secondary source of screening criteria for chemicals that do not have a developed PEC.The paragraphs below summarize the comparison of the analytical data to the screening levels, when available, for SVOCs, PAHs (Extended List 34), TAL metals, PCBs, and DRO and ORO.

SVOCs

Of the SVOCs detected, the following were detected at concentrations exceeding the PECs: anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. A total PAH 17 concentration was calculated for each sample. Total PAH 17 and individual PAH concentrations exceeded the PECs in samples collected from all 35 sampling locations from 0 to 6 inches bss except at locations: SC02-01LB (field duplicate), SC05-01RA (instigative and field split), SC07-01LA, SC07-01R, and SC1001LC (investigative and field split). Total PAH 17 and individual PAH concentrations exceeded the PECs in all 33 samples collected from 6 to 24 inches bss except at locations: SC03-01RB-032, SC05-01RA-026, SC16-01RA-026, and SC19-01R-17. Total PAH 17 and individual PAH concentrations exceeded the PECs in all 20 samples collected from 24 to 48 inches bss except at location SC07-01R-040. Total PAH 17 and individual PAH concentrations exceeded the PECs in all three samples collected from 48 to 72 inches bss.

PAHs (Extended List 34)

Of the PAHs detected: anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene were detected at concentrations that exceeded their respective PECs. PECs have not been established for the PAH homologs. A total PAH (extended list 34) concentration was calculated for each sample. Results for six of the nine samples collected from 0 to 6 inches bss and three of the three samples collected from 6 to 24 inches bss exceeded the total PAH PEC. These locations are consistent with locations where sample concentrations exceeded the total PAH PEC determined using the PAH 17 list of compounds.

TAL METALS

Metals exceeding PECs were noted throughout the investigation area. Selenium and thallium were the only analytes on the TAL metals list not detected in at least one sediment sample. The following TAL metals were detected at concentrations exceeding their respective PECs in at least one sample: arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc. Metals concentrations exceeded the PECs in samples collected from throughout the investigation area,

primarily in samples from 6 to 24 inches bss but also noted in 0 to 6 inches bss and 24 to 48 inches bss.

PCBs

PCB Aroclor analysis was only conducted at 7 sampling locations. Aroclor 1242 was the only Aroclor detected. A total PCB concentration was calculated for each sample by summing the concentration of each detected PCB. Total PCB concentrations at three of the seven locations sampled exceeded the PEC at one or more depth interval. The locations where sampling results exceeded the PEC are spread out across Swan Creek (SC05-01RA-006 and SC05-01RA-026, SC10-01LC-006, and SC19-01MA-024). PCBs were not originally identified as major contaminants of concern. Due to the limited data set and spatial variance in concentrations, it is difficult to draw conclusions regarding extent of PCB contamination. More sampling may be needed to identify the nature and extent of PCB contamination.

TPH as DRO and ORO

TPH as DRO corresponded to an alkaline range of C_{10} through C_{28}. DRO was detected in 88 sediment samples at concentrations ranging from 15 to 8,800 milligrams per kilogram (mg/kg). The highest DRO concentration was detected at sediment sampling location SC01-01RA-006. TPH as ORO corresponded to an alkaline range of C_{28} through C_{36}. ORO was detected in 97 sediment samples at concentrations ranging from 190 to 12,000 mg/kg. The highest ORO concentration was detected at sediment sampling location SC01-01RB-027. Sampling locations SC01-01RA and SC01-01RB are the two furthest upstream sampling locations in the Swan Creek project area.

1. INTRODUCTION

Weston Solutions, Inc. (WESTON®) has prepared this Sediment Assessment Report to summarize site characterization activities for the Swan Creek project area in Toledo, Lucas County, Ohio (**Figure 1-1**). WESTON prepared the Sediment Assessment Report in response to a request from the United States Environmental Protection Agency (U.S. EPA) Great Lakes National Program Office (GLNPO) under Superfund Technical Assessment and Response Team (START) III Contract No. EP-S5-06-04, Technical Direction Document (TDD) No. S05-0008-1103-007. The site characterization activities were conducted as part of the Maumee River Area of Concern (AOC) Great Lakes Legacy Act (GLLA) project. The purpose of the GLLA project is to define chemical contaminants in sediment, locate contaminated areas for additional evaluation, attempt to identify any ongoing sources, and perform a preliminary habitat assessment. The data collection activities were conducted in accordance with the Quality Assurance Project Plan (QAPP) dated July 2011.

The sections below discuss the report organization, site description, site background and history, possible sources of contamination, the purpose of the study and project objectives, and contaminants of potential concern (COPC) and target analytes.

1.1 REPORT ORGANIZATION

This Sediment Assessment Report is organized as follows:

- Section 1 – Introduction
- Section 2 – Site Characterization Activities
- Section 3 – Sample Analytical Results
- Section 4 – Habitat Assessment
- Section 5 – Data Completeness
- Section 6 – Summary

Tables and figures are included after Section 6. **Appendix A** provides the analytical data tables for all samples collected, **Appendix B** provides a photographic log of sampling activities, and

Appendix C provides the habitat assessment Qualitative Habitat Evaluation Index (QHEI) data sheets.

1.2 SITE DESCRIPTION

The "Maumee Area of Concern Stage 2 Watershed Restoration Plan" states that the Maumee River begins in Fort Wayne at the confluence of the St. Joseph and St. Mary's Rivers and flows through Defiance and Napoleon and then on toward Toledo. Two major tributaries join the Maumee River: the Tiffin and Auglaize Rivers. In Wood and Lucas Counties, several smaller streams flow into the Maumee River: Beaver and Tontogany Creeks from the south and Swan Creek, which join the Maumee River in downtown Toledo.

The Maumee River travels more than 130 river miles to Lake Erie, 108 miles of which are located in Ohio. The Maumee River AOC does not include the entire Maumee River watershed. Instead, it includes the river's lower reach and tributaries as well as some neighboring watersheds (**Figure 1-1**). The boundaries of the Maumee River AOC originally were identified as the area extending from the Bowling Green water intake near Waterville (River Mile 22.8) along the Lower Maumee River downstream to Maumee Bay. The area included direct drainage into waters in Lucas, Ottawa, and Wood Counties and Swan Creek, Ottawa River (Tenmile Creek), Duck Creek, Otter Creek, Grassy Creek, Cedar Creek, and Crane Creek. In 1992, the AOC was expanded to include Packer Creek, Turtle Creek, Rusha Creek, and the Toussaint River. In 2010, the AOC boundaries were formally realigned to match the associated hydrologic units (**Figure 1-1**). The AOC's drainage area covers nearly all of Lucas County and parts of Fulton, Wood, Ottawa, and Sandusky Counties. The Maumee River AOC covers 787 square miles. The Maumee River has the largest drainage area of any Great Lakes river, with 3,942 stream miles.

Swan Creek is located in the Maumee River AOC near Toledo, Lucas County, Ohio. The Swan Creek project area includes the lower reach of Swan Creek from the North Hawley Street Bridge (River Mile 2.6) to the confluence with the Maumee River (River Mile 0.0) (**Figure 1-2**).

The Swan Creek watershed drains 205 square miles. Its headwaters rise in Henry, Fulton, and western Lucas Counties. Over 200 miles of creeks and ditches drain the watershed. Swan Creek itself is approximately 40 miles long. The major streams that feed Swan Creek are Ai Creek, Blue Creek, and Blystone Ditch. Most of the Swan Creek watershed is located within the Maumee AOC. The Swan Creek watershed can be divided into three major reaches based on the dominant stream characteristics: the upstream, middle, and lower reaches.

The upstream reach is from the headwaters (or source) to River Mile 19 in Monclova Township. The creek channel is stable and banks are low (15 to 25 feet), with indistinct valleys and floodplains. Land surrounding this reach primarily is used for agriculture.

The middle reach lies between River Miles 19 and 6. Here the creek is actively eroding its channel. The banks are high (35 to 45 feet or more), unstable, and intermixed with detached floodplains. Bedrock in the channel at River Mile 19 prevents the extension of this erosion upstream. Major problems in this reach are urbanization, including the filling in of floodplains, and destruction of wetland area. The water quality is fair but does not meet the goals of the Clean Water Act. The causes of water quality impairments include ill-functioning septic tank systems, storm water runoff, agricultural runoff, and the erosive forces of the stream itself. Land in the middle reach primarily is used for residential purposes, and this area is one of the fastest developing areas in northwest Ohio. Tributaries to Swan Creek, which have extensive floodplain lands, are Wolf Creek, Blystone Ditch, Stone Ditch, Cairl Creek, Drennan Ditch, and Heilman Ditch.

The lower reach lies between River Mile 6 (the CSX Railroad Bridge) to the mouth of Swan Creek in Toledo. This reach is actively silting in its channel. The banks are as high as 35 to 45 feet and are intermixed with floodplain areas. This lower reach experiences seiche effects from the Maumee River and Lake Erie. The level of Lake Erie prevents the lower reach from naturally deepening. The major problem in this reach is extremely poor water quality resulting from storm water runoff, hydromodifications, and urban development. The lower reach is highly urbanized, with little vacant land left to build upon. The land use is residential, commercial, and industrial. The lower reach is neither swimmable nor fishable according to public health

standards. Contributing to the pollution and water quality impairments in this reach are combined sewer overflows (CSO), industrial discharges to the sanitary sewer system, storm sewers contaminated by residents, and urban storm water runoff that contains fertilizers from lawns and street debris. From Champion Street (River Mile 3.9) to the mouth, the water quality is rated as poor. The worst water quality area extends from Hawley Street (River Mile 2.6) to Collingwood Boulevard (River Mile 1.2). In this area, zinc, lead, arsenic, nickel, and chromium have been detected in the water and in bottom sediments. Creosote also has been detected in sediment from Hawley Street.

1.3 SITE BACKGROUND AND HISTORY

The "Maumee Area of Concern Stage 2 Watershed Restoration Plan" states that when the Maumee River AOC was designated, it was primarily due to the large problem of agricultural runoff. However, upon further investigation, more problems were discovered, including former dumps and contaminated industrial sites, CSOs, and disposal of dredged materials.

Originally the delisting of the Maumee River AOC was based on restoration of 14 BUIs for the entire AOC. Impairment of beneficial use means a change in the chemical, physical, or biological integrity of the Great Lakes ecosystem. According to the Ohio Environmental Protection Agency's (Ohio EPA) "Maumee Remedial Action Plan Stage 1 Investigation Report" (RAP) dated 1990, 10 of the 14 BUIs in the Maumee River AOC required restoration. These BUIs included the following:

- Restrictions on fish and wildlife consumption
- Eutrophication or undesirable algae
- Restrictions on drinking water consumption or taste and odor
- Degradation of fish and wildlife populations
- Beach closings (Recreational Contact)
- Fish tumors or other deformities
- Degradation of aesthetics
- Degradation of benthos
- Restriction on dredging activities

- Loss of fish and wildlife habitat

The Maumee RAP does not identify BUIs by watershed but for the entire Maumee River AOC because the only means of delisting in 1990 was through total restoration of the entire AOC. Since an incremental approach to delisting was adopted in 2001 by the U.S. Policy Committee, the 1990 RAP and its BUIs were re-evaluated with the help of other community partners. This re-evaluation was conducted based on information available in the late 1980s and early 1990s and resulted in the preparation of a BUI summary table for each watershed in the Maumee River AOC. These new tables allowed better determination of progress toward restoration of a watershed or a beneficial use.

The following BUIs specifically apply to Swan Creek:

- Degradation of fish and wildlife populations
- Beach closings
- Fish tumors or other deformities
- Degradation of aesthetics
- Degradation of benthos
- Loss of fish and wildlife habitat

1.4 POSSIBLE SOURCES OF CONTAMINATION

The land use around Swan Creek primarily is industrial and commercial. This area has both current and historical contamination. Current and prior industrial activities in Swan Creek include gas and chemical manufacturing plants, municipal landfills, and other industrial activities that may have contributed to chemical contamination within the watershed (**Figure 1-3**). Contaminated sediments in the study area are believed to have contributed to the BUIs in the AOC, but historical data for Swan Creek are insufficient to assess the impact of the contamination.

Ohio EPA has identified creosote contamination as a possible contributor to BUI impairments in the watershed, but other chemical contamination needs evaluation. The land around the lower 2 miles of Swan Creek is industrial and commercial. Sediments in this area are suspected to

contain elevated concentrations of oil and grease, mercury, heavy metals, and semivolatile organic compounds (SVOC) (primarily polycyclic aromatic hydrocarbons [PAH]).

1.5 PURPOSE OF STUDY AND PROJECT OBJECTIVE

The purpose of the Swan Creek GLLA project is to further define chemical contaminants in sediment, locate contaminated areas for additional evaluation, attempt to identify any ongoing sources, and perform a preliminary habitat assessment. The objective of this site characterization was to collect samples for chemical and physical properties analysis needed to support project area assessment and potential remediation activities.

1.6 COPCs AND TARGET ANALYTES

All sediment samples were analyzed for the following COPCs: SVOCs, Target Analyte List (TAL) metals (including mercury), and total petroleum hydrocarbons (TPH) as diesel-range organics (DRO) and oil-range organics (ORO). In addition, approximately 10 percent (%) of all sediment samples collected were analyzed for the extended list of PAHs and Target Compound List (TCL) polychlorinated biphenyl (PCB) Aroclors. All sediment samples also were analyzed for physical properties, including % moisture, total organic carbon (TOC), and grain size.

2. SITE CHARACTERIZATION ACTIVITIES

Site characterization activities were conducted from August 1 through 6, 2011, and included sediment sample collection and sediment characterization as discussed below.

2.1 SEDIMENT SAMPLE COLLECTION

The sample collection procedures are detailed in WESTON's QAPP dated July 2011. The data collected during site characterization activities will be used to (1) evaluate the locations of the most heavily contaminated sediment and (2) focus areas for further evaluation and remediation.

The project investigation area includes the lower reach of Swan Creek from the North Hawley Street Bridge (River Mile 2.6) to the confluence with the Maumee River (River Mile 0.0) (**Figure 1-2**). The sampling design for Swan Creek originally was based on establishing 20

transects centered approximately 750 feet apart along the 2.6-mile length of the Swan Creek project area. Three sediment sampling locations were projected along each transect, one at the middle of the creek and two approximately 5 feet from each bank. However, because of the lack of sediment deposition, three sediment sampling locations for each transect were not feasible, and many locations had to be relocated between the proposed transects.

A total of 100 sediment samples (91 investigative, 4 field split, and 5 duplicate samples) were collected from 35 locations. **Table 2-1** presents the sampling location coordinates, and **Figure 2-1** shows the sediment sampling locations. As discussed above, it was originally planned that 20 transects with 3 locations per transect would be sampled. Due to very poor recovery (little to no sediment deposition), fewer samples were collected than projected. Of the 20 initially proposed transects, only transects 4 and 17 were not sampled. All other transects had at least one sample collected. However, many locations did not follow a transect and instead were located where sediment probing activities indicated available sediment. Only four of the 20 proposed locations in the middle of the creek were sampled because of the lack of sediment. Most of the left bank and right bank samples were moved to areas where sediment probing indicated that adequate sediment was present. Sampling locations that were relocated end with an "A" or "B" in the location identification number in the sample name (**Table 2-1**).

Where sediment recovery was adequate, samples typically were collected from the following intervals: 0 to 6, 6 to 24, 24 to 48, and 48 to 72 inches below sediment surface (bss). Samples from the surface interval from 0 to 6 inches were collected using a ponar. Except for the surface interval, each sampling interval was at least 12 inches long. If less than 12 inches of sediment was encountered in the bottom interval, it typically was included with the previous interval. Sediment collected from each sampling depth interval was homogenized, and an aliquot of each sediment sample was submitted for laboratory analysis. Sediment cores typically were collected from a 20-foot, pontoon boat-mounted vibracoring system to refusal or until native material was encountered.

A U.S. EPA Contract Laboratory Program (CLP) laboratory analyzed the samples for SVOCs, PAHs (extended list 34), TAL metals (including mercury), PCB Aroclors, and % moisture. A

WESTON-procured subcontracted laboratory, ALS Environmental, analyzed the samples for DRO and ORO, grain size, and TOC. **Table 2-2** provides a sampling and analysis summary. Section 3 discusses the sample analytical results.

2.2 SEDIMENT CHARACTERIZATION

During the site characterization activities, sediment throughout the Swan Creek project area largely was uniform. Sediment was generally dark-brown to black silt or sandy silt with trace fine- to medium-grained sand. Silty clay was observed in several cores from the eastern reach of the project area. Occasional sand and gravel layers were noted but were not representative of the general sediment sequence. Trace organics were observed throughout much of the top 24 inches of sediment.

The average water depth across the project area was 3.5 feet. The minimum water depth encountered during sediment sampling was 0.5 foot. The maximum water depth encountered during sediment sampling was 8.5 feet.

During sediment sampling activities, the average sediment depth was 36 inches. The minimum sediment depth was 6 inches, and the maximum sediment depth was 71 inches. **Figure 2-2** shows the sediment thickness recovered at each core location during the sediment sampling activities.

3. SAMPLE ANALYTICAL RESULTS

This section summarizes analytical results for the site characterization samples collected from August 1 through 6, 2011. A total of 100 sediment samples (91 investigative, 4 field split, and 5 duplicate samples) were collected from 35 sampling locations in the Swan Creek project area. The table below summarizes the analytical parameters for the investigative samples collected.

Analysis	Sampling Depth (inches bss)			
	0 - 6	6 - 24	24 - 48	48 - 72
SVOCs	35	33	20	3
PAHs (extended list 34)	9	3	0	0
TAL Metals	35	33	20	3
PCB Aroclors	9	3	0	0
DRO	35	33	20	3
ORO	35	33	20	3
Grain Size	33	32	20	3
TOC	35	33	20	3

The sample results for SVOCs, PAHs (extended list 34), TAL metals (including mercury), and PCBs were compared to Probable Effect Concentrations (PEC) set forth in the document "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (by D.D. MacDonald, et. al., dated 2000). The metal results were also compared to Ohio-specific Sediment Reference Values (SRV) set forth in the "Ohio Ecological Risk Assessment Guidance Document" dated February 2003 and revised in April 2008. Ecological Screening Levels (ESL) for sediment set forth in U.S. EPA Region 5's "Ecological Screening Levels" dated 2003 are also presented as a secondary source of screening criteria.

The PECs and ESLs provide screening criteria to evaluate sediment chemistry data. PECs are defined as concentrations above which adverse effects are expected to occur and are the primary screening criteria for this characterization project. The ESLs represent a protective benchmark (for example, water quality criteria, sediment quality guidelines and criteria, and chronic no adverse effect levels) and are the secondary screening criteria. Sample results are compared to ESLs for chemicals that do not have a developed PEC. The Ohio-specific SRVs were developed to identify representative background sediment concentrations for lotic (flowing) water bodies. The SRVs may be used in conjunction with or instead of generating site-specific background concentrations to determine if sediment potentially has been impacted. The SRVs are used as a screening tool for sites that have identified potential sediment contamination in lotic water bodies. Metals concentrations are compared to SRVs for chemicals that do not have a developed PEC.

Tables 3-1, 3-2, 3-3, 3-4, and **3-5** summarize the analytical results for SVOCs, PAHs (extended list 34), TAL metals, PCBs, and DRO and ORO, respectively, by sediment depth interval. These tables include the number of samples analyzed per depth interval, the number and percent of detected results, the minimum and maximum detected concentrations, screening criteria, and the number of samples exceeding the screening criteria. **Appendix A** presents tables of the complete analytical results compared to PECs. The **Appendix A** tables summarize the sample results for % moisture, TOC, and grain size but do not compare these results to numerical screening criteria. **Appendix B** provides a photographic log of sampling activities.

The sections below compare the analytical data to the screening levels, when available, for SVOCs, PAHs (extended list 34), TAL metals, PCBs, DRO and ORO, and physical properties.

3.1 SVOCs

A total of 100 (91 investigative, 4 field split, and 5 duplicate) sediment samples were analyzed for SVOCs. **Table 3-1** summarizes the analytical results for SVOCs by sediment depth sampling interval. **Table A-1** of **Appendix A** provides the complete analytical results. The table below lists the 23 SVOCs detected in the sediment samples.

SVOCs Detected in Sediment Samples	
1,1'-Biphenyl	Carbazole
2,6-Dinitrotoluene	Chrysene
2-Methylnaphthalene	Dibenzo(a,h)anthracene
Acenaphthene	Dibenzofuran
Acenaphthylene	Di-n-octylphthalate
Anthracene	Fluoranthene
Benzo(a)anthracene	Fluorene
Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene
Benzo(b)fluoranthene	Naphthalene
Benzo(g,h,i)perylene	Phenanthrene
Benzo(k)fluoranthene	Pyrene
Bis(2-ethylhexyl)phthalate	

Of the 23 SVOCs detected, the following SVOCs were detected at concentrations that exceeded their respective PECs: anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene.

A total PAH 17 concentration was calculated for each sample by summing the concentration of each detected PAH in addition to all non-detect concentrations at one-half the detection limit for comparison to the total PAH PEC. **Figure 3-1** shows the locations where total PAH results exceeded the PEC of 22,800 micrograms per kilogram (µg/kg). Total PAH 17 and individual PAH concentrations exceeded the PECs in samples collected from all 35 sampling locations from 0 to 6 inches bss except at locations: SC02-01LB (field duplicate), SC05-01RA (instigative and field split), SC07-01LA, SC07-01R, and SC1001LC (investigative and field split). Total PAH 17 and individual PAH concentrations exceeded the PECs in all 33 samples collected from 6 to 24 inches bss except at locations: SC03-01RB-032, SC05-01RA-026, SC16-01RA-026, and SC19-01R-17. Total PAH 17 and individual PAH concentrations exceeded the PECs in all 20 samples collected from 24 to 48 inches bss except at location SC07-01R-040. Total PAH 17 and individual PAH concentrations exceeded the PECs in all three samples collected from 48 to 72 inches bss.

PECs have not been developed for the following detected chemicals that are not PAHs: 1,1'-biphenyl, 2,6-dinitrotoluene, bis(2-ethylhexyl)phthalate, carbazole, dibenzofuran, and di-n-octylphthalate. ESLs are available for comparison for all of these chemicals except 1,1-biphenyl and carbazole. The SVOCs 2,6-dinitrotoluene, bis(2-ethylhexyl)phthalate, and dibenzofuran were detected at concentrations exceeding their ESLs in every sample in which they were detected. Di-n-octylphthalate was detected in only one sample, and its concentration did not exceed the ESL.

3.2 PAHs (EXTENDED LIST 34)

A total of 12 (9 investigative, 2 field split, and 1 duplicate) sediment samples were analyzed for PAHs (extended list 34). These samples were collected from seven sampling locations. **Table 3-2** summarizes the analytical results for PAHs by sediment depth sampling interval. **Table A-2** of **Appendix A** provides the complete analytical results. All of the parent PAHs and some of the extended list PAHs (homologs) were detected in the sediment samples. The table below lists the PAHs detected in the sediment samples.

PAHs Detected in Sediment Samples	
Acenaphthene	C2-Phenanthrenes/anthracenes
Acenaphthylene	C3-Naphthalenes
Anthracene	C3-Phenanthrenes/anthracenes
Benzo(e)pyrene	C4-Naphthalenes
Benzo(a)anthracene	C4-Phenanthrenes/anthracenes
Benzo(a)pyrene	Chrysene
Benzo(b)fluoranthene	Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene	Fluorene
Benzo(k)fluoranthene	Fluoranthene
C1-Chrysenes	Indeno(1,2,3-cd)pyrene
C1-Fluoranthenes/pyrenes	Naphthalene
C1-Naphthalenes	Perylene
C1-Phenanthrenes/anthracenes	Phenanthrene
C2-Naphthalenes	Pyrene

Of the 28 PAHs detected, the following PAHs were detected at concentrations that exceeded their respective PECs: anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. PECs have not been established for the individual PAH homologs.

A total PAH (extended list 34) concentration was calculated for each sample by summing the concentration of each detected PAH in addition to all non-detect concentrations at one-half the detection limit for comparison to the total PAH PEC. **Figure 3-1** shows the locations where total PAH results exceeded the PEC of 22,800 µg/kg. Results for six of the nine samples collected from 0 to 6 inches bss and all three samples collected from 6 to 24 inches bss exceeded the total PAH PEC. These locations are consistent with locations where sample concentrations exceeded the total PAH PEC determined using the PAH 17 list of compounds.

3.3 TAL METALS

A total of 100 (91 investigative, 4 field split, and 5 duplicate) sediment samples were analyzed for TAL metals. **Table 3-3** summarizes the analytical results for TAL metals by sediment depth sampling interval. **Table A-3** of **Appendix A** provides the complete analytical results. The table below lists the 21 TAL metals detected in the sediment samples.

TAL Metals Detected in Sediment Samples	
Aluminum	Lead
Antimony	Magnesium
Arsenic	Manganese
Barium	Mercury
Beryllium	Nickel
Cadmium	Potassium
Calcium	Silver
Chromium	Sodium
Cobalt	Vanadium
Copper	Zinc
Iron	

Selenium and thallium were the only analytes on the TAL metals list not detected in at least one sediment sample. Of the 21 TAL metals detected, the following 8 were detected at concentrations exceeding the PEC in at least one sample: arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc. **Figure 3-2** shows the locations where TAL metals results exceeded the PECs. Metals concentrations exceeded the PECs in samples collected throughout the investigation area, primarily in samples from 6 to 24 inches bss but also noted in 0 to 6 inches bss and 24 to 48 inches bss.

PECs have not been developed for the following metals: aluminum, antimony, barium, beryllium, calcium, cobalt, iron, magnesium, manganese, potassium, selenium, silver, sodium, thallium, and vanadium. Ohio-specific SRVs representing background sediment concentrations for lotic (flowing) water bodies are available for the following TAL metals without PECs: aluminum, antimony, barium, calcium, iron, magnesium, manganese, potassium, and selenium. **Figure 3-3** shows the locations where TAL metals results exceeded their respective SRVs. Samples whose results exceeded the SRVs all were collected from between transects 6 and 12.

3.4 PCBs

A total of 12 (9 investigative, 2 field split, and 1 duplicate) sediment samples were analyzed for PCB Aroclors. These samples were collected from seven sampling locations. **Table 3-4** summarizes the analytical results for PCBs by sediment depth sampling interval. **Table A-4** of **Appendix A** provides the complete analytical results. Aroclor 1242 was the only Aroclor

detected. A total PCB concentration was calculated for each sample by summing the concentration of each detected PCB for comparison to the total PCB PEC. **Figure 3-4** shows the locations where total PCB results exceeded the PEC of 676 µg/kg. Results for three of the seven locations sampled exceeded the PEC at one or more depth interval. The locations where sampling results exceeded the PEC are spread out across Swan Creek (SC05-01RA-006 and SC05-01RA-026, SC10-01LC-006, and SC19-01MA-024). Due to the limited data set and spatial variance in concentrations, it is difficult to draw conclusions regarding extent of PCB contamination.

3.5 TPH as DRO AND ORO

A total of 100 (91 investigative, 4 field split, and 5 duplicate) sediment samples were analyzed for total petroleum hydrocarbon DRO and ORO. **Table 3-5** summarizes the analytical results for DRO and ORO by sediment depth sampling interval. **Table A-5** of **Appendix A** provides the complete analytical results. **Figure 3-5** shows the DRO sampling results, and **Figure 3-6** shows the ORO sampling results. TPH as DRO corresponded to an alkaline range of C_{10} through C_{28}. DRO was detected in 88 sediment samples at concentrations ranging from 15 to 8,800 milligrams per kilogram (mg/kg). The highest DRO concentration was detected at sediment sampling location SC01-01RA-006. TPH as ORO corresponded to an alkaline range of C_{28} through C_{36}. ORO was detected in 97 sediment samples at concentrations ranging from 190 to 12,000 mg/kg. The highest ORO concentration was detected at sediment sampling location SC01-01RB-027. Sampling locations SC01-01RA and SC01-01RB are the two furthest upstream sampling locations in the Swan Creek project area. ORO and DRO concentrations in the Swan Creek project area may be attributed to upstream sources of contamination.

3.6 PHYSICAL PROPERTIES

A total of 97 (91 investigative, 4 field split, and 2 duplicate) sediment samples were analyzed for grain size. Duplicate samples were not proposed for grain size analysis. However, two duplicate samples inadvertently were analyzed for grain size. The grain size geotechnical results indicate that the material sampled consisted of a mixture of fine sand, with little medium sand, silt, and

clay. Trace amounts of gravel and coarse sand also were present. The average composition was 50% fine sand, 22% silt and clay, 19% medium sand, 6% gravel, and 3% coarse sand.

A total of 100 (91 investigative, 4 field split, and 5 duplicate) sediment samples were analyzed for TOC. **Table A-6** of **Appendix A** provides the complete analytical results for TOC and grain size.

4. HABITAT ASSESSMENT

During the week of August 1, 2011, a preliminary habitat assessment was conducted on the lower portion of Swan Creek. This assessment was performed to determine the quality of habitat within the river and riparian zones and to determine where habitat can be created or improved. A total of six stations between the South Hawley Street Bridge (River Mile 2.6) and the confluence with the Maumee River (River Mile 0.0) were used to assess the river and riparian habitat. **Figure 4-1** presents the 6 habitat assessment stations. The locations were 1,500 to 2,300 feet apart and named in correlation with the proposed sampling transect. The table below lists the latitude and longitude coordinates for these stations recorded in the field using a Trimble® PRO-XRT global positioning system (GPS) unit.

Station No.	Latitude	Longitude
2	41° 38'10.62" N	83° 33'53.95" W
5	41° 38'29.79" N	83° 33'46.96" W
8	41° 38'26.90" N	83° 33'32.51" W
11	41° 38'32.67" N	83° 33'08.67" W
15	41° 38'37.01" N	83° 32'38.00" W
18	41° 38'44.67" N	83 32'14.46" °W

The habitat assessment methods and results are discussed below.

4.1 METHODS

The study area was surveyed using a 14-foot-long, v-bottom aluminum boat with a 9.9-horsepower motor. The riverine and riparian habitats were assessed in accordance with OEPA's

"Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI)."

The QHEI stream habitat assessment relies on visual characterizations of stream features in order to categorize the quality of these features as either poor, marginal, suboptimal, or optimal. The QHEI uses numerical scores to rate various aspects of habitat, including substrate, instream cover, channel morphology, bank erosion, riparian vegetation and use, pool/glide/riffle quality, and gradient. The habitat aspects are scored according to individual metrics provided on the QHEI data sheets. An overall QHEI score is obtained by summing the habitat aspect scores, with a maximum value of 100. The QHEI also has additional non-scored categories for more description of the sampling station, including the methods used for the assessment (by boat, wading, etc.), the distance of the stream used to complete the data sheet, canopy cover in percent, river stage, water clarity, aesthetics, maintenance (flood control, impoundment, armoring, etc.), issues (industry, landfills, construction, etc.), and physical measurements (width, depth, etc.).

Average water depth was determined using a HawkEye® CE handheld digital sonar instrument. Water clarity was determined using secchi disks. Stream canopy cover was measured using a Lemmon Model A spherical densiometer. The substrate type was determined by collecting a ponar grab sample because the water depth and limited water clarity prevented visual observation of the substrate. Water quality measurements (temperature, dissolved oxygen [DO], pH, conductivity, and oxidation reduction potential [ORP]) were recorded at each station using a YSI® Model 556 water quality meter. The table below summarizes the water quality measurements, which showed no extreme values and were within normally expected ranges.

Station No.	Temperature (degrees Celsius)	DO (milligrams per liter)	Conductivity (microSiemens per centimeter)	pH (standard units)	ORP (millivolts)	Secchi depth (centimeters)
2	9.9	10.25	1,313	7.5	107.4	100
5	10.1	9.66	1,179	7.3	145.9	100
8	11.3	6.86	957	7.5	46.0	80
11	11.1	5.82	935	7.5	95.1	100
15	10.9	4.59	914	7.4	63.0	80
18	11.8	8.75	759	7.7	130.4	80
Average	**10.9**	**7.66**	**1,010**	**7.5**	**98.0**	**90**

Appendix C provides the QHEI data sheets for the six stations. A sketch of the area surrounding each station was drawn in the space provided on the data sheet, with the approximate location of the sampling station shown on each sketch.

4.2 RESULTS

The study area of the river was considered to be a single reach because the habitat at all six sampling stations was similar in character. The table below summarizes the QHEI scores for the sampling stations (the maximum score available for each category is show in parenthesis).

Station No.	Substrate (20)	Instream Cover (20)	Channel Morphology (20)	Bank Erosion and Riparian Zone (10)	Pool/Glide Quality (12)	Riffle/Run Quality (8)	Gradient (10	QHEI Score (100)
2	2	5	6	7	8	0	2	**30**
5	2	9	7	7	8	0	2	**35**
8	13	9	7	7	8	0	2	**46**
11	9	8	7	6	8	0	2	**40**
15	15	8	7	6.5	8	0	2	**46.5**
18	2	8	6	6.5	8	0	2	**32.5**
Average	**7.2**	**7.8**	**6.7**	**6.7**	**8**	**0**	**2**	**38.3**

The average overall QHEI score for the study area was 38.3. Scores ranged from 30 at Station No. 2 to 46.5 at Station No. 15.

Substrates within the study area consisted of sand, hardpan clay, detritus, silt, and artificial (broken concrete). No embeddedness was observed. Silt was lacking or normal at all stations except Station No. 11 (moderate). QHEI scores for the substrate ranged from 2 to 15, averaging 7.2 out of a possible 20.

Instream cover was sparse at all stations within the study area and consisted of undercut banks (Station No. 2), overhanging vegetation, shallows in slow water, rootmats, deep pools (greater than 70 centimeters), and coarse woody debris. QHEI scores for instream cover ranged from 5 to 9, averaging 7.8 out of a possible 20.

Channel morphology was poor within the study area, with low to no sinuosity and poor development. The entire study area was channelized, with high stability. QHEI scores for channel morphology ranged from 6 to 7 out of a possible 20.

No bank erosion was observed within the study area. Riparian width was considered very narrow (less than 5 meters), and floodplains consisted of forested areas or areas with shrubs. QHEI scores for bank erosion and riparian zone ranged from 6 to 7 out of a possible 10.

Pool and glide quality was relatively good within the study area. Water depths exceeded 1 meter, pool widths were greater than riffle widths, and moderate currents were noted. QHEI scores for pool and glide quality consistently were 8 out of a possible 12. No riffles were present at any of the sampling stations within this reach, resulting in a score of 0 for riffle quality. Gradient was very low for all sampling stations, resulting in a score of 2 out of a possible 10 for gradient quality.

Non-scored measurements for the study area are summarized below.

- Canopy cover ranged from greater than 85% open at Stations No. 11 and 18 to less than 30% open (greater than 70% canopy cover) at Stations No. 2 and 5.
- Secchi disk depth ranged from 3.3 feet (100 centimeters) to 2.6 feet (80 centimeters), averaging 2.9 feet (90 centimeters).
- Water depth averaged 7 to 10 feet.
- Temperature ranged from 9.9 to 11.8 degrees Celsius.
- DO readings ranged from 4.59 to 10.25 milligrams per liter.
- Conductivity ranged from 759 to 1,313 microSiemens per centimeter.
- pH readings ranged from 7.3 to 7.7 standard units.
- ORP readings ranged from 46.0 to 145.9 millivolts.

Problems with aesthetics included nuisance odor (Station No. 15), trash and litter (all stations except Station No. 8), foam or scum (Stations No. 15 and 18), oil sheen (Station No. 15), and outfalls (Stations No. 8 and 15). Observed maintenance was public (rip-rap) and historic. Issues included industrial and urban areas.

4.3 HABITAT ASSESSMENT SUMMARY

According to the QHEI manual, the overall average QHEI score for the study area is considered to be in the "poor" range for large streams. The highest scores were 46 for Station No. 8 and 46.5 for Station No. 15. These scores are in the "fair" range according to the QHEI manual. All other stations had "poor" ratings.

Generally, low QHEI scores were due to the following:

- Lack of instream cover for habitat
- Lack of diversity in substrate types at some stations
- Lack of sinuosity and development in channel morphology largely resulting from channelization
- Very narrow riparian zones
- Lack of riffle habitat at all stations

5. DATA COMPLETENESS

Data validation summaries were produced for each chemical analyte group. Data generated through the U.S. EPA CLP underwent an initial performance assessment and compliance screening check performed and uploaded by the Sample Management Office (SMO) to the Electronic Data Exchange and Evaluation System (EXES) website. These checks were conducted to confirm conformance with the U.S. EPA CLP National Functional Guidelines (NFG). After this assessment, Shaw Environmental and Infrastructure Inc. (Shaw), under subcontract to GLNPO, completed validation of the data generated by the U.S. EPA CLP (for SVOCs, PAHs [extended list 34], TAL metals [including mercury], PCB Aroclors, and % moisture). Shaw performed Tier 2 validation on 5 to 10% of the sample data and Tier 1 validation on the remaining 90 to 95% of the data.

During the validation process, Shaw may have removed data qualifiers for following reasons:

- The EXES Software often J or R flag analytical results for temperature more precisely than U.S. CLP NFG standards. Data flags may have been removed in some instances where temperature was not out of range, but the software indicated it was.

- EXES generated flags may have been removed by validators because EXES does not decipher between multiple columns/calibrations.

- U.S. CLP NFG does not qualify for matrix spikes; EXES qualifies for spikes based on R2 guidance. Validation was conducted following U.S. EPA CLP NFGs and some flags may have been removed by the validator.

- Relative percent difference (RPD) over 40 are noted by validators and flagged with the dataset.

Data received from the subcontracted laboratory (ALS Environmental) for all parameters except grain size were run through the Automated Data Review (ADR) checker. WESTON completed a 5% full manual data validation for all analyses conducted by the WESTON-procured subcontractor laboratory (grain size, TOC, and DRO and ORO). The following are the general guidelines used for the data validation:

- NFGs for Superfund Organics Methods Data Review, U.S. EPA, June 2008
- NFGs for Inorganics Superfund Method Data Review, U.S. EPA, January 2010

Data not covered in the NFGs were compared to applicable analytical method guidelines, the laboratory standard operating procedures (SOP), and guidelines described in the WESTON QAPP dated July 2011.

The data validation consisted of completing the GLNPO Quality Assurance/Quality Control (QA/QC) 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 (as applicable)
  - Holding times
  - Method blanks
  - Matrix spike/matrix spike duplicates
  - Surrogates
  - Calibration
  - Laboratory control samples
  - Laboratory duplicates
  - Field duplicate results

- Data quality indicator review
  - Sensitivity
  - Precision
  - Accuracy
  - Completeness

All data validation summaries and the site database will be submitted to GLNPO under separate cover along with all of the Shaw and WESTON Data Validation Summaries for inclusion into GLNPO's GLSED.

6. SUMMARY

During the sediment investigation, a total of 100 sediment samples (including field split and duplicate samples) were collected from 35 sampling locations in the Swan Creek project area. Where sediment recovery was adequate, samples typically were collected from the following intervals: 0 to 6, 6 to 24, 24 to 48, and 48 to 72 inches bss.

All sediment samples were analyzed for the COPCs SVOCs, TAL metals (including mercury), and DRO and ORO. In addition, approximately 10% of all sediment samples collected were analyzed for PAHs (extended list 34) and PCB Aroclors. All sediment samples also were analyzed for physical properties, including % moisture, TOC, and grain size.

The sample results for SVOCs, metals (including mercury), and PCBs were compared to PECs set forth in the document "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (by D.D. MacDonald, et. al., dated 2000). The metals results were also compared to Ohio-specific SRVs set forth in the "Ohio Ecological Risk Assessment Guidance Document" dated February 2003, revised April 2008. ESLs for sediment as set forth in U.S. EPA Region 5's "Ecological Screening Levels" dated 2003 were presented as a secondary source of screening criteria for chemicals that do not have a developed PEC.

The PECs and ESLs provide screening criteria to evaluate sediment chemistry data. PECs are defined as concentrations above which adverse effects are expected to occur and are the primary screening criteria for this characterization project. The ESLs represent a protective benchmark

(for example, water quality criteria, sediment quality guidelines and criteria, and chronic no adverse effect levels) and are the secondary screening criteria. The Ohio-specific SRVs were developed to identify representative background sediment concentrations for lotic (flowing) water bodies.

The sections below compare the analytical data to the screening levels, when available, for SVOCs, PAHs (extended list 34), TAL metals (including mercury), PCBs, and DRO and ORO.

6.1 SVOCs

Of the SVOCs detected, the following were detected at concentrations exceeding the PECs: anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. A total PAH 17 concentration was calculated for each sample. Total PAH 17 and individual PAH concentrations exceeded the PECs in samples collected from all 35 sampling locations from 0 to 6 inches bss except at locations: SC02-01LB (field duplicate), SC05-01RA (instigative and field split), SC07-01LA, SC07-01R, and SC1001LC (investigative and field split). Total PAH 17 and individual PAH concentrations exceeded the PECs in all 33 samples collected from 6 to 24 inches bss except at locations: SC03-01RB-032, SC05-01RA-026, SC16-01RA-026, and SC19-01R-17. Total PAH 17 and individual PAH concentrations exceeded the PECs in all 20 samples collected from 24 to 48 inches bss except at location SC07-01R-040. Total PAH 17 and individual PAH concentrations exceeded the PECs in all three samples collected from 48 to 72 inches bss.

6.2 PAHs (EXTENDED LIST 34)

Of the PAHs detected, the following PAHs were detected at concentrations that exceeded their respective PECs: anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. PECs have not been established for the PAH homologs. A total PAH (extended list 34) concentration was calculated for each sample. Results for six of the nine samples collected from 0 to 6 inches bss and all three samples collected from 6 to 24 inches bss exceeded the total PAH PEC. These locations are consistent

with locations where sample concentrations exceeded the total PAH PEC determined using the PAH 17 list of compounds.

6.3 TAL METALS

Metals exceeding PECs were noted throughout the investigation area. Selenium and thallium were the only analytes on the TAL metals list not detected in at least one sediment sample. The following TAL metals were detected at concentrations exceeding their respective PECs in at least one sample: arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc. Metals concentrations exceeded the PECs in samples collected throughout the investigation area, primarily in samples from 6 to 24 inches bss but also noted in 0 to 6 inches bss and 24 to 48 inches bss.

6.4 PCBs

Aroclor 1242 was the only Aroclor detected. A total PCB concentration was calculated for each sample by summing the concentration of each detected PCB. Total PCB concentrations at three of the seven locations sampled exceeded the PEC at one or more depth interval. The locations where sampling results exceeded the PEC are spread out across Swan Creek (SC05-01RA-006 and SC05-01RA-026, SC10-01LC-006, and SC19-01MA-024). PCBs were not originally identified as major contaminants of concern. Due to the limited data set and spatial variance in concentrations, it is difficult to draw conclusions regarding extent of PCB contamination. More sampling may be needed to identify the nature and extent of PCB contamination.

6.5 TPH as DRO AND ORO

DRO was detected in 88 sediment samples at concentrations ranging from 15 to 8,800 mg/kg. The highest DRO concentration was detected at sediment sampling location SC01-01RA-006. ORO was detected in 97 sediment samples at concentrations ranging from 190 to 12,000 mg/kg. The highest ORO concentration was detected at sediment sampling location SC01-01RB-027. Sampling locations SC01-01RA and SC01-01RB are the two furthest upstream sampling locations in the Swan Creek project area.

7. NEXT STEPS

The purpose of the Swan Creek GLLA project is to further define chemical contaminants in sediment, locate contaminated areas for additional evaluation, delineate hot spots, and attempt to identify any ongoing sources. The objective of this site characterization was to collect samples for chemical and physical properties analysis needed to support project area assessment and potential remediation activities.

The data gaps and recommendations for future work to meet the objectives of the GLLA project are as follows:

- Delineate hot spots of contamination and determine the nature and extent of PAH, PCB, and metal contamination in the Swan Creek project area.
- Identify any on-going sources of contamination.
- Estimate the bioavailability of contaminants of concern using Equilibrium Partitioning Sediment Benchmarks (ESBs) and determine ESB Toxic Units (ESBTU).
- Where bioaccumulative chemicals are present in sediment, it may be necessary to evaluate fish tissue and/or water column data in addition to sediment data in order to determine appropriate sediment management options.
- Evaluate metal toxicity through an indirect estimate of bioavailability based on concentrations of Simultaneously Extracted Metals (SEM).
- Estimate the volume of contaminated sediments.

TABLES

Table 2-1
Sampling Location Coordinates
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Location ID	Latitude (D M.m)	Longitude (D M.m)
SC01-01RA	41.63656441	-83.56676868
SC01-01RB	41.63619484	-83.56527541
SC02-01LA	41.63699063	-83.56367736
SC02-01LB	41.63753052	-83.56303235
SC03-01LA	41.63861199	-83.56222915
SC03-01RB	41.63918334	-83.56191862
SC05-01RA	41.64248246	-83.56351537
SC06-01RA	41.64268348	-83.56172599
SC06-01RB	41.64231337	-83.56144591
SC07-01R	41.64197356	-83.5610999
SC07-01LA	41.64130824	-83.56016074
SC08-01LB	41.6408813	-83.55883687
SC08-01LA	41.64133873	-83.55793176
SC09-01RB	41.64062424	-83.55613741
SC09-01LA	41.64061343	-83.55524235
SC10-01LC	41.64109608	-83.55462626
SC10-01LB	41.64162599	-83.55403594
SC10-01RA	41.6420133	-83.55302081
SC11-01L	41.64254631	-83.55237445
SC12-01R	41.64267	-83.55163
SC12-01LA	41.64291933	-83.54888989
SC12-01RB	41.64230954	-83.54798218
SC13-01M	41.64226791	-83.54759544
SC13-01RA	41.64172059	-83.54595282
SC14-01L	41.64217406	-83.54519166
SC16-01RA	41.64434	-83.54307
SC15-01RB	41.64463902	-83.54225809
SC16-01R	41.64452071	-83.54187571
SC18-01R1	41.64682	-83.53628
SC19-01R	41.64707015	-83.5358809
SC19-01MB	41.64784423	-83.53462216
SC19-01MA	41.64807504	-83.53406292
SC20-01R	41.64783134	-83.53369988
SC20-01M	41.6481661	-83.53359959
SC20-01L	41.64849923	-83.53339201

Notes:
D M.m - Degrees, decimal minutes
ID - Identification

Table 2-2
Sampling and Analyses Summary
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Location ID	Field Sample ID	Sample Collection Device	Depth (inches bss)	Sampling Date	Analyses						
					SVOCs	PAH 34	TAL Metals	PCB Aroclors	DRO and ORO	Grain Size	TOC
SC13-01M	SC13-01M-006	Ponar	0 - 6	8/1/2011	X		X		X	X	X
SC13-01RA	SC13-01RA-006	Ponar	0 - 6	8/1/2011	X	X	X	X	X	X	X
	SC13-01RA-006DP	Ponar	0 - 6	8/1/2011	X	X	X	X	X		X
	SC13-01RA-024	Vibracore	6 - 24	8/1/2011	X		X		X	X	X
	SC13-01RA-037	Vibracore	24 - 37	8/1/2011	X		X		X	X	X
SC14-01L	SC14-01L-006	Ponar	0 - 6	8/1/2011	X		X		X	X	X
	SC14-01L-024	Vibracore	6 - 24	8/1/2011	X		X		X	X	X
	SC14-01L-040	Vibracore	24 - 40	8/1/2011	X		X		X	X	X
SC16-01R	SC16-01R-006	Ponar	0 - 6	8/1/2011	X		X		X	X	X
	SC16-01R-024	Vibracore	6 - 24	8/1/2011	X		X		X	X	X
	SC16-01R-024FS	Vibracore	6 - 24	8/1/2011	X		X		X	X	X
	SC16-01R-053	Vibracore	24 - 53	8/1/2011	X		X		X	X	X
SC16-01RA	SC16-01RA-006	Ponar	0 - 6	8/1/2011	X		X		X	X	X
	SC16-01RA-026	Vibracore	6 - 26	8/1/2011	X		X		X	X	X
SC19-01R	SC19-01R-006	Ponar	0 - 6	8/1/2011	X	X	X	X	X	X	X
	SC19-01R-017	Vibracore	6 - 17	8/1/2011	X		X		X	X	X
SC09-01LA	SC09-01LA-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC09-01LA-026	Vibracore	6 - 26	8/2/2011	X		X		X	X	X
SC09-01RB	SC09-01RB-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC09-01RB-032	Vibracore	6 - 32	8/2/2011	X		X		X	X	X
SC10-01LB	SC10-01LB-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC10-01LB-024	Vibracore	6 - 24	8/2/2011	X		X		X	X	X
	SC10-01LB-051	Vibracore	24 - 51	8/2/2011	X		X		X	X	X
SC10-01LC	SC10-01LC-006	Ponar	0 - 6	8/2/2011	X	X	X	X	X	X	X
	SC10-01LC-006FS	Ponar	0 - 6	8/2/2011	X	X	X	X	X	X	X
	SC10-01LC-024	Vibracore	6 - 24	8/2/2011	X		X		X	X	X
	SC10-01LC-039	Vibracore	24 - 39	8/2/2011	X		X		X	X	X
SC10-01RA	SC10-01RA-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC10-01RA-024	Vibracore	6 - 24	8/2/2011	X		X		X	X	X
	SC10-01RA-050	Vibracore	24 - 50	8/2/2011	X		X		X	X	X
SC11-01L	SC11-01L-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC11-01L-024	Vibracore	6 - 24	8/2/2011	X		X		X	X	X
	SC11-01L-051	Vibracore	24 - 51	8/2/2011	X		X		X	X	X
SC12-01LA	SC12-01LA-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC12-01LA-024	Vibracore	6 - 24	8/2/2011	X		X		X	X	X
	SC12-01LA-034	Vibracore	24 - 34	8/2/2011	X		X		X	X	X
SC12-01R	SC12-01R-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC12-01R-030	Vibracore	6 - 30	8/2/2011	X		X		X	X	X
SC12-01RB	SC12-01RB-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC12-01RB-024	Vibracore	6 - 24	8/2/2011	X		X		X	X	X
	SC12-01RB-033	Vibracore	24 - 33	8/2/2011	X		X		X	X	X
SC20-01L	SC20-01L-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC20-01L-033	Vibracore	6 - 33	8/2/2011	X		X		X	X	X
SC20-01M	SC20-01M-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC20-01M-024	Vibracore	6 - 24	8/2/2011	X		X		X	X	X
	SC20-01M-048	Vibracore	24 - 48	8/2/2011	X		X		X	X	X
	SC20-01M-068	Vibracore	48 - 68	8/2/2011	X		X		X	X	X
SC20-01R	SC20-01R-006	Ponar	0 - 6	8/2/2011	X		X		X	X	X
	SC20-01R-025	Vibracore	6 - 25	8/2/2011	X		X		X	X	X
SC07-01LA	SC07-01LA-006	Ponar	0 - 6	8/3/2011	X	X	X	X	X	X	X
	SC07-01LA-025	Vibracore	6 - 25	8/3/2011	X		X		X	X	X
SC07-01R	SC07-01R-006	Ponar	0 - 6	8/3/2011	X		X		X	X	X
	SC07-01R-024	Vibracore	6 - 24	8/3/2011	X		X		X	X	X
	SC07-01R-040	Vibracore	24 - 40	8/3/2011	X		X		X	X	X

Table 2-2
Sampling and Analyses Summary
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Location ID	Field Sample ID	Sample Collection Device	Depth (inches bss)	Sampling Date	Analyses						
					SVOCs	PAH 34	TAL Metals	PCB Aroclors	DRO and ORO	Grain Size	TOC
SC15-01RB	SC15-01RB-006	Ponar	0 - 6	8/3/2011	X		X		X	X	X
	SC15-01RB-024	Vibracore	6 - 24	8/3/2011	X		X		X	X	X
	SC15-01RB-035	Vibracore	24 - 35	8/3/2011	X		X		X	X	X
SC18-01R1	SC18-01R1-006	Ponar	0 - 6	8/3/2011	X		X		X	X	X
	SC18-01R1-024	Vibracore	6 - 24	8/3/2011	X		X		X	X	X
	SC18-01R1-048	Vibracore	24 - 48	8/3/2011	X		X		X	X	X
SC08-01LA	SC08-01LA-006	Ponar	0 - 6	8/4/2011	X		X		X	X	X
	SC08-01LA-006DP	Ponar	0 - 6	8/4/2011	X		X		X	X	X
	SC08-01LA-024	Vibracore	6 - 24	8/4/2011	X		X		X	X	X
	SC08-01LA-024DP	Vibracore	6 - 24	8/4/2011	X		X		X		X
	SC08-01LA-034	Vibracore	24 - 34	8/4/2011	X		X		X	X	X
SC08-01LB	SC08-01LB-006	Ponar	0 - 6	8/4/2011	X		X		X	X	X
	SC08-01LB-024	Vibracore	6 - 24	8/4/2011	X		X		X	X	X
	SC08-01LB-054	Vibracore	24 - 54	8/4/2011	X		X		X	X	X
SC19-01MA	SC19-01MA-006	Ponar	0 - 6	8/4/2011	X		X		X	X	X
	SC19-01MA-024	Vibracore	6 - 24	8/4/2011	X	X	X	X	X	X	X
	SC19-01MA-048	Vibracore	24 - 48	8/4/2011	X		X		X	X	X
	SC19-01MA-071	Vibracore	48 - 71	8/4/2011	X		X		X	X	X
SC19-01MB	SC19-01MB-006	Ponar	0 - 6	8/4/2011	X		X		X	X	X
	SC19-01MB-006FS	Ponar	0 - 6	8/4/2011	X		X		X	X	X
	SC19-01MB-024	Vibracore	6 - 24	8/4/2011	X		X		X	X	X
	SC19-01MB-048	Vibracore	24 - 48	8/4/2011	X		X		X	X	X
	SC19-01MB-064	Vibracore	48 - 64	8/4/2011	X		X		X	X	X
SC01-01RA	SC01-01RA-006	Ponar	0 - 6	8/5/2011	X	X	X	X	X	X	X
	SC01-01RA-006DP	Ponar	0 - 6	8/5/2011	X		X		X	X	X
	SC01-01RA-024	Vibracore	6 - 24	8/5/2011	X	X	X	X	X	X	X
SC01-01RB	SC01-01RB-006	Ponar	0 - 6	8/5/2011	X		X		X	X	X
	SC01-01RB-027	Vibracore	6 - 27	8/5/2011	X		X		X	X	X
SC02-01LA	SC02-01LA-006	Ponar	0 - 6	8/5/2011	X		X		X	X	X
	SC02-01LA-024	Vibracore	6 - 24	8/5/2011	X		X		X	X	X
	SC02-01LA-032	Vibracore	24 - 32	8/5/2011	X		X		X	X	X
SC03-01LA	SC03-01LA-006	Ponar	0 - 6	8/5/2011	X		X		X	X	X
	SC03-01LA-024	Vibracore	6 - 24	8/5/2011	X		X		X	X	X
	SC03-01LA-033	Vibracore	24 - 33	8/5/2011	X		X		X	X	X
SC02-01LB	SC02-01LB-006	Ponar	0 - 6	8/6/2011	X		X		X	X	X
	SC02-01LB-006DP	Ponar	0 - 6	8/6/2011	X		X		X		X
SC03-01RB	SC03-01RB-006	Ponar	0 - 6	8/6/2011	X		X		X	X	X
	SC03-01RB-032	Vibracore	6 - 32	8/6/2011	X		X		X	X	X
SC05-01RA	SC05-01RA-006	Ponar	0 - 6	8/6/2011	X	X	X	X	X	X	X
	SC05-01RA-006FS	Ponar	0 - 6	8/6/2011	X	X	X	X	X	X	X
	SC05-01RA-026	Vibracore	6 - 26	8/6/2011	X	X	X	X	X	X	X
SC06-01RA	SC06-01RA-006	Ponar	0 - 6	8/6/2011	X		X		X	X	X
	SC06-01RA-027	Vibracore	6 - 27	8/6/2011	X		X		X	X	X
SC06-01RB	SC06-01RB-006	Ponar	0 - 6	8/6/2011	X		X		X	X	X
	SC06-01RB-024	Vibracore	6 - 24	8/6/2011	X		X		X	X	X
	SC06-01RB-035	Vibracore	24 - 35	8/6/2011	X		X		X	X	X
Total number of samples analyzed:					100	12	100	12	100	97	100

Notes:
bss - Below sediment surface
DP - Duplicate
DRO - Diesel-range organics
FS - Field split
ID - Identification
ORO - Oil-range organics
PAH 34 - Polycyclic aromatic hydrocarbons, extended list 34
PCB - Polychlorinated biphenyl
SVOC - Semivolatile organic compound
TAL - Target Analyte List
TOC - Total organic carbon

Table 3-1
Summary of SVOC Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL [2] (µg/kg)	No. of Results Above ESL
1,1-Biphenyl	0 - 6	42	1	2.38%	17,000	17,000	NL	NL	NL	NL
	6 - 24	35	3	8.57%	11,000	29,000	NL	NL	NL	NL
	24 - 48	20	1	5.00%	5,000	5,000	NL	NL	NL	NL
	48 - 72	3	1	33.33%	3,500	3,500	NL	NL	NL	NL
1,2,4,5-Tetrachlorobenzene	0 - 6	42	0	0.00%	--	--	NL	NL	1,252	0
	6 - 24	35	0	0.00%	--	--	NL	NL	1,252	0
	24 - 48	20	0	0.00%	--	--	NL	NL	1,252	0
	48 - 72	3	0	0.00%	--	--	NL	NL	1,252	0
2,2-Oxybis(1-chloropropane)	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
2,3,4,6-Tetrachlorophenol	0 - 6	42	0	0.00%	--	--	NL	NL	129	0
	6 - 24	35	0	0.00%	--	--	NL	NL	129	0
	24 - 48	20	0	0.00%	--	--	NL	NL	129	0
	48 - 72	3	0	0.00%	--	--	NL	NL	129	0
2,4,5-Trichlorophenol	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
2,4,6-Trichlorophenol	0 - 6	42	0	0.00%	--	--	NL	NL	208	0
	6 - 24	35	0	0.00%	--	--	NL	NL	208	0
	24 - 48	20	0	0.00%	--	--	NL	NL	208	0
	48 - 72	3	0	0.00%	--	--	NL	NL	208	0
2,4-Dichlorophenol	0 - 6	42	0	0.00%	--	--	NL	NL	81.7	0
	6 - 24	35	0	0.00%	--	--	NL	NL	81.7	0
	24 - 48	20	0	0.00%	--	--	NL	NL	81.7	0
	48 - 72	3	0	0.00%	--	--	NL	NL	81.7	0
2,4-Dimethylphenol	0 - 6	42	0	0.00%	--	--	NL	NL	304	0
	6 - 24	35	0	0.00%	--	--	NL	NL	304	0
	24 - 48	20	0	0.00%	--	--	NL	NL	304	0
	48 - 72	3	0	0.00%	--	--	NL	NL	304	0
2,4-Dinitrophenol	0 - 6	42	0	0.00%	--	--	NL	NL	6.21	0
	6 - 24	35	0	0.00%	--	--	NL	NL	6.21	0
	24 - 48	20	0	0.00%	--	--	NL	NL	6.21	0
	48 - 72	3	0	0.00%	--	--	NL	NL	6.21	0
2,4-Dinitrotoluene	0 - 6	42	0	0.00%	--	--	NL	NL	14.4	0
	6 - 24	35	0	0.00%	--	--	NL	NL	14.4	0
	24 - 48	20	0	0.00%	--	--	NL	NL	14.4	0
	48 - 72	3	0	0.00%	--	--	NL	NL	14.4	0
2,6-Dinitrotoluene	0 - 6	42	1	2.38%	2,400	2,400	NL	NL	39.8	1
	6 - 24	35	0	0.00%	--	--	NL	NL	39.8	0
	24 - 48	20	0	0.00%	--	--	NL	NL	39.8	0
	48 - 72	3	0	0.00%	--	--	NL	NL	39.8	0
2-Chloronaphthalene	0 - 6	42	0	0.00%	--	--	NL	NL	417	0
	6 - 24	35	0	0.00%	--	--	NL	NL	417	0
	24 - 48	20	0	0.00%	--	--	NL	NL	417	0
	48 - 72	3	0	0.00%	--	--	NL	NL	417	0
2-Chlorophenol	0 - 6	42	0	0.00%	--	--	NL	NL	31.9	0
	6 - 24	35	0	0.00%	--	--	NL	NL	31.9	0
	24 - 48	20	0	0.00%	--	--	NL	NL	31.9	0
	48 - 72	3	0	0.00%	--	--	NL	NL	31.9	0
2-Methylnaphthalene	0 - 6	42	10	23.81%	110	79,000	NL	NL	20.2	10
	6 - 24	35	7	20.00%	15	74,000	NL	NL	20.2	6
	24 - 48	20	8	40.00%	2,100	28,000	NL	NL	20.2	8
	48 - 72	3	2	66.67%	12,000	17,000	NL	NL	20.2	2

Table 3-1
Summary of SVOC Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL [2] (µg/kg)	No. of Results Above ESL
2-Methylphenol	0 - 6	42	0	0.00%	--	--	NL	NL	55.4	0
	6 - 24	35	0	0.00%	--	--	NL	NL	55.4	0
	24 - 48	20	0	0.00%	--	--	NL	NL	55.4	0
	48 - 72	3	0	0.00%	--	--	NL	NL	55.4	0
2-Nitroaniline	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
2-Nitrophenol	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
3,3-Dichlorobenzidine	0 - 6	42	0	0.00%	--	--	NL	NL	127	0
	6 - 24	35	0	0.00%	--	--	NL	NL	127	0
	24 - 48	20	0	0.00%	--	--	NL	NL	127	0
	48 - 72	3	0	0.00%	--	--	NL	NL	127	0
3-Nitroaniline	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
4,6-Dinitro-2-methylphenol	0 - 6	42	0	0.00%	--	--	NL	NL	104	0
	6 - 24	35	0	0.00%	--	--	NL	NL	104	0
	24 - 48	20	0	0.00%	--	--	NL	NL	104	0
	48 - 72	3	0	0.00%	--	--	NL	NL	104	0
4-Bromophenyl-phenylether	0 - 6	42	0	0.00%	--	--	NL	NL	1,550	0
	6 - 24	35	0	0.00%	--	--	NL	NL	1,550	0
	24 - 48	20	0	0.00%	--	--	NL	NL	1,550	0
	48 - 72	3	0	0.00%	--	--	NL	NL	1,550	0
4-Chloro-3-methylphenol	0 - 6	42	0	0.00%	--	--	NL	NL	388	0
	6 - 24	35	0	0.00%	--	--	NL	NL	388	0
	24 - 48	20	0	0.00%	--	--	NL	NL	388	0
	48 - 72	3	0	0.00%	--	--	NL	NL	388	0
4-Chloroaniline	0 - 6	42	0	0.00%	--	--	NL	NL	146	0
	6 - 24	35	0	0.00%	--	--	NL	NL	146	0
	24 - 48	20	0	0.00%	--	--	NL	NL	146	0
	48 - 72	3	0	0.00%	--	--	NL	NL	146	0
4-Chlorophenyl-phenylether	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
4-Methylphenol	0 - 6	42	0	0.00%	--	--	NL	NL	20.2	0
	6 - 24	35	0	0.00%	--	--	NL	NL	20.2	0
	24 - 48	20	0	0.00%	--	--	NL	NL	20.2	0
	48 - 72	3	0	0.00%	--	--	NL	NL	20.2	0
4-Nitroaniline	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	20	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	3	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	35	0	0.00%	--	--	NL	NL	NL	NL
4-Nitrophenol	0 - 6	42	0	0.00%	--	--	NL	NL	13.3	0
	6 - 24	35	0	0.00%	--	--	NL	NL	13.3	0
	24 - 48	20	0	0.00%	--	--	NL	NL	13.3	0
	48 - 72	3	0	0.00%	--	--	NL	NL	13.3	0
Acenaphthene	0 - 6	42	17	40.48%	89	280,000	NL	NL	6.71	17
	6 - 24	35	17	48.57%	88	210,000	NL	NL	6.71	17
	24 - 48	20	10	50.00%	5,100	59,000	NL	NL	6.71	10
	48 - 72	3	3	100.00%	4,100	15,000	NL	NL	6.71	3

Table 3-1
Summary of SVOC Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL [2] (µg/kg)	No. of Results Above ESL
Acenaphthylene	0 - 6	42	8	19.05%	80	4,800	NL	NL	5.87	8
	6 - 24	35	5	14.29%	4	16,000	NL	NL	5.87	4
	24 - 48	20	2	10.00%	4,900	5,200	NL	NL	5.87	2
	48 - 72	3	0	0.00%	--	--	NL	NL	5.87	0
Acetophenone	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Anthracene	0 - 6	42	17	40.48%	210	180,000	845	13	57.2	17
	6 - 24	35	17	48.57%	35	160,000	845	16	57.2	16
	24 - 48	20	10	50.00%	4,400	31,000	845	10	57.2	10
	48 - 72	3	3	100.00%	4,000	19,000	845	3	57.2	3
Atrazine	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Benzaldehyde	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Benzo(a)anthracene	0 - 6	42	21	50.00%	830	110,000	1,050	19	108	21
	6 - 24	35	20	57.14%	23	110,000	1,050	19	108	19
	24 - 48	20	11	55.00%	2,800	28,000	1,050	11	108	11
	48 - 72	3	3	100.00%	7,800	19,000	1,050	3	108	3
Benzo(a)pyrene	0 - 6	42	20	47.62%	330	45,000	1,450	17	150	20
	6 - 24	35	16	45.71%	25	47,000	1,450	15	150	15
	24 - 48	20	11	55.00%	2,200	21,000	1,450	11	150	11
	48 - 72	3	3	100.00%	6,700	14,000	1,450	3	150	3
Benzo(b)fluoranthene	0 - 6	42	23	54.76%	340	56,000	NL	NL	10,400	2
	6 - 24	35	16	45.71%	9	46,000	NL	NL	10,400	3
	24 - 48	20	11	55.00%	2,800	22,000	NL	NL	10,400	2
	48 - 72	3	3	100.00%	6,100	12,000	NL	NL	10,400	1
Benzo(g,h,i)perylene	0 - 6	42	11	26.19%	600	18,000	NL	NL	170	11
	6 - 24	35	13	37.14%	4	18,000	NL	NL	170	12
	24 - 48	20	6	30.00%	2,800	13,000	NL	NL	170	6
	48 - 72	3	3	100.00%	3,900	7,000	NL	NL	170	3
Benzo(k)fluoranthene	0 - 6	42	14	33.33%	380	30,000	NL	NL	240	14
	6 - 24	35	16	45.71%	14	32,000	NL	NL	240	15
	24 - 48	20	10	50.00%	4,000	11,000	NL	NL	240	10
	48 - 72	3	3	100.00%	4,600	8,000	NL	NL	240	3
Bis(2-chloroethoxyl)methane	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Bis(2-chloroethyl)ether	0 - 6	42	0	0.00%	--	--	NL	NL	3,520	0
	6 - 24	35	0	0.00%	--	--	NL	NL	3,520	0
	24 - 48	20	0	0.00%	--	--	NL	NL	3,520	0
	48 - 72	3	0	0.00%	--	--	NL	NL	3,520	0
Bis(2-ethylhexyl)phthalate	0 - 6	42	16	38.10%	1,500	17,000	NL	NL	182	16
	6 - 24	35	12	34.29%	2,400	25,000	NL	NL	182	12
	24 - 48	20	4	20.00%	3,400	33,000	NL	NL	182	4
	48 - 72	3	1	33.33%	7,200	7,200	NL	NL	182	1
Butylbenzylphthalate	0 - 6	42	0	0.00%	--	--	NL	NL	1,970	0
	6 - 24	35	0	0.00%	--	--	NL	NL	1,970	0
	24 - 48	20	0	0.00%	--	--	NL	NL	1,970	0
	48 - 72	3	0	0.00%	--	--	NL	NL	1,970	0

Table 3-1
Summary of SVOC Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL [2] (µg/kg)	No. of Results Above ESL
Caprolactam	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Carbazole	0 - 6	42	4	9.52%	2,100	30,000	NL	NL	NL	NL
	6 - 24	35	4	11.43%	4,600	47,000	NL	NL	NL	NL
	24 - 48	20	5	25.00%	1,600	7,300	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Chrysene	0 - 6	42	22	52.38%	1,100	76,000	1,290	19	166	22
	6 - 24	35	20	57.14%	24	61,000	1,290	19	166	19
	24 - 48	20	11	55.00%	3,100	25,000	1,290	11	166	11
	48 - 72	3	3	100.00%	8,600	18,000	1,290	3	166	3
Dibenzo(a,h)anthracene	0 - 6	42	5	11.90%	260	11,000	NL	NL	33	5
	6 - 24	35	5	14.29%	860	9,900	NL	NL	33	5
	24 - 48	20	3	15.00%	1,900	4,600	NL	NL	33	3
	48 - 72	3	0	0.00%	--	--	NL	NL	33	0
Dibenzofuran	0 - 6	42	7	16.67%	3,100	190,000	NL	NL	449	7
	6 - 24	35	14	40.00%	1,600	130,000	NL	NL	449	14
	24 - 48	20	8	40.00%	3,000	41,000	NL	NL	449	8
	48 - 72	3	1	33.33%	4,300	4,300	NL	NL	449	1
Diethylphthalate	0 - 6	42	0	0.00%	--	--	NL	NL	295	0
	6 - 24	35	0	0.00%	--	--	NL	NL	295	0
	24 - 48	20	0	0.00%	--	--	NL	NL	295	0
	48 - 72	3	0	0.00%	--	--	NL	NL	295	0
Dimethylphthalate	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Di-n-butylphthalate	0 - 6	42	0	0.00%	--	--	NL	NL	1,114	0
	6 - 24	35	0	0.00%	--	--	NL	NL	1,114	0
	24 - 48	20	0	0.00%	--	--	NL	NL	1,114	0
	48 - 72	3	0	0.00%	--	--	NL	NL	1,114	0
Di-n-octylphthalate	0 - 6	42	0	0.00%	--	--	NL	NL	40,600	0
	6 - 24	35	1	2.86%	2,800	2,800	NL	NL	40,600	0
	24 - 48	20	0	0.00%	--	--	NL	NL	40,600	0
	48 - 72	3	0	0.00%	--	--	NL	NL	40,600	0
Fluoranthene	0 - 6	42	28	66.67%	2,000	460,000	2,230	27	423	28
	6 - 24	35	25	71.43%	100	230,000	2,230	22	423	24
	24 - 48	20	13	65.00%	5,600	69,000	2,230	13	423	13
	48 - 72	3	3	100.00%	17,000	41,000	2,230	3	423	3
Fluorene	0 - 6	42	16	38.10%	160	180,000	536	15	77.4	16
	6 - 24	35	18	51.43%	58	210,000	536	17	77.4	17
	24 - 48	20	11	55.00%	4,200	45,000	536	11	77.4	11
	48 - 72	3	3	100.00%	4,200	13,000	536	3	77.4	3
Hexachlorobenzene	0 - 6	42	0	0.00%	--	--	NL	NL	20	0
	6 - 24	35	0	0.00%	--	--	NL	NL	20	0
	24 - 48	20	0	0.00%	--	--	NL	NL	20	0
	48 - 72	3	0	0.00%	--	--	NL	NL	20	0
Hexachlorobutadiene	0 - 6	42	0	0.00%	--	--	NL	NL	26.5	0
	6 - 24	35	0	0.00%	--	--	NL	NL	26.5	0
	24 - 48	20	0	0.00%	--	--	NL	NL	26.5	0
	48 - 72	3	0	0.00%	--	--	NL	NL	26.5	0
Hexachlorocyclopentadiene	0 - 6	42	0	0.00%	--	--	NL	NL	901	0
	6 - 24	35	0	0.00%	--	--	NL	NL	901	0
	24 - 48	20	0	0.00%	--	--	NL	NL	901	0
	48 - 72	3	0	0.00%	--	--	NL	NL	901	0

Table 3-1
Summary of SVOC Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL [2] (µg/kg)	No. of Results Above ESL
Hexachloroethane	0 - 6	42	0	0.00%	--	--	NL	NL	584	0
	6 - 24	35	0	0.00%	--	--	NL	NL	584	0
	24 - 48	20	0	0.00%	--	--	NL	NL	584	0
	48 - 72	3	0	0.00%	--	--	NL	NL	584	0
Indeno(1,2,3-cd)pyrene	0 - 6	42	17	40.48%	190	25,000	NL	NL	200	16
	6 - 24	35	16	45.71%	5	34,000	NL	NL	200	15
	24 - 48	20	10	50.00%	1,900	16,000	NL	NL	200	10
	48 - 72	3	3	100.00%	4,100	6,500	NL	NL	200	3
Isophorone	0 - 6	42	0	0.00%	--	--	NL	NL	432	0
	6 - 24	35	0	0.00%	--	--	NL	NL	432	0
	24 - 48	20	0	0.00%	--	--	NL	NL	432	0
	48 - 72	3	0	0.00%	--	--	NL	NL	432	0
Naphthalene	0 - 6	42	6	14.29%	140	13,000	561	3	176	4
	6 - 24	35	7	20.00%	750	130,000	561	7	176	7
	24 - 48	20	9	45.00%	3,500	25,000	561	9	176	9
	48 - 72	3	3	100.00%	2,300	24,000	561	3	176	3
Nitrobenzene	0 - 6	42	0	0.00%	--	--	NL	NL	145	0
	6 - 24	35	0	0.00%	--	--	NL	NL	145	0
	24 - 48	20	0	0.00%	--	--	NL	NL	145	0
	48 - 72	3	0	0.00%	--	--	NL	NL	145	0
N-nitroso-di-n-propylamine	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
N-nitrosodiphenylamine	0 - 6	42	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	35	0	0.00%	--	--	NL	NL	NL	NL
	24 - 48	20	0	0.00%	--	--	NL	NL	NL	NL
	48 - 72	3	0	0.00%	--	--	NL	NL	NL	NL
Pentachlorophenol	0 - 6	42	0	0.00%	--	--	NL	NL	23,000	0
	6 - 24	35	0	0.00%	--	--	NL	NL	23,000	0
	24 - 48	20	0	0.00%	--	--	NL	NL	23,000	0
	48 - 72	3	0	0.00%	--	--	NL	NL	23,000	0
Phenanthrene	0 - 6	42	21	50.00%	920	490,000	1,170	20	204	21
	6 - 24	35	22	62.86%	130	440,000	1,170	21	204	21
	24 - 48	20	12	60.00%	5,700	110,000	1,170	12	204	12
	48 - 72	3	3	100.00%	19,000	64,000	1,170	3	204	3
Phenol	0 - 6	42	0	0.00%	--	--	NL	NL	49.1	0
	6 - 24	35	0	0.00%	--	--	NL	NL	49.1	0
	24 - 48	20	0	0.00%	--	--	NL	NL	49.1	0
	48 - 72	3	0	0.00%	--	--	NL	NL	49.1	0
Pyrene	0 - 6	42	27	64.29%	1,600	290,000	1,520	27	195	27
	6 - 24	35	21	60.00%	88	170,000	1,520	20	195	20
	24 - 48	20	13	65.00%	4,400	53,000	1,520	13	195	13
	48 - 72	3	3	100.00%	17,000	46,000	1,520	3	195	3
Total 17 PAHs [3]	0 - 6	42	42	100.00%	2,210	2,347,800	22,800	35	NL	NL
	6 - 24	35	35	100.00%	627	1,869,900	22,800	31	NL	NL
	24 - 48	20	20	100.00%	19,550	430,200	22,800	19	NL	NL
	48 - 72	3	3	100.00%	113,300	329,100	22,800	3	NL	NL

Notes:

% - Percent
"--" - Not applicable
µg/kg - Microgram per kilogram
bss - Below sediment surface
ESL - Ecological Screening Level
NL - Not listed
PAH - Polycyclic aromatic hydrocarbon
PEC - Probable Effect Concentration
SVOC - Semivolatile organic compound

1 From "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (MacDonald, et. al., 2000)

2 From U.S. Environmental Protection Agency Region 5 Ecological Screening Levels, 2003

3 Total PAH 17 - Calculated as sum of detections plus one-half the detection limit for nondetected results

Table 3-2
Summary of PAH Extended List 34 Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Sampling Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL [2] (µg/kg)	No. of Results Above ESL
Acenaphthene	0 - 6	9	9	100.00%	160	260,000	NL	NL	6.71	9
	6 - 24	3	3	100.00%	1,600	130,000	NL	NL	6.71	3
Acenaphthylene	0 - 6	9	9	100.00%	75	3,700	NL	NL	5.87	9
	6 - 24	3	3	100.00%	460	11,000	NL	NL	5.87	3
Anthracene	0 - 6	9	9	100.00%	280	140,000	845	5	57.2	9
	6 - 24	3	3	100.00%	2,000	270,000	845	3	57.2	3
Benzo(e)pyrene	0 - 6	9	9	100.00%	290	17,000	NL	NL	NL	NL
	6 - 24	3	3	100.00%	840	15,000	NL	NL	NL	NL
Benzo(a)anthracene	0 - 6	9	9	100.00%	940	110,000	1,050	8	108	9
	6 - 24	3	3	100.00%	3,700	180,000	1,050	3	108	3
Benzo(a)pyrene	0 - 6	9	9	100.00%	820	39,000	1,450	4	150	9
	6 - 24	3	3	100.00%	2,000	57,000	1,450	3	150	3
Benzo(b)fluoranthene	0 - 6	9	9	100.00%	1,000	48,000	NL	NL	10,400	1
	6 - 24	3	3	100.00%	3,500	62,000	NL	NL	10,400	1
Benzo(g,h,i)perylene	0 - 6	9	9	100.00%	510	16,000	NL	NL	170	9
	6 - 24	3	3	100.00%	890	29,000	NL	NL	170	3
Benzo(k)fluoranthene	0 - 6	9	9	100.00%	600	27,000	NL	NL	240	9
	6 - 24	3	3	100.00%	970	44,000	NL	NL	240	3
C1-Chrysenes	0 - 6	9	3	33.33%	650	13,000	NL	NL	NL	NL
	6 - 24	3	2	66.67%	1,000	50,000	NL	NL	NL	NL
C1-Fluorenes	0 - 6	9	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	3	0	0.00%	--	--	NL	NL	NL	NL
C1-Fluoranthenes/Pyrenes	0 - 6	9	9	100.00%	530	97,000	NL	NL	NL	NL
	6 - 24	3	3	100.00%	3,400	67,000	NL	NL	NL	NL
C1-Naphthalenes	0 - 6	9	9	100.00%	160	120,000	NL	NL	NL	NL
	6 - 24	3	3	100.00%	750	250,000	NL	NL	NL	NL
C1-Phenanthrenes/Anthracenes	0 - 6	9	9	100.00%	330	75,000	NL	NL	NL	NL
	6 - 24	3	3	100.00%	2,000	380,000	NL	NL	NL	NL
C2-Chrysenes	0 - 6	9	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	3	0	0.00%	--	--	NL	NL	NL	NL
C2-Fluorenes	0 - 6	9	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	3	0	0.00%	--	--	NL	NL	NL	NL
C2-Naphthalenes	0 - 6	9	9	100.00%	140	63,000	NL	NL	NL	NL
	6 - 24	3	3	100.00%	920	410,000	NL	NL	NL	NL
C2-Phenanthrenes/Anthracenes	0 - 6	9	1	11.11%	26	26	NL	NL	NL	NL
	6 - 24	3	1	33.33%	1,200	1,200	NL	NL	NL	NL
C3-Chrysenes	0 - 6	9	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	3	0	0.00%	--	--	NL	NL	NL	NL
C3-Fluorenes	0 - 6	9	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	3	0	0.00%			NL	NL	NL	NL
C3-Naphthalenes	0 - 6	9	9	100.00%	81	17,000	NL	NL	NL	NL
	6 - 24	3	3	100.00%	470	130,000	NL	NL	NL	NL
C3-Phenanthrenes/Anthracenes	0 - 6	9	8	88.89%	130	6,600	NL	NL	NL	NL
	6 - 24	3	3	100.00%	450	5,600	NL	NL	NL	NL
C4-Chrysenes	0 - 6	9	0	0.00%	--	--	NL	NL	NL	NL
	6 - 24	3	0	0.00%	--	--	NL	NL	NL	NL
C4-Naphthalenes	0 - 6	9	8	88.89%	62	2,800	NL	NL	NL	NL
	6 - 24	3	3	100.00%	270	32,000	NL	NL	NL	NL
C4-Phenanthrenes/Anthracenes	0 - 6	9	2	22.22%	30	140	NL	NL	NL	NL
	6 - 24	3	1	33.33%	1,800	1,800	NL	NL	NL	NL
Chrysene	0 - 6	9	9	100.00%	1,100	62,000	1,290	8	166	9
	6 - 24	3	3	100.00%	3,300	93,000	1,290	3	166	3
Dibenzo(a,h)anthracene	0 - 6	9	9	100.00%	190	7,500	NL	NL	33	9
	6 - 24	3	3	100.00%	630	20,000	NL	NL	33	3
Fluoranthene	0 - 6	9	9	100.00%	2,400	600,000	2,230	9	423	9
	6 - 24	3	3	100.00%	8,300	600,000	2,230	3	423	3

Table 3-2
Summary of PAH Extended List 34 Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Sampling Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL[2] (µg/kg)	No. of Results Above ESL
Fluorene	0 - 6	9	9	100.00%	180	210,000	536	6	77.4	9
	6 - 24	3	3	100.00%	1,600	150,000	536	3	77.4	3
Indeno(1,2,3-cd)pyrene	0 - 6	9	9	100.00%	550	17,000	NL	NL	200	9
	6 - 24	3	3	100.00%	1,100	43,000	NL	NL	200	3
Naphthalene	0 - 6	9	9	100.00%	71	8,500	561	1	176	4
	6 - 24	3	3	100.00%	270	50,000	561	2	176	3
Perylene	0 - 6	9	9	100.00%	450	16,000	NL	NL	NL	NL
	6 - 24	3	3	100.00%	980	27,000	NL	NL	NL	NL
Phenanthrene	0 - 6	9	9	100.00%	920	700,000	1,170	8	204	9
	6 - 24	3	3	100.00%	4,700	970,000	1,170	3	204	3
Pyrene	0 - 6	9	9	100.00%	1,600	270,000	1,520	9	195	9
	6 - 24	3	3	100.00%	5,500	240,000	1,520	3	195	3
Total PAHs (extended list 34)	0 - 6	9	9	100.00%	15,797	2,947,220	22,800	6	NL	NL
	6 - 24	3	3	100.00%	53,555	4,319,410	22,800	3	NL	NL

Notes:
% - Percent
"--" - Not applicable
µg/kg - Microgram per kilogram
bss - Below sediment surface
ESL - Ecological Screening Level
NL - Not listed
PAH - Polycylic aromatic hydrocarbon
PEC - Probable Effect Concentration
1 From "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (MacDonald, et. al., 2000)
2 From U.S. Environmental Protection Agency Region 5 Ecological Screening Levels, 2003
3 Total PAHs (extended list 34) calculated as sum of detections plus one-half the detection limit for nondetected results

Table 3-3
Summary of TAL Metals Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Sampling Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (mg/kg)	Maximum Detection (mg/kg)	PEC [1] (mg/kg)	No. of Results Above PEC	ESL [2] (mg/kg)	No. of Results Above ESL	SRV [3] (mg/kg)	No. of Results Above SRV
Aluminum	0 - 6	42	42	100%	1,980	16,400	NL	--	NL	--	42,000	0
	6 - 24	35	35	100%	3,110	16,200	NL	--	NL	--	42,000	0
	24 - 48	20	20	100%	3,630	14,300	NL	--	NL	--	42,000	0
	48 - 72	3	3	100%	9,990	12,400	NL	--	NL	--	42,000	0
Antimony	0 - 6	42	0	0%	--	--	NL	--	NL	--	0.84	0
	6 - 24	35	3	8.57%	7.6	9.7	NL	--	NL	--	0.84	3
	24 - 48	20	5	25%	7.2	22.9	NL	--	NL	--	0.84	5
	48 - 72	3	0	0%	--	--	NL	--	NL	--	0.84	0
Arsenic	0 - 6	42	42	100%	2	13.7	33	0	9.79	7	11	1
	6 - 24	35	35	100%	4.2	62.3	33	8	9.79	17	11	15
	24 - 48	20	20	100%	2.9	199	33	8	9.79	16	11	15
	48 - 72	3	3	100%	10.8	129	33	8	9.79	3	11	2
Barium	0 - 6	42	42	100%	36.5	153	NL	--	NL	--	210	0
	6 - 24	35	35	100%	48.2	165	NL	--	NL	--	210	0
	24 - 48	20	20	100%	24.5	361	NL	--	NL	--	210	4
	48 - 72	3	3	100%	108	147	NL	--	NL	--	210	0
Beryllium	0 - 6	42	42	100%	0.19	1.2	NL	--	NL	--	NL	--
	6 - 24	35	35	100%	0.43	1.5	NL	--	NL	--	NL	--
	24 - 48	20	20	100%	0.33	1.1	NL	--	NL	--	NL	--
	48 - 72	3	3	100%	0.84	0.99	NL	--	NL	--	NL	--
Cadmium	0 - 6	42	30	71.43%	0.62	3.1	4.98	8	0.99	18	0.96	19
	6 - 24	35	35	100%	0.87	7.4	4.98	8	0.99	34	0.96	34
	24 - 48	20	19	95%	1	19.2	4.98	8	0.99	19	0.96	19
	48 - 72	3	3	100%	1.2	1.8	4.98	8	0.99	3	0.96	3
Calcium	0 - 6	42	42	100%	17,000	112,000	NL	--	NL	--	110,000	1
	6 - 24	35	35	100%	9,900	90,500	NL	--	NL	--	110,000	0
	24 - 48	20	20	100%	22,000	48,100	NL	--	NL	--	110,000	0
	48 - 72	3	3	100%	33,100	34,100	NL	--	NL	--	110,000	0
Chromium	0 - 6	42	42	100%	5.5	48.7	111	0	43.4	2	51	0
	6 - 24	35	35	100%	13.4	195	111	2	43.4	5	51	4
	24 - 48	20	20	100%	6.5	158	111	3	43.4	8	51	5
	48 - 72	3	3	100%	19.7	29	111	0	43.4	--	51	0
Cobalt	0 - 6	42	12	28.57%	5.8	11.9	NL	--	50	--	NL	--
	6 - 24	35	30	85.71%	5.8	14.7	NL	--	50	--	NL	--
	24 - 48	20	18	90%	5.6	18.4	NL	--	50	--	NL	--
	48 - 72	3	3	100%	7.9	9.9	NL	--	50	--	NL	--
Copper	0 - 6	42	42	100%	30.2	543	149	11	31.6	41	42	38
	6 - 24	35	35	100%	42.5	1150	149	22	31.6	35	42	35
	24 - 48	20	20	100%	9.8	931	149	15	31.6	19	42	19
	48 - 72	3	3	100%	152	161	149	3	31.6	3	42	3
Iron	0 - 6	42	42	100%	4,950	29,300	NL	--	NL	--	44,000	0
	6 - 24	35	35	100%	8,510	56,900	NL	--	NL	--	44,000	1
	24 - 48	20	20	100%	8,900	26,200	NL	--	NL	--	44,000	0
	48 - 72	3	3	100%	21,400	23,800	NL	--	NL	--	44,000	0
Lead	0 - 6	42	42	100%	21.3	562	128	12	35.8	39	NL	--
	6 - 24	35	35	100%	45.3	1,850	128	31	35.8	35	NL	--
	24 - 48	20	20	100%	5	3,750	128	18	35.8	19	NL	--
	48 - 72	3	3	100%	113	530	128	2	35.8	3	NL	--
Magnesium	0 - 6	42	42	100%	3,650	56,400	NL	--	NL	--	29,000	1
	6 - 24	35	35	100%	2,860	40,800	NL	--	NL	--	29,000	1
	24 - 48	20	20	100%	5,540	11,700	NL	--	NL	--	29,000	0
	48 - 72	3	3	100%	8,480	10,600	NL	--	NL	--	29,000	0
Manganese	0 - 6	42	42	100%	94	662	NL	--	NL	--	1,000	0
	6 - 24	35	35	100%	192	575	NL	--	NL	--	1,000	0
	24 - 48	20	20	100%	196	585	NL	--	NL	--	1,000	0
	48 - 72	3	3	100%	299	467	NL	--	NL	--	1,000	0
Mercury	0 - 6	42	41	97.62%	0.04	0.91	1.06	0	0.174	13	NL	--
	6 - 24	35	35	100%	0.09	4.9	1.06	5	0.174	30	NL	--
	24 - 48	20	19	95%	0.13	3.7	1.06	10	0.174	18	NL	--
	48 - 72	3	3	100%	0.73	3.2	1.06	2	0.174	3	NL	--

Table 3-3
Summary of TAL Metals Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Sampling Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (mg/kg)	Maximum Detection (mg/kg)	PEC [1] (mg/kg)	No. of Results Above PEC	ESL [2] (mg/kg)	No. of Results Above ESL	SRV [3] (mg/kg)	No. of Results Above SRV
Nickel	0 - 6	42	42	100%	5.3	46.8	48.6	0	22.7	12	36	1
	6 - 24	35	35	100%	15	140	48.6	4	22.7	30	36	7
	24 - 48	20	20	100%	10.6	78.1	48.6	1	22.7	17	36	5
	48 - 72	3	3	100%	28.4	36.5	48.6	0	22.7	3	36	1
Potassium	0 - 6	42	32	76.19%	521	2,330	NL	--	NL	--	12,000	0
	6 - 24	35	33	94.29%	817	2,330	NL	--	NL	--	12,000	0
	24 - 48	20	19	95%	729	2,160	NL	--	NL	--	12,000	0
	48 - 72	3	3	100%	1,380	1,750	NL	--	NL	--	12,000	0
Selenium	0 - 6	42	0	0%	--	--	NL	--	NL	--	1.4	0
	6 - 24	35	0	0%	--	--	NL	--	NL	--	1.4	0
	24 - 48	20	0	0%	--	--	NL	--	NL	--	1.4	0
	48 - 72	3	0	0%	--	--	NL	--	NL	--	1.4	0
Silver	0 - 6	42	6	14.29%	1.7	2.4	NL	--	0.5	6	NL	--
	6 - 24	35	22	62.86%	1.3	3.1	NL	--	0.5	22	NL	--
	24 - 48	20	16	80%	1.8	6.6	NL	--	0.5	16	NL	--
	48 - 72	3	2	66.67%	2.9	5.6	NL	--	0.5	2	NL	--
Sodium	0 - 6	42	1	2.38%	707	707	NL	--	NL	--	NL	--
	6 - 24	35	6	17.14%	721	1,550	NL	--	NL	--	NL	--
	24 - 48	20	4	20%	965	2,310	NL	--	NL	--	NL	--
	48 - 72	3	0	0%	--	--	NL	--	NL	--	NL	--
Thallium	0 - 6	42	0	0%	--	--	NL	--	NL	--	NL	--
	6 - 24	35	0	0%	--	--	NL	--	NL	--	NL	--
	24 - 48	20	0	0%	--	--	NL	--	NL	--	NL	--
	48 - 72	3	0	0%	--	--	NL	--	NL	--	NL	--
Vanadium	0 - 6	42	42	100%	6	32.3	NL	--	NL	--	NL	--
	6 - 24	35	35	100%	8.3	31.8	NL	--	NL	--	NL	--
	24 - 48	20	20	100%	12	29.8	NL	--	NL	--	NL	--
	48 - 72	3	3	100%	24.1	26.8	NL	--	NL	--	NL	--
Zinc	0 - 6	42	42	100%	64.6	512	459	2	121	31	190	16
	0 - 6	42	42	100%	64.6	512	459	2	121	31	190	16
	0 - 6	42	42	100%	64.6	512	459	2	121	31	190	16
	48 - 72	3	3	100%	209	717	459	2	121	3	190	3

Notes:
% - Percent
"--" - Not applicable
bss - Below sediment surface
ESL - Ecological Screening Level
mg/kg - Milligram per kilogram
NL - Not listed
PEC - Probable Effect Concentration
SRV - Sediment Reference Value
TAL - Target Analyte List
1 From "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (MacDonald, et.
2 From U.S. Environmental Protection Agency Region 5 Ecological Screening Levels, 2003
3 From "Ohio Ecological Risk Assessment Guidance Document," February 2003, revised April 2008

Table 3-4
Summary of PCB Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Sampling Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (µg/kg)	Maximum Detection (µg/kg)	PEC [1] (µg/kg)	No. of Results Above PEC	ESL [2] (µg/kg)	No. of Results Above ESL
Aroclor-1016	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Aroclor-1221	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Aroclor-1232	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Aroclor-1242	0 - 6	9	9	100%	260	35,000	NL	--	NL	--
	6 - 24	3	3	100%	320	10,000	NL	--	NL	--
Aroclor-1248	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Aroclor-1254	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Aroclor-1260	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Aroclor-1262	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Aroclor-1268	0 - 6	9	0	0%	--	--	NL	--	NL	--
	6 - 24	3	0	0%	--	--	NL	--	NL	--
Total PCBs [3]	0 - 6	9	9	100%	260	35,000	676	4	59.8	9
	6 - 24	3	3	100%	320	10,000	676	2	59.8	3

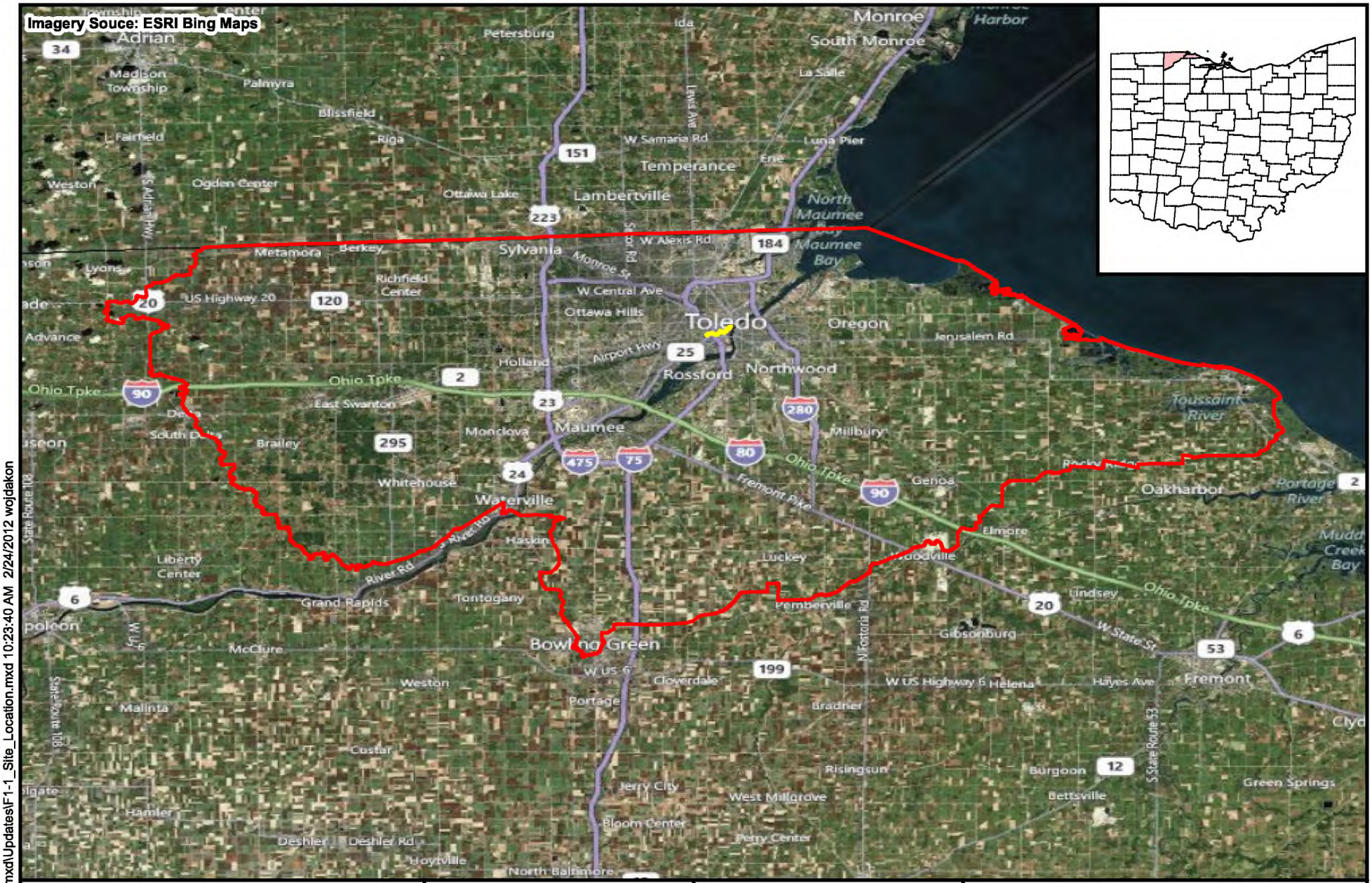
Notes:
% - Percent
"--" - Not applicable
µg/kg - Microgram per kilogram
bss - Below sediment surface
ESL - Ecological Screening Level
NL - Not listed
PCB - Polychlorinated biphenyl
PEC - Probable Effect Concentration
1 From "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (MacDonald, et. al.,
2 From U.S. Environmental Protection Agency Region 5 Ecological Screening Levels, 2003
3 Total PCBs calculated as the sum of detections

Table 3-5
Summary of TPH as DRO and ORO Sediment Sample Results
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

Analyte	Sampling Depth (inches bss)	No. of Results	No. of Detects	% Detects	Minimum Detection (mg/kg)	Maximum Detection (mg/kg)	PEC [1] (mg/kg)	No. of Results Above PEC	ESL [2] (mg/kg)	No. of Results Above ESL
DRO	0 - 6	42	31	73.81%	15	8,800	NL	--	NL	--
	6 - 24	35	35	100%	48	6,000	NL	--	NL	--
	24 - 48	20	19	95%	73	4,400	NL	--	NL	--
	48 - 72	3	3	100%	150	3,700	NL	--	NL	--
ORO	0 - 6	42	40	95.24%	190	8,700	NL	--	NL	--
	6 - 24	35	35	100%	350	12,000	NL	--	NL	--
	24 - 48	20	19	95.00%	680	10,000	NL	--	NL	--
	48 - 72	3	3	100%	690	8,300	NL	--	NL	--

Notes:
% - Percent
"--" - Not applicable
bss - Below sediment surface
DRO - Diesel-range organics
ESL - Ecological Screening Level
NL - Not listed
ORO - Oil-range organics
PEC - Probable Effect Concentration
TPH - Total Petroleum Hydrocarbons
1 From "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems" (MacDonald, et. al.,
2 From U.S. Environmental Protection Agency Region 5 Ecological Screening Levels, 2003

FIGURES



Legend

0 8 Miles

N

Swan Creek Project Area

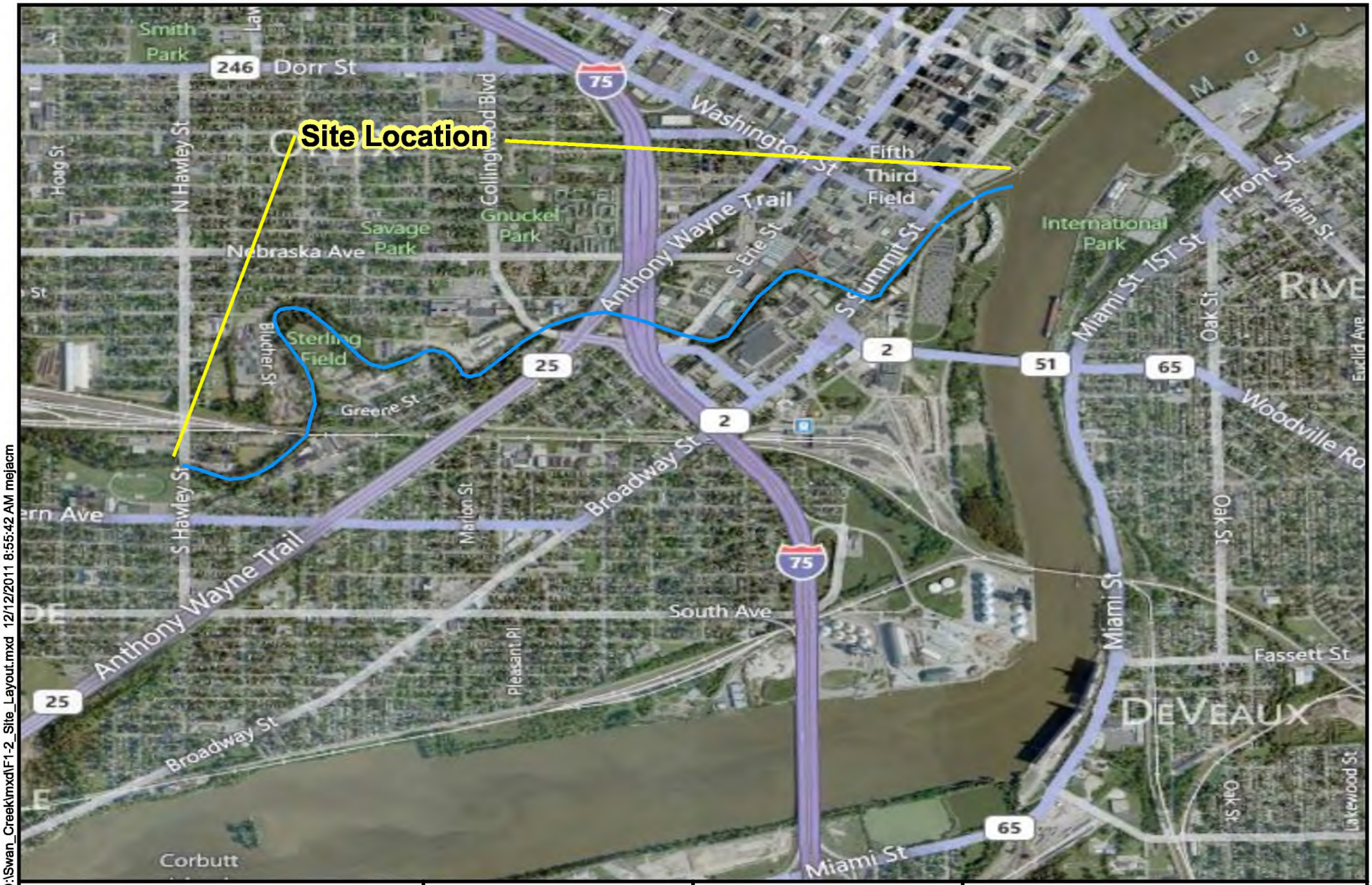
Maumee AOC Boundary

Prepared For:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 1-1
Site Location Map
Swan Creek
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\Updates\F1-1_Site_Location.mxd 10:23:40 AM 2/24/2012 wojdakon



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Legend

Swan Creek Project Area

N

0 2,000 Feet

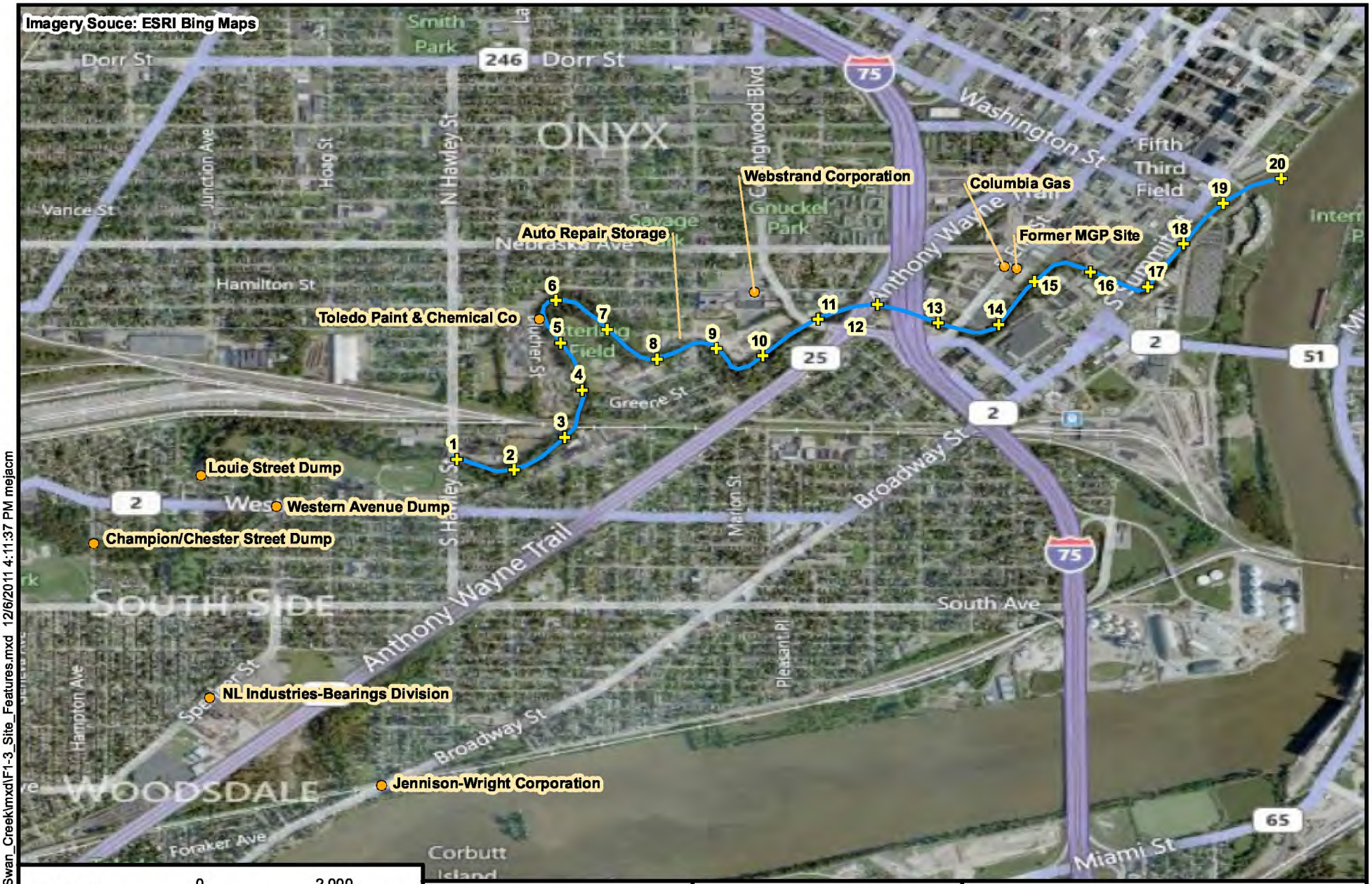
Prepared for:
U.S. EPA REGION V

Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC

750 E. Bunker Ct
Suite 500
Vernon Hills, IL 60061

FIGURE 1-2
Site Layout Map
Swan Creek
Toledo, Lucas County, Ohio



Prepared For:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
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Vernon Hills, Illinois 60061

Figure 1-3
Site Features Map
Swan Creek Site Characterization
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\F1-3_Site_Features.mxd 12/6/2011 4:11:37 PM mejacm

Imagery Source: ESRI Bing Maps

SC01-01RA
SC01-01RB
SC02-01LA
SC02-01LB
SC03-01RB
SC03-01LA
SC05-01RA
SC06-01RA
SC06-01RB
SC07-01R
SC07-01LA
SC08-01LA
SC08-01LB
SC09-01RB
SC09-01LA
SC10-01RA
SC10-01LB
SC10-01LC
SC11-01L
SC12-01R
SC12-01LA
SC12-01RB
SC13-01M
SC13-01RA
SC14-01L
SC15-01RB
SC16-01RA
SC16-01R
SC18-01R1
SC19-01R
SC19-01MA
SC19-01MB
SC20-01L
SC20-01M
SC20-01R

Note:
Standard analysis includes SVOCs,TAL metals, DRO and ORO, grain size, and TOC.
Extended analysis includes SVOCs, PAHs (extended list 34), TAL metals, PCBs, DRO and ORO, grain size, and TOC.

Legend
- Sampling Location with Standard Analysis
- Sampling Location with Extended Analysis

0 1,000 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
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Figure 2-1
Sampling Location Map
Swan Creek
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\Updates\F2-1_Sampling_Location_Map.mxd 1/5/2012 7:33:51 AM mejacm

Imagery Source: ESRI Bing Maps

SC06-01RA 27 "
SC06-01RB 35 "
SC05-01RA 26 "
SC07-01R 40 "
SC08-01LA 34 "
SC07-01LA 25 "
SC08-01LB 54 "
SC03-01LA 33 "
SC03-01RB 32 "
SC02-01LA 32 "
SC02-01LB 6 "
SC01-01RA 24 "
SC01-01RB 27 "
SC12-01R 30 "
SC11-01L 51 "
SC12-01LA 34 "
SC10-01LB 51 "
SC10-01RA 50 "
SC10-01LC 39 "
SC09-01LA 26 "
SC09-01RB 32 "
SC12-01RB 33 "
SC13-01M 6 "
SC13-01RA 37 "
SC14-01L 40 "
SC15-01RB 35 "
SC16-01R 53 "
SC16-01RA 26 "
SC20-01L 33 "
SC19-01MA 71 "
SC20-01M 68 "
SC19-01R 17 "
SC18-01R1 48 "
SC19-01MB 64 "
SC20-01R 25 "

Anthony Wayne Trail
Collingwood Blvd
Nebraska Ave
Indiana Ave
Western Ave
Clayton St
Logan St
Broadway St
S Erie St
N Erie St
N Michigan St
S Summit St
Fifth Third Field
Promenade Park
Gnuckel Park
Savage Park
Swan Creek
Amtrak-Toledo

FILE: D:\Swan_Creek\mxd\Updates\F2-2_Sediment_Thickness_Map.mxd 1/5/2012 7:36:38 AM mejacm

Legend
- Locations with Recovery

Note: All depths are listed in inches below surface

0 800 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC.
750 E. Bunker Court
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Figure 2-2
Sediment Thickness Map
Swan Creek
Toledo, Lucas County, Ohio

Imagery Source: ESRI Bing Maps

SC01-01RA 08/05/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	2347800	ug/kg	[22800]
0-6	TOTAL 17 PAH	545500	ug/kg	[22800]
0-6	TOTAL 34 PAH	2947220	ug/kg	[22800]
6-24	TOTAL 17 PAH	6630000	ug/kg	[22800]
6-24	TOTAL 34 PAH	1869900	ug/kg	[22800]

SC01-01RB 08/05/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	282300	ug/kg	[22800]
6-27	TOTAL 17 PAH	1282400	ug/kg	[22800]

SC02-01LA 08/05/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	174050	ug/kg	[22800]
6-24	TOTAL 17 PAH	1135300	ug/kg	[22800]
24-32	TOTAL 17 PAH	415150	ug/kg	[22800]

SC02-01LB 08/06/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	38250	ug/kg	[22800]

SC03-01LA 08/05/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	42500	ug/kg	[22800]
6-24	TOTAL 17 PAH	115050	ug/kg	[22800]
24-33	TOTAL 17 PAH	72900	ug/kg	[22800]

SC03-01RB 08/06/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	51850	ug/kg	[22800]

SC05-01RA 08/06/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 34 PAH	164250	ug/kg	[22800]
0-6	TOTAL 34 PAH	195696	ug/kg	[22800]
6-26	TOTAL 34 PAH	133500	ug/kg	[22800]

SC06-01RA 08/06/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	36250	ug/kg	[22800]
6-27	TOTAL 17 PAH	92650	ug/kg	[22800]

SC06-01RB 08/06/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	46750	ug/kg	[22800]
6-24	TOTAL 17 PAH	49500	ug/kg	[22800]
24-35	TOTAL 17 PAH	39950	ug/kg	[22800]

SC07-01R 08/03/11
Depth	Parameter	Result	Units	[Criteria]
6-24	TOTAL 17 PAH	37150	ug/kg	[22800]

SC07-01LA 08/03/11
Depth	Parameter	Result	Units	[Criteria]
6-25	TOTAL 17 PAH	31200	ug/kg	[22800]

SC08-01LA 08/04/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	108900	ug/kg	[22800]
0-6	TOTAL 17 PAH	165900	ug/kg	[22800]
6-24	TOTAL 17 PAH	48450	ug/kg	[22800]
6-24	TOTAL 17 PAH	45900	ug/kg	[22800]
24-34	TOTAL 17 PAH	39600	ug/kg	[22800]

SC08-01LB 08/04/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	36550	ug/kg	[22800]
6-24	TOTAL 17 PAH	51000	ug/kg	[22800]
24-54	TOTAL 17 PAH	41650	ug/kg	[22800]

SC10-01RA 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	27800	ug/kg	[22800]
6-24	TOTAL 17 PAH	256050	ug/kg	[22800]
24-50	TOTAL 17 PAH	340500	ug/kg	[22800]

SC10-01LB 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	27900	ug/kg	[22800]
6-24	TOTAL 17 PAH	45800	ug/kg	[22800]
24-51	TOTAL 17 PAH	45050	ug/kg	[22800]

SC10-01LC 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 34 PAH	85860	ug/kg	[22800]
0-6	TOTAL 34 PAH	78020	ug/kg	[22800]
6-24	TOTAL 17 PAH	45900	ug/kg	[22800]
24-39	TOTAL 17 PAH	41650	ug/kg	[22800]

SC09-01LA 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	43350	ug/kg	[22800]
6-26	TOTAL 17 PAH	39100	ug/kg	[22800]

SC09-01RB 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	39950	ug/kg	[22800]
6-32	TOTAL 17 PAH	45050	ug/kg	[22800]

SC11-01L 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	111100	ug/kg	[22800]
6-24	TOTAL 17 PAH	37400	ug/kg	[22800]
24-51	TOTAL 17 PAH	42500	ug/kg	[22800]

SC12-01R 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	34150	ug/kg	[22800]
6-30	TOTAL 17 PAH	35100	ug/kg	[22800]

SC12-01LA 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	27450	ug/kg	[22800]
6-24	TOTAL 17 PAH	111200	ug/kg	[22800]
24-34	TOTAL 17 PAH	147900	ug/kg	[22800]

SC12-01RB 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	44400	ug/kg	[22800]
6-24	TOTAL 17 PAH	133500	ug/kg	[22800]
24-33	TOTAL 17 PAH	225400	ug/kg	[22800]

SC13-01M 08/01/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	65150	ug/kg	[22800]

SC13-01RA 08/01/11
Depth	Parameter	Result	Units	[Criteria]
6-24	TOTAL 17 PAH	29820	ug/kg	[22800]
24-37	TOTAL 17 PAH	27750	ug/kg	[22800]

SC14-01L 08/01/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	33000	ug/kg	[22800]
6-24	TOTAL 17 PAH	214900	ug/kg	[22800]
24-40	TOTAL 17 PAH	205150	ug/kg	[22800]

SC15-01RB 08/03/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	49900	ug/kg	[22800]
6-24	TOTAL 17 PAH	196250	ug/kg	[22800]
24-35	TOTAL 17 PAH	93950	ug/kg	[22800]

SC16-01R 08/01/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	29300	ug/kg	[22800]
6-24	TOTAL 17 PAH	83500	ug/kg	[22800]
6-24	TOTAL 17 PAH	106500	ug/kg	[22800]
24-53	TOTAL 17 PAH	430200	ug/kg	[22800]

SC16-01RA 08/01/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	56750	ug/kg	[22800]

SC17-01R 08/01/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	59500	ug/kg	[22800]
0-6	TOTAL 17 PAH	56100	ug/kg	[22800]
6-24	TOTAL 17 PAH	50600	ug/kg	[22800]
24-48	TOTAL 17 PAH	286900	ug/kg	[22800]
48-64	TOTAL 17 PAH	262400	ug/kg	[22800]

SC18-01R1 08/03/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	39100	ug/kg	[22800]
6-24	TOTAL 17 PAH	181900	ug/kg	[22800]
24-48	TOTAL 17 PAH	359550	ug/kg	[22800]

SC19-01R 08/01/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	24020	ug/kg	[22800]
0-6	TOTAL 34 PAH	40210	ug/kg	[22800]

SC19-01MA 08/04/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	62600	ug/kg	[22800]
6-24	TOTAL 17 PAH	74670	ug/kg	[22800]
6-24	TOTAL 34 PAH	53555	ug/kg	[22800]
24-48	TOTAL 17 PAH	156800	ug/kg	[22800]
48-71	TOTAL 17 PAH	329100	ug/kg	[22800]

SC19-01MB 08/04/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	59500	ug/kg	[22800]
0-6	TOTAL 17 PAH	56100	ug/kg	[22800]
6-24	TOTAL 17 PAH	50600	ug/kg	[22800]
24-48	TOTAL 17 PAH	286900	ug/kg	[22800]
48-64	TOTAL 17 PAH	262400	ug/kg	[22800]

SC20-01L 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	181400	ug/kg	[22800]
6-33	TOTAL 17 PAH	132800	ug/kg	[22800]

SC20-01M 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	33950	ug/kg	[22800]
6-24	TOTAL 17 PAH	26900	ug/kg	[22800]
24-48	TOTAL 17 PAH	56500	ug/kg	[22800]
48-68	TOTAL 17 PAH	113300	ug/kg	[22800]

SC20-01R 08/02/11
Depth	Parameter	Result	Units	[Criteria]
0-6	TOTAL 17 PAH	34850	ug/kg	[22800]
6-25	TOTAL 17 PAH	26350	ug/kg	[22800]

Note: Total PAHs were a sum of the detections plus ½ of the detection limit for non-detects.

Legend
- Location without PEC Exceedance
- Location with PEC Exceedance
- Location with Additional PAH (extended list-34)

- 0 - 6 inches bss
- 6 - 24 inches bss
- 24 - 48 inches bss
- 48 - 72 inches bss

N

0 1,400 Feet

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC.
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 3-1
Sampling Results Exceeding PECs - Total PAHs
Swan Creek
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\Updates\F3-1_Total_PAH_PEC.mxd 1/6/2012 10:35:43 AM mejacm

Imagery Source: ESRI Bing Maps

SC01-01RA 08/05/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	161	J	mg/kg	[149]
0-6	LEAD	135	J	mg/kg	[128]
6-24	ARSENIC	39.7	J	mg/kg	[33]
6-24	COPPER	1150		mg/kg	[149]
6-24	LEAD	731	J	mg/kg	[128]
6-24	ZINC	637		mg/kg	[459]

SC01-01RB 08/05/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	152		mg/kg	[149]
0-6	LEAD	281		mg/kg	[128]
0-6	ZINC	465		mg/kg	[459]
6-27	COPPER	313		mg/kg	[149]
6-27	LEAD	361		mg/kg	[128]
6-27	ZINC	526		mg/kg	[459]

SC02-01LA 08/05/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	543	J	mg/kg	[149]
0-6	LEAD	280	J	mg/kg	[128]
6-24	COPPER	745		mg/kg	[149]
6-24	LEAD	305		mg/kg	[128]
24-32	COPPER	668		mg/kg	[149]
24-32	LEAD	335		mg/kg	[128]
24-32	ZINC	460		mg/kg	[459]

SC03-01LA 08/05/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	286		mg/kg	[149]
6-24	LEAD	334		mg/kg	[128]
6-24	ZINC	503		mg/kg	[459]
24-33	COPPER	272		mg/kg	[149]
24-33	LEAD	285		mg/kg	[128]

SC03-01RB 08/06/11

Depth	Parameter	Result		Units	[Criteria]
6-32	LEAD	140		mg/kg	[128]

SC05-01RA 08/06/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	184		mg/kg	[149]
0-6	COPPER	160		mg/kg	[149]
0-6	LEAD	284		mg/kg	[128]
0-6	LEAD	254		mg/kg	[128]
6-26	LEAD	177		mg/kg	[128]

SC06-01RA 08/06/11

Depth	Parameter	Result		Units	[Criteria]
6-27	COPPER	275		mg/kg	[149]
6-27	LEAD	196		mg/kg	[128]

SC06-01RB 08/06/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	241		mg/kg	[149]
6-24	LEAD	303		mg/kg	[128]
24-35	CADMIUM	19.2		mg/kg	[4.98]
24-35	COPPER	762		mg/kg	[149]
24-35	LEAD	3750		mg/kg	[128]
24-35	MERCURY	1.6		mg/kg	[1.06]
24-35	ZINC	2340		mg/kg	[459]

SC07-01LA 08/03/11

Depth	Parameter	Result		Units	[Criteria]
6-25	LEAD	147	J	mg/kg	[128]

SC08-01LB 08/04/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	349	J	mg/kg	[149]
6-24	LEAD	150	J	mg/kg	[128]
24-54	COPPER	931	J	mg/kg	[149]
24-54	LEAD	796	J	mg/kg	[128]
24-54	ZINC	682		mg/kg	[459]

SC11-01L 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	353	J	mg/kg	[149]
6-24	LEAD	230		mg/kg	[128]
24-51	CADMIUM	7		mg/kg	[4.98]
24-51	COPPER	263	J	mg/kg	[149]
24-51	LEAD	1010		mg/kg	[128]
24-51	ZINC	908	J	mg/kg	[459]

SC08-01LA 08/04/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	177	J	mg/kg	[149]
0-6	COPPER	165	J	mg/kg	[149]
0-6	LEAD	297	J	mg/kg	[128]
0-6	LEAD	262	J	mg/kg	[128]
6-24	COPPER	243	J	mg/kg	[149]
6-24	COPPER	382	J	mg/kg	[149]
6-24	LEAD	379	J	mg/kg	[128]
6-24	LEAD	938	J	mg/kg	[128]
6-24	ZINC	696		mg/kg	[459]
24-34	ARSENIC	41.5		mg/kg	[33]
24-34	CADMIUM	6.7		mg/kg	[4.98]
24-34	CHROMIUM	158	J	mg/kg	[111]
24-34	COPPER	404	J	mg/kg	[149]
24-34	LEAD	1520	J	mg/kg	[128]
24-34	MERCURY	1.4		mg/kg	[1.06]
24-34	ZINC	1240		mg/kg	[459]

SC09-01RB 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-32	COPPER	253	J	mg/kg	[149]
6-32	LEAD	650		mg/kg	[128]
6-32	MERCURY	1.2		mg/kg	[1.06]
6-32	ZINC	564	J	mg/kg	[459]

SC10-01RA 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-24	LEAD	146		mg/kg	[128]
24-50	ARSENIC	76.4		mg/kg	[33]
24-50	COPPER	249	J	mg/kg	[149]
24-50	LEAD	852		mg/kg	[128]
24-50	MERCURY	1.2		mg/kg	[1.06]
24-50	ZINC	864	J	mg/kg	[459]

SC10-01RB 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	258	J	mg/kg	[149]
6-24	LEAD	448		mg/kg	[128]
6-24	MERCURY	1.1		mg/kg	[1.06]
24-51	ARSENIC	33.4		mg/kg	[33]
24-51	COPPER	397	J	mg/kg	[149]
24-51	LEAD	1300		mg/kg	[128]
24-51	ZINC	1180	J	mg/kg	[459]

SC10-01LC 08/02/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	197	J	mg/kg	[149]
0-6	LEAD	262		mg/kg	[128]
0-6	LEAD	211		mg/kg	[128]
6-24	COPPER	213	J	mg/kg	[149]
6-24	LEAD	342		mg/kg	[128]
24-39	CADMIUM	5.2		mg/kg	[4.98]
24-39	CHROMIUM	127		mg/kg	[111]
24-39	COPPER	333	J	mg/kg	[149]
24-39	LEAD	1130		mg/kg	[128]
24-39	ZINC	886	J	mg/kg	[459]

SC09-01LA 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-26	COPPER	413	J	mg/kg	[149]
6-26	LEAD	475		mg/kg	[128]

SC12-01R 08/02/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	182	J	mg/kg	[149]
0-6	LEAD	292	J	mg/kg	[128]
6-30	ARSENIC	48.9	J	mg/kg	[33]
6-30	CADMIUM	7.4	J	mg/kg	[4.98]
6-30	CHROMIUM	195	J	mg/kg	[111]
6-30	COPPER	232	J	mg/kg	[149]
6-30	LEAD	542	J	mg/kg	[128]
6-30	NICKEL	51.6	J	mg/kg	[48.6]
6-30	ZINC	1300	J	mg/kg	[459]

SC12-01LA 08/02/11

Depth	Parameter	Result		Units	[Criteria]
0-6	LEAD	150	J	mg/kg	[128]
6-24	ARSENIC	34.4	J	mg/kg	[33]
6-24	LEAD	384	J	mg/kg	[128]
6-24	MERCURY	4.9		mg/kg	[1.06]
6-24	ZINC	578	J	mg/kg	[459]
24-34	ARSENIC	72	J	mg/kg	[33]
24-34	LEAD	411	J	mg/kg	[128]

SC15-01RB 08/03/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	161	J	mg/kg	[149]
6-24	LEAD	329		mg/kg	[128]
24-35	COPPER	316	J	mg/kg	[149]
24-35	LEAD	450		mg/kg	[128]
24-35	ZINC	544	J	mg/kg	[459]

SC16-01R 08/01/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	166		mg/kg	[149]
6-24	COPPER	241		mg/kg	[149]
6-24	COPPER	208		mg/kg	[149]
6-24	LEAD	246	J	mg/kg	[128]
6-24	LEAD	380	J	mg/kg	[128]
6-24	NICKEL	51.4		mg/kg	[48.6]
6-24	NICKEL	49.9		mg/kg	[48.6]
24-53	CADMIUM	5.1		mg/kg	[4.98]
24-53	CHROMIUM	120	J	mg/kg	[111]
24-53	COPPER	369		mg/kg	[149]
24-53	LEAD	958	J	mg/kg	[128]
24-53	MERCURY	1.1		mg/kg	[1.06]
24-53	ZINC	897		mg/kg	[459]

SC16-01RA 08/01/11

Depth	Parameter	Result		Units	[Criteria]
6-26	LEAD	453	J	mg/kg	[128]

SC14-01L 08/01/11

Depth	Parameter	Result		Units	[Criteria]
6-24	CHROMIUM	144	J	mg/kg	[111]
6-24	COPPER	192		mg/kg	[149]
6-24	LEAD	214	J	mg/kg	[128]
6-24	NICKEL	140		mg/kg	[48.6]
24-40	ARSENIC	124	J	mg/kg	[33]
24-40	COPPER	227		mg/kg	[149]
24-40	LEAD	460	J	mg/kg	[128]
24-40	MERCURY	2.8		mg/kg	[1.06]
24-40	NICKEL	78.1		mg/kg	[48.6]
24-40	ZINC	934		mg/kg	[459]

SC13-01RA 08/01/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	354		mg/kg	[149]
6-24	LEAD	420	J	mg/kg	[128]
24-37	COPPER	648		mg/kg	[149]
24-37	LEAD	1380	J	mg/kg	[128]
24-37	MERCURY	1.3		mg/kg	[1.06]
24-37	ZINC	1390		mg/kg	[459]

SC19-01MA 08/04/11

Depth	Parameter	Result		Units	[Criteria]
6-24	LEAD	1850	J	mg/kg	[128]
24-48	ARSENIC	108		mg/kg	[33]
24-48	COPPER	153	J	mg/kg	[149]
24-48	LEAD	449	J	mg/kg	[128]
24-48	MERCURY	3.7		mg/kg	[1.06]
24-48	ZINC	748		mg/kg	[459]
48-71	ARSENIC	129		mg/kg	[33]
48-71	COPPER	152	J	mg/kg	[149]
48-71	LEAD	530	J	mg/kg	[128]
48-71	MERCURY	3.2		mg/kg	[1.06]
48-71	ZINC	717		mg/kg	[459]

SC20-01L 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-33	CADMIUM	5.2	J	mg/kg	[4.98]
6-33	COPPER	183	J	mg/kg	[149]
6-33	LEAD	1090	J	mg/kg	[128]
6-33	MERCURY	3.6		mg/kg	[1.06]
6-33	ZINC	546	J	mg/kg	[459]

SC20-01M 08/02/11

Depth	Parameter	Result		Units	[Criteria]
48-68	COPPER	157	J	mg/kg	[149]

SC19-01MB 08/04/11

Depth	Parameter	Result		Units	[Criteria]
24-48	ARSENIC	56.3		mg/kg	[33]
24-48	LEAD	327	J	mg/kg	[128]
24-48	MERCURY	2.3		mg/kg	[1.06]
24-48	ZINC	545		mg/kg	[459]
48-64	COPPER	161	J	mg/kg	[149]
48-64	LEAD	344	J	mg/kg	[128]
48-64	MERCURY	3		mg/kg	[1.06]
48-64	ZINC	601		mg/kg	[459]

SC19-01R 08/01/11

Depth	Parameter	Result		Units	[Criteria]
6-17	LEAD	533	J	mg/kg	[128]

SC18-01R1 08/03/11

Depth	Parameter	Result		Units	[Criteria]
0-6	COPPER	183	J	mg/kg	[149]
0-6	LEAD	562		mg/kg	[128]
0-6	ZINC	512	J	mg/kg	[459]
6-24	ARSENIC	62.3		mg/kg	[33]
6-24	LEAD	385		mg/kg	[128]
6-24	MERCURY	1.5		mg/kg	[1.06]
24-48	ARSENIC	199		mg/kg	[33]
24-48	LEAD	842		mg/kg	[128]
24-48	MERCURY	2.1		mg/kg	[1.06]
24-48	ZINC	624	J	mg/kg	[459]

SC12-01RB 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-24	COPPER	362	J	mg/kg	[149]
6-24	LEAD	817	J	mg/kg	[128]
6-24	ZINC	720	J	mg/kg	[459]
24-33	CADMIUM	7	J	mg/kg	[4.98]
24-33	COPPER	493	J	mg/kg	[149]
24-33	LEAD	1930	J	mg/kg	[128]
24-33	MERCURY	1.6		mg/kg	[1.06]
24-33	ZINC	1300	J	mg/kg	[459]

Legend

- Location without PEC Exceedance
- Location with PEC Exceedance

- 0 - 6 inches bss
- 6 - 24 inches bss
- 24 - 48 inches bss
- 48 - 72 inches bss

0 1,400 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC.
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 3-2
Sampling Results Exceeding PECs - TAL Metals
Swan Creek
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\Updates\F3-2_Total_Metals_PEC.mxd 1/5/2012 7:44:09 AM mejacm

Imagery Source: ESRI Bing Maps

SC11-01L 08/02/11

Depth	Parameter	Result		Units	[Criteria]
0-6	CALCIUM	112000		mg/kg	[110000]
0-6	MAGNESIUM	56400	J	mg/kg	[29000]
6-24	MAGNESIUM	40800		mg/kg	[29000]

SC08-01LB 08/04/11

Depth	Parameter	Result	Units	[Criteria]
24-54	ANTIMONY	7.2 J-	mg/kg	[0.84]

SC06-01RB 08/06/11

Depth	Parameter	Result	Units	[Criteria]
24-35	ANTIMONY	22.9 J	mg/kg	[0.84]

SC12-01R 08/02/11

Depth	Parameter	Result		Units	[Criteria]
6-30	ANTIMONY	8.2		mg/kg	[0.84]
6-30	IRON	56900	J	mg/kg	[44000]

SC12-01RB 08/02/11

Depth	Parameter	Result	Units	[Criteria]
24-33	ANTIMONY	13.8	mg/kg	[0.84]

SC08-01LA 08/04/11

Depth	Parameter	Result	Units	[Criteria]
24-34	ANTIMONY	20.2 J-	mg/kg	[0.84]

SC09-01RB 08/02/11

Depth	Parameter	Result	Units	[Criteria]
6-32	ANTIMONY	9.7	mg/kg	[0.84]

SC10-01LC 08/02/11

Depth	Parameter	Result	Units	[Criteria]
6-24	ANTIMONY	7.6	mg/kg	[0.84]
24-39	ANTIMONY	14.8	mg/kg	[0.84]

Note: Aluminum, Antimony, Barium, Calcium, Iron, Magnesium, Manganese, Potassium, and Selenium were compared against their respective SRV as no PEC criteria are available.

FILE: D:\Swan_Creek\mxd\Updates\F3-3_Total_Metals_SRV.mxd 1/5/2012 7:47:04 AM mejacm

Legend

- Location without SRV Exceedance
- Location with SRV Exceedance

- 0 - 6 inches bss
- 6 - 24 inches bss
- 24 - 48 inches bss
- 48 - 72 inches bss

N

0 1,250 Feet

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC.
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 3-3
Sampling Results Exceeding SRVs -
TAL Metals without PECs
Swan Creek
Toledo, Lucas County, Ohio

Imagery Source: ESRI Bing Maps

SC05-01RA-006 08/06/11 [0-6]

Parameter	Result	Units
TOTAL PCBs (SUM OF DETECTS)	22000	ug/kg

SC05-01RA-006FS 08/06/11 [0-6]

Parameter	Result	Units
TOTAL PCBs (SUM OF DETECTS)	35000	ug/kg

SC05-01RA-026 08/06/11 [6-26]

Parameter	Result	Units
TOTAL PCBs (SUM OF DETECTS)	10000	ug/kg

SC10-01LC-006 08/02/11 [0-6]

Parameter	Result	Units
TOTAL PCBs (SUM OF DETECTS)	17000	ug/kg

SC10-01LC-006FS 08/02/11 [0-6]

Parameter	Result	Units
TOTAL PCBs (SUM OF DETECTS)	12000	ug/kg

SC19-01MA-024 08/04/11 [6-24]

Parameter	Result	Units
TOTAL PCBs (SUM OF DETECTS)	710	ug/kg

Legend

- Location without PEC Exceedance
- Location with PEC Exceedance
- 0 - 6 inches bss
- 6 - 24 inches bss

0 1,000 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC.
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 3-4
Sampling Results Exceeding PECs - Total PCBs
Swan Creek
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\Updates\F3-4_TPCBs.mxd 1/5/2012 7:53:30 AM mejacm

Imagery Source: ESRI Bing Maps

SC12-01R 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	270	mg/kg
6-30	DRO	700	mg/kg

SC07-01R 08/03/11
Depth	Parameter	Result	Units
0-6	DRO	56 U	mg/kg
6-24	DRO	550	mg/kg
24-40	DRO	55 U	mg/kg

SC12-01LA 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	20	mg/kg
6-24	DRO	2100	mg/kg
24-34	DRO	320	mg/kg

SC15-01RB 08/03/11
Depth	Parameter	Result	Units
0-6	DRO	55 U	mg/kg
6-24	DRO	1500	mg/kg
24-35	DRO	1200	mg/kg

SC19-01MB 08/04/11
Depth	Parameter	Result	Units
0-6	DRO	71 U	mg/kg
0-6	DRO	80 U	mg/kg
6-24	DRO	75 J	mg/kg
24-48	DRO	1600	mg/kg
48-64	DRO	2900	mg/kg

SC08-01LB 08/04/11
Depth	Parameter	Result	Units
0-6	DRO	100 J	mg/kg
6-24	DRO	790	mg/kg
24-54	DRO	1800	mg/kg

SC12-01RB 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	49	mg/kg
6-24	DRO	1800	mg/kg
24-33	DRO	1700	mg/kg

SC20-01L 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	180 J	mg/kg
6-33	DRO	1400	mg/kg

SC06-01RB 08/06/11
Depth	Parameter	Result	Units
0-6	DRO	51 U	mg/kg
6-24	DRO	480	mg/kg
24-35	DRO	160	mg/kg

SC11-01L 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	44	mg/kg
6-24	DRO	190	mg/kg
24-51	DRO	360	mg/kg

SC13-01M 08/01/11
Depth	Parameter	Result	Units
0-6	DRO	290	mg/kg

SC20-01M 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	46	mg/kg
6-24	DRO	75	mg/kg
24-48	DRO	73	mg/kg
48-68	DRO	150	mg/kg

SC06-01RA 08/06/11
Depth	Parameter	Result	Units
0-6	DRO	51 U	mg/kg
6-27	DRO	610	mg/kg

SC08-01LA 08/04/11
Depth	Parameter	Result	Units
0-6	DRO	1700	mg/kg
0-6	DRO	1600	mg/kg
6-24	DRO	1000	mg/kg
6-24	DRO	1400	mg/kg
24-34	DRO	4400	mg/kg

SC20-01R 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	15 J	mg/kg
6-25	DRO	72	mg/kg

SC05-01RA 08/06/11
Depth	Parameter	Result	Units
0-6	DRO	1300 J	mg/kg
0-6	DRO	1200 J	mg/kg
6-26	DRO	810	mg/kg

SC16-01R 08/01/11
Depth	Parameter	Result	Units
0-6	DRO	79	mg/kg
6-24	DRO	420	mg/kg
6-24	DRO	440	mg/kg
24-53	DRO	1200	mg/kg

SC19-01MA 08/04/11
Depth	Parameter	Result	Units
0-6	DRO	90 U	mg/kg
6-24	DRO	210	mg/kg
24-48	DRO	2800	mg/kg
48-71	DRO	3700	mg/kg

SC07-01LA 08/03/11
Depth	Parameter	Result	Units
0-6	DRO	69 UJ	mg/kg
6-25	DRO	160	mg/kg

SC16-01RA 08/01/11
Depth	Parameter	Result	Units
0-6	DRO	73 J	mg/kg
6-26	DRO	290	mg/kg

SC19-01R 08/01/11
Depth	Parameter	Result	Units
0-6	DRO	100	mg/kg
6-17	DRO	48	mg/kg

SC03-01RB 08/06/11
Depth	Parameter	Result	Units
0-6	DRO	77 U	mg/kg
6-32	DRO	1100	mg/kg

SC18-01R1 08/03/11
Depth	Parameter	Result	Units
0-6	DRO	630	mg/kg
6-24	DRO	1900	mg/kg
24-48	DRO	560	mg/kg

SC03-01LA 08/05/11
Depth	Parameter	Result	Units
0-6	DRO	1100	mg/kg
6-24	DRO	2400 J	mg/kg
24-33	DRO	1100 J	mg/kg

SC14-01L 08/01/11
Depth	Parameter	Result	Units
0-6	DRO	45	mg/kg
6-24	DRO	530	mg/kg
24-40	DRO	1300	mg/kg

SC10-01RA 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	21	mg/kg
6-24	DRO	860	mg/kg
24-50	DRO	1900	mg/kg

SC13-01RA 08/01/11
Depth	Parameter	Result	Units
0-6	DRO	40	mg/kg
0-6	DRO	38	mg/kg
6-24	DRO	540	mg/kg
24-37	DRO	1700	mg/kg

SC01-01RA 08/05/11
Depth	Parameter	Result	Units
0-6	DRO	8800 J	mg/kg
0-6	DRO	2400 J	mg/kg
6-24	DRO	6000 J	mg/kg

SC02-01LB 08/06/11
Depth	Parameter	Result	Units
0-6	DRO	57 UJ	mg/kg
0-6	DRO	390 J	mg/kg

SC10-01LB 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	21	mg/kg
6-24	DRO	760	mg/kg
24-51	DRO	1100	mg/kg

SC09-01RB 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	55 U	mg/kg
6-32	DRO	3600	mg/kg

SC10-01LC 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	1900	mg/kg
0-6	DRO	1700	mg/kg
6-24	DRO	1200	mg/kg
24-39	DRO	1600	mg/kg

SC01-01RB 08/05/11
Depth	Parameter	Result	Units
0-6	DRO	2500	mg/kg
6-27	DRO	5200 J	mg/kg

SC09-01LA 08/02/11
Depth	Parameter	Result	Units
0-6	DRO	390	mg/kg
6-26	DRO	1100	mg/kg

SC02-01LA 08/05/11
Depth	Parameter	Result	Units
0-6	DRO	1100	mg/kg
6-24	DRO	3700 J	mg/kg
24-32	DRO	1700 J	mg/kg

FILE: D:\Swan_Creek\mxd\Updates\F3-5_DRO.mxd 1/5/2012 2:44:02 PM mejacm

Legend
- Non Detect - 500 mg/kg
- 500 - 1000 mg/kg
- 1000 - 3000 mg/kg
- >3000 mg/kg

- 0 - 6 inches bss
- 6 - 24 inches bss
- 24 - 48 inches bss
- 48 - 68 inches bss

N

0 1,500 Feet

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC.
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 3-5
Sampling Results - DRO
Swan Creek
Toledo, Lucas County, Ohio

Imagery Source: ESRI Bing Maps

SC07-01R 08/03/11

Depth	Parameter	Result	Units
0-6	ORO	190	mg/kg
6-24	ORO	2800	mg/kg
24-40	ORO	160 U	mg/kg

SC12-01R 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	2400	mg/kg
6-30	ORO	2700	mg/kg

SC11-01L 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	460	mg/kg
6-24	ORO	1600	mg/kg
24-51	ORO	2800	mg/kg

SC06-01RB 08/06/11

Depth	Parameter	Result	Units
0-6	ORO	510 J	mg/kg
6-24	ORO	2300	mg/kg
24-35	ORO	680	mg/kg

SC10-01RA 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	380	mg/kg
6-24	ORO	3700	mg/kg
24-50	ORO	6900	mg/kg

SC06-01RA 08/06/11

Depth	Parameter	Result	Units
0-6	ORO	220 J	mg/kg
6-27	ORO	3100	mg/kg

SC10-01LB 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	420	mg/kg
6-24	ORO	4800	mg/kg
24-51	ORO	5800	mg/kg

SC05-01RA 08/06/11

Depth	Parameter	Result	Units
0-6	ORO	5500 J	mg/kg
0-6	ORO	4600 J	mg/kg
6-26	ORO	2900	mg/kg

SC07-01LA 08/03/11

Depth	Parameter	Result	Units
0-6	ORO	540 J	mg/kg
6-25	ORO	1500	mg/kg

SC03-01RB 08/06/11

Depth	Parameter	Result	Units
0-6	ORO	710 J	mg/kg
6-32	ORO	3900	mg/kg

SC03-01LA 08/05/11

Depth	Parameter	Result	Units
0-6	ORO	5600 J	mg/kg
6-24	ORO	7800 J	mg/kg
24-33	ORO	4200	mg/kg

SC01-01RA 08/05/11

Depth	Parameter	Result	Units
0-6	ORO	8700 J	mg/kg
0-6	ORO	2600 J	mg/kg
6-24	ORO	7500 J	mg/kg

SC01-01RB 08/05/11

Depth	Parameter	Result	Units
0-6	ORO	7800 J	mg/kg
6-27	ORO	12000 J	mg/kg

SC02-01LB 08/06/11

Depth	Parameter	Result	Units
0-6	ORO	350 J	mg/kg
0-6	ORO	3000 J	mg/kg

SC02-01LA 08/05/11

Depth	Parameter	Result	Units
0-6	ORO	4300	mg/kg
6-24	ORO	4300 J	mg/kg
24-32	ORO	3100 J	mg/kg

SC08-01LB 08/04/11

Depth	Parameter	Result	Units
0-6	ORO	620 J	mg/kg
6-24	ORO	2800	mg/kg
24-54	ORO	5700	mg/kg

SC08-01LA 08/04/11

Depth	Parameter	Result	Units
0-6	ORO	7900	mg/kg
0-6	ORO	7000	mg/kg
6-24	ORO	5000	mg/kg
6-24	ORO	5000	mg/kg
24-34	ORO	10000	mg/kg

SC12-01LA 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	300	mg/kg
6-24	ORO	6000	mg/kg
24-34	ORO	1600	mg/kg

SC12-01RB 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	690	mg/kg
6-24	ORO	9200	mg/kg
24-33	ORO	6400	mg/kg

SC13-01M 08/01/11

Depth	Parameter	Result	Units
0-6	ORO	1800	mg/kg

SC10-01LC 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	6700	mg/kg
0-6	ORO	6000	mg/kg
6-24	ORO	4900	mg/kg
24-39	ORO	3900	mg/kg

SC09-01LA 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	170 U	mg/kg
6-26	ORO	3500	mg/kg

SC09-01RB 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	610	mg/kg
6-32	ORO	10000	mg/kg

SC16-01RA 08/01/11

Depth	Parameter	Result	Units
0-6	ORO	590	mg/kg
6-26	ORO	1600	mg/kg

SC14-01L 08/01/11

Depth	Parameter	Result	Units
0-6	ORO	680	mg/kg
6-24	ORO	3000	mg/kg
24-40	ORO	2500	mg/kg

SC13-01RA 08/01/11

Depth	Parameter	Result	Units
0-6	ORO	390	mg/kg
0-6	ORO	450	mg/kg
6-24	ORO	2400	mg/kg
24-37	ORO	7600	mg/kg

SC15-01RB 08/03/11

Depth	Parameter	Result	Units
0-6	ORO	500 J	mg/kg
6-24	ORO	5800	mg/kg
24-35	ORO	5800	mg/kg

SC16-01R 08/01/11

Depth	Parameter	Result	Units
0-6	ORO	790	mg/kg
6-24	ORO	2000	mg/kg
6-24	ORO	2900	mg/kg
24-53	ORO	7200	mg/kg

SC19-01MB 08/04/11

Depth	Parameter	Result	Units
0-6	ORO	1000	mg/kg
0-6	ORO	1000	mg/kg
6-24	ORO	1300	mg/kg
24-48	ORO	4400	mg/kg
48-64	ORO	6200	mg/kg

SC20-01L 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	510	mg/kg
6-33	ORO	350	mg/kg

SC20-01M 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	560	mg/kg
6-24	ORO	750	mg/kg
24-48	ORO	900	mg/kg
48-68	ORO	690	mg/kg

SC20-01R 08/02/11

Depth	Parameter	Result	Units
0-6	ORO	330	mg/kg
6-25	ORO	460	mg/kg

SC19-01MA 08/04/11

Depth	Parameter	Result	Units
0-6	ORO	270 U	mg/kg
6-24	ORO	1600	mg/kg
24-48	ORO	7600	mg/kg
48-71	ORO	8300	mg/kg

SC19-01R 08/01/11

Depth	Parameter	Result	Units
0-6	ORO	780 J	mg/kg
6-17	ORO	520	mg/kg

SC18-01R1 08/03/11

Depth	Parameter	Result	Units
0-6	ORO	4300	mg/kg
6-24	ORO	5300	mg/kg
24-48	ORO	1500	mg/kg

Legend

- Non Detect - 500 mg/kg
- 500 - 3000 mg/kg
- 3000 - 5000 mg/kg
- >5000 mg/kg

- 0 - 6 inches bss
- 6 - 24 inches bss
- 24 - 48 inches bss
- 48 - 68 inches bss

0 1,500 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
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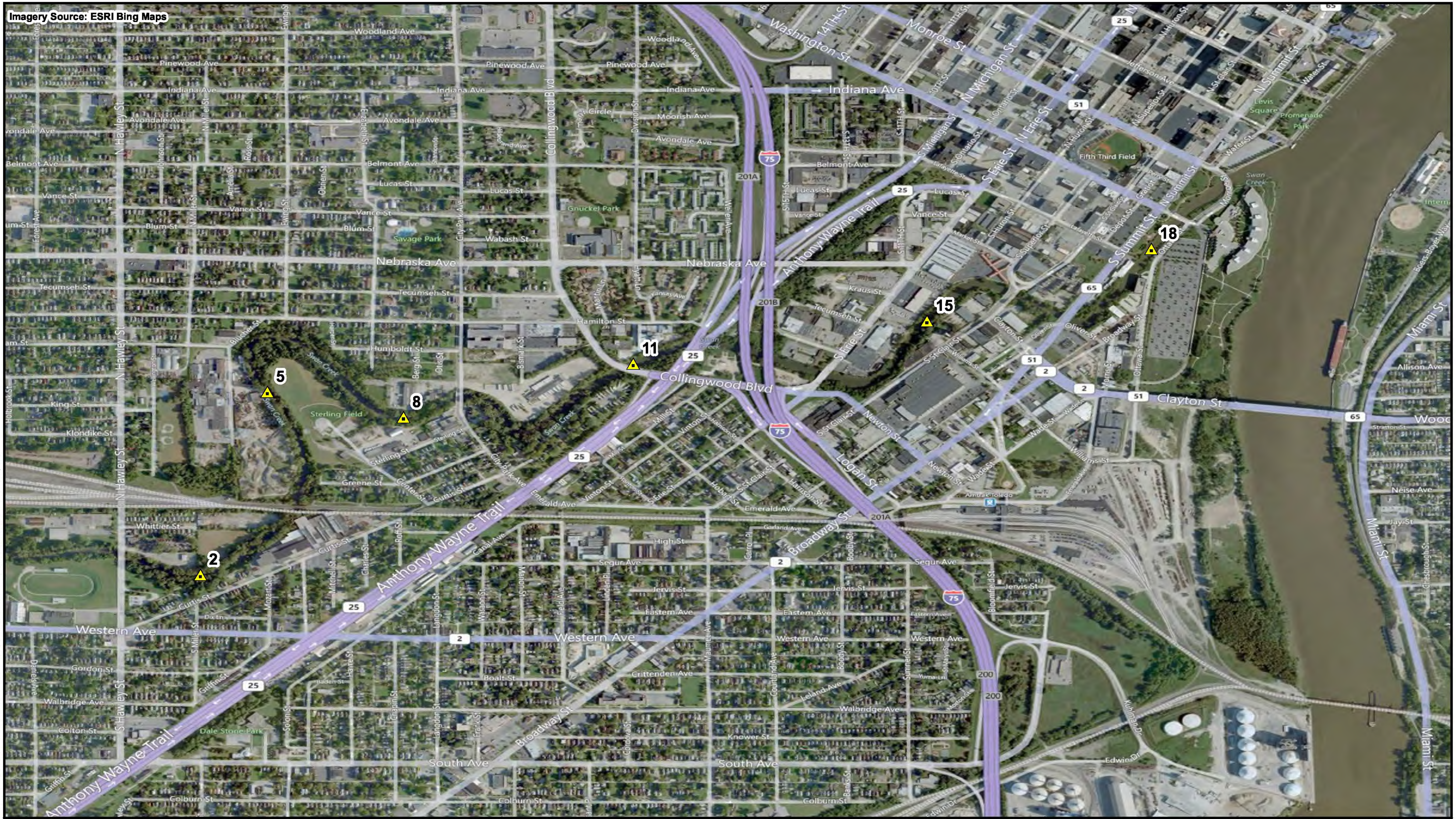
Vernon Hills, Illinois 60061

Figure 3-6
Sampling Results - ORO
Swan Creek
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\Updates\F3-6_RRO.mxd 1/5/2012 2:07:37 PM mejacm



Legend

△ Habitat Assessment Station Location

0 950 Feet

N

Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0008-1103-007
DCN: 1396-2A-ASYH

Prepared By:
WESTON SOLUTIONS, INC.
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 4-1
Habitat Assessment Stations
Swan Creek
Toledo, Lucas County, Ohio

FILE: D:\Swan_Creek\mxd\Updates\F4-1_Habitat_Assessment.mxd 1/6/2012 11:22:25 AM mejacm

APPENDIX A
ANALYTICAL DATA TABLES

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC01-01RA		SC01-01RA		SC01-01RA		SC01-01RB		SC01-01RB		SC02-01LA		SC02-01LA		SC02-01LA	
		Field Sample ID	SC01-01RA-006		SC01-01RA-006DP		SC01-01RA-024		SC01-01RB-006		SC01-01RB-027		SC02-01LA-006		SC02-01LA-024		SC02-01LA-032	
		Sample Date	8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011	
		Depth Interval (inch bss)	0- 6		0- 6		6- 24		0- 6		6- 27		0- 6		6- 24		24- 32	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	17,000		5,000	U	29,000		6,700	U	11,000		5,700	U	23,000		5,000	
1,2,4,5-tetrachlorobenzene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,4,5-trichlorophenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,4,6-trichlorophenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,4-dichlorophenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,4-dimethylphenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,4-dinitrophenol	NL	µg/kg	9,700	U	9,600	U	10,000	U	13,000	U	11,000	U	11,000	U	9,200	U	9,100	U
2,4-dinitrotoluene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2,6-dinitrotoluene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2-chloronaphthalene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2-chlorophenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2-methylnaphthalene	NL	µg/kg	79,000	J	11,000		30,000	J	6,700	U	37,000		5,500	J	74,000		28,000	
2-methylphenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
2-nitroaniline	NL	µg/kg	9,700	U	9,600	U	10,000	U	13,000	U	11,000	U	11,000	U	9,200	U	9,100	U
2-nitrophenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
3,3-dichlorobenzidine	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
3-nitroaniline	NL	µg/kg	9,700	U	9,600	U	10,000	U	13,000	U	11,000	U	11,000	U	9,200	U	9,100	U
4,6-dinitro-2-methylphenol	NL	µg/kg	9,700	U	9,600	U	10,000	U	13,000	U	11,000	U	11,000	U	9,200	U	9,100	U
4-bromophenyl-phenylether	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
4-chloro-3-methylphenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
4-chloroaniline	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
4-chlorophenyl-phenylether	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
4-methylphenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
4-nitroaniline	NL	µg/kg	9,700	U	9,600	U	10,000	U	13,000	U	11,000	U	11,000	U	9,200	U	9,100	U
4-nitrophenol	NL	µg/kg	9,700	U	9,600	U	10,000	U	13,000	U	11,000	U	11,000	U	9,200	U	9,100	U
Acenaphthene	NL	µg/kg	280,000	J	72,000		210,000	J	26,000		120,000		23,000		160,000		59,000	
Acenaphthylene	NL	µg/kg	4,800	J	5,000	U	16,000	J	6,700	U	3,100	J	5,700	U	3,200	J	4,700	U
Acetophenone	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Anthracene	845	µg/kg	180,000	J	25,000		160,000	J	15,000		64,000		8,400		43,000		21,000	
Atrazine	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Benzaldehyde	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Benzo(a)anthracene	1,050	µg/kg	110,000	J	20,000		110,000	J	13,000		39,000		6,300		33,000		13,000	
Benzo(a)pyrene	1,450	µg/kg	45,000	J	9,800		47,000	J	5,900	J	17,000		5,700	U	19,000		7,400	
Benzo(b)fluoranthene	NL	µg/kg	56,000	J	12,000		46,000	J	6,200	J	21,000		3,200	J	19,000		7,300	
Benzo(g,h,i)perylene	NL	µg/kg	18,000	J	3,800	J	18,000	J	6,700	U	5,900		5,700	U	7,700		4,700	U
Benzo(k)fluoranthene	NL	µg/kg	30,000	J	8,400		32,000	J	5,100	J	12,000		5,700	U	15,000		5,700	
Bis(2-chloroethoxy)methane	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Bis(2-chloroethyl)ether	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	7,100		5,000	U	5,200	U	4,700	J	3,900	J	5,700	J	4,700	U	4,700	U
Butylbenzylphthalate	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Caprolactam	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Carbazole	NL	µg/kg	30,000		6,100		47,000		6,700	U	15,000		5,700	U	19,000		7,300	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC01-01RA		SC01-01RA		SC01-01RA		SC01-01RB		SC01-01RB		SC02-01LA		SC02-01LA		SC02-01LA	
		Field Sample ID	SC01-01RA-006		SC01-01RA-006DP		SC01-01RA-024		SC01-01RB-006		SC01-01RB-027		SC02-01LA-006		SC02-01LA-024		SC02-01LA-032	
		Sample Date	8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011	
		Depth Interval (inch bss)	0- 6		0- 6		6- 24		0- 6		6- 27		0- 6		6- 24		24- 32	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	76,000	J	18,000		61,000	J	13,000		36,000		5,700		29,000		12,000	
Dibenzo(a)anthracene	NL	µg/kg	11,000	J	5,000	U	9,900	J	6,700	U	5,600	U	5,700	U	3,300	J	4,700	U
Dibenzofuran	NL	µg/kg	190,000	J	41,000		130,000	J	17,000		69,000		15,000		100,000		41,000	
Diethylphthalate	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Dimethylphthalate	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Di-n-Butylphthalate	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Di-n-octylphthalate	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Fluoranthene	2,230	µg/kg	460,000	J	100,000		230,000	J	58,000		220,000		26,000		140,000		54,000	
Fluorene	536	µg/kg	180,000	J	50,000		210,000	J	20,000		110,000		16,000		100,000		45,000	
Hexachlorobenzene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Hexachlorobutadiene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Hexachlorocyclopentadiene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Hexachloroethane	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	25,000	J	5,000	J	34,000	J	6,700	U	7,600		5,700	U	9,100		3,700	J
Isophorone	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Naphthalene	561	µg/kg	13,000	J	5,000	U	56,000	J	6,700	U	17,000		5,700	U	130,000		25,000	
Nitrobenzene	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
N-nitroso-di-n-propylamine	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
N-nitrosodiphenylamine	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Pentachlorophenol	NL	µg/kg	490	U	9,600	U	520	U	13,000	U	11,000	U	11,000	U	9,200	U	9,100	U
Phenanthrene	1,170	µg/kg	490,000	J	130,000		440,000	J	57,000		400,000		40,000		240,000		89,000	
Phenol	NL	µg/kg	5,000	U	5,000	U	5,200	U	6,700	U	5,600	U	5,700	U	4,700	U	4,700	U
Pyrene	1,520	µg/kg	290,000	J	73,000		160,000	J	43,000		170,000		20,000		110,000		38,000	
TOTAL 17 PAH	22,800	µg/kg	2,347,800		545,500		1,869,900		282,300		1,282,400		174,050		1,135,300		415,150	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC02-01LB		SC02-01LB		SC03-01LA		SC03-01LA		SC03-01LA		SC03-01RB		SC03-01RB		SC05-01RA	
		Field Sample ID	SC02-01LB-006		SC02-01LB-006DP		SC03-01LA-006		SC03-01LA-024		SC03-01LA-033		SC03-01RB-006		SC03-01RB-032		SC05-01RA-006	
		Sample Date	8/6/2011		8/6/2011		8/5/2011		8/5/2011		8/5/2011		8/6/2011		8/6/2011		8/6/2011	
		Depth Interval (inch bss)	0- 6		0- 6		0- 6		6- 24		24- 33		0- 6		6- 32		0- 6	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,4,5-trichlorophenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,4,6-trichlorophenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,4-dichlorophenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,4-dimethylphenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,4-dinitrophenol	NL	µg/kg	8,700	U	500	U	9,800	U	11,000	U	11,000	U	12,000	U	550	U	12,000	U
2,4-dinitrotoluene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2,6-dinitrotoluene	NL	µg/kg	4,500	UJ	260	UJ	5,000	U	5,700	U	5,800	U	6,100	UJ	280	U	6,100	UJ
2-chloronaphthalene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2-chlorophenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2-methylnaphthalene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	180	J
2-methylphenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
2-nitroaniline	NL	µg/kg	8,700	U	500	U	9,800	U	11,000	U	11,000	U	12,000	U	550	U	12,000	U
2-nitrophenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
3,3-dichlorobenzidine	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
3-nitroaniline	NL	µg/kg	8,700	U	500	U	9,800	U	11,000	U	11,000	U	12,000	U	550	U	12,000	U
4,6-dinitro-2-methylphenol	NL	µg/kg	8,700	U	500	U	9,800	U	11,000	U	11,000	U	12,000	U	550	U	12,000	U
4-bromophenyl-phenylether	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
4-chloro-3-methylphenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
4-chloroaniline	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
4-chlorophenyl-phenylether	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
4-methylphenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
4-nitroaniline	NL	µg/kg	8,700	U	500	U	9,800	U	11,000	U	11,000	U	12,000	U	550	U	12,000	U
4-nitrophenol	NL	µg/kg	8,700	U	500	U	9,800	U	11,000	U	11,000	U	12,000	U	550	U	12,000	U
Acenaphthene	NL	µg/kg	4,500	U	260	U	5,000	U	6,700		7,100		6,100	U	280	U	1,600	
Acenaphthylene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	140	J
Acetophenone	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Anthracene	845	µg/kg	4,500	U	260	U	5,000	U	4,800	J	5,800	U	6,100	U	280	U	1,000	
Atrazine	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Benzaldehyde	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Benzo(a)anthracene	1,050	µg/kg	4,500	U	260	U	5,000	U	4,500	J	5,800	U	6,100	U	280	U	1,100	
Benzo(a)pyrene	1,450	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	560	
Benzo(b)fluoranthene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	420	
Benzo(g,h,i)perylene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	300	UJ
Benzo(k)fluoranthene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	440	
Bis(2-chloroethoxy)methane	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Bis(2-chloroethyl)ether	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	4,500	U	260	U	7,100		5,700	U	5,800	U	6,100	U	280	U	6,100	U
Butylbenzylphthalate	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Caprolactam	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Carbazole	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC02-01LB		SC02-01LB		SC03-01LA		SC03-01LA		SC03-01LA		SC03-01RB		SC03-01RB		SC05-01RA	
		Field Sample ID	SC02-01LB-006		SC02-01LB-006DP		SC03-01LA-006		SC03-01LA-024		SC03-01LA-033		SC03-01RB-006		SC03-01RB-032		SC05-01RA-006	
		Sample Date	8/6/2011		8/6/2011		8/5/2011		8/5/2011		8/5/2011		8/6/2011		8/6/2011		8/6/2011	
		Depth Interval (inch bss)	0- 6		0- 6		0- 6		6- 24		24- 33		0- 6		6- 32		0- 6	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	4,500	U	260	U	5,000	U	4,500	J	5,800	U	6,100	U	280	U	1,100	
Dibenzo(a)anthracene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	300	U
Dibenzofuran	NL	µg/kg	4,500	U	260	U	5,000	U	4,600	J	5,800	U	6,100	U	280	U	6,100	U
Diethylphthalate	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Dimethylphthalate	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Di-n-Butylphthalate	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Di-n-octylphthalate	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Fluoranthene	2,230	µg/kg	4,500	U	260	U	5,000	U	21,000		12,000		6,100	U	280	U	4,000	J
Fluorene	536	µg/kg	4,500	U	260	U	5,000	U	5,900		4,800	J	6,100	U	280	U	1,200	
Hexachlorobenzene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Hexachlorobutadiene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Hexachlorocyclopentadiene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Hexachloroethane	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	260	J
Isophorone	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Naphthalene	561	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	300	U
Nitrobenzene	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
N-nitroso-di-n-propylamine	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
N-nitrosodiphenylamine	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Pentachlorophenol	NL	µg/kg	8,700	U	500	U	9,800	U	11,000	U	11,000	U	12,000	U	550	U	610	U
Phenanthrene	1,170	µg/kg	4,500	U	260	U	5,000	U	27,000		5,700	J	6,100	U	280	U	3,900	J
Phenol	NL	µg/kg	4,500	U	260	U	5,000	U	5,700	U	5,800	U	6,100	U	280	U	6,100	U
Pyrene	1,520	µg/kg	4,500	U	260	U	5,000	U	15,000		8,500		6,100	U	280	U	2,500	
TOTAL 17 PAH	22,800	µg/kg	38,250		2,210		42,500		115,050		72,900		51,850		2,380		18,850	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC05-01RA		SC05-01RA		SC06-01RA		SC06-01RA		SC06-01RB		SC06-01RB		SC06-01RB		SC07-01LA	
		Field Sample ID	SC05-01RA-006FS		SC05-01RA-026		SC06-01RA-006		SC06-01RA-027		SC06-01RB-006		SC06-01RB-024		SC06-01RB-035		SC07-01LA-006	
		Sample Date	8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/3/2011	
		Depth Interval (inch bss)	0- 6		6- 26		0- 6		6- 27		0- 6		6- 24		24- 35		0- 6	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,4,5-trichlorophenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,4,6-trichlorophenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,4-dichlorophenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,4-dimethylphenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,4-dinitrophenol	NL	µg/kg	12,000	U	490	U	7,900	U	11,000	U	11,000	U	9,600	U	9,100	U	6,000	U
2,4-dinitrotoluene	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2,6-dinitrotoluene	NL	µg/kg	6,100	UJ	250	UJ	4,100	U	5,900	UJ	5,500	UJ	5,000	UJ	4,700	UJ	3,100	U
2-chloronaphthalene	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2-chlorophenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2-methylnaphthalene	NL	µg/kg	130	J	15		4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	110	J
2-methylphenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
2-nitroaniline	NL	µg/kg	12,000	U	490	U	7,900	U	11,000	U	11,000	U	9,600	U	9,100	U	6,000	U
2-nitrophenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
3,3-dichlorobenzidine	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
3-nitroaniline	NL	µg/kg	12,000	U	490	U	7,900	U	11,000	U	11,000	U	9,600	U	9,100	U	6,000	U
4,6-dinitro-2-methylphenol	NL	µg/kg	12,000	U	490	U	7,900	U	11,000	U	11,000	U	9,600	U	9,100	U	6,000	U
4-bromophenyl-phenylether	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
4-chloro-3-methylphenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
4-chloroaniline	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
4-chlorophenyl-phenylether	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
4-methylphenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
4-nitroaniline	NL	µg/kg	12,000	U	490	U	7,900	U	11,000	U	11,000	U	9,600	U	9,100	U	6,000	U
4-nitrophenol	NL	µg/kg	12,000	U	490	U	7,900	U	11,000	U	11,000	U	9,600	U	9,100	U	6,000	U
Acenaphthene	NL	µg/kg	1,600		88	J	4,100	U	5,000	J	5,500	U	5,000	U	4,700	U	140	J
Acenaphthylene	NL	µg/kg	300	U	4	J	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	80	J
Acetophenone	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Anthracene	845	µg/kg	870		35		4,100	U	4,800	J	5,500	U	5,000	U	4,700	U	260	
Atrazine	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Benzaldehyde	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Benzo(a)anthracene	1,050	µg/kg	1,000		23		4,100	U	3,700	J	5,500	U	5,000	U	4,700	U	830	
Benzo(a)pyrene	1,450	µg/kg	330		25		4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	1,600	J
Benzo(b)fluoranthene	NL	µg/kg	340		9		4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	1,400	
Benzo(g,h,i)perylene	NL	µg/kg	300	UJ	4	J	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	960	
Benzo(k)fluoranthene	NL	µg/kg	380		14		4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	1,300	
Bis(2-chloroethoxy)methane	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Bis(2-chloroethyl)ether	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	6,100	U	250	U	4,100	U	3,300	J	5,500	U	5,000	U	4,700	U	3,100	U
Butylbenzylphthalate	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Caprolactam	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Carbazole	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC05-01RA		SC05-01RA		SC06-01RA		SC06-01RA		SC06-01RB		SC06-01RB		SC06-01RB		SC07-01LA	
		Field Sample ID	SC05-01RA-006FS		SC05-01RA-026		SC06-01RA-006		SC06-01RA-027		SC06-01RB-006		SC06-01RB-024		SC06-01RB-035		SC07-01LA-006	
		Sample Date	8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/3/2011	
		Depth Interval (inch bss)	0- 6		6- 26		0- 6		6- 27		0- 6		6- 24		24- 35		0- 6	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	1,100		24		4,100	U	4,200	J	5,500	U	5,000	U	4,700	U	1,200	
Dibenzo(a)anthracene	NL	µg/kg	300	U	5	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	370	
Dibenzofuran	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Diethylphthalate	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Dimethylphthalate	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Di-n-Butylphthalate	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Di-n-octylphthalate	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Fluoranthene	2,230	µg/kg	3,700	J	100	J	3,100	J	16,000		5,500	U	5,800		4,700	U	2,700	J
Fluorene	536	µg/kg	1,100		58	J	4,100	U	4,400	J	5,500	U	5,000	U	4,700	U	160	
Hexachlorobenzene	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Hexachlorobutadiene	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Hexachlorocyclopentadiene	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Hexachloroethane	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	190	J	5		4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	910	
Isophorone	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Naphthalene	561	µg/kg	300	U	5	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	150	U
Nitrobenzene	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
N-nitroso-di-n-propylamine	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
N-nitrosodiphenylamine	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Pentachlorophenol	NL	µg/kg	600	U	10	U	7,900	U	11,000	U	11,000	U	9,600	U	9,100	U	300	U
Phenanthrene	1,170	µg/kg	3,600	J	130	J	4,100	U	16,000		5,500	U	4,200	J	4,700	U	920	
Phenol	NL	µg/kg	6,100	U	250	U	4,100	U	5,900	U	5,500	U	5,000	U	4,700	U	3,100	U
Pyrene	1,520	µg/kg	2,400		88	J	2,400	J	12,000		5,500	U	4,500	J	4,700	U	1,900	J
TOTAL 17 PAH	22,800	µg/kg	17,340		627		36,250		92,650		46,750		49,500		39,950		14,915	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC07-01LA		SC07-01R		SC07-01R		SC07-01R		SC08-01LA		SC08-01LA		SC08-01LA		SC08-01LA	
		Field Sample ID	SC07-01LA-025		SC07-01R-006		SC07-01R-024		SC07-01R-040		SC08-01LA-006		SC08-01LA-006DP		SC08-01LA-024		SC08-01LA-024DP	
		Sample Date	8/3/2011		8/3/2011		8/3/2011		8/3/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011	
		Depth Interval (inch bss)	6- 25		0- 6		6- 24		24- 40		0- 6		0- 6		6- 24		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,4,5-trichlorophenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,4,6-trichlorophenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,4-dichlorophenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,4-dimethylphenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,4-dinitrophenol	NL	µg/kg	5,000	U	4,600	U	4,800	U	4,600	U	11,000	U	11,000	U	11,000	U	10,000	U
2,4-dinitrotoluene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2,6-dinitrotoluene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2-chloronaphthalene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2-chlorophenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2-methylnaphthalene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2-methylphenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
2-nitroaniline	NL	µg/kg	5,000	U	4,600	U	4,800	U	4,600	U	11,000	U	11,000	U	11,000	U	10,000	U
2-nitrophenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
3,3-dichlorobenzidine	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
3-nitroaniline	NL	µg/kg	5,000	U	4,600	U	4,800	U	4,600	U	11,000	U	11,000	U	11,000	U	10,000	U
4,6-dinitro-2-methylphenol	NL	µg/kg	5,000	U	4,600	U	4,800	U	4,600	U	11,000	U	11,000	U	11,000	U	10,000	U
4-bromophenyl-phenylether	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
4-chloro-3-methylphenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
4-chloroaniline	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
4-chlorophenyl-phenylether	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
4-methylphenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
4-nitroaniline	NL	µg/kg	5,000	U	4,600	U	4,800	U	4,600	U	11,000	U	11,000	U	11,000	U	10,000	U
4-nitrophenol	NL	µg/kg	5,000	U	4,600	U	4,800	U	4,600	U	11,000	U	11,000	U	11,000	U	10,000	U
Acenaphthene	NL	µg/kg	2,600	U	2,400	U	3,000		2,300	U	4,400	J	11,000		5,700	U	5,400	U
Acenaphthylene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Acetophenone	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Anthracene	845	µg/kg	2,600	U	2,400	U	1,700	J	2,300	U	4,200	J	7,600		5,700	U	5,400	U
Atrazine	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Benzaldehyde	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Benzo(a)anthracene	1,050	µg/kg	1,500	J	2,400	U	1,600	J	2,300	U	5,500	J	8,800		5,700	U	5,400	U
Benzo(a)pyrene	1,450	µg/kg	2,600	U	1,500	J	2,500	U	2,300	U	5,900	U	4,800	J	5,700	U	5,400	U
Benzo(b)fluoranthene	NL	µg/kg	2,600	U	1,700	J	2,500	U	2,300	U	3,100	J	4,900	J	5,700	U	5,400	U
Benzo(g,h,i)perylene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Benzo(k)fluoranthene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	4,100	J	5,700	U	5,400	U
Bis(2-chloroethoxy)methane	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Bis(2-chloroethyl)ether	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	6,700		2,400	U	2,400	J	2,300	U	7,600		12,000		5,700	U	5,400	U
Butylbenzylphthalate	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Caprolactam	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Carbazole	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC07-01LA		SC07-01R		SC07-01R		SC07-01R		SC08-01LA		SC08-01LA		SC08-01LA		SC08-01LA	
		Field Sample ID	SC07-01LA-025		SC07-01R-006		SC07-01R-024		SC07-01R-040		SC08-01LA-006		SC08-01LA-006DP		SC08-01LA-024		SC08-01LA-024DP	
		Sample Date	8/3/2011		8/3/2011		8/3/2011		8/3/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011	
		Depth Interval (inch bss)	6- 25		0- 6		6- 24		24- 40		0- 6		0- 6		6- 24		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	1,700	J	2,400	U	1,800	J	2,300	U	5,900	J	8,800		5,700	U	5,400	U
Dibenzo(a)anthracene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Dibenzofuran	NL	µg/kg	2,600	U	2,400	U	1,800	J	2,300	U	5,900	U	7,300		5,700	U	5,400	U
Diethylphthalate	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Dimethylphthalate	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Di-n-Butylphthalate	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Di-n-octylphthalate	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Fluoranthene	2,230	µg/kg	4,600		2,000	J	4,900		2,300	U	22,000		31,000		5,700	U	5,400	U
Fluorene	536	µg/kg	2,600	U	2,400	U	2,500	J	2,300	U	4,200	J	9,200		5,700	U	5,400	U
Hexachlorobenzene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Hexachlorobutadiene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Hexachlorocyclopentadiene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Hexachloroethane	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	2,600	U	1,100	J	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Isophorone	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Naphthalene	561	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Nitrobenzene	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
N-nitroso-di-n-propylamine	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
N-nitrosodiphenylamine	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Pentachlorophenol	NL	µg/kg	5,000	U	4,600	U	4,800	U	4,600	U	11,000	U	11,000	U	11,000	U	10,000	U
Phenanthrene	1,170	µg/kg	4,300		2,400	U	6,500		2,300	U	20,000		34,000		5,700	U	5,400	U
Phenol	NL	µg/kg	2,600	U	2,400	U	2,500	U	2,300	U	5,900	U	5,900	U	5,700	U	5,400	U
Pyrene	1,520	µg/kg	3,500		1,600	J	3,900		2,300	U	16,000		24,000		5,700	U	5,400	U
TOTAL 17 PAH	22,800	µg/kg	31,200		22,300		37,150		19,550		108,900		165,900		48,450		45,900	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC08-01LA		SC08-01LB		SC08-01LB		SC08-01LB		SC09-01LA		SC09-01LA		SC09-01RB		SC09-01RB	
		Field Sample ID	SC08-01LA-034		SC08-01LB-006		SC08-01LB-024		SC08-01LB-054		SC09-01LA-006		SC09-01LA-026		SC09-01RB-006		SC09-01RB-032	
		Sample Date	8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	24- 34		0- 6		6- 24		24- 54		0- 6		6- 26		0- 6		6- 32	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,4,5-trichlorophenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,4,6-trichlorophenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,4-dichlorophenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,4-dimethylphenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,4-dinitrophenol	NL	µg/kg	8,400	U	8,300	U	12,000	U	9,500	U	9,800	U	9,000	U	9,100	U	10,000	U
2,4-dinitrotoluene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2,6-dinitrotoluene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2-chloronaphthalene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2-chlorophenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2-methylnaphthalene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2-methylphenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
2-nitroaniline	NL	µg/kg	8,400	U	8,300	U	12,000	U	9,500	U	9,800	U	9,000	U	9,100	U	10,000	U
2-nitrophenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
3,3-dichlorobenzidine	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
3-nitroaniline	NL	µg/kg	8,400	U	8,300	U	12,000	U	9,500	U	9,800	U	9,000	U	9,100	U	10,000	U
4,6-dinitro-2-methylphenol	NL	µg/kg	8,400	U	8,300	U	12,000	U	9,500	U	9,800	U	9,000	U	9,100	U	10,000	U
4-bromophenyl-phenylether	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
4-chloro-3-methylphenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
4-chloroaniline	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
4-chlorophenyl-phenylether	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
4-methylphenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
4-nitroaniline	NL	µg/kg	8,400	U	8,300	U	12,000	U	9,500	U	9,800	U	9,000	U	9,100	U	10,000	U
4-nitrophenol	NL	µg/kg	8,400	U	8,300	U	12,000	U	9,500	U	9,800	U	9,000	U	9,100	U	10,000	U
Acenaphthene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Acenaphthylene	NL	µg/kg	5,200		4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Acetophenone	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Anthracene	845	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Atrazine	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Benzaldehyde	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Benzo(a)anthracene	1,050	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Benzo(a)pyrene	1,450	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Benzo(b)fluoranthene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Benzo(g,h,i)perylene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Benzo(k)fluoranthene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Bis(2-chloroethoxy)methane	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Bis(2-chloroethyl)ether	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	4,300	U	4,300	U	4,700	J	6,100		5,100	U	4,600	U	4,700	U	5,300	U
Butylbenzylphthalate	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Caprolactam	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Carbazole	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC08-01LA		SC08-01LB		SC08-01LB		SC08-01LB		SC09-01LA		SC09-01LA		SC09-01RB		SC09-01RB	
		Field Sample ID	SC08-01LA-034		SC08-01LB-006		SC08-01LB-024		SC08-01LB-054		SC09-01LA-006		SC09-01LA-026		SC09-01RB-006		SC09-01RB-032	
		Sample Date	8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	24- 34		0- 6		6- 24		24- 54		0- 6		6- 26		0- 6		6- 32	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Dibenzo(a)anthracene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Dibenzofuran	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Diethylphthalate	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Dimethylphthalate	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Di-n-Butylphthalate	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Di-n-octylphthalate	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Fluoranthene	2,230	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Fluorene	536	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Hexachlorobenzene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Hexachlorobutadiene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Hexachlorocyclopentadiene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Hexachloroethane	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Isophorone	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Naphthalene	561	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Nitrobenzene	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
N-nitroso-di-n-propylamine	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
N-nitrosodiphenylamine	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Pentachlorophenol	NL	µg/kg	8,400	U	8,300	U	12,000	U	9,500	U	9,800	U	9,000	U	9,100	U	10,000	U
Phenanthrene	1,170	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Phenol	NL	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
Pyrene	1,520	µg/kg	4,300	U	4,300	U	6,000	U	4,900	U	5,100	U	4,600	U	4,700	U	5,300	U
TOTAL 17 PAH	22,800	µg/kg	39,600		36,550		51,000		41,650		43,350		39,100		39,950		45,050	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC10-01LB		SC10-01LB		SC10-01LB		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01RA	
		Field Sample ID	SC10-01LB-006		SC10-01LB-024		SC10-01LB-051		SC10-01LC-006		SC10-01LC-006FS		SC10-01LC-024		SC10-01LC-039		SC10-01RA-006			
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011			
		Depth Interval (inch bss)	0- 6		6- 24		24- 51		0- 6		0- 6		6- 24		24- 39		0- 6			
Chemical Name	**PEC[1]**	**Unit**																		
1,1-biphenyl	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
1,2,4,5-tetrachlorobenzene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,2-oxybis(1-chloropropane)	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,3,4,6-tetrachlorophenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,4,5-trichlorophenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,4,6-trichlorophenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,4-dichlorophenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,4-dimethylphenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,4-dinitrophenol	NL	µg/kg	5,400	U	9,200	U	10,000	U	12,000	U	11,000	U	10,000	U	9,600	U	4,600	U		
2,4-dinitrotoluene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2,6-dinitrotoluene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2-chloronaphthalene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2-chlorophenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2-methylnaphthalene	NL	µg/kg	2,800	U	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	2,400	U		
2-methylphenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
2-nitroaniline	NL	µg/kg	5,400	U	9,200	U	10,000	U	12,000	U	11,000	U	10,000	U	9,600	U	4,600	U		
2-nitrophenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
3,3-dichlorobenzidine	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
3-nitroaniline	NL	µg/kg	5,400	U	9,200	U	10,000	U	12,000	U	11,000	U	10,000	U	9,600	U	4,600	U		
4,6-dinitro-2-methylphenol	NL	µg/kg	5,400	U	9,200	U	10,000	U	12,000	U	11,000	U	10,000	U	9,600	U	4,600	U		
4-bromophenyl-phenylether	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
4-chloro-3-methylphenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
4-chloroaniline	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
4-chlorophenyl-phenylether	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
4-methylphenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
4-nitroaniline	NL	µg/kg	5,400	U	9,200	U	10,000	U	12,000	U	11,000	U	10,000	U	9,600	U	4,600	U		
4-nitrophenol	NL	µg/kg	5,400	U	9,200	U	10,000	U	12,000	U	11,000	U	10,000	U	9,600	U	4,600	U		
Acenaphthene	NL	µg/kg	2,800	U	4,800	U	5,300	U	89	J	280	U	5,400	U	4,900	U	2,400	U		
Acenaphthylene	NL	µg/kg	2,800	U	4,800	U	5,300	U	290	J	150	J	5,400	U	4,900	U	2,400	U		
Acetophenone	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Anthracene	845	µg/kg	2,800	U	4,800	U	5,300	U	210	J	280	U	5,400	U	4,900	U	2,400	U		
Atrazine	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Benzaldehyde	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Benzo(a)anthracene	1,050	µg/kg	2,800	U	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	1,500	J		
Benzo(a)pyrene	1,450	µg/kg	2,800	U	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	1,700	J		
Benzo(b)fluoranthene	NL	µg/kg	2,100	J	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	2,100	J		
Benzo(g,h,i)perylene	NL	µg/kg	2,800	U	4,800	U	5,300	U	290	UJ	280	UJ	5,400	U	4,900	U	2,400	U		
Benzo(k)fluoranthene	NL	µg/kg	2,800	U	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	2,400	U		
Bis(2-chloroethoxy)methane	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Bis(2-chloroethyl)ether	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Bis(2-ethylhexyll)phthalate	NL	µg/kg	2,800	U	14,000		5,300	U	6,000	U	4,300	J	5,400	U	33,000		2,400	U		
Butylbenzylphthalate	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Caprolactam	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Carbazole	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC10-01LB		SC10-01LB		SC10-01LB		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01RA	
		Field Sample ID	SC10-01LB-006		SC10-01LB-024		SC10-01LB-051		SC10-01LC-006		SC10-01LC-006FS		SC10-01LC-024		SC10-01LC-039		SC10-01RA-006	
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011			
		Depth Interval (inch bss)	0- 6		6- 24		24- 51		0- 6		0- 6		6- 24		24- 39		0- 6			
Chemical Name	**PEC[1]**	**Unit**																		
Chrysene	1,290	µg/kg	2,200	J	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	2,100	J		
Dibenzo(a)anthracene	NL	µg/kg	2,800	U	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	2,400	U		
Dibenzofuran	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Diethylphthalate	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Dimethylphthalate	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Di-n-Butylphthalate	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Di-n-octylphthalate	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Fluoranthene	2,230	µg/kg	3,000		4,400	J	5,300	U	290	U	280	U	5,400	U	4,900	U	3,800			
Fluorene	536	µg/kg	2,800	U	4,500	J	5,300	U	290	U	280	U	5,400	U	4,900	U	2,400	U		
Hexachlorobenzene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Hexachlorobutadiene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Hexachlorocyclopentadiene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Hexachloroethane	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Indeno(1,2,3-cd)pyrene	NL	µg/kg	1,300	J	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	1,600	J		
Isophorone	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Naphthalene	561	µg/kg	2,800	U	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	2,400	U		
Nitrobenzene	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
N-nitroso-di-n-propylamine	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
N-nitrosodiphenylamine	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Pentachlorophenol	NL	µg/kg	5,400	U	9,200	U	10,000	U	590	U	560	U	10,000	U	9,600	U	4,600	U		
Phenanthrene	1,170	µg/kg	2,800	U	3,300	J	5,300	U	290	U	280	U	5,400	U	4,900	U	2,400	U		
Phenol	NL	µg/kg	2,800	U	4,800	U	5,300	U	6,000	U	5,700	U	5,400	U	4,900	U	2,400	U		
Pyrene	1,520	µg/kg	2,500	J	4,800	U	5,300	U	290	U	280	U	5,400	U	4,900	U	3,000			
TOTAL 17 PAH	22,800	µg/kg	27,900		45,800		45,050		2,619		2,390		45,900		41,650		27,800			

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC10-01RA		SC10-01RA		SC11-01L		SC11-01L		SC11-01L		SC12-01LA		SC12-01LA		SC12-01LA	
		Field Sample ID	SC10-01RA-024		SC10-01RA-050		SC11-01L-006		SC11-01L-024		SC11-01L-051		SC12-01LA-006		SC12-01LA-024		SC12-01LA-034	
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	6- 24		24- 50		0- 6		6- 24		24- 51		0- 6		6- 24		24- 34	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,4,5-trichlorophenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,4,6-trichlorophenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,4-dichlorophenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,4-dimethylphenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,4-dinitrophenol	NL	µg/kg	11,000	U	11,000	U	4,600	U	8,500	U	9,700	U	4,800	U	11,000	U	4,500	U
2,4-dinitrotoluene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2,6-dinitrotoluene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2-chloronaphthalene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2-chlorophenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2-methylnaphthalene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,700	
2-methylphenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
2-nitroaniline	NL	µg/kg	11,000	U	11,000	U	4,600	U	8,500	U	9,700	U	4,800	U	11,000	U	4,500	U
2-nitrophenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
3,3-dichlorobenzidine	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
3-nitroaniline	NL	µg/kg	11,000	U	11,000	U	4,600	U	8,500	U	9,700	U	4,800	U	11,000	U	4,500	U
4,6-dinitro-2-methylphenol	NL	µg/kg	11,000	U	11,000	U	4,600	U	8,500	U	9,700	U	4,800	U	11,000	U	4,500	U
4-bromophenyl-phenylether	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
4-chloro-3-methylphenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
4-chloroaniline	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
4-chlorophenyl-phenylether	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
4-methylphenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
4-nitroaniline	NL	µg/kg	11,000	U	11,000	U	4,600	U	8,500	U	9,700	U	4,800	U	11,000	U	4,500	U
4-nitrophenol	NL	µg/kg	11,000	U	11,000	U	4,600	U	8,500	U	9,700	U	4,800	U	11,000	U	4,500	U
Acenaphthene	NL	µg/kg	13,000		9,700		1,600	J	4,400	U	5,000	U	2,500	U	5,700	U	5,100	
Acenaphthylene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Acetophenone	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Anthracene	845	µg/kg	16,000		23,000		4,000		4,400	U	5,000	U	2,500	U	5,700	U	7,500	
Atrazine	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Benzaldehyde	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Benzo(a)anthracene	1,050	µg/kg	14,000		23,000		7,900		4,400	U	5,000	U	1,300	J	8,300		9,300	
Benzo(a)pyrene	1,450	µg/kg	7,300		14,000		7,100		4,400	U	5,000	U	1,500	J	9,000		5,800	
Benzo(b)fluoranthene	NL	µg/kg	8,000		15,000		8,300		4,400	U	5,000	U	2,000	J	8,800		6,300	
Benzo(g,h,i)perylene	NL	µg/kg	5,700	U	6,100		5,100		4,400	U	5,000	U	2,500	U	6,000		2,800	
Benzo(k)fluoranthene	NL	µg/kg	6,000		11,000		4,700		4,400	U	5,000	U	2,500	U	6,300		4,400	
Bis(2-chloroethoxy)methane	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Bis(2-chloroethyl)ether	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	9,100		5,900	U	2,400	U	4,400	U	5,000	U	8,200		5,700	U	2,300	U
Butylbenzylphthalate	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Caprolactam	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Carbazole	NL	µg/kg	5,700	U	3,500	J	2,100	J	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC10-01RA		SC10-01RA		SC11-01L		SC11-01L		SC11-01L		SC12-01LA		SC12-01LA		SC12-01LA	
		Field Sample ID	SC10-01RA-024		SC10-01RA-050		SC11-01L-006		SC11-01L-024		SC11-01L-051		SC12-01LA-006		SC12-01LA-024		SC12-01LA-034	
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	6- 24		24- 50		0- 6		6- 24		24- 51		0- 6		6- 24		24- 34	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	15,000		22,000		7,800		4,400	U	5,000	U	1,800	J	9,000		9,500	
Dibenzo(a)anthracene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Dibenzofuran	NL	µg/kg	8,700		7,600		2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	3,000	
Diethylphthalate	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Dimethylphthalate	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Di-n-Butylphthalate	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Di-n-octylphthalate	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Fluoranthene	2,230	µg/kg	51,000		69,000		19,000		4,400	U	5,000	U	3,400		14,000		27,000	
Fluorene	536	µg/kg	15,000		20,000		1,800	J	4,400	U	5,000	U	2,500	U	5,700	U	6,500	
Hexachlorobenzene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Hexachlorobutadiene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Hexachlorocyclopentadiene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Hexachloroethane	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	3,500	J	6,900		6,000		4,400	U	5,000	U	1,400	J	6,300		3,600	
Isophorone	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Naphthalene	561	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	4,100	J	6,100	
Nitrobenzene	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
N-nitroso-di-n-propylamine	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
N-nitrosodiphenylamine	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Pentachlorophenol	NL	µg/kg	11,000	U	11,000	U	4,600	U	8,500	U	9,700	U	4,800	U	11,000	U	4,500	U
Phenanthrene	1,170	µg/kg	56,000		56,000		17,000		4,400	U	5,000	U	2,000	J	7,300		26,000	
Phenol	NL	µg/kg	5,700	U	5,900	U	2,400	U	4,400	U	5,000	U	2,500	U	5,700	U	2,300	U
Pyrene	1,520	µg/kg	37,000		53,000		16,000		4,400	U	5,000	U	2,800		15,000		23,000	
TOTAL 17 PAH	22,800	µg/kg	256,050		340,500		111,100		37,400		42,500		27,450		111,200		147,900	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC12-01R		SC12-01R		SC12-01RB		SC12-01RB		SC12-01RB		SC13-01M		SC13-01RA		SC13-01RA	
		Field Sample ID	SC12-01R-006		SC12-01R-030		SC12-01RB-006		SC12-01RB-024		SC12-01RB-033		SC13-01M-006		SC13-01RA-006		SC13-01RA-006DP	
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/1/2011		8/1/2011		8/1/2011	
		Depth Interval (inch bss)	0- 6		6- 30		0- 6		6- 24		24- 33		0- 6		0- 6		0- 6	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,4,5-trichlorophenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,4,6-trichlorophenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,4-dichlorophenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,4-dimethylphenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,4-dinitrophenol	NL	µg/kg	5,300	U	4,900	U	5,000	U	5,200	U	5,100	U	5,200	U	4,900	U	4,400	U
2,4-dinitrotoluene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2,6-dinitrotoluene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2-chloronaphthalene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2-chlorophenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2-methylnaphthalene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,600	J	7,600		2,000	J	170		140	
2-methylphenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
2-nitroaniline	NL	µg/kg	5,300	U	4,900	U	5,000	U	5,200	U	5,100	U	5,200	U	4,900	U	4,400	U
2-nitrophenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
3,3-dichlorobenzidine	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
3-nitroaniline	NL	µg/kg	5,300	U	4,900	U	5,000	U	5,200	U	5,100	U	5,200	U	4,900	U	4,400	U
4,6-dinitro-2-methylphenol	NL	µg/kg	5,300	U	4,900	U	5,000	U	5,200	U	5,100	U	5,200	U	4,900	U	4,400	U
4-bromophenyl-phenylether	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
4-chloro-3-methylphenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
4-chloroaniline	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
4-chlorophenyl-phenylether	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
4-methylphenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
4-nitroaniline	NL	µg/kg	5,300	U	4,900	U	5,000	U	5,200	U	5,100	U	5,200	U	4,900	U	4,400	U
4-nitrophenol	NL	µg/kg	5,300	U	4,900	U	5,000	U	5,200	U	5,100	U	5,200	U	4,900	U	4,400	U
Acenaphthene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	J	8,800		6,100		660		420	
Acenaphthylene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	170		130	
Acetophenone	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Anthracene	845	µg/kg	2,700	U	2,500	U	2,600	U	4,700		11,000		4,000		830		2,700	J
Atrazine	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Benzaldehyde	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Benzo(a)anthracene	1,050	µg/kg	2,200	J	2,600		2,600		9,500		14,000		2,500	J	2,000	J	1,800	J
Benzo(a)pyrene	1,450	µg/kg	2,800		2,300	J	2,800		7,600		9,700		1,600	J	2,100	J	1,800	J
Benzo(b)fluoranthene	NL	µg/kg	3,100		2,100	J	3,400		7,800		10,000		2,000	J	2,400	J	2,100	J
Benzo(g,h,i)perylene	NL	µg/kg	2,000	J	2,500	U	2,100	J	4,900		5,800		2,700	U	1,200		1,000	
Benzo(k)fluoranthene	NL	µg/kg	2,700	U	1,600	J	2,300	J	6,200		7,300		2,700	U	1,800	J	1,600	J
Bis(2-chloroethoxy)methane	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Bis(2-chloroethyl)ether	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	5,100		2,500	U	2,200	J	2,700	U	2,600	U	3,200		2,500	U	2,000	J
Butylbenzylphthalate	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Caprolactam	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Carbazole	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	1,600	J	2,700	U	2,500	U	2,300	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC12-01R		SC12-01R		SC12-01RB		SC12-01RB		SC12-01RB		SC13-01M		SC13-01RA		SC13-01RA	
		Field Sample ID	SC12-01R-006		SC12-01R-030		SC12-01RB-006		SC12-01RB-024		SC12-01RB-033		SC13-01M-006		SC13-01RA-006		SC13-01RA-006DP	
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/1/2011		8/1/2011		8/1/2011	
		Depth Interval (inch bss)	0- 6		6- 30		0- 6		6- 24		24- 33		0- 6		0- 6		0- 6	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	2,700	J	2,800		3,600		11,000		14,000		2,500	J	2,300	J	2,300	J
Dibenzo(a)anthracene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,400	J	2,700	U	650		530	
Dibenzofuran	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,100	J	6,200		3,900		2,500	U	2,300	U
Diethylphthalate	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Dimethylphthalate	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Di-n-Butylphthalate	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Di-n-octylphthalate	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Fluoranthene	2,230	µg/kg	3,800		5,500		7,200		20,000		29,000		10,000		5,500	J	5,100	J
Fluorene	536	µg/kg	2,700	U	2,500	U	2,600	U	4,000		11,000		6,000		740		690	
Hexachlorobenzene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Hexachlorobutadiene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Hexachlorocyclopentadiene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Hexachloroethane	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	2,100	J	1,400	J	2,500	J	6,000		6,900		2,700	U	2,000	J	1,700	J
Isophorone	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Naphthalene	561	µg/kg	2,700	U	2,500	U	2,600	U	2,800		6,600		3,300		200		140	
Nitrobenzene	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
N-nitroso-di-n-propylamine	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
N-nitrosodiphenylamine	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Pentachlorophenol	NL	µg/kg	5,300	U	4,900	U	5,000	U	5,200	U	5,100	U	5,200	U	250	U	220	U
Phenanthrene	1,170	µg/kg	2,700	U	1,900	J	3,200		20,000		52,000		11,000		2,700	J	2,500	J
Phenol	NL	µg/kg	2,700	U	2,500	U	2,600	U	2,700	U	2,600	U	2,700	U	2,500	U	2,300	U
Pyrene	1,520	µg/kg	3,300		4,900		5,600		21,000		28,000		7,400		3,500	J	3,100	J
TOTAL 17 PAH	22,800	µg/kg	34,150		35,100		44,400		133,500		225,400		65,150		28,920		27,750	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC13-01RA		SC13-01RA		SC14-01L		SC14-01L		SC14-01L		SC15-01RB		SC15-01RB		SC15-01RB	
		Field Sample ID	SC13-01RA-024		SC13-01RA-037		SC14-01L-006		SC14-01L-024		SC14-01L-040		SC15-01RB-006		SC15-01RB-024		SC15-01RB-035	
		Sample Date	8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011		8/3/2011		8/3/2011	
		Depth Interval (inch bss)	6- 24		24- 37		0- 6		6- 24		24- 40		0- 6		6- 24		24- 35	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,4,5-trichlorophenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,4,6-trichlorophenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,4-dichlorophenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,4-dimethylphenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,4-dinitrophenol	NL	µg/kg	5,100	U	5,600	U	6,500	U	6,600	U	5,600	U	9,900	U	10,000	U	9,100	U
2,4-dinitrotoluene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2,6-dinitrotoluene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2-chloronaphthalene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2-chlorophenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2-methylnaphthalene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,100	J	5,100	U	5,300	U	4,700	U
2-methylphenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
2-nitroaniline	NL	µg/kg	5,100	U	5,600	U	6,500	U	6,600	U	5,600	U	9,900	U	10,000	U	9,100	U
2-nitrophenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
3,3-dichlorobenzidine	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
3-nitroaniline	NL	µg/kg	5,100	U	5,600	U	6,500	U	6,600	U	5,600	U	9,900	U	10,000	U	9,100	U
4,6-dinitro-2-methylphenol	NL	µg/kg	5,100	U	5,600	U	6,500	U	6,600	U	5,600	U	9,900	U	10,000	U	9,100	U
4-bromophenyl-phenylether	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
4-chloro-3-methylphenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
4-chloroaniline	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
4-chlorophenyl-phenylether	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
4-methylphenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
4-nitroaniline	NL	µg/kg	5,100	U	5,600	U	6,500	U	6,600	U	5,600	U	9,900	U	10,000	U	9,100	U
4-nitrophenol	NL	µg/kg	5,100	U	5,600	U	6,500	U	6,600	U	5,600	U	9,900	U	10,000	U	9,100	U
Acenaphthene	NL	µg/kg	4,800		2,900	U	3,400	U	6,500		12,000		5,100	U	9,900		4,700	U
Acenaphthylene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Acetophenone	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Anthracene	845	µg/kg	5,000		2,900	U	2,300	J	26,000		12,000		5,100	U	9,900		4,400	J
Atrazine	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Benzaldehyde	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Benzo(a)anthracene	1,050	µg/kg	7,500		2,800	J	3,400	U	15,000		13,000		5,100	U	12,000		6,000	
Benzo(a)pyrene	1,450	µg/kg	5,300		2,200	J	3,400	U	8,700		8,900		5,100	U	6,900		4,700	J
Benzo(b)fluoranthene	NL	µg/kg	7,200		2,800	J	3,400	U	10,000		10,000		5,100	U	7,000		3,500	J
Benzo(g,h,i)perylene	NL	µg/kg	3,300		2,900	U	3,400	U	4,200		5,500		5,100	U	5,300	U	4,700	U
Benzo(k)fluoranthene	NL	µg/kg	3,200		2,900	U	3,400	U	6,600		5,800		5,100	U	5,800		4,000	J
Bis(2-chloroethoxy)methane	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Bis(2-chloroethyl)ether	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	6,500		2,900	U	3,400	U	18,000		10,000		5,100	U	25,000		3,400	J
Butylbenzylphthalate	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Caprolactam	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Carbazole	NL	µg/kg	2,600	U	2,900	U	3,400	U	4,600		1,600	J	5,100	U	5,300	U	4,700	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC13-01RA		SC13-01RA		SC14-01L		SC14-01L		SC14-01L		SC15-01RB		SC15-01RB		SC15-01RB	
		Field Sample ID	SC13-01RA-024		SC13-01RA-037		SC14-01L-006		SC14-01L-024		SC14-01L-040		SC15-01RB-006		SC15-01RB-024		SC15-01RB-035	
		Sample Date	8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011		8/3/2011		8/3/2011	
		Depth Interval (inch bss)	6- 24		24- 37		0- 6		6- 24		24- 40		0- 6		6- 24		24- 35	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	7,500		3,100		3,400	U	17,000		12,000		5,100	U	11,000		6,000	
Dibenzo(a)anthracene	NL	µg/kg	2,600	U	2,900	U	3,400	U	1,900	J	1,900	J	5,100	U	5,300	U	4,700	U
Dibenzofuran	NL	µg/kg	3,100		2,900	U	3,400	U	3,500		5,500		5,100	U	4,900	J	4,700	U
Diethylphthalate	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Dimethylphthalate	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Di-n-Butylphthalate	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Di-n-octylphthalate	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	2,800	J	4,700	U
Fluoranthene	2,230	µg/kg	18,000		6,500		3,300	J	39,000		30,000		6,100		39,000		16,000	
Fluorene	536	µg/kg	5,100		2,900	U	3,400	U	12,000		12,000		5,100	U	11,000		4,200	J
Hexachlorobenzene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Hexachlorobutadiene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Hexachlorocyclopentadiene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Hexachloroethane	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	4,100		1,900	J	3,400	U	4,900		6,000		5,100	U	3,500	J	2,500	J
Isophorone	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Naphthalene	561	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	3,500		5,100	U	5,300	U	3,900	J
Nitrobenzene	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
N-nitroso-di-n-propylamine	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
N-nitrosodiphenylamine	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Pentachlorophenol	NL	µg/kg	5,100	U	5,600	U	6,500	U	6,600	U	5,600	U	9,900	U	10,000	U	9,100	U
Phenanthrene	1,170	µg/kg	19,000		6,100		2,900	J	29,000		39,000		3,000	J	38,000		15,000	
Phenol	NL	µg/kg	2,600	U	2,900	U	3,400	U	3,400	U	2,900	U	5,100	U	5,300	U	4,700	U
Pyrene	1,520	µg/kg	16,000		6,000		2,400	J	29,000		30,000		5,100		29,000		12,000	
TOTAL 17 PAH	22,800	µg/kg	111,200		44,450		33,000		214,900		205,150		49,900		196,250		93,950	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC16-01R		SC16-01R		SC16-01R		SC16-01R		SC16-01RA		SC16-01RA		SC18-01R1		SC18-01R1	
		Field Sample ID	SC16-01R-006		SC16-01R-024		SC16-01R-024FS		SC16-01R-053		SC16-01RA-006		SC16-01RA-026		SC18-01R1-006		SC18-01R1-024	
		Sample Date	8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011		8/3/2011	
		Depth Interval (inch bss)	0- 6		6- 24		6- 24		24- 53		0- 6		6- 26		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,4,5-trichlorophenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,4,6-trichlorophenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,4-dichlorophenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,4-dimethylphenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,4-dinitrophenol	NL	µg/kg	5,200	U	5,100	U	5,000	U	4,900	U	4,800	U	4,300	U	9,000	U	10,000	U
2,4-dinitrotoluene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2,6-dinitrotoluene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,400	J	2,200	U	4,600	U	5,300	U
2-chloronaphthalene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2-chlorophenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2-methylnaphthalene	NL	µg/kg	2,700	U	2,600	U	2,600	U	6,700		2,500	U	2,200	U	4,600	U	5,300	U
2-methylphenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
2-nitroaniline	NL	µg/kg	5,200	U	5,100	U	5,000	U	4,900	U	4,800	U	4,300	U	9,000	U	10,000	U
2-nitrophenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
3,3-dichlorobenzidine	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
3-nitroaniline	NL	µg/kg	5,200	U	5,100	U	5,000	U	4,900	U	4,800	U	4,300	U	9,000	U	10,000	U
4,6-dinitro-2-methylphenol	NL	µg/kg	5,200	U	5,100	U	5,000	U	4,900	U	4,800	U	4,300	U	9,000	U	10,000	U
4-bromophenyl-phenylether	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
4-chloro-3-methylphenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
4-chloroaniline	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
4-chlorophenyl-phenylether	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
4-methylphenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
4-nitroaniline	NL	µg/kg	5,200	U	5,100	U	5,000	U	4,900	U	4,800	U	4,300	U	9,000	U	10,000	U
4-nitrophenol	NL	µg/kg	5,200	U	5,100	U	5,000	U	4,900	U	4,800	U	4,300	U	9,000	U	10,000	U
Acenaphthene	NL	µg/kg	2,700	U	7,300		5,900		29,000		2,500		2,200	U	4,600	U	6,600	
Acenaphthylene	NL	µg/kg	2,700	U	2,600	U	2,600	U	4,900		2,500	U	2,200	U	4,600	U	5,300	U
Acetophenone	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Anthracene	845	µg/kg	2,700	U	2,800		2,800		26,000		2,500	U	2,200	U	4,600	U	10,000	
Atrazine	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Benzaldehyde	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Benzo(a)anthracene	1,050	µg/kg	1,600	J	6,200		10,000		28,000		4,100		2,200	U	4,600	U	11,000	
Benzo(a)pyrene	1,450	µg/kg	1,500	J	4,300		8,200		21,000		3,900		2,200	U	4,600	U	8,900	
Benzo(b)fluoranthene	NL	µg/kg	1,900	J	5,500		10,000		22,000		5,100		2,200	U	4,600	U	7,100	
Benzo(g,h,i)perylene	NL	µg/kg	2,700	U	2,400	J	4,500		13,000		3,100		2,200	U	4,600	U	4,500	J
Benzo(k)fluoranthene	NL	µg/kg	2,700	U	2,600	J	5,100		11,000		2,800		2,200	U	4,600	U	6,800	
Bis(2-chloroethoxy)methane	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Bis(2-chloroethyl)ether	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	2,700	U	3,600		5,400		2,500	U	1,700	J	2,200	U	17,000		5,300	U
Butylbenzylphthalate	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Caprolactam	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Carbazole	NL	µg/kg	2,700	U	2,600	U	2,600	U	3,100		2,500	U	2,200	U	4,600	U	5,300	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC16-01R		SC16-01R		SC16-01R		SC16-01R		SC16-01RA		SC16-01RA		SC18-01R1		SC18-01R1	
		Field Sample ID	SC16-01R-006		SC16-01R-024		SC16-01R-024FS		SC16-01R-053		SC16-01RA-006		SC16-01RA-026		SC18-01R1-006		SC18-01R1-024	
		Sample Date	8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011		8/3/2011	
		Depth Interval (inch bss)	0- 6		6- 24		6- 24		24- 53		0- 6		6- 26		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	1,900	J	5,800		11,000		25,000		4,700		2,200	U	4,600	U	12,000	
Dibenzo(a)anthracene	NL	µg/kg	2,700	U	2,600	U	2,100	J	4,600		2,500	U	2,200	U	4,600	U	5,300	U
Dibenzofuran	NL	µg/kg	2,700	U	2,900		1,600	J	14,000		2,500	U	2,200	U	4,600	U	4,000	J
Diethylphthalate	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Dimethylphthalate	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Di-n-Butylphthalate	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Di-n-octylphthalate	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Fluoranthene	2,230	µg/kg	4,100		16,000		16,000		51,000		8,500		1,400	J	4,600	U	29,000	
Fluorene	536	µg/kg	2,700	U	5,500		4,200		28,000		1,500	J	2,200	U	4,600	U	8,400	
Hexachlorobenzene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Hexachlorobutadiene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Hexachlorocyclopentadiene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Hexachloroethane	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	2,700	U	2,700		5,800		16,000		3,600		2,200	U	4,600	U	4,000	J
Isophorone	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Naphthalene	561	µg/kg	2,700	U	2,600	U	2,600	U	14,000		2,500	U	2,200	U	4,600	U	5,300	U
Nitrobenzene	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
N-nitroso-di-n-propylamine	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
N-nitrosodiphenylamine	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Pentachlorophenol	NL	µg/kg	5,200	U	5,100	U	5,000	U	4,900	U	4,800	U	4,300	U	9,000	U	10,000	U
Phenanthrene	1,170	µg/kg	1,700	J	4,200		4,000		78,000		3,500		2,200	U	4,600	U	37,000	
Phenol	NL	µg/kg	2,700	U	2,600	U	2,600	U	2,500	U	2,500	U	2,200	U	4,600	U	5,300	U
Pyrene	1,520	µg/kg	3,100		13,000		13,000		52,000		7,200		2,200	U	4,600	U	26,000	
TOTAL 17 PAH	22,800	µg/kg	29,300		83,500		106,500		430,200		56,750		19,000		39,100		181,900	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC18-01R1		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MB		SC19-01MB		SC19-01MB	
		Field Sample ID	SC18-01R1-048		SC19-01MA-006		SC19-01MA-024		SC19-01MA-048		SC19-01MA-071		SC19-01MB-006		SC19-01MB-006FS		SC19-01MB-024	
		Sample Date	8/3/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011	
		Depth Interval (inch bss)	24- 48		0- 6		6- 24		24- 48		48- 71		0- 6		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	3,500	J	7,000	U	6,600	U	5,900	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,4,5-trichlorophenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,4,6-trichlorophenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,4-dichlorophenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,4-dimethylphenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,4-dinitrophenol	NL	µg/kg	9,800	U	14,000	U	12,000	U	11,000	U	11,000	U	14,000	U	13,000	U	11,000	U
2,4-dinitrotoluene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2,6-dinitrotoluene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2-chloronaphthalene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2-chlorophenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2-methylnaphthalene	NL	µg/kg	8,400		7,200	U	1,000		4,100	J	17,000		7,000	U	6,600	U	5,900	U
2-methylphenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
2-nitroaniline	NL	µg/kg	9,800	U	14,000	U	12,000	U	11,000	U	11,000	U	14,000	U	13,000	U	11,000	U
2-nitrophenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
3,3-dichlorobenzidine	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
3-nitroaniline	NL	µg/kg	9,800	U	14,000	U	12,000	U	11,000	U	11,000	U	14,000	U	13,000	U	11,000	U
4,6-dinitro-2-methylphenol	NL	µg/kg	9,800	U	14,000	U	12,000	U	11,000	U	11,000	U	14,000	U	13,000	U	11,000	U
4-bromophenyl-phenylether	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
4-chloro-3-methylphenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
4-chloroaniline	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
4-chlorophenyl-phenylether	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
4-methylphenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
4-nitroaniline	NL	µg/kg	9,800	U	14,000	U	12,000	U	11,000	U	11,000	U	14,000	U	13,000	U	11,000	U
4-nitrophenol	NL	µg/kg	9,800	U	14,000	U	12,000	U	11,000	U	11,000	U	14,000	U	13,000	U	11,000	U
Acenaphthene	NL	µg/kg	21,000		7,200	U	2,300		5,100	J	15,000		7,000	U	6,600	U	5,900	U
Acenaphthylene	NL	µg/kg	5,100	U	7,200	U	660		5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Acetophenone	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Anthracene	845	µg/kg	31,000		7,200	U	4,300	J	8,800		19,000		7,000	U	6,600	U	5,900	U
Atrazine	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Benzaldehyde	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Benzo(a)anthracene	1,050	µg/kg	11,000		7,200	U	3,700	J	8,800		19,000		7,000	U	6,600	U	5,900	U
Benzo(a)pyrene	1,450	µg/kg	6,400		7,200	U	3,500	J	5,900		14,000		7,000	U	6,600	U	5,900	U
Benzo(b)fluoranthene	NL	µg/kg	5,700		7,200	U	2,300		5,800	J	12,000		7,000	U	6,600	U	5,900	U
Benzo(g,h,i)perylene	NL	µg/kg	5,100	U	7,200	U	1,400		5,800	U	7,000		7,000	U	6,600	U	5,900	U
Benzo(k)fluoranthene	NL	µg/kg	4,500	J	7,200	U	2,600		4,200	J	8,000		7,000	U	6,600	U	5,900	U
Bis(2-chloroethoxy)methane	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Bis(2-chloroethyl)ether	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Butylbenzylphthalate	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Caprolactam	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Carbazole	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC18-01R1		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MB		SC19-01MB		SC19-01MB	
		Field Sample ID	SC18-01R1-048		SC19-01MA-006		SC19-01MA-024		SC19-01MA-048		SC19-01MA-071		SC19-01MB-006		SC19-01MB-006FS		SC19-01MB-024	
		Sample Date	8/3/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011	
		Depth Interval (inch bss)	24- 48		0- 6		6- 24		24- 48		48- 71		0- 6		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	11,000		7,200	U	3,900	J	8,900		18,000		7,000	U	6,600	U	5,900	U
Dibenzo(a)anthracene	NL	µg/kg	5,100	U	7,200	U	860		5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Dibenzofuran	NL	µg/kg	8,200		7,200	U	6,000	U	5,800	U	4,300	J	7,000	U	6,600	U	5,900	U
Diethylphthalate	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Dimethylphthalate	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Di-n-Butylphthalate	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Di-n-octylphthalate	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Fluoranthene	2,230	µg/kg	52,000		5,000	J	17,000	J	25,000		41,000		7,000	U	6,600	U	3,400	J
Fluorene	536	µg/kg	24,000		7,200	U	2,900		6,900		13,000		7,000	U	6,600	U	5,900	U
Hexachlorobenzene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Hexachlorobutadiene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Hexachlorocyclopentadiene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Hexachloroethane	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	2,900	J	7,200	U	1,500		5,800	U	6,500		7,000	U	6,600	U	5,900	U
Isophorone	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Naphthalene	561	µg/kg	21,000		7,200	U	750		4,700	J	24,000		7,000	U	6,600	U	5,900	U
Nitrobenzene	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
N-nitroso-di-n-propylamine	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
N-nitrosodiphenylamine	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Pentachlorophenol	NL	µg/kg	9,800	U	14,000	U	590	U	11,000	U	11,000	U	14,000	U	13,000	U	11,000	U
Phenanthrene	1,170	µg/kg	110,000		7,200	U	13,000	J	35,000		64,000		7,000	U	6,600	U	5,900	U
Phenol	NL	µg/kg	5,100	U	7,200	U	6,000	U	5,800	U	5,600	U	7,000	U	6,600	U	5,900	U
Pyrene	1,520	µg/kg	43,000		7,200	U	13,000	J	22,000		46,000		7,000	U	6,600	U	5,900	U
TOTAL 17 PAH	22,800	µg/kg	359,550		62,600		74,670		156,800		329,100		59,500		56,100		50,600	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC19-01MB		SC19-01MB		SC19-01R		SC19-01R		SC20-01L		SC20-01L		SC20-01M		SC20-01M	
		Field Sample ID	SC19-01MB-048		SC19-01MB-064		SC19-01R-006		SC19-01R-017		SC20-01L-006		SC20-01L-033		SC20-01M-006		SC20-01M-024	
		Sample Date	8/4/2011		8/4/2011		8/1/2011		8/1/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	24- 48		48- 64		0- 6		6- 17		0- 6		6- 33		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
1,1-biphenyl	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,4,5-trichlorophenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,4,6-trichlorophenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,4-dichlorophenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,4-dimethylphenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,4-dinitrophenol	NL	µg/kg	11,000	U	11,000	U	4,600	U	4,900	U	4,200	U	5,100	U	7,300	U	6,100	U
2,4-dinitrotoluene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2,6-dinitrotoluene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2-chloronaphthalene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2-chlorophenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2-methylnaphthalene	NL	µg/kg	11,000		12,000		190		2,500	U	2,200	U	2,400	J	3,700	U	3,100	U
2-methylphenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
2-nitroaniline	NL	µg/kg	11,000	U	11,000	U	4,600	U	4,900	U	4,200	U	5,100	U	7,300	U	6,100	U
2-nitrophenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
3,3-dichlorobenzidine	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
3-nitroaniline	NL	µg/kg	11,000	U	11,000	U	4,600	U	4,900	U	4,200	U	5,100	U	7,300	U	6,100	U
4,6-dinitro-2-methylphenol	NL	µg/kg	11,000	U	11,000	U	4,600	U	4,900	U	4,200	U	5,100	U	7,300	U	6,100	U
4-bromophenyl-phenylether	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
4-chloro-3-methylphenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
4-chloroaniline	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
4-chlorophenyl-phenylether	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
4-methylphenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
4-nitroaniline	NL	µg/kg	11,000	U	11,000	U	4,600	U	4,900	U	4,200	U	5,100	U	7,300	U	6,100	U
4-nitrophenol	NL	µg/kg	11,000	U	11,000	U	4,600	U	4,900	U	4,200	U	5,100	U	7,300	U	6,100	U
Acenaphthene	NL	µg/kg	12,000		12,000		680	J	2,500	U	7,500	J	5,300		3,700	U	3,100	U
Acenaphthylene	NL	µg/kg	5,800	U	5,600	U	240		2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Acetophenone	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Anthracene	845	µg/kg	18,000		15,000		410		2,500	U	12,000		6,700		3,700	U	3,100	U
Atrazine	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Benzaldehyde	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Benzo(a)anthracene	1,050	µg/kg	16,000		15,000		2,000	J	2,500	U	13,000		8,800		3,700	U	3,100	U
Benzo(a)pyrene	1,450	µg/kg	12,000		13,000		1,300	J	2,500	U	8,300		7,700		3,700	U	3,100	U
Benzo(b)fluoranthene	NL	µg/kg	8,300		10,000		1,100		2,500	U	8,400		7,300		3,700	U	3,100	U
Benzo(g,h,i)perylene	NL	µg/kg	5,400	J	6,600		600		2,500	U	4,200		4,600		3,700	U	3,100	U
Benzo(k)fluoranthene	NL	µg/kg	8,400		7,300		1,000		2,500	U	6,000		5,600		3,700	U	3,100	U
Bis(2-chloroethoxy)methane	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Bis(2-chloroethyl)ether	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	5,800	U	5,600	U	1,800	J	2,500	U	1,500	J	2,600	U	3,700	U	3,100	U
Butylbenzylphthalate	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Caprolactam	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Carbazole	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,300		2,600	U	3,700	U	3,100	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC19-01MB		SC19-01MB		SC19-01R		SC19-01R		SC20-01L		SC20-01L		SC20-01M		SC20-01M	
		Field Sample ID	SC19-01MB-048		SC19-01MB-064		SC19-01R-006		SC19-01R-017		SC20-01L-006		SC20-01L-033		SC20-01M-006		SC20-01M-024	
		Sample Date	8/4/2011		8/4/2011		8/1/2011		8/1/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	24- 48		48- 64		0- 6		6- 17		0- 6		6- 33		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																
Chrysene	1,290	µg/kg	16,000		14,000		2,300	J	2,500	U	14,000		8,800		3,700	U	3,100	U
Dibenzo(a)anthracene	NL	µg/kg	5,800	U	5,600	U	260		2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Dibenzofuran	NL	µg/kg	5,600	J	5,600	U	2,400	U	2,500	U	3,100		2,200	J	3,700	U	3,100	U
Diethylphthalate	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Dimethylphthalate	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Di-n-Butylphthalate	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Di-n-octylphthalate	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Fluoranthene	2,230	µg/kg	40,000		31,000		6,800	J	2,500	U	45,000		19,000		3,500	J	2,100	J
Fluorene	536	µg/kg	14,000		9,500		560		2,500	U	6,700		4,800		3,700	U	3,100	U
Hexachlorobenzene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Hexachlorobutadiene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Hexachlorocyclopentadiene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Hexachloroethane	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	4,600	J	5,400	J	620		2,500	U	4,800		4,800		3,700	U	3,100	U
Isophorone	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Naphthalene	561	µg/kg	9,400		19,000		160		2,500	U	2,200	J	4,400		3,700	U	3,100	U
Nitrobenzene	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
N-nitroso-di-n-propylamine	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
N-nitrosodiphenylamine	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Pentachlorophenol	NL	µg/kg	11,000	U	11,000	U	230	U	4,900	U	4,200	U	5,100	U	7,300	U	6,100	U
Phenanthrene	1,170	µg/kg	67,000		51,000		1,300	J	2,500	U	18,000		22,000		3,700	U	3,100	U
Phenol	NL	µg/kg	5,800	U	5,600	U	2,400	U	2,500	U	2,200	U	2,600	U	3,700	U	3,100	U
Pyrene	1,520	µg/kg	39,000		36,000		4,500	J	2,500	U	28,000	J	18,000		2,700	J	3,100	U
TOTAL 17 PAH	22,800	µg/kg	286,900		262,400		24,020		21,250		181,400		132,800		33,950		26,900	

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC20-01M		SC20-01M		SC20-01R		SC20-01R	
		Field Sample ID	SC20-01M-048		SC20-01M-068		SC20-01R-006		SC20-01R-025	
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	24- 48		48- 68		0- 6		6- 25	
Chemical Name	**PEC[1]**	**Unit**								
1,1-biphenyl	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
1,2,4,5-tetrachlorobenzene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,2-oxybis(1-chloropropane)	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,3,4,6-tetrachlorophenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,4,5-trichlorophenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,4,6-trichlorophenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,4-dichlorophenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,4-dimethylphenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,4-dinitrophenol	NL	µg/kg	12,000	U	5,100	U	8,000	U	5,900	U
2,4-dinitrotoluene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2,6-dinitrotoluene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2-chloronaphthalene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2-chlorophenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2-methylnaphthalene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2-methylphenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
2-nitroaniline	NL	µg/kg	12,000	U	5,100	U	8,000	U	5,900	U
2-nitrophenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
3,3-dichlorobenzidine	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
3-nitroaniline	NL	µg/kg	12,000	U	5,100	U	8,000	U	5,900	U
4,6-dinitro-2-methylphenol	NL	µg/kg	12,000	U	5,100	U	8,000	U	5,900	U
4-bromophenyl-phenylether	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
4-chloro-3-methylphenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
4-chloroaniline	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
4-chlorophenyl-phenylether	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
4-methylphenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
4-nitroaniline	NL	µg/kg	12,000	U	5,100	U	8,000	U	5,900	U
4-nitrophenol	NL	µg/kg	12,000	U	5,100	U	8,000	U	5,900	U
Acenaphthene	NL	µg/kg	6,200	U	4,100		4,100	U	3,100	U
Acenaphthylene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Acetophenone	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Anthracene	845	µg/kg	6,200	U	4,000		4,100	U	3,100	U
Atrazine	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Benzaldehyde	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Benzo(a)anthracene	1,050	µg/kg	6,200	U	7,800		4,100	U	3,100	U
Benzo(a)pyrene	1,450	µg/kg	6,200	U	6,700		4,100	U	3,100	U
Benzo(b)fluoranthene	NL	µg/kg	6,200	U	6,100		4,100	U	3,100	U
Benzo(g,h,i)perylene	NL	µg/kg	6,200	U	3,900		4,100	U	3,100	U
Benzo(k)fluoranthene	NL	µg/kg	6,200	U	4,600		4,100	U	3,100	U
Bis(2-chloroethoxy)methane	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Bis(2-chloroethyl)ether	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Bis(2-ethylhexyll)phthalate	NL	µg/kg	6,200	U	7,200		4,100	U	3,100	U
Butylbenzylphthalate	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Caprolactam	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Carbazole	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U

Table A-1
Sediment Sample Analytical Results - SVOCs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC20-01M		SC20-01M		SC20-01R		SC20-01R	
		Field Sample ID	SC20-01M-048		SC20-01M-068		SC20-01R-006		SC20-01R-025	
		Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	24- 48		48- 68		0- 6		6- 25	
Chemical Name	**PEC[1]**	**Unit**								
Chrysene	1,290	µg/kg	6,200	U	8,600		4,100	U	3,100	U
Dibenzo(a)anthracene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Dibenzofuran	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Diethylphthalate	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Dimethylphthalate	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Di-n-Butylphthalate	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Di-n-octylphthalate	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Fluoranthene	2,230	µg/kg	5,600	J	17,000		4,100	U	3,100	U
Fluorene	536	µg/kg	6,200	U	4,200		4,100	U	3,100	U
Hexachlorobenzene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Hexachlorobutadiene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Hexachlorocyclopentadiene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Hexachloroethane	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Indeno(1,2,3-cd)pyrene	NL	µg/kg	6,200	U	4,100		4,100	U	3,100	U
Isophorone	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Naphthalene	561	µg/kg	6,200	U	2,300	J	4,100	U	3,100	U
Nitrobenzene	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
N-nitroso-di-n-propylamine	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
N-nitrosodiphenylamine	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Pentachlorophenol	NL	µg/kg	12,000	U	5,100	U	8,000	U	5,900	U
Phenanthrene	1,170	µg/kg	6,200	U	19,000		4,100	U	3,100	U
Phenol	NL	µg/kg	6,200	U	2,600	U	4,100	U	3,100	U
Pyrene	1,520	µg/kg	4,400	J	17,000		4,100	U	3,100	U
TOTAL 17 PAH	22,800	µg/kg	56,500		113,300		34,850		26,350	

Notes:
Result exceeds PEC
bss - below sediment surface
DL - Detection Limit
ID - Identification
J - Estimated Value
µg/kg - Microgram per kilogram
ND - Not Detected
NL - Not Listed
PAH - Polycylic Aromatic Hydrocarbon
PEC - Probable Effect Concentration
U - Not Detected

Total PAH 17 - Calculated as sum of detections plus one-half the detection limit for nondetected results

1 - Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald, et. al., 2000)

Table A-2
Sediment Sample Analytical Results - PAHs Extended List 34
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC01-01RA		SC01-01RA		SC05-01RA		SC05-01RA		SC05-01RA		SC07-01LA		SC10-01LC		SC10-01LC		SC13-01RA	
		Field Sample ID	SC01-01RA-006		SC01-01RA-024		SC05-01RA-006		SC05-01RA-006FS		SC05-01RA-026		SC07-01LA-006		SC10-01LC-006		SC10-01LC-006FS		SC13-01RA-006	
		Sample Date	8/5/2011		8/5/2011		8/6/2011		8/6/2011		8/6/2011		8/3/2011		8/2/2011		8/2/2011		8/1/2011	
		Depth Interval (inch bss)	0- 6		6- 24		0- 6		0- 6		6- 26		0- 6		0- 6		0- 6		0- 6	
Chemical Name	**PEC[1]**	**Unit**																		
Acenaphthene	NL	µg/kg	260,000	J	130,000	J	12,000	J	20,000	J	18,000	J	160	J	4,800	J	4,800	J	370	
Acenaphthylene	NL	µg/kg	3,700	J	11,000	J	800		730		460		75	J	360		370		140	J
Anthracene	845	µg/kg	140,000	J	270,000	J	6,300	J	6,800	J	5,900	J	280	J	3,200	J	3,100	J	530	
Benzo(e)pyrene	NL	µg/kg	17,000	J	15,000	J	1,100	J	1,400	J	840	J	290	J	810		790	J	500	
Benzo(a)anthracene	1,050	µg/kg	110,000	J	180,000	J	9,800	J	13,000	J	6,200	J	940		5,200	J	5,000	J	1,300	
Benzo(a)pyrene	1,450	µg/kg	39,000	J	57,000	J	3,000	J	3,900	J	2,000	J	820		1,600		1,400	J	910	
Benzo(b)fluoranthene	NL	µg/kg	48,000	J	62,000	J	5,600	J	7,500	J	3,600	J	1,000		3,500	J	3,000	J	1,500	
Benzo(g, h, i)perylene	NL	µg/kg	16,000	J	29,000	J	1,400	J	1,700	J	890	J	590		830		750	J	510	
Benzo(k)fluoranthene	NL	µg/kg	27,000	J	44,000	J	1,200	J	1,800	J	970	J	840		1,500		1,300	J	600	
C1 Chrysenes	NL	µg/kg	13,000	J	50,000	J	1,800		300	U	1,000		320	U	260	U	290	U	210	U
C1 Fluorenes	NL	µg/kg	280	U	270	U	310	U	300	U	240	U	320	U	260	U	290	U	210	U
C1-Fluoranthenes/Pyrenes	NL	µg/kg	97,000	J	67,000	J	7,600	J	1,100		4,900	J	770		4,000	J	530		1,100	
C1-Napthalenes	NL	µg/kg	120,000	J	250,000	J	3,400	J	3,700	J	3,500	J	220	J	850		690		160	J
C1-Phenanthrenes/Anthracenes	NL	µg/kg	75,000	J	380,000	J	7,000	J	6,900	J	3,600	J	330		3,200	J	3,300	J	540	
C2 Chrysenes	NL	µg/kg	280	U	270	U	310	U	300	U	240	U	320	U	260	U	290	U	210	U
C2 Fluorenes	NL	µg/kg	280	U	270	U	310	U	300	U	240	U	320	U	260	U	290	U	210	U
C2-Napthalenes	NL	µg/kg	63,000	J	410,000	J	4,700	J	4,400	J	2,900	J	140	J	1,300		1,100		160	J
C2-Phenanthrenes/Anthracenes	NL	µg/kg	280	U	1,200		310	U	26	J	240	U	320	U	260	U	290	U	210	U
C3 Chrysenes	NL	µg/kg	280	U	270	U	310	U	300	U	240	U	320	U	260	U	290	U	210	U
C3 Fluorenes	NL	µg/kg	280	U	270	U	310	U	300	U	240	U	320	U	260	U	290	U	210	U
C3-Napthalenes	NL	µg/kg	17,000	J	130,000	J	2,400		3,100	J	990		81	J	1,100		1,300		100	J
C3-Phenanthrenes/Anthracenes	NL	µg/kg	6,600	J	5,600	J	1,100		250	J	700		320	U	840		1,100		130	J
C4 Chrysenes	NL	µg/kg	280	U	270	U	310	U	300	U	240	U	320	U	260	U	290	U	210	U
C4-Napthalenes	NL	µg/kg	2,800		32,000	J	1,000		1,600		400		320	U	710		1,100		78	J
C4-Phenanthrenes/Anthracenes	NL	µg/kg	280	U	1,800		310	U	140	J	240	U	320	U	260	U	30	J	210	U
Chrysene	1,290	µg/kg	62,000	J	93,000	J	5,400	J	7,000	J	3,700	J	1,100		3,900	J	3,800	J	1,300	
Dibenz(a,h)anthracene	NL	µg/kg	7,500	J	20,000	J	1,200	J	1,200	J	640	J	190	J	610		330	J	200	J
Fluoranthene	2,230	µg/kg	600,000	J	600,000	J	25,000	J	31,000	J	21,000	J	2,400		15,000	J	14,000	J	3,400	J
Fluorene	536	µg/kg	210,000	J	150,000	J	10,000	J	16,000	J	11,000	J	180	J	4,400	J	4,200	J	400	
Indeno(1,2,3-cd)pyrene	NL	µg/kg	17,000	J	43,000	J	2,200	J	2,100	J	1,100	J	590		930		760	J	550	
Napthalene	561	µg/kg	8,500	J	50,000	J	510		400		270		71	J	120	J	100	J	110	J
Perylene	NL	µg/kg	16,000	J	27,000	J	1,500		1,900	J	980		450		930		810		480	
Phenanthrene	1,170	µg/kg	700,000	J	970,000	J	32,000	J	38,000	J	26,000	J	920		15,000	J	14,000	J	1,200	
Pyrene	1,520	µg/kg	270,000	J	240,000	J	15,000	J	19,000	J	11,000	J	1,600		10,000	J	9,200	J	2,200	J
TOTAL 34 PAH	22,800	µg/kg	3,000,000		4,400,000		160,000		200,000		130,000		13,000		84,000		76,000		18,000	

Table A-2
Sediment Sample Analytical Results - PAHs Extended List 34
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC13-01RA		SC19-01MA		SC19-01R	
		Field Sample ID	SC13-01RA-006DP		SC19-01MA-024		SC19-01R-006	
		Sample Date	8/1/2011		8/4/2011		8/1/2011	
		Depth Interval (inch bss)	0- 6		6- 24		0- 6	
Chemical Name	**PEC[1]**	**Unit**						
Acenaphthene	NL	µg/kg	310		1,600		1,100	J
Acenaphthylene	NL	µg/kg	120	J	530		260	
Anthracene	845	µg/kg	540		2,000		770	
Benzo(e)pyrene	NL	µg/kg	400		890	J	790	
Benzo(a)anthracene	1,050	µg/kg	1,400		3,700	J	3,000	J
Benzo(a)pyrene	1,450	µg/kg	1,100		2,300	J	1,300	
Benzo(b)fluoranthene	NL	µg/kg	1,800		3,500	J	2,700	J
Benzo(g, h, i)perylene	NL	µg/kg	630		1,200	J	830	
Benzo(k)fluoranthene	NL	µg/kg	750		1,100	J	1,200	
C1 Chrysenes	NL	µg/kg	220	U	310	U	650	
C1 Fluorenes	NL	µg/kg	220	U	310	U	230	U
C1-Fluoranthenes/Pyrenes	NL	µg/kg	1,100		3,400	J	2,700	J
C1-Napthalenes	NL	µg/kg	180	J	750		510	
C1-Phenanthrenes/Anthracenes	NL	µg/kg	560		2,000		840	
C2 Chrysenes	NL	µg/kg	220	U	310	U	230	U
C2 Fluorenes	NL	µg/kg	220	U	310	U	230	U
C2-Napthalenes	NL	µg/kg	160	J	920		470	
C2-Phenanthrenes/Anthracenes	NL	µg/kg	220	U	310	U	230	U
C3 Chrysenes	NL	µg/kg	220	U	310	U	230	U
C3 Fluorenes	NL	µg/kg	220	U	310	U	230	U
C3-Napthalenes	NL	µg/kg	120	J	470		300	
C3-Phenanthrenes/Anthracenes	NL	µg/kg	150	J	450		410	
C4 Chrysenes	NL	µg/kg	220	U	310	U	230	U
C4-Napthalenes	NL	µg/kg	62	J	270	J	190	J
C4-Phenanthrenes/Anthracenes	NL	µg/kg	220	U	310	U	230	U
Chrysene	1,290	µg/kg	1,400		3,300	J	2,700	J
Dibenz(a,h)anthracene	NL	µg/kg	260		630	J	350	
Fluoranthene	2,230	µg/kg	3,300	J	8,300	J	8,600	J
Fluorene	536	µg/kg	330		1,600		930	
Indeno(1,2,3-cd)pyrene	NL	µg/kg	720		1,200	J	840	
Napthalene	561	µg/kg	120	J	850		200	J
Perylene	NL	µg/kg	570		1,000		850	
Phenanthrene	1,170	µg/kg	1,400		4,700	J	1,900	
Pyrene	1,520	µg/kg	2,100		5,500	J	4,900	J
TOTAL 34 PAH	22,800	µg/kg	19,000		52,000		38,000	

Notes:
Result exceeds PEC
µg/kg - Microgram per kilogram
bss - below sediment surface
DL - Detection Limit
ID - Identification
J - Estimated Value
ND - Not Detected
NL - Not Listed
PAH - Polycylic Aromatic Hydrocarbon
PEC - Probable Effect Concentration
U - Not Detected

Total PAHs (extended list 34) calculated as sum of detections plus one-half the detection limit for nondetected results
1 - Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald, et. al., 2000)

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC01-01RA		SC01-01RA		SC01-01RA		SC01-01RB		SC01-01RB		SC02-01LA		SC02-01LA		SC02-01LA		SC02-01LB		SC02-01LB	
	Field Sample ID	SC01-01RA-006		SC01-01RA-006DP		SC01-01RA-024		SC01-01RB-006		SC01-01RB-027		SC02-01LA-006		SC02-01LA-024		SC02-01LA-032		SC02-01LB-006		SC02-01LB-006DP	
	Sample Date	8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/6/2011		8/6/2011	
	Depth Interval (inch bss)	0- 6		0- 6		6- 24		0- 6		6- 27		0- 6		6- 24		24- 32		0- 6		0- 6	
Chemical Name	**PEC[1]**	**Unit**																			
Aluminum	NL	mg/kg	5,420		4,260		7,630		16,400		16,200		12,200		5,660		7,000		2,480		10,300	
Antimony	NL	mg/kg	6.9	UJ	6.1	UJ	7.3	UJ	12	UJ	8	UJ	9.6	UJ	6.9	UJ	6.3	UJ	6.7	UJ	9	UJ
Arsenic	33	mg/kg	4.9		5.3		39.7	J	13.7	J	11.1	J	7.8		8.2	J	6.5	J	2.6	J	7.6	J
Barium	NL	mg/kg	51.6		40		96.5		153		143		105		111		109		39.2		90.8	
Beryllium	NL	mg/kg	0.44	J	0.34	J	0.67		1.2		1.1		0.82		0.51	J	0.57		0.19	J	0.69	J
Cadmium	4.98	mg/kg	1.2		1.3		4.6		2.1		2.8		1.4		1.7		2.5		0.56	U	1.2	
Calcium	NL	mg/kg	19,900		18,300		33,400		35,100		32,100		24,300		23,900		24,500		17,000		39,200	
Chromium	111	mg/kg	18.7	J	14	J	25.5		44.1		38.8		28.9	J	27.6		28.3		5.5		19.5	
Cobalt	NL	mg/kg	5.7	U	5.1	U	6.7		11.9		10.8		8.3		5.8	U	5.6		5.6	U	7.6	
Copper	149	mg/kg	161	J	112	J	1,150		152		313		543	J	745		668		64.3		127	
Iron	NL	mg/kg	10,700		8,590		18,200		29,300		26,300		19,900		10,500		12,700		5,770		18,300	
Lead	128	mg/kg	135	J	89	J	731		281		361		280	J	305		335		43.5		84.7	
Magnesium	NL	mg/kg	5,950		5,120		7,650		12,700		11,200		8,020		5,870		6,600		3,860		9,750	
Manganese	NL	mg/kg	175	J	140	J	257		656		532		391	J	206		220		111		474	
Nickel	48.6	mg/kg	15.9		12.8		27.4		46.8		45.5		27		18.7		21.7		5.8		22.5	
Potassium	NL	mg/kg	783	J	607	J	1,260	J	1,980	J	2,230	J	1,500	J	817	J	969	J	561	UJ	1,560	J
Selenium	NL	mg/kg	4	U	3.5	U	4.2	U	7	U	4.7	U	5.6	U	4	U	3.7	U	3.9	U	5.2	U
Silver	NL	mg/kg	1.1	U	1	U	2.7		2.4		3.1		1.6	U	1.3		2.4		1.1	U	1.5	U
Sodium	NL	mg/kg	574	U	506	U	605	U	1,000	U	670	U	803	U	577	U	526	U	561	U	748	U
Thallium	NL	mg/kg	2.9	U	2.5	U	3	U	5	U	3.4	U	4	U	2.9	U	2.6	U	2.8	U	3.7	U
Vanadium	NL	mg/kg	13.8		10.9		19	J	32.3	J	31.8	J	24.1		12.2	J	15.3	J	7.2	J	23.2	J
Zinc	459	mg/kg	179		141		637		465		526		326		436		460		64.9		196	
Mercury	1.06	mg/kg	0.21		0.29		0.7		0.48		0.69		0.16		0.32		0.38		0.11	U	0.15	J

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC03-01LA		SC03-01LA		SC03-01LA		SC03-01RB		SC03-01RB		SC05-01RA		SC05-01RA		SC05-01RA		SC06-01RA		SC06-01RA	
		Field Sample ID	SC03-01LA-006		SC03-01LA-024		SC03-01LA-033		SC03-01RB-006		SC03-01RB-032		SC05-01RA-006		SC05-01RA-006FS		SC05-01RA-026		SC06-01RA-006		SC06-01RA-027	
		Sample Date	8/5/2011		8/5/2011		8/5/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011	
		Depth Interval (inch bss)	0- 6		6- 24		24- 33		0- 6		6- 32		0- 6		0- 6		6- 26		0- 6		6- 27	
Chemical Name	**PEC[1]**	**Unit**																				
Aluminum	NL	mg/kg	6,580		15,500		11,700		8,490		12,500		14,100		14,100		11,900		3,140		10,100	
Antimony	NL	mg/kg	8.6	UJ	9.9	UJ	7.8	UJ	8.3	UJ	7.7	UJ	9.7	UJ	8.9	UJ	7.8	UJ	6.9	UJ	7.2	UJ
Arsenic	33	mg/kg	5.9	J	10.3	J	8.6	J	6.6	J	8.7	J	10	J	9.9	J	8.2	J	7.7	J	7.1	J
Barium	NL	mg/kg	61.8		149		118		70.2		112		133		131		99.7		49.8		91.4	
Beryllium	NL	mg/kg	0.51	J	1		0.81		0.61	J	0.85		0.91		0.93		0.81		0.28	J	0.7	
Cadmium	4.98	mg/kg	0.88		2.6		2.2		0.79		1.5		2.9		2.1		2.9		0.57	U	1.8	
Calcium	NL	mg/kg	19,900		33,100		30,600		28,500		32,500		36,700		32,100		25,100		19,800		26,500	
Chromium	111	mg/kg	15.1		37		31		16.9		25.9		29.2		29		30.5		7.2		26.1	
Cobalt	NL	mg/kg	7.1	U	10.6		7.8		6.9	U	8.8		9.8		9.5		8.4		5.7	U	7.3	
Copper	149	mg/kg	79		286		272		57.2		105		184		160		132		56		275	
Iron	NL	mg/kg	12,500		24,900		19,800		15,000		21,000		23,600		23,100		19,800		6,800		16,900	
Lead	128	mg/kg	90		334		285		60.3		140		284		254		177		94.2		196	
Magnesium	NL	mg/kg	5,840		11,800		10,300		9,340		11,000		12,600		11,300		8,640		4,830		8,440	
Manganese	NL	mg/kg	277		509		368		306		499		530		503		357		146		319	
Nickel	48.6	mg/kg	16.2		40.4		28.1		18.6		28.4		33.4		32		27.5		8		23.9	
Potassium	NL	mg/kg	920	J	2,150	J	1,610	J	1,320	J	1,790	J	2,020	J	1,980	J	1,680	J	575	UJ	1,440	J
Selenium	NL	mg/kg	5	U	5.8	U	4.5	U	4.8	U	4.5	U	5.7	U	5.2	U	4.5	U	4	U	4.2	U
Silver	NL	mg/kg	1.4	U	2.6		2.5		1.4	U	1.6		1.9		2		1.4		1.1	U	1.4	
Sodium	NL	mg/kg	714	U	825	U	646	U	691	U	643	U	807	U	744	U	648	U	575	U	602	U
Thallium	NL	mg/kg	3.6	U	4.1	U	3.2	U	3.5	U	3.2	U	4	U	3.7	U	3.2	U	2.9	U	3	U
Vanadium	NL	mg/kg	13.9	J	31.7	J	23.8	J	20.4	J	26.5	J	29.8	J	29.4	J	26.7	J	8.7	J	21.5	J
Zinc	459	mg/kg	196		503		435		158		275		370		359		264		64.6		307	
Mercury	1.06	mg/kg	0.13	J	0.41		0.27		0.14	J	0.23		0.36		0.3		0.2		0.06	J	0.16	0.16

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC06-01RB		SC06-01RB		SC06-01RB		SC07-01LA		SC07-01LA		SC07-01R		SC07-01R		SC07-01R		SC08-01LA		SC08-01LA	
		Field Sample ID	SC06-01RB-006		SC06-01RB-024		SC06-01RB-035		SC07-01LA-006		SC07-01LA-025		SC07-01R-006		SC07-01R-024		SC07-01R-040		SC08-01LA-006		SC08-01LA-006DP	
		Sample Date	8/6/2011		8/6/2011		8/6/2011		8/3/2011		8/3/2011		8/3/2011		8/3/2011		8/3/2011		8/4/2011		8/4/2011	
		Depth Interval (inch bss)	0- 6		6- 24		24- 35		0- 6		6- 25		0- 6		6- 24		24- 40		0- 6		0- 6	
Chemical Name	**PEC[1]**	**Unit**																				
Aluminum	NL	mg/kg	7,550		10,800		12,100		7,530		7,050		3,940		6,020		3,630		10,100		13,300	
Antimony	NL	mg/kg	6.6	UJ	8.9	UJ	22.9	J	9.3	U	7.1	U	6.6	U	6.9	U	7.2	U	7.9	UJ	7.9	UJ
Arsenic	33	mg/kg	4.6	J	8.3	J	18.9	J	6.1	J	6.5	J	3.2	J	4.2	J	2.9	J	8.1		9.8	
Barium	NL	mg/kg	59.3		110		291		71.5		94.1		36.5		48.2		24.5		128		130	
Beryllium	NL	mg/kg	0.54	J	0.76		1		0.58	J	0.54	J	0.32	J	0.47	J	0.33	J	0.74		0.96	
Cadmium	4.98	mg/kg	0.62		2.4		19.2		1.3	J	1.5	J	0.55	UJ	1.4	J	0.6	UJ	3.1		2.1	
Calcium	NL	mg/kg	27,800		27,200		25,100		31,100		28,800		20,300		25,200		27,700		36,600		33,000	
Chromium	111	mg/kg	15.1		30.9		76.5		16.9	J	18	J	9.5	J	13.4	J	6.5	J	27.5	J	32.6	J
Cobalt	NL	mg/kg	5.8		8.2		18.4		7.8	UJ	6.4	J	5.5	UJ	5.8	J	6	UJ	7.7		9	
Copper	149	mg/kg	54.1		241		762		71.2	J	97.2	J	41.9	J	68.2	J	9.8	J	177	J	165	J
Iron	NL	mg/kg	13,600		18,900		23,500		15,900	J	14,000	J	8,700	J	11,800	J	8,900	J	18,600		20,200	
Lead	128	mg/kg	43.4		303		3750		70.6	J	147	J	35.4	J	69.4	J	5	J	297	J	262	J
Magnesium	NL	mg/kg	8,560		9,140		7,280		9,740	J	8,800	J	5,960	J	6,910	J	7,060	J	14,600		11,300	
Manganese	NL	mg/kg	278		347		282		321	J-	316	J-	174	J-	233	J-	196	J-	379	J	448	J
Nickel	48.6	mg/kg	15.9		31.2		48		18.4	J	18	J	10.5	J	15	J	10.6	J	27.6		27.2	
Potassium	NL	mg/kg	1,170	J	1,600	J	1,660	J	1,090		921		574		912		600	U	1,340	J	1,470	J
Selenium	NL	mg/kg	3.9	U	5.2	U	5.6	U	5.4	U	4.1	U	3.9	U	4	U	4.2	U	4.6	U	4.6	U
Silver	NL	mg/kg	1.1	U	2.2		3.5		1.6	U	1.2	U	1.1	U	1.1	U	1.2	U	1.7		1.3	U
Sodium	NL	mg/kg	551	U	741	U	797	U	775	U	591	U	552	U	573	U	600	U	656	U	658	U
Thallium	NL	mg/kg	2.8	U	3.7	U	4	U	3.9	U	3	U	2.8	U	2.9	U	3	U	3.3	U	3.3	U
Vanadium	NL	mg/kg	17.7	J	24.1	J	28.6	J	18		16.3		10.2		15.5		12		22		26.7	
Zinc	459	mg/kg	131		406		2340		149	J	229	J	84.3	J	111	J	29	J	352		329	
Mercury	1.06	mg/kg	0.08	J	0.41		1.6		0.09	J	0.43		0.09	J	0.18		0.12	U	0.26		0.31	

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC08-01LA		SC08-01LA		SC08-01LA		SC08-01LB		SC08-01LB		SC08-01LB		SC09-01LA		SC09-01LA		SC09-01RB		SC09-01RB	
		Field Sample ID	SC08-01LA-024		SC08-01LA-024DP		SC08-01LA-034		SC08-01LB-006		SC08-01LB-024		SC08-01LB-054		SC09-01LA-006		SC09-01LA-026		SC09-01RB-006		SC09-01RB-032	
		Sample Date	8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
		Depth Interval (inch bss)	6- 24		6- 24		24- 34		0- 6		6- 24		24- 54		0- 6		6- 26		0- 6		6- 32	
Chemical Name	**PEC[1]**	**Unit**																				
Aluminum	NL	mg/kg	11,700		12,600		7,150		1,980		11,600		6,760		5,270		3,110		3,170		9,650	
Antimony	NL	mg/kg	8	UJ	8.8	UJ	20.2	J-	6.1	UJ	8.3	UJ	7.2	J-	6.4	U	5.7	U	6.3	U	9.7	
Arsenic	33	mg/kg	11.3		21.9		41.5		2		8.6		11.5		5.3		6.3		3.3		23.7	
Barium	NL	mg/kg	132		156		209		43.5		99.6		117		58.1		88		38.8		165	
Beryllium	NL	mg/kg	0.85		0.92		0.73		0.22	J	0.83		0.6		0.44	J	0.43	J	0.29	J	0.82	
Cadmium	4.98	mg/kg	3.1		4.6		6.7		0.5	U	1.1		3.1		0.82		2		0.52	U	4	
Calcium	NL	mg/kg	33,600		22,600		31,600		18,400		32,300		36,200		29,300		31,700		19,900		29,100	
Chromium	111	mg/kg	37.2	J	32	J	158	J	6.2	J	21.8	J	49.6	J	14		21.4		8.8		33.1	
Cobalt	NL	mg/kg	8.6		11.2		11.4		5	U	8.9		9.3		5.3	U	4.8	U	5.2	U	9.3	
Copper	149	mg/kg	243	J	382	J	404	J	142	J	349	J	931	J	77.8	J	413	J	86.9	J	253	J
Iron	NL	mg/kg	21,200		19,300		17,700		4,950		18,100		12,800		12,100		8,510		8,000		18,900	
Lead	128	mg/kg	379	J	938	J	1520	J	79.9	J	150	J	796	J	111		475		64.8		650	
Magnesium	NL	mg/kg	11,600		7,200		10,100		3,650		10,100		8,610		7,480		7,380		5,230		8,740	
Manganese	NL	mg/kg	449	J	280	J	248	J	94	J	276	J	227	J	258		205		169		335	
Nickel	48.6	mg/kg	32.7		28.9		44.5		5.3		25.3		26.8		16.3		15.4		12.9		29.8	
Potassium	NL	mg/kg	1,500	J	1,530	J	1,010	J	505	UJ	1,650	J	847	J	714		478	U	524	U	1,320	
Selenium	NL	mg/kg	4.7	U	5.2	U	4.2	U	3.5	U	4.8	U	3.9	U	3.7	U	3.3	U	3.7	U	4.7	U
Silver	NL	mg/kg	2		1.5	U	3.3		1	U	1.4	U	1.8		1.1	U	0.96	U	1	U	2.4	
Sodium	NL	mg/kg	669	U	737	U	596	U	505	U	689	U	555	U	534	U	478	U	524	U	676	U
Thallium	NL	mg/kg	3.3	U	3.7	U	3	U	2.5	U	3.4	U	2.8	U	2.7	U	2.4	U	2.6	U	3.4	U
Vanadium	NL	mg/kg	24.2		27		17.5		6		24.1		14.8		12.1		8.3		8.6		22.4	
Zinc	459	mg/kg	457		696		1,240		70.9		204		682		184	J	377	J	127	J	564	J
Mercury	1.06	mg/kg	0.54		1		1.4		0.04	J	0.29		0.26		0.11	J	0.35		0.04	J	1.2	

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC10-01LB		SC10-01LB		SC10-01LB		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01RA		SC10-01RA		SC10-01RA	
	Field Sample ID	SC10-01LB-006		SC10-01LB-024		SC10-01LB-051		SC10-01LC-006		SC10-01LC-006FS		SC10-01LC-024		SC10-01LC-039		SC10-01RA-006		SC10-01RA-024		SC10-01RA-050	
	Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	0- 6		6- 24		24- 51		0- 6		0- 6		6- 24		24- 39		0- 6		6- 24		24- 50	
Chemical Name	**PEC[1]**	**Unit**																			
Aluminum	NL	mg/kg	6,630		8,310		10,400		10,400		8,950		9,020		6,570		5,270		9,730		10,800	
Antimony	NL	mg/kg	8.5	U	8.3	U	7.2	U	8.2	U	9.6	U	7.6		14.8		8	U	7.6	U	8.1	U
Arsenic	33	mg/kg	5.4	J	9.4		33.4		9.9		8		11.5		23.8		4.2	J	8.7		76.4	
Barium	NL	mg/kg	67.6		116		176		125		116		134		180		56.5		117		170	
Beryllium	NL	mg/kg	0.53	J	0.67	J	0.92		0.83		0.78	J	0.78		0.66		0.42	J	0.79		0.95	
Cadmium	4.98	mg/kg	0.75	J	4.2		3.8		2.6		2.5		4.2		5.2		0.67	UJ	1.8		3.4	
Calcium	NL	mg/kg	29,800		27,800		29,400		33,200		31,700		32,700		28,600		24,900		29,600		30,700	
Chromium	111	mg/kg	15.8	J	28.9		32.8		27		25.4		36.5		127		12.5	J	24.8		48.3	
Cobalt	NL	mg/kg	7.1	UJ	7.8		11.4		8.5		8	U	8.4		13.4		6.7	UJ	8.3		10.9	
Copper	149	mg/kg	54.9	J	258	J	397	J	197	J	136	J	213	J	333	J	54.5	J	112	J	249	J
Iron	NL	mg/kg	13,200	J	16,400		21,700		21,800		19,300		19,800		15,100		11,100	J	19,100		23,100	
Lead	128	mg/kg	51.6	J	448		1300		262		211		342		1130		41.1	J	146		852	
Magnesium	NL	mg/kg	9,820	J	9,420		8,560		11,100		11,100		11,100		7,520		7,570	J	10,700		9,480	
Manganese	NL	mg/kg	247	J-	307		397		517		433		432		237		226	J-	402		310	
Nickel	48.6	mg/kg	16.7	J	26.4		33.8		30.3		27.9		30.3		39.7		12.8	J	26.7		34.5	
Potassium	NL	mg/kg	986		1,070		1,270		1,280		1,180		1,140		917		781		1,290		1,480	
Selenium	NL	mg/kg	5	U	4.8	U	4.2	U	4.8	U	5.6	U	3.8	U	4	U	4.7	U	4.4	U	4.7	U
Silver	NL	mg/kg	1.4	U	1.7		2.5		1.9		1.7		2.3		2.8		1.3	U	1.6		2	
Sodium	NL	mg/kg	708	U	688	U	603	U	683	U	801	U	540	U	575	U	667	U	630	U	673	U
Thallium	NL	mg/kg	3.5	U	3.4	U	3	U	3.4	U	4	U	2.7	U	2.9	U	3.3	U	3.1	U	3.4	U
Vanadium	NL	mg/kg	16.8		19		23.1		22.1		19.8		19.7		16.2		13		20.7		24.6	
Zinc	459	mg/kg	159	J	434	J	1,180	J	382	J	310	J	452	J	886	J	108	J	263	J	864	J
Mercury	1.06	mg/kg	0.09	J	1.1		0.88		0.91		0.3		0.66		0.92		0.2		0.31		1.2	

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC11-01L		SC11-01L		SC11-01L		SC12-01LA		SC12-01LA		SC12-01LA		SC12-01R		SC12-01R		SC12-01RB		SC12-01RB	
	Field Sample ID	SC11-01L-006		SC11-01L-024		SC11-01L-051		SC12-01LA-006		SC12-01LA-024		SC12-01LA-034		SC12-01R-006		SC12-01R-030		SC12-01RB-006		SC12-01RB-024	
	Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	0- 6		6- 24		24- 51		0- 6		6- 24		24- 34		0- 6		6- 30		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																			
Aluminum	NL	mg/kg	3,600		5,910		8,070		6,050		6,540		7,440		7,510		9,490		8,200		11,200	
Antimony	NL	mg/kg	6.2	U	7.2	U	7.4	U	6.8	U	8.4	U	6.4	U	7.8	U	8.2		7.7	U	8.1	U
Arsenic	33	mg/kg	3	J	6.5		11.2		6.9	J	34.4	J	72	J	9.2	J	48.9	J	6	J	14.5	J
Barium	NL	mg/kg	70.8		87.4		143		63.2		136		107		128		153		76		165	
Beryllium	NL	mg/kg	0.33	J	0.57	J	0.79		0.64		0.93		0.71		0.62	J	1.2		0.64	J	0.94	
Cadmium	4.98	mg/kg	0.71	J	1.4		7		0.68	J	2.7	J	1	J	2.5	J	7.4	J	0.78	J	3.4	J
Calcium	NL	mg/kg	112,000		90,500		32,900		25,800		17,200		48,100		40,700		29,400		37,800		28,100	
Chromium	111	mg/kg	9.8	J	18.6		41.2		18.6	J	39	J	16	J	30.1	J	195	J	18.1	J	34.9	J
Cobalt	NL	mg/kg	5.2	UJ	6	U	7.6		5.7	UJ	7	UJ	7.2	J	6.8	J	14.7	J	6.4	UJ	11.8	J
Copper	149	mg/kg	39.3	J	353	J	263	J	50.5	J	122	J	79.3	J	182	J	232	J	53.3	J	362	J
Iron	NL	mg/kg	8,610	J	11,800		15,200		17,500	J	26,400	J	20,300	J	15,800	J	56,900	J	15,300	J	20,500	J
Lead	128	mg/kg	37.7	J	230		1010		150	J	384	J	411	J	292	J	542	J	65.9	J	817	J
Magnesium	NL	mg/kg	56,400	J	40,800		11,700		8,070	J	5,400	J	11,400	J	15,300	J	8,300	J	13,700	J	8,470	J
Manganese	NL	mg/kg	163	J-	232		333		330	J-	192	J-	343	J-	228	J-	435	J-	303	J-	384	J-
Nickel	48.6	mg/kg	8.2	J	22.4		25.1		14.7	J	24.8	J	23.7	J	24.1	J	51.6	J	18.3	J	31.2	J
Potassium	NL	mg/kg	521		844		1,210		827		916		1,300		1,030		1,340		1,130		1,410	
Selenium	NL	mg/kg	3.6	U	4.2	U	4.3	U	4	U	4.9	U	3.7	U	4.5	U	4	U	4.5	U	4.7	U
Silver	NL	mg/kg	1	U	1.2	U	6.6		1.1	U	1.5		1.1	U	1.3	U	2.4		1.3	U	2.1	
Sodium	NL	mg/kg	707		1,550		2,310		568	U	721		535	U	650	U	1,350		642	U	738	
Thallium	NL	mg/kg	2.6	U	3	U	3.1	U	2.8	U	3.5	U	2.7	U	3.2	U	2.9	U	3.2	U	3.4	U
Vanadium	NL	mg/kg	9.4		13.9		18.8		16.3		18.2		17.8		17.9		22.8		18.7		24.8	
Zinc	459	mg/kg	102	J	264	J	908	J	172	J	578	J	317	J	371	J	1,300	J	191	J	720	J
Mercury	1.06	mg/kg	0.08	J	0.16		0.65		0.07	J	4.9		0.9		0.5		1		0.11	J	0.9	

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC12-01RB		SC13-01M		SC13-01RA		SC13-01RA		SC13-01RA		SC13-01RA		SC14-01L		SC14-01L		SC14-01L		SC15-01RB	
		Field Sample ID	SC12-01RB-033		SC13-01M-006		SC13-01RA-006		SC13-01RA-006DP		SC13-01RA-024		SC13-01RA-037		SC14-01L-006		SC14-01L-024		SC14-01L-040		SC15-01RB-006	
		Sample Date	8/2/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011	
		Depth Interval (inch bss)	24- 33		0- 6		0- 6		0- 6		6- 24		24- 37		0- 6		6- 24		24- 40		0- 6	
Chemical Name	**PEC[1]**	**Unit**																				
Aluminum	NL	mg/kg	13,500		7,750		3,380		3,530		6,110		9,630		4,450		8,820		10,300		3,300	
Antimony	NL	mg/kg	13.8		6.9	U	7	U	6.3	U	6.3	U	9.4	U	8.8	U	9.7	U	7.8	U	8.7	U
Arsenic	33	mg/kg	19.6	J	6.5	J	3.1	J	3	J	8.2	J	17.6	J	10.3	J	9.3	J	124	J	3.2	
Barium	NL	mg/kg	230		62.9		43.8		38.1		100		243		66.5		137		163		40.1	
Beryllium	NL	mg/kg	1.1		0.58		0.29	J	0.31	J	0.53		0.95		0.39	J	0.7	J	0.91		0.3	J
Cadmium	4.98	mg/kg	7	J	1		0.58	U	0.53	U	2.2		4.2		0.97		2.3		2.6		0.72	U
Calcium	NL	mg/kg	40,000		54,500	J	19,800	J	19,700	J	21,400	J	26,700	J	23,700	J	30,700	J	35,100	J	21,200	
Chromium	111	mg/kg	47.3	J	23.6	J	10.4	J	9.8	J	26.4	J	37.2	J	13.9	J	144	J	76.3	J	9.9	
Cobalt	NL	mg/kg	15.1	J	5.9	J	5.8	UJ	5.3	UJ	5.9	J	11.5	J	7.3	UJ	8.1	UJ	8.5	J	7.2	U
Copper	149	mg/kg	493	J	114		63.8		54.5		354		648		90.3		192		227		54	J
Iron	NL	mg/kg	25,700	J	14,900	J	7,510	J	7,490	J	12,300	J	19,300	J	9,890	J	16,300	J	23,500	J	8,350	
Lead	128	mg/kg	1930	J	118	J	49.1	J	56.1	J	420	J	1380	J	51.4	J	214	J	460	J	73.2	
Magnesium	NL	mg/kg	10,600	J	16,800		5,430		5,760		6,440		7,640		6,790		9,690		10,100		6,250	
Manganese	NL	mg/kg	450	J-	368	J	146	J	149	J	242	J	340	J	177	J	304	J	340	J	140	
Nickel	48.6	mg/kg	39.5	J	25.6		9.3		10.6		23.6		33.3		13.4		140		78.1		9.9	
Potassium	NL	mg/kg	1,740		1,190		579	U	527	U	843		1,300		733	U	1,320		1,460		725	U
Selenium	NL	mg/kg	5.4	U	4	U	4.1	U	3.7	U	3.7	U	5.5	U	5.1	U	5.7	U	4.5	U	5.1	U
Silver	NL	mg/kg	3.1		1.1	U	1.2	U	1.1	U	1.5		6.1		1.5	U	2.4		2.5		1.4	U
Sodium	NL	mg/kg	1,120		572	U	579	U	527	U	527	U	786	U	733	U	811	U	965		725	U
Thallium	NL	mg/kg	3.9	U	2.9	U	2.9	U	2.6	U	2.6	U	3.9	U	3.7	U	4.1	U	3.2	U	3.6	U
Vanadium	NL	mg/kg	29.8		18.6	J	9.1	J	9.1	J	14.9	J	24.4	J	11.7	J	19	J	23.3	J	8.8	
Zinc	459	mg/kg	1,300	J	218		89.4		100		426		1,390		302		381		934		103	J
Mercury	1.06	mg/kg	1.6		0.28		0.07	J	0.08	J	0.52		1.3		0.07	J	0.79		2.8		0.08	J

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC15-01RB		SC15-01RB		SC16-01R		SC16-01R		SC16-01R		SC16-01R		SC16-01RA		SC16-01RA		SC18-01R1		SC18-01R1	
		Field Sample ID	SC15-01RB-024		SC15-01RB-035		SC16-01R-006		SC16-01R-024		SC16-01R-024FS		SC16-01R-053		SC16-01RA-006		SC16-01RA-026		SC18-01R1-006		SC18-01R1-024	
		Sample Date	8/3/2011		8/3/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011		8/3/2011	
		Depth Interval (inch bss)	6- 24		24- 35		0- 6		6- 24		6- 24		24- 53		0- 6		6- 26		0- 6		6- 24	
Chemical Name	**PEC[1]**	**Unit**																				
Aluminum	NL	mg/kg	7,620		5,350		4,140		10,100		9,410		9,020		4,080		8,910		5,950		8,510	
Antimony	NL	mg/kg	7.6	U	7.5	U	10	U	9.3	U	8.5	U	9.4	U	7.3	U	6.9	U	7.8	U	7.8	U
Arsenic	33	mg/kg	7.5		10.6		4.2	J	9.3	J	10.6	J	20.2	J	4.4	J	15.4	J	10.4		62.3	
Barium	NL	mg/kg	132		155		66.2		109		126		361		74.6		122		108		127	
Beryllium	NL	mg/kg	0.63	J	0.56	J	0.38	J	0.78		0.76		0.81		0.42	J	0.75		0.56	J	0.79	
Cadmium	4.98	mg/kg	2.1		2.8		0.83	U	2.6		2.1		5.1		0.68		2.4		2.6		2.6	
Calcium	NL	mg/kg	27,400		22,000		22,700	J	28,400	J	29,000	J	24,700	J	29,300	J	31,000	J	39,900		42,300	
Chromium	111	mg/kg	34.5		24.9		11.9	J	39	J	37.8	J	120	J	18.6	J	64.4	J	48.7		39.9	
Cobalt	NL	mg/kg	6.9		6.2	U	8.3	UJ	8.4	J	8.9	J	10.8	J	6	UJ	9.1	J	6.5	U	7.7	
Copper	149	mg/kg	161	J	316	J	166		241		208		369		98.4		133		183	J	141	J
Iron	NL	mg/kg	16,200		12,200		9,910	J	17,500	J	17,000	J	18,100	J	9,750	J	16,600	J	13,500		18,700	
Lead	128	mg/kg	329		450		95.5	J	246	J	380	J	958	J	111	J	453	J	562		385	
Magnesium	NL	mg/kg	8,920		5,540		6,280		9,480		9,720		7,090		8,080		8,210		14,600		8,690	
Manganese	NL	mg/kg	291		222		186	J	267	J	304	J	275	J	184	J	252	J	292		323	
Nickel	48.6	mg/kg	40.6		18.5		11.2		51.4		49.9		30.5		16		27.1		21.9		27.8	
Potassium	NL	mg/kg	977		729		830	U	1,510		1,480		1,390		648		1,230		778		1,120	
Selenium	NL	mg/kg	4.4	U	4.4	U	5.8	U	5.4	U	4.9	U	5.5	U	4.2	U	4	U	4.6	U	4.5	U
Silver	NL	mg/kg	1.4		1.2	U	1.7	U	1.5	U	1.6		2		1.2	U	1.2	U	1.3	U	2	
Sodium	NL	mg/kg	634	U	623	U	830	U	978		1,030		1,190		605	U	576	U	650	U	647	U
Thallium	NL	mg/kg	3.2	U	3.1	U	4.1	U	3.9	U	3.5	U	3.9	U	3	U	2.9	U	3.3	U	3.2	U
Vanadium	NL	mg/kg	17		13.9		11.8	J	22.3	J	22.1	J	21.7	J	10.5	J	20.6	J	14.6		18.9	
Zinc	459	mg/kg	332	J	544	J	128		298		394		897		157		423		512	J	420	J
Mercury	1.06	mg/kg	0.33		0.56		0.09	J	0.86		0.42		1.1		0.09	J	0.43		0.47		1.5	

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

		Location ID	SC18-01R1		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MB		SC19-01MB		SC19-01MB		SC19-01MB		SC19-01MB	
		Field Sample ID	SC18-01R1-048		SC19-01MA-006		SC19-01MA-024		SC19-01MA-048		SC19-01MA-071		SC19-01MB-006		SC19-01MB-006FS		SC19-01MB-024		SC19-01MB-048		SC19-01MB-064	
		Sample Date	8/3/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011	
		Depth Interval (inch bss)	24- 48		0- 6		6- 24		24- 48		48- 71		0- 6		0- 6		6- 24		24- 48		48- 64	
Chemical Name	**PEC[1]**	**Unit**																				
Aluminum	NL	mg/kg	12,200		8,540		10,600		14,000		9,990		9,050		9,550		9,950		13,200		12,400	
Antimony	NL	mg/kg	8.7	U	13.1	UJ	8.4	UJ	9.1	UJ	9.1	UJ	10.3	UJ	10.4	UJ	8.9	UJ	9.9	UJ	9.8	UJ
Arsenic	33	mg/kg	199		6.2		26.1		108		129		6.9		6.7		8.2		56.3		24.5	
Barium	NL	mg/kg	164		83.9		105		184		132		86.6		85.9		94.7		148		147	
Beryllium	NL	mg/kg	0.99		0.63	J	0.79		1		0.84		0.64	J	0.65	J	0.74		0.99		0.99	
Cadmium	4.98	mg/kg	1.7		1.1	U	1.1		1.9		1.8		1.3		2.2		1.2		2		1.8	
Calcium	NL	mg/kg	35,400		35,300		35,300		35,200		33,100		35,100		38,700		36,500		32,500		33,300	
Chromium	111	mg/kg	20.5		24.7	J	29.6	J	22.2	J	19.7	J	21.1	J	19.8	J	23.1	J	27	J	29	J
Cobalt	NL	mg/kg	9.6		10.9	U	7.9		9.3		7.9		8.6	U	8.6	U	7.9		9		9.9	
Copper	149	mg/kg	123	J	94.3	J	110	J	153	J	152	J	97.4	J	123	J	110	J	144	J	161	J
Iron	NL	mg/kg	24,700		17,000		20,400		26,200		22,600		17,300		17,400		19,000		24,300		23,800	
Lead	128	mg/kg	842		92.5	J	1850	J	449	J	530	J	66.6	J	124	J	83.2	J	327	J	344	J
Magnesium	NL	mg/kg	9,530		10,800		10,500		9,560		8,480		11,100		11,200		11,200		9,040		9,160	
Manganese	NL	mg/kg	378		423	J	575	J	340	J	328	J	382	J	383	J	429	J	340	J	299	J
Nickel	48.6	mg/kg	30.8		20.9		24.3		34.5		28.4		21.1		21.1		26.1		33.2		36.5	
Potassium	NL	mg/kg	1,480		1,270	J	1,490	J	1,910	J	1,380	J	1,350	J	1,410	J	1,420	J	1,790	J	1,750	J
Selenium	NL	mg/kg	5.1	U	7.6	U	4.9	U	5.3	U	5.3	U	6	U	6	U	5.2	U	5.8	U	5.7	U
Silver	NL	mg/kg	2.9		2.2	U	1.4	U	4.7		2.9		1.7	U	1.7	U	1.5	U	3.6		5.6	
Sodium	NL	mg/kg	725	U	1,090	U	699	U	759	U	754	U	862	U	863	U	741	U	828	U	816	U
Thallium	NL	mg/kg	3.6	U	5.5	U	3.5	U	3.8	U	3.8	U	4.3	U	4.3	U	3.7	U	4.1	U	4.1	U
Vanadium	NL	mg/kg	26.1		20		22.1		29.5		24.1		20.6		21.5		22.3		28.3		26.8	
Zinc	459	mg/kg	624	J	176		213		748		717		152		192		197		545		601	
Mercury	1.06	mg/kg	2.1		0.1	J	0.41		3.7		3.2		0.06	J	0.08	J	0.09	J	2.3		3	

Table A-3
Sediment Sample Analytical Results - TAL Metals
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC19-01R		SC19-01R		SC20-01L		SC20-01L		SC20-01M		SC20-01M		SC20-01M		SC20-01M		SC20-01R		SC20-01R	
	Field Sample ID	SC19-01R-006		SC19-01R-017		SC20-01L-006		SC20-01L-033		SC20-01M-006		SC20-01M-024		SC20-01M-048		SC20-01M-068		SC20-01R-006		SC20-01R-025	
	Sample Date	8/1/2011		8/1/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	0- 6		6- 17		0- 6		6- 33		0- 6		6- 24		24- 48		48- 68		0- 6		6- 25	
Chemical Name	**PEC[1]**	**Unit**																			
Aluminum	NL	mg/kg	5,320		4,950		3,890		7,680		12,900		12,600		14,300		12,400		16,000		15,500	
Antimony	NL	mg/kg	8	U	8.4	U	7.6	U	7.1	U	9.7	U	9.3	U	9.9	U	7.7	U	13.1	U	7.8	U
Arsenic	33	mg/kg	6.8	J	15.2	J	6	J	18.4	J	8.5	J	7.9	J	8.6	J	10.8	J	8.3	J	11.5	J
Barium	NL	mg/kg	65.1		104		46.2		128		104		105		114		108		107		132	
Beryllium	NL	mg/kg	0.69		1.5		0.43	J	0.68		0.95		0.88		1		0.87		1.1	J	0.96	
Cadmium	4.98	mg/kg	0.76		1.2		1.2	J	5.2	J	0.83		0.87		1.1	J	1.2	J	1.1	U	1.4	
Calcium	NL	mg/kg	43,000	J	9,900	J	57,600		33,500		40,100	J	40,000	J	39,600		34,100		33,900	J	40,300	J
Chromium	111	mg/kg	14.7	J	47.1	J	23.9	J	73.2	J	21.4	J	21.9	J	24.5	J	26	J	24.4	J	25.5	J
Cobalt	NL	mg/kg	6.7	UJ	7.3	J	6.3	UJ	7	J	9.3	J	8.5	J	9.8	J	9.3	J	10.9	UJ	9.2	J
Copper	149	mg/kg	60.4		90.5		91.7	J	181	J	41.6		48.1		52	J	157	J	30.2		42.5	
Iron	NL	mg/kg	12,600	J	19,100	J	12,300	J	16,400	J	23,000	J	20,800	J	23,800	J	21,400	J	24,900	J	21,200	J
Lead	128	mg/kg	91.8	J	533	J	71.3	J	1090	J	35.7	J	47.7	J	59	J	113	J	21.3	J	45.3	J
Magnesium	NL	mg/kg	12,000		2,860		13,800	J	7,360	J	12,000		11,200		11,000	J	10,600	J	10,800		11,200	
Manganese	NL	mg/kg	245	J	346	J	257	J-	290	J-	662	J	537	J	585	J-	467	J-	504	J	345	J
Nickel	48.6	mg/kg	17.7		31.1		16.2	J	28	J	26.1		24.7		30.5	J	29	J	29.9		30.4	
Potassium	NL	mg/kg	737		697	U	633	U	1,150		1,920		1,940		2,160		1,680		2,330		2,330	
Selenium	NL	mg/kg	4.7	U	4.9	U	4.4	U	4.1	U	5.7	U	5.4	U	5.8	U	4.5	U	7.7	U	4.6	U
Silver	NL	mg/kg	1.3	U	1.4	U	1.3	U	2.8		1.6	U	1.5	U	1.6	U	1.3	U	2.2	U	1.3	U
Sodium	NL	mg/kg	670	U	697	U	633	U	589	U	808	U	772	U	823	U	645	U	1,090	U	652	U
Thallium	NL	mg/kg	3.4	U	3.5	U	3.2	U	2.9	U	4	U	3.9	U	4.1	U	3.2	U	5.5	U	3.3	U
Vanadium	NL	mg/kg	13.1	J	14.5	J	11.4		18		26.7	J	26.1	J	28.4		25.4		30.2	J	29.2	J
Zinc	459	mg/kg	118		186		162	J	546	J	155		162		171	J	209	J	117		154	
Mercury	1.06	mg/kg	0.11	J	0.19		0.08	J	3.6		0.11	J	0.09	J	0.13	J	0.73		0.06	J	0.15	J

Notes:
Result exceeds PEC.
µg/kg - Microgram per kilogram
bss - below sediment surface
ID - Identification
J - Estimated Value
NL - Not Listed
PEC - Probable Effect Concentration
TAL - Target Analyte List
U - Not Detected
1 - Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald, et. al., 2000)

Table A-4
Sediment Sample Analytical Results - PCBs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC01-01RA		SC01-01RA		SC05-01RA		SC05-01RA		SC05-01RA		SC07-01LA		SC10-01LC	
	Field Sample ID	SC01-01RA-006		SC01-01RA-024		SC05-01RA-006		SC05-01RA-006FS		SC05-01RA-026		SC07-01LA-006		SC10-01LC-006	
	Sample Date	8/5/2011		8/5/2011		8/6/2011		8/6/2011		8/6/2011		8/3/2011		8/2/2011	
	Depth Interval (inch bss)	0- 6		6- 24		0- 6		0- 6		6- 26		0- 6		0- 6	
Chemical Name	**PEC[1]**	**Unit**													
Aroclor-1016	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
Aroclor-1221	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
Aroclor-1232	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
Aroclor-1242	NL	µg/kg	380	NJ	320	NJ	22,000	NJ	35,000		10,000		260		17,000	NJ
Aroclor-1248	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
Aroclor-1254	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
Aroclor-1260	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
Aroclor-1262	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
Aroclor-1268	NL	µg/kg	49	U	50	U	610	U	590	U	500	U	59	U	600	U
TOTAL PCBs	676	µg/kg	380		320		22,000		35,000		10,000		260		17,000	

Table A-4
Sediment Sample Analytical Results - PCBs
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC10-01LC		SC13-01RA		SC13-01RA		SC19-01MA		SC19-01R	
	Field Sample ID	SC10-01LC-006FS		SC13-01RA-006		SC13-01RA-006DP		SC19-01MA-024		SC19-01R-006	
	Sample Date	8/2/2011		8/1/2011		8/1/2011		8/4/2011		8/1/2011	
	Depth Interval (inch bss)	0- 6		0- 6		0- 6		6- 24		0- 6	
Chemical Name	**PEC[1]** Unit										
Aroclor-1016	NL µg/kg	560	U	49	U	43	U	60	U	46	U
Aroclor-1221	NL µg/kg	560	U	49	U	43	U	60	U	46	U
Aroclor-1232	NL µg/kg	560	U	49	U	43	U	60	U	46	U
Aroclor-1242	NL µg/kg	12,000	NJ	660		410		710		500	NJ
Aroclor-1248	NL µg/kg	560	U	49	U	43	U	60	U	46	U
Aroclor-1254	NL µg/kg	560	U	49	U	43	U	60	U	46	U
Aroclor-1260	NL µg/kg	560	U	49	U	43	U	60	U	46	U
Aroclor-1262	NL µg/kg	560	U	49	U	43	U	60	U	46	U
Aroclor-1268	NL µg/kg	560	U	49	U	43	U	60	U	46	U
TOTAL PCBs	676 µg/kg	12,000		660		410		710		500	

Notes:
Result exceeds PEC
µg/kg - Microgram per kilogram
bss - below sediment surface
ID - Identification
NL - Not Listed
NJ - Estimated Value
PCB - Polychlorinated Biphenyls
PEC - Probable Effect Concentration
U - Not Detected

TOTAL PCBs calculated as the sum of detections

1 - Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald, et. al., 2000)

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC01-01RA		SC01-01RA		SC01-01RA		SC01-01RB		SC01-01RB		SC02-01LA		SC02-01LA		SC02-01LA	
	Field Sample ID	SC01-01RA-006		SC01-01RA-006DP		SC01-01RA-024		SC01-01RB-006		SC01-01RB-027		SC02-01LA-006		SC02-01LA-024		SC02-01LA-032	
	Sample Date	8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011		8/5/2011	
	Depth Interval (inch bss)	0- 6		0- 6		6- 24		0- 6		6- 27		0- 6		6- 24		24- 32	
Chemical Name	**Unit**																
DRO	mg/kg	8,800	J	2,400	J	6,000	J	2,500		5,200	J	1,100		3,700	J	1,700	J
ORO	mg/kg	8,700	J	2,600	J	7,500	J	7,800	J	12,000	J	4,300		4,300	J	3,100	J

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC02-01LB		SC02-01LB		SC03-01LA		SC03-01LA		SC03-01LA		SC03-01RB		SC03-01RB		SC05-01RA	
	Field Sample ID	SC02-01LB-006		SC02-01LB-006DP		SC03-01LA-006		SC03-01LA-024		SC03-01LA-033		SC03-01RB-006		SC03-01RB-032		SC05-01RA-006	
	Sample Date	8/6/2011		8/6/2011		8/5/2011		8/5/2011		8/5/2011		8/6/2011		8/6/2011		8/6/2011	
	Depth Interval (inch bss)	0- 6		0- 6		0- 6		6- 24		24- 33		0- 6		6- 32		0- 6	
Chemical Name	**Unit**																
DRO	mg/kg	57	UJ	390	J	1,100		2,400	J	1,100	J	77	U	1,100		1,300	J
ORO	mg/kg	350	J	3,000	J	5,600	J	7,800	J	4,200		710	J	3,900		5,500	J

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC05-01RA		SC05-01RA		SC06-01RA		SC06-01RA		SC06-01RB		SC06-01RB		SC06-01RB		SC07-01LA	
	Field Sample ID	SC05-01RA-006FS		SC05-01RA-026		SC06-01RA-006		SC06-01RA-027		SC06-01RB-006		SC06-01RB-024		SC06-01RB-035		SC07-01LA-006	
	Sample Date	8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/6/2011		8/3/2011	
	Depth Interval (inch bss)	0- 6		6- 26		0- 6		6- 27		0- 6		6- 24		24- 35		0- 6	
Chemical Name	**Unit**																
DRO	mg/kg	1,200	J	810		51	U	610		65	U	480		160		69	UJ
ORO	mg/kg	4,600	J	2,900		220	J	3,100		510	J	2,300		680		540	J

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC07-01LA		SC07-01R		SC07-01R		SC07-01R		SC08-01LA		SC08-01LA		SC08-01LA		SC08-01LA	
	Field Sample ID	SC07-01LA-025		SC07-01R-006		SC07-01R-024		SC07-01R-040		SC08-01LA-006		SC08-01LA-006DP		SC08-01LA-024		SC08-01LA-024DP	
	Sample Date	8/3/2011		8/3/2011		8/3/2011		8/3/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011	
	Depth Interval (inch bss)	6- 25		0- 6		6- 24		24- 40		0- 6		0- 6		6- 24		6- 24	
Chemical Name	**Unit**																
DRO	mg/kg	160		56	U	550		55	U	1,700		1,600		1,000		1,400	
ORO	mg/kg	1,500		190		2,800		160	U	7,900		7,000		5,000		5,000	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC08-01LA		SC08-01LB		SC08-01LB		SC08-01LB		SC09-01LA		SC09-01LA		SC09-01RB		SC09-01RB	
	Field Sample ID	SC08-01LA-034		SC08-01LB-006		SC08-01LB-024		SC08-01LB-054		SC09-01LA-006		SC09-01LA-026		SC09-01RB-006		SC09-01RB-032	
	Sample Date	8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	24- 34		0- 6		6- 24		24- 54		0- 6		6- 26		0- 6		6- 32	
Chemical Name	**Unit**																
DRO	mg/kg	4,400		100	J	790		1,800		390		1,100		55	U	3,600	
ORO	mg/kg	10,000		620	J	2,800		5,700		170	U	3,500		610		10,000	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC10-01LB		SC10-01LB		SC10-01LB		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01LC		SC10-01RA	
	Field Sample ID	SC10-01LB-006		SC10-01LB-024		SC10-01LB-051		SC10-01LC-006		SC10-01LC-006FS		SC10-01LC-024		SC10-01LC-039		SC10-01RA-006	
	Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	0- 6		6- 24		24- 51		0- 6		0- 6		6- 24		24- 39		0- 6	
Chemical Name	**Unit**																
DRO	mg/kg	21		760		1,100		1,900		1,700		1,200		1,600		21	
ORO	mg/kg	420		4,800		5,800		6,700		6,000		4,900		3,900		380	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC10-01RA		SC10-01RA		SC11-01L		SC11-01L		SC11-01L		SC12-01LA		SC12-01LA		SC12-01LA	
	Field Sample ID	SC10-01RA-024		SC10-01RA-050		SC11-01L-006		SC11-01L-024		SC11-01L-051		SC12-01LA-006		SC12-01LA-024		SC12-01LA-034	
	Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	6- 24		24- 50		0- 6		6- 24		24- 51		0- 6		6- 24		24- 34	
Chemical Name	**Unit**																
DRO	mg/kg	860		1,900		44		190		360		20		2,100		320	
ORO	mg/kg	3,700		6,900		460		1,600		2,800		300		6,000		1,600	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC12-01R		SC12-01R		SC12-01RB		SC12-01RB		SC12-01RB		SC13-01M		SC13-01RA		SC13-01RA	
	Field Sample ID	SC12-01R-006		SC12-01R-030		SC12-01RB-006		SC12-01RB-024		SC12-01RB-033		SC13-01M-006		SC13-01RA-006		SC13-01RA-006DP	
	Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011		8/1/2011		8/1/2011		8/1/2011	
	Depth Interval (inch bss)	0- 6		6- 30		0- 6		6- 24		24- 33		0- 6		0- 6		0- 6	
Chemical Name	**Unit**																
DRO	mg/kg	270		700		49		1,800		1,700		290		40		38	
ORO	mg/kg	2,400		2,700		690		9,200		6,400		1,800		390		450	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC13-01RA		SC13-01RA		SC14-01L		SC14-01L		SC14-01L		SC15-01RB		SC15-01RB		SC15-01RB	
	Field Sample ID	SC13-01RA-024		SC13-01RA-037		SC14-01L-006		SC14-01L-024		SC14-01L-040		SC15-01RB-006		SC15-01RB-024		SC15-01RB-035	
	Sample Date	8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011		8/3/2011		8/3/2011	
	Depth Interval (inch bss)	6- 24		24- 37		0- 6		6- 24		24- 40		0- 6		6- 24		24- 35	
Chemical Name	**Unit**																
DRO	mg/kg	540		1,700		45		530		1,300		55	U	1,500		1,200	
ORO	mg/kg	2,400		7,600		680		3,000		2,500		500	J	5,800		5,800	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC16-01R		SC16-01R		SC16-01R		SC16-01R		SC16-01RA		SC16-01RA		SC18-01R1		SC18-01R1	
	Field Sample ID	SC16-01R-006		SC16-01R-024		SC16-01R-024FS		SC16-01R-053		SC16-01RA-006		SC16-01RA-026		SC18-01R1-006		SC18-01R1-024	
	Sample Date	8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/1/2011		8/3/2011		8/3/2011	
	Depth Interval (inch bss)	0- 6		6- 24		6- 24		24- 53		0- 6		6- 26		0- 6		6- 24	
Chemical Name	**Unit**																
DRO	mg/kg	79		420		440		2,200		73	J	290		630		1,900	
ORO	mg/kg	790		2,000		2,900		7,200		590		1,600		4,300		5,300	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC18-01R1		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MA		SC19-01MB		SC19-01MB		SC19-01MB	
	Field Sample ID	SC18-01R1-048		SC19-01MA-006		SC19-01MA-024		SC19-01MA-048		SC19-01MA-071		SC19-01MB-006		SC19-01MB-006FS		SC19-01MB-024	
	Sample Date	8/3/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011		8/4/2011	
	Depth Interval (inch bss)	24- 48		0- 6		6- 24		24- 48		48- 71		0- 6		0- 6		6- 24	
Chemical Name	**Unit**																
DRO	mg/kg	560		90	U	210		2,800		3,700		71	U	80	U	75	J
ORO	mg/kg	1,500		270	U	1,600		7,600		8,300		1,000		1,000		1,300	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC19-01MB		SC19-01MB		SC19-01R		SC19-01R		SC20-01L		SC20-01L		SC20-01M		SC20-01M	
	Field Sample ID	SC19-01MB-048		SC19-01MB-064		SC19-01R-006		SC19-01R-017		SC20-01L-006		SC20-01L-033		SC20-01M-006		SC20-01M-024	
	Sample Date	8/4/2011		8/4/2011		8/1/2011		8/1/2011		8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	24- 48		48- 64		0- 6		6- 17		0- 6		6- 33		0- 6		6- 24	
Chemical Name	Unit																
DRO	mg/kg	1,600		2,900		100		48		180	J	1,400		46		75	
ORO	mg/kg	4,400		6,200		780	J	520		510		350		560		750	

Table A-5
Sediment Sample Analytical Results - TPH as DRO and ORO
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC20-01M		SC20-01M		SC20-01R		SC20-01R	
	Field Sample ID	SC20-01M-048		SC20-01M-068		SC20-01R-006		SC20-01R-025	
	Sample Date	8/2/2011		8/2/2011		8/2/2011		8/2/2011	
	Depth Interval (inch bss)	24- 48		48- 68		0- 6		6- 25	
Chemical Name	**Unit**								
DRO	mg/kg	73		150		15	J	72	
ORO	mg/kg	900		690		330		460	

Notes:
bss - below sediment surface
DRO - Diesel Range Organic
ID - Identification
J - Estimated Value
mg/kg - Milligram per kilogram
ORO - Oil Range Organic
TPH - Total Petroleum Hydrocarbons
U - Not Detected

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC01-01RA	SC01-01RA	SC01-01RA	SC01-01RB	SC01-01RB	SC02-01LA	SC02-01LA
	Field Sample ID	SC01-01RA-006	SC01-01RA-006DP	SC01-01RA-024	SC01-01RB-006	SC01-01RB-027	SC02-01LA-006	SC02-01LA-024
	Sample Date	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011
	Depth Interval (inch bss)	0- 6	0- 6	6- 24	0- 6	6- 27	0- 6	6- 24
Chemical Name	**Unit**							
Grain Size								
Gravel	%	4.17	5.36	7.46	0	0	0	0.08
Coarse Sand	%	1.73	0.73	10.08	0.05	0	0.88	0.17
Medium Sand	%	11.35	6.86	31.42	9.56	8.95	23.56	17.34
Fine Sand	%	67.91	79.01	41.54	45.84	41.21	57.08	74.71
Silt/Clay	%	14.85	8.04	9.497	44.543	49.842	18.49	7.695
Grain Size	mm	0.201	0.223	0.41	0.115	0.075	0.26	0.301
TOC								
TOC	µg/g	48,000	40,000	98,000	53,000	52,000	27,000	28,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC02-01LA	SC02-01LB	SC02-01LB	SC03-01LA	SC03-01LA	SC03-01LA	SC03-01RB
	Field Sample ID	SC02-01LA-032	SC02-01LB-006	SC02-01LB-006DP	SC03-01LA-006	SC03-01LA-024	SC03-01LA-033	SC03-01RB-006
	Sample Date	8/5/2011	8/6/2011	8/6/2011	8/5/2011	8/5/2011	8/5/2011	8/6/2011
	Depth Interval (inch bss)	24- 32	0- 6	0- 6	0- 6	6- 24	24- 33	0- 6
Chemical Name	**Unit**							
Grain Size								
Gravel	%	0.42	5.09	NA	41.29	0	0	0.11
Coarse Sand	%	0.13	0.85	NA	0.33	0.13	0.09	0.39
Medium Sand	%	11.9	6.15	NA	7.94	13.2	7.61	10.81
Fine Sand	%	78.18	86.76	NA	42.97	46.95	75.02	59.44
Silt/Clay	%	9.371	1.15	NA	7.47	39.72	17.28	29.25
Grain Size	mm	0.282	0.282	NA	0.415	0.129	0.216	0.133
TOC								
TOC	µg/g	28,000	16,000 J	36,000 J	35,000	54,000	45,000	41,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC03-01RB	SC05-01RA	SC05-01RA	SC05-01RA	SC06-01RA	SC06-01RA	SC06-01RB
	Field Sample ID	SC03-01RB-032	SC05-01RA-006	SC05-01RA-006FS	SC05-01RA-026	SC06-01RA-006	SC06-01RA-027	SC06-01RB-006
	Sample Date	8/6/2011	8/6/2011	8/6/2011	8/6/2011	8/6/2011	8/6/2011	8/6/2011
	Depth Interval (inch bss)	6- 32	0- 6	0- 6	6- 26	0- 6	6- 27	0- 6
Chemical Name	**Unit**							
Grain Size								
Gravel	%	0	2.97	0	0.96	0	2.01	0.2
Coarse Sand	%	1.09	0.44	0.13	0.41	0.03	1.87	0.11
Medium Sand	%	21.07	27.34	13.27	19.15	5.35	22.15	7.3
Fine Sand	%	42.52	35.34	49.37	55.85	92.03	57.04	65.81
Silt/Clay	%	35.33	33.91	37.23	23.62	2.59	16.93	26.58
Grain Size	mm	0.131	0.165	0.142	0.196	0.215	0.259	0.129
TOC								
TOC	µg/g	54,000	47,000	45,000	30,000	9,800	40,000	34,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC06-01RB	SC06-01RB	SC07-01LA	SC07-01LA	SC07-01R	SC07-01R	SC07-01R
	Field Sample ID	SC06-01RB-024	SC06-01RB-035	SC07-01LA-006	SC07-01LA-025	SC07-01R-006	SC07-01R-024	SC07-01R-040
	Sample Date	8/6/2011	8/6/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011
	Depth Interval (inch bss)	6- 24	24- 35	0- 6	6- 25	0- 6	6- 24	24- 40
Chemical Name	**Unit**							
Grain Size								
Gravel	%	0	0	3.28	40.7	0	0	0
Coarse Sand	%	0.12	1.54	0.73	0.32	0.07	0.14	0.13
Medium Sand	%	8.32	13.13	16.19	9.43	6.04	15.05	10.01
Fine Sand	%	60.59	55.63	55.73	32.51	75.59	53.08	63.2
Silt/Clay	%	30.97	29.71	24.07	17.04	18.31	31.73	26.66
Grain Size	mm	0.129	0.145	0.151	0.446	0.153	0.136	0.133
TOC								
TOC	µg/g	44,000	19,000	36,000	34,000	20,000	31,000	13,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC08-01LA	SC08-01LA	SC08-01LA	SC08-01LA	SC08-01LA	SC08-01LB	SC08-01LB
	Field Sample ID	SC08-01LA-006	SC08-01LA-006DP	SC08-01LA-024	SC08-01LA-024DP	SC08-01LA-034	SC08-01LB-006	SC08-01LB-024
	Sample Date	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011
	Depth Interval (inch bss)	0- 6	0- 6	6- 24	6- 24	24- 34	0- 6	6- 24
Chemical Name	**Unit**							
Grain Size								
Gravel	%	11.14	5.22	0.35	NA	3.63	0.29	7.86
Coarse Sand	%	3.21	1.99	3.37	NA	3.05	1.17	6.82
Medium Sand	%	17.64	18.69	23.37	NA	19.12	7.3	29.41
Fine Sand	%	46.71	39.37	47.99	NA	56.3	90.73	48.7
Silt/Clay	%	21.29	34.73	24.91	NA	17.9	0.5	7.21
Grain Size	mm	0.212	0.146	0.218	NA	0.215	0.286	0.382
TOC								
TOC	µg/g	46,000	62,000	45,000	51,000	51,000	6,200	89,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC08-01LB	SC09-01LA	SC09-01LA	SC09-01RB	SC09-01RB	SC10-01LB	SC10-01LB
	Field Sample ID	SC08-01LB-054	SC09-01LA-006	SC09-01LA-026	SC09-01RB-006	SC09-01RB-032	SC10-01LB-006	SC10-01LB-024
	Sample Date	8/4/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011
	Depth Interval (inch bss)	24- 54	0- 6	6- 26	0- 6	6- 32	0- 6	6- 24
Chemical Name	**Unit**							
Grain Size								
Gravel	%	11.85	0	7.64	0.05	7.64	2.23	0.28
Coarse Sand	%	1.83	0.74	6.47	0.05	6.47	2.46	0.63
Medium Sand	%	26.87	35.07	36.91	4.93	36.91	17.18	4.08
Fine Sand	%	51.12	53.85	46.36	82.68	46.36	54.31	58.82
Silt/Clay	%	8.32	10.34	2.62	12.29	2.62	23.81	36.19
Grain Size	mm	0.358	0.357	0.43	0.159	0.43	0.143	0.105
TOC								
TOC	µg/g	45,000	23,000	89,000	17,000	54,000	38,000	56,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC10-01LB	SC10-01LC	SC10-01LC	SC10-01LC	SC10-01LC	SC10-01RA	SC10-01RA
	Field Sample ID	SC10-01LB-051	SC10-01LC-006	SC10-01LC-006FS	SC10-01LC-024	SC10-01LC-039	SC10-01RA-006	SC10-01RA-024
	Sample Date	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011
	Depth Interval (inch bss)	24- 51	0- 6	0- 6	6- 24	24- 39	0- 6	6- 24
Chemical Name	**Unit**							
Grain Size								
Gravel	%	0	0	0	0	18.44	0.63	1.08
Coarse Sand	%	0.1	0.47	1.54	2.17	0.7	0.47	0.24
Medium Sand	%	9.92	27.42	24.43	19.12	18.94	6.16	17.07
Fine Sand	%	48.33	35.79	34.86	47.35	40.88	67.07	38.58
Silt/Clay	%	41.65	36.32	39.17	31.37	21.04	25.66	43.03
Grain Size	mm	0.097	0.127	0.121	0.162	0.228	0.131	0.107
TOC								
TOC	µg/g	61,000	45,000	40,000	44,000	40,000	25,000	45,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC10-01RA	SC11-01L	SC11-01L	SC11-01L	SC12-01LA	SC12-01LA	SC12-01LA
	Field Sample ID	SC10-01RA-050	SC11-01L-006	SC11-01L-024	SC11-01L-051	SC12-01LA-006	SC12-01LA-024	SC12-01LA-034
	Sample Date	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011
	Depth Interval (inch bss)	24- 50	0- 6	6- 24	24- 51	0- 6	6- 24	24- 34
Chemical Name	**Unit**							
Grain Size								
Gravel	%	0	0.6	35.93	5.77	41.4	14.31	2.03
Coarse Sand	%	1.06	9.54	11.32	9.78	6.8	9.38	9.01
Medium Sand	%	29.55	28.18	25.2	26.55	13.37	30.11	38.13
Fine Sand	%	34.55	51.24	21.05	37.33	28.88	30.73	35.05
Silt/Clay	%	34.85	10.43	6.49	20.57	9.55	15.46	15.77
Grain Size	mm	0.157	0.256	1.695	0.268	1.437	0.512	0.407
TOC								
TOC	µg/g	48,000	47,000	51,000	26,000 J	61,000	110,000	60,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC12-01R	SC12-01R	SC12-01RB	SC12-01RB	SC12-01RB	SC13-01M	SC13-01RA
	Field Sample ID	SC12-01R-006	SC12-01R-030	SC12-01RB-006	SC12-01RB-024	SC12-01RB-033	SC13-01M-006	SC13-01RA-006
	Sample Date	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011	8/1/2011	8/1/2011
	Depth Interval (inch bss)	0- 6	6- 30	0- 6	6- 24	24- 33	0- 6	0- 6
Chemical Name	**Unit**							
Grain Size								
Gravel	%	59.07	0	1.5	0	0.79	19.66	0.03
Coarse Sand	%	0.84	1.54	3.85	0.19	0.59	20	0.13
Medium Sand	%	8.16	10.93	22.13	24.6	22.61	34.57	2.93
Fine Sand	%	21.06	42.38	42.15	57.13	38.89	19	88.78
Silt/Clay	%	10.88	45.15	30.37	18.08	37.12	6.77	8.12
Grain Size	mm	6.137	0.092	0.147	0.239	0.125	1.265	0.181
TOC								
TOC	µg/g	50,000	46,000	38,000	86,000	69,000	22,000	16,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC13-01RA	SC13-01RA	SC13-01RA	SC14-01L	SC14-01L	SC14-01L	SC15-01RB
	Field Sample ID	SC13-01RA-006DP	SC13-01RA-024	SC13-01RA-037	SC14-01L-006	SC14-01L-024	SC14-01L-040	SC15-01RB-006
	Sample Date	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/3/2011
	Depth Interval (inch bss)	0- 6	6- 24	24- 37	0- 6	6- 24	24- 40	0- 6
Chemical Name	**Unit**							
Grain Size								
Gravel	%	NA	NA	2.35	1.61	1.71	0.23	0.07
Coarse Sand	%	NA	NA	4.87	0.9	6.39	0.35	0.07
Medium Sand	%	NA	NA	26.64	8.6	29.22	24.92	4.83
Fine Sand	%	NA	NA	38.11	77.67	51.77	49.62	78.15
Silt/Clay	%	NA	NA	28.04	11.21	10.9	24.88	16.88
Grain Size	mm	NA	NA	0.162	0.203	0.313	0.204	0.16
TOC								
TOC	µg/g	19,000	73,000	90,000	38,000	53,000	64,000	21,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC15-01RB	SC15-01RB	SC16-01R	SC16-01R	SC16-01R	SC16-01R	SC16-01RA
	Field Sample ID	SC15-01RB-024	SC15-01RB-035	SC16-01R-006	SC16-01R-024	SC16-01R-024FS	SC16-01R-053	SC16-01RA-006
	Sample Date	8/3/2011	8/3/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011
	Depth Interval (inch bss)	6- 24	24- 35	0- 6	6- 24	6- 24	24- 53	0- 6
Chemical Name	**Unit**							
Grain Size								
Gravel	%	0	0.87	0.72	4.33	7.17	16.61	4.4
Coarse Sand	%	1.83	1.41	2.37	2.9	5.09	6.6	2.87
Medium Sand	%	19.75	15.87	11.84	23.07	24.33	21	11.28
Fine Sand	%	48.24	67.71	76.73	54.99	46.44	44.24	68.66
Silt/Clay	%	30.18	14.14	8.34	14.71	16.96	11.55	12.78
Grain Size	mm	0.176	0.179	0.201	0.249	0.27	0.309	0.17
TOC								
TOC	µg/g	44,000	48,000	35,000	44,000 J	75,000 J	67,000	31,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC16-01RA	SC18-01R1	SC18-01R1	SC18-01R1	SC19-01MA	SC19-01MA	SC19-01MA
	Field Sample ID	SC16-01RA-026	SC18-01R1-006	SC18-01R1-024	SC18-01R1-048	SC19-01MA-006	SC19-01MA-024	SC19-01MA-048
	Sample Date	8/1/2011	8/3/2011	8/3/2011	8/3/2011	8/4/2011	8/4/2011	8/4/2011
	Depth Interval (inch bss)	6- 26	0- 6	6- 24	24- 48	0- 6	6- 24	24- 48
Chemical Name	**Unit**							
Grain Size								
Gravel	%	1.28	7.64	3.51	42.56	0.83	0	0
Coarse Sand	%	6.11	6.47	2.42	0.77	1.74	0.38	0.37
Medium Sand	%	27.61	36.91	25.39	11.78	17.26	8.78	20.27
Fine Sand	%	31.17	46.36	44.14	21.15	57.48	57.82	46.44
Silt/Clay	%	33.83	2.62	24.55	23.73	22.68	33.02	32.92
Grain Size	mm	0.158	0.43	0.194	0.659	0.143	0.136	0.15
TOC								
TOC	µg/g	40,000	46,000	43,000	28,000	65,000	54,000	60,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC19-01MA	SC19-01MB	SC19-01MB	SC19-01MB	SC19-01MB	SC19-01MB
	Field Sample ID	SC19-01MA-071	SC19-01MB-006	SC19-01MB-006FS	SC19-01MB-024	SC19-01MB-048	SC19-01MB-064
	Sample Date	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011
	Depth Interval (inch bss)	48- 71	0- 6	0- 6	6- 24	24- 48	48- 64
Chemical Name	**Unit**						
Grain Size							
Gravel	%	0	0	0	0.41	0.94	0.94
Coarse Sand	%	1.39	0.49	0.55	0.66	0.47	0.47
Medium Sand	%	17.57	17.11	15.1	17.69	19	19
Fine Sand	%	48.45	50.54	52.77	43.39	43.27	43.27
Silt/Clay	%	32.6	31.86	31.57	37.85	36.31	36.31
Grain Size	mm	0.145	0.149	0.15	0.128	0.133	0.133
TOC							
TOC	µg/g	73,000	40,000	41,000	45,000	85,000	74,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC19-01R	SC19-01R	SC20-01L	SC20-01L	SC20-01M	SC20-01M
	Field Sample ID	SC19-01R-006	SC19-01R-017	SC20-01L-006	SC20-01L-033	SC20-01M-006	SC20-01M-024
	Sample Date	8/1/2011	8/1/2011	8/2/2011	8/2/2011	8/2/2011	8/2/2011
	Depth Interval (inch bss)	0- 6	6- 17	0- 6	6- 33	0- 6	6- 24
Chemical Name	**Unit**						
Grain Size							
Gravel	%	45.24	21.45	5.51	0.72	0	0.13
Coarse Sand	%	7.55	24.52	9.83	3.49	3.12	3.06
Medium Sand	%	12.63	28.24	53.86	29.01	26.39	27.08
Fine Sand	%	27.76	20.49	29.87	55.68	38.66	42.12
Silt/Clay	%	6.81	5.3	0.93	11.09	31.83	27.6
Grain Size	mm	2.766	1.666	0.628	0.267	0.17	0.164
TOC							
TOC	µg/g	53,000	210,000	42,000	63,000	49,000	53,000

Table A-6
Sediment Sample Analytical Results - Physical Properties
Swan Creek -Maumee River AOC
Toledo, Lucas County, Ohio

	Location ID	SC20-01M	SC20-01M	SC20-01R	SC20-01R
	Field Sample ID	SC20-01M-048	SC20-01M-068	SC20-01R-006	SC20-01R-025
	Sample Date	8/2/2011	8/2/2011	8/2/2011	8/2/2011
	Depth Interval (inch bss)	24- 48	48- 68	0- 6	6- 25
Chemical Name	**Unit**				
Grain Size					
Gravel	%	0.97	0	0	0
Coarse Sand	%	5.62	2.13	0.91	1.24
Medium Sand	%	31.3	25.19	29.99	29.87
Fine Sand	%	38.47	50.13	36.19	41.89
Silt/Clay	%	23.64	22.55	32.91	27
Grain Size	mm	0.243	0.181	0.185	0.193
TOC					
TOC	µg/g	54,000	49,000	37,000	31,000

Notes:
% - Percent
µg/g - Microgram per gram
bss - below sediment surface
ID - Identification
J - Estimated Value
mm - Milligram
NA - Not Analyzed
TOC - Total Organic Carbon

APPENDIX B
PHOTOGRAPHIC LOG

Site: Swan Creek
Photograph No.: 1 **Date:** 8/2/11
Direction: East **Photographer:** Mark Loomis
Subject: Sample collection east of Collingwood Boulevard Bridge

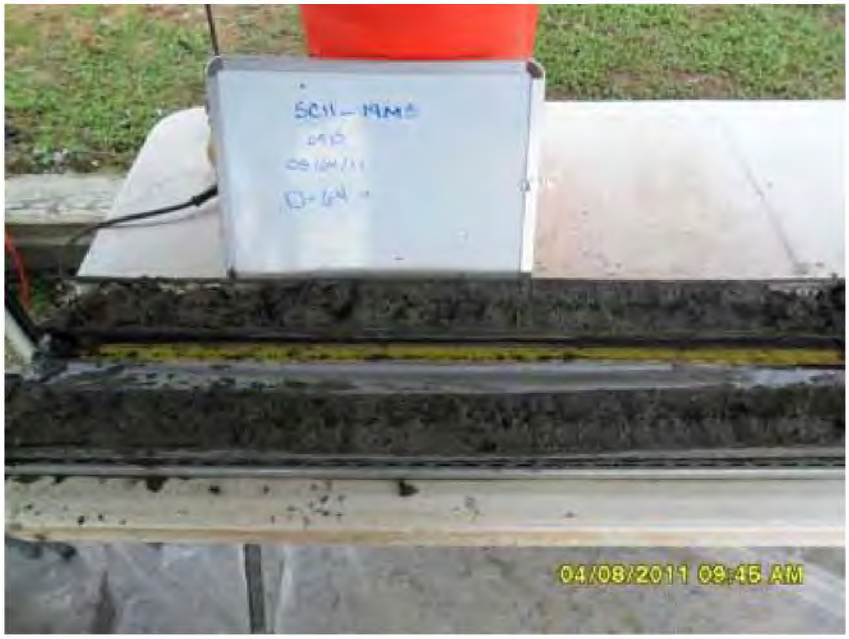
Site: Swan Creek
Photograph No.: 2 **Date:** 8/2/11
Direction: West **Photographer:** Mark Loomis
Subject: Sample collection west of Erie Street Bridge

Site: Swan Creek
Photograph No.: 3
Direction: Down
Subject: Ponar sample from SC-20L; note sheen

Date: 8/2/11
Photographer: Matt Beer

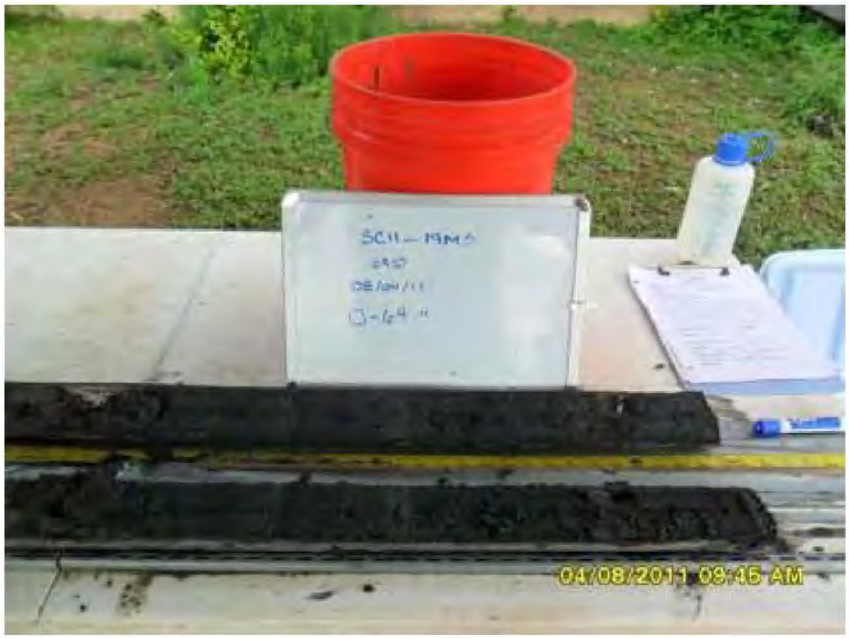
Site: Swan Creek
Photograph No.: 4
Direction: North
Subject: Opening polycarbonate tube from sampling location SC20-01L

Date: 8/2/11
Photographer: Jon Colomb



Site: Swan Creek
Photograph No.: 5
Direction: North
Subject: Sediment core from SC11-19MS

Date: 8/4/11
Photographer: Tim Walls



Site: Swan Creek
Photograph No.: 5
Direction: North
Subject: Sediment core from SC11-19MS

Date: 8/4/11
Photographer: Tim Walls

Site: Swan Creek
Photograph No.: 7
Direction: Southwest
Subject: Sample collection and labeling

Date: 8/2/11
Photographer: Jon Colomb

APPENDIX C
HABITAT ASSESSMENT – QHEI DATA SHEETS

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 30

Stream & Location: Swan Creek, site #2 **RM:** ____ **Date:** 8/03/11

Jonathan M. DeWitt **Scorers Full Name & Affiliation:** Affiliated Researchers

River Code: ___-___-___ **STORET #:** ____ **Lat./Long.:** 41.6362 / 83.5652 (NAD 83 - decimal °) Office verified location ☐

1] SUBSTRATE
Check *ONLY* Two substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR /SLABS [10]	____	____	☐☐ HARDPAN [4]	____	____
☐☐ BOULDER [9]	____	____	☐☐ DETRITUS [3]	____	____
☐☐ COBBLE [8]	____	____	☐☐ MUCK [2]	____	____
☐☐ GRAVEL [7]	____	____	☐☐ SILT [2]	____	____
☐☐ SAND [6]	____	____	■■ ARTIFICIAL [0]	____	____
☐☐ BEDROCK [5]	____	____	(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ■ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ■ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ■ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ■ NONE [1]

Comments Ponar grabs got nothing broken concrete on bank

Substrate 2 *Maximum 20*

2] INSTREAM COVER
Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

- ____ UNDERCUT BANKS [1]
- ✓ OVERHANGING VEGETATION [1]
- ____ SHALLOWS (IN SLOW WATER) [1]
- ✓ ROOTMATS [1]
- ✓ POOLS > 70cm [2]
- ____ ROOTWADS [1]
- ____ BOULDERS [1]
- ____ OXBOWS, BACKWATERS [1]
- ____ AQUATIC MACROPHYTES [1]
- ✓ LOGS OR WOODY DEBRIS [1]

AMOUNT (Check ONE (*Or 2 & average*))
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☐ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover 5 *Maximum 20*

3] CHANNEL MORPHOLOGY
Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	■ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
■ NONE [1]	■ POOR [1]	■ RECENT OR NO RECOVERY [1]	

Comments

Channel 6 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE
Check ONE in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

EROSION (L / R)
- ■■ NONE / LITTLE [3]
- ☐☐ MODERATE [2]
- ☐☐ HEAVY / SEVERE [1]

RIPARIAN WIDTH (L / R)
- ☐☐ WIDE > 50m [4]
- ☐☐ MODERATE 10-50m [3]
- ☐☐ NARROW 5-10m [2]
- ■■ VERY NARROW < 5m [1]
- ☐☐ NONE [0]

FLOOD PLAIN QUALITY (L / R)
- ■■ FOREST, SWAMP [3]
- ☐☐ SHRUB OR OLD FIELD [2]
- ☐☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐☐ FENCED PASTURE [1]
- ☐☐ OPEN PASTURE, ROWCROP [0]
- ☐☐ CONSERVATION TILLAGE [1]
- ☐☐ URBAN OR INDUSTRIAL [0]
- ☐☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 7 *Maximum 10*

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH (Check **ONE** (*ONLY!*))
- ■ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (*Or 2 & average*))
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ■ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ■ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current 8 *Maximum 12*

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ■ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

Riffle / Run 0 *Maximum 8*

6] GRADIENT
DRAINAGE AREA (ft/mi) (mi²)

- ■ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: ____ %GLIDE: 100

%RUN: ____ %RIFFLE: ____

Gradient 2 *Maximum 10*

A] SAMPLED REACH

Check ALL that apply

METHOD
- [x] BOAT
- [ ] WADE
- [ ] L. LINE
- [ ] OTHER

STAGE (1st -sample pass- 2nd)
- [ ] HIGH [ ]
- [ ] UP [ ]
- [x] NORMAL [x]
- [ ] LOW [ ]
- [ ] DRY [ ]

DISTANCE
- [ ] 0.5 Km
- [ ] 0.2 Km
- [ ] 0.15 Km
- [ ] 0.12 Km
- [x] OTHER 50 meters

CLARITY (1st --sample pass-- 2nd)
- [ ] < 20 cm [ ]
- [ ] 20-<40 cm [ ]
- [ ] 40-70 cm [ ]
- [x] > 70 cm/ CTB [x]
- [x] SECCHI DEPTH [x]

1st pass 100 cm
2nd 100 cm

CANOPY
- [ ] > 85%- OPEN
- [ ] 55%-<85%
- [ ] 30%-<55%
- [x] 10%-<30%
- [ ] <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

1.0' below top of sediment deposits (OHWM)
Dissolved oxygen: [redacted] 10.25 mg/L ORP: 107.4
Temperature: 9.93°C
pH: 7.51
Conductivity: 1313 µS/cm

B] AESTHETICS

- [ ] NUISANCE ALGAE
- [ ] INVASIVE MACROPHYTES
- [ ] EXCESS TURBIDITY
- [ ] DISCOLORATION
- [ ] FOAM / SCUM
- [ ] OIL SHEEN
- [x] TRASH / LITTER
- [ ] NUISANCE ODOR
- [ ] SLUDGE DEPOSITS
- [ ] CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH
POOL: [x] >100ft² [x] >3ft

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Banks likely armored w/ rip-rap (broken concrete)

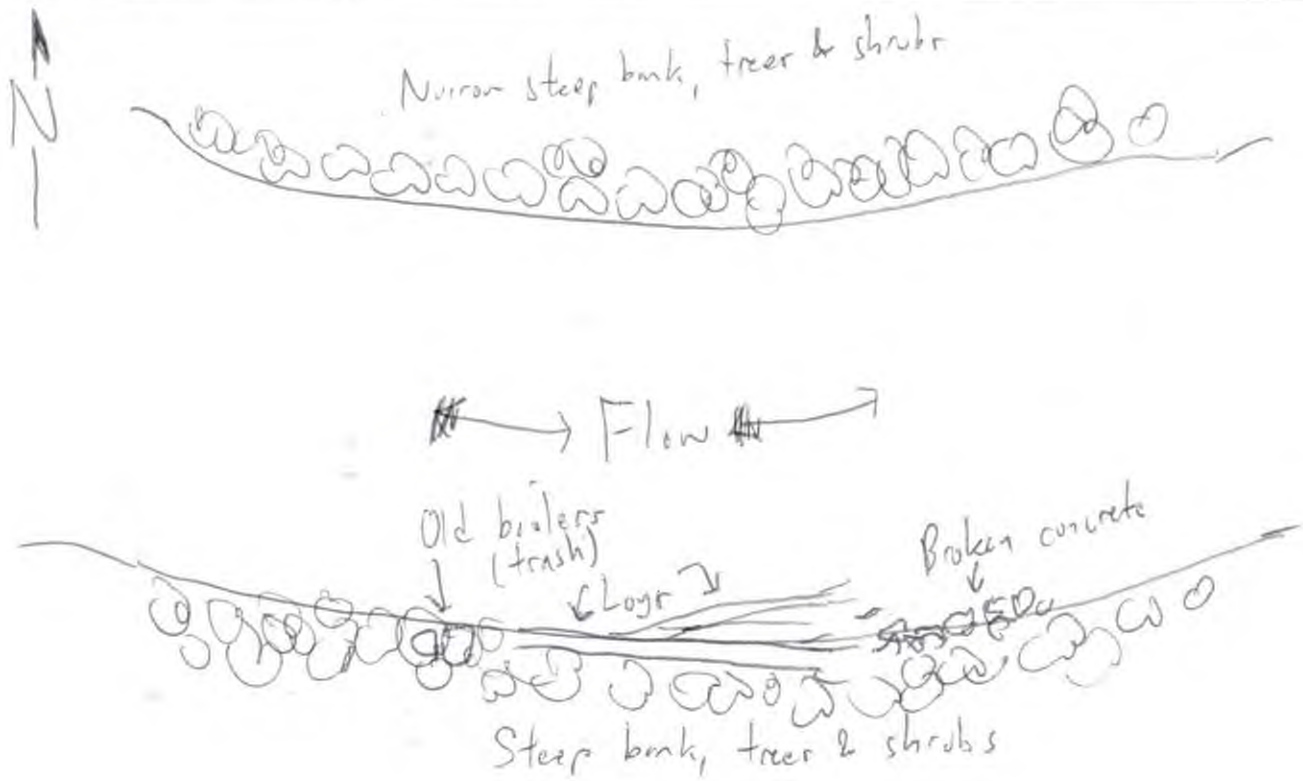
E] ISSUES

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width
$\bar{x}$ depth = 8.8'
max. depth
$\bar{x}$ bankfull width
bankfull $\bar{x}$ depth
W/D ratio
bankfull max. depth
floodprone x^2 width
entrench. ratio
Legacy Tree:

Stream Drawing:



2
94
87
95
78
354/4 = 88.5

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 35

Stream & Location: Swan Creek, site #5 **RM:** _ _ . _ **Date:** 8/03/11

Jonathan M. DeNike **Scorers Full Name & Affiliation:** Affiliated Researchers

River Code: _ _ _ - _ _ _ - _ _ _ **STORET #:** _ _ _ _ _ _ **Lat./ Long.:** (NAD 83 - decimal °) 41 . 6418 / 83 . 5632 Office verified location ☐

1] SUBSTRATE

Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]	____	____	☐ ☐ HARDPAN [4]	____	____
☐ ☐ BOULDER [9]	____	____	☐ ☐ DETRITUS [3]	____	____
☐ ☐ COBBLE [8]	____	____	☐ ☐ MUCK [2]	____	____
☐ ☐ GRAVEL [7]	____	____	☐ ☐ SILT [2]	____	____
☐ ☐ SAND [6]	____	____	■ ■ ARTIFICIAL [0]	____	____
☐ ☐ BEDROCK [5]	____	____	(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ■ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ■ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ■ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ■ NONE [1]

Comments Poor grabs get nothing, broken concrete on bank

Substrate 2 *Maximum 20*

2] INSTREAM COVER

Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

- ✓ UNDERCUT BANKS [1]
- ✓ OVERHANGING VEGETATION [1]
- ✓ SHALLOWS (IN SLOW WATER) [1]
- ✓ ROOTMATS [1]
- ✓ POOLS > 70cm [2]
- ____ ROOTWADS [1]
- ____ BOULDERS [1]
- ____ OXBOWS, BACKWATERS [1]
- ____ AQUATIC MACROPHYTES [1]
- ✓ LOGS OR WOODY DEBRIS [1]

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ■ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover 9 *Maximum 20*

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	■ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
■ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	■ POOR [1]	■ RECENT OR NO RECOVERY [1]	

Comments

Channel 7 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION

L	R	
■	■	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
■	■	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
■	■	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 7 *Maximum 10*

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ■ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ■ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ■ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current 8 *Maximum 12*

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ■ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run 0 *Maximum 8*

6] GRADIENT (ft/mi)

DRAINAGE AREA (mi²)
- ■ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: ____ %GLIDE: 100

%RUN: ____ %RIFFLE: ____

Gradient 2 *Maximum 10*

A] SAMPLED REACH
Check ALL that apply

METHOD
- [x] BOAT
- [ ] WADE
- [ ] L. LINE
- [ ] OTHER

STAGE (1st -sample pass- 2nd)
- [ ] HIGH [ ]
- [ ] UP [ ]
- [x] NORMAL [x]
- [ ] LOW [ ]
- [ ] DRY [ ]

DISTANCE
- [ ] 0.5 Km
- [ ] 0.2 Km
- [ ] 0.15 Km
- [ ] 0.12 Km
- [x] OTHER 50 meters

CLARITY (1st --sample pass-- 2nd)
- [ ] < 20 cm [ ]
- [ ] 20-<40 cm [ ]
- [ ] 40-70 cm [ ]
- [x] > 70 cm/ CTB [x]
- [x] SECCHI DEPTH [x]

1st pass 100 cm
2nd 100 cm

CANOPY
- [ ] > 85%- OPEN
- [ ] 55%-<85%
- [ ] 30%-<55%
- [x] 10%-<30%
- [ ] <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

1.0 below top of sediment deposits (OHWM)
Dissolved oxygen: 9.66 mg/L ORP: 145.9
Temperature: 10.11 °C
pH: 7.26
Conductivity: 1179 µS/cm

B] AESTHETICS
- [ ] NUISANCE ALGAE
- [ ] INVASIVE MACROPHYTES
- [ ] EXCESS TURBIDITY
- [ ] DISCOLORATION
- [ ] FOAM / SCUM
- [ ] OIL SHEEN
- [x] TRASH / LITTER
- [ ] NUISANCE ODOR
- [ ] SLUDGE DEPOSITS
- [ ] CSOs/SSOs/OUTFALLS

C] RECREATION
AREA DEPTH
POOL: [ ] >100ft² [x] >3ft

D] MAINTENANCE
PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

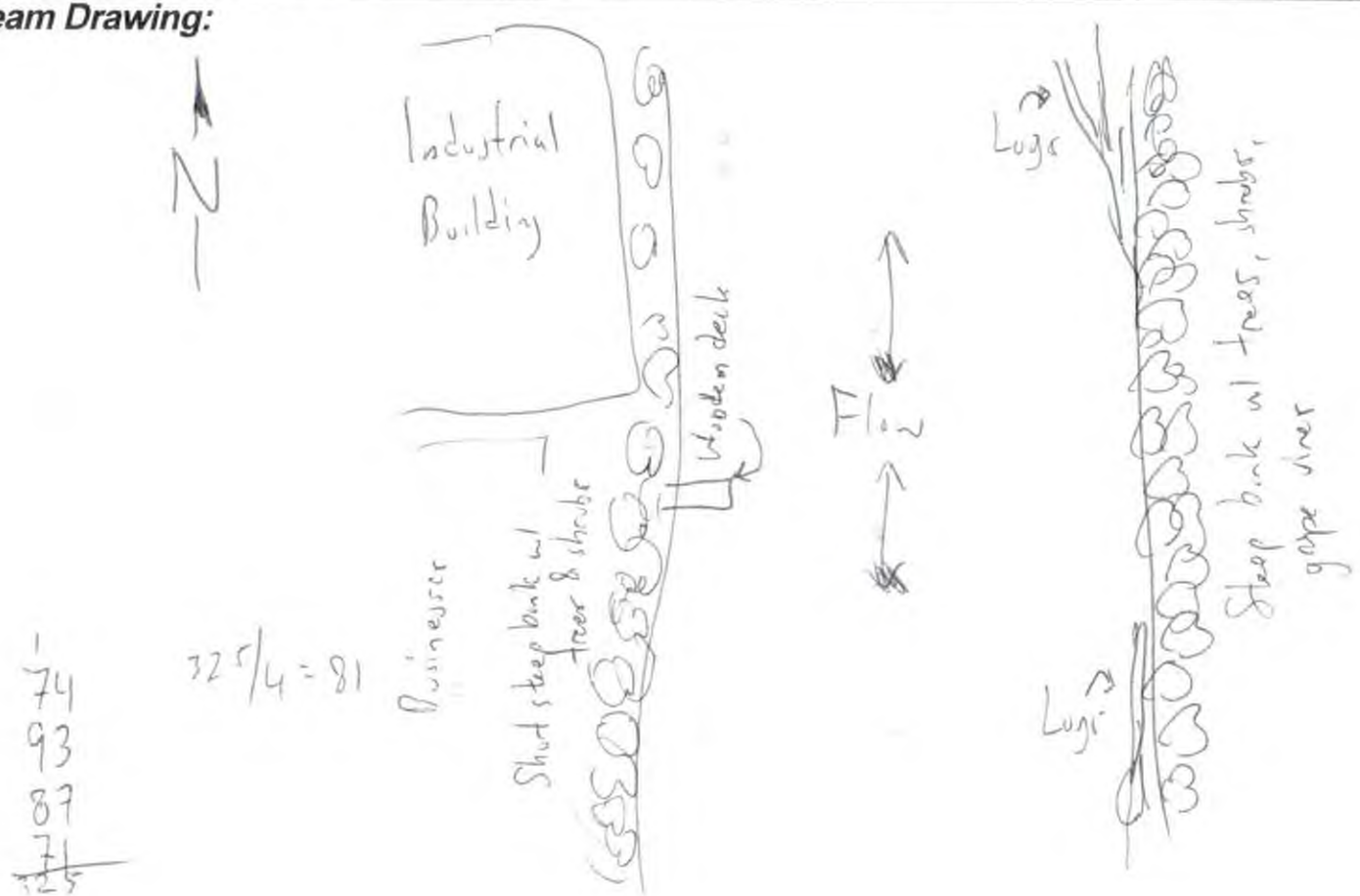
Circle some & *COMMENT*

Banks likely armored by rip-rap (broken concrete)

E] ISSUES
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS
x̄ width
x̄ depth = 7.5'
max. depth
x̄ bankfull width
bankfull x̄ depth
W/D ratio
bankfull max. depth
floodprone x^2 width
entrench. ratio
Legacy Tree:

Stream Drawing:



OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 46

Stream & Location: Swan Creek, sampling site #8 **RM:** _____ **Date:** 8/02/11

Scorers Full Name & Affiliation: Jonathon M. DeNike, Affiliated Researchers

River Code: _ _ _ - _ _ _ - _ _ _ **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) _ _ . _ _ _ _ /8_ . _ _ _ _ **Office verified location** ☐

1] SUBSTRATE
Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]	____	____	☐ ☐ HARDPAN [4]	____	____
☐ ☐ BOULDER [9]	____	____	☐ ☐ DETRITUS [3]	____	____
☐ ☐ COBBLE [8]	____	____	☐ ☐ MUCK [2]	____	____
☒ ☒ GRAVEL [7]	____	____	☐ ☐ SILT [2]	____	____
☐ ☒ SAND [6]	____	____	☐ ☐ ARTIFICIAL [0]	____	____
☐ ☐ BEDROCK [5]	____	____	(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Check ONE (Or 2 & average)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☒ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☒ NORMAL [0]
- ☐ NONE [1]

Substrate 13 *Maximum 20*

Comments Gravel & sand in power grabs

2] INSTREAM COVER
Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

- ✓ UNDERCUT BANKS [1]
- ✓ OVERHANGING VEGETATION [1]
- ✓ SHALLOWS (IN SLOW WATER) [1]
- ✓ ROOTMATS [1]
- ✓ POOLS > 70cm [2]
- ____ ROOTWADS [1]
- ____ BOULDERS [1]
- ____ OXBOWS, BACKWATERS [1]
- ✓ AQUATIC MACROPHYTES [1]
- ✓ LOGS OR WOODY DEBRIS [1]

AMOUNT
Check ONE (Or 2 & average)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20 9

3] CHANNEL MORPHOLOGY
Check ONE in each category (Or 2 & average)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☒ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☒ RECENT OR NO RECOVERY [1]

STABILITY
- ☒ HIGH [3]
- ☐ MODERATE [2]
- ☐ LOW [1]

Comments

Channel Maximum 20 7

4] BANK EROSION AND RIPARIAN ZONE
Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION

L	R	
☒	☒	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☒	☒	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
☒	☒	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10 7

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH
Check ONE (ONLY!)
- ☒ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH
Check ONE (Or 2 & average)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☒ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY
Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☒ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current Maximum 12 8

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8 0

6] GRADIENT (ft/mi)
DRAINAGE AREA (mi²)

- ☒ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: ____ %GLIDE: 100

%RUN: ____ %RIFFLE: ____

Gradient Maximum 10 2

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 46

Stream & Location: Swan Creek, sampling site #8 **RM:** _____ **Date:** 8/02/11

Scorers Full Name & Affiliation: Jonathon M. DeNike, Affiliated Researchers

River Code: _ _ _ - _ _ _ - _ _ _ **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) _ _ . _ _ _ _ / 8 _ . _ _ _ _ **Office verified location** ☐

1] SUBSTRATE
Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]	____	____	☐ ☐ HARDPAN [4]	____	____
☐ ☐ BOULDER [9]	____	____	☐ ☐ DETRITUS [3]	____	____
☐ ☐ COBBLE [8]	____	____	☐ ☐ MUCK [2]	____	____
☒ ■ GRAVEL [7]	____	____	☐ ☐ SILT [2]	____	____
☐ ■ SAND [6]	____	____	☐ ☐ ARTIFICIAL [0]	____	____
☐ ☐ BEDROCK [5]	____	____	(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ■ 3 or less [0]

Check ONE (Or 2 & average)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ■ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ■ NORMAL [0]
- ☐ NONE [1]

Substrate 13 (Maximum 20)

Comments Gravel & sand in Ponar grabs

2] INSTREAM COVER
Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

- ✓ UNDERCUT BANKS [1]
- ✓ OVERHANGING VEGETATION [1]
- ✓ SHALLOWS (IN SLOW WATER) [1]
- ✓ ROOTMATS [1]
- ✓ POOLS > 70cm [2]
- ____ ROOTWADS [1]
- ____ BOULDERS [1]
- ____ OXBOWS, BACKWATERS [1]
- ✓ AQUATIC MACROPHYTES [1]
- ✓ LOGS OR WOODY DEBRIS [1]

AMOUNT Check ONE (Or 2 & average)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ■ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover 9 (Maximum 20)

3] CHANNEL MORPHOLOGY
Check ONE in each category (Or 2 & average)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ■ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ■ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ■ RECENT OR NO RECOVERY [1]

STABILITY
- ■ HIGH [3]
- ☐ MODERATE [2]
- ☐ LOW [1]

Comments

Channel 7 (Maximum 20)

4] BANK EROSION AND RIPARIAN ZONE
Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION (L R)
- ■ ■ NONE / LITTLE [3]
- ☐ ☐ MODERATE [2]
- ☐ ☐ HEAVY / SEVERE [1]

RIPARIAN WIDTH (L R)
- ☐ ☐ WIDE > 50m [4]
- ☐ ☐ MODERATE 10-50m [3]
- ☐ ☐ NARROW 5-10m [2]
- ■ ■ VERY NARROW < 5m [1]
- ☐ ☐ NONE [0]

FLOOD PLAIN QUALITY (L R)
- ■ ■ FOREST, SWAMP [3]
- ☐ ☐ SHRUB OR OLD FIELD [2]
- ☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐ ☐ FENCED PASTURE [1]
- ☐ ☐ OPEN PASTURE, ROWCROP [0]

(L R)
- ☐ ☐ CONSERVATION TILLAGE [1]
- ☐ ☐ URBAN OR INDUSTRIAL [0]
- ☐ ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 7 (Maximum 10)

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH Check ONE (ONLY!)
- ■ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH Check ONE (Or 2 & average)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ■ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ■ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current 8 (Maximum 12)

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). ■ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run 0 (Maximum 8)

6] GRADIENT (ft/mi)
DRAINAGE AREA (mi²)
- ■ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: ____ %GLIDE: 100
%RUN: ____ %RIFFLE: ____

Gradient 2 (Maximum 10)

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 40

Stream & Location: Swan Creek, sampling point #11 **RM:** ___.__ **Date:** 8/02/11

Scorers Full Name & Affiliation: Jonathon M. DeNike, AEG-Trained Researcher

River Code: ___-___-___ **STORET #:** _____ **Lat./Long.:** (NAD 83 - decimal °) ___.____ / 8_.____ Office verified location ☐

1] SUBSTRATE

Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]	____	____	☐ ☐ HARDPAN [4]	____	____
☐ ☐ BOULDER [9]	____	____	☐ ■ DETRITUS [3]	____	____
☐ ☐ COBBLE [8]	____	____	☐ ☐ MUCK [2]	____	____
☐ ☐ GRAVEL [7]	____	____	☐ ■ SILT [2]	____	____
☐ ■ SAND [6]	____	____	☐ ☐ ARTIFICIAL [0]	____	____
☐ ☐ BEDROCK [5]	____	____	(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ■ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ■ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ■ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Comments Smd & silt, little bit of detritus in pool grabs

Substrate 9 *Maximum 20*

2] INSTREAM COVER

Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

- ____ UNDERCUT BANKS [1]
- ✓ OVERHANGING VEGETATION [1]
- ✓ SHALLOWS (IN SLOW WATER) [1]
- ✓ ROOTMATS [1]
- ✓ POOLS > 70cm [2]
- ____ ROOTWADS [1]
- ____ BOULDERS [1]
- ____ OXBOWS, BACKWATERS [1]
- ____ AQUATIC MACROPHYTES [1]
- ____ LOGS OR WOODY DEBRIS [1]

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ■ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover 8 *Maximum 20*

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	■ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
■ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	■ POOR [1]	■ RECENT OR NO RECOVERY [1]	

Comments

Channel 7 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION (L / R)
- ■ ■ NONE / LITTLE [3]
- ☐ ☐ MODERATE [2]
- ☐ ☐ HEAVY / SEVERE [1]

RIPARIAN WIDTH (L / R)
- ☐ ☐ WIDE > 50m [4]
- ☐ ☐ MODERATE 10-50m [3]
- ☐ ☐ NARROW 5-10m [2]
- ■ ■ VERY NARROW < 5m [1]
- ☐ ☐ NONE [0]

FLOOD PLAIN QUALITY (L / R)
- ☐ ☐ FOREST, SWAMP [3]
- ■ ■ SHRUB OR OLD FIELD [2]
- ☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐ ☐ FENCED PASTURE [1]
- ☐ ☐ OPEN PASTURE, ROWCROP [0]
- ☐ ☐ CONSERVATION TILLAGE [1]
- ☐ ☐ URBAN OR INDUSTRIAL [0]
- ☐ ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 6 *Maximum 10*

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ■ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ■ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ■ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current 8 *Maximum 12*

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ■ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run 0 *Maximum 8*

6] GRADIENT (ft/mi)

DRAINAGE AREA (mi²)
- ■ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: ____ %GLIDE: 100

%RUN: ____ %RIFFLE: ____

Gradient 2 *Maximum 10*

A] SAMPLED REACH

Check ALL that apply

METHOD
- [x] BOAT
- [ ] WADE
- [ ] L. LINE
- [ ] OTHER

STAGE (1st -sample pass- 2nd)
- [ ] HIGH
- [ ] UP
- [x] NORMAL
- [ ] LOW
- [ ] DRY

DISTANCE
- [ ] 0.5 Km
- [ ] 0.2 Km
- [ ] 0.15 Km
- [ ] 0.12 Km
- [x] OTHER 50 meters

CLARITY (1st --sample pass-- 2nd)
- [ ] < 20 cm
- [ ] 20-<40 cm
- [ ] 40-70 cm
- [x] > 70 cm/ CTB
- [x] SECCHI DEPTH

1st pass 100 cm
2nd 100 cm

CANOPY
- [x] > 85%- OPEN
- [ ] 55%-<85%
- [ ] 30%-<55%
- [ ] 10%-<30%
- [ ] <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

1.0' below top of sediment deposits (OHWM)
Dissolved oxygen: 5.82 mg/L ORP: 45.1
Temperature: 11.08 °C
pH: 7.43
Conductivity: 935 µS/cm

B] AESTHETICS
- [ ] NUISANCE ALGAE
- [ ] INVASIVE MACROPHYTES
- [ ] EXCESS TURBIDITY
- [ ] DISCOLORATION
- [x] FOAM / SCUM 5% cover
- [ ] OIL SHEEN
- [x] TRASH / LITTER
- [ ] NUISANCE ODOR
- [ ] SLUDGE DEPOSITS
- [ ] CSOs/SSOs/OUTFALLS

C] RECREATION
AREA DEPTH
POOL: [x] >100ft² [x] >3ft

D] MAINTENANCE
Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Banks probably armored w/ rip-rap

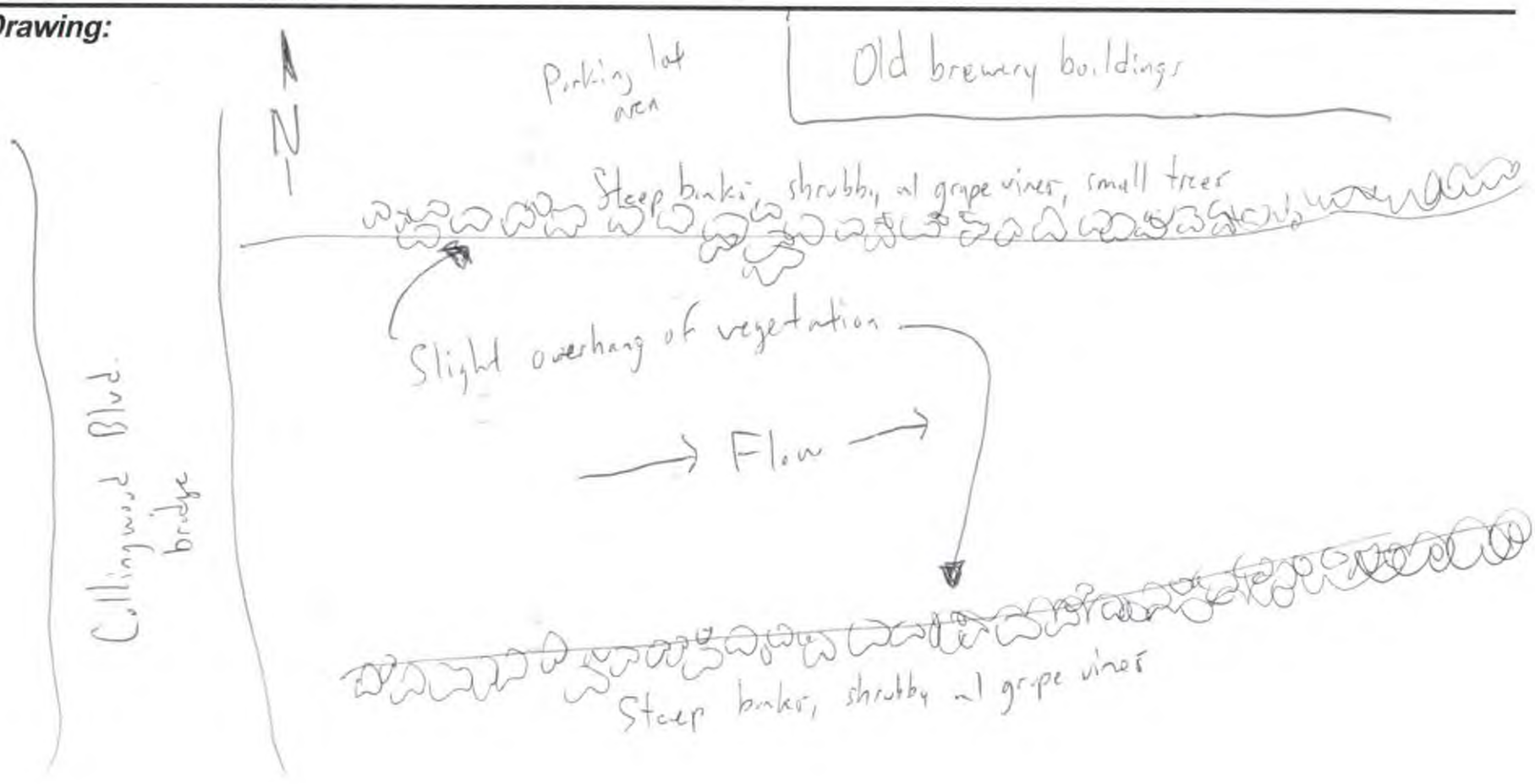
Old brewery on N bank

E] ISSUES
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS
- x̄ width
- x̄ depth = 7.2'
- max. depth
- x̄ bankfull width
- bankfull x̄ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 46.5

Stream & Location: Swan Creek, sampling point #15 **RM:** ___._ **Date:** 8/02/11

Scorers Full Name & Affiliation:

River Code: ___-___-___ **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) __ . ____ / 8_ . ____ Office verified location ☐

1] SUBSTRATE
Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR /SLABS [10]	____	____	☐☐ HARDPAN [4]	____	____
☐☐ BOULDER [9]	____	____	☐☐ DETRITUS [3]	____	____
☐☐ COBBLE [8]	____	____	☐☐ MUCK [2]	____	____
☐■ GRAVEL [7]	____	____	☐■ SILT [2]	____	____
☐■ SAND [6]	____	____	☐☐ ARTIFICIAL [0]	____	____
☐☐ BEDROCK [5]	____	____	(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ■ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ■ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ■ NORMAL [0]
- ☐ NONE [1]

Comments

Substrate 15 *Maximum 20*

2] INSTREAM COVER
Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

✓ UNDERCUT BANKS [1]	✓ POOLS > 70cm [2]	____ OXBOWS, BACKWATERS [1]
____ OVERHANGING VEGETATION [1]	____ ROOTWADS [1]	✓ AQUATIC MACROPHYTES [1]
____ SHALLOWS (IN SLOW WATER) [1]	____ BOULDERS [1]	✓ LOGS OR WOODY DEBRIS [1]
✓ ROOTMATS [1]		

AMOUNT
Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ■ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover 8 *Maximum 20*

3] CHANNEL MORPHOLOGY
Check ONE in each category (*Or 2 & average*)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ■ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ■ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ■ RECENT OR NO RECOVERY [1]

STABILITY
- ■ HIGH [3]
- ☐ MODERATE [2]
- ☐ LOW [1]

Comments

Channel 7 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE
Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION (L / R)
- ■ ■ NONE / LITTLE [3]
- ☐ ☐ MODERATE [2]
- ☐ ☐ HEAVY / SEVERE [1]

RIPARIAN WIDTH (L / R)
- ☐ ☐ WIDE > 50m [4]
- ☐ ☐ MODERATE 10-50m [3]
- ☐ ☐ NARROW 5-10m [2]
- ■ ■ VERY NARROW < 5m [1]
- ☐ ☐ NONE [0]

FLOOD PLAIN QUALITY (L / R)
- ■ ■ FOREST, SWAMP [3]
- ■ ■ SHRUB OR OLD FIELD [2]
- ☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐ ☐ FENCED PASTURE [1]
- ☐ ☐ OPEN PASTURE, ROWCROP [0]

(L / R)
- ☐ ☐ CONSERVATION TILLAGE [1]
- ☐ ☐ URBAN OR INDUSTRIAL [0]
- ☐ ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 6.5 *Maximum 10*

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH
Check **ONE** (*ONLY!*)
- ■ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH
Check ONE (*Or 2 & average*)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ■ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY
Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ■ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current 8 *Maximum 12*

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ■ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run 0 *Maximum 8*

6] GRADIENT (ft/mi)
DRAINAGE AREA (mi^2)
- ■ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: ____ %GLIDE: 100
%RUN: ____ %RIFFLE: ____

Gradient 2 *Maximum 10*

A] SAMPLED REACH

Check ALL that apply

METHOD
- [x] BOAT
- [ ] WADE
- [ ] L. LINE
- [ ] OTHER

STAGE (1st -sample pass- 2nd)
- [ ] HIGH [ ]
- [ ] UP [ ]
- [x] NORMAL [x]
- [ ] LOW [ ]
- [ ] DRY [ ]

DISTANCE
- [ ] 0.5 Km
- [ ] 0.2 Km
- [ ] 0.15 Km
- [ ] 0.12 Km
- [x] OTHER

_____ meters

CLARITY (1st --sample pass-- 2nd)
- [ ] < 20 cm [ ]
- [ ] 20-<40 cm [ ]
- [ ] 40-70 cm [ ]
- [x] > 70 cm/ CTB [x]
- [x] SECCHI DEPTH [x]

1st pass 80 cm
2nd 80 cm

CANOPY
- [ ] > 85%- OPEN
- [x] 55%-<85%
- [ ] 30%-<55%
- [ ] 10%-<30%
- [ ] <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

1.0 below top of sediment deposits (0.14M)

Dissolved oxygen: 4.59 mg/L ORP: 63.0

Temperature: 10.94°C

pH: 7.36

Conductivity: 914 µS/cm

B] AESTHETICS

- [ ] NUISANCE ALGAE
- [ ] INVASIVE MACROPHYTES
- [ ] EXCESS TURBIDITY
- [ ] DISCOLORATION
- [x] FOAM / SCUM 5%
- [x] OIL SHEEN
- [x] TRASH / LITTER
- [x] NUISANCE ODOR
- [ ] SLUDGE DEPOSITS
- [x] CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: [x] >100ft² [x] >3ft

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Historic pilings

Some kind of heavy industry (heavy machinery sounds)

E] ISSUES

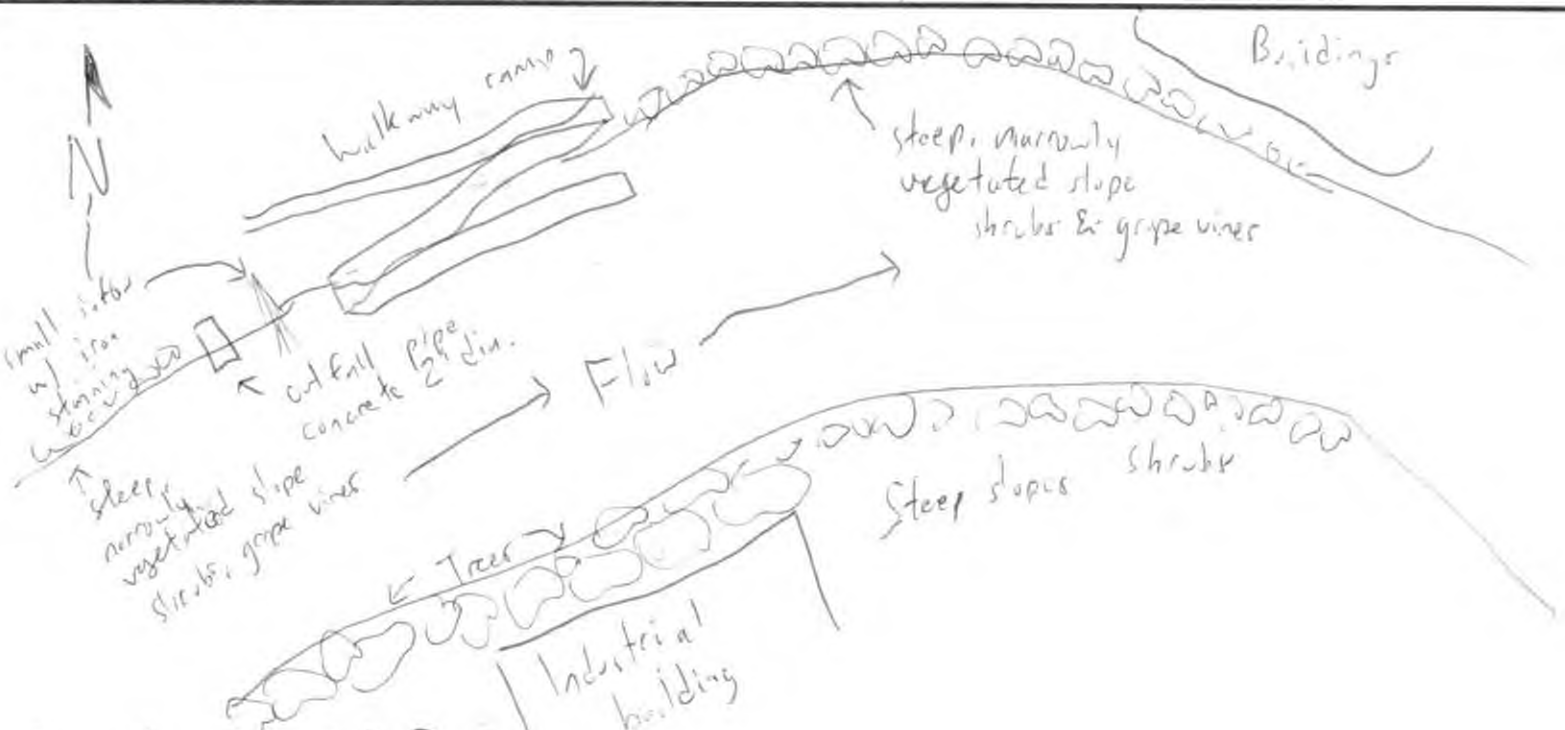
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- x̄ width
- x̄ depth = 8.4'
- max. depth
- x̄ bankfull width
- bankfull x̄ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Canopy readings: W = 54.33 %
N = 7.9 %
E = 4.72 %
S = 10.84 %
average = 18.76 %

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 32.5

Stream & Location: Swan Creek, sampling point #18 **RM:** _____ **Date:** 8/02/11

Scorers Full Name & Affiliation: Jonathon M. DeNike, Affiliated Researchers

River Code: _____ - _____ - _____ **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) _____ . _____ / 8 _____ . _____ **Office verified location** ☐

1] SUBSTRATE
Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]	____	____	☐ ☐ HARDPAN [4]	____	____
☐ ☐ BOULDER [9]	____	____	☐ ☐ DETRITUS [3]	____	____
☐ ☐ COBBLE [8]	____	____	☐ ☐ MUCK [2]	____	____
☐ ☐ GRAVEL [7]	____	____	☐ ■ SILT [2]	____	____
☐ ☐ SAND [6]	____	____	■ ■ ARTIFICIAL [0]	____	____
☐ ☐ BEDROCK [5]	____	____	(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ■ 3 or less [0]

Check ONE (Or 2 & average)

ORIGIN	QUALITY
☐ LIMESTONE [1]	☐ HEAVY [-2]
☐ TILLS [1]	☐ MODERATE [-1]
☐ WETLANDS [0]	■ NORMAL [0]
☐ HARDPAN [0]	☐ FREE [1]
☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
■ RIP/RAP [0]	☐ MODERATE [-1]
☐ LACUSTURINE [0]	■ NORMAL [0]
☐ SHALE [-1]	☐ NONE [1]
☐ COAL FINES [-2]	

SILT / EMBEDDEDNESS

Substrate 2 / Maximum 20

Comments Bottom is hard, likely broken concrete

2] INSTREAM COVER
Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

____ UNDERCUT BANKS [1]	____ POOLS > 70cm [2]	____ OXBOWS, BACKWATERS [1]
✓ OVERHANGING VEGETATION [1]	____ ROOTWADS [1]	✓ AQUATIC MACROPHYTES [1]
____ SHALLOWS (IN SLOW WATER) [1]	____ BOULDERS [1]	✓ LOGS OR WOODY DEBRIS [1]
✓ ROOTMATS [1]		

AMOUNT Check ONE (Or 2 & average)
☐ EXTENSIVE >75% [11]
☐ MODERATE 25-75% [7]
■ SPARSE 5-<25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

Cover 8 / Maximum 20

3] CHANNEL MORPHOLOGY
Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	■ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
■ NONE [1]	■ POOR [1]	■ RECENT OR NO RECOVERY [1]	

Comments

Channel 6 / Maximum 20

4] BANK EROSION AND RIPARIAN ZONE
Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION (L / R)	RIPARIAN WIDTH (L / R)	FLOOD PLAIN QUALITY (L / R)	
■ ■ NONE / LITTLE [3]	☐ ☐ WIDE > 50m [4]	■ ☐ FOREST, SWAMP [3]	☐ ☐ CONSERVATION TILLAGE [1]
☐ ☐ MODERATE [2]	☐ ☐ MODERATE 10-50m [3]	■ ☐ SHRUB OR OLD FIELD [2]	☐ ☐ URBAN OR INDUSTRIAL [0]
☐ ☐ HEAVY / SEVERE [1]	☐ ☐ NARROW 5-10m [2]	☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ ☐ MINING / CONSTRUCTION [0]
	■ ■ VERY NARROW < 5m [1]	☐ ☐ FENCED PASTURE [1]	
	☐ ☐ NONE [0]	☐ ☐ OPEN PASTURE, ROWCROP [0]	

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 6.5 / Maximum 10

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH Check ONE (ONLY!)
■ > 1m [6]
☐ 0.7-<1m [4]
☐ 0.4-<0.7m [2]
☐ 0.2-<0.4m [1]
☐ < 0.2m [0]

CHANNEL WIDTH Check ONE (Or 2 & average)
☐ POOL WIDTH > RIFFLE WIDTH [2]
■ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY Check ALL that apply
☐ TORRENTIAL [-1] ■ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☐ MODERATE [1] ☐ EDDIES [1]
Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current 8 / Maximum 12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: ■ NO RIFFLE [metric=0]

Check ONE (Or 2 & average).

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0] ☐ EXTENSIVE [-1]

Comments

Riffle / Run 0 / Maximum 8

6] GRADIENT (ft/mi)
DRAINAGE AREA (mi²)

☐ VERY LOW - LOW [2-4]
☐ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-6]

%POOL: _____ %GLIDE: _____
%RUN: _____ %RIFFLE: _____

Gradient 2 / Maximum 10

A] SAMPLED REACH

Check ALL that apply

METHOD
- [x] BOAT
- [ ] WADE
- [ ] L. LINE
- [ ] OTHER

STAGE

1st -sample pass-		2nd
☐	HIGH	☐
☐	UP	☐
■	NORMAL	■
☐	LOW	☐
☐	DRY	☐

DISTANCE
- [ ] 0.5 Km
- [ ] 0.2 Km
- [ ] 0.15 Km
- [ ] 0.12 Km
- [x] OTHER

50 meters

CLARITY

1st --sample pass--		2nd
☐	< 20 cm	☐
☐	20-<40 cm	☐
☐	40-70 cm	☐
■	> 70 cm/ CTB	■
■	SECCHI DEPTH	■

1st pass 80 cm

2nd 80 cm

CANOPY
- [x] > 85%- OPEN
- [ ] 55%-<85%
- [ ] 30%-<55%
- [ ] 10%-<30%
- [ ] <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

1.0 above top F sediment deposits (OHWM)

Dissolved oxygen: 8.75 mg/L ORP: 130.4

Temperature: 11.85 °C

pH: 7.69

Conductivity: 759 µS/cm

B] AESTHETICS
- [ ] NUISANCE ALGAE
- [ ] INVASIVE MACROPHYTES
- [ ] EXCESS TURBIDITY
- [ ] DISCOLORATION
- [ ] FOAM / SCUM
- [ ] OIL SHEEN
- [x] TRASH / LITTER
- [ ] NUISANCE ODOR
- [ ] SLUDGE DEPOSITS
- [ ] CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ■ >100ft² ■ >3ft

D] MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Circle some & *COMMENT*

Banks armored w/ riprap

Residential bldgs on both banks

E] ISSUES

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

x̄ width
x̄ depth = 10.0'
max. depth
x̄ bankfull width
bankfull x̄ depth
W/D ratio
bankfull max. depth
floodprone x^2 width
entrench. ratio
Legacy Tree:

Stream Drawing: