FINAL Sediment Characterization Report

Lower Maumee River

Wastewater Treatment Plant and Sway Bridge

Data Gap Investigation

Maumee Area of Concern, Toledo Ohio

Prepared For:
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List of Acronyms and Abbreviations

AEMG	Advanced Environmental Management Group
ALS	Analytical Laboratory Services
AOC	area of concern
ATL	Atlantic Testing Laboratories
BUI	beneficial use impairment
CDF	confined disposal facility
DRO	diesel range organics
ERDC	Engineer Research and Development Center
GLLA	Great Lakes Legacy Act
GLNPO	Great Lakes National Program Office
GPS	global positioning system
GRO	gasoline range organics
HOC	hydrophobic organic chemical
ID	identification
LMR	Lower Maumee River
LOEC	lowest observed effects concentration
ND	non-detected results (non-detect)
NSDC	not significantly different than controls
Ohio EPA	Ohio Environmental Protection Agency
ORD	Office of Research and Development
ORO	oil range organics
PAH	polycyclic aromatic hydrocarbons
PEC	probable effects concentration
PCB	polychlorinated biphenyl
ppb	parts per billion
ppm	parts per million
RL	reporting limit
TCLP	toxicity characteristic leaching procedure
OMZA	outside mixing zone average

OMZM	outside mixing zone maximum
tPAH	total polycyclic aromatic hydrocarbons
tPCB	total polychlorinated biphenyls
TTL	Toledo Testing Laboratory
UFP-QAPP	Uniform Federal Policy-Quality Assurance Project Plan
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
WWTP	wastewater treatment plant

1 Introduction

The U.S. Environmental Protection Agency (USEPA) Great Lakes National Program Office (GLNPO) requested that the U.S. Army Corps of Engineers (USACE) Buffalo District collect and analyze sediment samples from two reaches on the lower four miles of the Maumee River. This analysis constitutes the conclusion of a Remedial Investigation phase and technical support through the Great Lakes Legacy Act (GLLA) program. This portion of the river, or the Lower Maumee River (LMR), is located within the Maumee Area of Concern (AOC). The purpose of this sediment characterization effort is to collect data of sufficient quality and quantity to evaluate potential sediment contaminant impacts contributing to beneficial use impairments (BUI) in that portion of the Maumee AOC, as outlined in the Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) for the project (USACE 2021b). These characterization efforts are intended to support the development of remedial alternatives in a subsequent Feasibility Study which may be necessary to address BUIs associated with sediment contamination. This Sediment Characterization Report presents the results of that characterization event. Information regarding the field sampling collection effort, previously presented in the Sediment Summary Report, have been incorporated into this report (USACE 2021c).

1.1. Site Description and Background

The 130-mile-long Maumee River originates near Fort Wayne, Indiana, but only the lower, approximately 23 miles is included within the Maumee AOC (Toledo, Ohio). It is the largest waterbody in the Maumee AOC and includes seven miles of federally maintained navigation channels in Toledo Harbor in the LMR.

The LMR is an industrialized port with historical contamination due to industrial and commercial land use. These contamination sources included various coal industries, chemical plants, petroleum production, and wastewater outfalls.

The Maumee AOC has several BUIs which may be a result of sediment contamination, habitat loss, or other causes. There are five BUIs for the portion of the Lower Maumee Large River Assessment Unit which is within the Maumee AOC. These include:

- Degradation of fish populations – BUI 3a
- Degradation of benthos – BUI 6
- Restrictions on dredging activities – BUI 7
- Eutrophication or undesirable algae – BUI 8
- Loss of fish and wildlife habitat – BUI 14

The previous GLNPO sediment sampling events characterized two reaches of the LMR: The 1st phase (“Phase 1”) was conducted in 2011 and entailed sampling of the uppermost five miles of the LMR, starting at River Mile 8.5 at Clarke Island and ending at River Mile 3.5, at the U.S. Route 280 Bridge (Weston 2012). The 2nd phase (“Phase 2”) was conducted in 2013 and entailed characterization of the lower portion (approximately 4.6 miles) of the LMR. The lower portion extends from River Mile 3.5 at the U.S. Route 280 Bridge downstream to the southwest corner of Grassy Island which is a USACE dredged material confined disposal facility on the northwest side of the river mouth

It has been determined that no further management action regarding sediment is warranted under the Great Lakes Legacy Act (GLLA) for the upstream Phase 1 portion of the LMR (Ohio EPA 2020).

The sampling and analysis from the Quality Assurance Project Plan (QAPP) focused on two distinct areas within the downstream portion of the LMR, from approximately River Mile 3.5 to the mouth of river where it enters Lake Erie. Evaluation of previous sampling results from Phase 2 revealed two areas of elevated sediment contamination: one area near the mouth of the river, adjacent to the waste water treatment plant (WWTP) in which elevated polychlorinated biphenyl (PCB) concentrations were noted, and another area at approximately River Mile 2, on the southeast bank near the sway bridge, in which polyaromatic hydrocarbons (PAHs) are elevated. Other portions of the LMR outside of these two areas do not warrant further investigation or action under the GLLA (USACE 2021a).

1.2. Sediment Sampling Objective

The objective of this sediment sampling and analysis is to determine whether a sediment remedial action should occur under the GLLA in order to support removal of BUIs from the Maumee AOC. Sediment-associated contaminants that partition to pore water and/or are released to the water column are available for exposure to ecological receptors within the aquatic environment, such as fish and aquatic invertebrates. This contaminant exposure can result in toxic effects to ecological receptors. Direct contact and ingestion exposures to contaminated sediment may impact benthic and fish communities. Contaminated sediments may contribute to BUIs within the AOC, including degradation of benthos and restrictions on dredging activities, and to some extent also the degradation of fish populations (although this BUI may be more so affected by degraded habitat).

1.3. Sediment Sampling Design

This study focuses on two areas of the LMR: along the southeast river bank adjacent to the sway bridge (at approximately river mile 2) and along the northwest river bank adjacent to the WWTP near the mouth of the river. Based on previous sediment coring within the Maumee River collected in 2013, sediment is expected to be present to a maximum depth of approximately 15 feet below water depth LWD[1], although most areas may only contain a foot or two of sediment.

As described in Section 11.4 of the QAPP (USACE 2021), the spatial boundaries for collecting sediment samples were delineated based on previous sampling (EA 2014). The current sampling was intended to both confirm that sediment contamination remains in the area identified as contaminated in 2013, and also delineate the lateral and horizontal extent of the contamination. The greatest uncertainty based on previous sampling was the boundary between “contaminated” and “clean” sediments, so more locations were targeted for sample collection at the outer edges of the areas previously identified as being contaminated. The characterization effort was developed by creating “locations of interest” as follows (presented on Figures 1.3a and 1.3b):

- Locations of interest have been grouped into areas (A – D) at the sway bridge and WWTP (A – C) based on level of contamination identified in previous sampling (EA 2014).
    - Data quality objectives vary slightly for each area (Table 1.1).
- Area A1 is where contamination was present in 2013, although exact boundary (extent) of contamination may not be well defined, therefore adjacent areas A2 and A3 are also targeted for sampling.
- Areas B1 -2 are adjacent areas outside the most highly contaminated areas and extend to capture adjacent locations with lower levels of contamination (just above probable effects concentrations (PECs; Macdonald et al 2000)).
- Area C1 -2 (or simply area C in the sway bridge vicinity) are further outside the area previously

[1] Low Water Datum: 569.2 feet above mean water level at Rimouski, Quebec, Canada (IGLD 1985)

identified as contaminated, either across from the navigation channel or on the outside of area B. These areas have low potential to be contaminated enough to be included in any remedial action footprint.

- Area D is area which could be dredged to maintain the navigation channel, and is only identified for the sway bridge area. Since the mouth of the river (near WWTP) is dredged routinely and its disposal has not been restricted, no "area D" has been identified in conjunction with the WWTP.
- Sediment cores (vibracore samples) were obtained at every location to be sampled in each area, and discrete samples analyzed throughout the length of the sediment core.
- Surface grab (ponar) samples were also obtained at some locations and analyzed using bulk sediment chemistry and bioassays to evaluate
    - toxicity to benthic macroinvertebrates (informs sediment remedial goals for PAHs)
    - bioaccumulation of PCBs into worms (informs sediment remedial goals for PCBs)
- EPA Office of Research and Development (ORD) has also analyzed porewater from selected locations (using *in situ* passive sampling) to evaluate bioavailability of both PAHs and PCBs.

Each of the areas (A – D) were subdivided into various numbers of equally sized polygons, and samples were randomly located within each area polygon (Figures 1.3 a, b). The polygons are smallest in the "A1" and "A2" areas (greater number of polygons per area) so that more samples are placed closely together in order to delineate the boundary between contaminated and clean sediments.

Location LMR21-69 is located upstream of the sway bridge areas, and is adjacent to the zone serving as a reference for purposes of the fish survey (Figure 1.3b). Sediments collected from that location served as reference samples for the bioassays (Section 5).

The analyses being applied to each type of sample (detailed in Section 3.4) was focused as summarized in Table 1.2 and listed below:

Surface sediment grab samples were subjected to **analytical suite A**, which includes bulk testing for

- Total organic carbon
- Grain size
- Oil and grease
- Total petroleum hydrocarbons
- Metals
- 34 PAHs (18 non-alkylated parent compounds and 16 groups of generic alkylated forms) (which will be performed by the EPA ORD contract laboratory)
- PCB congeners (209)
- Benthic macroinvertebrate toxicity
- Bioaccumulation

Sediment core samples collected from the **sway bridge** area were subjected to **analytical suite B**, which includes bulk testing for

- Total organic carbon
- Grain size
- Oil and grease
- Total petroleum hydrocarbons
- Metals
- 17 PAHs (16 priority pollutant PAHs plus 2-methylnaphthalene)
- PCB Aroclors

Sediment core samples collected from the **WWTP** area were subjected to analytical **suite C**, which includes bulk testing for

- Total organic carbon
- Grain size
- Metals
- 17 PAHs (16 priority pollutant PAHs plus 2-methylnaphthalene)
- PCB Aroclors

Composites of the sediment core samples were subjected to elutriate testing. Composites of the sediment core samples were analyzed for bulk Total organic carbon

- Grain size
- Oil and grease
- Total petroleum hydrocarbons
- Metals
- 17 PAHs (16 priority pollutant PAHs plus 2-methylnaphthalene)
- PCB Aroclors
- Nitrogen – total Kjeldahl
- Nitrogen – ammonia
- Cyanide
- Phosphorus
- Toxicity Characteristic Leaching Procedure (TCLP)

Composites of the sediment core samples were subjected to **elutriate** (aqueous phase – dissolved contaminants released from sediments) **testing**. The elutriate generated from these samples will be analyzed for

- Oil and grease
- Total petroleum hydrocarbons
- Metals
- 17 PAHs (16 priority pollutant PAHs plus 2-methylnaphthalene)
- PCB Aroclors
- Nitrogen – total Kjeldahl
- Nitrogen – ammonia
- Cyanide
- Phosphorus
- Water column toxicity

Total numbers of samples subjected to each type of analysis are summarized in Table 1.3.

2. Agency and Contractor Responsibilities

This effort was undertaken according to Interagency Agreement/Amendment Number DW-096-95916501-8, which directs USACE to perform this sampling and analysis on behalf of USEPA GLNPO. The work is being conducted by the USACE Buffalo District, in accordance with the project specific Uniform Federal Policy-QAPP (UFP-QAPP, USACE 2021b).

This project was conducted by USACE personnel with contractor support (Advanced Environmental Management Group, AEM, contract W912Fl41700004). This included vibracore field sampling support from Atlantic Testing Laboratories (ATL), and laboratory analyses of samples by Analytical Laboratory

Services (ALS) and Toledo Testing Laboratory (TTL). The USACE Engineer Research and Development Center (ERDC) conducted bioassays (whole sediment benthic toxicity testing and bioaccumulation assays) on surface sediment samples as well as on composites of the core samples (elutriate generation and water column toxicity testing). The USACE Buffalo District was responsible for providing the personnel and sampling vessel for obtaining the surface sediment grab samples. Additional analysis of surface sediments for the 34 PAHs was performed by Battelle laboratories under contract to the USEPA Office of Research and Development (ORD).

The data were validated by USEPA GLNPO's contractor, APTIM. The USACE generated a Data Usability Assessment Report summarizing the data review (performed by USACE) and data validation performed on the data sets collected from this field investigation. The Data Usability Assessment Report is provided as Appendix 4 to this characterization report.

3. Sampling Narrative

As outlined in the QAPP, sediment samples were collected from 69 locations in the LMR (USACE 2021b). Sediment collection and processing activities were initiated on August 10, 2021 and completed on August 13, 2021. A boat mounted global positioning system (GPS) was used to navigate to each proposed sample location. A field log was prepared at each site in order to describe the conditions and events of the sampling project. The field logs document the location, date and time, conditions of the sampling site and provide general observations of sediment characteristics (color, odor). A summary of the surface sample and core field logs are provided in Tables 3.0.1 and 3.0.2, and the scanned field logs are provided in Attachments 2 and 5, respectively. The locational data checklist is provided in Attachment 6. Any modifications to the intended procedures are discussed in Section 3.5.

3.1. Surface Sediment Sample Collection

Surface sediment samples were collected from 29 locations within the LMR. Surface sediment samples were collected by a Peterson Grab sampler mounted from a Corps' boat, The Berkeley. The grab sampler was winched into the water and to the sediment on the waterway bottom. Retrieved grab samples were visually inspected to verify that the sampler was not overfilled, such that the sediment surface was touching the top of the sampler; there was no evidence of sample loss or washout (due to incomplete closure of the sampler, penetration at an angle, or titling upon retrieval); the desired depth of penetration was achieved (for this project the desired depth interval is 0–0.5 feet [6 inches]; and penetration depths of 0–0.3 [4 inches] feet was considered acceptable). Recovered water within the sampler was retained and mixed into the sample. Surface sediment was collected in two-gallon buckets, according to Table 3.1. Non-disposable sampling equipment was decontaminated between each location by removing all loose material from tools/equipment and rinsing with site water to remove all visible particulate material. If recovery was poor at a target location, then the sampling position was offset, and the new coordinates were recorded with the Berkeley Garmin GPS unit on board. Offset sampling locations are discussed in Section 3.5.1. A copy of the surface sediment sample collection log is provided in Attachment 2.

3.2. Sediment Core Sample Collection

Prior to mobilizing to the project site, ATL obtained figures which mapped the locations of utility crossings in the river. Some of the buried utilities coincided with sampling locations. In order to maintain a minimum of a 50-foot safe buffer distance around the lines, a few of the sampling locations were adjusted or eliminated altogether, as no suitable replacement location could be sited which was not already being sampled. The adjusted locations are discussed in Section 3.5.1. Sediment cores were collected from 63 locations within the LMR. The ATL collected sediment cores using a vessel-mounted vibracore. The vibracore was advanced continuously until refusal or a maximum depth of 10 or 15 feet, depending on the length of coring equipment used, which varied depending on area being sampled (Table 3.0.2). In order to retain the sediments, the vibracore was equipped with a four-inch-diameter rigid core liner (polycarbonate or cellulose acetate butyrate). If the sediment core recovery was less than 70 percent, and deeper sediment was expected based on bathymetry and lack of native material encountered, then a second sampling attempt was made within ten feet of the original location (this was only needed for sample location LMR21-23). The cores ranged in length from under one to over 13 feet, and a total of 402 linear feet of sediment was collected from the 63 locations. Upon retrieval, cores were sealed with caps and duct tape and labeled. A few of the sampling locations were offset from the location originally identified in the QAPP, as discussed in Section 3.5.1. A copy of the vibracore sampling collection log is provided in Attachment 3 (summarized in Table 3.0.2).

3.3. Sediment Sample Processing, Custody, and Shipment

The USACE Buffalo District was responsible for the care and custody of the samples until they were transferred to the specified laboratories for analyses. The processing of sediment samples (removal of sediment from collection cores or buckets and placing in pre-labeled containers to ship to laboratories for analyses) occurred at the USACE Buffalo District's Toledo Project Office, located on the north bank of the Maumee River, near the river's mouth. After sediment samples were removed from the sampling boat, they were either immediately processed or stored in a refrigerated trailer until processing. Sediment samples were then returned to the refrigerated trailer until shipped.

Sediment cores were divided into intervals of three feet or less along the length of the core for sample analysis, i.e., 0 – 1 foot, 1 – 4 feet, 4 – 7 feet, 7 – 10 feet, etc. Copies of the tabular and field sediment core processing logs are provided in Attachments 4 and 5, respectively. Table 3.3 summarizes the number of discrete samples collected and analyzed from each core. Composite samples from the cores were created by homogenizing the sediment remaining after discrete samples were collected using a stainless steel mixing bowl and large spoon. Aliquots of the surface sediment were removed from sampling buckets and placed into sediment sample containers (or added to composite samples as indicated in Section 3.5.2). Non-disposable sampling equipment was decontaminated between processing each core interval by removing all loose material from tools/equipment and rinsing with site water to remove all visible particulate material.

Samples were packed for transport to ALS and Battelle in the following manner:

- The shipping cooler spout was taped shut using duct tape
- All glass sample containers were wrapped in bubble wrap and placed in Ziploc-type bags
- Sample containers were placed upright within the cooler with packing material placed around the containers as necessary to minimize risk of breakage
- Ice sufficient to cool the containers to 6°C for up to 24 hours was placed on top of the sample containers
- Ice was double-bagged in Ziploc-type bags; blue ice was not used
- Chain of custody (COC) forms were filled out for each sample and signed at the time samples were packed into the cooler for shipping; for complete COCs, see Attachment 1
- COC forms corresponding to all samples in a cooler were placed inside a Ziploc-type bag and affixed to the inside of the cooler's lid with duct tape

- Coolers were closed and sealed by encircling duct tape around the bottom of the cooler and over the lid
- Two custody seals were placed along the lid's front seal
- A shipping label for overnight delivery was affixed to the cooler lids within a plastic envelope and secured with clear tape (copy of shipping label was retained by sample packer)
- "Fragile" and "Perishable" labels were affixed to the outside of the cooler

The original COC record was shipped along with the samples, while the initiator of the record retained a copy. The information required for the COC includes:

- Type of sample (grab or composite) and matrix;
- Analytical method numbers and parameter names;
- Sample container size and type, and number of containers per parameter;
- Preservatives, if any;
- Sample identification (ID);
- Printed name and signature of sampler;
- Date and time of sample collection;
- Project name, location, and address; and
- Signatures of persons involved in the chain of possession.

Grain size samples were transported directly to the analytical laboratory by USACE Buffalo District personnel after packaging sample containers into coolers:

TTL
1915 N 12th St
Toledo, OH 43604
Phone: 419-324-2222

Samples were overnight shipped via FedEx to the analytical laboratory:

ALS
301 Fulling Mill Rd
Middletown, PA 17057
Susan Scherer
Phone: 717-944-5541
Fax: 717-944-1430

Battelle (EPA ORD contract laboratory for analyses of 34 PAHs from surface sediment samples)
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The two-gallon buckets of surface sediment for sediment bioassays and elutriate evaluation were stored in the refrigerated trailer until August 16th, at which time they were transferred to a refrigerated truck by Advanced Environmental Management Group (AEMG) personnel at the Toledo Project Office. A total of 91, two-gallon buckets of sediment samples for toxicity testing and bioaccumulation were delivered via dedicated refrigerator truck to the U.S. Army ERDC Environmental Lab;

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3.4. Analytical Program

Chemical and/or biological analyses (with corresponding standard methods) were performed on each sample as prescribed in the UFP-QAPP and summarized in Section 1.3. Tables 3.1 and 3.3 indicate what type of analysis was performed on each of the sediment samples collected. The column headings in the tables correspond to the sample container used by the laboratory for each type of analysis.

Each core sample from the WWTP area (Figure 3.5.1a) was subject to the following analyses:

- metals (23 per TAL, including mercury) – EPA 6010 and 7471
- PAHs (16 priority pollutants plus 2-methylnaphthalene) – EPA 8270
- PCBs (Aroclors) – EPA 8082
- Total organic carbon (TOC) – EPA 9060
- grain size (sieve and hydrometer) – ASTM D421, D422

Each core sample from the sway bridge area (Figure 3.5.1b) was subject to the same analyses as listed above for the WWTP area, plus the following analyses:

- total petroleum hydrocarbons, oil and diesel range organics – EPA 8015D
- oil and grease (EPA 1664A, EPA 9071B)

Each surface grab sample was analyzed for the following parameters:

- metals (23 per TAL) – EPA 6010 and 7471
- PCBs (209 congeners) – EPA 1668
- Total organic carbon (TOC) – EPA 9060
- grain size (sieve and hydrometer) – ASTM D421, D422
- PAHs (list of 34 parent compounds and alkylated homologues) – EPA 8270 - performed by EPA ORD contract laboratory under a separate QAPP

Numbers of samples subjected to the different types of analysis are presented in Table 1.3.

The surface grab samples were also subject to benthic toxicity testing (10-day *H. azteca* and 10-day *C. dilutus*) (USEPA and USACE 1998a,b), and a subset of these surface grab samples were also subject to bioaccumulation testing (28-day *Lumbriculus variegatus*).

Composites of core samples from each of the sub-areas (14 total) were subject to elutriate testing and analysis (USEPA and USACE 1998a,b), as well as the toxicity characteristic leaching procedure (TCLP). Elutriate samples were analyzed for PCBs (Aroclors), metals (23 per TAL), ammonia (ASTM D 6919-09), total oil and grease (EPA 1664), PAHs (16 priority pollutants plus 2-methylnaphthalene), and subject to water column toxicity testing (48-hour *Daphnia magna* and 4-day *Pimephales promelas*) (USEPA and USACE 1998a,b). Laboratory tap water was utilized from the ERDC laboratory to create the sediment elutriates in lieu of river (site) water (see Section 5.3).

A reference surface sediment was obtained from an upstream location in the Maumee River (LMR21-69). The reference sediment sample was subjected to the same laboratory chemical analysis as the surface grab sediment samples, and was subject to benthic toxicity and PCB bioaccumulation testing.

Appendix 2 provides details of the biological testing performed on the sediment samples, as well as the generation of elutriate and subsequent toxicity testing performed by the ERDC laboratory.

3.5. Deviations from the Quality Assurance Project Plan

Field or other conditions resulted in deviations from the planned sampling and analysis protocols which were outlined in the UFP-QAPP (USACE 2021b). These fall into the categories discussed below.

3.5.1. Target Locations

Target sample locations were proposed in the UFP-QAPP (USACE 2021b) and are presented in Figures 1.3a and 1.3b. A comparison of target and actual sample locations is presented in Table 3.5.1. Some sediment samples were not collected at all from the target locations due to poor recovery, utility line interference or other obstruction, or in one instance, because the original location mapped fell outside of the river, along the adjacent riverbank. Sample locations that were adjusted in the field are discussed below.

The original coordinates provided for sample LMR21-11 fell outside of the river (on land). The core from this location was collected by moving inward towards the river. New coordinates were logged in the field notebook. The actual location is reflected in Figure 3.5.1a. The surface grab sample intended to be collected from this location was instead collected using the coordinates for sample LMR21-10. The field sample ID for this surface sample is labeled LMR21-11S, since that it where it was originally intended to be collected from, despite the fact that it shares coordinates with the core sample from location LMR21-10 (e.g., LMR21-11C and LMR21-11S were intended to be co-located). The USACE data manager has re-assigned sample ID "LMR21-11S" to "LMR21-10S" for all bulk sediment analytical results, benthic toxicity testing, and PCB bioaccumulation results for the sample with field ID "LMR21-11S" in order to align results with location of sample collection.

As mentioned in Section 3.2, several core samples were either re-located or not collected in order to avoid utility lines buried under the river. Figures 3.5.1a and 3.5.1b illustrate the locations of the utility lines relative to the sample locations. However, additional pipeline crossings were encountered based on signage provided on the river bank, and additional sampling locations were adjusted (e.g., LMR21-39). Three sediment core sample locations were offset to avoid the underwater utility lines, and the adjusted coordinates were recorded in the field log. Sample locations that were offset include: LMR21-39C, LMR21-49C, and LMR21-65C. Where it was not possible to offset the location and collect a sediment core, a surface grab was taken at the proposed location. Core samples could not be collected at LMR21-35C, LMR21-36C, LMR21-48C, LMR21-61C, and LMR21-62C due to the presence of utility lines. However, surface grabs were collected at all locations where cores could not be collected. Updated sample locations are illustrated in Figures 3.5.1a and 3.5.1b.

Two surface grab sample locations (LMR21-48S and LMR21-61S) were offset from the target locations. Because the core sample could not be collected from LMR21-48, a surface grab sample was attempted to be collected from this location instead. However, since the site was located in a gravel/rock bed (assumed to be associated with the utility chase), there was no recovery at LMR21-48S. The sample location was offset approximately 50-100 feet into the river (away from the river bank). LMR21-61S was located in a slip next to the downstream railroad bridge. The slip was too shallow to navigate; accordingly, the sampling location was offset to outside of the mouth of the slip. Coordinates for LMR21-48S and LMR21-61S were updated to reflect the actual sampling locations in Figure 3.5.1b.

3.5.2. Insufficient sediment collected from cores to generate composite samples

For LMR21-SBB2, there was insufficient sediment to generate a composite sample as cores were not collected at each target location due to utility line interference. Rather, surface grabs were collected at LMR21-35S and LMR21-36S to add to LMR21-SBB2. With the addition of these surface grabs, there was sufficient material to provide adequate volume for all chemical analyses.

3.5.3. Smaller volume of sediment collected for elutriate analysis of composite samples

Only a single, two-gallon bucket of material was collected for the following composite samples: LMR21-SBA2, LMR21-SBC, LMR21-SBB2, LMR21-SBB1, LMR21-SBD, LMR21-WC-1, LMR21-WB-2, LMR21-WA-2, LMR21-WA-1, LMR21-WA-3, LMR21-WB-1, LMR21-WC-2, which is less than the prescribed amount. The prescribed two buckets of material were collected for the following composites: LMR21-SBA1, LMR21-SBA3. The larger volume of sediment (the full four gallons of sediment) was intended to allow for generation of elutriate and associated chemical and biological (toxicological) analysis of the elutriate, including the performance of toxicity reduction evaluations (TRE) of the toxicity tests. Use of the sediment for the various analyses was prioritized in order to ensure that the data needed for project decision making will be generated from the more limited volume of sediments provided. Attachment 7 provides the approach which the ERDC environmental laboratory utilized in order to accommodate the smaller sample volume. The lowest priority for use of sediment and elutriate generation is the TRE. This procedure may not be performed on some of the samples if the volume of elutriate or sediment for other testing is lacking. The TRE would only be needed if toxicity is observed without obvious concomitant cause due to presence of sediment contamination. Such toxicity is frequently the result of the presence of high ammonia concentrations during the testing procedure. Section 5.3 (Table 5.3) summarizes which samples were subjected to the TRE.

3.5.4. Use of laboratory water in lieu of site water for elutriate generation

In consultation with the ERDC environmental laboratory toxicologists, a decision was made to generate the elutriate from the sediment core composite samples using laboratory water in lieu of site (river) water. Use of laboratory water addressed the logistical challenges associated with collecting and transporting the large quantity of river site water which is needed to generate the elutriate from the 14 composite sediment samples (approximately 100 gallons of water would be needed). It also relieved the need to commence the elutriate testing within the shortened holding time required if site water were part of the testing medium. The laboratory water used to generate the elutriate is moderately hard reconstituted water, which is made from ultrapure water and uses four pure essential salts (greater than 99% pure). As such, the laboratory water did not have background contaminant levels nor dissolved organic carbon content and would not be expected to introduce any confounding effects on elutriate aquatic toxicity tests. This laboratory water was also used as the negative control and as the dilution water for the aquatic toxicity tests. No river surface water sample was obtained during this sampling event.

3.5.5. Equipment blank analyses

The equipment blank water was not analyzed for PAHs. This analytical omission occurred because some of the distilled water which the laboratory had shipped to the site for the purposes of generating equipment blanks had broken in transit. Due to the insufficient water not all of the analytical jars could be filled with equipment rinsate ("blank") water, and no PAHs were analyzed.

3.5.6. Loss of elutriate sample water

The laboratory inadvertently discarded elutriate water prior to performing analysis of PCB Aroclors on four samples. The ERDC laboratory was able to regenerate elutriate water for three of the four samples (LMR21-WA3, LMR21-WB1, LMR21-WC1), but did not have adequate volume of sediment remaining after biological assays were performed to regenerate additional elutriate water on the 4^{th} sample (LMR21-WC2). No PCB Aroclor results are reported for this elutriate sample (LMR21-WC2).

3.5.7. Sample analytical issues

Initial feedback from the laboratories indicated that some of the sample coolers were delivered a day or two after the targeted delivery date (shipment took longer than overnight). This affected the temperature at which the samples arrived. The affected samples arrived at the Battelle laboratory at 18.8° Celsius. Other coolers arriving late at the ALS ranged in temperature from 13° to 21° Celsius. The ambient temperature at time of sampling varied from approximately 22° to 32° Celsius, indicating that the prolonged time in transit did not raise sample temperatures above the ambient temperature at time of sample collection. The affected sample results may be qualified to reflect the slightly elevated temperature upon sample receipt by the laboratory. The associated impacts to data quality are discussed in the Data Usability Report (Appendix 4). In addition, due to the large volume of samples received as well as staffing issues being experienced by the laboratory (ALS), some analyses were performed after the specified holding times. These include analyses for total solids, total petroleum hydrocarbons, and total organic carbon. The results of these analyses were qualified due to prolonged holding times prior to sample analysis (see Section 4.2.1 of Appendix 4, Data Usability Report).

As is evident in Table 1.3, some samples (such as the sediment composite samples) were analyzed more than one time for the same parameter. This occurred for different reasons: (a) Two sample collection jars were provided to the laboratory, with the same analysis described two different ways (either by name, e.g., "PCBs" or by EPA method number, e.g., "8270"). (b) Additional sample volume was collected by the field crew with the intention that the additional sample be used as a matrix spike / matrix spike duplicate (MS/MSD) by the laboratory. However, the laboratory may not have used the additional sample volume as an MS/MSD sample, but rather analyzed it as a primary field sample. Regardless, adequate numbers of MS/MSD samples were analyzed. Frequency of MS/MSD samples ranged from 4%-10% for various analytes (Table 1.3), which met or exceeded the QAPP-specified frequency of 1 MS/MSD per 20 samples or 1 MS/MSD sample pair per batch. All of the multiple analyses were considered field duplicates and all results reported for a given sample are provided in Appendix 1 and summary tables in Section 4. Additional details regarding MS/MSD analysis are provided in Section 4.1.2 of Appendix 4.

4. Analytical Results

As described in Appendix 4, the data quality objectives for the analytical results have been met, and all the data collected are usable. Appendix 1 presents the final, validated results reported for all laboratory analyses of all samples. Presentation of results in Appendix 1 includes the final data validator qualifiers. For results not reported above the detection limit (e.g., "U flagged"), the sample and analytical-specific detection limit is provided in these tables for all constituents except for PAHs, for which the reporting limit is provided. The reporting limits are presented for PAHs as they were used in calculation of the total PAH values in the tables.

The tables in Section 4 only present results reported above detection limits. Blank entries in the Section 4 tables indicate that the result was not detected. Detection limits may be found in the corresponding table in Appendix 1. Presenting only detected results in the Section 4 tables allows for a more efficient comparison to screening levels.

4.1. Screening Criteria

Screening levels are used in this report in order to identify areas of sediment contamination which may contribute to BUIs. Samples that exceed the PEC, for example, may pose a risk to benthic macroinvertebrates, thus contributing to the benthic BUI. A refinement of the nature and extent of contamination which may contribute to BUIs and therefore be addressed by risk management alternatives may occur in a subsequent feasibility study.

The screening levels are applied (when available for a given constituent) according to this hierarchy:

- Sediment results are compared to:
  - Ohio Sediment Reference Values (SRVs) for metals (Ohio EPA 2018)
  - Threshold Effects Concentrations (TEC) (MacDonald et al 2000)
  - Probable Effects Concentrations (PEC) (MacDonald et al 2000)
  - USEPA Region 4 Ecological Screening Levels (ESV) (USEPA Region 4 2018)
- Elutriate and surface water results are compared to:
  - Ohio surface water quality criteria Lake Erie Drainage Basin aquatic life criteria, outside mixing zone average (OMZA) (Ohio EPA 2021)
  - Ohio surface water quality criteria Lake Erie Drainage Basin Human Health non-drinking water criteria, outside mixing zone average (OMZA) (Ohio EPA 2021)
  - Ohio surface water quality criteria Ohio River Basin Human Health non-drinking water criteria, outside mixing zone average (OMZA) (Ohio EPA 2021)
  - USEPA Region 4 Ecological Screening Levels (ESV) (USEPA Region 4 2018)

4.2. Bulk sediment analytical chemistry results

The following sections summarize the preliminary, unvalidated results of bulk sediment chemical analysis. Tables 4.2.1 through 4.2.7 present the results reported above detection limits, compared to screening table. Appendix Tables A.1 present all the results, including preliminary, laboratory generated qualifiers (unvalidated data). Figures present only those constituents which exceed at least one of the screening levels in at least one sample location. For field duplicate samples, only the maximum result between field duplicate and primary result for each constituent is displayed on the figures.

4.2.1. Physical Properties

All of the sediment samples were subjected to grain size, moisture content, and total organic carbon analyses. Results of these analyses are presented in Table 4.2.1a (surface grab sample results), Table 4.2.1b (discrete core sample results), and Table 4.2.1c (composite sample results).

Most of the sediment samples are comprised mainly of silty clay, with notable exceptions as follows:

- Core sample LMR21-11C(0-1’) (WWTP area A2) had over 50% sand and fine gravel. The composite sediment sample LMR21-WA2 consisted of 52% sand.

- Cores from LMR21-13C, -14C, -15C, -16C and -17C (WWTP area A1) all had significant amounts of coarse material at some of the intervals sampled at depth, with up to 87% sand in sample LRM21-13C (4-7') FD, and 85% sand from LMR21-15 (4-7'). The composite sample LMR21-WA1 consisted of 82% sand and gravel.
- LMR21-19S (in WWTP area A3) consisted of over 75% sand, with deeper intervals from the core sediment sample containing a significant portion of coarse grain material including gravel.
- The discrete samples obtained from the 4' interval in locations LMR21-21C and -22C, and the 1-4' interval in LMR21-22C (WWTP area B1) which contained over 50% sandy material.
- Surface and near surface samples from sway bridge area C [LMR21-29C(1-4'FD), -30C(0-1' and 1-3'), -31C(0-1' and 1-4'), -32C(1-5'), -33C(0-1 and 1-5')] all consisted of a majority of coarse grain material, with up to 94% sand, gravel, and rocks in LMR21-30C(1-3'). Shells were observed in some samples taken from this area. The composite sample consisted of over 50% coarse grain material.
- Samples LMR21-37C(1-3') and -38C(0-1') in sway bridge area B2 consisted of approximately 74 -78% coarse grain material, including gravel and shells. The composite sample LMR21-SB2 was approximately 40% sandy material.

The TOC content of the surface samples (Table 4.2.1a) ranged from 2.4 to 8.9% (maximum TOC at LMR21-47S), with an average of 3.7%.

The TOC content of discrete core samples (Table 4.2.1b) ranged from 1.8 to 14.4% (maximum TOC at LMR21-52C(7-10')), with an average TOC content of 3.5%.

The TOC content of the composite sediment samples (Table 4.2.1c) ranged from 2.5 to 5.6% (maximum TOC at LMR21-SBA3), with an average TOC content of 3.7%.

4.2.2. Total Petroleum Hydrocarbons

All of the surface grab samples, along with the discrete core sediment samples collected from the sway bridge area, and all of the composite sediment samples were subjected to analysis for total petroleum hydrocarbons – diesel range organics (DRO), gasoline range organics (GRO), oil range organics (ORO), as well as for total oil and grease. The core samples from the WWTP were not subjected to TPH-DRO and -ORO analyses. These results are presented in Table 4.2.2a (surface grab sample results), Table 4.2.2b (discrete core sample results), and Table 4.2.2c (composite sample results). The only screening levels which are available for these compounds are the EPA Region 4 ESVs, which provide a screening level of 340 mg/kg, which we apply here to both DRO and ORO.

The highest concentrations of petroleum hydrocarbons and oil and grease are found in surface grab and discrete core sediment samples from the sway bridge area A1, although surface grab samples collected from the WWTP areas A1 and A3, as well as composite samples LMR21-SBA3 (FD1), WA1, -WB1, and -WC1 also contain DRO and ORO above screening levels.

The concentrations of TPH-DRO in the following surface grab samples exceeded the ESV (340 mg/kg): LMR21-15S (WWTP area A1), LMR21-19S (WWTP area A3), LMR21-45S (sway bridge area A1), LMR21-47S (sway bridge area A1), and LMR21-49S (sway bridge area A1). Concerning the sediment cores, the following samples exceeded the ESV: LMR21-34C(4-7') in sway bridge area C, LMR21-38C(0-1') in sway bridge area B2, LMR21-46C(0-1', 1-4', 1-4' FD, 4-7') and LMR21-47C(0-1', 1-4') and LMR21-49C(1-4') in sway bridge area A1, LMR21-50C(1-4', 4-7.5') and LMR21-52C(7-10') in sway bridge area A3, and LMR21-56C(0-1',1-4') in sway bridge area B1. The maximum concentration of TPH-DRO in the surface grab samples was 8,070 mg/kg at LMR21-47S, over 23 times greater than the ESV. The maximum concentration of TPH-DRO in the sediment core samples was found in the 1-4' interval of LMR21-49C (4,040 mg/kg), which exceeds the ESV by a factor of 12. Both maximum concentrations from the surface grab samples and the sediment core samples were from sway bridge area A1. There were three composite samples in which concentrations of TPH-DRO exceeded the ESV: LMR21-SBA1 (both the primary sample and the field duplicate), LMR21-SBA3 (only the field duplicate, the primary sample concentration was below the ESV), and LMR21-WB1. The maximum concentration of TPH-DRO (843 mg/kg) detected in the composite samples was found in LMR21-WB1.

The concentrations of TPH-ORO in the following surface grab samples exceeded the ESV (340 mg/kg): LMR21-10S (WWTP area A2), LMR21-15S (WWTP area A1), LMR21-17S (WWTP area A1), LMR21-19S (WWTP area A3), LMR21-27S (WWTP area C2), LMR21-45S (sway bridge area A1), LMR21-47S (sway bridge area A1), and LMR21-49S (sway bridge area A1). The concentrations of TPH-ORO exceeded the ESV in the following sediment core samples: LMR21-34C(4-7') in sway bridge area C, LMR21-38C(0-1') in sway bridge area B2, LMR21-46C(0-1', 1-4', 1-4' FD, 4-7') and LMR21-47C(0-1', 1-4') and LMR21-49C(1-4') in sway bridge area A1, LMR21-50C(1-4', 4-7.5') and LMR21-52C(1-4' FD, 4-7', 7-10') in sway bridge area A3, and LMR21-56C(0-1',1-4') and LMR21-57C(1-4') in sway bridge area B1. The maximum concentration of TPH-ORO in the surface grab samples was 5,560 mg/kg (detected at LMR21-47S), which exceeds the ESV by a factor of 16. The maximum concentration of TPH-ORO in the sediment core samples was observed in the 1-4' interval of LMR21-49C (2,890 mg/kg), which exceeds the ESV by a factor of 8.5. There were four composite samples in which concentrations of TPH-ORO exceeded the ESV: LMR21-SBA1 (both the primary sample and the field duplicate), LMR21-SBA3 (only the field duplicate, the primary sample concentration was below the ESV), LMR21-WA1, and LMR21-WB1. The maximum concentration of TPH-ORO detected in the composite samples was 1,330 mg/kg in LMR21-WA1.

Discrete samples LMR21-47S and LMR21-49C(1-4'), which are both in sway bridge area A1, had the maximum concentrations for both TPH-DRO and -ORO. The concentrations of TPH-DRO in the primary and field duplicate samples for sway bridge area A1 were 486 mg/kg and 475 mg/kg, respectively. The concentrations of TPH-ORO in the primary and field duplicate samples for LMR21-SBA1 were 461 mg/kg and 473 mg/kg. While the concentrations in the composite sample for sway bridge area A1 were greater than ESV, the exceedances were by less than a factor of 2.

In addition to the quantitative laboratory analysis of petroleum hydrocarbons, qualitative observations of the presence of petroleum hydrocarbons were made by field personnel collecting the samples (noted in Tables 4.2.1a – c).

Odors (petroleum or "chemical") were noted in the following samples:

WWTP areas:
- A2 (Sample 12C)
- A3 (Sample 18C)
- B1 (Sample 21C)
- B2 (Samples 4C and 7C)
- C1 (Samples 1C and 2C)
- C2 (Sample 26C)

Sway bridge areas:
- A1 (Samples 45S, 47C, 47S, 48S, 49C, 49S)

- A3 (Samples 51C, 52C, 55C)
- B2 (Sample 35S)
- C (Sample 34C)

The visible presence of oily sheens was noted in the following samples:

WWTP areas:
- A2 (Sample 12C)

Sway bridge areas:
- A1 (Samples 47C, 47S, 48S, 49S)
- A3 (Sample 52C)
- B2 (Sample 35S)

4.2.3. Metals

All of the sediment samples were subjected to analysis for the following 23 metals (EPA's total analyte list): aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Results of these analyses are presented in Table 4.2.3a (surface grab sample results), Table 4.2.3b (discrete core sample results), and Table 4.2.3c (composite sample results). Note that thallium results do not appear in these tables since this metal was not detected in any sample. Results for eight of these metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc) exceed all the applicable screening levels, including PECs. The highest concentrations of most metals are found in sample LMR21-15C (at the 1-4' or 4-7' depth intervals) in WWTP area A1, and an additional summary of metal results for the WWTP is provided at the end of this section. Results for these eight metals are presented in figures (referenced in the text below). The figures present concentrations of arsenic compared to screening levels (SRV or TEC, and PEC) as described in the figure legends. In the figures, which present the results from core samples, both the surface (0-1') and subsurface results are shown, but only the depth interval with the greatest concentration is presented on the figure.

Arsenic
Figures 4.WS.1, 4.WC.1, 4.SS.1, 4.SC.1 present results for arsenic measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. The greatest concentration of arsenic (40.8 parts per million or mg/kg), which exceeds the PEC of 33 mg/kg, is found in sample LMR21-34C (1-4') in sway bridge area C. The deeper interval (4-7') from that location also contains elevated arsenic (38.4 mg/kg) relative to the PEC. The only other sample with arsenic concentration exceeding the PEC is LMR21-49 (1-4') in sway bridge area A. None of the surface grab nor composite sediment samples contain arsenic concentrations above the PEC.

Cadmium
Figures 4.WS.2, 4.WC.2, 4.SS.2, 4.SC.2 present results for cadmium measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. The greatest concentrations of cadmium are found in discrete core samples obtained from the WWTP area A1, from location LMR21-15C, at the 4-7' depth interval (19.9 mg/kg), although all depth intervals sampled at that location have cadmium above the PEC of 4.98 mg/kg. Samples collected from multiple depth intervals from location LMR21-17C (also within WWTP area A1) and LMR21-18C (WWTP area A3), as well as samples from the 1-4' depth intervals

from LMR21-24 (WWTP area C2) and LMR21-46 C (sway bridge area A1), and sample LMR21-53C(4-6') (sway bridge area A3) also contain cadmium above the PEC. None of the surface grab nor composite sediment samples contain cadmium concentrations above the PEC.

Chromium
Figures 4.WS.3, 4.WC.3, 4.SS.3, 4.SC.3 present results for chromium measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. Samples with total chromium above the PEC of 111 mg/kg are found in discrete core samples and in composite samples. All samples collected from all depth intervals from LMR21-15C (WWTP area A1) contain chromium above the PEC, as does sample LMR21-17(0-1'), also from WWTP area A1. Chromium is reported from the primary composite sample from sway bridge area A3 (LMR21-SBA3) at a concentration of 151 mg/kg, although none of the other replicate results from this location, nor any of the discrete samples from sway bridge area A3 (e.g., cores from locations –50 through -55) contain chromium above the PEC. The discrepancy between composite and discrete sampling results may indicate an issue with use of the chromium result from the primary composite sample LMR21-SBA3, although the data validator's review (Appendix 4) did not indicate any problems with the analysis of metals (including chromium) in this sample which would necessitate qualifying the result as estimated. The average of the chromium concentrations from the other two duplicate LMR21-SBA3 composite samples is 46.2 mg/kg, and the average of the discrete core samples from sway bridge area A3 is 40 mg/kg. The two field samples for LMR21-SBA therefore are more representative of the chromium concentrations within sway bridge area A than the primary composite sample. None of the surface grab samples contain chromium above its PEC.

Copper
Figures 4.WS.4, 4.WC.4, 4.SS.4, 4.SC.4 present results for copper measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. The greatest concentrations of cadmium are found in discrete core samples obtained from the WWTP area A1, from location LMR21-15C, at the 1-4' depth interval (263 mg/kg), although the 4-7' depth interval from that location also has copper above the PEC of 149 mg/kg. The only other sample with copper above the PEC is LMR21-57C(0-1') in the sway bridge area B1. None of the surface grab nor composite sediment samples contain lead concentrations above the PEC.

Lead
Figures 4.WS.5, 4.WC.5, 4.SS.5, 4.SC.5 present results for lead measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. The greatest concentration of lead (340 mg/kg), which exceeded the PEC of 128 mg/kg, is found in sample LMR21-46C(1-4') in sway bridge area A1. Sample from that depth interval from location LMR21-49C (also in sway bridge area A1) also exceeds the PEC. Samples collected from LMR21-15 (all depths) and the 1-4' depth interval from LMR21-16 and -17 in WWTP area A1 also exceed the PEC. Samples from subsurface depth intervals (1-4', 4-7', 7-10', and 10-12') from LMR21-18 in WWTP area A3, as well as the subsurface (1-4' and 4-7') sample intervals from LMR21-34 in sway bridge area C all exceed the PEC. None of the surface grab nor composite sediment samples contain lead concentrations above the PEC.

Mercury
Figures 4.WS.6, 4.WC.6, 4.SS.6, 4.SC.6 present results for mercury measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. The greatest concentration of mercury (2.1 mg/kg), which exceeded the PEC of 1.06 mg/kg, is found in sample LMR21-15C(4-7') in WWTP area A1. None of the other discrete core, surface grab, nor composite sediment samples contain mercury concentrations

above the PEC. Note sample LMR21-16C(0-1') did not include results of mercury analysis.

Nickel

Figures 4.WS.7, 4.WC.7, 4.SS.7, 4.SC.7 present results for nickel measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. Nickel is the only metal which is found above its PEC of 48.6 mg/kg in all sediment sample types. This may be because the PEC is only 1.35 times the Ohio SRV (36 mg/kg) for nickel, indicating that concentrations which are only marginally elevated above ambient sediment levels will be greater than the PEC. To this point, the maximum concentration of nickel in surface sediment grab samples was 65.3 mg/kg from reference location LMR21-69S. The greatest nickel concentration in all sediment samples (241 mg/kg) is found in location LMR21-15C, from the 4-7' depth interval, although all depths sampled from that location exceed the PEC for nickel. Nickel is above the PEC in these core samples: LMR21-17C(0-1') in the WWTP area A1, LMR21-18C(7-10') and -20C(0-1') in WWTP area A3, LMR21-24C(1-4') and -25C(4-7') in WWTP area C2, LMR21-33C(1-5') in sway bridge area C, LMR21-47(0-1') in sway bridge area A1, LMR21-50C(4-7.5'), -52C(4-7'), and -53C(4-6') in sway bridge area A3, and LMR21-56(1-4') in sway bridge area B1. Nickel is also above the PEC in the primary composite sample LMR21-SBA (but not any of the field duplicates).

Zinc

Figures 4.WS.8, 4.WC.8, 4.SS.8, 4.SC.8 present results for zinc measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively. The greatest concentration of zinc (1160 mg/kg) is found at 2 depth intervals in location LMR21-15C (1-4', and 4-7') in WWTP area A1. The surface sample from this core (635 mg/kg) is also above the PEC, although the deepest sample from this core location (448 mg/kg) is just below the PEC (459 mg/kg). Two depth intervals from location LMR21-18C (1-4' and 7-10') in the WWTP area A3, the subsurface (1-4' and 4-7') sample intervals from LMR21-34 in sway bridge area C, and LMR21-46C (1-4' and 4-7') and LMR21-49C (1-4') in sway bridge area A1 all exceed the PEC. None of the surface grab nor composite sediment samples contain zinc concentrations above the PEC.

A summary of metal exceedances of the PEC in WWTP is provided here:

Concentrations of arsenic in all sediment core samples in the WWTP areas were below the PEC. The maximum concentration of cadmium was detected at LMR21-15C in the 4-7' depth interval (19.9 mg/kg), which exceeds the PEC (4.98 mg/kg) by a factor of 4. Of note, concentrations of cadmium in all depth intervals at LMR21-15C exceeded the PEC. Other samples in which cadmium concentrations exceeded the PEC include: LMR21-17C (multiple depth intervals, WWTP area A1), LMR21-18C (multiple depth intervals, WWTP area A3), and LMR21-24 (1-4', WWTP area C2). Concerning chromium, concentrations exceeded the PEC (111 mg/kg) in all depth intervals from LMR21-15C and in the 0-1' interval from LMR21-17C, both in WWTP area A1. The maximum concentration in the sediment core samples (493 mg/kg) was detected in the 1-4' interval (in the field duplicate) from LMR21-15C, and it exceeded the PEC by a factor of 4.4. Concentrations of copper that exceeded the PEC (149 mg/kg) were only detected at LMR21-15C in the 1-4' and 4-7' depth intervals; the maximum concentration (263 mg/kg) exceeded the PEC by a factor of 1.8. Regarding lead, concentrations exceeded the PEC (128 mg/kg) in LMR21-15C (all depth intervals), LMR21-16 (1-4'), and LMR21-17C (1-4'); the maximum concentration in the WWTP area was (286 mg/kg), exceeding the PEC by a factor of 2. The only sample in which the concentration of mercury exceeded the PEC (1.06 mg/kg) was LMR21-15C(4-7'); the concentration (2.1 mg/kg) was approximately two times greater than the PEC. Concentrations of nickel exceeded the PEC (48.6 mg/kg) in the following samples: LMR21-15C (all depth intervals) and LMR21-17C(0-1') in WWTP area A1, LMR21-18C(7-10') and LMR21-20C(0-1') in WWTP area A3, LMR21-24C(1-4') and LMR21-25C(4-7') in WWTP area C2. The maximum concentration (241 mg/kg at LMR21-15C 4-7') exceeded the PEC by a factor of 5. The PEC for zinc (459 mg/kg) was exceeded by concentrations detected in the following samples: LMR21-15C (all depth intervals except 7-10’) in WWTP area A1 and LMR21-18C(1-4’, 7-10’) in WWTP area A3. The maximum concentration of zinc was 1,160 mg/kg (at LMR21-15C 1-4’ FD1, 4-7’), which exceeded the PEC by a factor of 2.5.

4.2.4. Polycyclic Aromatic Hydrocarbons

Surface grab sediment samples were subjected to semi-volatile organic analysis for 34 PAHs by the Battelle laboratory, under contract to EPA ORD. Detected results from that analysis are summarized in Table 4.2.4a. The total of 34 PAHs (tPAH34) was calculated by substituting ½ the reporting limit for all PAHs which were not detected. The tPAH34 concentrations range from 1,878 parts per billion (ppb) (µg/kg) or 1.878 mg/kg to 1,673 mg/kg, which is equivalent to almost 0.2%. The tPAH17 concentrations in the surface grab samples range from 1.038 to 1,522 mg/kg, with an average of 103.8 mg/kg. The greatest tPAH34 concentrations in the surface grab samples are in LMR21-47S, -49S, and -45S, all in sway bridge area A1. Other locations where the tPAH34 and tPAH17 concentrations exceed the PEC (22.8 mg/kg) are in LMR21-53S (sway bridge area A3) and LMR21-68 (sway bridge area D).

The results of tPAH17 analysis for discrete samples are provided in Table 4.2.4b. The total of 17 PAHs (tPAH17) was calculated by substituting ½ the reporting limit for all PAHs which were not detected. For the analysis of PAHs in discrete core samples, the USACE’s ALS laboratory used selected ion monitoring (SIM) to increase the sensitivity for some samples as needed. When used, both results are presented in Table 4.2.4b. The maximum tPAH17 concentration (544 mg/kg), which exceeds the PEC of 22.8 mg/kg several-fold is found in sample LMR21-49C (1-4’) from the sway bridge area A1. A similar concentration (520 mg/kg) is found in sample LMR21-46C (4-7’), and tPAH17 is also very elevated in samples from LMR21-46C (maximum concentration of 124 mg/kg at the 1-4’ interval). Samples from sway bridge area A3, B2, and C, as well as the WWTP areas (e.g., LMR21-15C in area A1 and -18C and -20C in A3) also have tPAH concentrations above the PEC.

The composite samples do not contain concentrations of tPAH17 above the PEC, although there are some individual PAHs above individual PECs in some of the composite sediment samples (Table 4.2.4c). Interestingly, a tPAH concentration of 11.7 mg/kg is reported for composite sample LMR21-SBA1, which is less than 10% of the average tPAH17 concentration reported for the discrete core samples from within sway bridge area A1 (134 mg/kg). One possible explanation for this discrepancy may be the heterogeneous nature of the PAH contamination.

Figures 4.WS.9, 4.WC.9, 4.SS.9, 4.SC.9 present results for PAHs measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively.

4.2.5. Polychlorinated Biphenyls

Surface grab sediment samples were subjected to analysis for PCB congeners by both the USACE laboratory (ALS), as well as by the Battelle laboratory, under contract to EPA ORD. The results of the Battelle analysis are considered laboratory replicates, since the ALS laboratory also analyzed worm tissues for PCB congeners and those bioaccumulation results are best interpreted by comparing tissue concentrations to sediment concentrations of PCB congeners analyzed by the same laboratory. The Battelle-generated results of PCB congener analysis are presented in Appendix 1 Table A1.5b. Detected results from the ALS analysis are summarized and compared to screening levels, including the PEC (of 0.676 mg/kg) in Table 4.2.5a. Note that the PEC does not consider bioaccumulative effects on upper trophic level organisms. The total PCB concentrations were calculated by summing the concentrations of individual PCB congeners with non-detects (ND) treated as 0 (ND = 0). The only surface grab sample with a total PCB (tPCB) congener concentration above the PEC is LMR21-19S in WWTP area A3, with a tPCB congener concentration of 0.872 mg/kg.

The rest of the sediment samples were analyzed for PCB Aroclors, rather than congeners. Total PCB Aroclor concentrations were calculated by summing the concentrations of each PCB Aroclor with non-detects set equal to zero (ND=0). Table 4.2.5b presents the PCB Aroclor results for discrete core samples and Table 4.2.5c presents the composite sample results. The greatest concentrations of tPCB Aroclors are found in discrete core samples obtained from the WWTP area A1, from location LMR21-15C, at the 4-7’ depth interval (9.78 mg/kg), although all depth intervals sampled at that location have cadmium above the PEC (0.676 mg/kg). Three surface interval (0-1’) sampling locations from the WWTP areas A1, A2, and A3 (LMR21-10, -17, -18 and -20), B1 (LMR21-21), and C1 (LMR21-02) also have tPCB Aroclor concentrations above the PEC. Of those discrete surface core sampling locations with tPCB Aroclors above the PEC, only 2 of these locations have deeper interval sampling locations with tPCB Aroclors above the PEC (LMR21-10 in area A2, and -21 in area B1). In contrast, when tPCB Aroclors are present above the PEC in WWTP area C2 (LMR21-24 and -28) and sway bridge area A3 (LMR21-50 and -52) they are found in subsurface sediment (below 1’).

Table 4.2.5c presents PCB Aroclor results from the composite core samples. Composite samples from 2 areas (LMR21-WA1 and -WB1) contain tPCB Aroclors above the PEC.

Figures 4.WS.10, 4.WC.10, 4.SS.10, 4.SC.10 present results for PCBs measured in samples collected from surface grabs in the WWTP area, from cores in the WWTP, from surface grabs in the sway bridge area, and from cores in the sway bridge area, respectively.

4.2.6. Nutrients, cyanide, and sulfide

The composite sediment samples were subjected to analysis for cyanide, sulfide, and nutrients in order to inform potential disposal decisions in a subsequent feasibility study. These results are summarized in Table 4.2.6.

4.2.7. Toxicity Characteristic Leaching Procedure

The 14 composite sediment samples were subjected to the TCLP in order to inform potential disposal decisions in a subsequent feasibility study. A summary of constituents detected in the leachate are presented in Table 4.2.7. None of the TCLP pesticides or semi-volatile organics were detected in the leachate. Only one volatile organic compound (chloroform), and four metals (barium, cadmium, nickel, and zinc) were detected in the leachate, but none above regulatory levels.

4.3. Worm tissue PCB congener analytical results

As summarized in Section 5.2 and detailed in Appendix 2, bioaccumulation assays were performed on 15 surface sediment grab samples using *Lumbriculus variegatus* to estimate net uptake of PCBs from surface sediments. After exposing five replicates per sediment samples, the worm tissues were freeze dried and shipped from the ERDC environmental laboratory (where exposures took place) to the ALS laboratory for PCB congener analysis. Table 4.3 summarizes PCB congener analysis by providing results reported above detection limits. The full reporting of PCB congener results from worm tissue analysis is included in Appendix Table A1.14. As was done for the sediment samples, the tPCB congener concentrations were estimated for worm tissue by summing the concentrations of individual PCB congeners with non-detects treated as 0 (ND = 0) (as was done for the estimation of tPCB congener concentrations from sediments). Sample location LMR21-69S served as reference, and the mean tPCB congener concentration in worm tissue from that location is 10.5 μg/kg (ppb). Other mean worm tissue tPCB congener concentrations ranged from 15.8 (LMR21-25S) to 753 (19S) ppb. Further evaluations regarding the uptake of PCBs into worm tissues are provided in Section 5.2 and Appendix 3.

4.4. Elutriate water analytical chemistry results

Elutriate was generated by the ERDC environmental laboratory on the 14 composite sediment samples which were collected from each of the 7 areas from the WWTP and the sway bridge, as described in Section 5.2 and detailed in Appendix 2. After the elutriate was generated by the ERDC environmental laboratory, it was shipped for next day delivery to the ALS laboratory, where it was subjected to chemical analysis. The following sections summarize the preliminary, unvalidated results of that chemical analysis. Tables 4.4.1 through 4.4.4 present the results reported above detection limits, compared to screening levels. Note that the comparison of elutriate water results to outside mixing zone average (OMZA) water quality criteria is provided for informational purposes only, and that Section 6.3 provides further evaluation of the elutriate analytical results for potential disposal considerations. Results of surface water sampling performed separately for the Swan Creek project (EA 2022) (designated "SC21-CDF-WAT" and "SC21-MR-WAT") are also presented in these tables. The sample SC21-CDF-WAT was collected in Lake Erie in the vicinity of the confined disposal facility (CDF) at the mouth of the Maumee River. Sample SCR21-MR-WAT was collected in the Maumee River, at approximately river mile 5, well upstream of the sway bridge area being characterized in this report. Appendix Tables A1.9 through A1.13 present all the results, including preliminary, laboratory generated qualifiers (unvalidated data).

4.4.1. Nutrients, Cyanide, and TOC

Table 4.4.1 presents the results of miscellaneous assays on the elutriate samples, which includes analysis of nutrients (nitrogen and phosphorus), as well as cyanide and total organic carbon. Cyanide was detected in 11 elutriate samples, but never above the screening level (water quality criterion for aquatic life, OMZA). Concentrations of ammonia in all of the elutriate samples exceed the ammonia measured in the two surface water samples, as well as above the water quality criterion, which is dependent on water temperature and pH (Table 35-6, Ohio Administrative Code 3745-1-35, Ohio EPA 2021). Concentrations of total nitrogen exceed concentrations of total nitrogen in the surface water samples in all the elutriate samples except for sample LMR21-SBA2 (sway bridge area A2). Total phosphorus concentrations vary from below detection limits (approximately 0.02 mg/L) to 0.38 mg/L, which is greater than the concentrations of total phosphorus measured in surface water samples. The total organic carbon content of the elutriate samples ranged from 1.4 to 7.6 mg/L.

4.4.2. Total Petroleum Hydrocarbons

Results of analyses for total petroleum hydrocarbons, diesel range organics (DRO), gasoline range organics (GRO), oil range organics (ORO), and for total oil and grease are presented in Table 4.2.2. The surface water samples were only subjected to analysis for DRO, total oil and grease, and total petroleum hydrocarbons. In the elutriate samples, oil and grease results were below detection limits in all samples except for LMR21-SBA1, for which the result (3.1 mg/L) was below the surface water sample results (which ranged from 3.6 to 4.1 mg/L). Elutriate sample LMR21-SBA1 had the highest results for the other petroleum hydrocarbons, ranging from 6.4 mg/L ORO to 157 mg/L GRO. This sample and LMR21-SBA1 were the only sample with detectable concentrations of GRO (35.7 mg/L). Other detections of DRO and GRO in the elutriate samples were 2 mg/L or less.

4.4.3. Metals

Results of analysis for TAL metals are summarized in Table 4.4.3 (detected results only). Five of the 23 TAL metals were not detected in elutriate samples (antimony, beryllium, selenium, silver, and thallium). Mercury was only detected in one elutriate sample (LMR21-SBC) albeit at concentrations below water quality criteria. Concentrations of several metals in some of the elutriate samples exceed not only the surface water screening levels, but also concentrations of metals measured in the 2 surface water samples (SC21-CDF-WAT and SC21-MR-WAT). Highest concentrations of several heavy metals (arsenic, cadmium, chromium, lead, nickel) are found in the elutriate samples from the "A" areas of the WWTP (WWTP area A1, A2, and A3), although the zinc concentration is greatest in elutriate sample LMR21-SBC.

4.4.4. Polyaromatic Hydrocarbons

Results of analysis for PAHs are summarized in Table 4.4.4 (detected results only). No PAHs were detected in the surface water samples. In contrast, PAHs were detected in every elutriate sample, and at concentrations exceeding surface water screening levels (Ohio EPA water quality criteria for protection of human health) in 10 of the 13 elutriate samples (in all but LMR21-SBA2, -SBB1, and -SBD). The greatest concentration of tPAH17 was measured in LMR21-SBA1 (634 µg/L or ppb), followed by LMR21-SBA3 (13.4 ppb) and LMR21-SBC (11.5 ppb). Sediment samples from sway bridge area A1 also had the highest concentrations of tPAH17.

4.4.5. Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) were detected in only a single elutriate sample, LMR21-WB1, at a concentration of 1.4 µg/L or ppb. No PCB Aroclors were detected in the surface water sample.

5. Toxicity and Bioaccumulation Testing Results

Standard toxicity and/or bioaccumulation tests were conducted on surface sediment samples from 29 locations (LMR21-10S[2], -12S, -14S, -15S, -17S, -19S, -25S, -27S, -30S, -35S, -37S, -39S, -41S, -43S, -45S, -47S, -52S, -53S, -55S, -59S, -61S, -62S, -64S, -68S, -69s). Surface sediment collected from location LMR21-69S was used as a reference sample in these bioassays. In addition, elutriate was generated from each of the 14 composite sediment samples (LMR21-SBA1, -SBA2, -SBA3, -SBB1, -SBB2, -SBC, -SBD, -WA1, -WA2, -WA3, -WB1, -WB2, -WBC1, -WBC2) and water column toxicity tests were conducted on the elutriate generated. The biological testing was conducted by the USAERDC environmental laboratories in Vicksburg, Mississippi, in basic accordance with the Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.—Testing Manual (USEPA / USACE 1998a) and Great Lakes Dredged Material Testing and Evaluation Manual (USEPA / USACE 1998b). Appendix 2 contains details regarding bioassay methods and results, including performance of reference toxicity tests and water quality parameters monitored throughout the testing period, as well as a description of quality assurance measures. The procedures and results are summarized in this section.

Biological testing was performed to simulate the potential for benthic toxicological effects of sediments from the LMR (whole sediment toxicity tests), and to quantify the laboratory benthic bioaccumulation and bioavailability of PCBs in LMR sediments. Water column toxicity tests were performed on sediment

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[2] The sample labeled, "11S" in Appendix 2 was obtained from location 10. The corresponding sediment sampling results have been re-labeled "10S" to better reflect the actual location characterized. See Section 3.5.1.

elutriate to assess the potential toxicological effects of contaminants released from dredged material during the discharge of effluent through a CDF overflow weir (if CDF disposal is an alternative).

5.1. Whole sediment toxicity tests

Ten-day sediment toxicity tests were conducted using the amphipod *H. azteca* and the midge *C. dilutus* with survival, and survival and growth as endpoints, respectively. Results of these toxicity tests are presented in Table 5.1.

As indicated in the footnotes to that table, two criteria were used to designate a sediment as potentially toxic (based on either the survival or growth endpoint). These interpretation criteria are consistent with protocols specific to dredged material management in the Great Lakes (USEPA / USACE 1998 a, b). Those manuals are directed towards evaluation of proposed discharges of dredged material (associated with navigational dredging or dredging activities of essentially the same character as navigational dredging) in open water.

To further evaluate the sediment toxicity testing results, toxicity testing results were also analyzed according to the U.S. EPA (2000) "Methods for Measuring the Toxicity and Bioaccumulation of Sediment Associated Contaminants in Freshwater Invertebrates." The survival and growth toxicity tests were statistically analyzed according to the U.S. EPA (2000) guidance to determine if any of the site sediments were significantly different (p=0.05) from the control or reference sediment. Samples with statistically significant lower survival and growth when compared to the reference sediment were identified in Table 5.1.

When using dredged material management guidance (USEPA/USACE 1998 a, b), adverse impacts on *H. azteca* survival were observed in two sediment samples. Mean survival of *H. azteca* was at least 10% of the mean survival of the reference sediment (94%) for all samples except sediments LMR21-47 and LMR21-49. Statistical analysis found statistically lower survival in sediments LMR21-47 and LMR21-49 relative to the reference sediment indicating acute toxicity for those two sediments.

When using the U.S. EPA (2000) sediment associated contaminants guidance for performing statistical comparison of survival to reference and controls, significantly lower *H. azteca* survival was observed for sediments LMR21-47S and LMR21-49S compared to the reference (LMR21-69S) and LMR21-15S, LMR21-35S, LMR39S, LMR21-43S, LMR21-47S, LMR21-49S, and LMR21-68S when compared to the control.

When using dredged material management guidance (USEPA/USACE 1998 a, b) adverse impacts on *C. dilutus* survival were observed in four sediment samples. Mean survival of *C. dilutus* was at least 20% of the mean survival of the reference sediment (96%) for all samples except for sediments LMR21-30S, LMR21-47S, LMR21-49S, and LMR21-59S. Statistical analysis found statistically lower survival in sediments LMR21-30S, LMR21-47S, LMR21-49S, and LMR21-59S relative to the reference sediment indicating acute toxicity for those four sediments.

When using the U.S. EPA (2000) sediment associated contaminants guidance for performing statistical comparison of survival to reference and control, significantly lower *C. dilutus* survival was observed for sediments LMR21-11S, LMR21-27S, LMR21-30S, LMR21-39S, LMR21-47S, LMR21-49S, LMR21-53S, LMR21-59S, LMR21-64S, and LMR21-66S when compared to the reference (LMR21-69S) and LMR21-30S, LMR21-47S, LMR21-49S, LM21-53S and LMR21-59S when compared to the control.

Mean weights of *C. dilutus* exceeded the 0.6 mg weight criterion for all sediment samples. Therefore, sublethal effects were not evidenced using dredged material management guidance, but statistical analyses were employed to compare data to both the reference and the control.

When performing statistical comparison of growth to reference and control without consideration of level of growth observed, significantly lower *C. dilutus* growth was observed for sediments LMR21-47S and LMR21-49S compared to the reference (LMR21-69S) and LMR21-45S, LMR21-47S, LMR21-49S, LM21-52S, LMR21-53S, LMR21-55S and LMR21-57S when compared to the control.

5.2. Sediment bioaccumulation bioassay results

Twenty eight-day *L. variegatus* benthic bioaccumulation experiments were conducted on 15 surface grab sediment samples (identified in Tables 1.1 and 3.1). Five replicates were conducted for each sediment sample evaluated. All organisms burrowed into test materials and remained burrowed during the exposure except for organisms in sediments LRM21-47S and LMR21-49S. The organisms did not burrow and the majority died in those two sediment samples. These two sediments were removed from the test system and no bioaccumulation data was collected due to low exposure and excessive mortality.

L. variegatus tissues from sediment exposures from the remaining 13 samples were provided to the chemistry analytical laboratory ALS-Environmental for the determination of PCB concentrations and to the ERDC Environmental Laboratory (EL), Environmental Chemistry Branch (ECB) for determination of lipid content. Lipid analytical results are presented in Table 5.2.1.

As indicated in Section 4.3, tPCB congener concentrations were determined by summing all PCB congener results reported above detection limits. Non-detected congeners did not contribute to the tPCB congener concentration, e.g., non-detected results were assumed to be zero (0). Results of worm tissue PCB congener analysis are presented in Table 4.3.

The bioaccumulation of the LMR sediments relative to the river reference location was evaluated using two methods: first, the mean tPCB congener worm tissue residues measured from each sediment sample were compared to the mean tPCB congener worm tissue residues from the reference location, sample LMR21-69S. A two-sample t-test ($\alpha = 0.1$) was performed comparing site to reference worm tissue concentrations using the EPA ProUCL version 5.0 software (USEPA 2013). The ProUCL output is provided in Appendix 3. As seen in Table 5.2.2, every one of the mean tPCB worm tissue concentrations exposed to samples from within the WWTP and sway bridge areas are statistically significantly greater than the mean tPCB worm tissue residue exposed to the reference sediment sample (LMR21-69S). This is true even for sediment samples in which very low tPCB congener concentrations were measured, e.g., sample LMR21-45S, which had a tPCB congener or only 12.7 ppb (µg/kg) (Table 4.2.5a). This is a lower tPCB congener sediment concentration than measured in the reference sample LMR21-69S (19.9 µg/kg).

Secondly, biota-sediment accumulation factors (BSAFs) were calculated and compared. A BSAF is the ratio of the lipid-normalized concentration of a hydrophobic organic chemical (HOC, such as PCBs) in an organism to the organic carbon-normalized concentration of the HOC (PCB) in the sediment the organism was exposed to.

BSAF values are typically calculated using the following (or similar) formula:

$$BSAF = \frac{C_o/f_l}{C_s/f_{oc}}$$

C_o-the HOC concentration in the organism (wet or dry weight)

f_l-the lipid concentration (fraction) in the organism (wet or dry weight)
C_o-the HOC concentration in the sediment (generally dry weight)
C_o-the total organic carbon content (fraction) of the sediment (generally dry weight)

As seen in Table 5.2.2, the BSAFs from the different samples range from 0.63 (LMR21-27S) to 4.69 (LMR21-45S). The BSAFs in the majority of the samples were within or close to the range of theoretical BSAF values (e.g., 1 – 2). A larger BSAF indicates a greater bioavailability of the PCBs to worms in that sediment sample. As indicated above, sample 45S has a very low concentration of tPCB congeners (Table 4.3), which is consistent with PCB Aroclors not being reported above detection limits in that sample (Table 4.2.5c). The low levels of PCBs at this location may be more bioavailable due to the type of organic carbon in the sample, since the field crew noted that this location smelled of petroleum. The corresponding discrete core sample from the top foot of sediment at that location had shells in it.

The reference sample (LMR21-69) yielded a BSAF of 1.14. A BSAF below 1 indicates that the PCBs may not be very bioavailable due to biogeochemical and/or physical attributes of the sediment, such as type of organic matter.

5.3. Sediment elutriate bioassays

Standard Elutriate Tests (SETs) were prepared on each of the 14 composite sediment samples generated from cores within each of the sway bridge and WWTP areas (outlined in Table 3.3) according to national and regional testing guidance (USEPA / USACE 1998a,b). Details regarding the generation of elutriate is presented in Appendix 2.

Bioassays were conducted using the standard 96-hour *P. promelas* (minnow) and 48-hour *C. dubia* (water flea) toxicity test methods, to assess potential toxicity of the sediment elutriate. An ammonia toxicity reduction evaluation was conducted for select elutriates, using the zeolite column treatment and pH modification to 6.5, as described in Melby et al (2018). Elutriates that were expected to have greater contamination based on historical sampling results were prioritized to perform the toxicity tests using 5 dilutions. The TRE were performed on samples for which toxicity was exhibited but were not expected to be contaminated, based on historical results.

Both the *C. dubia* and *P. promelas* tests indicated significant reductions in survival for eight of the sediment elutriates evaluated (SBA1, SBA3, SBC, WA1, WA2, WA3, WB1, WC2), indicating good agreement (Table 5.3). The TRE provided strong evidence for ammonia dominated toxicity for WC2.

Mean *P. promelas* survival in the undiluted (100%) elutriates ranged from 0 to 100%. Statistically reduced survival was determined for SBA1, SBA3, SBC, WA1, WA2, WA3, WB1 and WC2 (Table 5.3). No significant toxicity was observed for the other elutriates. Mortality was sufficiently high to calculate a concentration causing 50% mortality (LC50) values for SBA1, WA1, WA2, WA3, WB1 and WC2, with values provided in Table 5.3. The toxicity test results would be used in determining need for controls should disposal in a CDF be considered in future phases of the project.

Mean *C. dubia* survival in the undiluted (100%) elutriates ranged from 0 to 100%. Statistically reduced survival was determined for SBA1, SBA3, SBC, WA1, WA2, WA3, WB1 and WC2. No significant toxicity was observed for the other elutriates. Mortality was sufficiently high to calculate LC50 values for SBA1, WA1, WA2, WA3 and WB1, with values provided in Table 5.3. The ammonia TRE provided strong evidence for ammonia dominated toxicity for WC2. The toxicity test results would be used in determining need for controls should disposal in a confined disposal facility be considered in future phases of the project.

Several of the elutriate samples contained concentrations of total ammonia or un-ionized ammonia greater than the toxicity reference values for these aquatic species, which may have been toxic to the test organisms (e.g., LMR21-SBA3, -WA1, -WA2, -WA2, -WB1, and -WC2). A toxicity reduction evaluation, conducted on WC2 using both species, provided strong evidence for ammonia dominated toxicity. Unfortunately, toxicity reduction evaluations for ammonia could not be performed for the other samples because of inadequate sediment sample volume to perform these additional tests (see Section 3.5.3). Ammonia likely contributed to toxicity in these samples.

6. Summary of Findings

As indicated in Section 11.2 of the QAPP (USACE 2021b), the primary study questions which this sediment characterization effort intended to answer are as follows:

<u>In the WWTP area</u>

1) Are the PCBs associated with the WWTP area bioavailable and negatively impacting aquatic life?
2) Are sediments within the WWTP area toxic to aquatic life (benthos and/or fish) and therefore warrant remediation?
3) Are PAH and/or metal contaminants elevated enough in the WWTP area to contribute to the benthic BUI and therefore warrant remediation?
4) Are biological criteria in attainment around the WWTP?
5) Are sediments further away from the WWTP, including those on the far side (southeast) of the navigation channel contaminated enough, to warrant being remediated?
6) Do multiple lines of evidence indicate impacts from contaminated sediment that warrant remediation?

<u>In the sway bridge area</u>

1) Are the PAHs in all areas associated with the sway bridge contamination bioavailable and toxic to benthic macroinvertebrates?
2) What levels of PAHs and total petroleum hydrocarbons (TPH) pose a risk to benthic macroinvertebrates, and what level of PAHs and TPH may be left behind/in place and not contribute to the benthic BUI?
3) Are biological criteria in attainment in the sway bridge area?
4) Are sediments previously at depth but newly exposed after dredging the adjacent section of the federal navigation channel (for the first time in over 25 years) contaminated from the same historical contamination source present at the sway bridge hot spot?
5) Do PCB and/or metal contaminants found outside the main hot spot contribute to BUIs and also warrant remediation?
6) Are sediments on the far side (northwest) of the navigation channel contaminated enough to warrant being remediated?
7) Do multiple lines of evidence indicate impacts from contaminated sediment that warrant remediation?

<u>Study questions associated with both areas which would need to be addressed in a remedial design:</u>

- If there is adequate volume in existing Toledo Harbor area CDFs to safely contain any sediments removed in a remedial action, would additional management measures be needed for safe disposal of contaminated sediments?

Each of these questions are addressed in Sections 6.1 and 6.2, for the WWTP and the sway bridge, respectively.

To support the evaluation of these issues, a surface weighted average concentration (SWAC) was estimated for each area investigated. These SWACs within each area investigated provide an indication of the level of contaminants to which the benthic macroinvertebrate and fish communities may be exposed. A simple arithmetic mean concentration was calculated in each area using all sampling results which were collected at the surface down to one foot. Both surface grab and the top discrete sample collected from each core location was used in the calculation of the average. When field duplicate results are available for a sample, only the maximum detected result per constituent between the primary and duplicate result is used in the averaging calculation (one result per sampling location). Results not reported above detection limits ("non-detects" or NDs) were handled in the averaging calculation as follows: For metals, the average concentration was determined by including NDs at their detection limit (values provided in Appendix 1 tables). This mainly affects mercury and also to a lesser extent cadmium. For PAHs, since the tPAH concentration included all NDs at 1/2 the reporting limit (RL), all samples were included in the averaging calculation at face value (the tPAH value calculated by including NDs at 1/2 the RL). For PCBs, since NDs were valued at zero, some tPCB concentrations are equal to zero. Theses NDs were included in the averaging calculation at face value (the tPCB value will equal zero when all individual Aroclors were below detection limits). These SWACs are presented in Table 6.1 for the WWTP, and Table 6.2.1 for the sway bridge area. These tables also provide average subsurface sediment concentrations within each area, calculated in the same manner as for the SWACs, as well as maximum concentrations and detection frequencies for each of the main constituents of potential concern.

6.1. Summary of findings for the WWTP

1a) *Are the PCBs associated with the WWTP area bioavailable?*
The PCBs associated with surface sediments in the WWTP area are bioavailable, as indicated by the results of the worm bioaccumulation testing. Table 5.2.2 indicates that worms exposed to sediments from the WWTP area A1 and A3 (samples LMR21-10S through -19S) take up statistically significantly greater concentrations of tPCBs than worms exposed to reference area sediment (sample LMR21-69S). The average (mean) worm tissue concentrations of PCBs exposed to sediments from samples LMR21-10S, -14S, -15S, -17S, and -19S are more than twice the average (mean) concentration of PCBs in the worms exposed to reference location sediment (LMR21-69S). A magnitude of difference of 2 or greater is more likely to be associated with a meaningful difference of PCB bioaccumulation (McQueen et al 2020). Smaller magnitudes of difference (less than a two-fold difference) such as seen for samples LMR21-25S and -27S from WWTP area C should not indicate a meaningful difference in PCB bioaccumulation, and in fact, the gross tPCB sediment concentrations in the surface grab samples from WWTP area C are all quite low (up to 0.077 mg/kg total Aroclors or 0.062 total congeners in LMR21-25C (0-1') and LMR21-27S, respectively).

Regarding the extent of PCB contamination in the WWTP area: There are only 2 surface sampling locations in the main WWTP hotspot area (WWTP area A1 and A3) where PCBs are greater than 1 mg/kg, which is a typical PCB sediment benchmark considered for management actions (Figures 4.WS10 and 4.WC.10). The SWAC of tPCBs (either Aroclors or congeners) in WWTP areas A1, A2, and A3 are all less than 1 mg/kg, although in area A3 the tPCB SWAC is greater than the PEC (0.877 or 0.862 mg/kg tPCB Aroclors or congeners, respectively) (Table 6.1). Varying the area over which the tPCB SWAC is calculated, to include all sampling locations with detectable concentrations of tPCBs, does not change the SWAC appreciably. The tPCB Aroclor SWAC is 0.627 mg/kg if all 0-1' sampling locations between

LMR21-10 and -21 (inclusive) are used in the SWAC calculation. If only the area with tPCB Aroclors above the PEC are included in the SWAC calculation (from LMR21 – 15 through -21, including location -16 where PCBs were not detected, Figure 4.WC.10), then the SWAC is 0.857 mg/kg tPCB Aroclors.

In the subsurface, the greatest tPCB concentration (9.8 mg/kg tPCB Aroclors) was found at the 4-7' depth interval in location LMR21-15C (WWTP area A1). The field duplicate of this sample had 5.7 mg/kg tPCB Aroclors, for an average of 7.8 mg/kg in this location. Note that the average concentrations presented in Table 6.1 were calculated using the maximum detected result from each field duplicate. There are 3 field duplicate samples in the subsurface in WWTP area A1. If the average concentration of each of these is used instead of the maximum detection, then the subsurface average concentration for the WWTP area A1 is 1.2 mg/kg tPCB Aroclors, slightly less than the value presented in Table 6.1 (1.3 mg/kg tPCB Aroclors). Sample LMR21-15C(4-7') also had the greatest concentration of mercury (2.1 or 1.8 mg/kg in the primary and field duplicate samples, respectively), which is also a bioaccumulative compound.

1b) *Are the PCBs associated with the WWTP negatively impacting aquatic life?*
Whether or not the PCBs are impacting aquatic life is only partially answered by the results of this study. The two samples with highest concentrations of PCB congeners in the WWTP area (LMR21-17S with 0.610 mg/kg tPCB congeners, just below the PEC; and LMR21-19S with 0.862 mg/kg tPCB congener, just above the PEC) did not show any statistically significant reduction in either survival or growth for either benthic macroinvertebrate tested (Table 5.1). This indicates that the concentrations of PCBs in surface sediments from the WWTP are not acutely toxic to two species of benthic macroinvertebrates. However, the PCBs may have negative impacts to higher trophic level organisms, such as piscivores. That endpoint was not evaluated in this study.

2) *Are sediments within the WWTP area toxic to aquatic life (benthos and/or fish) and therefore warrant remediation?*
The sediments within the WWTP did not show acute toxicity using the standard 10-day *H. azteca* and *C. dilutus* toxicity tests when interpreting the toxicity tests according to guidelines for dredged material management. Only 3 surface sediment samples from the WWTP showed any statistically significant differences in responses in the benthic macroinvertebrate sediment toxicity tests when using EPA's statistical comparison methods (-11S, -15S, and -27S) (Table 5.1). While surface sampling location -15S is collocated with sediment core sample -15C from which deeper sample contained elevated concentrations of PCBs, PAHs, and metals, the surface grab sample itself (subjected to the toxicity testing) did not contain any constituents above screening levels except for DRO and ORO (Table 6.2.2). Note also that sample -15S exhibited reduced survival of *Hyalella* relative to the control only, not the reference sample, and the growth or survival of *Chironomus* was not statistically significantly different from either control nor reference. However, very similar concentrations of DRO and ORO were measured in sample -19S, which did not result in toxicity (no statistically significant reductions in growth or survival of either benthic macroinvertebrate in sample -19S). Therefore, it is not obvious what may be causing the limited or marginal *Hyalella* toxicity to sediments from -15S, although the surface interval of the core sample from -15C also has elevated metal concentrations (discussed in point 3 below). The combined effects of various contaminants may be causing toxicity to *Hyalella* in sediment sampling location LMR21-15.

3) *Are PAH and/or metal contaminants elevated enough in the WWTP area to contribute to the benthic BUI and therefore warrant remediation?*
Only 3 surface sediment samples from the WWTP showed any statistically significant differences in responses in the benthic macroinvertebrate sediment toxicity tests when using EPA's statistical comparison methods (-11S, -15S, and -27S), but these 3 samples exhibited low levels of PAHs (tPAH17 of 3.3, 7.3, and 2.2 mg/kg, respectively) (Table 5.1 and 6.2.2). In surface sediments (those to which

benthic macroinvertebrates are currently exposed), the only locations with PAHs above the PEC are found in samples LMR21-18C (0-1') and LMR21-20C (0-1') in WWTP area A3 (45 and 53 mg/kg tPAH17, respectively). Toxicity testing was not performed at these locations, but the levels of total PAHs in these samples are similar to samples LMR21-45S and -53S, which were subjected to toxicity testing and exhibited some reductions in growth (*Hyalella*), or survival and growth (*Chironomus*) for the two benthic macroinvertebrate species tested (see further discussion in Section 6.2, question 3, and Tables 5.1 and 6.2.2). Toxicity testing was performed on other sediment samples in WWTP Area A3 (at -17S and -19S). These locations had much lower concentrations of tPAH17 (13.5 and 8 mg/kg, respectively) and did not exhibit any toxicity (Table 5.1). The surface concentration of tPAH17 in -18C (53.1 mg/kg) is very similar to the maximum concentration of total PAHs measured anywhere in the 2021 sediment samples collected from the WWTP (53.7 mg/kg tPAH17 from LMR21-15C(4-7')). As this concentration appears to be only somewhat toxic to one (not both) macroinvertebrates tested (based on comparison of chemistry and toxicity test results to LMR21-45S and -53S), and only causing approximately a 20% reduction in survival relative to the reference sample (but only 16% reduction relative to control), there is some uncertainty linking the limited elevated PAH concentrations at the WWTP to benthic impairment.

Samples were evaluated for 23 metals, eight of which had exceedances of screening levels in 1 or more samples (arsenic, cadmium, chromium, copper, mercury, nickel, lead, and zinc), mainly in core samples. The location of maximum metal concentrations (subsurface sediment samples from LMR21-15Cin WWTP area A1) coincides with the location with the greatest concentration of PCBs and PAHs. A more detailed summary of all metal PEC exceedances in core samples is provided in Section 4.2.3, noting that when metal concentrations exceeded the PEC in a given WWTP area, the maximum concentrations of these metals in the WWTP were found in subsurface sediment samples (deeper than 1') (Table 6.1).

Concentrations of all metals in surface grab samples were lower than their corresponding PECs. However, some of the samples from the cores had metal concentrations above the PEC in the surficial (0-1') interval. This includes cadmium, chromium, lead, nickel, and zinc above their PECs in the top 1' sample from LMR21-15C, and -17C. Additionally, location LMR21-16C(0-1') had lead above the PEC, and LMR21-18C(0-1') had cadmium above the PEC.

As noted above, the surface grab sediments from location -15S exhibited some toxicity, but not any metals above the PEC. Because of the discrepancy in metal concentrations from LMR21-15C(0-1') vs. -15S (with metals above the PEC in the surface core interval only, not surface grab sample subjected to toxicity), it is difficult to say with certainty that heavy metal contamination alone at location LMR-15 is causing toxicity to benthic macroinvertebrates. But, as noted above, other contaminants (including DRO and ORO are above PECs, and tPCB just below the PEC) are co-located in the surface in sample LMR21-15S.

4) *Are biological criteria in attainment around the WWTP?*
Whether or not biological criteria are in attainment around the WWTP cannot be addressed with the results of this study. Additional lines of evidence are needed to address this question (see Section 7).

5) *Are sediments further away from the WWTP, including those on the far side (southeast) of the navigation channel contaminated enough, to warrant being remediated?*
No. Sediments on the far side of the navigation channel from the WWTP in WWTP area C2 did not exhibit acute toxicity to benthic macroinvertebrates when using dredged material management guidelines for interpreting toxicity tests (Table 5.1). Surface sample -27S exhibited statistically significant reduction in *Chironomus* survival relate to the reference only (not relative to the control), with no impacts to the other organism tested (*Hyalella*) (Table 6.2.2). No constituents are above screening levels in -27S except for ORO, indicating that legacy contaminants may not be present at toxic levels in this location. There are three locations of individual constituents just above sediment screening levels in the near surface

interval (1-4'), but there does not appear to be widespread surficial contamination warranting remediation in this area of the river). Aside from the ORO in sample -27S, no other constituents are elevated above sediment screening levels from surface sediment sample locations in this area (Table 6.1).

6) *Do multiple lines of evidence indicate impacts from contaminated sediment that warrant remediation?*
Whether or not multiple lines of evidence indicate impacts from contaminated sediment that warrant remediation will be addressed when the additional lines of evidence become available (see Section 7).

6.2. Summary of findings for the sway bridge

1) *Are the PAHs in all areas associated with the sway bridge contamination bioavailable and toxic to benthic macroinvertebrates?*
The concentrations of total PAHs in samples LMR21-47S and -49S, with 1,674 and 1,354 mg/kg tPAH 34 (1,522 and 1,177 mg/kg tPAH17) were acutely toxic, not only to the benthic macroinvertebrates included in the whole sediment benthic toxicity tests (*H. azteca* and *C. dilutus*), but also to the worms (*L. variegatus*) exposed as part of the bioaccumulation experiments (Tables 5.1, 6.2.1, and 6.2.2). The next two highest concentrations of total PAHs (after LMR21-47S and -49S) were found in LMR21-45S (in area A1) and -53S (area A3), with 99.7 and 55.2 mg/kg tPAH34 (52.2 and 41.3 mg/kg tPAH17), respectively (Table 4.2.4a). Some reduction in survival or growth to one (but not all) of the organisms tested was exhibited in each of these 2 samples. As shown in Table 5.1, exposure to sediment from sample location LMR21-53S resulted in statistically significant reduced survival of *C. dilutus* compared to both the reference and control sample, as well as statistically significant growth reduction of *C. dilutus* compared to the control (not relative to the reference sample). However, this sample did not result in reduced survival of *H. azteca*. Exposure to sediment from sample location LMR21-45S resulted in statistically significantly reduced growth of *C. dilutus* relative to the control only (not relative to the reference sample). Survival was not reduced in either organism (neither *H. azteca* nor *C. dilutus*) exposed to sediment from LMR21-45S.

Several other locations in the sway bridge (including sample locations from areas A1, A2, A3, B2, C, and D) exhibited statistically significant reduction in survival and/or growth to one (but not both) of the benthic macroinvertebrates subjected to toxicity testing (Table 5.1). However, exceedances of the tPAH17 PEC were only observed in the 4 surface sediment samples discussed in the paragraph above.

Outside of sway bridge areas A1 – A3, samples LMR21-30S (in sway bridge area C) and LMR21-59S (in sway bridge area B1) exhibited toxicity to *C. dilutus* (when using dredged material management guidance to interpret the toxicity tests). An examination of sediment sampling results did not reveal any contamination which may be responsible for the observed toxicity in these locations (Table 6.2.2). It is not obvious what is causing toxicity in these two locations, although the presence of "organic material" was observed in sample LMR21-30S.

2) *What levels of PAHs and total petroleum hydrocarbons (TPH) pose a risk to benthic macroinvertebrates, and what level of PAHs and TPH may be left behind/in place and not contribute to the benthic BUI?*
Samples LMR21-47S and -49S, in sway bridge area A1 had much higher levels of tPAH than other sway bridge locations, with 1,674 and 1,354 mg/kg tPAH34 (1,522 and 1,177 mg/kg tPAH17) respectively. The concentrations of total PAHs in LMR21-47S and -49S exceeded the PEC (22.8 mg/kg) by a factor of 73 and 59, respectively. The next two highest concentrations of total PAHs were found in LMR21-45S

and -53S, with 99.7 and 55.2 mg/kg tPAH34 (52.2 and 41.3 mg/kg tPAH17), respectively (Table 4.2.4a). The varying reduction in survival and growth of test organisms exposed to these 4 sediment samples is discussed above. Additional dose-response modeling (linear regression modeling) will be performed in the Focused Feasibility Study to determine if there is a relationship between sediment contaminants (namely concentrations of PAHs, DRO, ORO, or oil and grease), and benthic macroinvertebrate survival and growth (benthic toxicity test results).

Overall, in addition to exceedances of PECs, "hot spots" of PAH and TPH-DRO/-ORO contamination are both found in sway bridge area A1; the greatest concentrations of TPH-DRO and -ORO (at LMR21-47S and LMR21-49C 1-4') are co-located with PAH concentrations that demonstrated toxicity in the benthic macroinvertebrate and bioaccumulation studies. Concentrations of TPH-DRO and -ORO exceeded the screening criterion (the EPA Region IV ESV of 340 mg/kg) at three surface sediment sampling locations: LMR21-45S, -47S, and -49S (sway bridge area A1). Concentrations of TPH-DRO and TPH-ORO exceeded the ESV in thirteen and sixteen discrete sediment core intervals, respectively. The maximum concentration of TPH-DRO was 8,070 mg/kg (at LMR21-47S) for the surface grab samples and 4,040 mg/kg (at LMR21-49C 1-4') for the sediment core samples, resulting in exceedances of the ESV by a factor of 24 and 12, respectively. Similarly, the maximum concentrations of TPH-ORO were detected at the same locations for both the surface grab samples (5,560 mg/kg) and sediment core samples (2,890 mg/kg).

A related question about the nature of the PAHs which may pose a risk to benthic organisms, is
What is the extent of PAH contamination impacting the benthic BUI in the sway bridge area?
The main contiguous "hot spot" of surface PAH contamination, corresponding to the most highly toxic surface sediments in the sway bridge area extends from approximately LMR21-45 to LMR21-49, in sway bridge area A1 (Figures 4.SS.9 and 4.SC.9). This also corresponds to a mounded area of sediment (with corresponding lower water levels) directly on either side of the sway bridge, as seen in Figure 8.SC.9. Surface sediment sampling locations immediately surrounding (bounding) this main contaminated area were "clean" with respect to PAHs, e.g., they did not exhibit PAHs above the PEC. There were other locations just outside of sway bridge area A1 (e.g., just upstream in sway bridge area A3) containing elevated PAHs in the surface (41 or 55.2 mg/kg tPAH17 or tPAH34, respectively, in LMR21-53S). There were also subsurface concentrations of PAHs (in the 1 – 4' and also deeper sample intervals) above the PEC in locations LMR21-51C, -52C, and -54C, all in sway bridge area A3 (Tables 4.2.4a, c and 6.2.1). A limited area of surface PAH contamination above the PEC is also found at sway bridge area B2 sample location LMR21-38C (139 mg/kg tPAH17). Sediment from this sampling location was not subjected to toxicity testing. Note that this surface sample from location LMR21-38C also had elevated DRO, GRO, ORO, and oil and grease (Table 4.2.2b). LMR21-38 is located adjacent to an industrialized area of the riverbank.

3) *Are biological criteria in attainment in the sway bridge area?*
Whether or not biological criteria are in attainment around the WWTP cannot be addressed with the results of this study. Additional lines of evidence are needed to address this question (see Section 7).

4) *Are sediments previously at depth but newly exposed after dredging the adjacent section of the federal navigation channel (for the first time in over 25 years) contaminated from the same historical contamination source present at the sway bridge hot spot?*
Table 6.2.1 summarizes the results from sampling within each sub-area of the sway bridge area; area D contains samples purportedly from within the federal navigation channel. The greatest concentration of

tPAH from sway bridge area D is found in surface sample LMR21-68S, with a tPAH34 concentration of 27 mg/kg, and tPAH17 concentration of 18.7 mg/kg (Table 4.2.4a). Since the PEC for total PAHs considered only 13 PAHs (MacDonald et al 2000), the tPAH17 value (18.7 mg/kg, rather than the tPAH34 result) is most appropriately compared to the PEC. Relatively little sediment was found in the sampling locations from sway bridge area D, with an average of 2.5 feet of sediments sampled from the 6 locations (Table 3.0.2). None of the deeper samples (down to a maximum depth of 3.5' of sediment) contained any PAHs above the screening level (Table 4.2.4c). No other contaminants (neither metals nor PCBs) were elevated above their respective sediment screening level from any sample in sway bridge area D (Table 6.2.1).

5) *Do PCB and/or metal contaminants found outside the main hot spot contribute to BUIs and also warrant remediation?*
There is a single location with PCBs greater than 1 mg/kg (LMR21-50C with 1.58 mg/kg tPCB Aroclors at the 1-4' depth). However, the SWAC and subsurface average PCB concentrations in the vicinity of LMR21-50C (sway bridge area A1) is 0.144 mg/kg tPCB Aroclors (0.077 mg/kg tPCB congeners) and 0.236 mg/kg tPCB Aroclors, respectively. These concentrations are close to the long-term sediment goals for tPCB Aroclors established for the Ottawa River GLLA sediment management action (0.22 mg/kg tPCB Aroclors). The SWAC and subsurface average concentrations of total PCBs within the other areas of the sway bridge are also all similar to, or lower than, that Ottawa River long-term sediment goal for total PCBs (Table 6.2.1).

Similarly for metals, there are individual locations with concentrations of some metals above the PECs. None of the SWACs or subsurface average concentrations in any of the sway bridge areas exceed sediment screening levels for metals.

6) *Are sediments on the far side (northwest) of the navigation channel contaminated enough to warrant being remediated?*
No. In sway bridge area C, no PCBs were detected above the PEC. Five of 6 of the locations sampled in sway bridge area C did not contain any total PAHs above sediment screening levels. One location, LMR21-34C, has exceedances of individual PAH or tPAH17 PEC in subsurface samples (1-4' and 4-7'), but not at the surface. The only metal exceedance in one of these five samples was in sample LMR21-33C(1-5'), with a nickel concentration of 111 mg/kg (over twice the nickel PEC) (Table 4.2.4c and Figure 4.SC.7). Otherwise, the sixth sampling location, LMR21-34C contains concentrations of metals (arsenic, lead, and zinc) exceeding their respective PECs in subsurface sediments (1-4' and 4-7' samples) but not at the surface.

7) *Do multiple lines of evidence indicate impacts from contaminated sediment that warrant remediation?*
Whether or not multiple lines of evidence indicate impacts from contaminated sediment that warrant remediation will be addressed when the additional lines of evidence become available (see Section 7).

6.3. Summary of findings for disposal decisions

The last question to be addressed by this characterization effort is an issue which would need to be addressed if a sediment removal action were to be designed.

If there is adequate volume in existing Toledo Harbor area CDFs to safely contain any sediments removed in a remedial action, would additional management measures be needed for safe disposal of contaminated

sediments?
The results of the TCLP analysis will be used in the FS to support a hazardous waste determination for disposal purposes. An initial review of the TCLP analysis does not appear to preclude use of a CDF for disposal of any contaminated sediments which may be removed, but this will be further assessed in the FS.

The elutriate testing was performed to begin addressing the question of need for additional management measures for CDF disposal. SETs were conducted to predict the release of dissolved contaminants to the water column that would result from discharge of the dredged sediment. If the sediments were to be disposed of in a CDF, any discharge water would need to meet water quality criteria. In addition to the chemical testing of the elutriate, bioassays were performed to test for the contaminated-related effects of the dredged material placement on water column organisms. Along with the attributes of the disposal facility, the results of the elutriate testing would be used in order to understand the need for controls at the CDF, requirements for the placement operations, and/or a mixing zone to satisfy water quality criteria for the discharge from the facility. A site-specific evaluation of these issues would be performed once a disposal facility has been identified.

In Tables 4.4.3 through 4.4.5, the concentrations of constituents measured in the elutriate are compared to water quality criteria. By the nature of the test, sediment elutriate concentrations are expected to exceed most water column values. Although the chronic, OMZA water quality criteria are identified in Tables 4.4.3 – 4.4.5, USACE typically applies only the acute, outside mixing zone maximum (OMZM) water quality criteria to the effluent discharges from CDF overflow weirs. This is because operationally the discharge episodes (which transpire in the later stages of filling) occur discontinuously and tend to occur over periods of ten days or less (due to dredging cycles, downtime, decanting with weir boards, etc.) and aquatic organism exposure is naturally transient. In other words, the spatially fixed effluent discharges are inherently episodic and pelagic aquatic organisms in the field move about. The two standard acute water column tests applied to the elutriates also address the potential toxicity (combined biological effects) of any other contaminants for which there may be no applicable WQC; these are described in Section 5.3 and summarized in Table 5.3. A comparison of elutriate concentrations to OMZM water quality criteria was performed for the 8 elutriate samples for which toxicity was observed. In Table 6.3, the composite sediment analytical results are provided alongside the elutriate results in order to support the interpretation of the elutriate analysis. Elutriates from six of the eight samples (LMR21-SBC, -WA1, -WA2, -WA3, -WB1, -WC2) contain ammonia above the ammonia OMZM concentration of 12.6 mg/L[3], ranging from an ammonia concentration of 13.9 mg/L in LMR21-SBC to an ammonia concentration of 30.1 mg/L in LMR21-WA1 (WWTP area A1). The ammonia concentration of the corresponding bulk sediment composite samples follows a similar pattern, with the highest sediment ammonia concentration (632 mg/kg) in LMR21-WA1. As indicated in Table 6.3, ammonia concentrations measured in the elutriate during the toxicity testing were greater than toxicity reference values for ammonia for the aquatic test species, indicating that ammonia likely contributed to the toxicity exhibited in the tests. A TRE was performed for LMR21-C2, and this provided strong evidence for ammonia dominated toxicity. Unfortunately, TRE for ammonia could not be performed for the other samples, because of inadequate sediment sample volume to perform these additional tests (see Section 3.5.3). It would be important to differentiate between toxic effects from ammonia versus due to the presence of chemical contaminants, as ammonia is labile and is not expected to build up to toxic concentrations during placement operations. As

[3] The water quality criterion for ammonia is dependent on water temperature and pH. Air temperature at the time of Maumee River sampling in August was approximately 24° Celsius. The water pH was measured in November (EA 2022) and was approximately 7.8. The OMZA value from OAC Table 35-5 (warm water habitat values) for that (air) temperature and pH is 1.4 mg/L. The OMZM from OAC Table 35-2 at that (air) temperature and pH is 12.6 mg/L. If the temperature of the water at later time of sampling of 9.5° Celsius is used, the OMZA ammonia criterion would be 2.0 mg/L, and the OMZM criterion would be 13 mg/L.

shown in Table 6.3, each of the elutriate samples had some exceedances of the OMZM water quality criteria for aquatic life, indicating the potential for some contaminant-associated toxicity. The chemistry analytical results and toxicity testing results will be evaluated further to assess the need for management actions during potential CDF placement as part of the feasibility study once disposal options are identified.

7. Other Lines of Evidence

Secondary data will be used in conjunction with the data collected in this effort to achieve the overall project objective, e.g., address sediment contamination which may be contributing to BUIs. Worksheet #13 of the UFP-QAPP (USACE 2021b) outlines the secondary data sources and their uses. The following data will be considered along with the data described in this report in a subsequent feasibility study in order to develop any remedial alternatives which may be appropriate.

- 2013 sediment analytical data from USEPA Great Lakes National Program Office (EA 2014)
- 2021 *in situ* porewater (passive) sampling and analyses from USEPA Office of Research and Development (ORD) (USEPA 2003)
- 2021 biological community assessments (including the Qualitative Habitat Evaluation Index) from USEPA ORD, US Fish and Wildlife Service, USACE, and Ohio EPA (Ohio EPA 2021)
- Published sediment benchmarks (e.g., consensus based probable effects concentrations) (MacDonald et al 2000, and USEPA 2002b)

Figures 1.3a and 1.3b provide the locations of biological survey and fish sampling zones in conjunction with locations from which sediment samples were collected as part of this effort.

8. Conclusions

This data gap investigation confirmed the nature and extent of sediment contamination in the sway bridge area which likely contributes to the benthic BUI. A Feasibility Study will be conducted to formulate potential sediment management actions for this area of the Lower Maumee River.

In addition, this data gap investigation provided further characterization of the nature and extent of PCB contamination at the WWTP area. The concentrations of tPCBs measured in this study are slightly lower than what they were reported in 2014, when the maximum detected surface concentration of tPCB Aroclors was 3.4 mg/kg and maximum detected subsurface tPCB Aroclor concentration reported was 12.9 mg/kg (EA 2014). Because the PCB contamination at the WWTP remains elevated and has not significantly diminished or attenuated over time, sediment management actions may be warranted at the WWTP to support BUI removal as well, although there may not be a direct cause and effect relationship between bioaccumulative sediment contaminants and the BUIs remaining for the Maumee River. Therefore a sediment remedial action to remove PCBs from subsurface sediments at the WWTP may not directly support BUI removal.

Figures 8a and 8b present historical (EA 2014) sampling locations in conjunction with locations sampled as part of this data gap investigation. Figures 8.SC.9, 8.WC.9, 8.SC.10, 8.WC.10, 8.SS.10, and 8.WS.10 present sampling results from 2013 and 2021 for total 17PAHs, total PCB Aroclors, and total PCB congeners in the sway bridge and WWTP areas. The upcoming Feasibility Study will consider both current and historical sampling results in order to formulate appropriate management actions supporting BUI removal.

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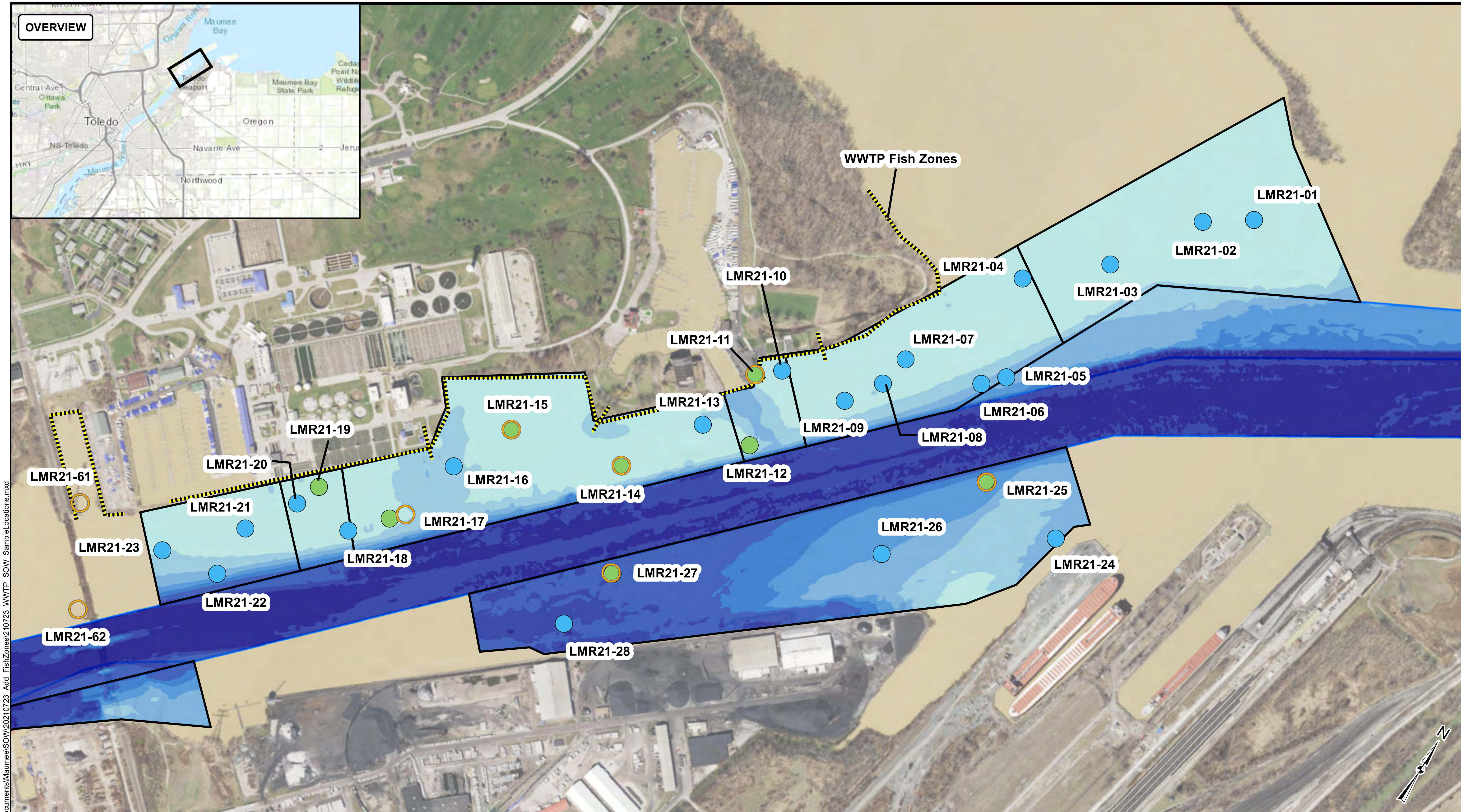
Figures



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Legend

- Biological Surveys
- Core Samples Only
- Cores, Surface Grab, & Bioassay Samples
- Fish Sampling Zones

Feet Below LWD

- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤ 34 Feet

- Statement of Work Areas
- Federal Navigation Channel

0 250 500 1,000 Feet

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PROPOSED SEDIMENT AND FISH SAMPLING LOCATIONS FOR WASTE WATER TREATMENT PLANT HOTSPOTS

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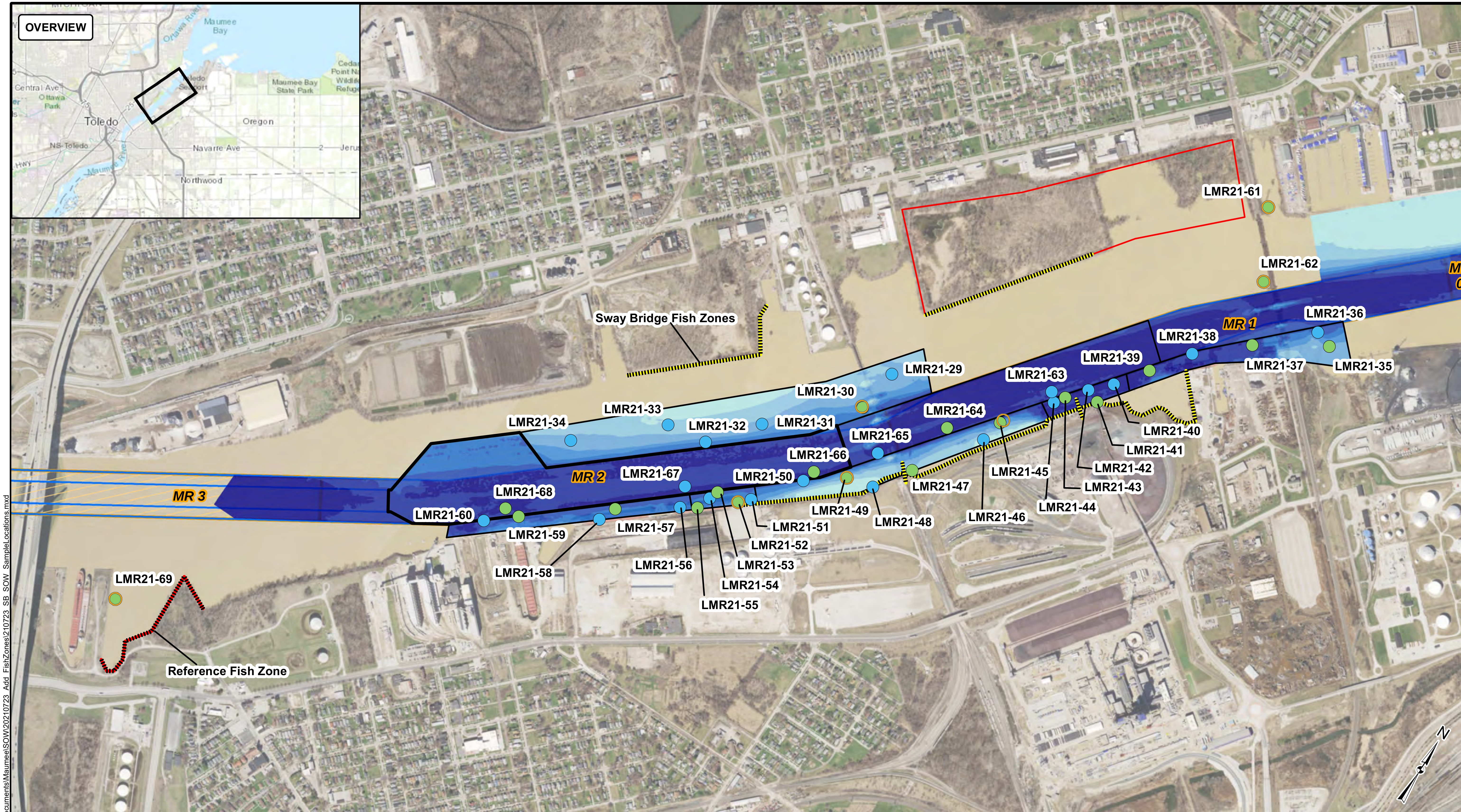
MAUMEE RIVER, OHIO

FIGURE 1.3a



Legend

- Biological Surveys
- Core Samples Only
- Cores, Surface Grab, & Bioassay Samples
- Fish Sampling Zones
- Reference Fish Sampling Zone
- Statement of Work Areas
- Federal Navigation Channel
- USACE 2020 Dredge Area
- River/Lake Mile
- Penn 7 CDF

Feet Below LWD

- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤ 34 Feet

0 250 500 1,000 Feet

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PROPOSED SEDIMENT AND FISH SAMPLE LOCATIONS FOR SWAY BRIDGE AREA HOTSPOTS

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MAUMEE RIVER, OHIO

FIGURE 1.3b

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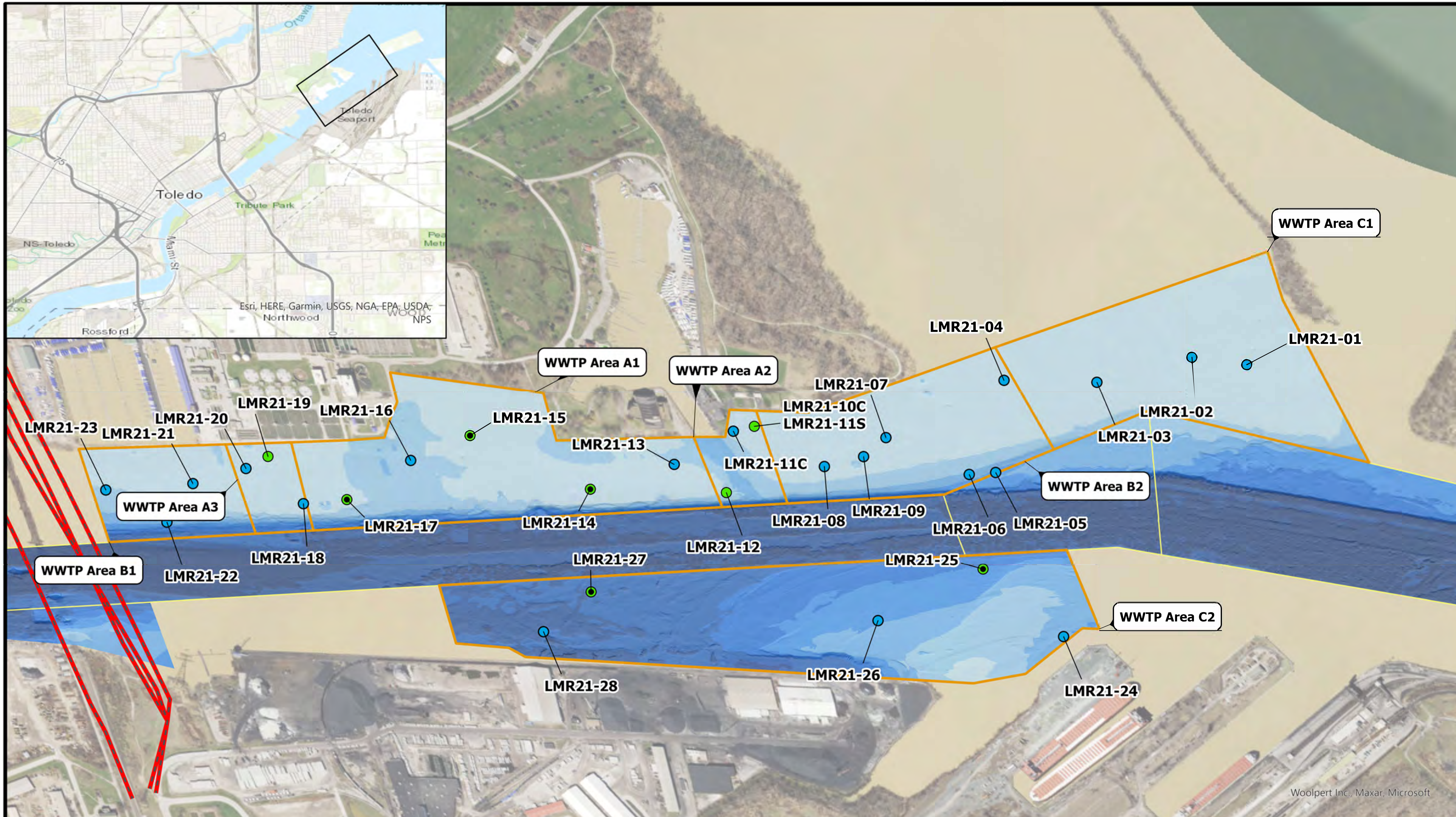

Statment of Work Areas
Federal Channel
≤ 4 Feet
≤ 8 Feet
≤ 12 Feet
≤ 16 Feet
≤ 21 Feet
≤ 25 Feet
≤ 28 Feet
≤34 Feet
Approximate Pipeline Locations
Surface Sample, Bioassay, and Core Sample
Core Samples Only
Biological Surveys

0 500 1,000 2,000 Feet

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Buffalo, New York

ACTUAL SEDIMENT SAMPLE LOCATIONS FOR
WASTE WATER TREATMENT PLANT HOTSPOTS

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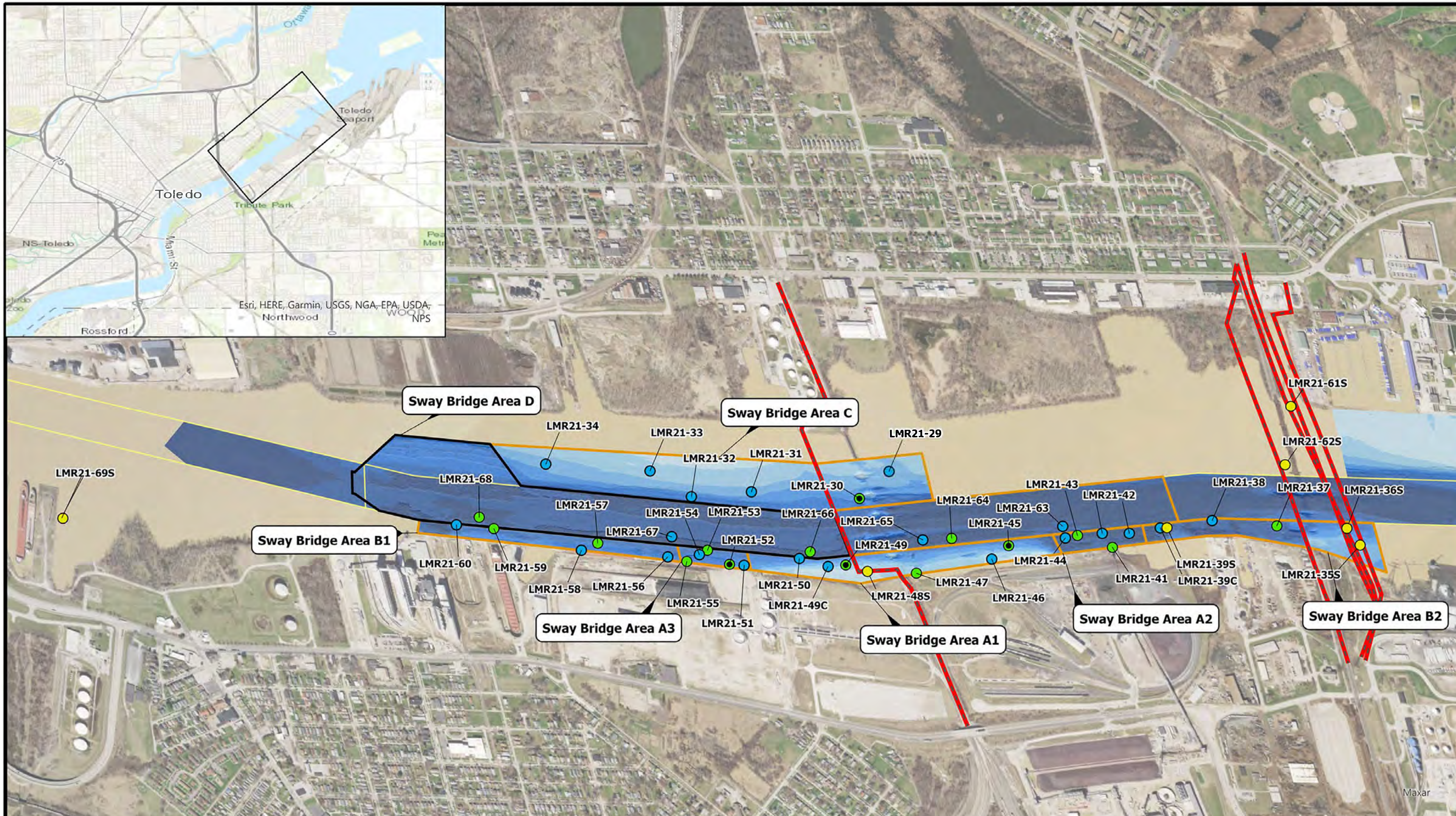
Maumee River, Ohio

Figure 3.5.1a



- Biological Surveys
- Surface Sample Only
- Core Samples Only
- Surface Sample, Bioassay, and Core Sample
- Approximate Pipeline Locations

- USACE 2020 Dredge Area
- Statment of Work Areas

Feet Below LWD

- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤34 Feet

0 375 750 1,500 Feet

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ACTUAL SEDIMENT SAMPLE LOCATIONS FOR SWAY BRIDGE AREA HOTSPOTS

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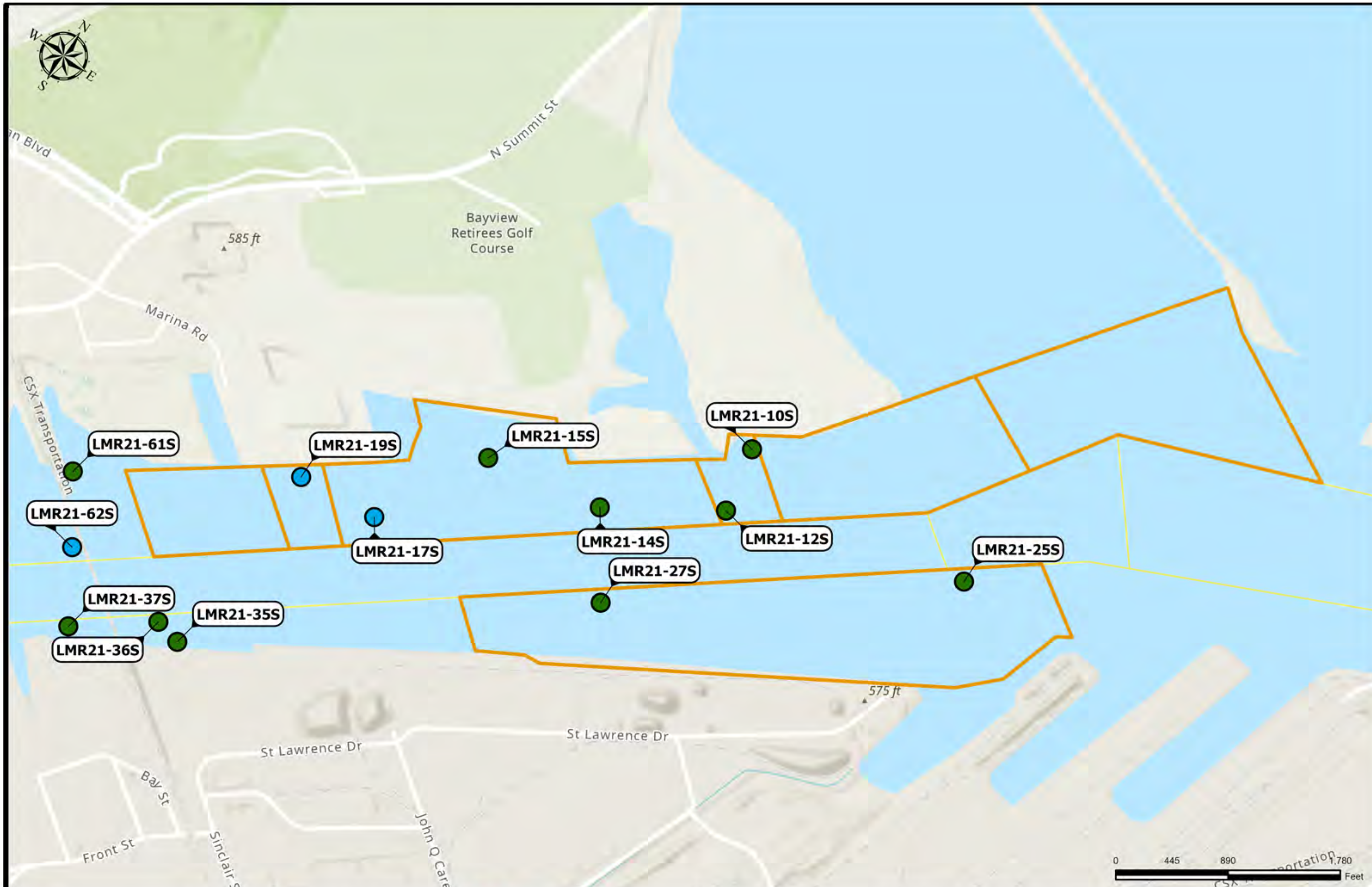
Figure 3.5.1b



Arsenic Concentrations (mg/kg)

- < 11 (SRV)
- > 11 - < 33 (PEC)
- > 33 - < 66 (2x PEC)
- > 66 - < 165 (5x PEC)
- > 165 - < 330 (10x PEC)
- > 330 (> 10X PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

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2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Arsenic

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Maumee River, Ohio

FIGURE 4.WS.1

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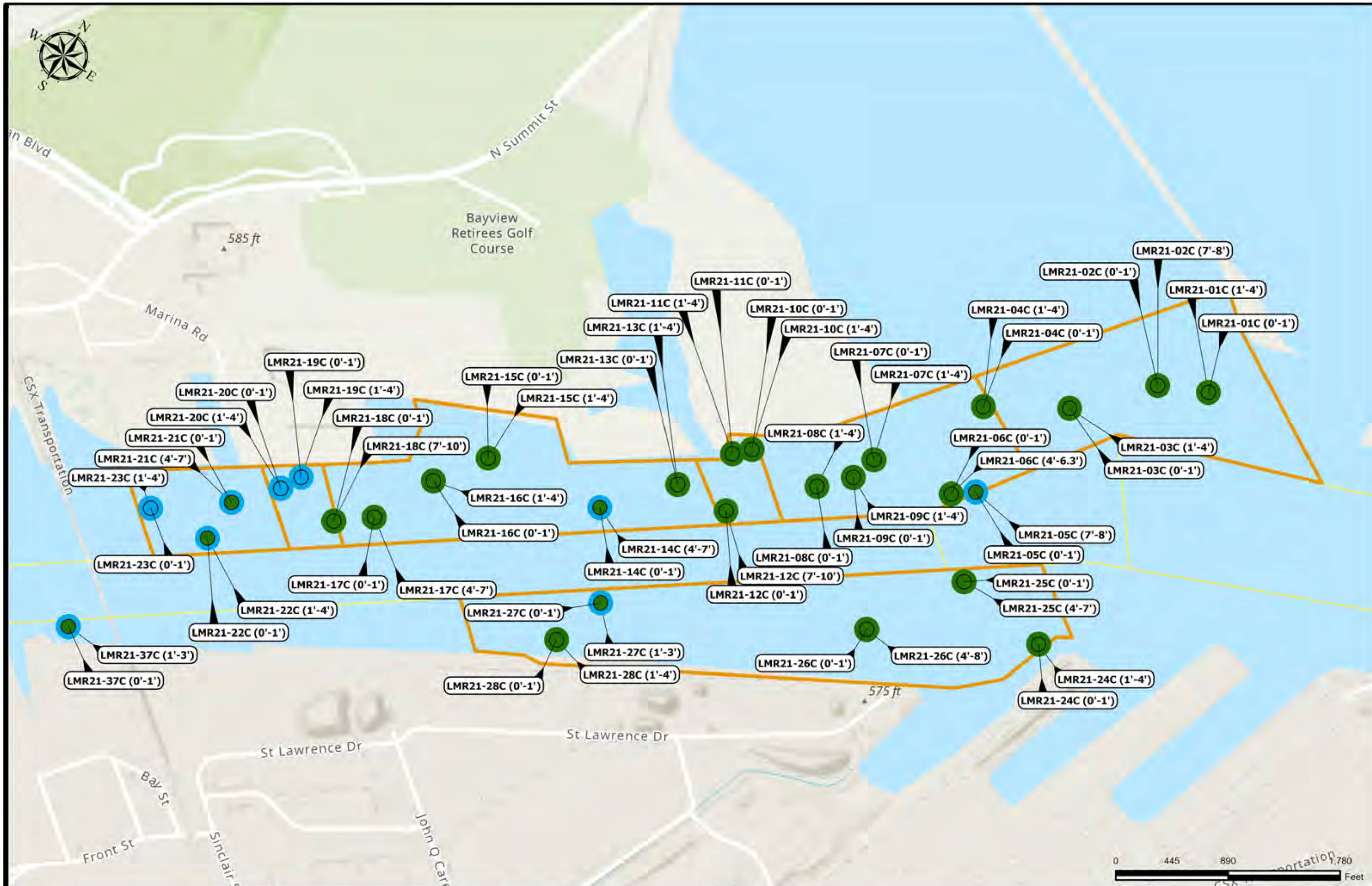

Arsenic Concentrations (mg/kg)

- < 11 (SRV)
- > 11 - < 33 (PEC)
- > 33 - < 66 (2x PEC)
- > 66 - < 165 (5x PEC)
- > 165 - < 330 (10x PEC)
- > 330 (> 10X PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

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Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Arsenic

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Maumee River, Ohio

FIGURE 4.WC.1

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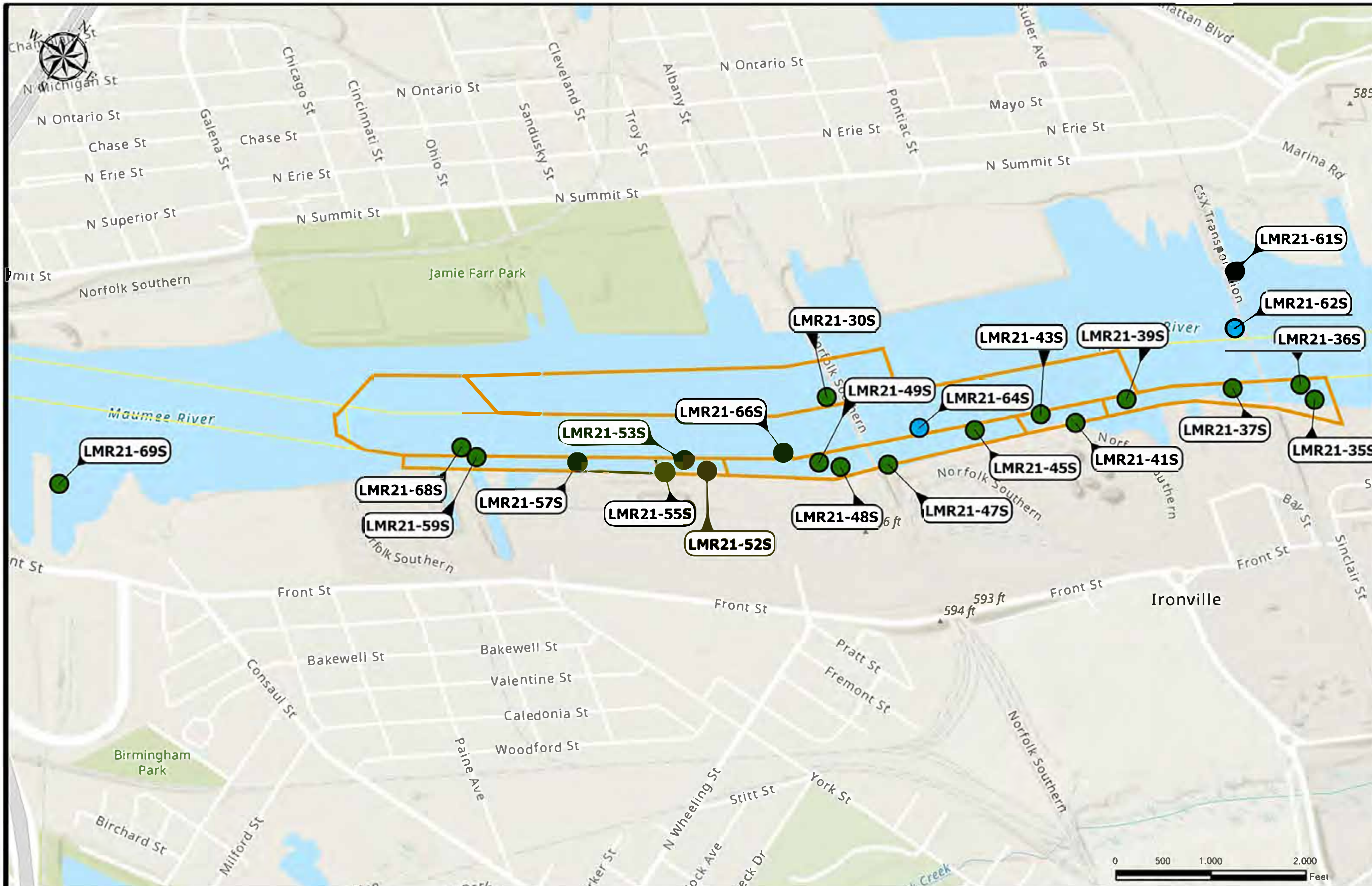

Arsenic Concentrations (mg/kg)

- < 11 (SRV)
- > 11 - < 33 (PEC)
- > 33 - < 66 (2xPEC)
- > 66 - < 165 (5x PEC)
- > 165 - < 330 (10x PEC)
- > 330 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

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Buffalo, New York

2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Arsenic

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Maumee River, Ohio

FIGURE 4.SS.1

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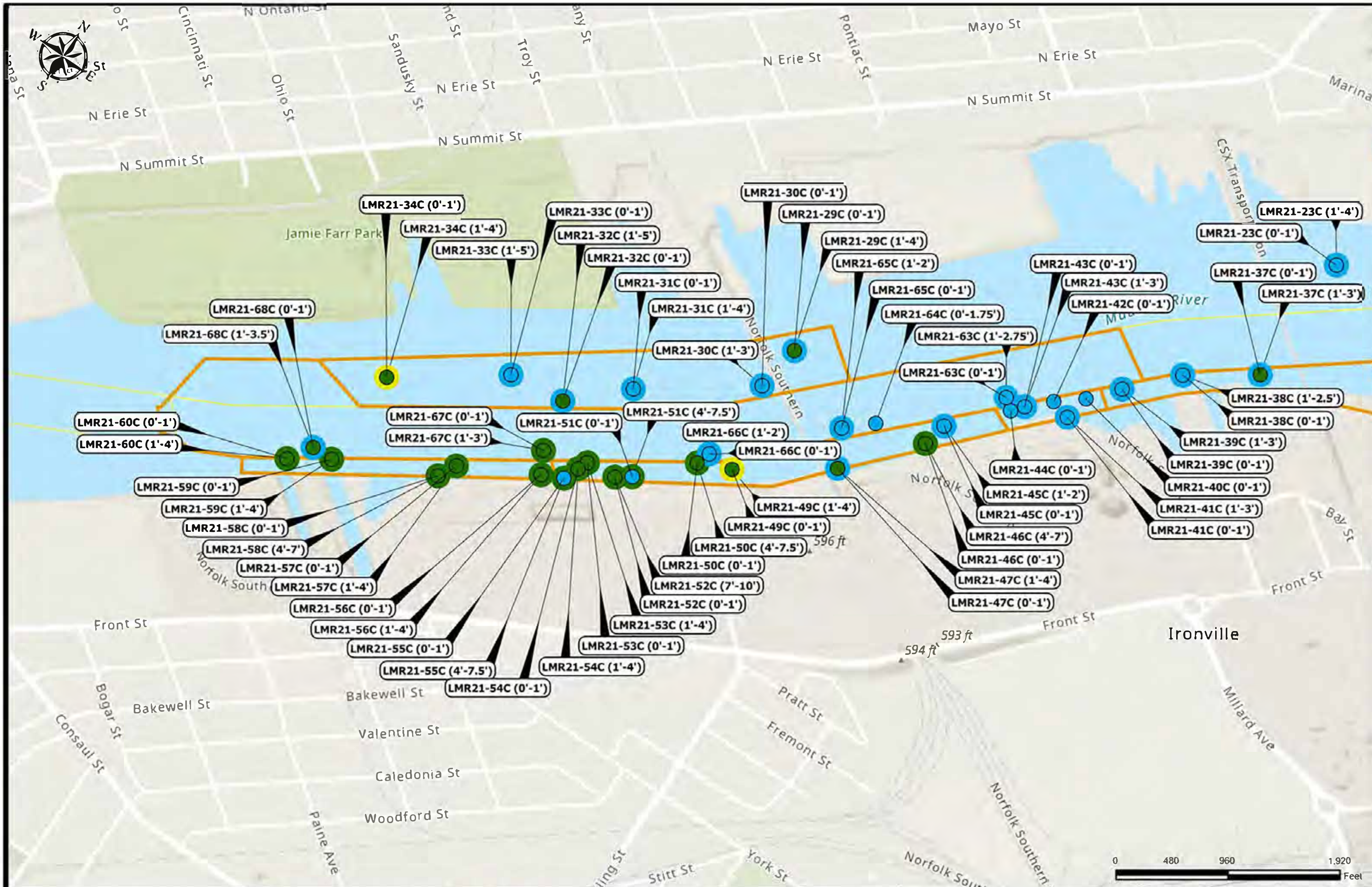

Arsenic Concentrations (mg/kg)

- < 11 (SRV)
- > 11 - < 33 (PEC)
- > 33 - < 66 (2xPEC)
- > 66 - < 165 (5x PEC)
- > 165 - < 330 (10x PEC)
- > 330 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal NaVigation Channel

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2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Arsenic

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FIGURE 4.SC.1

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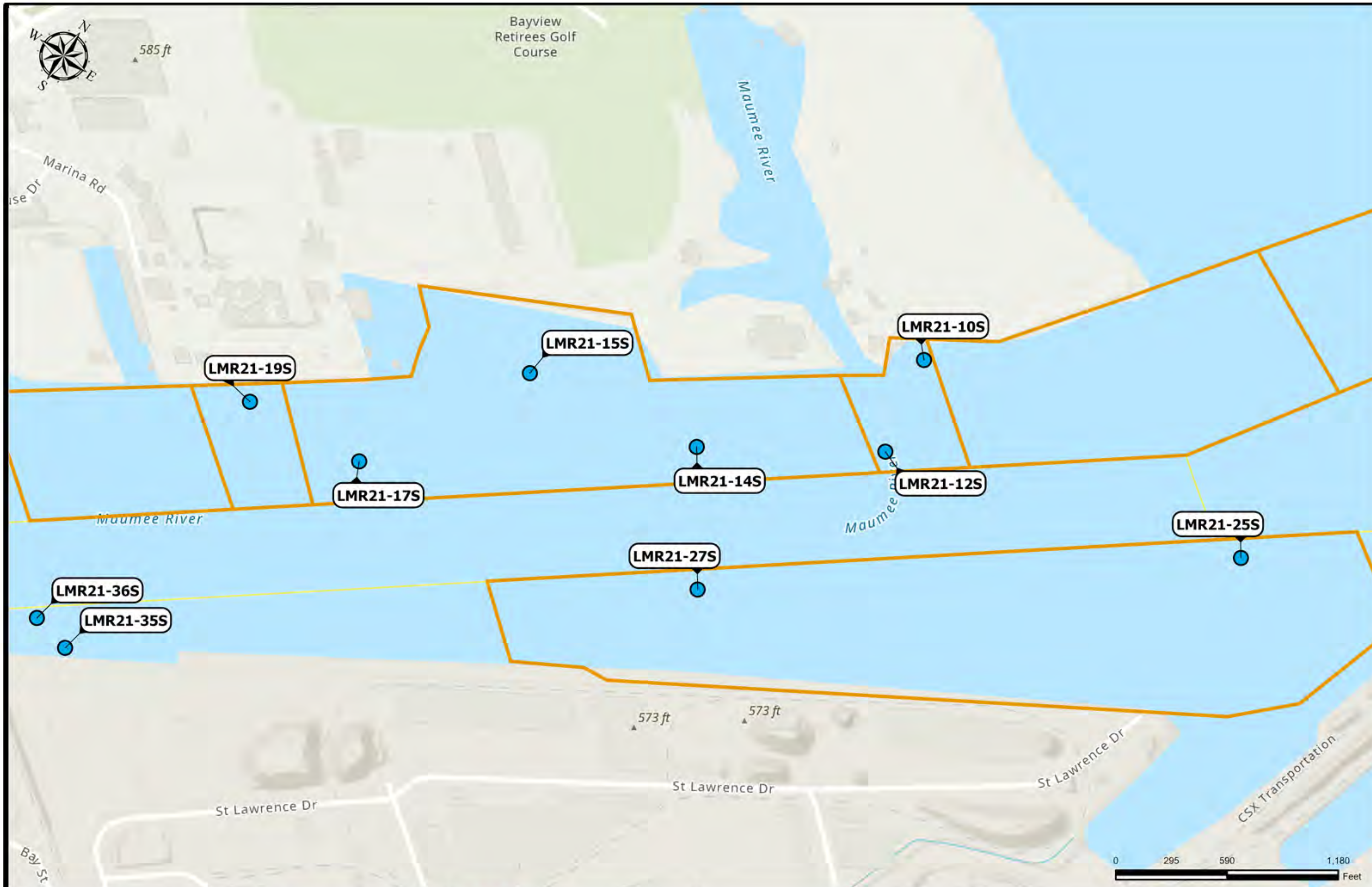

Cadmium Concentrations (mg/kg)

- Non-Detect (U)
- < 0.99 (TEC)
- > 0.99 - < 4.98 (PEC)
- > 4.98 - < 9.96 (2x PEC)
- > 9.96 - < 24.9 (5x PEC)
- > 24.9 - <49.8 (10x PEC)
- >49.8 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

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2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Cadmium

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FIGURE 4.WS.2

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Cadmium Concentrations (mg/kg)

- Non-Detect (U)
- < 0.99 (TEC)
- > 0.99 - < 4.98 (PEC)
- > 4.98 - < 9.96 (2x PEC)
- > 9.96 - < 24.9 (5x PEC)
- > 24.9 - <49.8 (10x PEC)
- >49.8 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

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2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Cadmium

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FIGURE 4.WC.2

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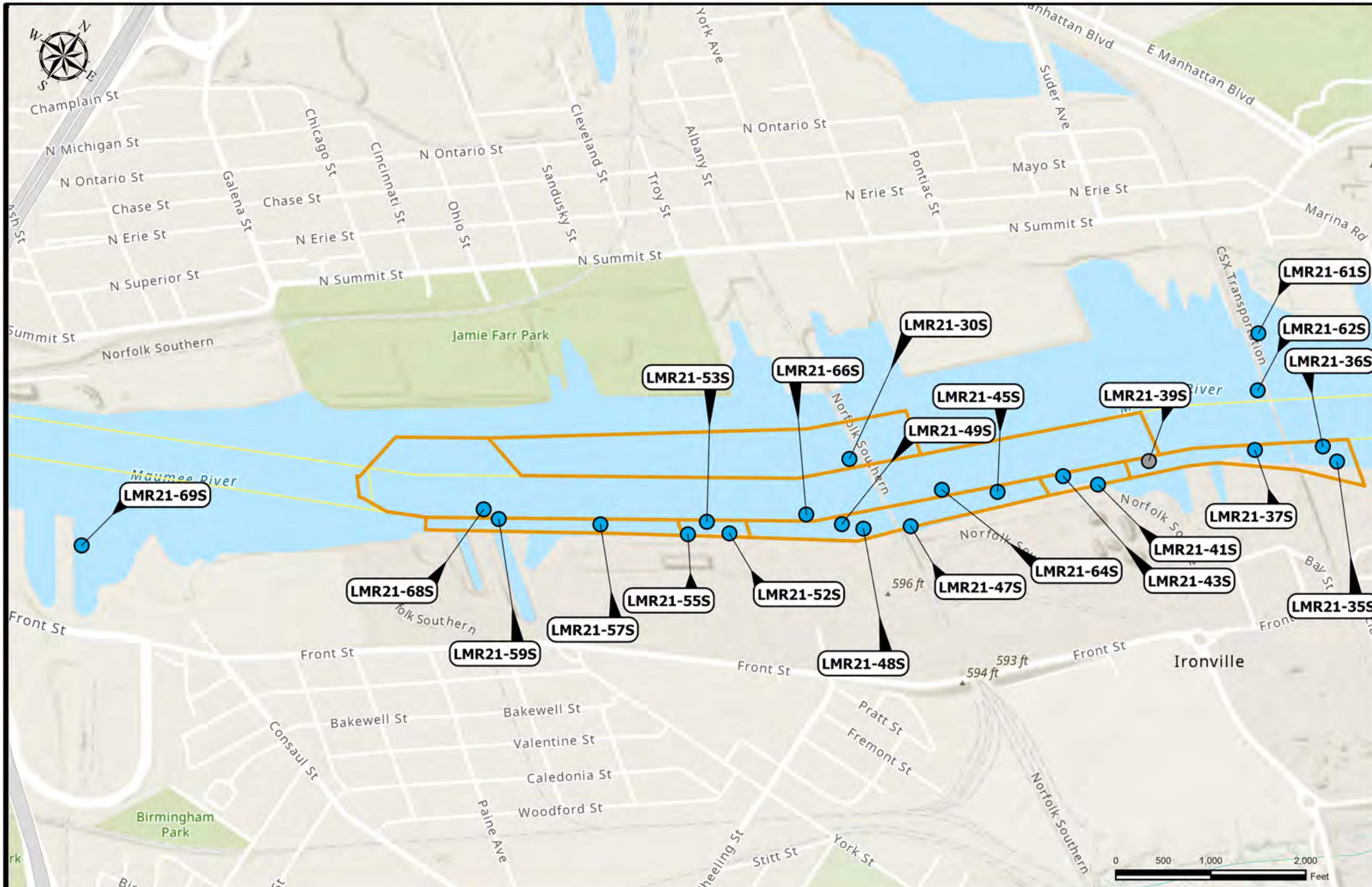

Cadmium Concentrations (mg/kg)

- Non-Detect (U)
- < 0.99 (TEC)
- > 0.99 - < 4.98 (PEC)
- > 4.98 - < 9.96 (2x PEC)
- > 9.96 - < 24.9 (5x PEC)
- > 24.9 - <49.8 (10x PEC)
- >49.8 (> 10x PEC)
- Statment of Work Areas
- Federal Channel

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2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Cadmium

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Maumee River, Ohio

FIGURE 4.SS.2

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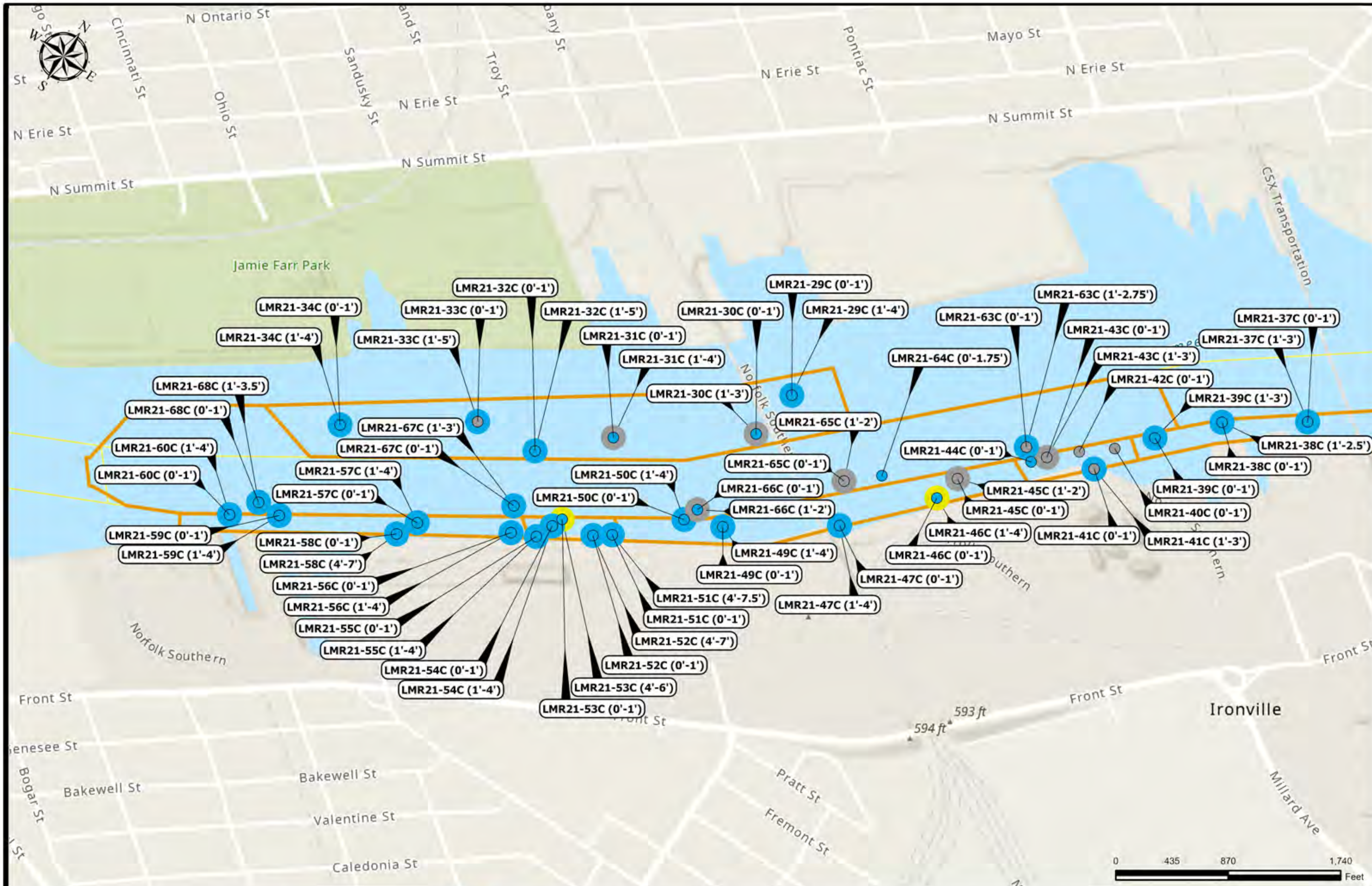

Cadmium Concentrations (mg/kg)

- Non-Detect (U)
- < 0.99 (TEC)
- > 0.99 - < 4.98 (PEC)
- > 4.98 - < 9.96 (2x PEC)
- > 9.96 - < 24.9 (5x PEC)
- > 24.9 - <49.8 (10x PEC)
- >49.8 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

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Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Cadmium

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Maumee River, Ohio

FIGURE 4.SC.2

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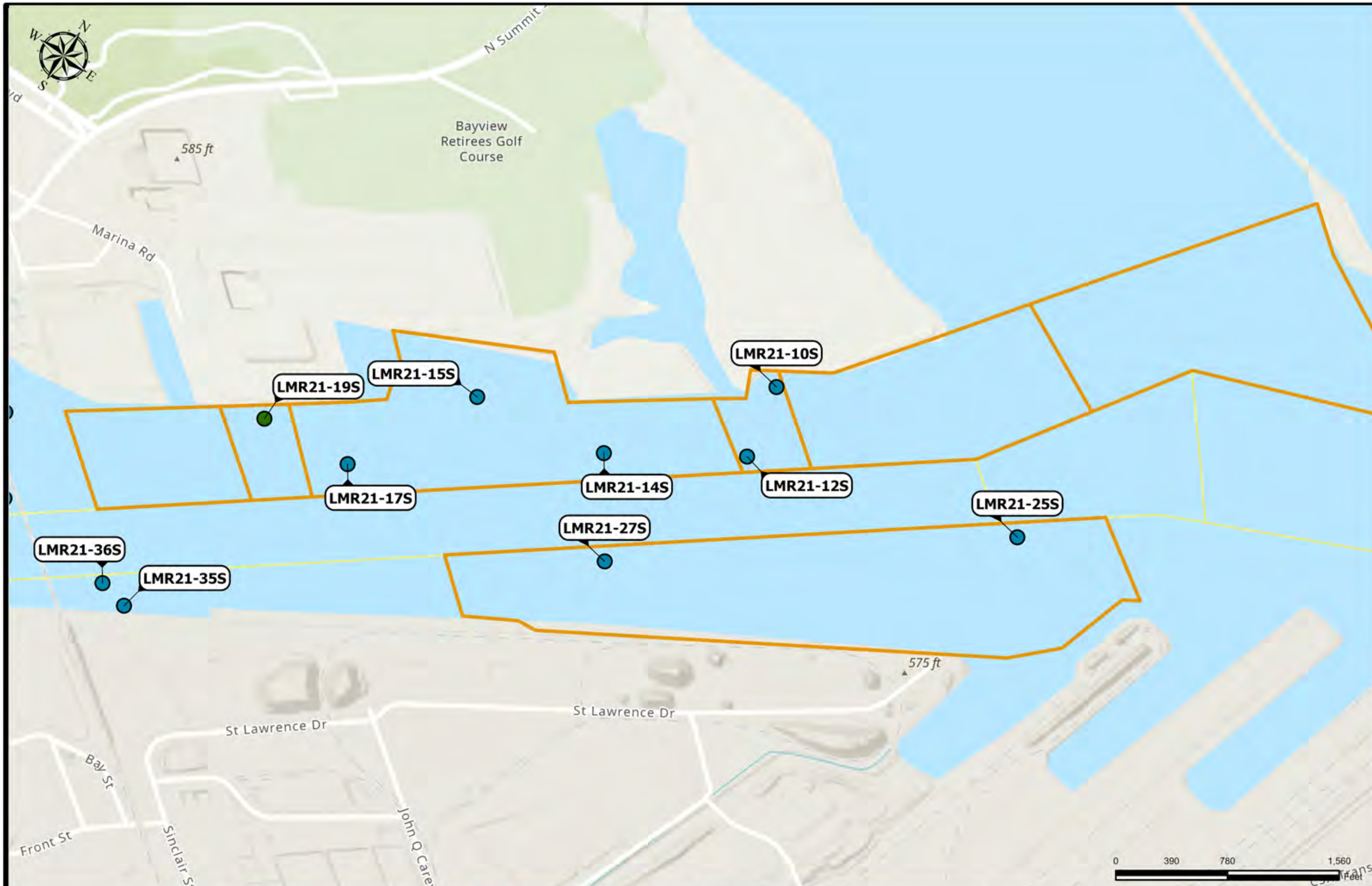

Chromium Concentrations (mg/kg)

- < 51 (SRV)
- >51 - <111 (PEC)
- >111 - <222 (2x PEC)
- >222 - <555 (5x PEC)
- >555 - <1110 (10x PEC)
- >1110 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

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2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Chromium

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FIGURE 4.WS.3

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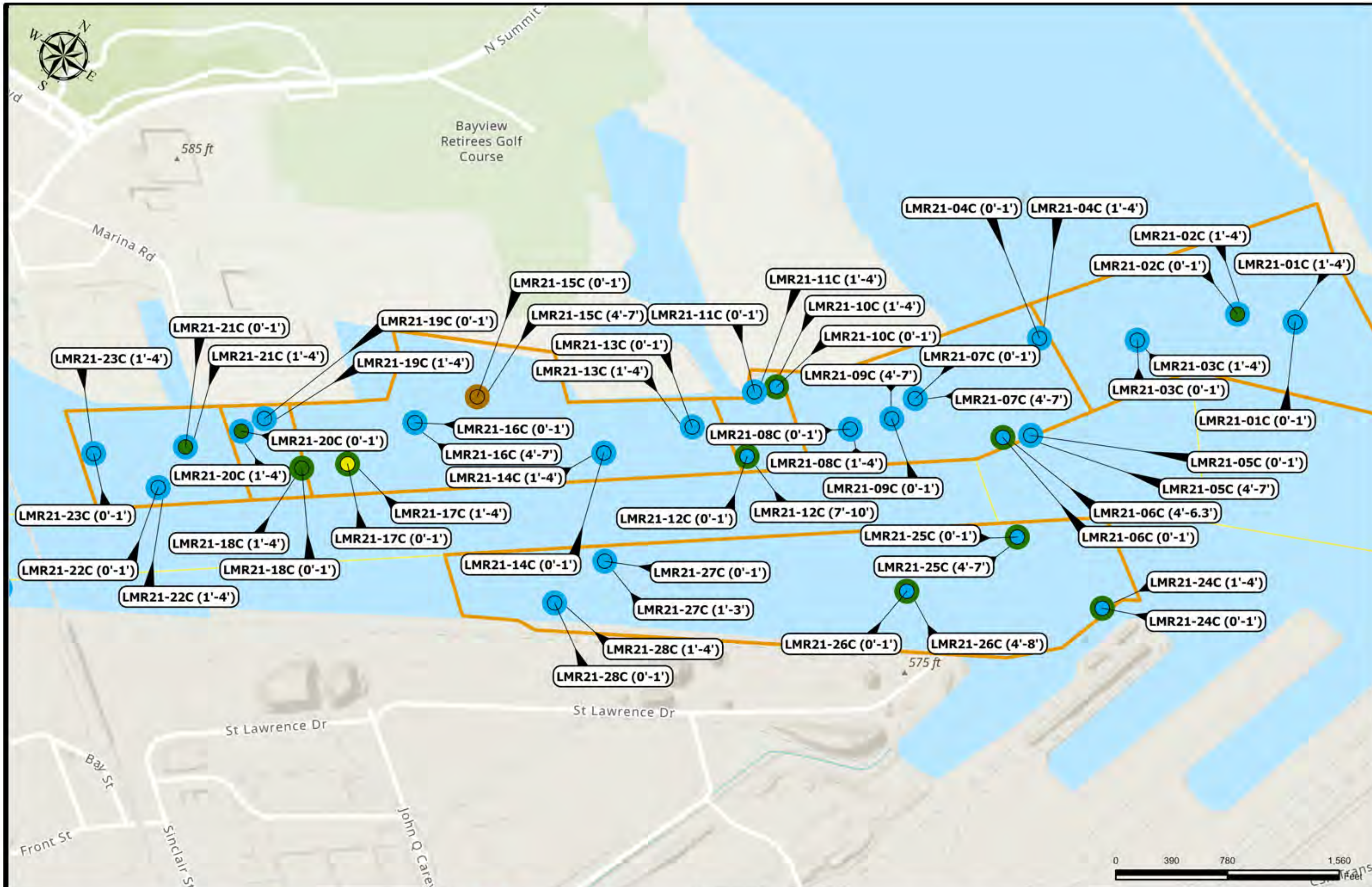

Chromium Concentrations (mg/kg)

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- >51 - <111 (PEC)
- >111 - <222 (2x PEC)
- >222 - <555 (5x PEC)
- >555 - <1110 (10x PEC)
- >1110 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

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Buffalo, New York

US Army Corps of Engineers
Buffalo District

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Chromium

Document Name: LMAOC_2021_Results.mxd
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Maumee River, Ohio

FIGURE 4.WC.3

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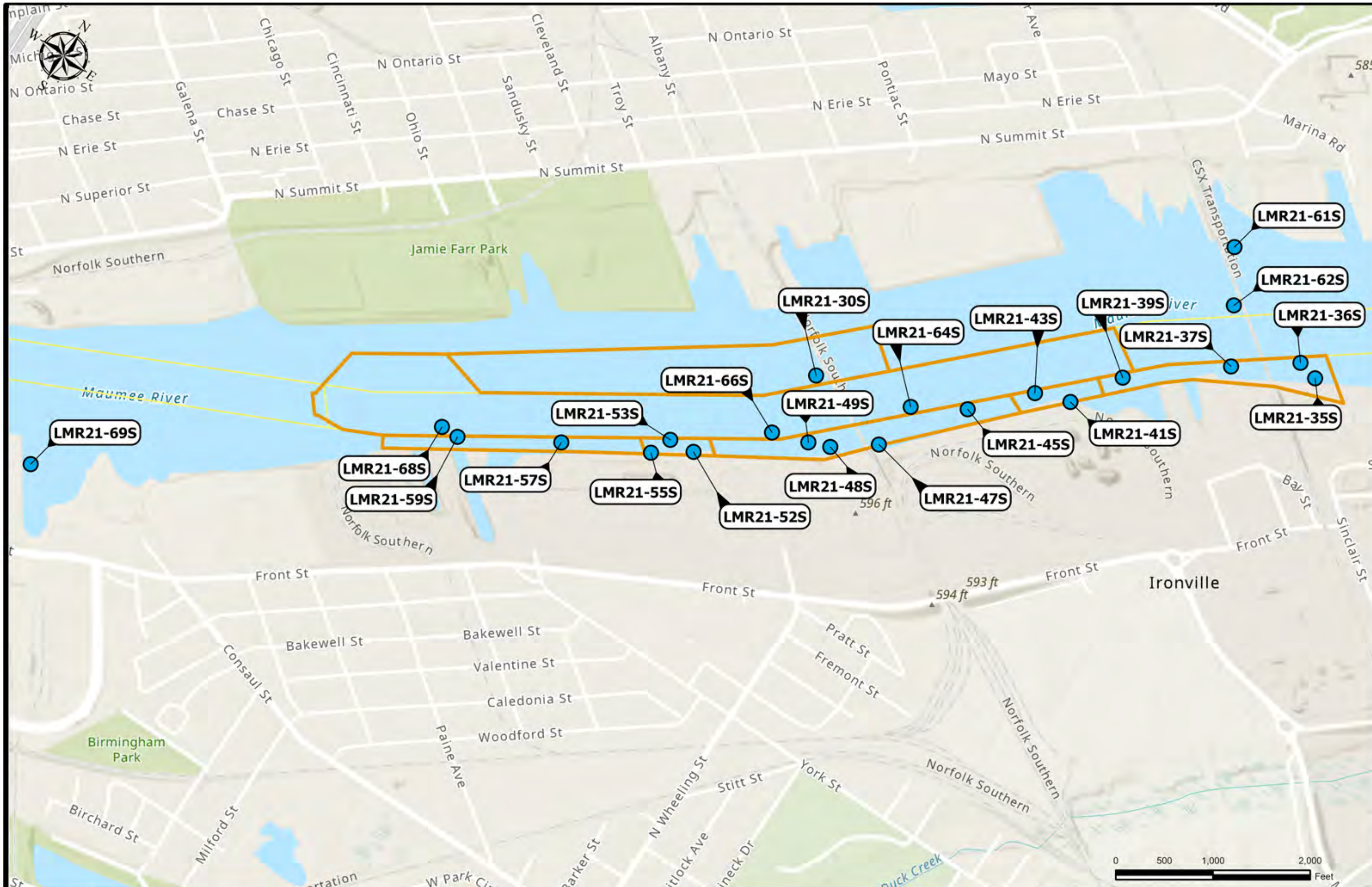

Chromium Concentrations (mg/kg)

- < 51 (SRV)
- >51 - <111 (PEC)
- >111 - <222 (2x PEC)
- >222 - <555 (5x PEC)
- >555 - <1110 (10x PEC)
- >1110 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Chromium

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Maumee River, Ohio

FIGURE 4.SS.3

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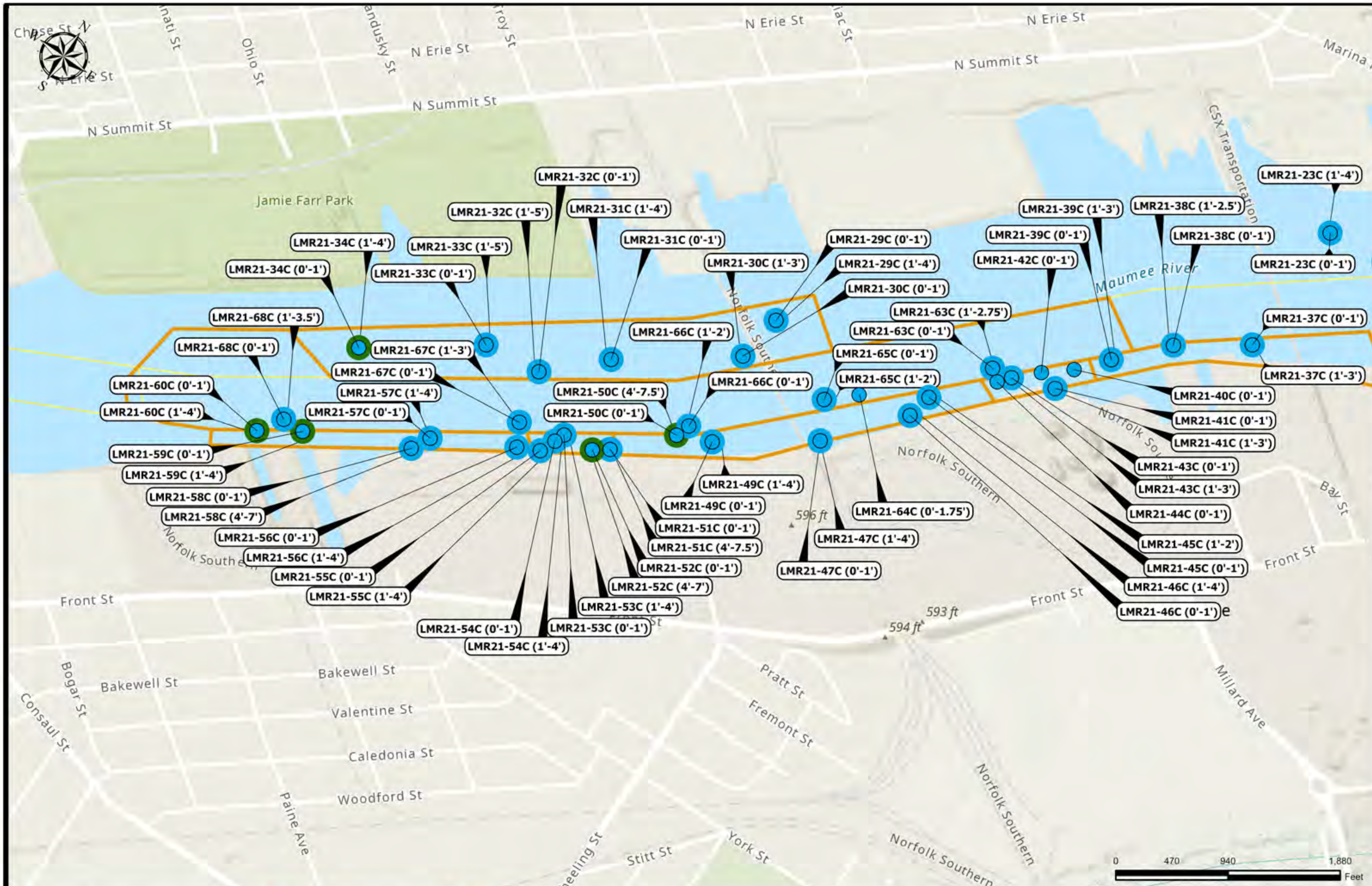

Chromium Concentrations (mg/kg)

- <51 (SRV)
- >51 - <111 (PEC)
- >111 - <222 (2x PEC)
- >222 - <555 (5x PEC)
- >555 - <1110 (10x PEC)
- >1110 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Chromium

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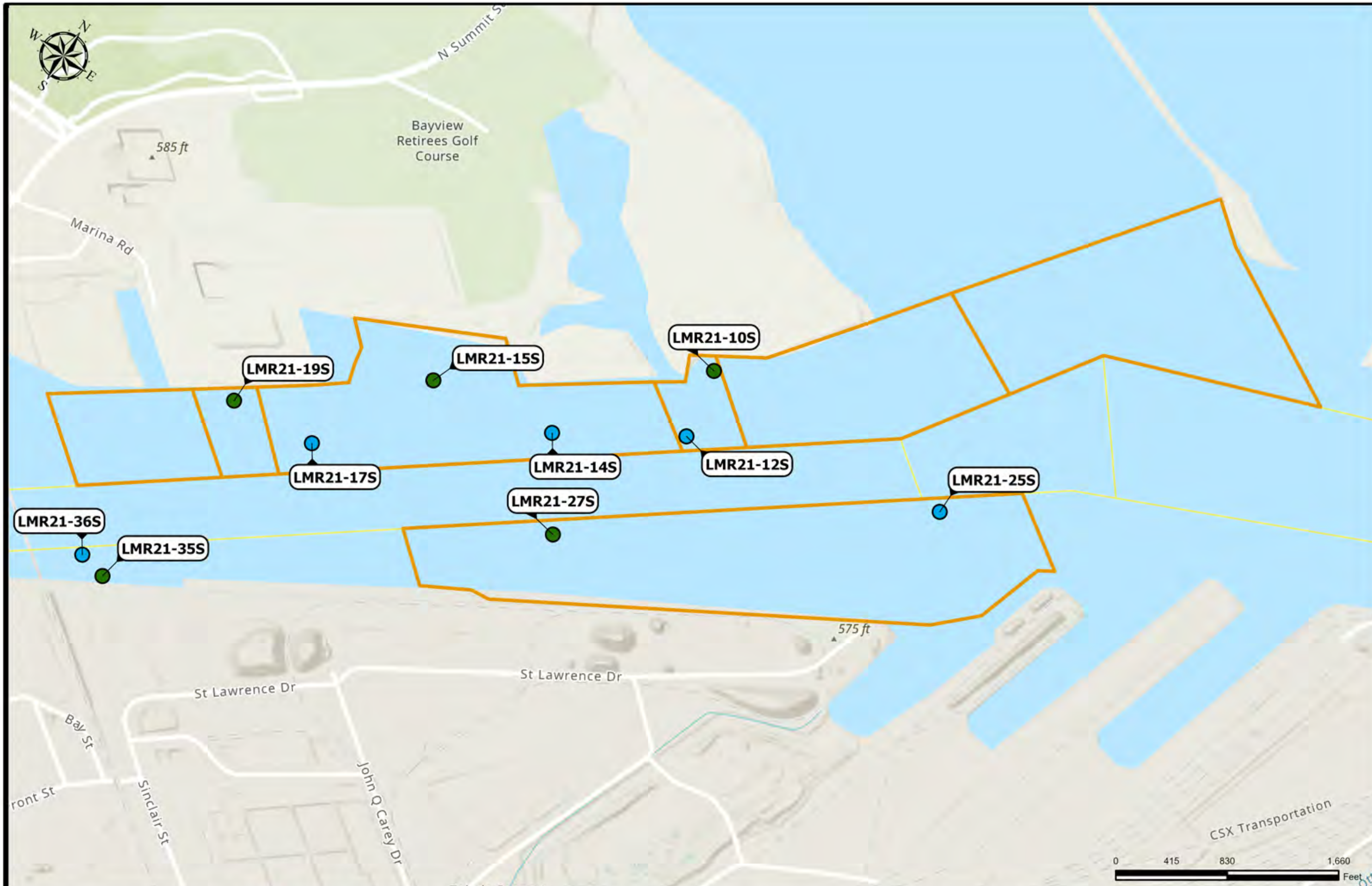
Maumee River, Ohio

FIGURE 4.SC.3

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Copper Concentrations (mg/kg)	
<42 (SRV)	>1490 (> 10x PEC)
>42 - <149 (PEC)	Non-Detect (U)
>149 - <298 (2x PEC)	Statment of Work Areas
>298 - <745 (5xPEC)	Federal Navigation Channel
>745 - <1490 (10x PEC)	

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Copper

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FIGURE 4.WS.4

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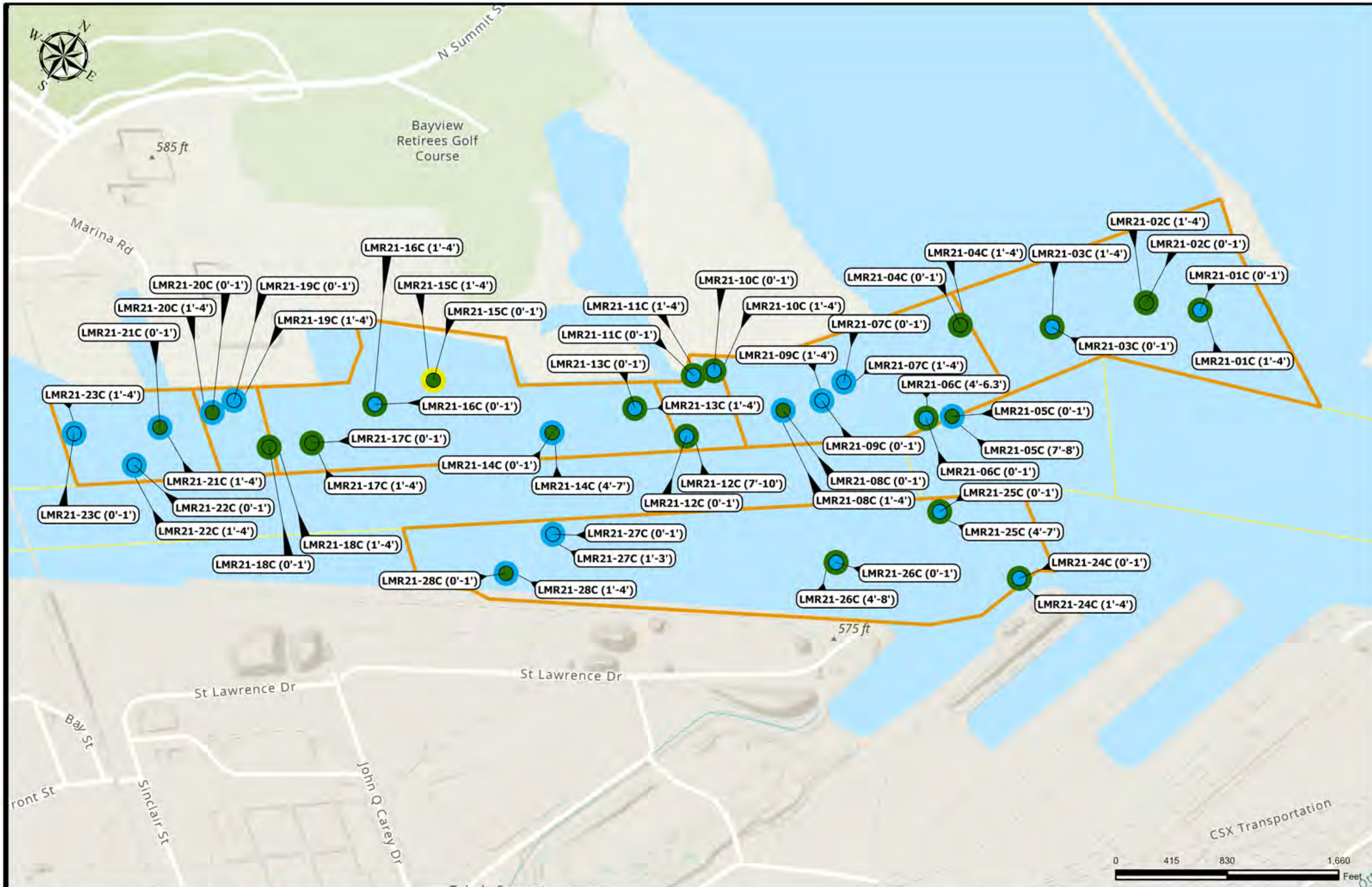

Copper Concentrations (mg/kg)

- <42 (SRV)
- >42 - <149 (PEC)
- >149 - <298 (2x PEC)
- >298 - <745 (5x PEC)
- >745 - <1490 (10x PEC)
- >1490 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

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Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Copper

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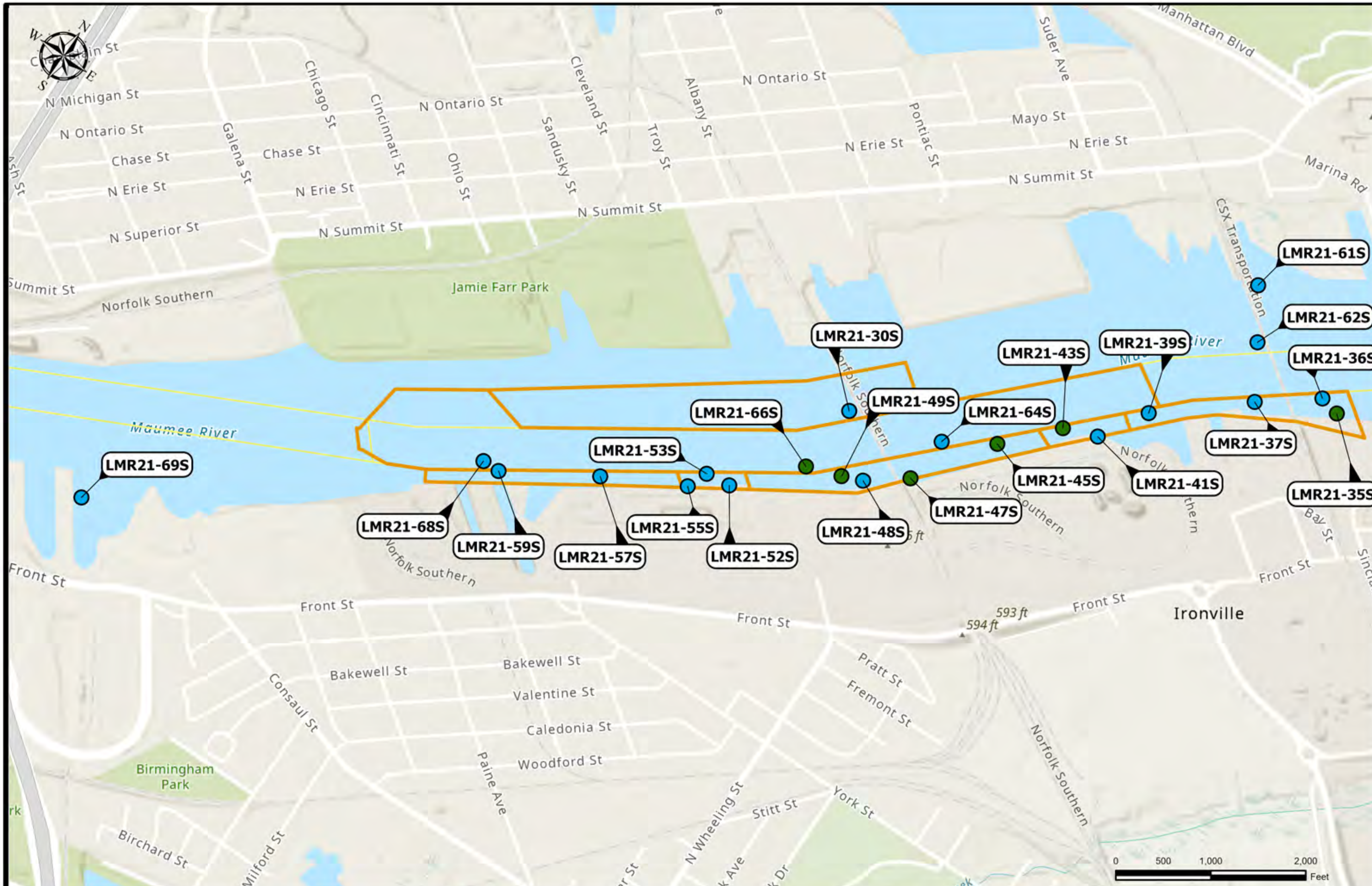
Maumee River, Ohio

FIGURE 4.WC.4

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Copper Concentrations (mg/kg)

- <42 (SRV)
- >42 - <149 (PEC)
- >149 - <298 (2x PEC)
- >298 - <745 (5xPEC)
- >745 - <1490 (10x PEC)
- >1490 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Copper

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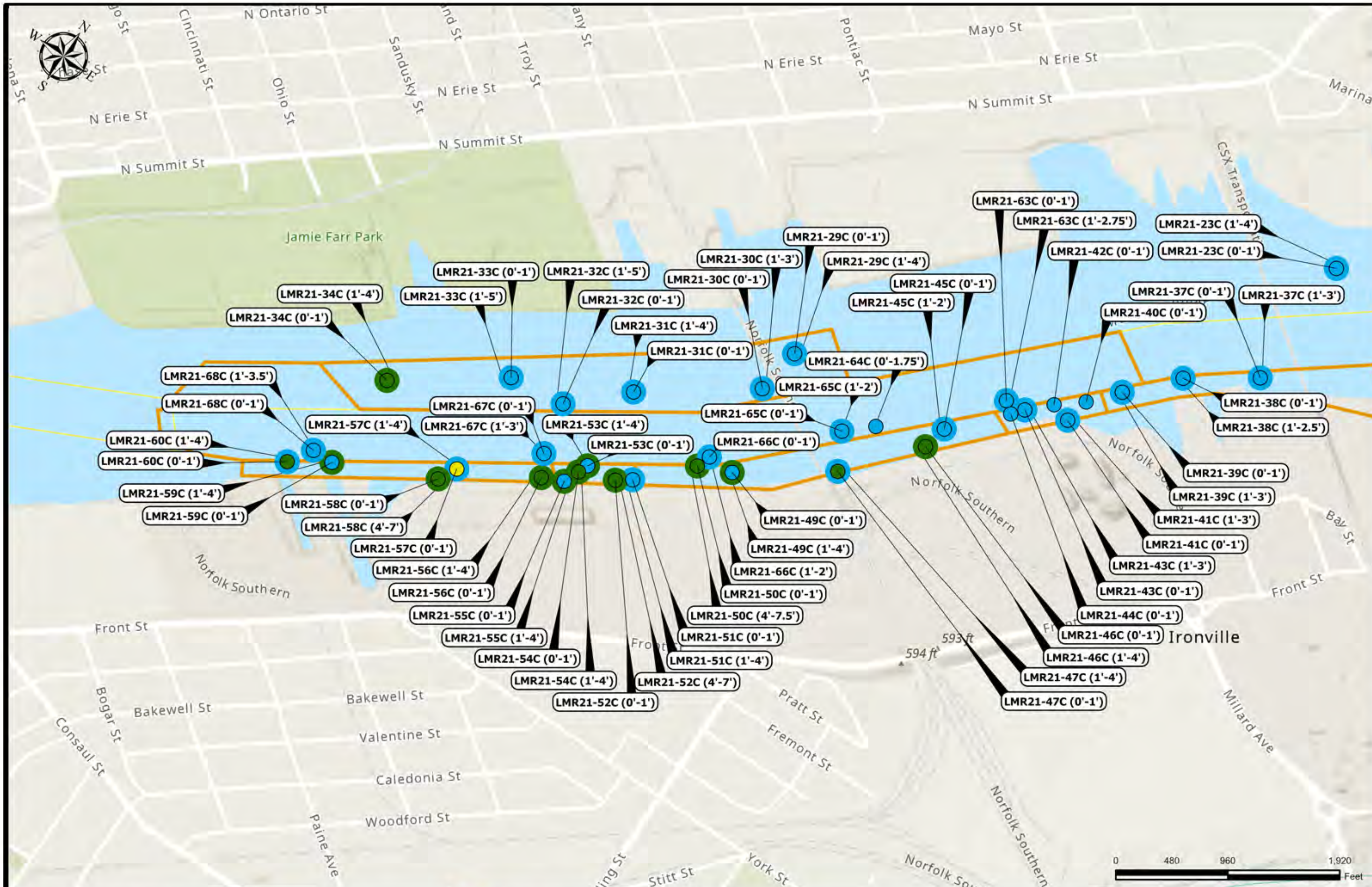
Maumee River, Ohio

FIGURE 4.SS.4

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Copper

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Maumee River, Ohio

FIGURE 4.SC.4

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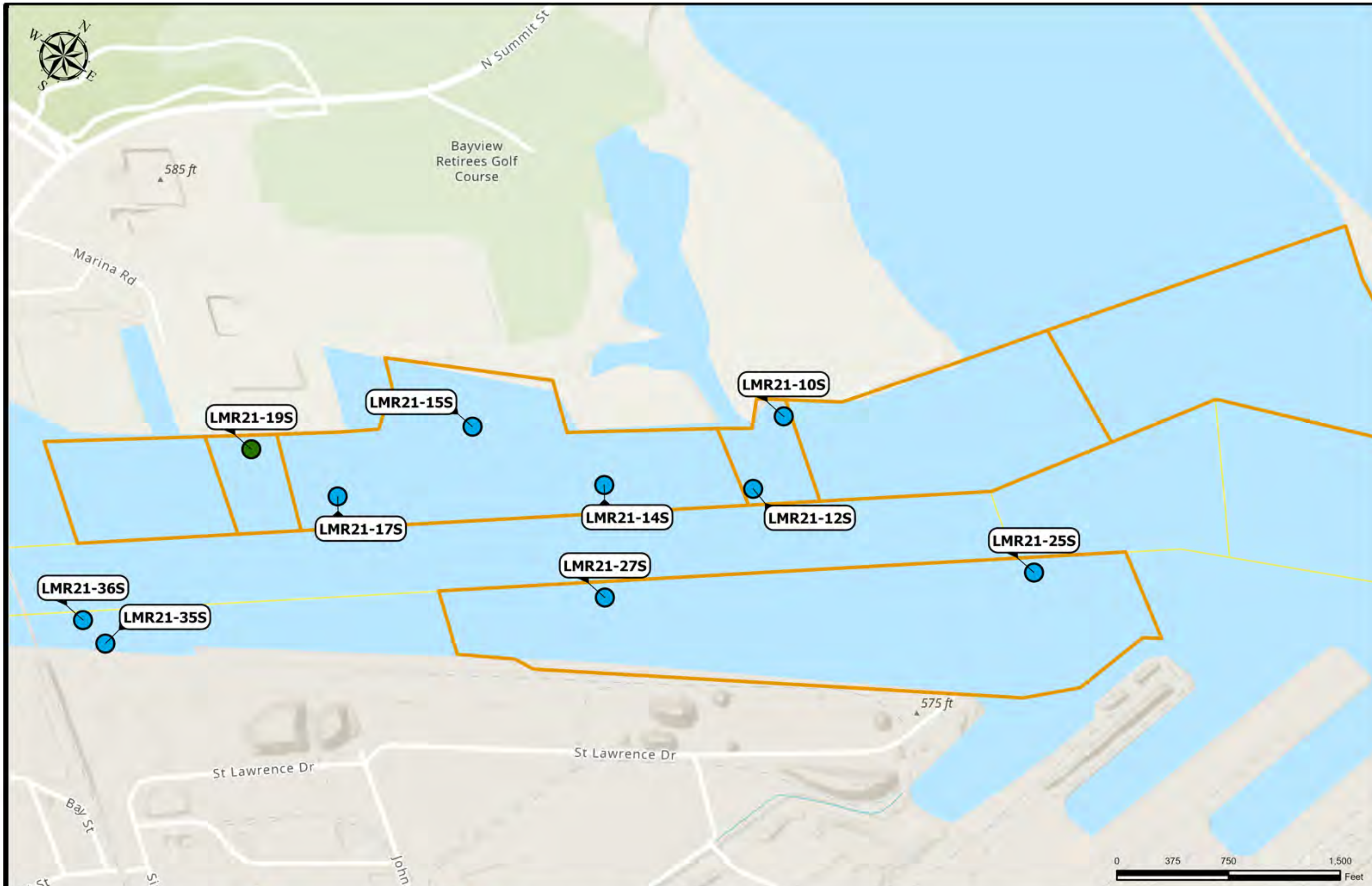

Lead Concentrations (mg/kg)

- <47 (SRV)
- >47 - <128 (PEC)
- >128 - <256 (2x PEC)
- >256 - <640 (5x PEC)
- >640 - <1280 (10x PEC)
- >1280 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Lead

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FIGURE 4.WS.5

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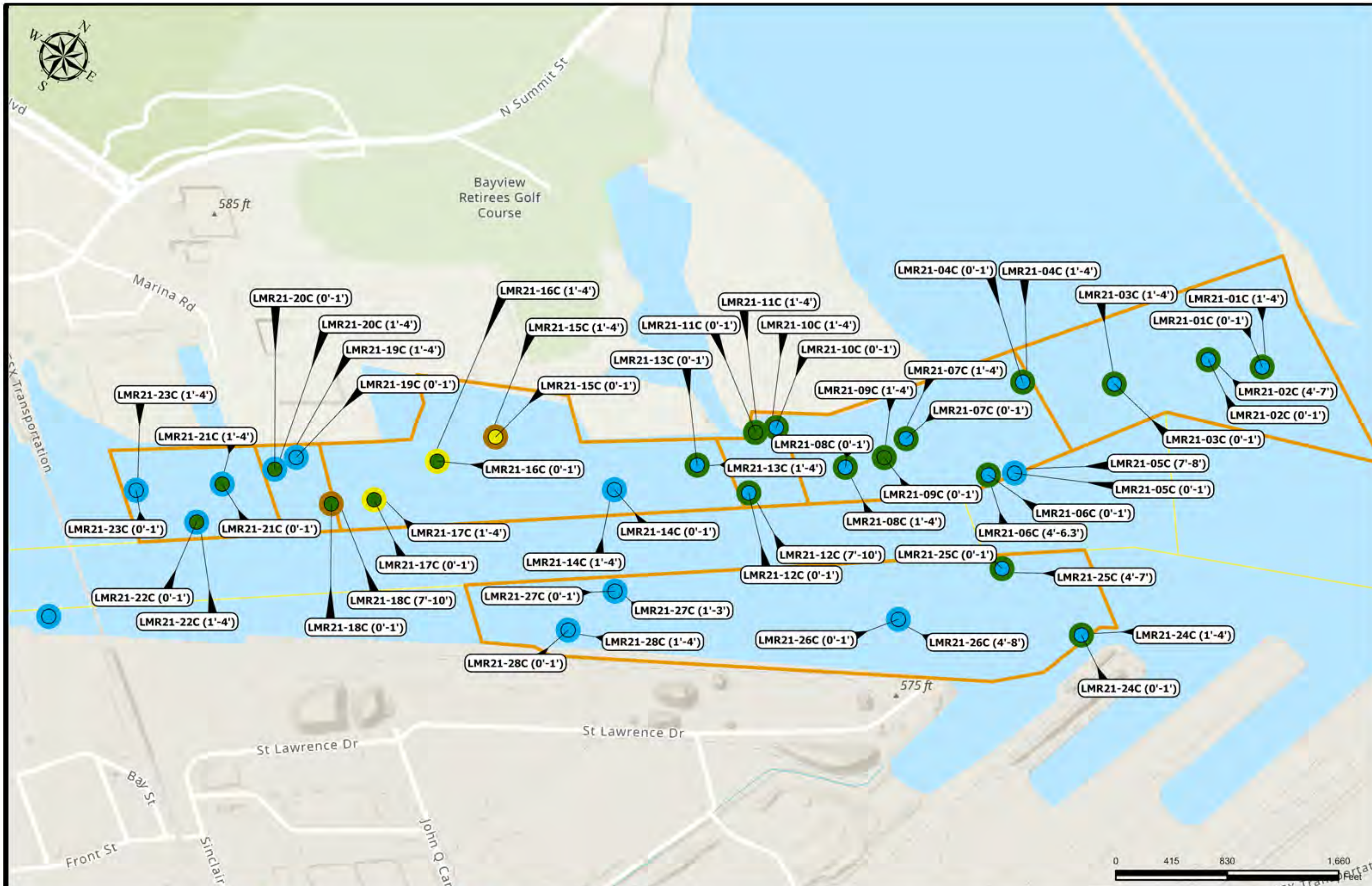

Lead Concentrations (mg/kg)

- <47 (SRV)
- >47 - <128 (PEC)
- >128 - <256 (2x PEC)
- >256 - <640 (5x PEC)
- >640 - <1280 (10x PEC)
- >1280 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
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Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Lead

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FIGURE 4.WC.5

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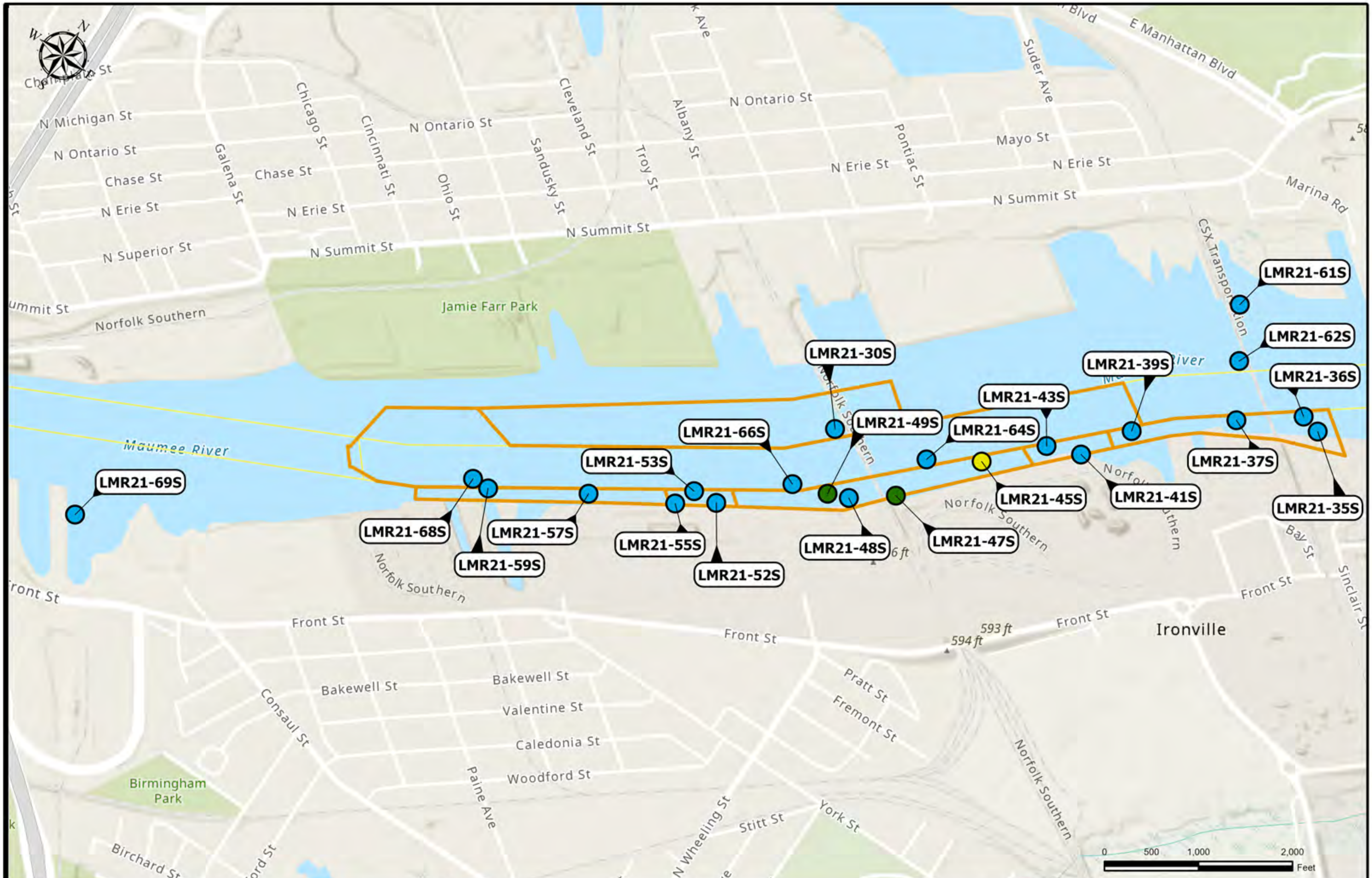

Lead Concentrations (mg/kg)
- <47 (SRV)
- >47 - <128 (PEC)
- >128 - <256 (2x PEC)
- >256 - <640 (5x PEC)
- >640 - <1280 (10x PEC)
- >1280 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

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Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Lead

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Maumee River, Ohio

FIGURE 4.SS.5

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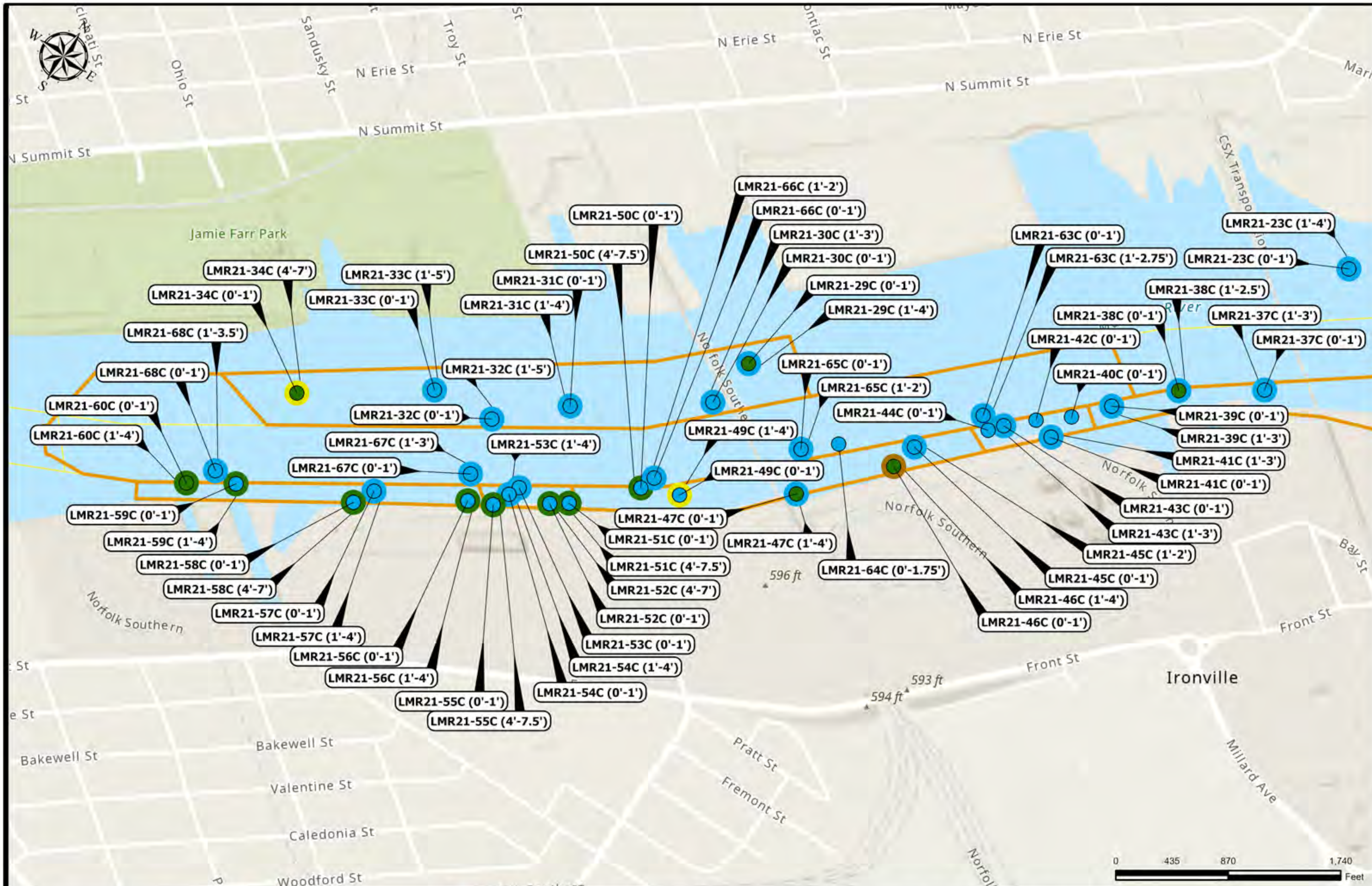

Lead Concentrations (mg/kg)

- <47 (SRV)
- >47 - <128 (PEC)
- >128 - <256 (2x PEC)
- >256 - <640 (5x PEC)
- >640 - <1280 (10x PEC)
- >1280 (>10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

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Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Lead

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Maumee River, Ohio

FIGURE 4.SC.5

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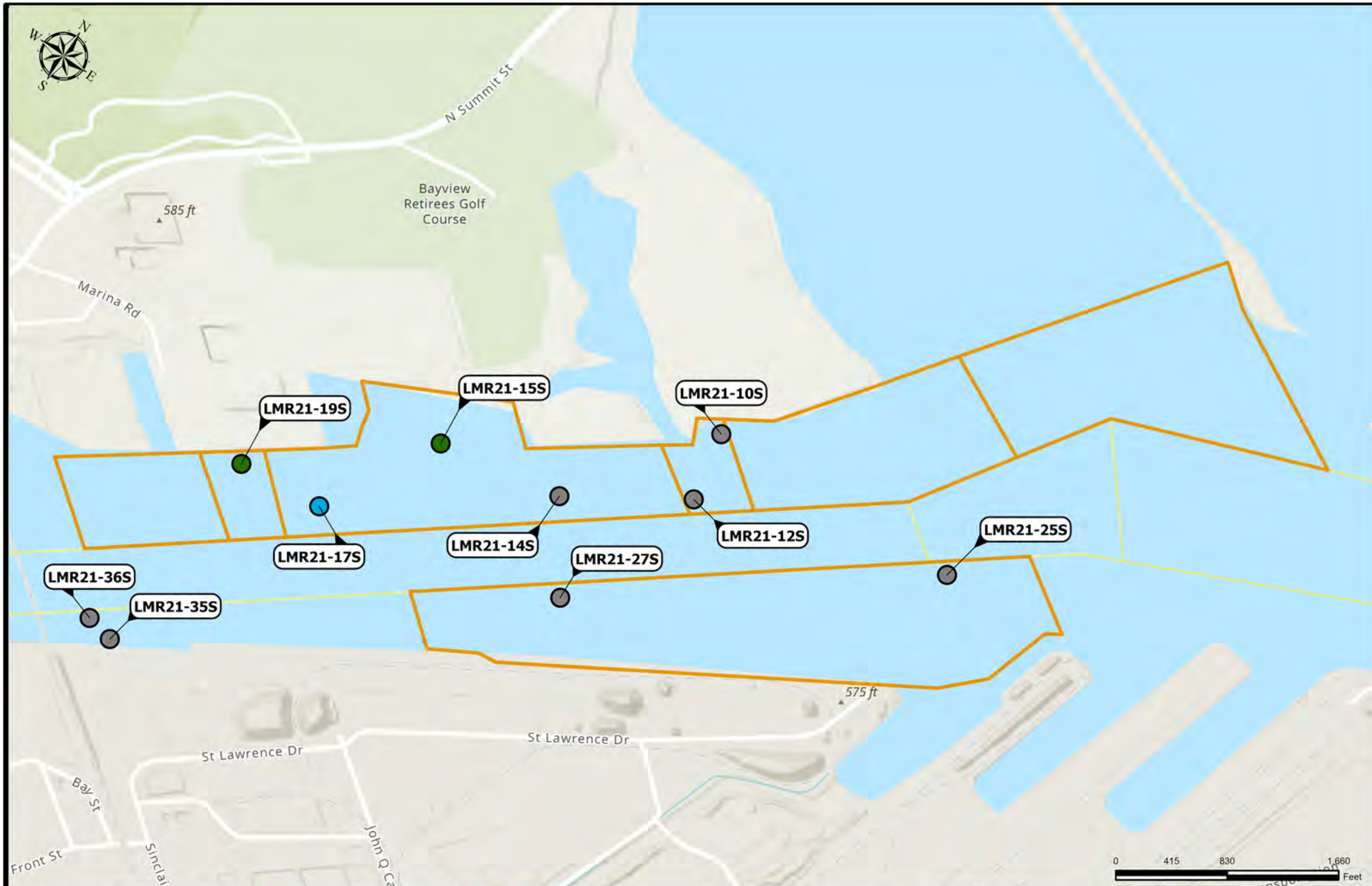

Mercury Concentrations (mg/kg)

- Non-Detect (U)
- <0.18 (TEC)
- >0.18 - <1.06 (PEC)
- >1.06 - <2.12 (2x PEC)
- >2.12 - <5.3 (5x PEC)
- >5.3 - <10.6 (10x PEC)
- >10.6 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

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2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Mercury

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FIGURE 4.WS.6

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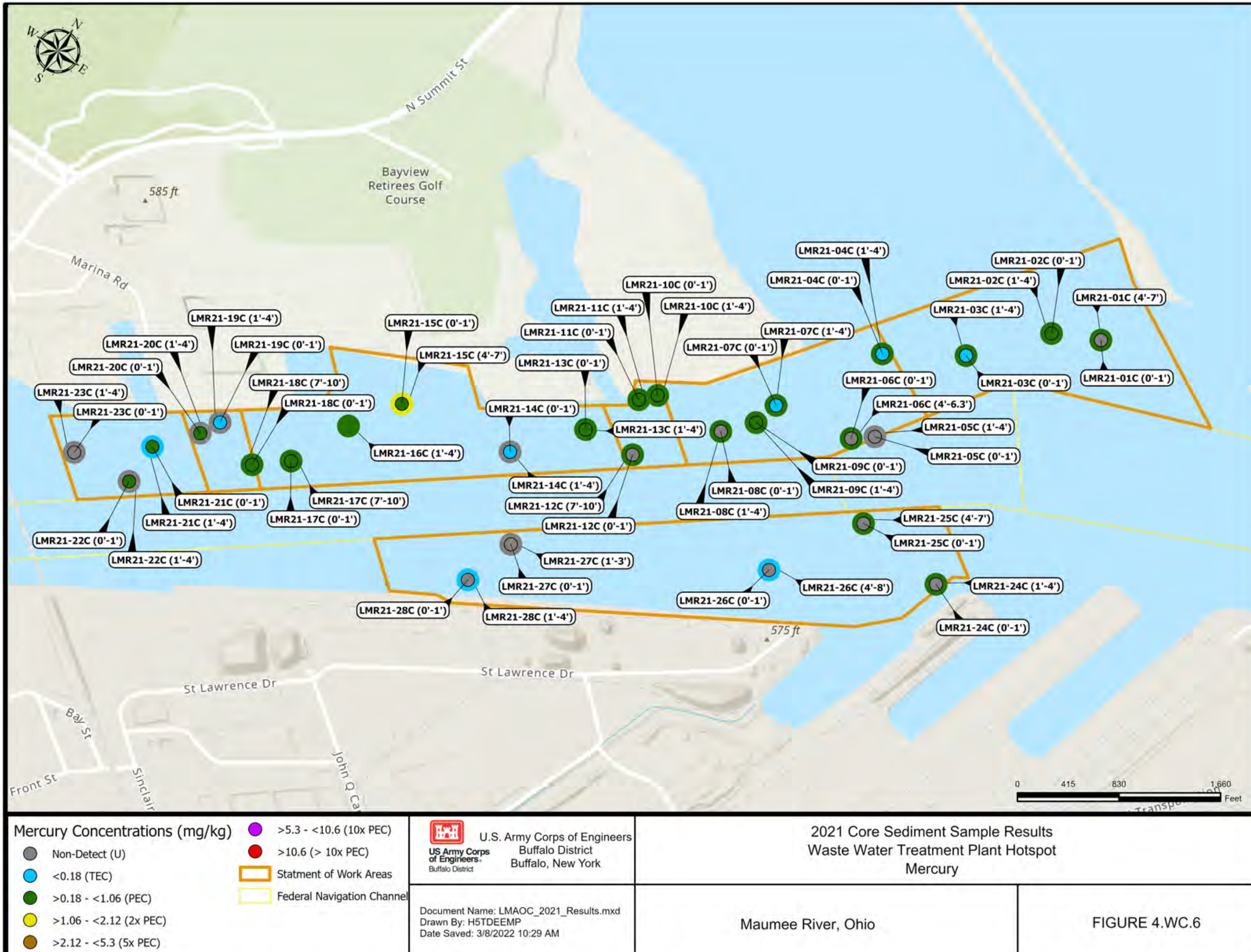

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Mercury

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Maumee River, Ohio

FIGURE 4.WC.6

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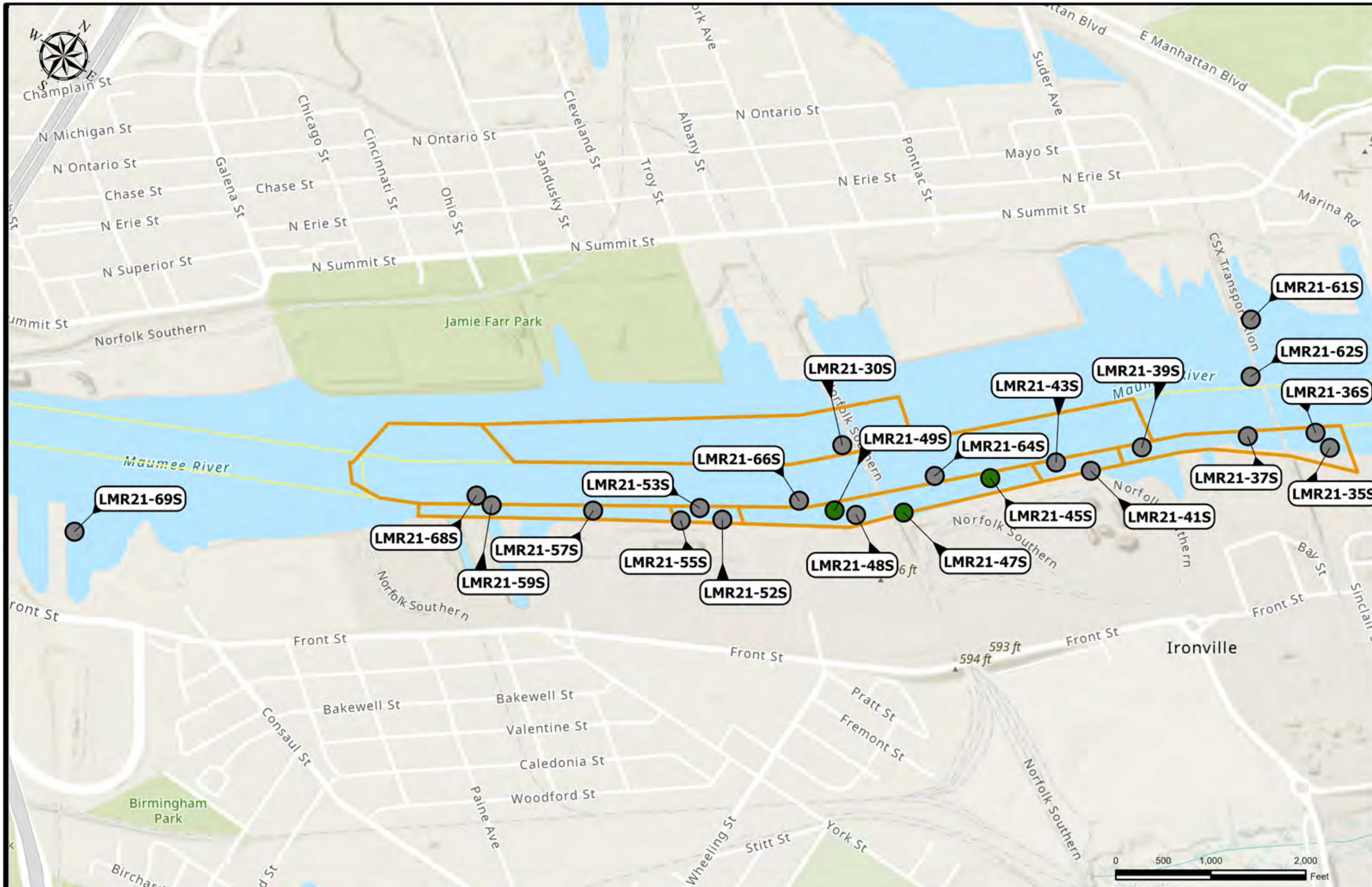

Mercury Concentrations (mg/kg)

- Non-Detect (U)
- <0.18 (TEC)
- >0.18 - <1.06 (PEC)
- >1.06 - <2.12 (2x PEC)
- >2.12 - <5.3 (5x PEC)
- >5.3 - <10.6 (10x PEC)
- >10.6 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Mercury

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Maumee River, Ohio

FIGURE 4.SS.6

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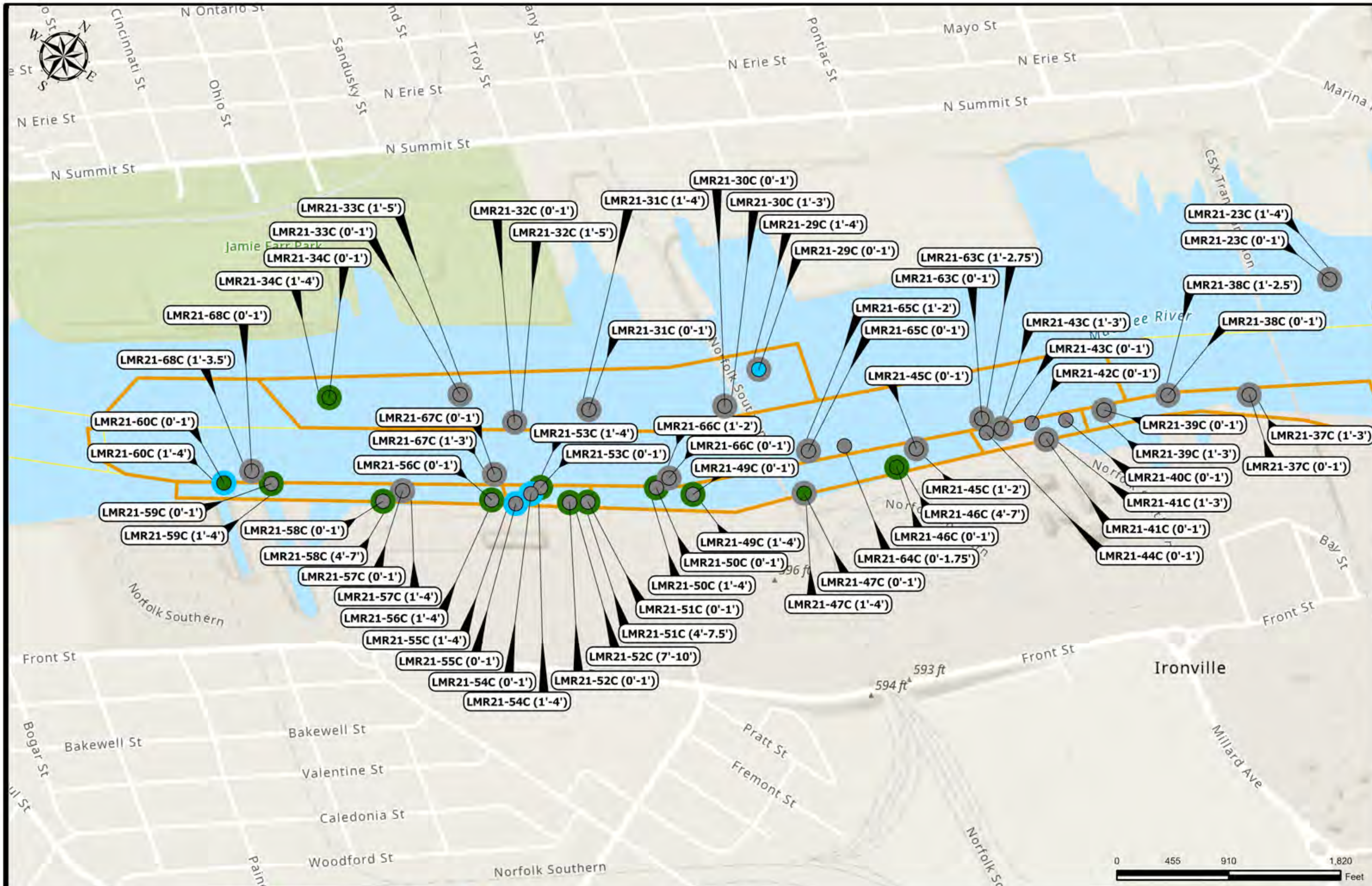

Mercury Concentrations (mg/kg)

- Non-Detect (U)
- <0.18 (TEC)
- >0.18 - <1.06 (PEC)
- >1.06 - <2.12 (2x PEC)
- >2.12 - <5.3 (5x PEC)
- >5.3 - <10.6 (10x PEC)
- >10.6 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

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Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Mercury

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FIGURE 4.SC.6

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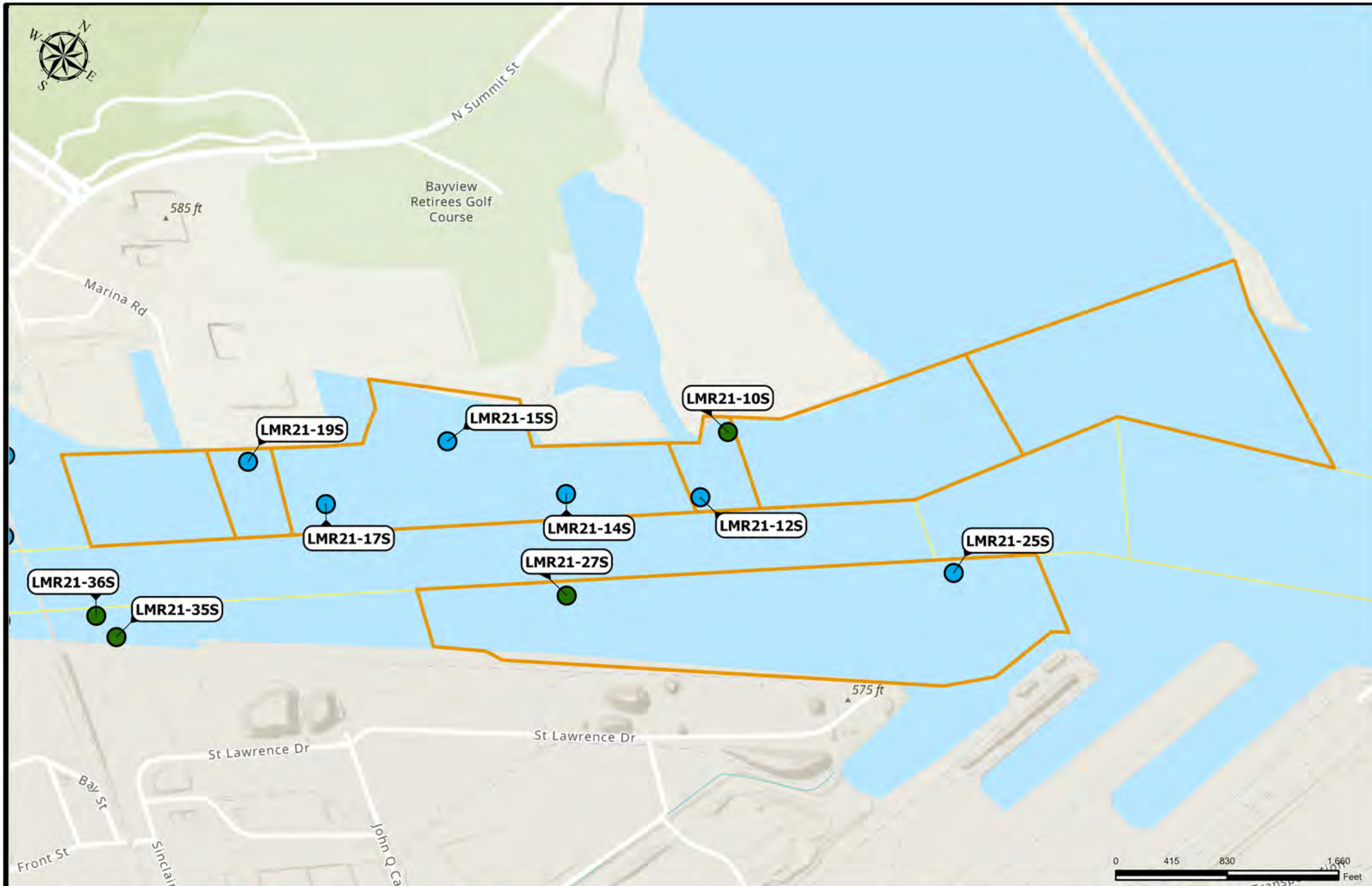

Nickel Concentrations (mg/kg)

- <36 (SRV)
- >36 - <48.6 (PEC)
- >48.6 - <97.2 (2x PEC)
- >97.2 - <243 (5x PEC)
- >243 - <486 (10x PEC)
- >486 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
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Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Nickel

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FIGURE 4.WS.7

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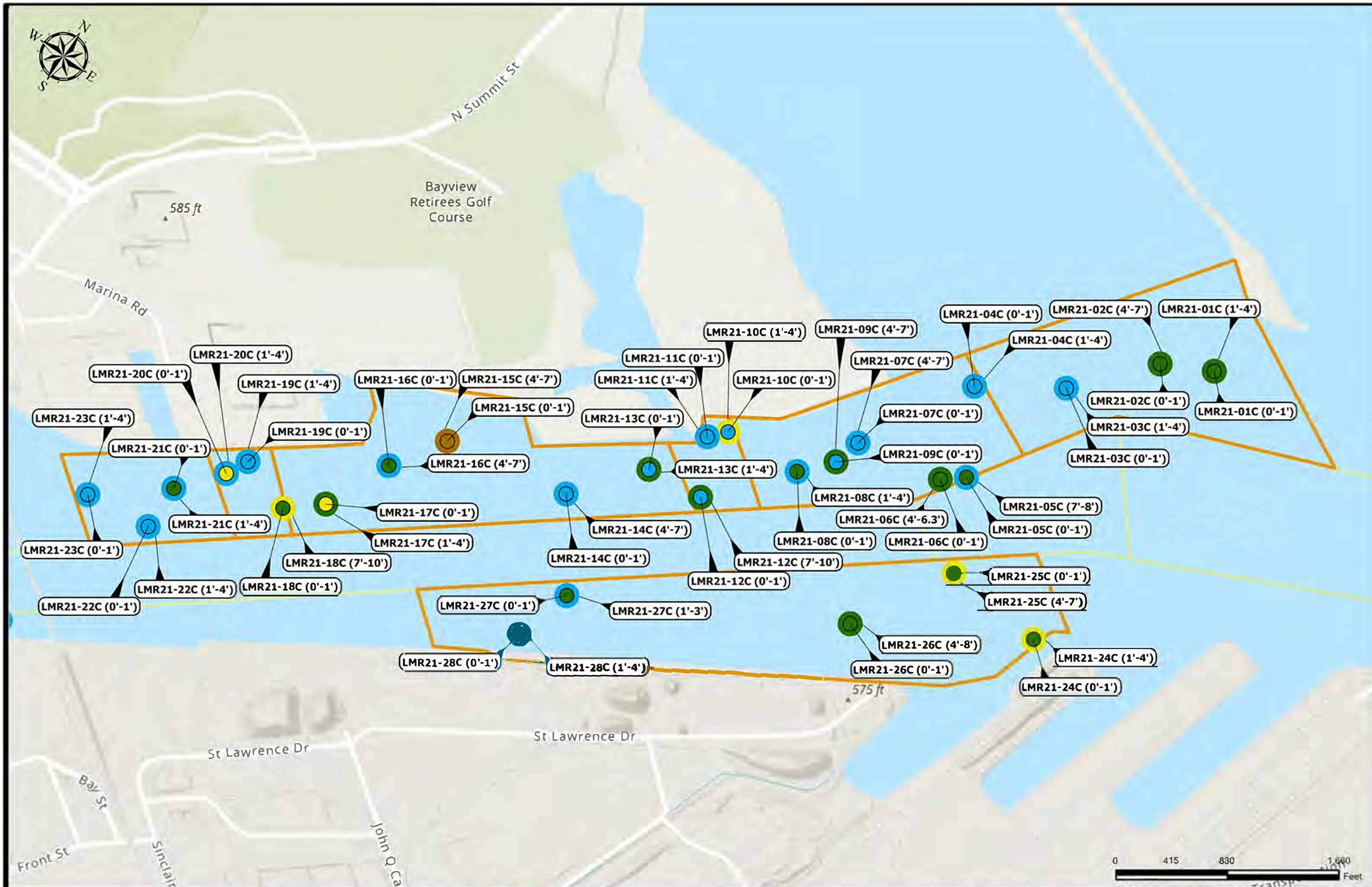

Nickel Concentrations (mg/kg)

- <36 (SRV
- >36 - <48.6 (PEC)
- >48.6 - <97.2 (2x PEC)
- >97.2 - <243 (5x PEC)
- >243 - <486 (10x PEC)
- >486 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

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Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Nickel

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Maumee River, Ohio

FIGURE 4.WC.7

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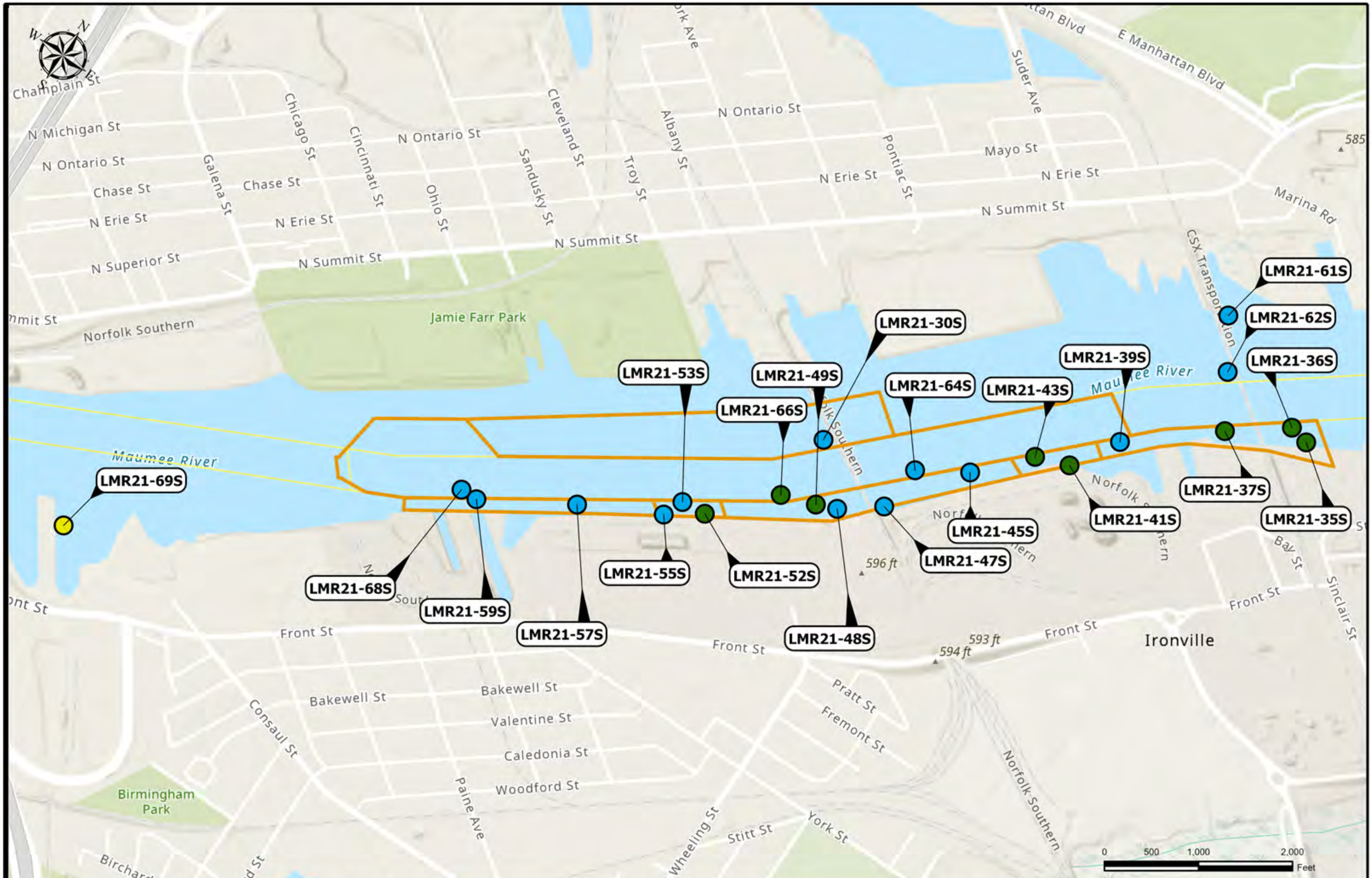

Nickel Concentrations (mg/kg)

- <36 (SRV)
- >36 - <48.6 (PEC)
- >48.6 - <97.2 (2x PEC)
- >97.2 - <243 (5x PEC)
- >243 - <486 (10x PEC)
- >486 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Nickel

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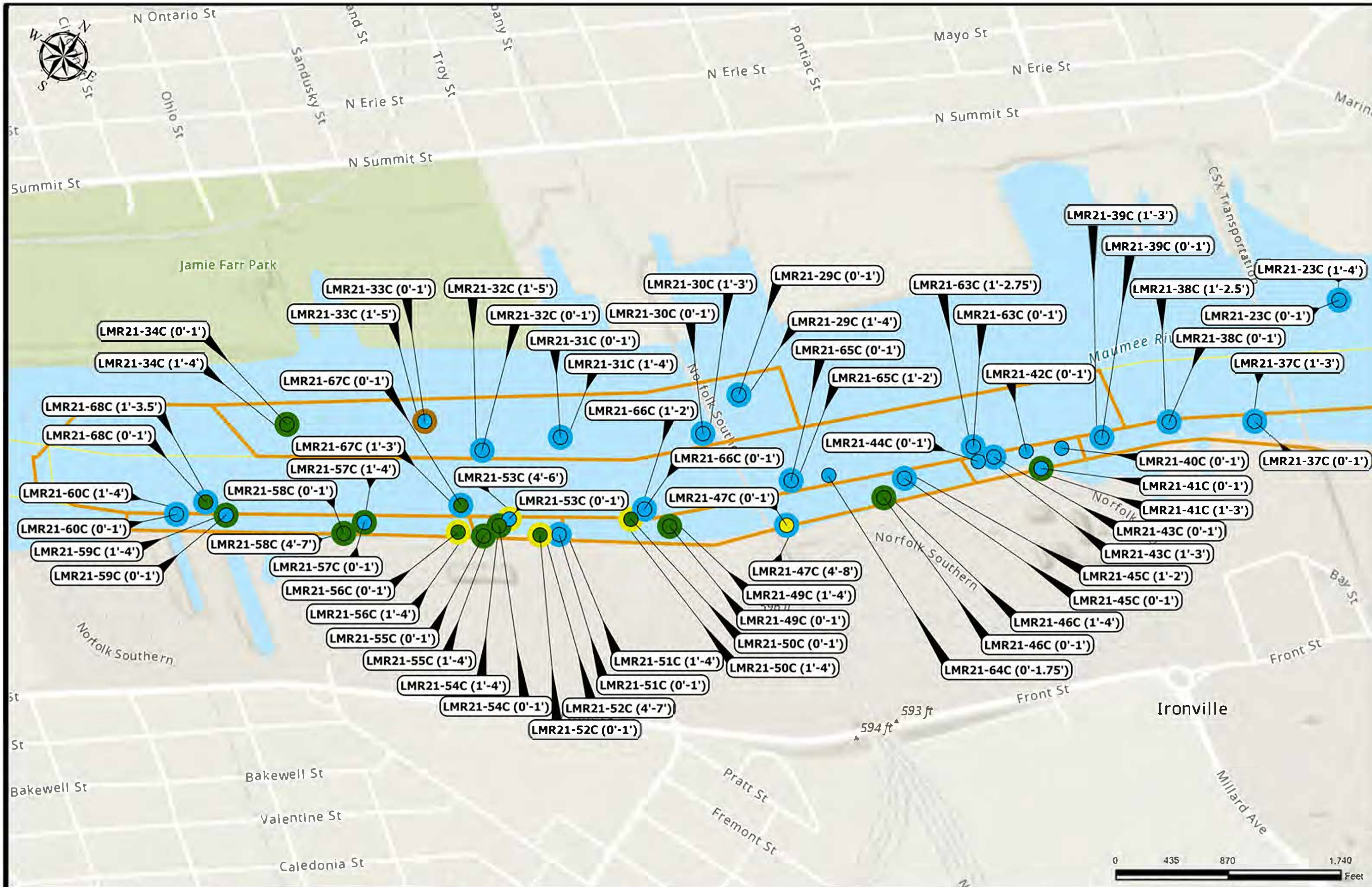
Maumee River, Ohio

FIGURE 4.SS.7

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Nickel Concentrations (mg/kg)

- <36 (SRV
- >36 - <48.6 (PEC)
- >48.6 - <97.2 (2x PEC)
- >97.2 - <243 (5x PEC)
- >243 - <486 (10x PEC)
- >486 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Nickel

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FIGURE 4.SC.7

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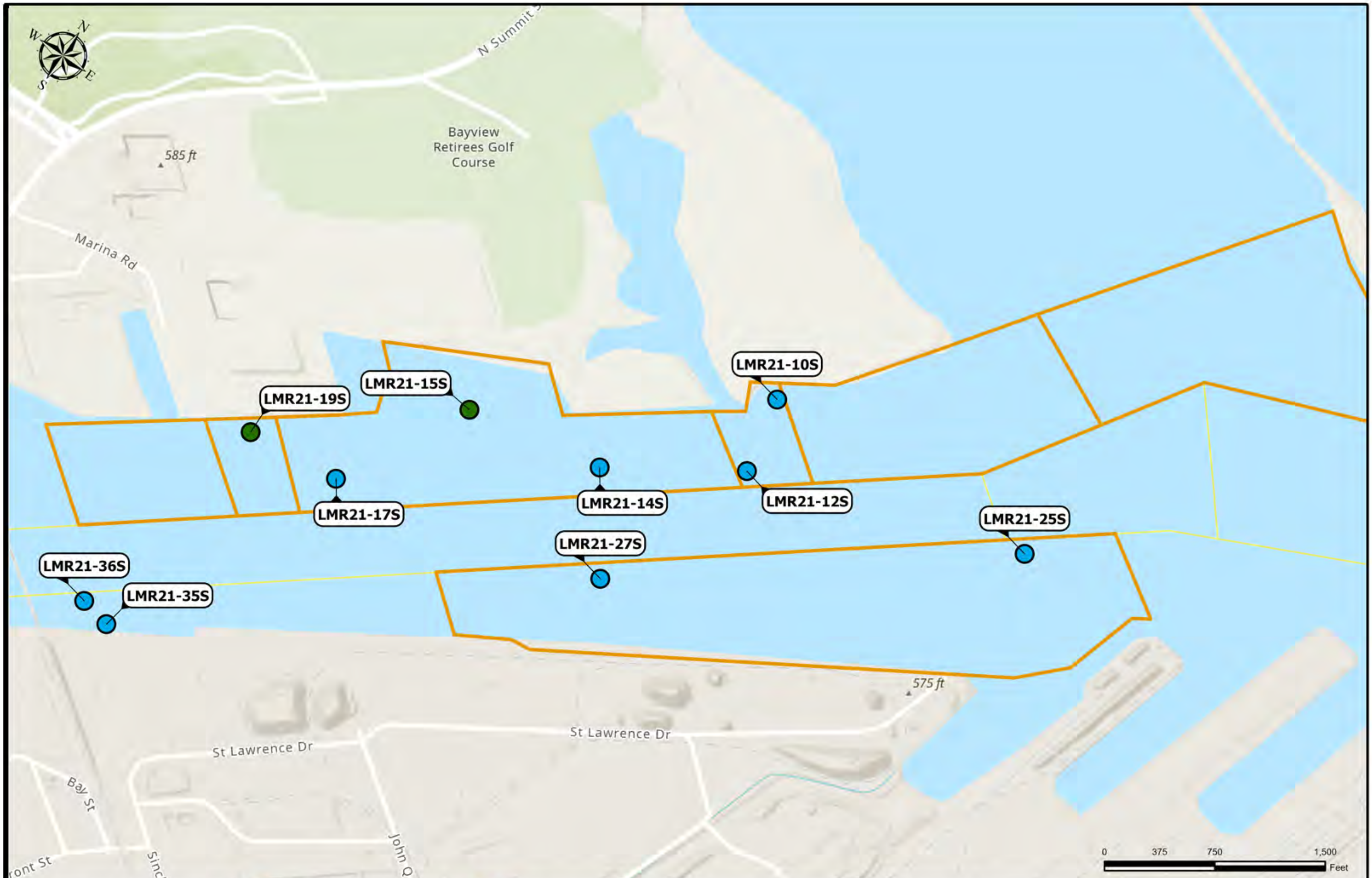

Zinc Concentrations (mg/kg)

- <190 (SRV)
- >190 - <459 (PEC)
- >459 - <918 (2x PEC)
- >918 - <2,295 (5x PEC)
- >2,295 - <4,590 (10x PEC)
- >4,590 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

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Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Zinc

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FIGURE 4.WS.8

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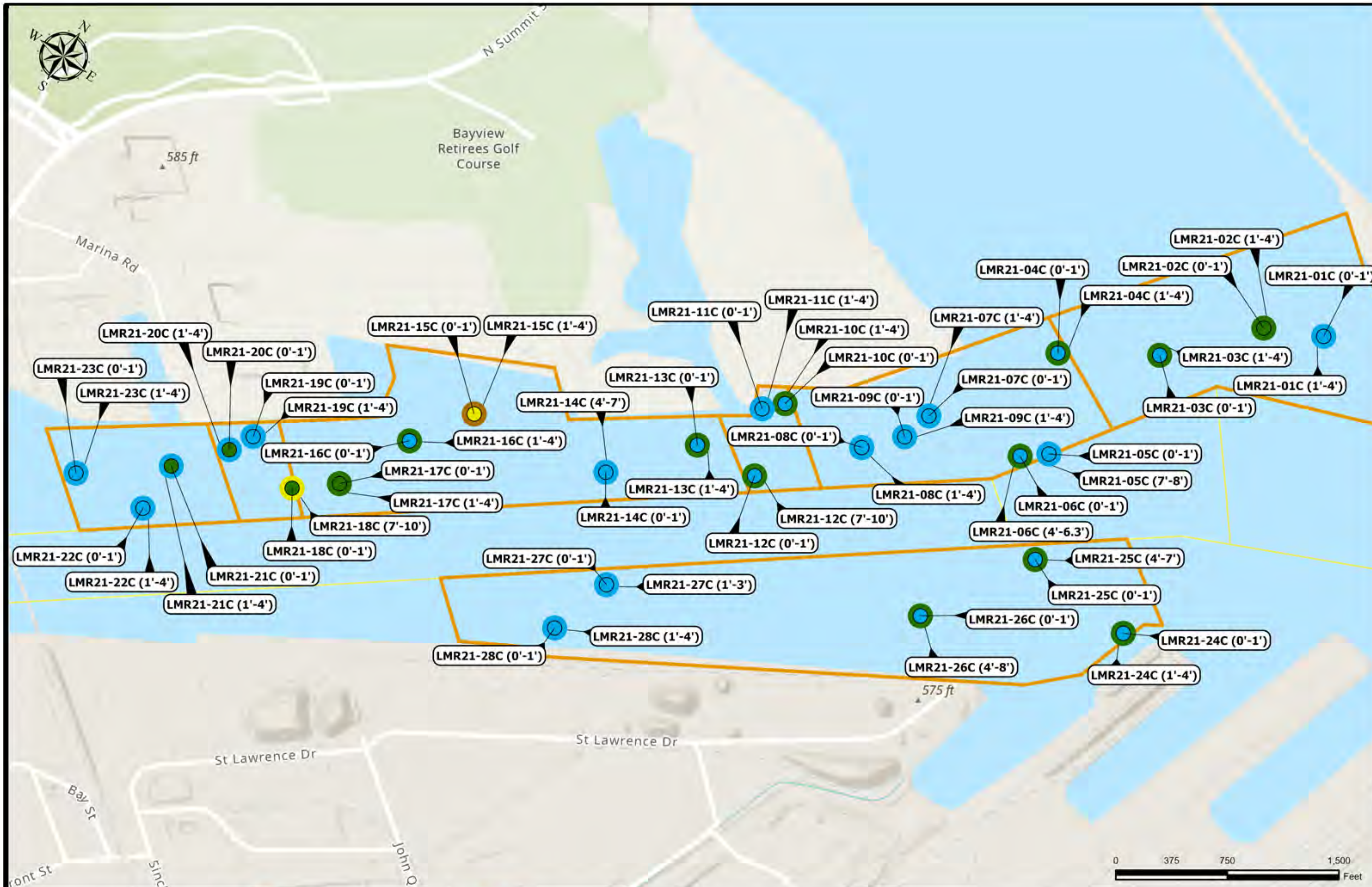

Zinc Concentrations (mg/kg)

- <190 (SRV)
- >190 - <459 (PEC)
- >459 - <918 (2x PEC)
- >918 - <2,295 (5x PEC)
- >2,295 - <4,590 (10x PEC)
- >4,590 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

US Army Corps of Engineers
Buffalo District

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Zinc

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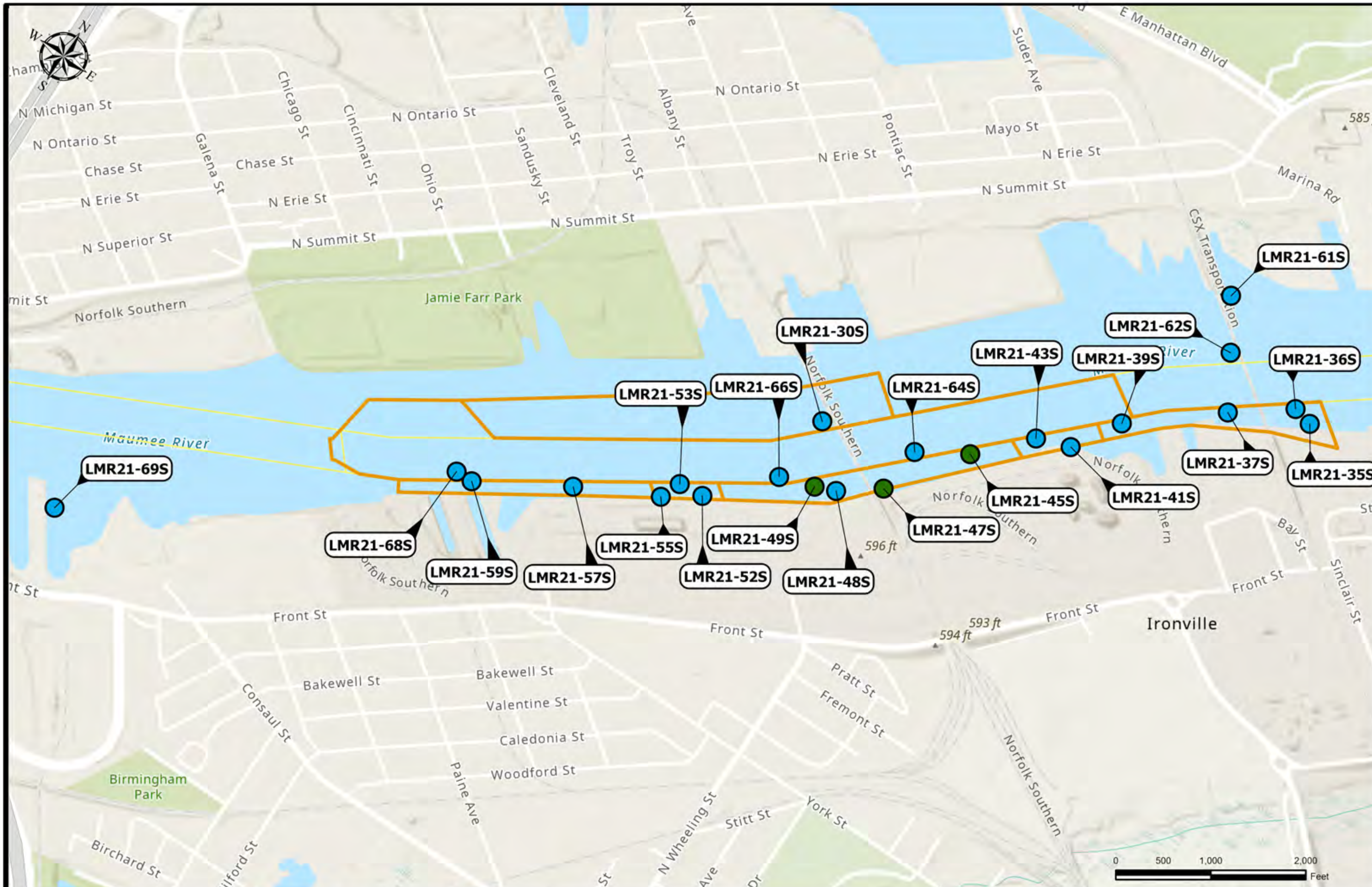
Maumee River, Ohio

FIGURE 4.WC.8

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Zinc Concentrations (mg/kg)

- <190 (SRV)
- >190 - <459 (PEC)
- >459 - <918 (2x PEC)
- >918 - <2,295 (5x PEC)
- >2,295 - <4,590 (10x PEC)
- >4,590 (> 10x PEC)
- Non-Detect (U)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

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Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Zinc

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Maumee River, Ohio

FIGURE 4.SS.8

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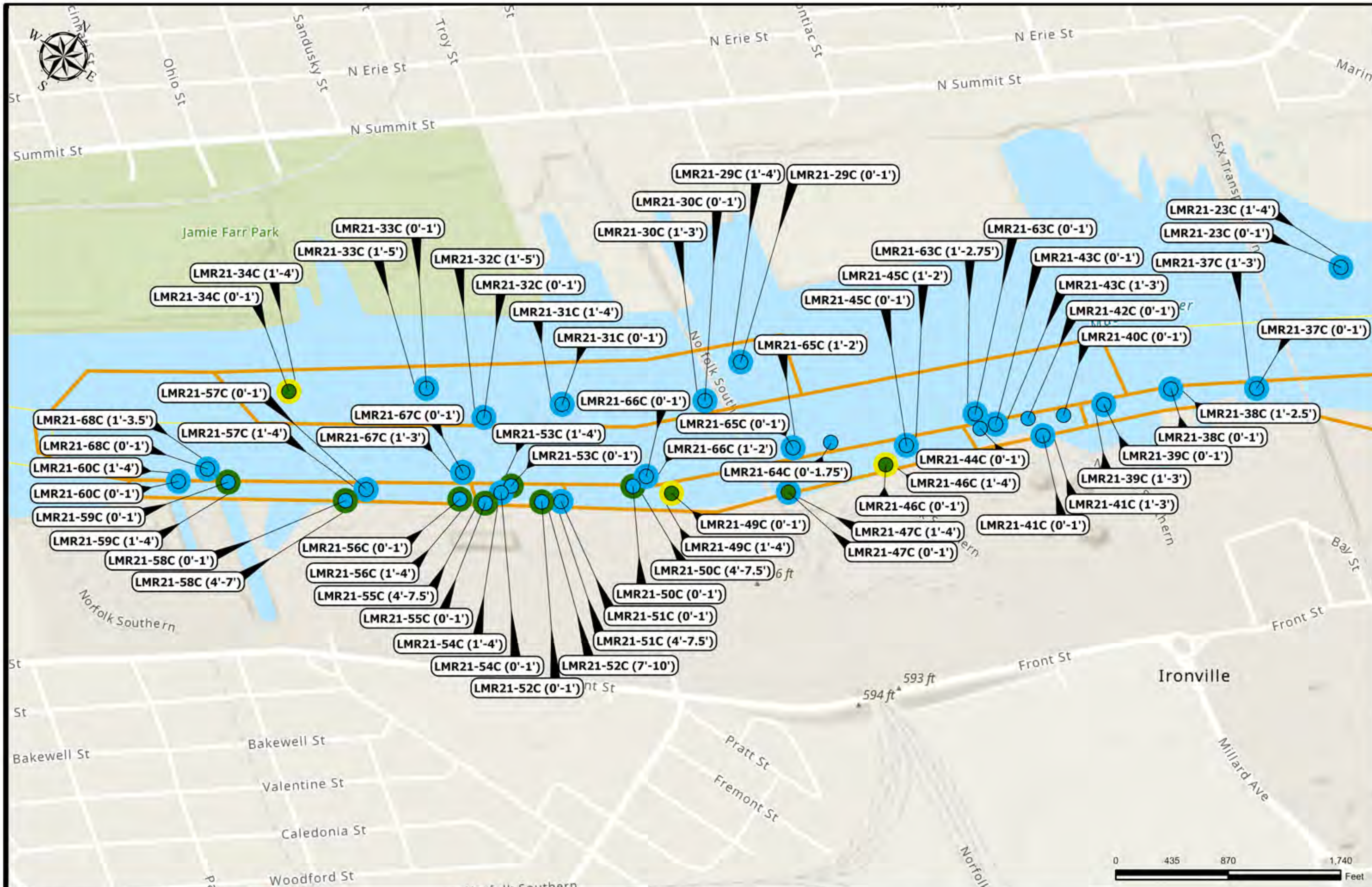

Zinc Concentrations (mg/kg)	
<190 (SRV)	>4,590 (> 10x PEC)
>190 - <459 (PEC)	Non-Detect (U)
>459 - <918 (2x PEC)	Statment of Work Areas
>918 - <2,295 (5x PEC)	Federal Navigation Channel
>2,295 - <4,590 (10x PEC)	

US Army Corps of Engineers
Buffalo District

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Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Zinc

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Maumee River, Ohio

FIGURE 4.SC.8

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx

Total PAH 34 Concentrations (ug/kg)

- Non-Detect (U)
- <1,610 (TEC)
- >1,610 - <22,800 (PEC)
- >22,800 - <45,600 (2x PEC)
- >45,600 - <114,000 (5x PEC)
- >114,000 - <228,000 (10x PEC)
- >228,000 (>10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total PAH 34 (Lab Reported)

Document Name: LMAOC_2021_Results.mxd
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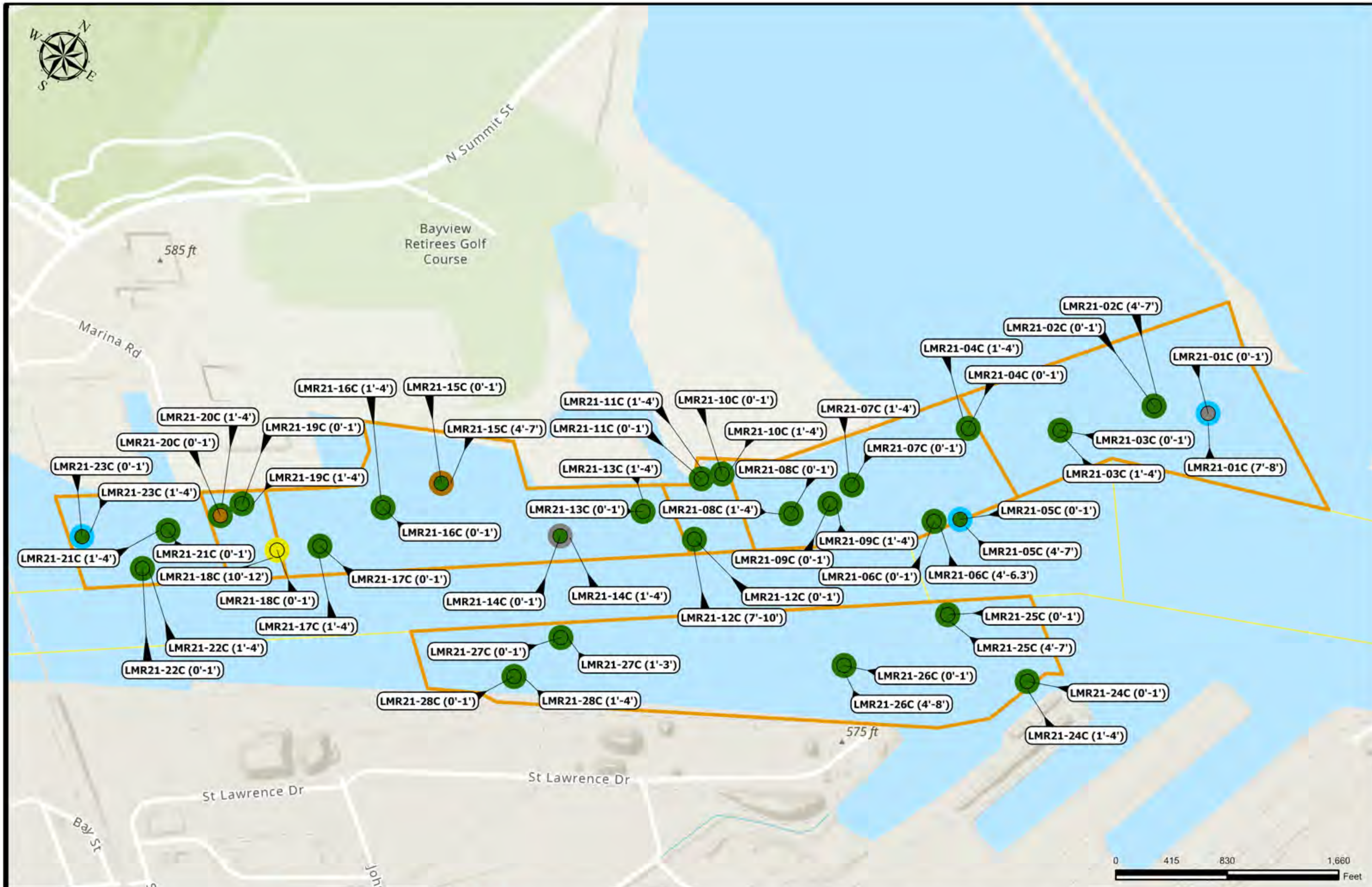
Date Saved: 3/8/2022 11:18 AM

Maumee River, Ohio

FIGURE 4.WS.9

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total PAH 17 Concentrations (ug/kg)

- Non-Detect (U)
- <1,610 (TEC)
- >1,610 - <22,800 (PEC)
- >22,800 - <45,600 (2x PEC)
- >45,600 - <114,000 (5x PEC)
- >114,000 - <228,000 (10x PEC)
- >228,000 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total PAH 17

Document Name: LMAOC_2021_Results.mxd
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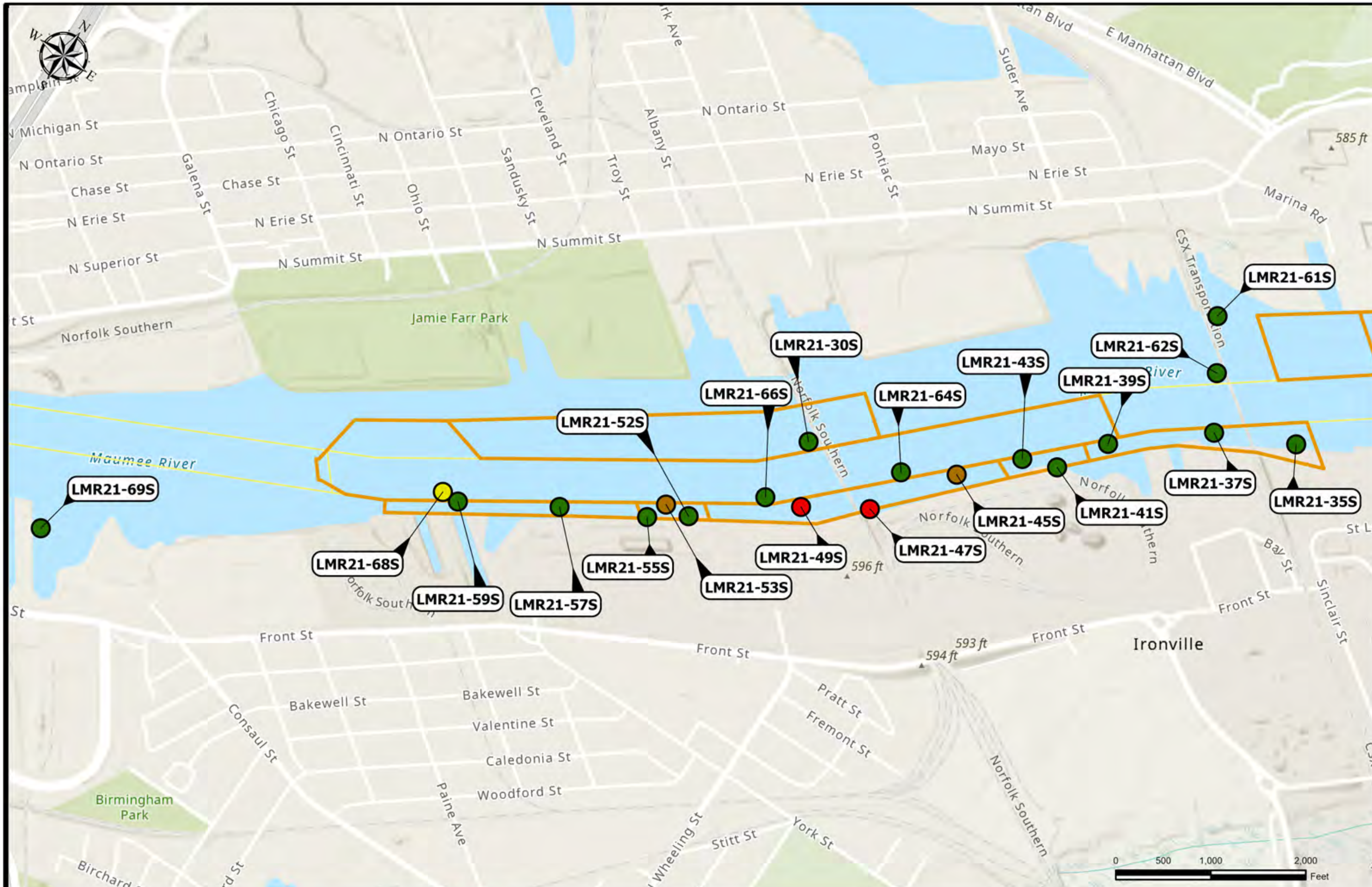
Maumee River, Ohio

FIGURE 4.WC.9

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total PAH 34 Concentrations (ug/kg)

- Non-Detect (U)
- <1,610 (TEC)
- >1,610 - <22,800 (PEC)
- >22,800 - <45,600 (2x PEC)
- >45,600 - <114,000 (5x PEC)
- >114,000 - <228,000 (10x PEC)
- >228,000 (>10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

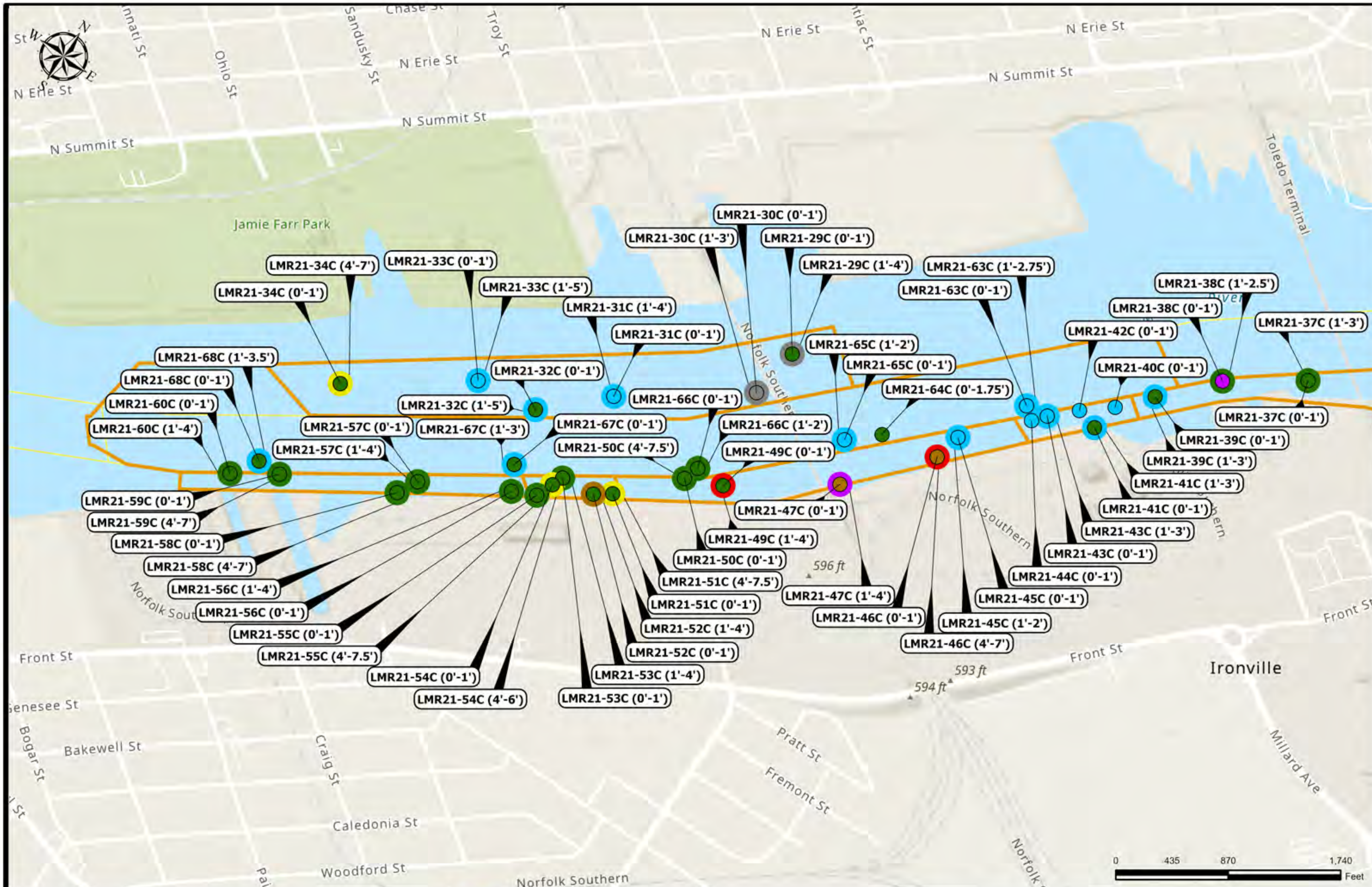
2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Total PAH 34 (Lab Reported)

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 3/8/2022 11:18 AM

Maumee River, Ohio

FIGURE 4.SS.9

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total PAH 17 Concentrations (ug/kg)

- Non-Detect (U)
- <1,610 (TEC)
- >1,610 - <22,800 (PEC)
- >22,800 - <45,600 (2x PEC)
- >45,600 - <114,000 (5x PEC)
- >114,000 - <228,000 (10x PEC)
- >228,000 (> 10x PEC)
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Total PAH 17

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
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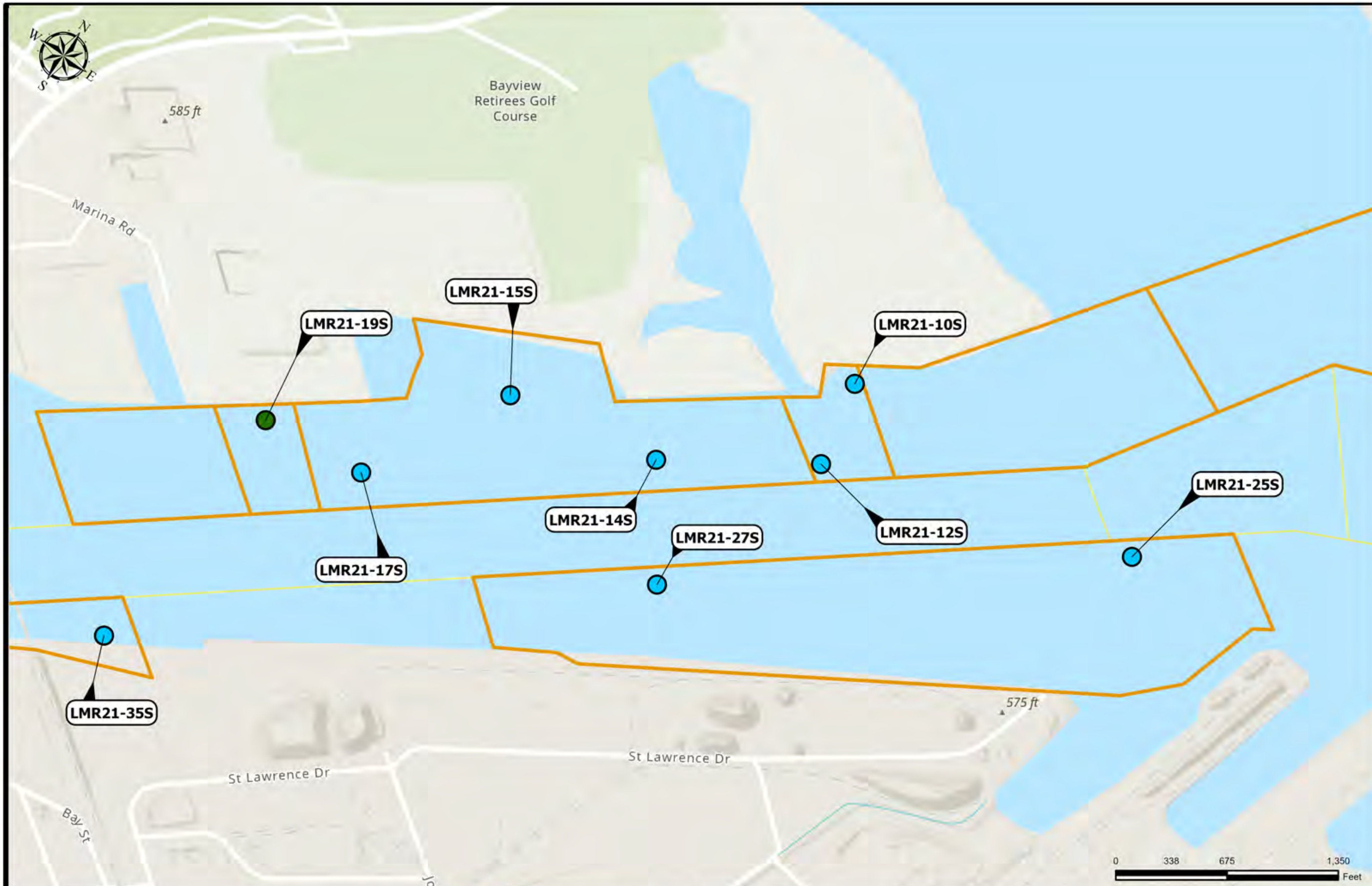
Maumee River, Ohio

FIGURE 4.SC.9

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total PCB Congener Concentrations (ug/kg)

- Non-Detect (U)
- <676 (PEC)
- >676 - <1,000
- >1,000 - <5,000
- >5,000 - <10,000
- >10,000
- Statment of Work Areas
- Federal Navigation Channel

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

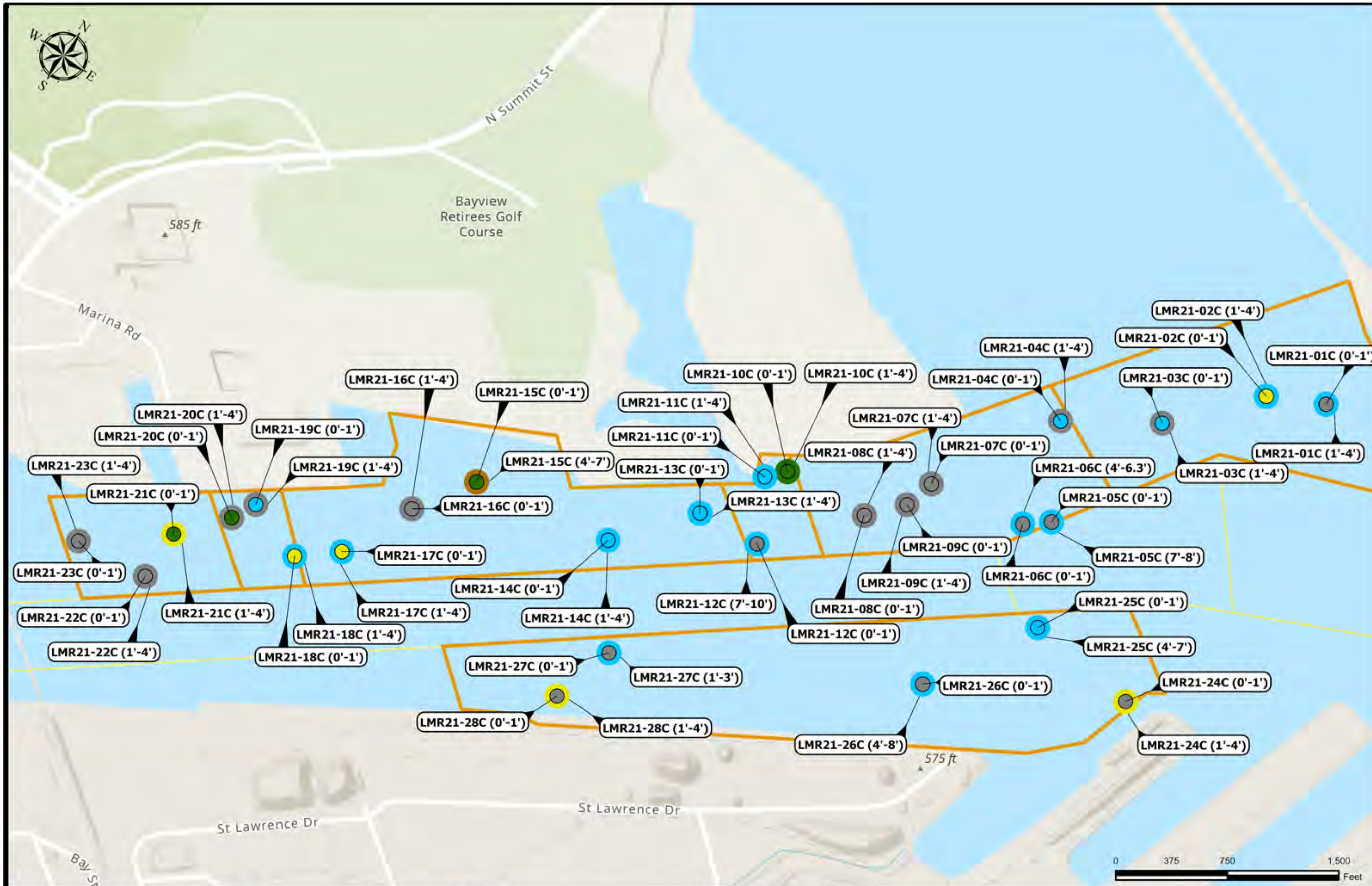
2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total PCB Congeners

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 3/8/2022 11:24 AM

Maumee River, Ohio

FIGURE 4.WS.10

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total PCB Aroclor Concentrations (ug/kg)

- Non-Detect (U)
- <676 (PEC)
- >676 - <1,000
- >1,000 - <5,000
- >5,000 - <10,000
- >10,000
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

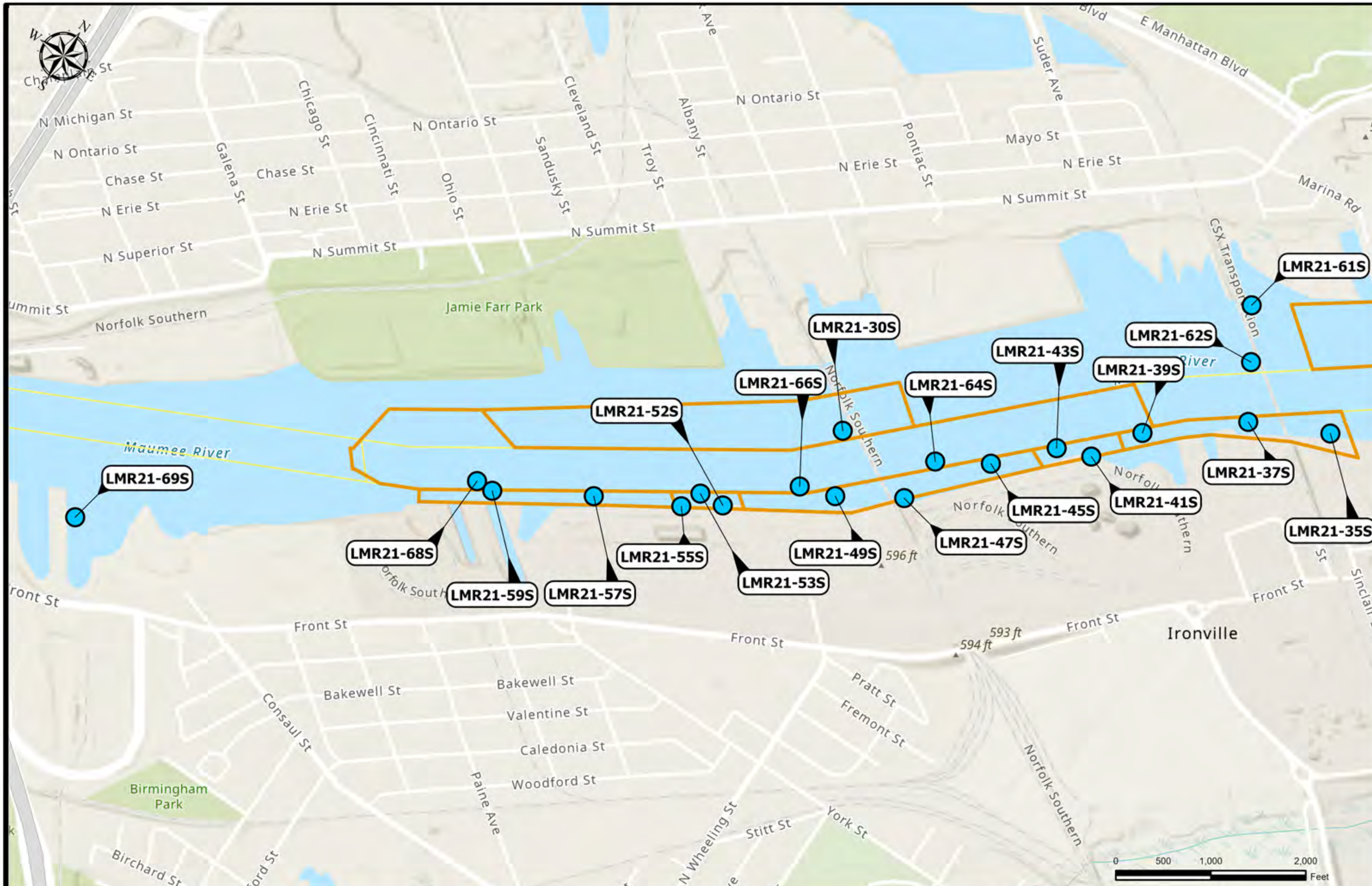
2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total PCB Aroclors

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 3/8/2022 11:24 AM

Maumee River, Ohio

FIGURE 4.WC.10

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total PCB Congener Concentrations (ug/kg)

- Non-Detect (U)
- <676 (PEC)
- >676 - <1,000
- >1,000 - <5,000
- >5,000 - <10,000
- >10,000
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

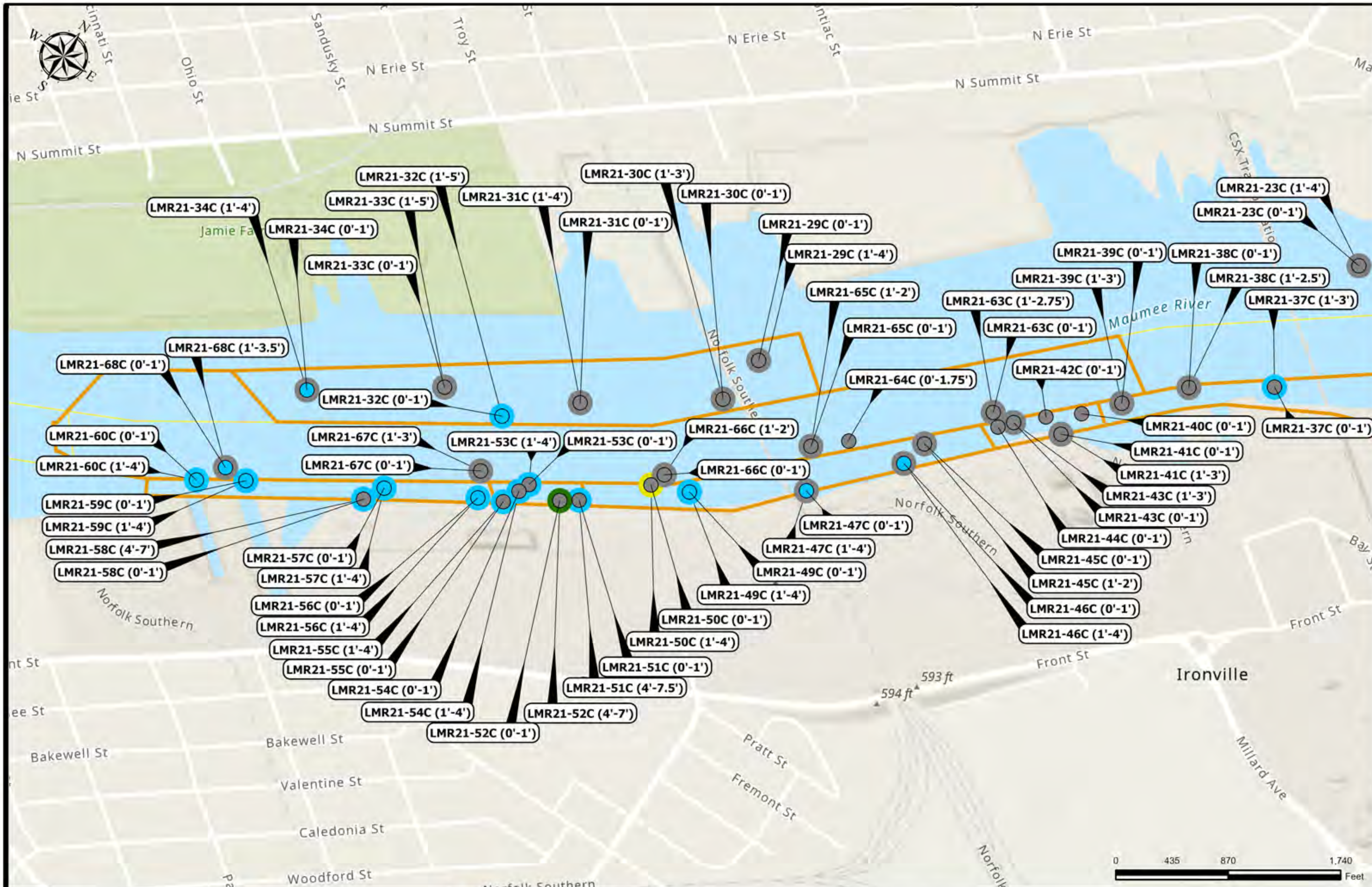
2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Total PCB Congeners

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 3/8/2022 11:24 AM

Maumee River, Ohio

FIGURE 4.SS.10

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total PCB Aroclor Concentrations (ug/kg)

- Non-Detect (U)
- <676 (PEC)
- >676 - <1,000
- >1,000 - <5,000
- >5,000 - <10,000
- >10,000
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

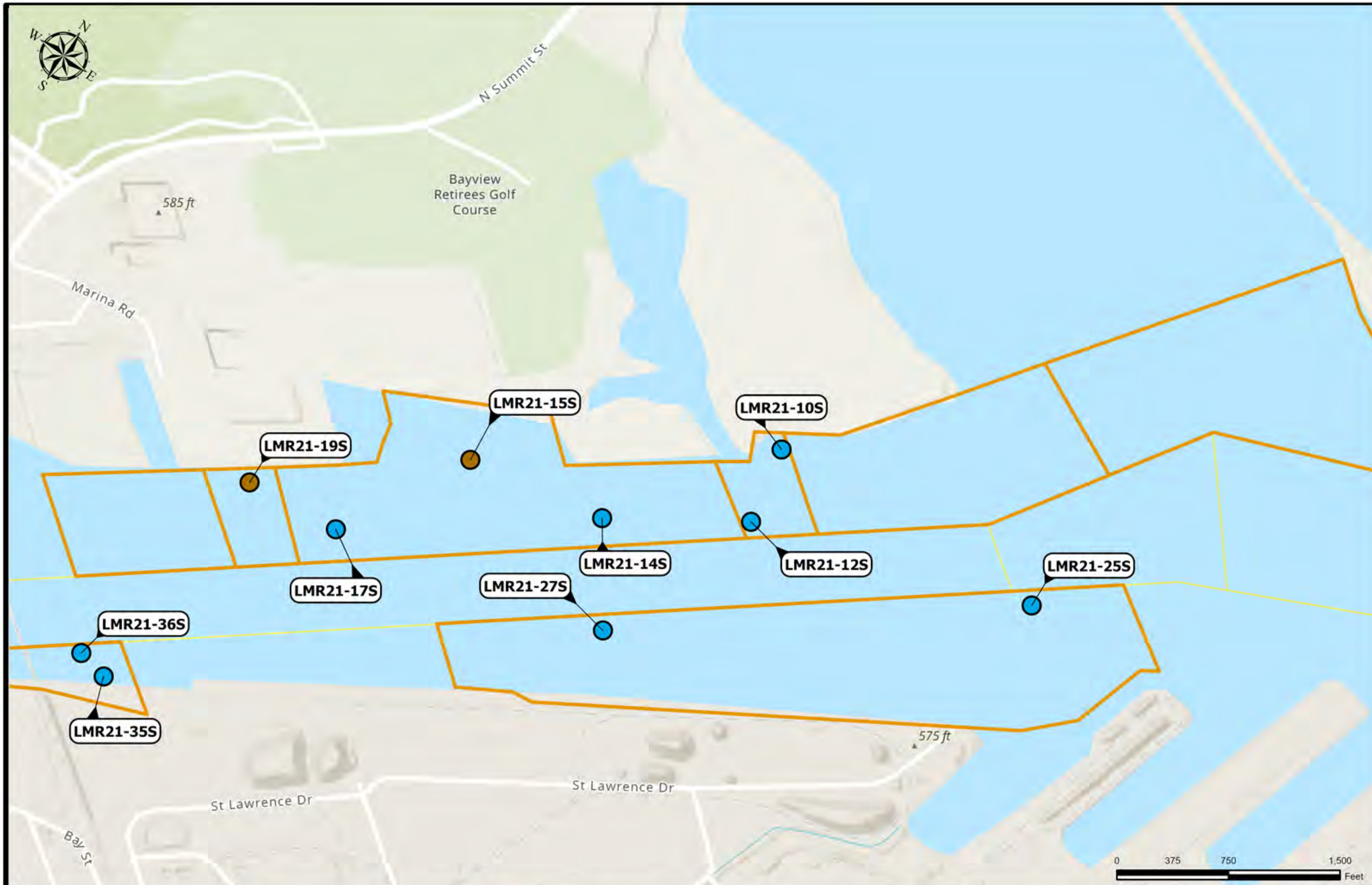
2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Total PCB Aroclors

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 3/8/2022 11:24 AM

Maumee River, Ohio

FIGURE 4.SC.10

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total DRO Concentrations (mg/kg)

- Non-Detect (U)
- <340 (ESV for DRO)
- >340 - <510 (RSV)
- >510 - <680 (2x ESV)
- >680 - <1700 (5x ESV)
- >1700 - <3600 (ESV for Residual TPH)
- >3600
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total Diesel Range Organics

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
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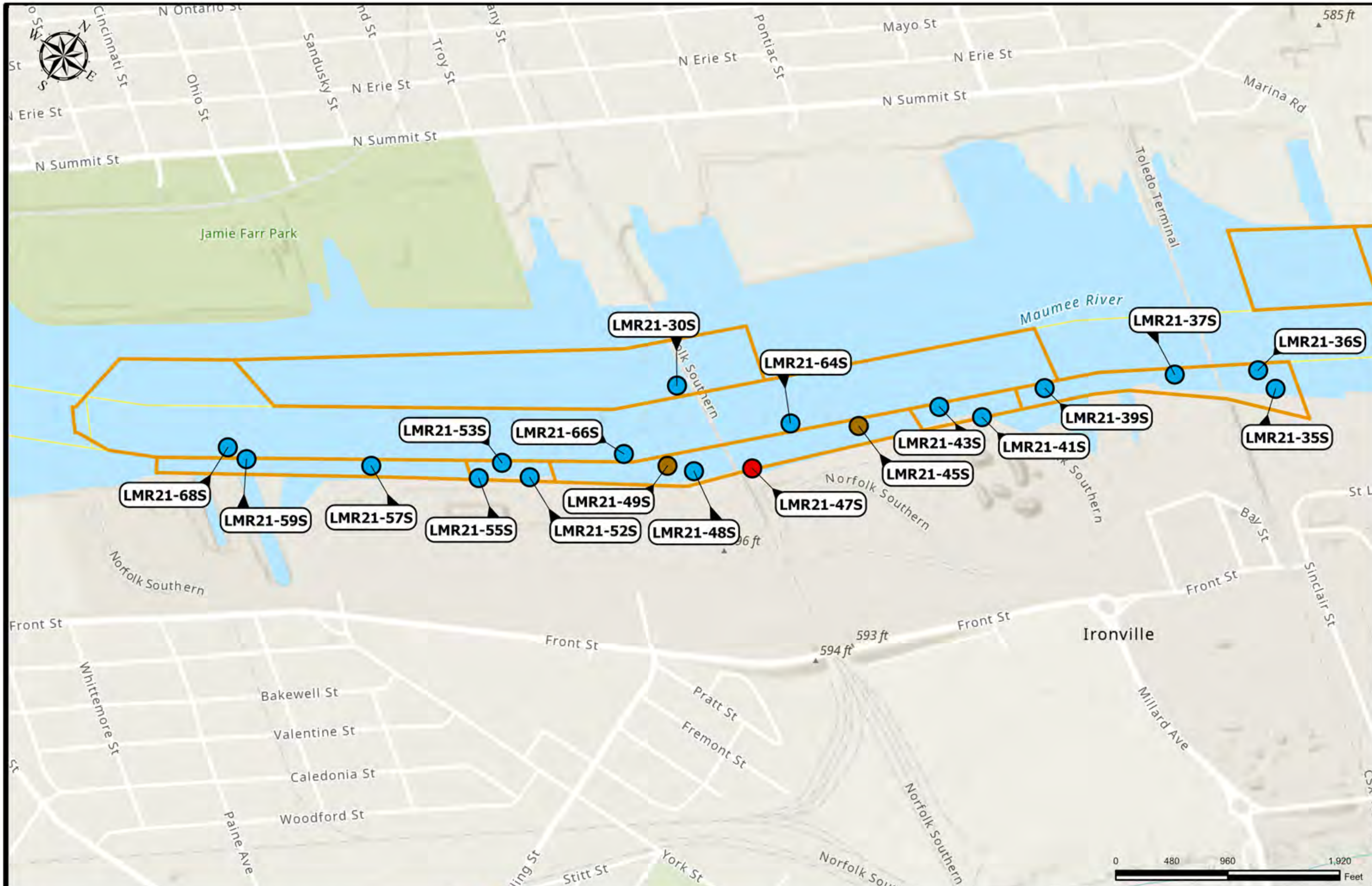
Maumee River, Ohio

FIGURE 4.WS.11

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total DRO Concentrations (mg/kg)

- Non-Detect (U)
- <340 (ESV for DRO)
- >340 - <510 (RSV)
- >510 - <680 (2x ESV)
- >680 - <1700 (5x ESV)
- >1700 - <3600 (ESV for Residual TPH)
- >3600
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

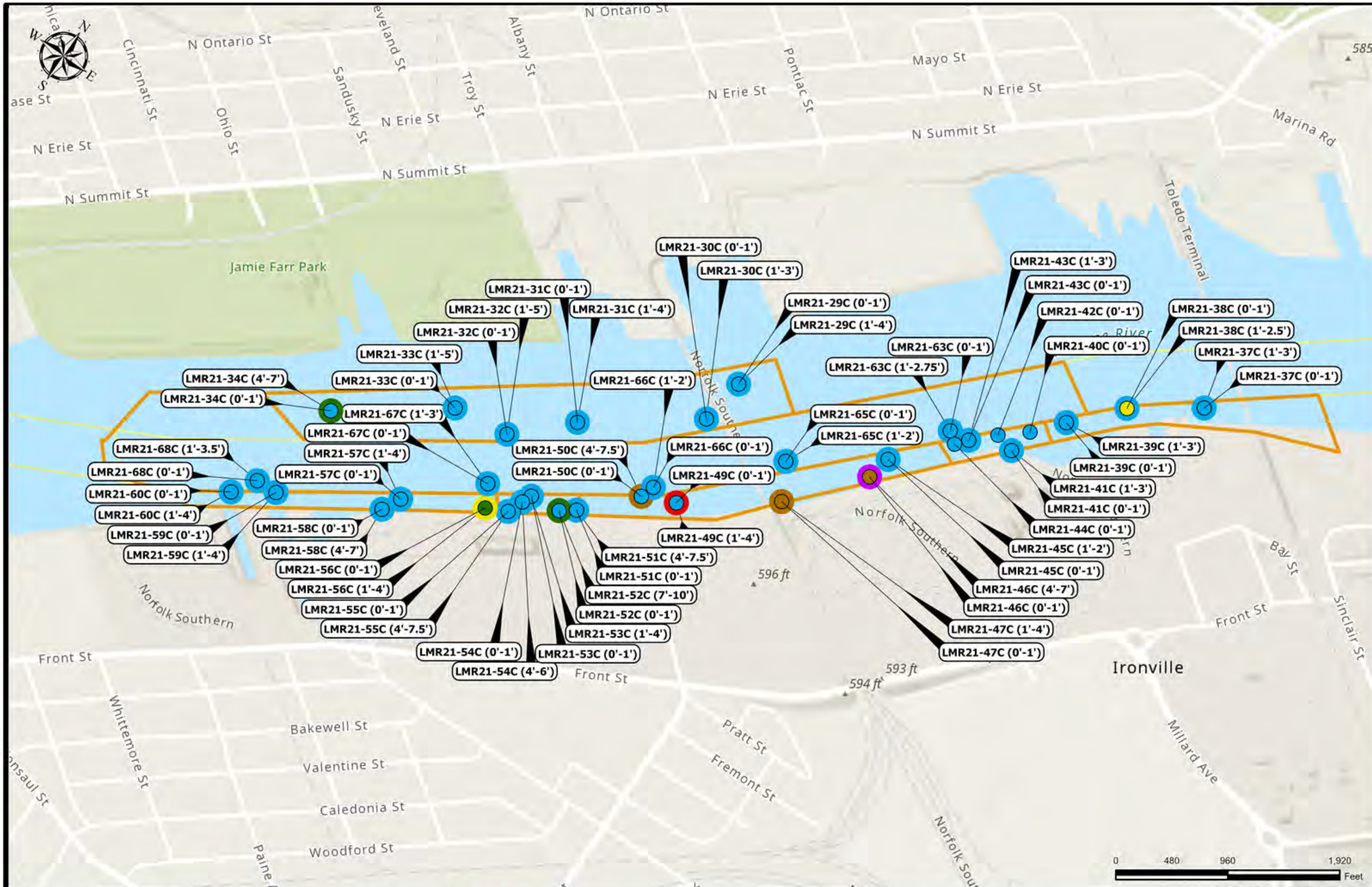
2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Total Diesel Range Organics

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 4/21/2022 11:39 AM

Maumee River, Ohio

FIGURE 4.SS.11

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total DRO Concentrations (mg/kg)

- Non-Detect (U)
- <340 (ESV for DRO)
- >340 - <510 (RSV)
- >510 - <680 (2x ESV)
- >680 - <1700 (5x ESV)
- >1700 - <3600 (ESV for Residual TPH)
- >3600
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Total Diesel Range Organics

Document Name: LMAOC_2021_Results.mxd
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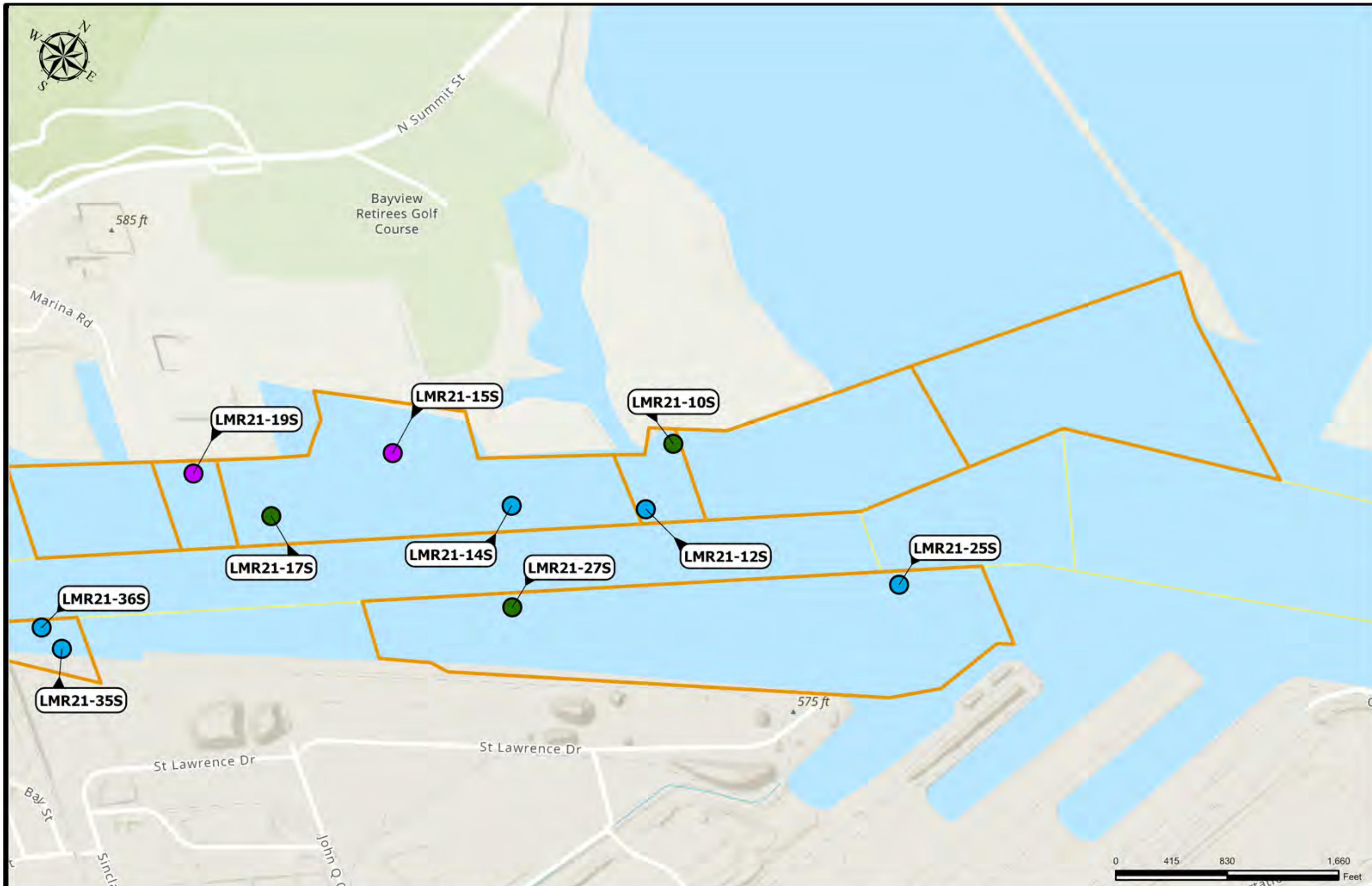
Date Saved: 4/22/2022 9:49 AM

Maumee River, Ohio

FIGURE 4.SC.11

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total ORO Concentrations (mg/kg)

- Non-Detect (U)
- <340 (ESV for DRO)
- >340 - <510 (RSV)
- >510 - <680 (2x ESV)
- >680 - <1700 (5x ESV)
- >1700 - <3600 (ESV for Residual TPH)
- >3600
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

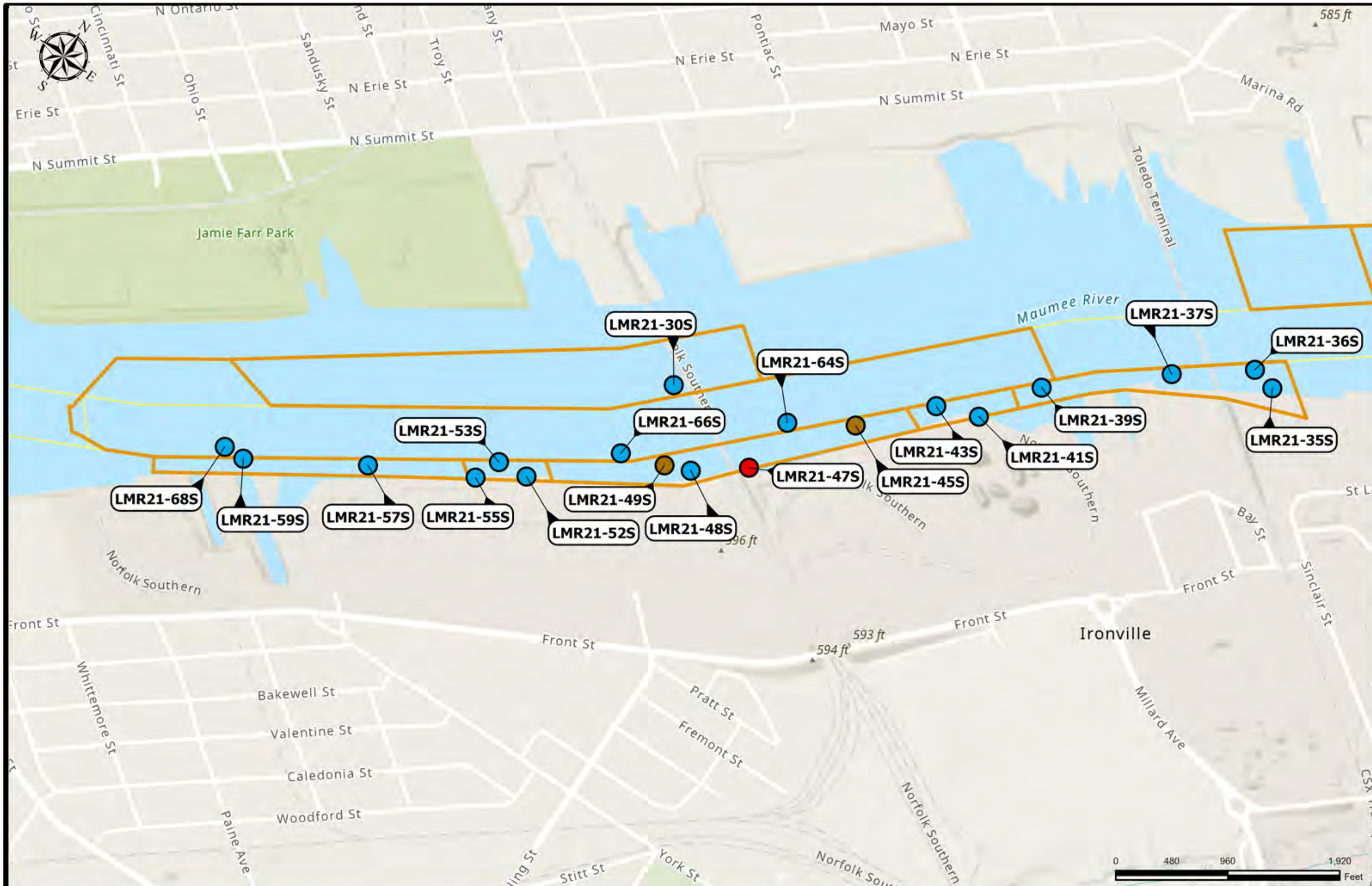
2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total Oil Range Organics

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 4/22/2022 10:19 AM

Maumee River, Ohio

FIGURE 4.WS.12

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total ORO Concentrations (mg/kg)

- Non-Detect (U)
- <340 (ESV for DRO)
- >340 - <510 (RSV)
- >510 - <680 (2x ESV)
- >680 - <1700 (5x ESV)
- >1700 - <3600 (ESV for Residual TPH)
- >3600
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

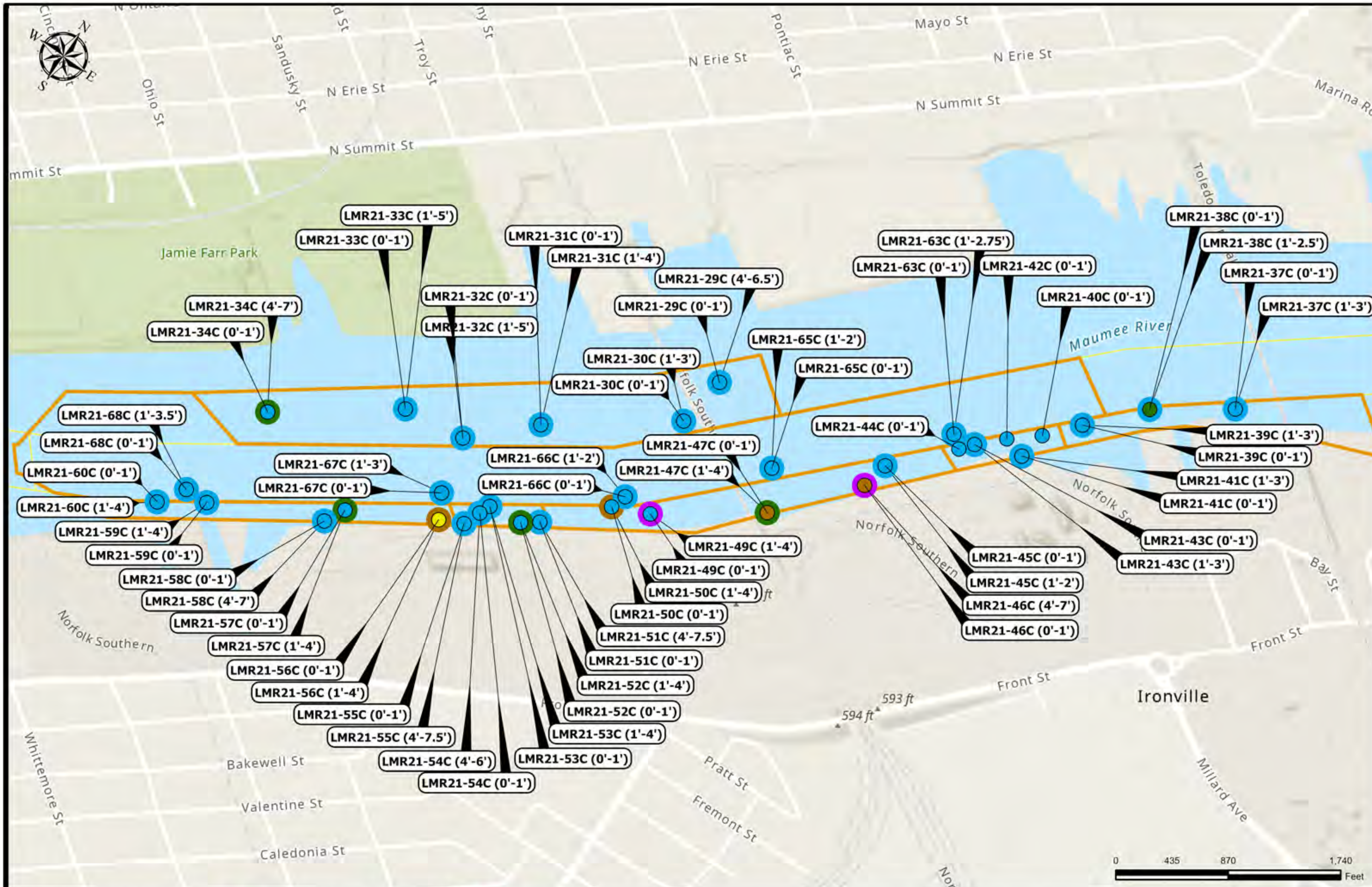
2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Total Oil Range Organics

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 4/22/2022 10:28 AM

Maumee River, Ohio

FIGURE 4.SS.12

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Total ORO Concentrations (mg/kg)

- Non-Detect (U)
- <340 (ESV for DRO)
- >340 - <510 (RSV)
- >510 - <680 (2x ESV)
- >680 - <1700 (5x ESV)
- >1700 - <3600 (ESV for Residual TPH)
- >3600
- Statment of Work Areas
- Federal Navigation Channel

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

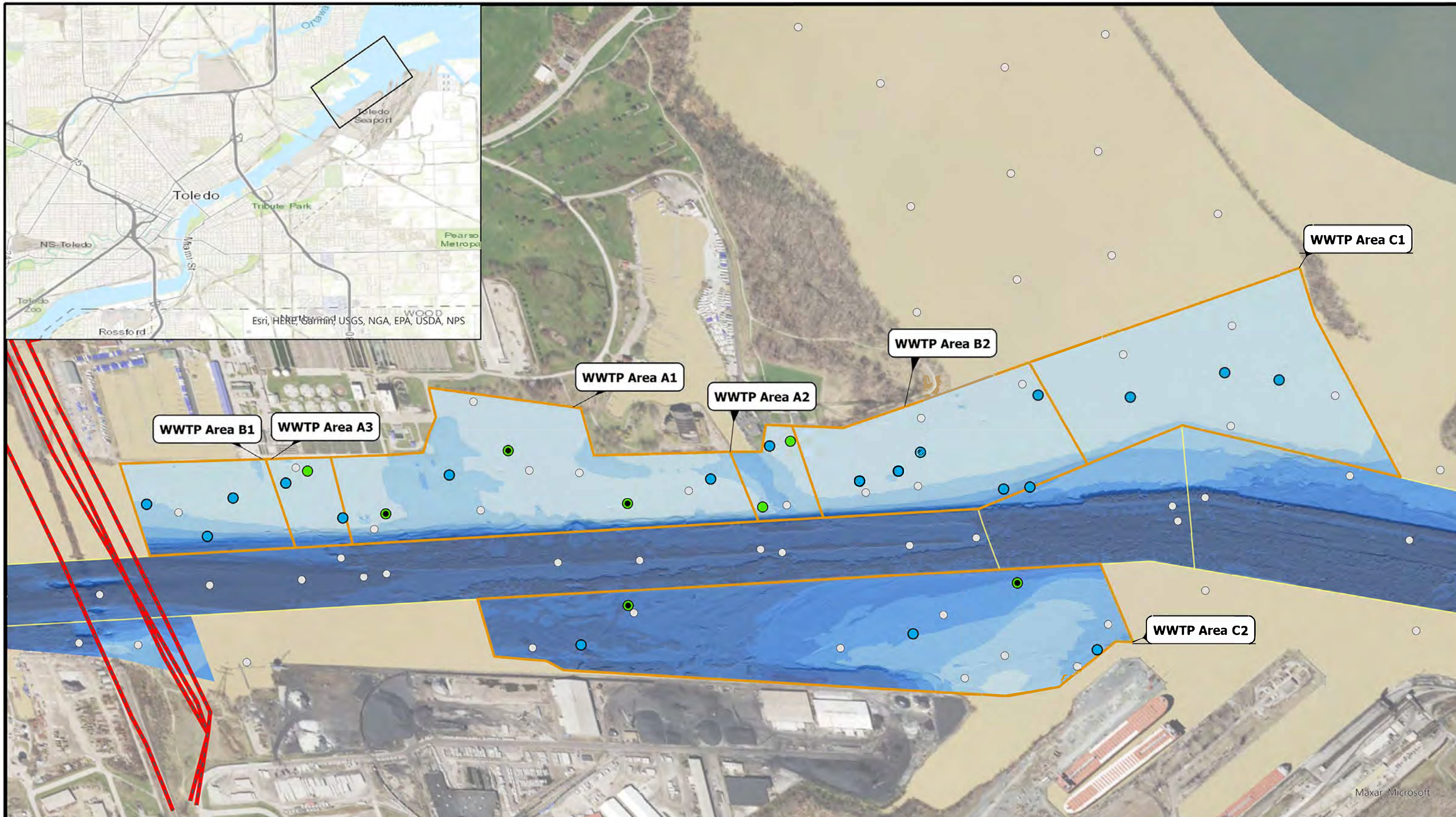
2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Total Oil Range Organics

Document Name: LMAOC_2021_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 4/25/2022 9:28 AM

Maumee River, Ohio

FIGURE 4.SC.12

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_2021_Results.aprx



Biological Surveys
Core Samples Only
Surface Sample, Bioassay, and Core Sample
USACE & USEPA Previous Sample Locations
Statment of Work Areas

Federal Channel

Feet Below LWD

≤ 4 Feet
≤ 8 Feet
≤ 12 Feet
≤ 16 Feet
≤ 21 Feet
≤ 25 Feet
≤ 28 Feet
≤34 Feet

Approximate Pipeline Locations

0 500 1,000 2,000 Feet

N E S W

US Army Corps of Engineers
Buffalo District

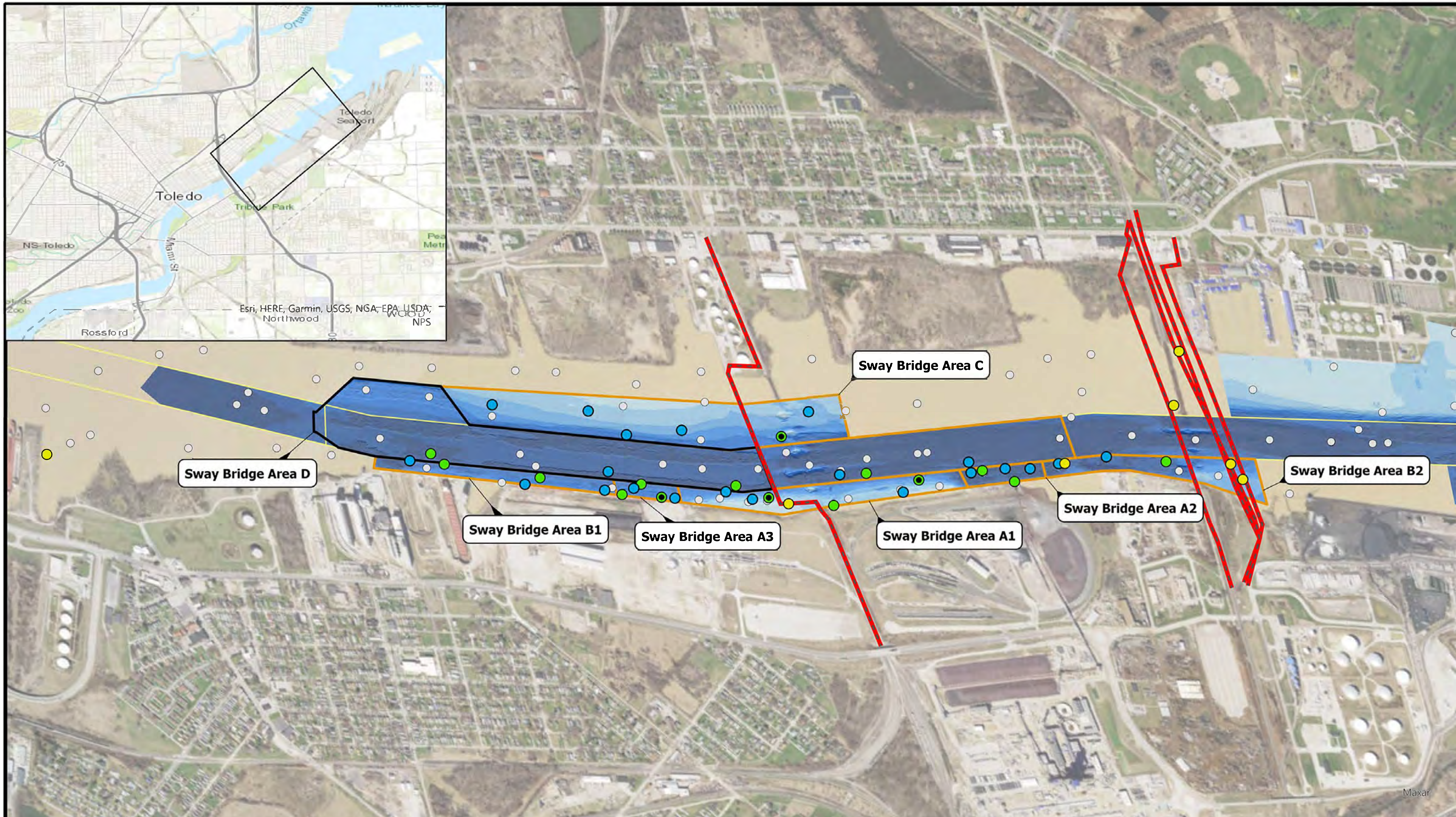
U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2021 ACTUAL SEDIMENT SAMPLE LOCATIONS &
USEPA PHASE II WASTE WATER TREATMENT PLANT HOTSPOT
SEDIMENT SAMPLE LOCATIONS

Document Name: LowerMaumee_202105.mxd
Drawn By: H5TDEEMP
Date Saved: 9/22/2021 9:22 AM

Maumee River, Ohio

Figure 8a



- Biological Surveys
- Surface Sample Only
- Core Samples Only
- Surface Sample, Bioassay, and Core Sample
- USACE & USEPA Previous Sample Locations
- USACE 2020 Dredge Area
- Statment of Work Areas
- Federal Channel

Feet Below LWD

- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤34 Feet
- Approximate Pipeline Locations

0 500 1,000 2,000 Feet

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

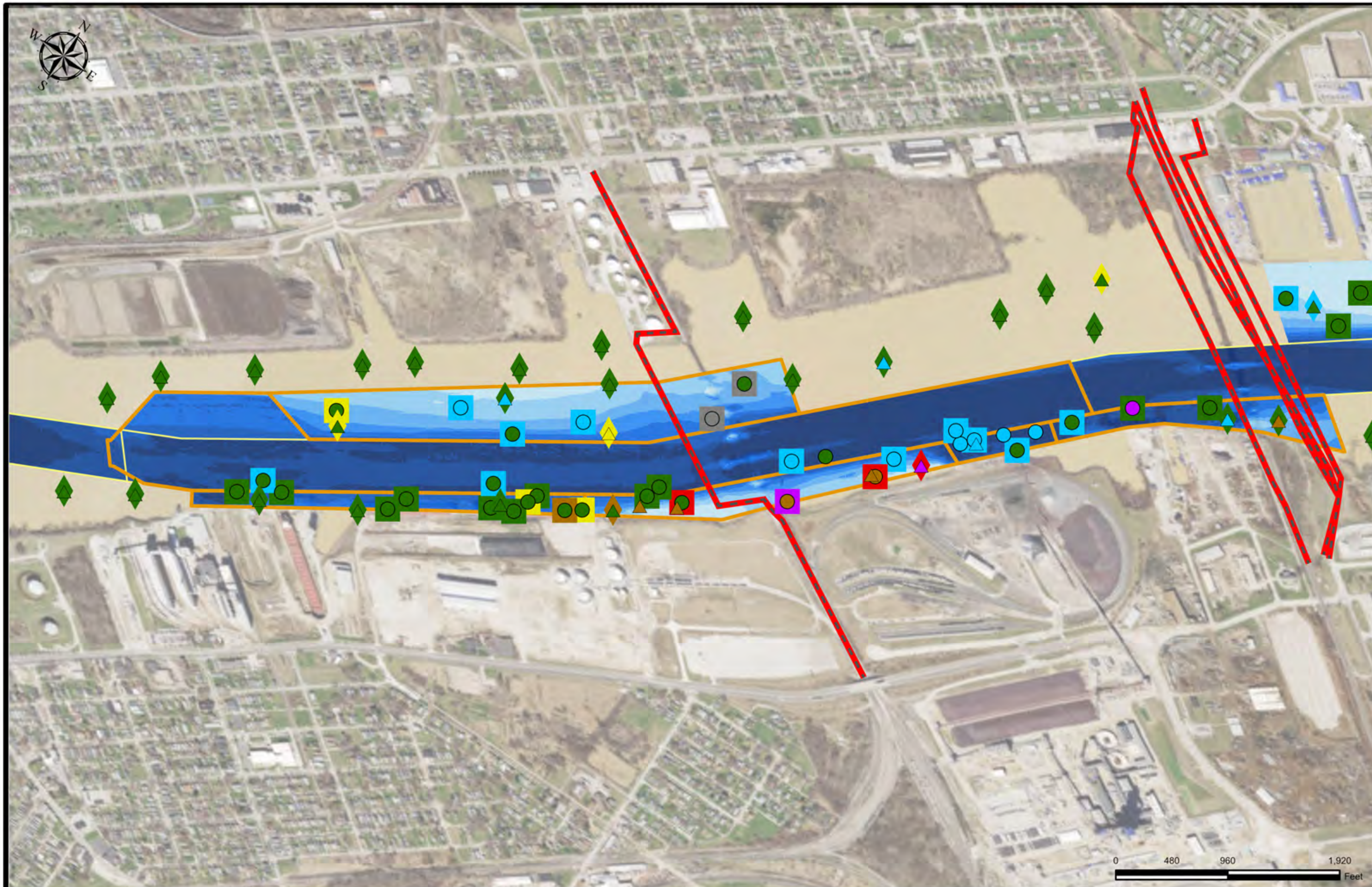
US Army Corps of Engineers Buffalo District

2021 ACTUAL SEDIMENT SAMPLE LOCATIONS & USEPA PHASE II SWAY BRIDGE AREA HOTSPOT SEDIMENT SAMPLE LOCATIONS

Document Name: LowerMaumee_202105.mxd
Drawn By: H5TDEEMP
Date Saved: 9/22/2021 12:05 PM

Maumee River, Ohio

Figure 8b



Total PAH 17 Concentrations (ug/kg)

- Non-Detect (U)
- <1,610 (TEC)
- >1,610 - <22,800 (PEC)
- >22,800 - <45,600 (2x PEC)
- >45,600 - <114,000 (5x PEC)
- >114,000 - <228,000 (10x PEC)
- >228,000 (> 10x PEC)

- LMR13 Surface Results (0'-1')
- LMR13 Sub-Surface Results (>1')
- LMR21 Surface Samples (0'-1')
- LMR21 Sub-Surface Results (>1')
- Approximate Pipeline Locations
- Statment of Work Areas
- Federal Navigation Channel

Feet Below LWD

- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤34 Feet

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

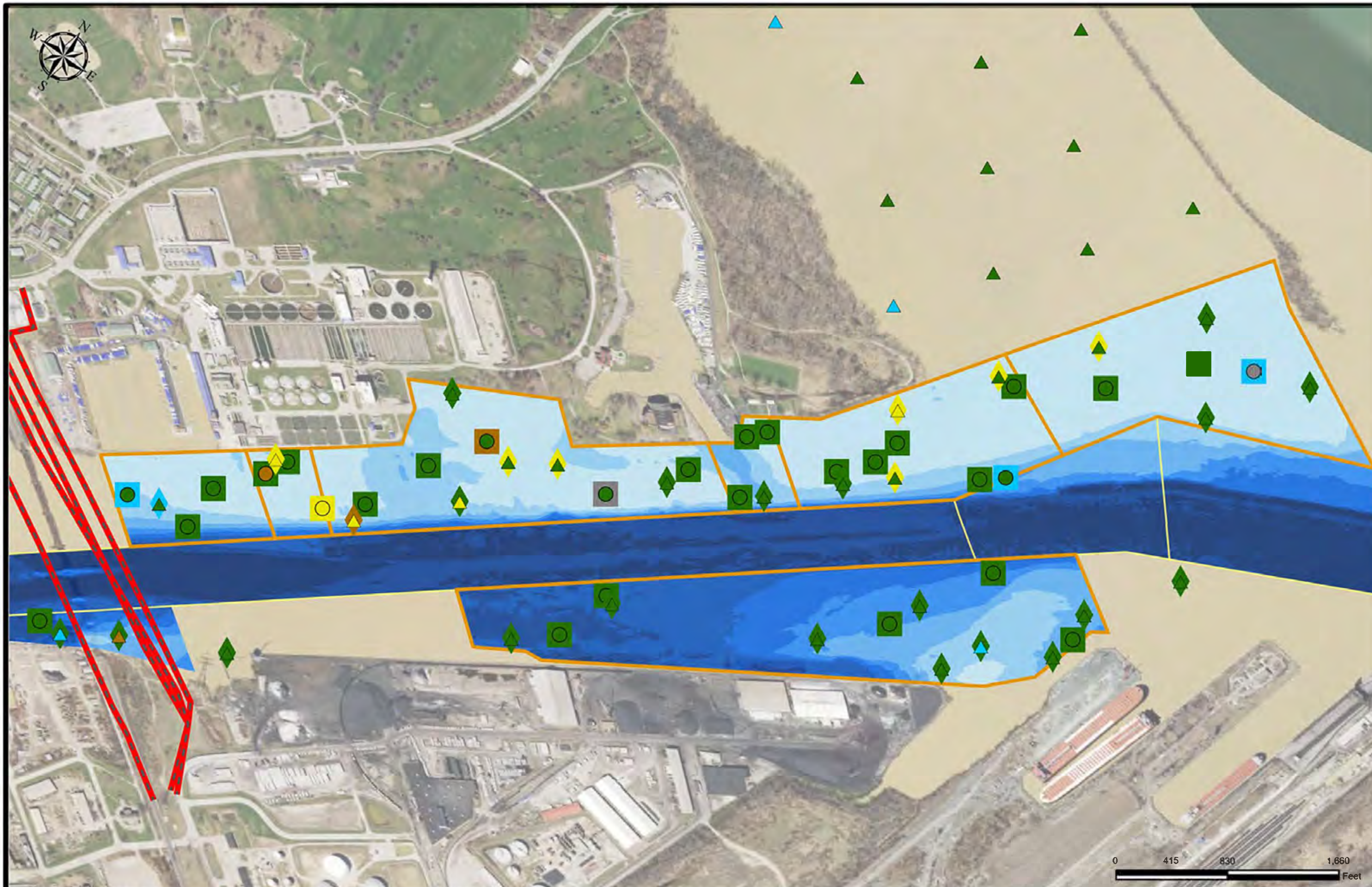
2013 & 2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Total PAH 17

Document Name: LMAOC_21_13_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 7/27/2022 1:40 PM

Maumee River, Ohio

FIGURE 8.SC.9

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_21_13_Results.aprx



Total PAH 17 Concentrations (ug/kg)
- Non-Detect (U)
- <1,610 (TEC)
- >1,610 - <22,800 (PEC)
- >22,800 - <45,600 (2x PEC)
- >45,600 - <114,000 (5x PEC)
- >114,000 - <228,000 (10x PEC)
- >228,000 (> 10x PEC)

- LMR13 Surface Results (0'-1')
- LMR13 Sub-Surface Results (>1')
- LMR21 Surface Samples (0'-1')
- LMR21 Sub-Surface Results (>1')
- Approximate Pipeline Locations
- Statment of Work Areas
- Federal Navigation Channel

Feet Below LWD
- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤34 Feet

US Army Corps of Engineers. Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2013 & 2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total PAH 17

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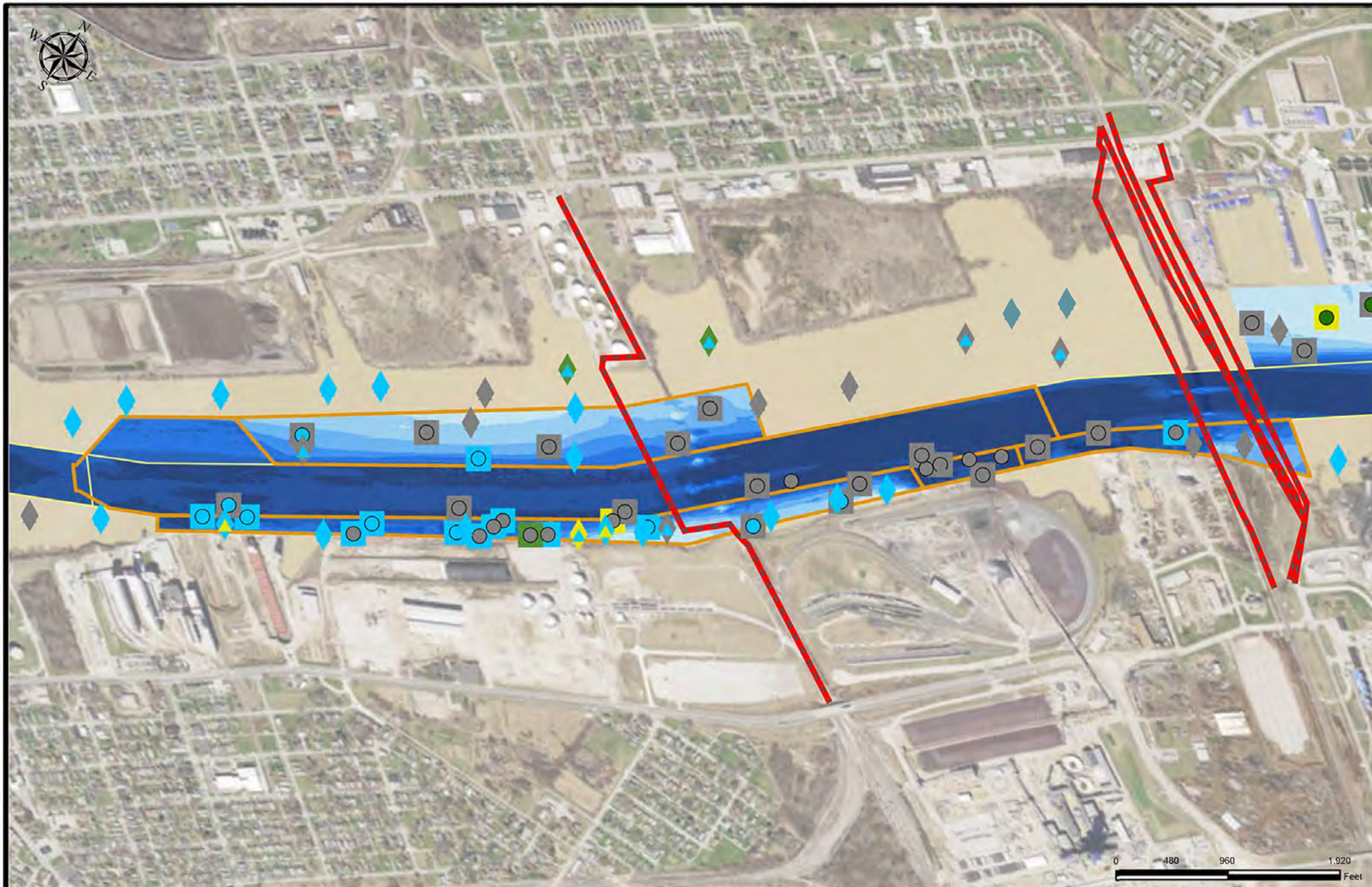
Date Saved: 4/18/2022 9:29 AM

Maumee River, Ohio

FIGURE 8.WC.9

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_21_13_Results.aprx



Total PCB Aroclor Concentrations (ug/kg)
- Non-Detect (U)
- <676 (PEC)
- >676 - <1,000
- >1,000 - <5,000
- >5,000 - <10,000
- >10,000

- LMR13 Surface Results (0'-1')
- LMR13 Sub-Surface Results (>1')
- LMR21 Surface Samples (0'-1')
- LMR21 Sub-Surface Results (>1')
- Approximate Pipeline Locations
- Statment of Work Areas
- Federal Navigation Channel

Feet Below LWD
- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤34 Feet

US Army Corps of Engineers. Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

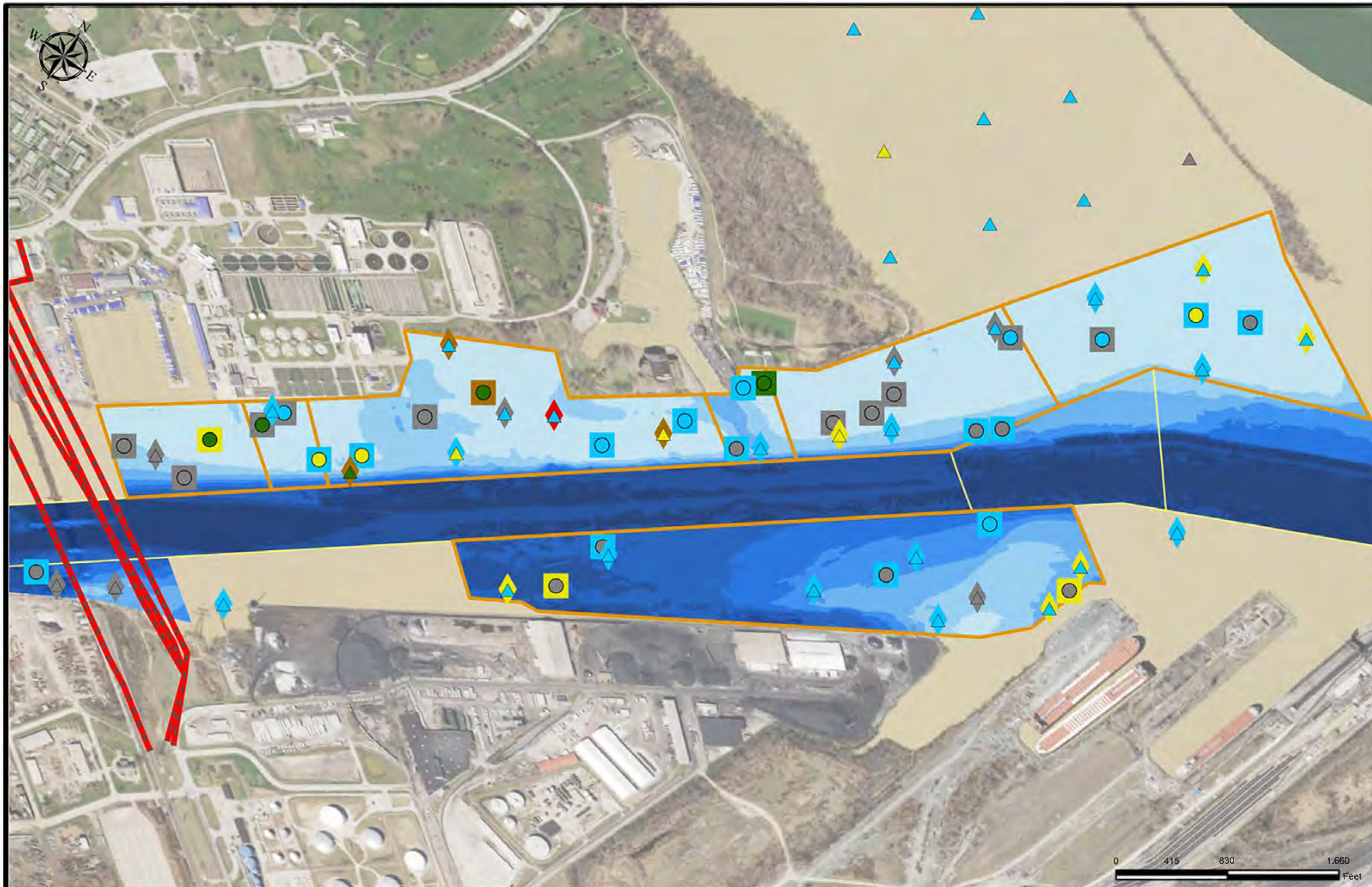
2013 & 2021 Core Sediment Sample Results
Sway Bridge Area Hotspot
Total PCB Aroclors

Document Name: Lower_Maumee_20220228
Drawn By: H5TDEEMP
Date Saved: 4/18/2022 10:38 AM

Maumee River, Ohio

FIGURE 8.SC.10

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\Lower_Maumee_20220228\Lower_Maumee_20220228.aprx



Total PCB Aroclor Concentrations (ug/kg)
- Non-Detect (U)
- <676 (PEC)
- >676 - <1,000
- >1,000 - <5,000
- >5,000 - <10,000
- >10,000

- LMR13 Surface Results (0'-1')
- LMR13 Sub-Surface Results (>1')
- LMR21 Surface Samples (0'-1')
- LMR21 Sub-Surface Results (>1')
- Approximate Pipeline Locations
- Statment of Work Areas
- Federal Navigation Channel

Feet Below LWD
- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤34 Feet

US Army Corps of Engineers
Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

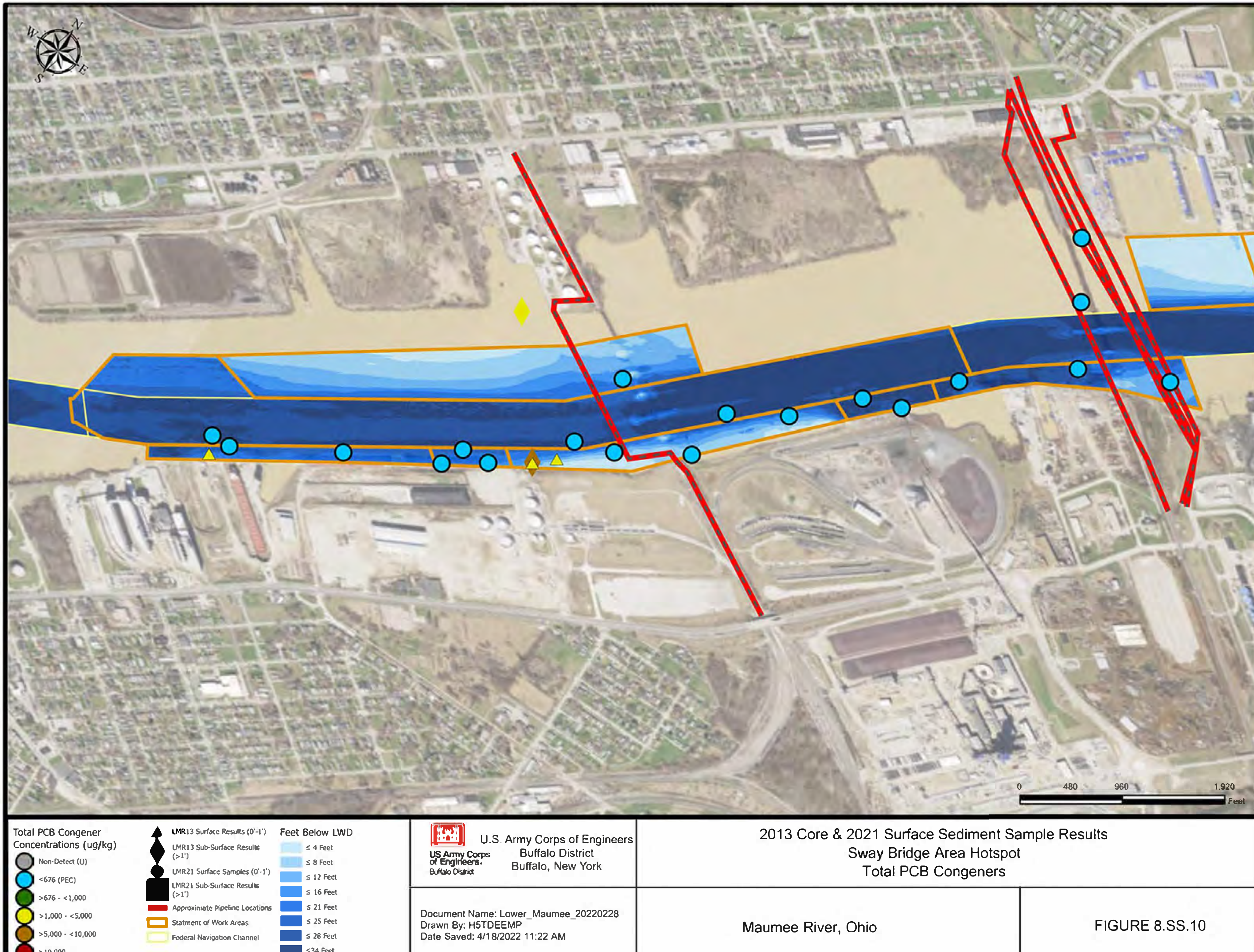
2013 & 2021 Core Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total PCB Aroclors

Document Name: LMAOC_21_13_Results.mxd
Drawn By: H5TDEEMP
Date Saved: 4/18/2022 9:08 AM

Maumee River, Ohio

FIGURE 8.WC.10

Document Path: C:\Users\H5TDEEMP\Documents\Harbors\Toledo\Lower_Maumee_20220228\LMAOC_21_13_Results.aprx



US Army Corps of Engineers. Buffalo District

U.S. Army Corps of Engineers
Buffalo District
Buffalo, New York

2013 Core & 2021 Surface Sediment Sample Results
Sway Bridge Area Hotspot
Total PCB Congeners

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Maumee River, Ohio

FIGURE 8.SS.10

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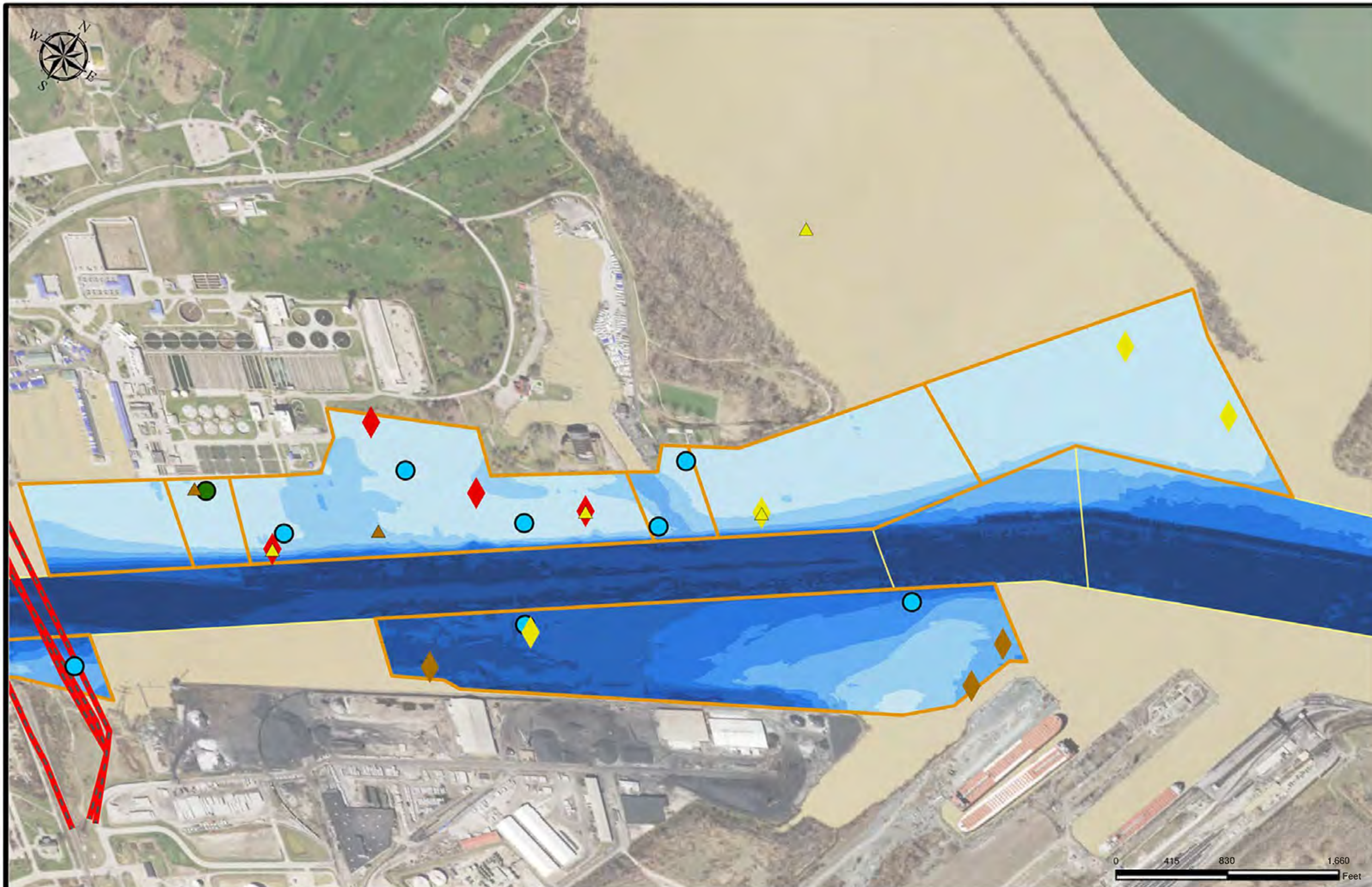

Total PCB Congener Concentrations (ug/kg)

- Non-Detect (U)
- <676 (PEC)
- >676 - <1,000
- >1,000 - <5,000
- >5,000 - <10,000
- >10,000

- LMR13 Surface Results (0'-1')
- LMR13 Sub-Surface Results (>1')
- LMR21 Surface Samples (0'-1')
- LMR21 Sub-Surface Results (>1')
- Approximate Pipeline Locations
- Statment of Work Areas
- Federal Navigation Channel

Feet Below LWD

- ≤ 4 Feet
- ≤ 8 Feet
- ≤ 12 Feet
- ≤ 16 Feet
- ≤ 21 Feet
- ≤ 25 Feet
- ≤ 28 Feet
- ≤34 Feet

US Army Corps of Engineers. Buffalo District

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Buffalo District
Buffalo, New York

2013 Core & 2021 Surface Sediment Sample Results
Waste Water Treatment Plant Hotspot
Total PCB Congeners

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FIGURE 8.WS.10

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Tables

			Surface grab			Cores				Other Agency Sampling	
Area / Data Quality Objective	**Sub-Area**	**# discrete locations**	**Bulk Sediment Chemistry Analytical Suite A**	**Benthic Sediment Toxicity**	**PCB bioaccumu-lation**	**Bulk Sediment Chemistry Analytical Suite B**	**Bulk Sediment Chemistry Analytical Suite C**	**Elutriate Analyis**	**Aquatic toxicity tests (Elutriate)**	**Biological Surveys**	**EPA ORD *in situ* passive sampling (porewater)**
Sway Bridge											
Nature of contamination to determine sediment remedial goals which support BUI removal & determine disposal options	Area A1	6	3	3	3	24	0	1	1	2	5
Nature and Extent of contamination to bound area warranting remediation	Area A2	5	2	2	0	20	0	1	1	0	5
Nature and Extent of contamination to bound area warranting remediation	Area A3	5	3	3	0	20	0	1	1	1	5
Extent of contamination to bound area warranting remediation (& determine disposal options)	Area B1	5	2	2	0	20	0	1	1	0	2
Extent of contamination to bound area warranting remediation (& determine disposal options)	Area B2	5	3	3	0	20	0	1	1	0	3
Confirmation that sediment here does not warrant remediation	Area C	6	1	1	0	24	0	1	1	1	1
Nature and extent of contamination to bound area warranting remediation	Area D	6	3	3	3	24	0	1	1	0	6
Chevron Sway Bridge total number of sample locations		38	17	17	6	152	0	7	7	4	27
WWTP											
Nature of contamination to determine sediment remedial goals which support BUI removal & determine disposal options	Area A1	5	3	3	3	0	20	1	1	3	5
Nature and Extent of contamination to bound area warranting remediation	Area A2	3	1	1	1	0	12	1	1	1	3
Nature and Extent of contamination to bound area warranting remediation	Area A3	3	2	2	2	0	12	1	1	0	3
Extent of contamination to bound area warranting remediation (& determine disposal options)	Area B1	3	0	0	0	0	12	1	1	0	0
Extent of contamination to bound area warranting remediation (& determine disposal options)	Area B2	6	0	0	0	0	24	1	1	0	0
Confirmation that sediment here does not warrant remediation	Area C 1	3	0	0	0	0	12	1	1	0	0
Confirmation that sediment here does not warrant remediation	Area C 2	5	2	2	2	0	20	1	1	2	2
WWTP total number of samples		28	8	8	8	0	112	7	7	6	13
Additional chemistry locations to cover biological locations outside of sway and WWTP AND bioassay reference	biological	3	3	3	1	0	0	0	1	3	3
TOTALS		**69**	**28**	**28**	**15**	**152**	**112**	**14**	**15**	**13**	**43**

Table 1.2 Summary of Analytical Suites Applied to Samples

Parameter /analytical suite	All Surface grabs Analytical Suite A	Sway Bridge Core samples Analytical Suite B	WWTP Core samples Analytical Suite C	Core composites for elutriate	
medium	sediment	sediment	sediment	sediment	elutriate
total organic carbon	x	x	x	x	
grain size	x	x	x	x	
oil and grease	x	x		x	x
total petroleum hydrocarbons (DRO / ORO)	x	x		x	x
metals	x	x	x	x	x
16 PAHs plus 2-methylnaphthalene		x	x	x	x
34 PAHs (performed by ORD)	x				
PCB aroclors		x	x	x	x
PCB congeners	x				
Nitrogen - Total Kjeldahl				x	x
Nitrogen - Ammonia				x	x
Cyanide, Total				x	x
Phosphorus, Total				x	x
benthic toxicity tests (*Chironomous* and *Hyalella*)	x				
bioaccumulation tests (PCBs) (*Lumbriculus*)*	x (some)*				
aquatic toxicity tests (*Daphnia* and *Pimephales*)					x
TCLP (RCRA analyes)				x	

* Surface samples subjected to worm uptake are identified in Table 3.1.

Table 1.3 Number of Sediment Samples Subjected to Laboratory Analyses

Analysis	Method	Matrix type	Number of primary samples collected	Number of field duplicates	Number of laboratory MS/MSD	Total	% MS/MSD
Total Organic Carbon	EPA 9060, SM 5310B	sediment surface grab	30		1	31	
		sediment core discrete	185	21	18	224	
		sediment core composite	14	16	2	32	
		elutriate	14		3	17	
		total	**243**	**37**	**24**	**304**	**10%**
Grain Size Analysis (Includes both Sieve and Hydrometer)	ASTM D422	sediment surface grab	30			30	
		sediment core discrete	187	33		220	
		sediment core composite	14	1		15	
		elutriate					
		total	**231**	**34**	**0**	**265**	
Petroleum Hydrocarbons – Diesel Range & Gasoline Range Organics	EPA 8015D	sediment surface grab	30		1	31	
		sediment core discrete	96	12	10	118	
		sediment core composite	14	8	1	23	
		elutriate	14		0	14	
		total	**154**	**20**	**12**	**186**	**8%**
Oil and Grease	EPA 1664A, EPA 9071B	sediment surface grab	30		0	30	
		sediment core discrete	96	12	7	115	
		sediment core composite	14	8	1	23	
		elutriate	14		0	14	
		total	**154**	**20**	**7**	**182**	**5%**
Metals - 23 metals per TAL and mercury	EPA 6010/6020/7470/7471	sediment surface grab	30		2 (Hg)	30	
		sediment core discrete	186	21	23 (Hg), 9 (metal)	207	
		sediment core composite	14	31	5 (Hg), 4 (metals)	45	
		elutriate	14		0	14	
		total	**244**	**52**	**30 (Hg), 13 (metals)**	**296**	**5%**
PAHs (17)	EPA 8270	sediment core discrete	186	21	16	223	
		sediment core composite	14	16	2	32	
		elutriate	14		0	14	
		total	**214**	**37**	**18**	**269**	**8%**
PCB Congeners - A-DRBC List (209 Congeners)	EPA 1668A	sediment surface grab	28		1	29	
		worm tissue from surface sediment	65			65	
		total	**93**	**0**	**1**	**94**	**1%**

Table 1.3 Number of Sediment Samples Subjected to Laboratory Analyses

Analysis	Method	Matrix type	Number of primary samples collected	Number of field duplicates	Number of laboratory MS/MSD	Total	% MS/MSD
PCBs (Aroclors)	EPA 8082A	sediment core discrete	186	21	14	221	
		sediment core composite	14	16	2	32	
		elutriate	14		0	14	
		total	**214**	**37**	**16**	**267**	**7%**
Cyanide, Total	EPA 9012B, SM 4500 CN-E	sediment core composite	14		2	16	
		elutriate	14		1	15	
		total	**28**	**0**	**3**	**31**	**11%**
Nitrogen - Total Kjeldahl	EPA 351.2 mod	sediment core composite	14	1	1	16	
		elutriate	14		0	14	
		total	**28**	**1**	**1**	**30**	**4%**
Nitrogen - Ammonia	SM 4500-NH3	sediment core composite	14	1	1	16	
		elutriate	14		1	15	
		total	**28**	**1**	**2**	**31**	**7%**
Phosphorus, Total	SM 4500-P-F	sediment core composite	14	1	1	16	
		elutriate	14		0	14	
		total	**28**	**1**	**1**	**30**	**4%**
TCLP, Extraction with Analyses on all RCRA parameters	EPA 1311, various	sediment core composite	14	1	2 (Hg), 1 (metal), 2 (PAHs), 1 (VOCs), 2 (pesticides)	15	7%

Table 3.0.1 Lower Maumee River Surface Sediment Sample Summary and Field Sheet

Sample ID	Date	Time	Field Notes
LMR21-10S	8/10/2021	8:07	Samples taken at LMR-10S because LMR21-11S is on land, brown silty clay
LMR21-12S	8/10/2021	8:30	Silty clay
LMR21-14S	8/10/2021	9:04	Silty clay
LMR21-15S	8/10/2021	9:30	Silty clay with a little organic
LMR21-17S	8/10/2021	9:40	Silty clay
LMR21-19S	8/10/2021	9:54	Sandy silty clay
LMR21-25S	8/10/2021	10:30	Silty clay
LMR21-27S	8/10/2021	11:30	Silty clay
LMR21-30S	8/10/2021	12:05	Sandy silty clay with organic
LMR21-35S	8/10/2021	12:25	Silty clay, oil sheen,smell, sample location near pipelines, mussel with zebra mussel attached
LMR21-36S	8/12/2021	8:15	Clayey silt
LMR21-37S	8/10/2021	14:30	Silty clay
LMR21-39S	8/10/2021	14:40	Silty clay - lots of clay, gravel
LMR21-41S	8/10/2021	15:00	Silty clay
LMR21-43S	8/10/2021	15:10	Silty clay
LMR21-45S	8/10/2021	15:25	Silty clay, petroleum smell
LMR21-47S	8/10/2021	16:00	Silty clay, sticks, gravel, chemical smell, chunks of slag in sediment, oil sheen
LMR21-48S	8/12/2021	8:30	Clayey silt, oily sheen, slag product in sediment, no recovery at 48S, moved to 0205
LMR21-49S	8/10/2021	16:20	Silty clay, chemical smell, oil sheen, chunks of slag
LMR21-52S	8/11/2021	9:15	Silty clay
LMR21-53S	8/12/2021	8:45	Silty clay
LMR21-55S	8/12/2021	9:00	Silty clay with a few rocks
LMR21-57S	8/12/2021	9:05	Silty clay
LMR21-59S	8/12/2021	9:15	Silty clay
LMR21-61S	8/12/2021	11:15	Silty clay; too shallow at sample point, taken at 0206
LMR21-62S	8/12/2021	11:25	Silty clay
LMR21-64S	8/12/2021	10:15	Silty clay
LMR21-66S	8/12/2021	9:45	Silty clay
LMR21-68S	8/12/2021	9:30	Silty clay
LMR21-69S	8/12/2021	10:35	Silty clay

Total # surface grab samples 30

Additional Notes
This location was revisited on 8/12/2021 at 8:10 to retrieve additional sediment for the composite
Additional material collected for composite sample, as no core was collected
Location was offset; new location reflected in Figure 3.5.1b.
Location was offset; new location reflected in Figure 3.5.1b.

Table 3.0.2 Lower Maumee River Sediment Core Summary

								Sampling Intervals (feet)					# primary discrete samples per core
Sample ID	Collection Date	Field Sampling Time	Vibracore equipment length (feet)	Field Measurement (in.)	Processing Date	Processing Measurement (in.)	Packaging Time	0-1	1-4	4-7	7-10	10-13	
LMR21-01C	8/10/2021		10	94	8/10/2021	92	9:00	X	X	X	7-8		4
LMR21-02C	8/10/2021	7:50	10	96	8/10/2021	94	9:30	X	X	X	7-8		4
LMR21-03C	8/10/2021		10	92	8/10/2021	89	9:50	X	X, FD	X			3
LMR21-04C	8/10/2021	8:15	10	83	8/10/2021	84	11:06	X	X	X			3
LMR21-05C	8/10/2021	8:50	10	96	8/10/2021	96	10:33	X	X	X	7-8		4
LMR21-06C	8/10/2021	9:09	10	72	8/10/2021	75	11:26	X	X	4-6.3			3
LMR21-07C	8/10/2021	9:24	10	92	8/10/2021	94	11:46	X	X	X	7-8		4
LMR21-08C*	8/10/2021	9:38	10	103	8/10/2021	90	12:05	X	X	X, FD	7-7.5		4
LMR21-09C*	8/10/2021	9:52	10	90	8/10/2021	103	12:33	X	X	X, MS/MSD	7-8		4
LMR21-10C	8/10/2021	10:08	10	101	8/10/2021	102	14:05	X	X	X	7-8.5		4
LMR21-11C	8/10/2021	11:10	15	103	8/10/2021	104	14:53	X	X	X	7-9		4
LMR21-12C	8/10/2021	11:43	15	156	8/10/2021	160	15:24	X	X, MS/MSD	X	X	X	5
LMR21-13C	8/10/2021	12:00	15	103	8/10/2021	108	15:57	X	X, FD	X, MS/MSD	7-9		4
LMR21-14C	8/10/2021	12:15	15	110	8/10/2021	122	16:14	X	X, MS/MSD	X	X, FD		4
LMR21-15C	8/10/2021	12:30	15	128	8/10/2021	127	16:42	X	X, FD	X, MS/MSD	X		4
LMR21-16C	8/10/2021	12:47	15	131	8/10/2021	133	17:02	X	X	X, FD	7-11, MS/MSD		4
LMR21-17C	8/10/2021	13:05	15	157	8/10/2021	159	17:30	X	X	X	X	X	5
LMR21-18C	8/10/2021	13:30	15	147	8/10/2021	144	18:06	X	X	X	X	10-12	5
LMR21-19C	8/10/2021	13:45	15	101	8/10/2021	103	18:21	X	X	X	7-9		4
LMR21-20C	8/10/2021	14:15	15	127	8/10/2021	123	18:36	X	X	X	X		4
LMR21-21C	8/10/2021	15:45	10	79	8/11/2021	85	7:32	X	X, FD	X, MS/MSD			3
LMR21-22C	8/10/2021	16:05	10	82	8/11/2021	78	8:05	X	X, MS/MSD	X, FD			3
LMR21-23C	8/10/2021	16:20	10	76	8/11/2021	73	8:24	X	X	X			3
LMR21-24C	8/10/2021	18:00	10	97	8/11/2021	97	8:51	X	X	4-8			3
LMR21-25C	8/10/2021	17:45	10	92	8/11/2021	89	9:21	X	X	4-7.5			3
LMR21-26C	8/10/2021	17:30	10	96	8/11/2021	94	9:43	X	X	4-8			3
LMR21-27C	8/10/2021	17:07	10	42	8/11/2021	39	9:57	X	1-3				2
LMR21-28C	8/10/2021	16:47	10	45	8/11/2021	47	10:08	X	X				2
LMR21-29C	8/11/2021	8:13	10	77	8/11/2021	77	13:46	X	X, FD	4-6.5, MS/MSD			3
LMR21-30C	8/11/2021	9:10	10	39	8/11/2021	40	14:20	X	1-3				2
LMR21-31C	8/11/2021	9:27	10	55	8/11/2021	53	14:37	X	X				2
LMR21-32C	8/11/2021	9:41	10	60	8/11/2021	59	14:56	X	1-5				2
LMR21-33C	8/11/2021		10	60	8/11/2021	60	15:12	X	1-5				2
LMR21-34C	8/11/2021	10:11	10	89	8/11/2021	84	15:27	X	X	X			3
LMR21-35C	No core collected		10										
LMR21-36C	No core collected		10										
LMR21-37C	8/11/2021		10	49	8/12/2021	40	9:33	X	1-3				2
LMR21-38C	8/11/2021	14:40	10	26	8/12/2021	31	9:41	X	1-2.5				2
LMR21-39C	8/11/2021		10	34	8/12/2021	34	9:47	X	1-3				2
LMR21-40C	8/12/2021	9:17	10	22	8/12/2021	22	13:50	0-2					1
LMR21-41C	8/12/2021	9:37	10	44	8/12/2021	36	14:00	X	1-3, FD				2
LMR21-42C	8/12/2021	9:50	10	9	8/12/2021	12	14:21	X					1
LMR21-43C	8/12/2021	10:05	10	39	8/12/2021	38	14:35	X	1-3, MS/MSD				2
LMR21-44C	8/12/2021	10:20	10	24	8/12/2021	22	14:35	X					1
LMR21-45C	8/12/2021	13:56	15	24	8/13/2021	24	9:25	X	1-2				2
LMR21-46C	8/12/2021	16:09	15	98	8/13/2021	100	8:10	X	X, FD	X, MS/MSD	7-8.5		4
LMR21-47C	8/12/2021	15:51	15	93	8/13/2021	94	8:40	X	X	4-8			3
LMR21-48C	No core collected												
LMR21-49C	8/12/2021	15:30	15	92	8/13/2021	88	9:41	X	X	4-7.5			3
LMR21-50C	8/12/2021	13:29	15	87	8/13/2021	92	9:07	X	X	4-7.5			3

								Sampling Intervals (feet)					# primary discrete samples per core
Sample ID	**Collection Date**	**Field Sampling Time**	**Vibracore equipment length (feet)**	**Field Measurement (in.)**	**Processing Date**	**Processing Measurement (in.)**	**Packaging Time**	**0-1**	**1-4**	**4-7**	**7-10**	**10-13**	
LMR21-51C	8/12/2021	13:00	10	90	8/12/2021	90	15:16	X	X	4-7.5			3
LMR21-52C	8/12/2021	12:45	10	108	8/12/2021	119	15:26	X	X, FD	X	X, MS/MSD		4
LMR21-53C	8/12/2021	12:28	10	67	8/12/2021	70	15:51	X	X	4-6			3
LMR21-54C	8/12/2021	12:13	10	70	8/12/2021	71	16:14	X	X, FD	4-6			3
LMR21-55C	8/12/2021	11:55	10	97	8/12/2021	90	16:41	X	X, MS/MSD	4-7.5			3
LMR21-56C	8/11/2021	11:55	10	81	8/12/2021	80	7:33	X	X, FD	X, MS/MSD			3
LMR21-57C	8/11/2021	11:37	10	74	8/12/2021	70	7:49	X	X	4-6			3
LMR21-58C	8/11/2021	11:20	10	83	8/12/2021	84	8:12	X	X	X, FD			3
LMR21-59C	8/11/2021	11:05	10	81	8/12/2021	81	8:31	X	X, MS/MSD	X			3
LMR21-60C	8/11/2021	10:30	10	61	8/12/2021	61	8:51	X	X	4-5			3
LMR21-61C	No core collected												
LMR21-62C	No core collected												
LMR21-63C	8/12/2021	10:37	10	37	8/12/2021	33	12:40	X	1-2.75, MS/MSD				2
LMR21-64C	8/12/2021	10:57	10	23	8/12/2021	21	13:00	0-2, FD					1
LMR21-65C	8/12/2021	11:12	10	24	8/12/2021	24	13:07	X	1-2				2
LMR21-66C	8/12/2021	11:35	10	26	8/12/2021	24	13:31	X	1-2				2
LMR21-67C	8/11/2021	12:19	10	37	8/12/2021	36	11:53	X, FD	1-3, MS/MSD				2
LMR21-68C	8/11/2021	10:48	10	62	8/12/2021	42	12:07	X	1-3.5				2
LMR21-69C	No core collected									**total # primary discrete core samples**			**186**

Table 3.1 Analyses Completed on Surface Sediment Samples

Area	SampleID	Surface ponar - # of buckets collected	Grain Size	TPH-GRO	TOC, metals, oil and grease, TPH-DRO	PCB Congeners	34 PAHs*	Benthic Toxicity Tests	PCB Worm Uptake Bioassay	Inclusion in Composite for Elutriate?
WWTP Area A2	LMR21-10	4	Y	Y	Y	Y	Y	Y	Y	-
WWTP Area A2	LMR21-12	4	Y	Y	Y	Y	Y	Y	Y	-
WWTP Area A1	LMR21-14	4	Y	Y	Y	Y	Y	Y	Y	-
WWTP Area A1	LMR21-15	4	Y	Y	Y	Y	Y	Y	Y	-
WWTP Area A1	LMR21-17	4	Y	Y	Y	Y	Y	Y	Y	-
WWTP Area A3	LMR21-19	4	Y	Y	Y	Y	Y	Y	Y	-
WWTP Area C2	LMR21-25	4	Y	Y	Y	Y	Y	Y	Y	-
WWTP Area C2	LMR21-27	4	Y	Y	Y	Y	Y	Y	Y	-
Sway Bridge Area C	LMR21-30	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area B2	LMR21-35	1	Y	Y	Y	Y	Y	Y	-	Y, LMR21-SBB2
Sway Bridge Area B2	LMR21-36	1	Y	Y	Y	-	-	-	-	Y, LMR21-SBB2
Sway Bridge Area B2	LMR21-37	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area B2	LMR21-39	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area A2	LMR21-41	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area A2	LMR21-43	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area A1	LMR21-45	4	Y	Y	Y	Y	Y	Y	Y	-
Sway Bridge Area A1	LMR21-47	4	Y	Y	Y	Y	Y	Y	Y	-
Sway Bridge Area A1	LMR21-48	1	Y	Y	Y	-	-	Y	-	-
Sway Bridge Area A1	LMR21-49	4	Y	Y	Y	Y	Y	Y	Y	-
Sway Bridge Area A3	LMR21-52	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area A3	LMR21-53	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area A3	LMR21-55	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area B1	LMR21-57	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area B1	LMR21-59	1	Y	Y	Y	Y	Y	Y	-	-
Biological survey location	LMR21-61	1	Y	Y	Y	Y	Y	Y	-	-
Biological survey location	LMR21-62	1	Y	Y	Y	Y	Y	Y	-	-
Sway Bridge Area D	LMR21-64	4	Y	Y	Y	Y	Y	Y	Y	-
Sway Bridge Area D	LMR21-66	4	Y	Y	Y	Y	Y	Y	Y	-
Sway Bridge Area D	LMR21-68	4	Y	Y	Y	Y	Y	Y	Y	-
Biological survey & reference location	LMR21-69	5	Y	Y	Y	Y	Y	Y	Y	-

*The analysis for 34 PAHs is being performed by Battelle laboratory under contract to EPA ORD, as a separate effort.

				Analytical Suite B		Analytical Suite C	Composite-Specific Sediment Analyses				Elutriate analysis (generated from composites)		
Area	**SampleID**	**Sediment Core - Number of Discrete Sampling Intervals**	**Grain Size**	**TPH-GRO**	**TOC, Oil and Grease, TPH-DRO, Metals, PCBs (aroclors), PAHs (17)**	**TOC, Metals, PCBs (aroclors), PAH (17)**	**TOC, Metals, cyanide, nutrients**	**Oil and Grease, TPH-DRO, PCBs (aroclors), PAH (17)**	**TCLP**	**# of Buckets for ERDC - elutriate aquatic toxicity**	**TOC, Metals, cyanide, nutrients**	**Oil and Grease, TPH-DRO, PCBs (aroclors), PAH (17)**	**Aquatic toxicity tests**
WWTP Area C1	LMR21-01	4	Y			Y	*Sediment from these cores were used for the composite sample.*						
WWTP Area C1	LMR21-02	4	Y			Y							
WWTP Area C1	LMR21-03	3	Y			Y							
WWTP Area C1	LMR21-WC1	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
WWTP Area B2	LMR21-04	3	Y			Y	*Sediment from these cores were used for the composite sample.*						
WWTP Area B2	LMR21-05	4	Y			Y							
WWTP Area B2	LMR21-06	3	Y			Y							
WWTP Area B2	LMR21-07	4	Y			Y							
WWTP Area B2	LMR21-08	4	Y			Y							
WWTP Area B2	LMR21-09	4	Y			Y							
WWTP Area B2	LMR21-WB2	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
WWTP Area A2	LMR21-10	4	Y			Y	*Sediment from these cores were used for the composite sample.*						
WWTP Area A2	LMR21-11	4	Y			Y							
WWTP Area A2	LMR21-12	5	Y			Y							
WWTP Area A2	LMR21-WA2	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
WWTP Area A1	LMR21-13	4	Y			Y	*Sediment from these cores were used for the composite sample.*						
WWTP Area A1	LMR21-14	4	Y			Y							
WWTP Area A1	LMR21-15	4	Y			Y							
WWTP Area A1	LMR21-16	4	Y			Y							
WWTP Area A1	LMR21-17	5	Y			Y							
WWTP Area A1	LMR21-WA1	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
WWTP Area A3	LMR21-18	5	Y			Y	*Sediment from these cores were used for the composite sample.*						
WWTP Area A3	LMR21-19	4	Y			Y							
WWTP Area A3	LMR21-20	4	Y			Y							
WWTP Area A3	LMR21-WA3	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
WWTP Area B1	LMR21-21	3	Y			Y	*Sediment from these cores were used for the composite sample.*						
WWTP Area B1	LMR21-22	3	Y			Y							
WWTP Area B1	LMR21-23	3	Y			Y							
WWTP Area B1	LMR21-WB1	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
WWTP Area C2	LMR21-24	3	Y			Y	*Sediment from these cores were used for the composite sample.*						
WWTP Area C2	LMR21-25	3	Y			Y							
WWTP Area C2	LMR21-26	3	Y			Y							
WWTP Area C2	LMR21-27	2	Y			Y							
WWTP Area C2	LMR21-28	2	Y			Y							
WWTP Area C2	LMR21-WC2	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
Sway Bridge Area C	LMR21-29	3	Y	Y	Y		*Sediment from these cores were used for the composite sample.*						
Sway Bridge Area C	LMR21-30	2	Y	Y	Y								
Sway Bridge Area C	LMR21-31	2	Y	Y	Y								
Sway Bridge Area C	LMR21-32	2	Y	Y	Y								
Sway Bridge Area C	LMR21-33	2	Y	Y	Y								
Sway Bridge Area C	LMR21-34	3	Y	Y	Y								
Sway Bridge Area C	LMR21-SBC	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
Sway Bridge Area B2	LMR21-37	2	Y	Y	Y		*Sediments from these cores were composited. In addition, this composite sample included a half-bucket of sediment from both LMR21-35S and LMR21-36S.*						
Sway Bridge Area B2	LMR21-38	2	Y	Y	Y								
Sway Bridge Area B2	LMR21-39	2	Y	Y	Y								
Sway Bridge Area B2	LMR21-SBB2	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
Sway Bridge Area A2	LMR21-40	1	Y	Y	Y		*Sediment from these cores were used for the composite sample.*						
Sway Bridge Area A2	LMR21-41	2	Y	Y	Y								
Sway Bridge Area A2	LMR21-42	1	Y	Y	Y								
Sway Bridge Area A2	LMR21-43	2	Y	Y	Y								
Sway Bridge Area A2	LMR21-44	1	Y	Y	Y								
Sway Bridge Area A2	LMR21-SBA2	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
Sway Bridge Area A1	LMR21-45	2	Y	Y	Y								

				Analytical Suite B		Analytical Suite C	Composite-Specific Sediment Analyses				Elutriate analysis (generated from composites)		
Area	**SampleID**	**Sediment Core - Number of Discrete Sampling Intervals**	**Grain Size**	**TPH-GRO**	**TOC, Oil and Grease, TPH-DRO, Metals, PCBs (aroclors), PAHs (17)**	**TOC, Metals, PCBs (aroclors), PAH (17)**	**TOC, Metals, cyanide, nutrients**	**Oil and Grease, TPH-DRO, PCBs (aroclors), PAH (17)**	**TCLP**	**# of Buckets for ERDC - elutriate aquatic toxicity**	**TOC, Metals, cyanide, nutrients**	**Oil and Grease, TPH-DRO, PCBs (aroclors), PAH (17)**	**Aquatic toxicity tests**
Sway Bridge Area A1	LMR21-46	4	Y	Y	Y								
Sway Bridge Area A1	LMR21-47	3	Y	Y	Y		*Sediment from these cores were used for the composite sample.*						
Sway Bridge Area A1	LMR21-49	3	Y	Y	Y								
Sway Bridge Area A1	LMR21-50	3	Y	Y	Y								
Sway Bridge Area A1	LMR21-SBA1	NA	Y	Y			Y	Y	Y	2	Y	Y	Y
Sway Bridge Area A3	LMR21-51	3	Y	Y	Y								
Sway Bridge Area A3	LMR21-52	4	Y	Y	Y								
Sway Bridge Area A3	LMR21-53	3	Y	Y	Y		*Sediment from these cores were used for the composite sample.*						
Sway Bridge Area A3	LMR21-54	3	Y	Y	Y								
Sway Bridge Area A3	LMR21-55	3	Y	Y	Y								
Sway Bridge Area A3	LMR21-SBA3	NA	Y	Y			Y	Y	Y	2	Y	Y	Y
Sway Bridge Area B1	LMR21-56	3	Y	Y	Y								
Sway Bridge Area B1	LMR21-57	3	Y	Y	Y								
Sway Bridge Area B1	LMR21-58	3	Y	Y	Y		*Sediment from these cores were used for the composite sample.*						
Sway Bridge Area B1	LMR21-59	3	Y	Y	Y								
Sway Bridge Area B1	LMR21-60	3	Y	Y	Y								
Sway Bridge Area B1	LMR21-SBB1	NA	Y	Y			Y	Y	Y	1	Y	Y	Y
Sway Bridge Area D	LMR21-63	2	Y	Y	Y								
Sway Bridge Area D	LMR21-64	1	Y	Y	Y								
Sway Bridge Area D	LMR21-65	2	Y	Y	Y		*Sediment from these cores were used for the composite sample.*						
Sway Bridge Area D	LMR21-66	2	Y	Y	Y								
Sway Bridge Area D	LMR21-67	2	Y	Y	Y								
Sway Bridge Area D	LMR21-68	2	Y	Y	Y								
Sway Bridge Area D	LMR21-SBD	NA	Y	Y			Y	Y	Y	1	Y	Y	Y

Composite samples are highlighted in grey

		Target Locations		Actual Locations	
Area	**Sample ID**	**Latitude**	**Longitude**	**Latitude**	**Longitude**
WWTP Area C1	LMR21-01C	41.700315	-83.464306	41.700315	-83.464306
WWTP Area C1	LMR21-02C	41.699805	-83.465295	41.699805	-83.465295
WWTP Area C1	LMR21-03C	41.6983	-83.466579	41.6983	-83.466579
WWTP Area B2	LMR21-04C	41.697258	-83.468135	41.697258	-83.468135
WWTP Area B2	LMR21-05C	41.695641	-83.467206	41.695641	-83.467206
WWTP Area B2	LMR21-06C	41.695304	-83.467619	41.695304	-83.467619
WWTP Area B2	LMR21-07C	41.694949	-83.46942	41.694949	-83.46942
WWTP Area B2	LMR21-08C	41.694378	-83.469567	41.694378	-83.469567
WWTP Area B2	LMR21-09C	41.693762	-83.470101	41.693762	-83.470101
WWTP Area A2	LMR21-10C, S	41.693614	-83.471719	41.693614	-83.471719
WWTP Area A2	LMR21-11C	41.6933	-83.4722	41.693293	-83.47200982
WWTP Area A2	LMR21-12C,S	41.692201	-83.471416	41.692201	-83.471416
WWTP Area A1	LMR21-13C	41.692062	-83.472602	41.692062	-83.472602
WWTP Area A1	LMR21-14C,S	41.690686	-83.4737	41.690686	-83.4737
WWTP Area A1	LMR21-15C,S	41.690175	-83.4763	41.690175	-83.4763
WWTP Area A1	LMR21-16C	41.689086	-83.476992	41.689086	-83.476992
WWTP Area A1	LMR21-17C,S	41.687703	-83.477595	41.687703	-83.477595
WWTP Area A3	LMR21-18C	41.687134	-83.478263	41.687134	-83.478263
WWTP Area A3	LMR21-19C,S	41.687502	-83.479392	41.687502	-83.479392
WWTP Area A3	LMR21-20C	41.687049	-83.479615	41.687049	-83.479615
WWTP Area B1	LMR21-21C	41.686189	-83.480318	41.686189	-83.480318
WWTP Area B1	LMR21-22C	41.685254	-83.480301	41.685254	-83.480301
WWTP Area B1	LMR21-23C	41.685079	-83.481681	41.685079	-83.481681
WWTP Area C2	LMR21-24C	41.693721	-83.464192	41.693721	-83.464192
WWTP Area C2	LMR21-25C,S	41.693903	-83.4663	41.693903	-83.4663
WWTP Area C2	LMR21-26C	41.691842	-83.467438	41.691842	-83.467438
WWTP Area C2	LMR21-27C,S	41.688998	-83.4725	41.688998	-83.4725
WWTP Area C2	LMR21-28C	41.687797	-83.472827	41.687797	-83.472827
Sway Bridge Area C	LMR21-29C	41.67614	-83.491	41.676141	-83.49095
Sway Bridge Area C	LMR21-30C,S	41.67504	-83.4911	41.675035	-83.4911
Sway Bridge Area C	LMR21-31C	41.67324	-83.4935	41.673236	-83.493533
Sway Bridge Area C	LMR21-32C	41.67206	-83.4947	41.672056	-83.494731
Sway Bridge Area C	LMR21-33C	41.67186	-83.4961	41.671863	-83.49608
Sway Bridge Area C	LMR21-34C	41.67014	-83.4984	41.670136	-83.498433
Sway Bridge Area B2	LMR21-35S	41.68304	-83.4795	41.683035	-83.479542
Sway Bridge Area B2	LMR21-36S	41.68315	-83.4801	41.683154	-83.480127
Sway Bridge Area B2	LMR21-37C,S	41.68195	-83.4817	41.68195	-83.481672
Sway Bridge Area B2	LMR21-38C	41.6809	-83.4832	41.680901	-83.483152
Sway Bridge Area B2	LMR21-39C	41.67994	-83.484	41.679813	-83.48412916
Sway Bridge Area B2	LMR21-39S	41.679938	-83.48399	41.679938	-83.48399
Sway Bridge Area A2	LMR21-40C	41.67914	-83.4847	41.67914	-83.484697
Sway Bridge Area A2	LMR21-41C,S	41.67854	-83.4848	41.678537	-83.484806
Sway Bridge Area A2	LMR21-42C	41.67865	-83.4853	41.678653	-83.485275
Sway Bridge Area A2	LMR21-43C,S	41.67816	-83.4858	41.678162	-83.485767
Sway Bridge Area A2	LMR21-44C	41.67789	-83.486	41.677894	-83.485985
Sway Bridge Area A1	LMR21-45C,S	41.67671	-83.4871	41.676707	-83.487059
Sway Bridge Area A1	LMR21-46C	41.67612	-83.4872	41.676119	-83.487182
Sway Bridge Area A1	LMR21-47C,S	41.67446	-83.4885	41.67446	-83.488538
Sway Bridge Area A1	LMR21-48S	41.67355	-83.4893	41.67362	-83.48962
Sway Bridge Area A1	LMR21-49C	41.67337	-83.4902	41.673018	-83.49055162
Sway Bridge Area A1	LMR21-49S	41.67337	-83.4902	41.673368	-83.4902
Sway Bridge Area A1	LMR21-50C	41.67267	-83.4913	41.672673	-83.491309
Sway Bridge Area A3	LMR21-51C	41.67154	-83.4924	41.671535	-83.49237
Sway Bridge Area A3	LMR21-52C,S	41.67129	-83.4927	41.671292	-83.4927
Sway Bridge Area A3	LMR21-53C,S	41.6712	-83.4934	41.671197	-83.493426
Sway Bridge Area A3	LMR21-54C	41.67096	-83.4935	41.670959	-83.49352
Sway Bridge Area A3	LMR21-55C,S	41.67059	-83.4937	41.670586	-83.493667
Sway Bridge Area B1	LMR21-56C	41.67035	-83.4942	41.670345	-83.494155
Sway Bridge Area B1	LMR21-57C,S	41.66938	-83.4959	41.669375	-83.4959
Sway Bridge Area B1	LMR21-58C	41.66893	-83.4961	41.668932	-83.496124
Sway Bridge Area B1	LMR21-59C,S	41.66782	-83.4984	41.667823	-83.498388

		Target Locations			Actual Locations	
Area	**Sample ID**	**Latitude**	**Longitude**		**Latitude**	**Longitude**
Sway Bridge Area B1	LMR21-60C	41.66723	-83.4993		41.667233	-83.499258
Biological survey location	LMR21-61S	41.685	-83.4839		41.68476	-83.48352
Biological survey location	LMR21-62S	41.683405	-83.482592		41.683405	-83.482592
Sway Bridge Area D	LMR21-63C	41.67809	-83.4862		41.678091	-83.486249
Sway Bridge Area D	LMR21-64C,S	41.67584	-83.4884		41.675838	-83.488409
Sway Bridge Area D	LMR21-65C	41.67432	-83.4898		41.675289	-83.48899971
Sway Bridge Area D	LMR21-66C,S	41.67301	-83.4912		41.673009	-83.491199
Sway Bridge Area D	LMR21-67C	41.67085	-83.4944		41.670846	-83.494433
Sway Bridge Area D	LMR21-68C,S	41.6678	-83.4989		41.667802	-83.498905
Biological survey location	LMR21-69S	41.6603	-83.5078		41.6603	-83.5078

Notes
Also the location for surface grab, originally designated "11S"
A target location for sediment core; surface grab collected instead
A target location for sediment core; surface grab collected instead
A target location for sediment core; surface grab collected instead

Notes

Table 4.2.1a Surface Grab Sediment Sample Results for Physical Parameters

			WWTP A2	**WWTP A2**	**WWTP A1**	**WWTP A1**
NAME	PRCNAME	UNITS	**LMR21-10S (0-0.5)**	**LMR21-12S (0-0.5)**	**LMR21-14S (0-0.5)**	**LMR21-15S (0-0.5)**
CLAY	GRAIN SIZE	PERCENT	64.7	52	63.3	39.2
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.2	0	1.00E-01	0.8
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	5	10	6.3	26.1
MEDIUM SAND	GRAIN SIZE	PERCENT	2.8	1.1	1.4	1.9
SILT	GRAIN SIZE	PERCENT	27.3	36.9	28.9	32
CLAY + SILT	GRAIN SIZE	PERCENT	92	88.9	92.2	71.2
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	61.8	58.3	55.5	53.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	40300	34000	36100	44700
CLASSIFICATION			Brown silty clay	Silty clay	Silty clay	Silty clay with organic matter
ODOR OR SHEEN						

Sampling depth interval is indicated in feet

Table 4.2.1a Surface Grab Sediment Sample Results for Physical Parameters

			WWTP A1	WWTP A3	WWTP C2	WWTP C2
NAME	PRCNAME	UNITS	**LMR21-17S (0-0.5)**	**LMR21-19S (0-0.5)**	**LMR21-25S (0-0.5)**	**LMR21-27S (0-0.5)**
CLAY	GRAIN SIZE	PERCENT	20.5	0	67.1	47.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.3	0.3	0.4	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	38.4	65.7	8.1	16.2
MEDIUM SAND	GRAIN SIZE	PERCENT	1.8	9.3	0.8	1.8
SILT	GRAIN SIZE	PERCENT	39	24.7	23.6	34.2
CLAY + SILT	GRAIN SIZE	PERCENT	59.5	24.7	90.7	82
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	44.8	42.2	62.1	60.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	37500	29700	29700	31300
CLASSIFICATION			Silty clay	Sandy silty clay	Silty clay	Silty clay
ODOR OR SHEEN						

Sampling depth interval is indicated in feet

Table 4.2.1a Surface Grab Sediment Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	**Sway Bridge C** **LMR21-30S (0-0.5)**	**Sway Bridge B2** **LMR21-35S (0-0.5)**	**Sway Bridge B2** **LMR21-36S (0-0.5)**	**Sway Bridge B2** **LMR21-37S (0-0.5)**
CLAY	GRAIN SIZE	PERCENT	25.8	36.9	44	50.9
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.6	0	0	0
FINE GRAVEL	GRAIN SIZE	PERCENT	1.00E-01	0	0	0.2
FINE SAND	GRAIN SIZE	PERCENT	27.5	16.3	19.5	13.7
MEDIUM SAND	GRAIN SIZE	PERCENT	4.5	2.5	2.2	5
SILT	GRAIN SIZE	PERCENT	41.5	44.3	34.3	30.2
CLAY + SILT	GRAIN SIZE	PERCENT	67.3	81.2	78.3	81.1
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	60.5	67.1	63.9	66.1
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	47900	34800	33300	33400
CLASSIFICATION			Sandy silty clay with organic material	Clayey silt	Clayey silt	Silty clay
ODOR OR SHEEN				Oil sheen and smell		

Sampling depth interval is indicated in feet

			Sway Bridge B2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A1
NAME	PRCNAME	UNITS	LMR21-39S (0-0.5)	LMR21-41S (0-0.5)	LMR21-43S (0-0.5)	LMR21-45S (0-0.5)
CLAY	GRAIN SIZE	PERCENT	58.5	64.1	54.6	49.2
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	2.9	1	3.2	0.6
FINE GRAVEL	GRAIN SIZE	PERCENT	6.9	0	0.7	0.2
FINE SAND	GRAIN SIZE	PERCENT	7	6.1	7.1	11.3
MEDIUM SAND	GRAIN SIZE	PERCENT	5.7	4.9	5.4	3.2
SILT	GRAIN SIZE	PERCENT	19	23.9	29	35.5
CLAY + SILT	GRAIN SIZE	PERCENT	77.5	88	83.6	84.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	40.1	62.9	57.4	47
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	34000	38000	46300	35800
CLASSIFICATION			Silty clay with lots of gravel	Silty clay	Silty clay	Silty clay
ODOR OR SHEEN						Petroleum smell

Sampling depth interval is indicated in feet

Table 4.2.1a Surface Grab Sediment Sample Results for Physical Parameters

			Sway Bridge A1	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A3**
NAME	PRCNAME	UNITS	**LMR21-47S (0-0.5)**	**LMR21-48S (0-0.5)**	**LMR21-49S (0-0.5)**	**LMR21-52S (0-0.5)**
CLAY	GRAIN SIZE	PERCENT	35.5	59.1	25.9	41.5
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	2	0.6	0.2	0
FINE GRAVEL	GRAIN SIZE	PERCENT	6.3	8.2	0.2	0
FINE SAND	GRAIN SIZE	PERCENT	12.7	7	20.2	17.8
MEDIUM SAND	GRAIN SIZE	PERCENT	10.4	3.3	11.2	4.5
SILT	GRAIN SIZE	PERCENT	33.1	21.8	42.3	36.2
CLAY + SILT	GRAIN SIZE	PERCENT	68.6	80.9	68.2	77.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	46.9	53.8	47.6	60.6
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	89600	43200	62100	28000
CLASSIFICATION			Silty clay	Clayey silt	Silty clay	Silty clay
ODOR OR SHEEN			Chemical smell and oil sheen	Oil sheen	Chemical smell and oil sheen	

Sampling depth interval is indicated in feet

Table 4.2.1a Surface Grab Sediment Sample Results for Physical Parameters

			Sway Bridge A3	Sway Bridge A3	Sway Bridge B1	Sway Bridge B1
NAME	PRCNAME	UNITS	LMR21-53S (0-0.5)	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)	LMR21-59S (0-0.5)
CLAY	GRAIN SIZE	PERCENT	48.2	46.5	64.8	42.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	0.8	0	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	1.00E-01	0	0
FINE SAND	GRAIN SIZE	PERCENT	16.6	14.1	10.9	17.2
MEDIUM SAND	GRAIN SIZE	PERCENT	0.8	4.1	2	4.8
SILT	GRAIN SIZE	PERCENT	34.4	34.4	22.3	35.2
CLAY + SILT	GRAIN SIZE	PERCENT	82.6	80.9	87.1	78
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	59.8	58.9	59.8	59.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	25900	31200	25200	27800
CLASSIFICATION			Silty clay	Silty clay with a few rocks	Silty clay	Silty clay
ODOR OR SHEEN						

Sampling depth interval is indicated in feet

Table 4.2.1a Surface Grab Sediment Sample Results for Physical Parameters

			Biological Survey	Biological Survey	Sway Bridge D	Sway Bridge D
NAME	PRCNAME	UNITS	**LMR21-61S (0-0.5)**	**LMR21-62S (0-0.5)**	**LMR21-64S (0-0.5)**	**LMR21-66S (0-0.5)**
CLAY	GRAIN SIZE	PERCENT	27.2	44	64.7	44
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	0	1.00E-01	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	28	19.7	5.5	17.6
MEDIUM SAND	GRAIN SIZE	PERCENT	3.7	2.3	3.1	2
SILT	GRAIN SIZE	PERCENT	41.1	34	26.6	35.8
CLAY + SILT	GRAIN SIZE	PERCENT	68.3	78	91.3	79.8
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	61.9	60.2	66.7	64.1
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	34200	26800	23800	29000
CLASSIFICATION			Silty clay	Silty clay	Silty clay	Silty clay
ODOR OR SHEEN						

Sampling depth interval is indicated in feet

Table 4.2.1a Surface Grab Sediment Sample Results for Physical Parameters

			Sway Bridge D	Reference
NAME	PRCNAME	UNITS	**LMR21-68S (0-0.5)**	**LMR21-69S (0-0.5)**
CLAY	GRAIN SIZE	PERCENT	47.7	44
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0
FINE SAND	GRAIN SIZE	PERCENT	13.9	17.6
MEDIUM SAND	GRAIN SIZE	PERCENT	3.9	3.8
SILT	GRAIN SIZE	PERCENT	33.5	34.6
CLAY + SILT	GRAIN SIZE	PERCENT	81.2	78.6
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	62	66.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	mg/kg	34300	28800
CLASSIFICATION			Silty clay	Silty clay
ODOR OR SHEEN				

Sampling depth interval is indicated in feet

			WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	PRCNAME	UNITS	**LMR21-01C (0-1)**	**LMR21-01C (1-4)**	**LMR21-01C (4-7)**	**LMR21-01C (7-8)**	**LMR21-02C (0-1)**
CLAY	GRAIN SIZE	PERCENT	64.7	64.8	25.9	43.7	64.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.2	0	0.1	1.00E-01	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	1.00E-01	0	0
FINE SAND	GRAIN SIZE	PERCENT	8.2	3.9	23.1	13	7.4
MEDIUM SAND	GRAIN SIZE	PERCENT	1	1.2	3.3	4	0.9
SILT	GRAIN SIZE	PERCENT	25.9	30.1	47.5	39.2	26.9
CLAY + SILT	GRAIN SIZE	PERCENT	90.6	94.9	73.4	82.9	91.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	62.3	42.8	33.3	31.7	53.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	30600	35300	23900	34200	33400
CLASSIFICATION			Gray silty clay	Gray silty clay	Gray silty clay with 3" sand layer	Gray silty clay	Grey brown silty clay
ODOR OR SHEEN					Strong petroleum odor	Strong petroleum odor	

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	WWTP C1 LMR21-02C (1-4)	WWTP C1 LMR21-02C (4-7)	WWTP C1 LMR21-02C (7-8)	WWTP C1 LMR21-03C (0-1)	WWTP C1 LMR21-03C (1-4)
CLAY	GRAIN SIZE	PERCENT	64.8	53.7	64.7	64.7	49.6
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	0.2	0	1.00E-01	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	5.1	13.6	6.9	4.9	11.7
MEDIUM SAND	GRAIN SIZE	PERCENT	0.9	2	0.5	1.1	1.5
SILT	GRAIN SIZE	PERCENT	29.2	30.5	27.9	29.2	37.2
CLAY + SILT	GRAIN SIZE	PERCENT	94	84.2	92.6	93.9	86.8
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	42.6	40.3	39.7	53.6	42.9
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	33200	27400	26500	22800	32400
CLASSIFICATION			Grey brown silty clay	Grey brown silty clay	Grey brown silty clay	Homogenous grey silty clay, wet	Homogenous grey silty clay, wet with 1" sand layer
ODOR OR SHEEN				Strong petroleum odor	Strong petroleum odor		

Sampling depth interval is indicated in feet

NAME	PRCNAME	UNITS	WWTP C1 LMR21-03C (1-4) FD	WWTP C1 LMR21-03C (4-7)	WWTP B2 LMR21-04C (0-1)	WWTP B2 LMR21-04C (1-4)	WWTP B2 LMR21-04C (4-7)
CLAY	GRAIN SIZE	PERCENT	64.7	43.7	39.4	56.8	35.9
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.00E-01	4.4	0.3	0	3.7
FINE GRAVEL	GRAIN SIZE	PERCENT	0	4.1	0	0	2.6
FINE SAND	GRAIN SIZE	PERCENT	5.4	9	20.5	14.6	14.3
MEDIUM SAND	GRAIN SIZE	PERCENT	0.6	6.9	4.2	2.9	8.1
SILT	GRAIN SIZE	PERCENT	29.2	31.9	35.6	25.7	35.4
CLAY + SILT	GRAIN SIZE	PERCENT	93.9	75.6	75	82.5	71.3
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	43.5	33.9	48.7	40.4	30.8
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	33400	37500	34500	33300	24500
CLASSIFICATION			Homogenous grey silty clay, wet	Homogenous grey silty clay, wet	Grey silty clay	Grey silty clay; 2" layer of shells	Grey silty clay; 1' layer of sand and gravel
ODOR OR SHEEN						Petroleum odor	Petroleum odor

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	PRCNAME	UNITS	**LMR21-05C (0-1)**	**LMR21-05C (1-4)**	**LMR21-05C (4-7)**	**LMR21-05C (7-8)**	**LMR21-06C (0-1)**
CLAY	GRAIN SIZE	PERCENT	64.8	53.6	65.8	64.7	64.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	0.3	0	1.00E-01	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	4.9	12.4	6.3	6.2	5.5
MEDIUM SAND	GRAIN SIZE	PERCENT	0.8	0.8	1	0.9	0.8
SILT	GRAIN SIZE	PERCENT	29.5	32.9	26.9	28.1	28.9
CLAY + SILT	GRAIN SIZE	PERCENT	94.3	86.5	92.7	92.8	93.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	59.7	47.5	47.3	45	57.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	32400	27900	29400	30400	28600
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	WWTP B2 LMR21-06C (1-4)	WWTP B2 LMR21-06C (4-6.3)	WWTP B2 LMR21-07C (0-1)	WWTP B2 LMR21-07C (1-4)	WWTP B2 LMR21-07C (4-7)
CLAY	GRAIN SIZE	PERCENT	50.7	64.8	32.5	64.7	64.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.00E-01	0	0.5	1.00E-01	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0.7	0	0
FINE SAND	GRAIN SIZE	PERCENT	13.4	8.5	23.4	4.4	4.5
MEDIUM SAND	GRAIN SIZE	PERCENT	1.8	2	3.2	0.8	0.9
SILT	GRAIN SIZE	PERCENT	34	24.7	39.7	30	29.8
CLAY + SILT	GRAIN SIZE	PERCENT	84.7	89.5	72.2	94.7	94.6
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	46.7	41.6	42.2	38.2	37.2
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	25800	38100	29400	29700	24100
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay with 2" layer of organic material
ODOR OR SHEEN						Strong petroleum odor	Strong petroleum odor

Sampling depth interval is indicated in feet

NAME	PRCNAME	UNITS	WWTP B2 LMR21-07C (7-8)	WWTP B2 LMR21-08C (0-1)	WWTP B2 LMR21-08C (1-4)	WWTP B2 LMR21-08C (4-7)	WWTP B2 LMR21-08C (4-7) FD
CLAY	GRAIN SIZE	PERCENT	36.8	50.4	38.3	64.6	55.1
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	1.42E-14
COARSE SAND	GRAIN SIZE	PERCENT	0.3	0.8	0	0.2	1.42E-14
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0.4	0	1.00E-01	0
FINE SAND	GRAIN SIZE	PERCENT	31.3	17.2	21.4	9.5	13.5
MEDIUM SAND	GRAIN SIZE	PERCENT	2.7	0.7	2.3	1.6	2.2
SILT	GRAIN SIZE	PERCENT	28.9	30.5	38	24	29.2
CLAY + SILT	GRAIN SIZE	PERCENT	65.7	80.9	76.3	88.6	84.3
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	25.3	57.1	38.1	37	
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	23100	29200	32800	30200	
CLASSIFICATION			Grey silty clay; 3" layer of sand	Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay
ODOR OR SHEEN			Strong petroleum odor				

Sampling depth interval is indicated in feet

			WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	PRCNAME	UNITS	**LMR21-08C (7-8)**	**LMR21-09C (0-1)**	**LMR21-09C (1-4)**	**LMR21-09C (4-7)**	**LMR21-09C (4-7) FD**
CLAY	GRAIN SIZE	PERCENT	64.7	43.7	64.7	45.3	67.3
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.2	0	1.00E-01	0.2	1.00E-01
FINE GRAVEL	GRAIN SIZE	PERCENT	0	1.00E-01	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	7.4	14.8	8.6	15.1	5.8
MEDIUM SAND	GRAIN SIZE	PERCENT	1.2	2.3	1.4	0.9	1.9
SILT	GRAIN SIZE	PERCENT	26.5	39.1	25.2	38.5	24.9
CLAY + SILT	GRAIN SIZE	PERCENT	91.2	82.8	89.9	83.8	92.2
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	32.7	39.3	37.4	38.3	37.6
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	22300	37500	31400	23400	26600
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay with large shells	Grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

			WWTP B2	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	PRCNAME	UNITS	**LMR21-09C (7-7.5)**	**LMR21-10C (0-1)**	**LMR21-10C (1-4)**	**LMR21-10C (4-7)**	**LMR21-10C (7-8.5)**
CLAY	GRAIN SIZE	PERCENT	48.2	17.6	46.8	64.8	20.5
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	0.2	1.00E-01	0	1.00E-01
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	14.7	33.7	15.7	5.5	31.3
MEDIUM SAND	GRAIN SIZE	PERCENT	2.2	2.7	2.1	1.4	2.8
SILT	GRAIN SIZE	PERCENT	34.9	45.8	35.3	28.3	45.3
CLAY + SILT	GRAIN SIZE	PERCENT	83.1	63.4	82.1	93.1	65.8
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	36.2	52.8	35.1	32.9	34.6
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	19900	49300	41100	35900	32600
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay with 5" sand layer
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP A2	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**
NAME	PRCNAME	UNITS	**LMR21-11C (0-1)**	**LMR21-11C (1-4)**	**LMR21-11C (4-7)**	**LMR21-11C (7-9)**	**LMR21-12C (0-1)**
CLAY	GRAIN SIZE	PERCENT	21.9	44	64.7	62	52.2
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	10.3	1.00E-01	0.1	1.00E-01	1.00E-01
FINE GRAVEL	GRAIN SIZE	PERCENT	16.6	0	1.00E-01	0	0
FINE SAND	GRAIN SIZE	PERCENT	10.6	19.2	13.4	12.6	14.5
MEDIUM SAND	GRAIN SIZE	PERCENT	15	0.8	0.6	0.7	0.9
SILT	GRAIN SIZE	PERCENT	25.6	35.9	21.1	24.6	32.3
CLAY + SILT	GRAIN SIZE	PERCENT	47.5	79.9	85.8	86.6	84.5
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	33	30.3	28.2	30.8	57
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	39600	36100	36800	35500	31900
CLASSIFICATION			Grey silty clay with 5" layer of gravel and shells	Grey silty clay	Grey silty clay; 1 ' layer of sandy silt	Grey sandy silt	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP A2	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**
NAME	PRCNAME	UNITS	**LMR21-12C (10-13)**	**LMR21-12C (1-4)**	**LMR21-12C (1-4) FD**	**LMR21-12C (4-7)**	**LMR21-12C (7-10)**
CLAY	GRAIN SIZE	PERCENT	30	17.6	28	28	30
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1	0.2	1	1	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	1	0	0
FINE SAND	GRAIN SIZE	PERCENT	38	34.7	40	31	38
MEDIUM SAND	GRAIN SIZE	PERCENT	2	3.5	3	11	2
SILT	GRAIN SIZE	PERCENT	29	44	27	29	30
CLAY + SILT	GRAIN SIZE	PERCENT	59	61.6	55	57	60
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	31.5	42.9		45.3	40.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	29200	26600		30800	30500
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay; 1.5' layer of sand	Grey silty clay
ODOR OR SHEEN				Petroleum odor	Petroleum odor	Black liquid sheen at 5'	

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	WWTP A1 LMR21-13C (0-1)	WWTP A1 LMR21-13C (1-4)	WWTP A1 LMR21-13C (1-4) FD	WWTP A1 LMR21-13C (4-7)	WWTP A1 LMR21-13C (4-7) FD
CLAY	GRAIN SIZE	PERCENT	10	0	1	0	0
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1	3	1	0	3
FINE GRAVEL	GRAIN SIZE	PERCENT	0	2	0	0	1
FINE SAND	GRAIN SIZE	PERCENT	53	47	58	58	83
MEDIUM SAND	GRAIN SIZE	PERCENT	4	17	3	8	4
SILT	GRAIN SIZE	PERCENT	32	31	37	34	9
CLAY + SILT	GRAIN SIZE	PERCENT	42	31	38	34	9
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	40.3	34.6	36.2	32.9	
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	39100	28700	29800	20900	
CLASSIFICATION			Grey silty clay	Black/grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

			WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	PRCNAME	UNITS	**LMR21-13C (7-9)**	**LMR21-14C (0-1)**	**LMR21-14C (1-4)**	**LMR21-14C (1-4) FD**	**LMR21-14C (4-7)**
CLAY	GRAIN SIZE	PERCENT	9	8	19	0	0
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1	1	3	0	5
FINE GRAVEL	GRAIN SIZE	PERCENT	4	0	7	0	1
FINE SAND	GRAIN SIZE	PERCENT	43	55	34	72	33
MEDIUM SAND	GRAIN SIZE	PERCENT	9	3	9	3	36
SILT	GRAIN SIZE	PERCENT	34	33	28	25	25
CLAY + SILT	GRAIN SIZE	PERCENT	43	41	47	25	25
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	36.2	43.3	27.4		31.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	21200	31500	28000		31600
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	PRCNAME	UNITS	**LMR21-14C (7-10)**	**LMR21-14C (7-10) FD**	**LMR21-15C (0-1)**	**LMR21-15C (1-4)**	**LMR21-15C (1-4) FD**
CLAY	GRAIN SIZE	PERCENT	0	0	22	16	16
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	2	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1	0	2	3	1
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	5	1	2
FINE SAND	GRAIN SIZE	PERCENT	77	65	35	46	47
MEDIUM SAND	GRAIN SIZE	PERCENT	2	4	6	4	1
SILT	GRAIN SIZE	PERCENT	20	31	28	30	33
CLAY + SILT	GRAIN SIZE	PERCENT	20	31	50	46	49
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	31.2	30.2	60.5	58.9	58.5
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	30200	27600	60800	88400	65400
CLASSIFICATION			Grey silty clay; 4" layer of sand	Grey silty clay; 4" layer of sand	Grey silty clay	Grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	PRCNAME	UNITS	**LMR21-15C (4-7)**	**LMR21-15C (4-7) FD**	**LMR21-15C (7-10)**	**LMR21-16C (0-1)**	**LMR21-16C (1-4)**
CLAY	GRAIN SIZE	PERCENT	20	15	6	0	0
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	3	0	0	1	1
FINE GRAVEL	GRAIN SIZE	PERCENT	9	0	0	1	2
FINE SAND	GRAIN SIZE	PERCENT	36	46	61	48	67
MEDIUM SAND	GRAIN SIZE	PERCENT	5	9	1	16	11
SILT	GRAIN SIZE	PERCENT	27	30	32	34	19
CLAY + SILT	GRAIN SIZE	PERCENT	47	45	38	34	19
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	60.7	57.1	36.4	40.7	41
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	66000	80800	46700		29600
CLASSIFICATION			Grey silty clay	Grey silty clay	Black silty clay; 1' layer of sand	Grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

			WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	PRCNAME	UNITS	LMR21-16C (4-7)	LMR21-16C (4-7) FD	LMR21-16C (7-11)	LMR21-16C (7-11) FD	LMR21-17C (0-1)
CLAY	GRAIN SIZE	PERCENT	24	0	0	22	12.2
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	6	1	0	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	4	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	49	37	84	38	40.1
MEDIUM SAND	GRAIN SIZE	PERCENT	1	38	3	10	4.2
SILT	GRAIN SIZE	PERCENT	26	15	12	30	43.5
CLAY + SILT	GRAIN SIZE	PERCENT	50	15	12	52	55.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	34.9	38	28.7		40.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	21700	23600	29600		43600
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay	Grey silty clay	Sandy silt
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP A1	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A3**
NAME	PRCNAME	UNITS	**LMR21-17C (10-13)**	**LMR21-17C (1-4)**	**LMR21-17C (4-7)**	**LMR21-17C (7-10)**	**LMR21-18C (0-1)**
CLAY	GRAIN SIZE	PERCENT	25.9	23	29	64.8	8.7
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.00E-01	3	1	0	0
FINE GRAVEL	GRAIN SIZE	PERCENT	0	1	1	0	0
FINE SAND	GRAIN SIZE	PERCENT	31.2	36	30	6.5	38.5
MEDIUM SAND	GRAIN SIZE	PERCENT	4.8	9	8	1.2	5.7
SILT	GRAIN SIZE	PERCENT	38	28	31	27.5	47.1
CLAY + SILT	GRAIN SIZE	PERCENT	63.9	51	60	92.3	55.8
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	28.7	42.9	41.6	39.3	42.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	30400	35300	36600	29100	40700
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay	Black/grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	PRCNAME	UNITS	LMR21-18C (10-12)	LMR21-18C (1-4)	LMR21-18C (4-7)	LMR21-18C (7-10)	LMR21-19C (0-1)
CLAY	GRAIN SIZE	PERCENT	64.8	19.1	64.8	64.8	22.9
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	0	0	0	1.00E-01
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0.4
FINE SAND	GRAIN SIZE	PERCENT	8.9	33.7	10.8	8.4	30.6
MEDIUM SAND	GRAIN SIZE	PERCENT	1.4	6	2	0.8	4.8
SILT	GRAIN SIZE	PERCENT	24.9	41.2	22.4	26	41.2
CLAY + SILT	GRAIN SIZE	PERCENT	89.7	60.3	87.2	90.8	64.1
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	39.9	44.4	41.1	43.6	36.5
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	37700	37500	45400	37700	29400
CLASSIFICATION			Grey silty clay, moist	Grey silty clay	Brown silty clay, damp; 2' layer of shells in sandy silt	Grey silty clay, damp	Grey silty clay
ODOR OR SHEEN					Petroleum odor		

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	WWTP A3 LMR21-19C (1-4)	WWTP A3 LMR21-19C (4-7)	WWTP A3 LMR21-19C (7-9)	WWTP A3 LMR21-20C (0-1)	WWTP A3 LMR21-20C (1-4)
CLAY	GRAIN SIZE	PERCENT	11.4	0	0	14.9	39.4
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	6.9	5.7	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	3.8	3.3	0	0.1
FINE GRAVEL	GRAIN SIZE	PERCENT	0	10.8	5.2	0	1.00E-01
FINE SAND	GRAIN SIZE	PERCENT	38.2	35	39.2	34.9	18.9
MEDIUM SAND	GRAIN SIZE	PERCENT	4	12.7	11.5	5.5	2.9
SILT	GRAIN SIZE	PERCENT	46.4	30.8	35.1	44.5	38.6
CLAY + SILT	GRAIN SIZE	PERCENT	57.8	30.8	35.1	59.4	78
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	29	15.9	14.6	35.7	32.5
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	29700	32700	32700	32500	27300
CLASSIFICATION			Grey silty clay	Grey silty clay; 2' layer of rocks, gravel, and sand	Brown silty sand with rocks and gravel	Grey silty clay with 4" layer of sand	Grey silty clay with 1' layer of sand
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

			WWTP A3	WWTP A3	WWTP B1	WWTP B1	WWTP B1
NAME	PRCNAME	UNITS	LMR21-20C (4-7)	LMR21-20C (7-10)	LMR21-21C (0-1)	LMR21-21C (1-4)	LMR21-21C (1-4) FD
CLAY	GRAIN SIZE	PERCENT	11.6	0	9.6	0	0
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.3	3	0.3	0.2	1.00E-01
FINE GRAVEL	GRAIN SIZE	PERCENT	3.6	1	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	31.1	57.6	36.6	62.2	52.1
MEDIUM SAND	GRAIN SIZE	PERCENT	4.6	11.5	7.9	4.6	3.5
SILT	GRAIN SIZE	PERCENT	47.8	26.9	45.6	33	44.3
CLAY + SILT	GRAIN SIZE	PERCENT	59.4	26.9	55.2	33	44.3
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	23.2	13.7	36.9	28.9	23.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	29800	26300	41800	22200	22100
CLASSIFICATION			Sandy silt with gravel and rocks	Sandy silt with intermittent rocks and shells	Grey sandy silt	Grey silty clay	Grey silty clay
ODOR OR SHEEN						Black stain with petroleum odor from 3-4'	Black stain with petroleum odor from 3-4'

Sampling depth interval is indicated in feet

			WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	PRCNAME	UNITS	**LMR21-21C (4-7)**	**LMR21-21C (4-7) FD**	**LMR21-22C (0-1)**	**LMR21-22C (1-4)**
CLAY	GRAIN SIZE	PERCENT	0.8	0	54	64.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.1	0.3	0	0
FINE GRAVEL	GRAIN SIZE	PERCENT	1.00E-01	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	47.8	61.7	13.7	9.8
MEDIUM SAND	GRAIN SIZE	PERCENT	3.5	6.1	2.8	1.4
SILT	GRAIN SIZE	PERCENT	47.7	31.9	29.5	24
CLAY + SILT	GRAIN SIZE	PERCENT	48.5	31.9	83.5	88.8
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	21.3		42.4	38.6
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	24800		24100	21600
CLASSIFICATION			Grey sandy silt	Grey sandy silt	Silty clay	1' layer of silty clay, fat grey clay
ODOR OR SHEEN						

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	WWTP B1 LMR21-22C (4-6.5)	WWTP B1 LMR21-22C (4-6.5) FD	WWTP B1 LMR21-23C (0-1)	WWTP B1 LMR21-23C (1-4)	WWTP B1 LMR21-23C (4-6)
CLAY	GRAIN SIZE	PERCENT	10.8	0	9.2	64.8	64.7
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	3.55E-15	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.2	0.6	3	0	0.2
FINE GRAVEL	GRAIN SIZE	PERCENT	0.7	1.6	1.8	0	0
FINE SAND	GRAIN SIZE	PERCENT	37.9	44.5	31.1	6.8	10.1
MEDIUM SAND	GRAIN SIZE	PERCENT	16.7	16.3	11.5	0.9	1.7
SILT	GRAIN SIZE	PERCENT	32.7	37	43.4	27.5	23.3
CLAY + SILT	GRAIN SIZE	PERCENT	43.5	37	52.6	92.3	88
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	20.4	26.9	36.9	27.4	21.5
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	24300	24700	48400	29500	23100
CLASSIFICATION			Fat grey clay; 1' layer of sand with shells	Fat grey clay; 1' layer of sand with shells	Grey silty clay	Grey silty clay	Sandy silt with 5" layer of gravel and sand
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

			WWTP C2	**WWTP C2**	**WWTP C2**	**WWTP C2**	**WWTP C2**
NAME	PRCNAME	UNITS	**LMR21-24C (0-1)**	**LMR21-24C (1-4)**	**LMR21-24C (4-7)**	**LMR21-25C (0-1)**	**LMR21-25C (1-4)**
CLAY	GRAIN SIZE	PERCENT	17	64.8	58.1	51	64.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.6	0	0	0	0
FINE GRAVEL	GRAIN SIZE	PERCENT	3.1	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	28.7	7.1	10.2	14.1	10.3
MEDIUM SAND	GRAIN SIZE	PERCENT	5.5	1.4	1.2	2.5	1.2
SILT	GRAIN SIZE	PERCENT	45.1	26.7	30.5	32.4	23.7
CLAY + SILT	GRAIN SIZE	PERCENT	62.1	91.5	88.6	83.4	88.5
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	52.3	43.4	39.6	52.5	47
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	25500	33500	37400	27800	25800
CLASSIFICATION			Homogenous fat, grey silty clay, shells interspersed	Homogenous fat, grey silty clay, shells interspersed	Homogenous fat, grey silty clay	Homoegenous moist grey clay	Homoegenous moist grey clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

NAME	PRCNAME	UNITS	WWTP C2 LMR21-25C (4-7.5)	WWTP C2 LMR21-26C (0-1)	WWTP C2 LMR21-26C (1-4)	WWTP C2 LMR21-26C (4-8)	WWTP C2 LMR21-27C (0-1)
CLAY	GRAIN SIZE	PERCENT	56.8	64.8	64.6	64.6	46.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	0	0.3	0.3	1.00E-01
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	11.3	8.6	10.9	10	18.3
MEDIUM SAND	GRAIN SIZE	PERCENT	2.2	1.1	1	1.4	3.2
SILT	GRAIN SIZE	PERCENT	29.7	25.5	23.2	23.7	31.6
CLAY + SILT	GRAIN SIZE	PERCENT	86.5	90.3	87.8	88.3	78.4
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	43.7	57	47.1	43.2	60.8
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	27700	32700	22300	31000	49700
CLASSIFICATION			Homoegenous moist grey clay	Homogenous fat grey silty clay	Homogenous fat black/grey silty clay	Homogenous fat grey silty clay	Wet grey silty clay; 1" layer of sand
ODOR OR SHEEN				Strong petroleum odor			

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			WWTP C2	WWTP C2	WWTP C2	Sway Bridge C	Sway Bridge C
NAME	PRCNAME	UNITS	LMR21-27C (1-3)	LMR21-28C (0-1)	LMR21-28C (1-4)	LMR21-29C (0-1)	LMR21-29C (1-4)
CLAY	GRAIN SIZE	PERCENT	12.1	45.7	19	64.2	0
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.5	0	2.3	0.8	0.6
FINE GRAVEL	GRAIN SIZE	PERCENT	0.3	0	5.4	0	0.6
FINE SAND	GRAIN SIZE	PERCENT	36.9	19.3	22.2	6.7	49
MEDIUM SAND	GRAIN SIZE	PERCENT	4.7	1.5	10.9	3.8	6.3
SILT	GRAIN SIZE	PERCENT	45.5	33.5	40.2	24.5	43.5
CLAY + SILT	GRAIN SIZE	PERCENT	57.6	79.2	59.2	88.7	43.5
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	44	60.2	40.8	45	26.8
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	31700	37000	37800	29500	27100
CLASSIFICATION			Wet grey silty clay; 1' layer of brown/grey sand with shells	Brown, wet silty clay	Sandy silt	Grey/brown sandy silt with 3" layer of organic matter	Grey/brown sandy silt
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

NAME	PRCNAME	UNITS	**Sway Bridge C LMR21-29C (1-4) FD**	**Sway Bridge C LMR21-29C (4-6.5)**	**Sway Bridge C LMR21-29C (4-6.5) FD**	**Sway Bridge C LMR21-30C (0-1)**	**Sway Bridge C LMR21-30C (1-3)**
CLAY	GRAIN SIZE	PERCENT	0	12.2	12.2	0	0
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	2.8
COARSE SAND	GRAIN SIZE	PERCENT	1.00E-01	0.4	0	0.5	12.9
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0.1	23.1
FINE SAND	GRAIN SIZE	PERCENT	59.3	41.6	38.1	70.5	28.3
MEDIUM SAND	GRAIN SIZE	PERCENT	3.1	2.5	3.1	5.5	27.3
SILT	GRAIN SIZE	PERCENT	37.5	43.3	46.6	23.4	5.6
CLAY + SILT	GRAIN SIZE	PERCENT	37.5	55.5	58.8	23.4	5.6
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	25.7	23.9	26.2	24.6	11.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	36300	34900	33400	20600	20600
CLASSIFICATION			Grey/brown sandy silt	Grey/brown sandy silt	Grey/brown sandy silt	Sandy silt	Sand, gravel, rocks
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

			Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	PRCNAME	UNITS	**LMR21-31C (0-1)**	**LMR21-31C (1-4)**	**LMR21-32C (0-1)**	**LMR21-32C (1-5)**	**LMR21-33C (0-1)**
CLAY	GRAIN SIZE	PERCENT	0	0	38.6	0	0
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	5.7	3
COARSE SAND	GRAIN SIZE	PERCENT	1.00E-01	0	0.2	2.9	1.3
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0.3	0.2	4.8	4
FINE SAND	GRAIN SIZE	PERCENT	63.5	71.1	16.6	51.7	70.1
MEDIUM SAND	GRAIN SIZE	PERCENT	6	9.1	4.1	21.7	10.6
SILT	GRAIN SIZE	PERCENT	30.4	19.5	40.3	13.2	11
CLAY + SILT	GRAIN SIZE	PERCENT	30.4	19.5	78.9	13.2	11
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	24	22.4	58.9	21.4	16.6
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	22900	19100	26000	29700	18200
CLASSIFICATION			Grey silty clay	Silty sand; 5" layer of shells	Grey, saturated silty clay	Silty sand; 1' layer with sand and gravel	Grey/brown sand with 5" layer of silt and rocks
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge B2
NAME	PRCNAME	UNITS	LMR21-33C (1-5)	LMR21-34C (0-1)	LMR21-34C (1-4)	LMR21-34C (4-7)	LMR21-37C (0-1)
CLAY	GRAIN SIZE	PERCENT	0	67.3	62.1	20.5	64.5
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.6	1.00E-01	1.1	1.00E-01	0.5
FINE GRAVEL	GRAIN SIZE	PERCENT	1	0	3	0	0
FINE SAND	GRAIN SIZE	PERCENT	68.2	9.4	7.4	36.3	6.3
MEDIUM SAND	GRAIN SIZE	PERCENT	10.7	1.1	2.2	3.2	5.5
SILT	GRAIN SIZE	PERCENT	19.5	22.1	24.2	39.9	23.2
CLAY + SILT	GRAIN SIZE	PERCENT	19.5	89.4	86.3	60.4	87.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	15.3	49.6	46.4	45.1	62.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	21200	29500	42200	31500	25600
CLASSIFICATION			Grey/brown sand	Grey silty clay	Grey silty clay	Grey silty clay with 6" layer of shells and gravel	Brown, saturated silty clay
ODOR OR SHEEN						Strong petroleum odor	

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	**Sway Bridge B2 LMR21-37C (1-3)**	**Sway Bridge B2 LMR21-38C (0-1)**	**Sway Bridge B2 LMR21-38C (1-2.5)**	**Sway Bridge B2 LMR21-39C (0-1)**	**Sway Bridge B2 LMR21-39C (1-3)**
CLAY	GRAIN SIZE	PERCENT	4.1	0	11	40.1	54.9
COARSE GRAVEL	GRAIN SIZE	PERCENT	24	6.3	1.9	18.4	0
COARSE SAND	GRAIN SIZE	PERCENT	7.2	5.9	13.5	2.8	0.4
FINE GRAVEL	GRAIN SIZE	PERCENT	11.5	6.7	11.1	2.1	0.4
FINE SAND	GRAIN SIZE	PERCENT	9.6	29.4	15.2	7.8	12.2
MEDIUM SAND	GRAIN SIZE	PERCENT	22	29.7	11.4	4.9	2.9
SILT	GRAIN SIZE	PERCENT	21.6	22	35.9	23.9	29.2
CLAY + SILT	GRAIN SIZE	PERCENT	25.7	22	46.9	64	84.1
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	31.3	31.1	15.1	22.2	19.9
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	40000	51900	36200	48900	36800
CLASSIFICATION			Brown, saturated silty clay with 1' layer of sandy silt and gravel	Grey brown sandy silt with gravel and shells	Grey brown sandy silt with gravel and shells	Damp, packed silty grey clay with 6" layer of gravel and sand	Damp, packed silty grey clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			Sway Bridge A2	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**
NAME	PRCNAME	UNITS	**LMR21-40C (0-1)**	**LMR21-41C (0-1)**	**LMR21-41C (1-3)**	**LMR21-41C (1-3) FD**	**LMR21-42C (0-1)**
CLAY	GRAIN SIZE	PERCENT	47.3	45.5	47.9	37.5	35
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.5	1.4	2.8	0.9	1.1
FINE GRAVEL	GRAIN SIZE	PERCENT	1.3	2.2	1.3	2.3	1.2
FINE SAND	GRAIN SIZE	PERCENT	12.4	10.8	11.8	18.8	22.8
MEDIUM SAND	GRAIN SIZE	PERCENT	4.2	4.6	4.6	4.3	3.9
SILT	GRAIN SIZE	PERCENT	34.3	35.5	31.6	36.2	36
CLAY + SILT	GRAIN SIZE	PERCENT	81.6	81	79.5	73.7	71
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	13.6	15.3	15.7	15.6	20.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	36200	39000	43400	55400	37800
CLASSIFICATION			Packed silty clay with shells and rocks	Silty clay with gravel	Packed silty clay with shells and gravel	Packed silty clay with shells and gravel	Damp, packed silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A1
NAME	PRCNAME	UNITS	**LMR21-43C (0-1)**	**LMR21-43C (1-3)**	**LMR21-43C (1-3) FD**	**LMR21-44C (0-1)**	**LMR21-45C (0-1)**
CLAY	GRAIN SIZE	PERCENT	44.8	60.3	62.4	61	53
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.4	3.1	3	3.2	4.4
FINE GRAVEL	GRAIN SIZE	PERCENT	2.9	3.9	0.6	2.7	2.4
FINE SAND	GRAIN SIZE	PERCENT	16.5	9.2	8.9	9.4	12.6
MEDIUM SAND	GRAIN SIZE	PERCENT	4.6	4	4.5	3.9	5.6
SILT	GRAIN SIZE	PERCENT	29.8	19.5	20.6	19.8	22
CLAY + SILT	GRAIN SIZE	PERCENT	74.6	79.8	83	80.8	75
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	15.2	14.6		17	14.3
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	38700	40600		38200	39000
CLASSIFICATION			Grey/brown damp homogenous packed silty clay with shells and rocks	Grey/brown damp homogenous packed silty clay with shells and rocks	Grey/brown damp homogenous packed silty clay with shells and rocks	Packed, damp silty grey clay	Packed brown clay with shells
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	Sway Bridge A1 LMR21-45C (1-2)	Sway Bridge A1 LMR21-46C (0-1)	Sway Bridge A1 LMR21-46C (1-4)	Sway Bridge A1 LMR21-46C (1-4) FD	Sway Bridge A1 LMR21-46C (4-7)
CLAY	GRAIN SIZE	PERCENT	48.2	64.3	56.5	59.3	31.2
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.7	0.7	0.4	1.00E-01	0.5
FINE GRAVEL	GRAIN SIZE	PERCENT	1.5	0	0.2	0	0
FINE SAND	GRAIN SIZE	PERCENT	13.7	9.6	14.1	10.6	20.5
MEDIUM SAND	GRAIN SIZE	PERCENT	6.7	1.2	2.9	1.7	6.9
SILT	GRAIN SIZE	PERCENT	28.2	24.2	25.9	28.3	40.9
CLAY + SILT	GRAIN SIZE	PERCENT	76.4	88.5	82.4	87.6	72.1
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	15.8	47.9	45.6	45.8	44.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	24900	46200	51400	48500	68400
CLASSIFICATION			Packed brown clay with shells	Brown silty clay	Brown silty clay	Brown silty clay	Black silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	PRCNAME	UNITS	**LMR21-46C (4-7) FD**	**LMR21-46C (7-8.5)**	**LMR21-47C (0-1)**	**LMR21-47C (1-4)**	**LMR21-47C (4-8)**
CLAY	GRAIN SIZE	PERCENT	34.5	49.8	13.1	25.9	13.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	1.78E-15	6.9	0
COARSE SAND	GRAIN SIZE	PERCENT	0.9	2.7	8.8	7.3	4.8
FINE GRAVEL	GRAIN SIZE	PERCENT	1.4	2	17.2	8.3	2.9
FINE SAND	GRAIN SIZE	PERCENT	19	15.3	16	15.7	28.6
MEDIUM SAND	GRAIN SIZE	PERCENT	5.5	5.6	9.3	6.2	7.3
SILT	GRAIN SIZE	PERCENT	38.7	24.6	35.6	29.7	42.6
CLAY + SILT	GRAIN SIZE	PERCENT	73.2	74.4	48.7	55.6	56.4
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT		16.7	50.2	25.3	17.9
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG		40800	38800	33900	33700
CLASSIFICATION			Black silty clay	Packed brown clay	Saturated grey clay	Packed, fat, damp clay with 1' layer of black sand and gravel	Black/brown sandy silt and clay
ODOR OR SHEEN					Strong petroleum smell	Strong petroleum smell; black sheen	Strong petroleum smell

Sampling depth interval is indicated in feet

			Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3	Sway Bridge A3
NAME	PRCNAME	UNITS	**LMR21-49C (0-1)**	**LMR21-49C (1-4)**	**LMR21-49C (4-7.5)**	**LMR21-50C (0-1)**	**LMR21-50C (1-4)**
CLAY	GRAIN SIZE	PERCENT	47.5	22.8	39.2	61.6	47.4
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	1.42E-14	0
COARSE SAND	GRAIN SIZE	PERCENT	3.6	1	1.8	0.8	1.6
FINE GRAVEL	GRAIN SIZE	PERCENT	3.6	1.00E-01	1.00E-01	0	0
FINE SAND	GRAIN SIZE	PERCENT	12.5	28.4	16.9	10	15.1
MEDIUM SAND	GRAIN SIZE	PERCENT	6.2	6.1	6.5	2	1.4
SILT	GRAIN SIZE	PERCENT	26.6	41.6	35.5	25.6	34.5
CLAY + SILT	GRAIN SIZE	PERCENT	74.1	64.4	74.7	87.2	81.9
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	47.1	43.6	21.3	58.5	45.6
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	67000	75600	39300	21200	38000
CLASSIFICATION			Brown/grey, wet silty clay	Black/grey silty clay	Brown/grey, packed silty clay	Brown wet silty clay	Brown wet silty clay
ODOR OR SHEEN				Strong petroleum odor			

Sampling depth interval is indicated in feet

NAME	PRCNAME	UNITS	**Sway Bridge A3** **LMR21-50C (4-7.5)**	**Sway Bridge A3** **LMR21-51C (0-1)**	**Sway Bridge A3** **LMR21-51C (1-4)**	**Sway Bridge A3** **LMR21-51C (4-7.5)**	**Sway Bridge A3** **LMR21-52C (0-1)**
CLAY	GRAIN SIZE	PERCENT	38.3	52.3	46.7	38.7	64.4
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1	0.2	0.4	0	0.6
FINE GRAVEL	GRAIN SIZE	PERCENT	1.00E-01	0	0	0	0
FINE SAND	GRAIN SIZE	PERCENT	19.3	16.1	18.5	22.9	7.3
MEDIUM SAND	GRAIN SIZE	PERCENT	3.1	2.9	3	2.3	1.9
SILT	GRAIN SIZE	PERCENT	38.2	28.5	31.4	36.1	25.8
CLAY + SILT	GRAIN SIZE	PERCENT	76.5	80.8	78.1	74.8	90.2
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	41.1	58.7	47.9	40.6	60.3
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	73900	31700	32700	67700	27300
CLASSIFICATION			Brown wet silty clay with 6" packed light brown clay	Wet grey silty clay	Wet grey silty clay	Wet grey silty clay	Saturated grey clay
ODOR OR SHEEN				Strong petroleum odor	Strong petroleum odor	Strong petroleum odor	

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			Sway Bridge A3	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	PRCNAME	UNITS	**LMR21-52C (1-4)**	**LMR21-52C (1-4) FD**	**LMR21-52C (4-7)**	**LMR21-52C (7-10)**	**LMR21-52C (7-10) FD**
CLAY	GRAIN SIZE	PERCENT	34.2	67	64.5	16.4	20
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1	0.5	0.2	2.7	2.5
FINE GRAVEL	GRAIN SIZE	PERCENT	0.3	0	0.3	4.3	0.2
FINE SAND	GRAIN SIZE	PERCENT	24.8	6.3	8	29.9	29.8
MEDIUM SAND	GRAIN SIZE	PERCENT	5.6	3.7	2.9	5	5.8
SILT	GRAIN SIZE	PERCENT	34.1	22.5	24.1	41.7	41.7
CLAY + SILT	GRAIN SIZE	PERCENT	68.3	89.5	88.6	58.1	61.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	49	52	44.1	32.6	
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	38500	70700	66900	144000	
CLASSIFICATION			Grey silty clay	Grey silty clay	Grey silty clay with 1' of sand	Black silty clay	Black silty clay
ODOR OR SHEEN						Black sheen; super strong smell of petroleum	Black sheen; super strong smell of petroleum

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

			Sway Bridge A3	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	PRCNAME	UNITS	**LMR21-53C (0-1)**	**LMR21-53C (1-4)**	**LMR21-53C (4-6)**	**LMR21-54C (0-1)**	**LMR21-54C (1-4)**
CLAY	GRAIN SIZE	PERCENT	20.4	55.5	19.5	45	52
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	2.1	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0.9	1	3.9	1.4	0.4
FINE GRAVEL	GRAIN SIZE	PERCENT	0	3.3	1.6	0	0.4
FINE SAND	GRAIN SIZE	PERCENT	31.3	10.5	26.5	18.1	18.8
MEDIUM SAND	GRAIN SIZE	PERCENT	4.4	1.7	7.2	2.5	1.2
SILT	GRAIN SIZE	PERCENT	43	25.9	41.3	33	27.2
CLAY + SILT	GRAIN SIZE	PERCENT	63.4	81.4	60.8	78	79.2
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	61.9	48.6	12.7	59.9	47.8
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	20400	25400	34800	22000	20900
CLASSIFICATION			Saturated grey clay	Saturated grey clay	Saturated grey clay; bottom 1.5' was damp/packed silty clay	Soft saturated grey clay	Soft saturated grey clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

NAME	PRCNAME	UNITS	Sway Bridge A3 LMR21-54C (1-4) FD	Sway Bridge A3 LMR21-54C (4-6)	Sway Bridge A3 LMR21-55C (0-1)	Sway Bridge A3 LMR21-55C (1-4)	Sway Bridge A3 LMR21-55C (1-4) FD
CLAY	GRAIN SIZE	PERCENT	49.2	19.8	46	63.3	34.7
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.2	2.8	1.4	2.1	4.8
FINE GRAVEL	GRAIN SIZE	PERCENT	0	1	0.4	0.2	2.6
FINE SAND	GRAIN SIZE	PERCENT	16.6	25.6	18.7	8.4	17.5
MEDIUM SAND	GRAIN SIZE	PERCENT	2.7	7.4	3	3	6.2
SILT	GRAIN SIZE	PERCENT	30.3	43.4	30.5	23	34.2
CLAY + SILT	GRAIN SIZE	PERCENT	79.5	63.2	76.5	86.3	68.9
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	50.7	19.2	54.6	45.6	
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	21900	38700	21300	33500	
CLASSIFICATION			Soft saturated grey clay	Packed, damp grey silty clay	Wet grey silty clay	Wet grey silty clay with 1' layer of gravel	Wet grey silty clay with 1' layer of gravel
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	Sway Bridge A3 LMR21-55C (4-7.5)	Sway Bridge B1 LMR21-56C (0-1)	Sway Bridge B1 LMR21-56C (1-4)	Sway Bridge B1 LMR21-56C (1-4) FD	Sway Bridge B1 LMR21-56C (4-7)
CLAY	GRAIN SIZE	PERCENT	11.2	36.9	49.5	41	16.2
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	3.55E-15
COARSE SAND	GRAIN SIZE	PERCENT	4.7	1.00E-01	2	1.5	4.1
FINE GRAVEL	GRAIN SIZE	PERCENT	3.4	0	3.3	1.4	4.2
FINE SAND	GRAIN SIZE	PERCENT	32.1	16.9	15.9	20.3	26.2
MEDIUM SAND	GRAIN SIZE	PERCENT	6.2	2.5	5.1	3.3	8.2
SILT	GRAIN SIZE	PERCENT	42.4	43	24.2	33.2	41.1
CLAY + SILT	GRAIN SIZE	PERCENT	53.6	79.9	73.7	74.2	57.3
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	30.9	56.3	45.8	42.7	15.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	64600	28900	48700	45300	39500
CLASSIFICATION			Dark brown/black sandy silt with 5" layer of gravel	Saturated grey silty clay	Saturated grey silty clay; 1' layer of sandy silt	Saturated grey silty clay; 1' layer of sandy silt	Stiff, dry, packed clay
ODOR OR SHEEN			Petroleum odor				

Sampling depth interval is indicated in feet

			Sway Bridge B1	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	PRCNAME	UNITS	**LMR21-56C (4-7) FD**	**LMR21-57C (0-1)**	**LMR21-57C (1-4)**	**LMR21-57C (4-6)**	**LMR21-58C (0-1)**
CLAY	GRAIN SIZE	PERCENT	19.1	20.3	33.7	33.9	41.5
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	4.3	0.5	2.5	3.7	0
FINE GRAVEL	GRAIN SIZE	PERCENT	2.7	0.6	3.5	1.6	0
FINE SAND	GRAIN SIZE	PERCENT	24.8	29.6	20.7	19.7	17.2
MEDIUM SAND	GRAIN SIZE	PERCENT	6.6	4	4.6	4	4.3
SILT	GRAIN SIZE	PERCENT	42.5	45	35	37.1	37
CLAY + SILT	GRAIN SIZE	PERCENT	61.6	65.3	68.7	71	78.5
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	14.3	54.8	44.8	17.3	59.2
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	37100	30600	37900	36700	26900
CLASSIFICATION			Stiff, dry, packed clay	Grey silty clay	Grey silty clay; 1' layer of rocks	Very packed grey silty clay	Wet grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	Sway Bridge B1 LMR21-58C (1-4)	Sway Bridge B1 LMR21-58C (4-7)	Sway Bridge B1 LMR21-58C (4-7) FD	Sway Bridge B1 LMR21-59C (0-1)	Sway Bridge B1 LMR21-59C (1-4)
CLAY	GRAIN SIZE	PERCENT	63.9	64.8	64.7	43.7	64.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	1.42E-14	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.42E-14	0	1.00E-01	0.8	0
FINE GRAVEL	GRAIN SIZE	PERCENT	1.4	0	0	3.4	0
FINE SAND	GRAIN SIZE	PERCENT	7.7	10.9	9.1	15	7.6
MEDIUM SAND	GRAIN SIZE	PERCENT	1.2	0.8	0.8	3.3	0.6
SILT	GRAIN SIZE	PERCENT	25.8	23.5	25.3	33.8	27
CLAY + SILT	GRAIN SIZE	PERCENT	89.7	88.3	90	77.5	91.8
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	47.1	44.9	44	48.1	45.9
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	26000	26200	25500	26700	33000
CLASSIFICATION			Brown/grey silty wet clay; 1.5' layer of organic matter	Wet grey silty clay	Wet grey silty clay	Grey silty clay	Grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	Sway Bridge B1 LMR21-59C (1-4) FD	Sway Bridge B1 LMR21-59C (4-7)	Sway Bridge B1 LMR21-60C (0-1)	Sway Bridge B1 LMR21-60C (1-4)	Sway Bridge B1 LMR21-60C (4-5)
CLAY	GRAIN SIZE	PERCENT	64.7	26.9	47.4	42.2	41.7
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.00E-01	2	1.1	4.5	3
FINE GRAVEL	GRAIN SIZE	PERCENT	0	1.2	0.5	5.4	2.4
FINE SAND	GRAIN SIZE	PERCENT	8.8	25	14.4	11.6	13.2
MEDIUM SAND	GRAIN SIZE	PERCENT	1.3	8.6	5.5	9.2	7.3
SILT	GRAIN SIZE	PERCENT	25.1	36.3	31.1	27.1	32.4
CLAY + SILT	GRAIN SIZE	PERCENT	89.8	63.2	78.5	69.3	74.1
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	46.6	22.5	41.7	37.2	18.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	28100	37300	36100	32400	37100
CLASSIFICATION			Grey silty clay	Grey fat silty clay with 2' layer of gravel and rocks	Brown/grey silty clay with rocks and gravel	Brown/grey silty clay with rocks and gravel	Brown/grey silty clay with rocks and gravel with 1' layer of packed, damp clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

NAME	PRCNAME	UNITS	Sway Bridge D LMR21-63C (0-1)	Sway Bridge D LMR21-63C (1-2.75)	Sway Bridge D LMR21-63C (1-2.75) FD	Sway Bridge D LMR21-64C (0-1)	Sway Bridge D LMR21-64C (0-1) FD
CLAY	GRAIN SIZE	PERCENT	47.9	45.5	59.1	38.3	39
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.4	2	1.4	1.2	1.5
FINE GRAVEL	GRAIN SIZE	PERCENT	2.5	0.8	1.5	6.6	4.4
FINE SAND	GRAIN SIZE	PERCENT	10.8	13	10.6	15.8	16
MEDIUM SAND	GRAIN SIZE	PERCENT	5.5	6	4.9	5	4.4
SILT	GRAIN SIZE	PERCENT	31.9	32.7	22.5	33.1	34.7
CLAY + SILT	GRAIN SIZE	PERCENT	79.8	78.2	81.6	71.4	73.7
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	15.9	17		19.2	17.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	39900	37500		47700	40000
CLASSIFICATION			Grey, packed, damp silty clay	Brown, packed, damp silty clay with 6" layer of gravel	Brown, packed, damp silty clay with 6" layer of gravel	Packed, grey silty clay with rocks and gravel	Packed, grey silty clay with rocks and gravel
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

			Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	PRCNAME	UNITS	**LMR21-65C (0-1)**	**LMR21-65C (1-2)**	**LMR21-66C (0-1)**	**LMR21-66C (1-2)**	**LMR21-67C (0-1)**
CLAY	GRAIN SIZE	PERCENT	48.8	59.2	45.7	37.9	49.8
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	2.6	1.4	0	1.6	0
FINE GRAVEL	GRAIN SIZE	PERCENT	1.9	1.3	0	3.5	0
FINE SAND	GRAIN SIZE	PERCENT	14.1	10.5	17.3	19	16
MEDIUM SAND	GRAIN SIZE	PERCENT	6.5	5	4.2	4.5	0.9
SILT	GRAIN SIZE	PERCENT	26.1	22.6	32.8	33.5	33.3
CLAY + SILT	GRAIN SIZE	PERCENT	74.9	81.8	78.5	71.4	83.1
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	20	16.5	61.7	20	60.7
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	35400	35200	31200	35500	28600
CLASSIFICATION			Damp, packed, grey/brown silty clay	Damp, packed, grey/brown silty clay	Saturated grey silty clay	Hard, packed, damp silty clay	Thin, saturated grey silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1b Sediment Core Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	Sway Bridge D **LMR21-67C (0-1) FD**	Sway Bridge D **LMR21-67C (1-3)**	Sway Bridge D **LMR21-67C (1-3) FD**	Sway Bridge D **LMR21-68C (0-1)**	Sway Bridge D **LMR21-68C (1-3.5)**
CLAY	GRAIN SIZE	PERCENT	41.5	64.6	55.3	52.2	52.6
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	0	1.00E-01	0	0	1.1
FINE GRAVEL	GRAIN SIZE	PERCENT	0	0.2	0	0	1.5
FINE SAND	GRAIN SIZE	PERCENT	21.3	9.4	16.2	15.6	10.3
MEDIUM SAND	GRAIN SIZE	PERCENT	1.2	1.2	1.2	1.2	3.5
SILT	GRAIN SIZE	PERCENT	36	24.5	27.3	31	31
CLAY + SILT	GRAIN SIZE	PERCENT	77.5	89.1	82.6	83.2	83.6
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	59.2	46.1		57.3	20.6
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	29800	23900		29000	39700
CLASSIFICATION			Thin, saturated grey silty clay	Thin, saturated grey silty clay	Thin, saturated grey silty clay	Saturated grey clay	Fat, packed silty clay
ODOR OR SHEEN							

Sampling depth interval is indicated in feet

Table 4.2.1c Composite Sediment Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	LMR21-SBA1	LMR21-SBA2	LMR21-SBA3	LMR21-SBB1	LMR21-SBB2	LMR21-SBC	LMR21-SBD	LMR21-WA1	LMR21-WA2	LMR21-WA3
CLAY	GRAIN SIZE	PERCENT	46.7	60.5	16.9	63.5	16.6	3.7	57.6	0	19	19.7
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0	4.4	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	3.8	2.7	3.7	0.8	2.7	2	1.7	3	2	1.2
FINE GRAVEL	GRAIN SIZE	PERCENT	7.1	3.9	0.7	1.1	2.8	5.6	3.5	13	0	2.9
FINE SAND	GRAIN SIZE	PERCENT	15.4	9.1	28.4	8.3	20.2	37.1	10.8	55	49	28.2
MEDIUM SAND	GRAIN SIZE	PERCENT	5.3	4.3	5.5	4.4	14.7	7.6	6.6	11	2	4.4
SILT	GRAIN SIZE	PERCENT	21.7	19.5	44.8	21.9	43	39.6	19.8	18	29	43.6
CLAY + SILT	GRAIN SIZE	PERCENT	68.4	80	61.7	85.4	59.6	43.3	77.4	18	48	63.3
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	38.4	16.1	40	45.3	44.2	31.4	25	40	38.7	27.1
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	51800	38300	55800	29000	39200	25300	41400	37400	28800	37700

Table 4.2.1c Composite Sediment Sample Results for Physical Parameters

NAME	PRCNAME	UNITS	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC1 FD**	**LMR21-WC2**
CLAY	GRAIN SIZE	PERCENT	12	64	58.1	56.8	37.2
COARSE GRAVEL	GRAIN SIZE	PERCENT	0	0	0	0	0
COARSE SAND	GRAIN SIZE	PERCENT	1.4	0.7	0	0	0.3
FINE GRAVEL	GRAIN SIZE	PERCENT	0.2	0.5	0	0	0.5
FINE SAND	GRAIN SIZE	PERCENT	39.2	7.1	13.5	4.3	21.5
MEDIUM SAND	GRAIN SIZE	PERCENT	7.1	2	1.1	0.6	3
SILT	GRAIN SIZE	PERCENT	40.1	25.7	27.3	38.3	37
CLAY + SILT	GRAIN SIZE	PERCENT	52.1	89.7	85.4	95.1	74.2
PERCENT MOISTURE	MISCELLANEOUS ASSAYS	PERCENT	31.6	39.7	41.6	42.1	49.4
TOTAL ORGANIC CARBON	MISCELLANEOUS ASSAYS	MG/KG	42000	30300	31600	28800	32600

Table 4.2.2a Surface Grab Sediment Sample Results for Petroleum Hydrocarbons

			WWTP A2	WWTP A2	WWTP A1	WWTP A1	WWTP A1
NAME	UNITS	REGION4_ESV	**LMR21-10S (0-0.5)**	**LMR21-12S (0-0.5)**	**LMR21-14S (0-0.5)**	**LMR21-15S (0-0.5)**	**LMR21-17S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	224	99.5	72.2	<u>1080</u>	280
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>451</u>	210	154	<u>1710</u>	<u>472</u>
TOTAL OIL & GREASE	MG/KG					1820	

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2a Surface Grab Sediment Sample Results for Petroleum Hydrocarbons

			WWTP A3	**WWTP C2**	**WWTP C2**	**Sway Bridge C**	**Sway Bridge B2**
NAME	UNITS	REGION4_ESV	**LMR21-19S (0-0.5)**	**LMR21-25S (0-0.5)**	**LMR21-27S (0-0.5)**	**LMR21-30S (0-0.5)**	**LMR21-35S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	<u>1200</u>	94.9	163	41.3	95.1
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>1710</u>	202	<u>497</u>	304	210
TOTAL OIL & GREASE	MG/KG						

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2a Surface Grab Sediment Sample Results for Petroleum Hydrocarbons

			Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2
NAME	UNITS	REGION4_ESV	**LMR21-36S (0-0.5)**	**LMR21-37S (0-0.5)**	**LMR21-39S (0-0.5)**	**LMR21-41S (0-0.5)**	**LMR21-43S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	32.7	14.4	205	167	99.9
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	37.4	27.4	264	337	52.4
TOTAL OIL & GREASE	MG/KG		498			534	399

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2a Surface Grab Sediment Sample Results for Petroleum Hydrocarbons

			Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
NAME	UNITS	REGION4_ESV	**LMR21-45S (0-0.5)**	**LMR21-47S (0-0.5)**	**LMR21-48S (0-0.5)**	**LMR21-49S (0-0.5)**	**LMR21-52S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	<u>1030</u>	<u>8070</u>	44.3	<u>1110</u>	71.5
GASOLINE RANGE ORGANICS (GRO)	UG/KG			84100		14400	
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>1080</u>	<u>5560</u>	37.6	<u>932</u>	161
TOTAL OIL & GREASE	MG/KG		3420	5800	322	3950	

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2a Surface Grab Sediment Sample Results for Petroleum Hydrocarbons

			Sway Bridge A3	Sway Bridge A3	Sway Bridge B1	Sway Bridge B1	Biological Survey
NAME	UNITS	REGION4_ESV	**LMR21-53S (0-0.5)**	**LMR21-55S (0-0.5)**	**LMR21-57S (0-0.5)**	**LMR21-59S (0-0.5)**	**LMR21-61S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	24.8	14.3	21	14	29.7
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	29.5	19.5	23.7	15.2	35.8
TOTAL OIL & GREASE	MG/KG						499

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2a Surface Grab Sediment Sample Results for Petroleum Hydrocarbons

			Biological Survey	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Reference**
NAME	UNITS	REGION4_ESV	**LMR21-62S (0-0.5)**	**LMR21-64S (0-0.5)**	**LMR21-66S (0-0.5)**	**LMR21-68S (0-0.5)**	**LMR21-69S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	23.6	96.6	29.3	9.6	26.2
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	22.8	79.1	31.7		25.2
TOTAL OIL & GREASE	MG/KG						

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

			Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	UNITS	REGION4_ESV	**LMR21-29C (0-1)**	**LMR21-29C (1-4)**	**LMR21-29C (1-4) FD**	**LMR21-29C (4-6.5)**	**LMR21-29C (4-6.5) FD**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	64.7	47.4	31.4	40.4	35
GASOLINE RANGE ORGANICS (GRO)	UG/KG		5510				
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	83.9	67	48.5	79.5	54.1
TOTAL OIL & GREASE	MG/KG		234				

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	UNITS	REGION4_ESV	**LMR21-30C (0-1)**	**LMR21-30C (1-3)**	**LMR21-31C (0-1)**	**LMR21-31C (1-4)**	**LMR21-32C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	44.8	35.9	39.2	42.3	113
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	61.4	37.4	54.1	65.7	201
TOTAL OIL & GREASE	MG/KG				1750		

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	**UNITS**	**REGION4_ESV**	**LMR21-32C (1-5)**	**LMR21-33C (0-1)**	**LMR21-33C (1-5)**	**LMR21-34C (0-1)**	**LMR21-34C (1-4)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	85.1	28.3	56.6	168	144
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	109	44.5	53.4	216	157
TOTAL OIL & GREASE	MG/KG					654	2160

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	UNITS	REGION4_ESV	**LMR21-34C (4-7)**	**LMR21-37C (0-1)**	**LMR21-37C (1-3)**	**LMR21-38C (0-1)**	**LMR21-38C (1-2.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	<u>348</u>	25	50.7	<u>534</u>	100
GASOLINE RANGE ORGANICS (GRO)	UG/KG					5990	2570
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>398</u>	25.1	38.2	<u>476</u>	87.9
TOTAL OIL & GREASE	MG/KG					1040	

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge B2	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	UNITS	REGION4_ESV	**LMR21-39C (0-1)**	**LMR21-39C (1-3)**	**LMR21-40C (0-1)**	**LMR21-41C (0-1)**	**LMR21-41C (1-3)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	91.6	29.1	37.7	39.1	36.1
GASOLINE RANGE ORGANICS (GRO)	UG/KG				1750	2800	
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	72	20.1	31.5	34.7	30.5
TOTAL OIL & GREASE	MG/KG						

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge A2	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**
NAME	UNITS	REGION4_ESV	**LMR21-41C (1-3) FD**	**LMR21-42C (0-1)**	**LMR21-43C (0-1)**	**LMR21-43C (1-3)**	**LMR21-44C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	42.1	43.1	36.5	45.8	39.6
GASOLINE RANGE ORGANICS (GRO)	UG/KG		1860		1660	1810	
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	34.7	37	30.7	37.9	33.5
TOTAL OIL & GREASE	MG/KG						

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	UNITS	REGION4_ESV	**LMR21-45C (0-1)**	**LMR21-45C (1-2)**	**LMR21-46C (0-1)**	**LMR21-46C (1-4)**	**LMR21-46C (1-4) FD**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	95.2	100	<u>1240</u>	<u>1730</u>	<u>1810</u>
GASOLINE RANGE ORGANICS (GRO)	UG/KG		3820	1750	17400	7670	4250
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	73.9	82.2	<u>1080</u>	<u>1490</u>	<u>1490</u>
TOTAL OIL & GREASE	MG/KG		0	93	1940	2920	2970

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	UNITS	REGION4_ESV	**LMR21-46C (4-7)**	**LMR21-46C (7-8.5)**	**LMR21-47C (0-1)**	**LMR21-47C (1-4)**	**LMR21-47C (4-8)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	<u>2650</u>	134	<u>1340</u>	<u>699</u>	81.8
GASOLINE RANGE ORGANICS (GRO)	UG/KG		5280	2770			
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>2200</u>	118	<u>1630</u>	<u>506</u>	70.4
TOTAL OIL & GREASE	MG/KG		7260	119	4350	544	36

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge A1	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	UNITS	REGION4_ESV	**LMR21-49C (0-1)**	**LMR21-49C (1-4)**	**LMR21-49C (4-7.5)**	**LMR21-50C (0-1)**	**LMR21-50C (1-4)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	194	<u>4040</u>	217	59	<u>767</u>
GASOLINE RANGE ORGANICS (GRO)	UG/KG			27300	6600		9330
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	242	<u>2890</u>	207	109	<u>1050</u>
TOTAL OIL & GREASE	MG/KG		454	5540	386	239	1980

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge A3	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	UNITS	REGION4_ESV	**LMR21-50C (4-7.5)**	**LMR21-51C (0-1)**	**LMR21-51C (1-4)**	**LMR21-51C (4-7.5)**	**LMR21-52C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	947	48.2	40.2	257	18.6
GASOLINE RANGE ORGANICS (GRO)	UG/KG		15800		17000	11100	
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	900	111	68.1	319	27.7
TOTAL OIL & GREASE	MG/KG		2960		518	2600	

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

NAME	UNITS	REGION4_ESV	Sway Bridge A3 LMR21-52C (1-4)	Sway Bridge A3 LMR21-52C (1-4) FD	Sway Bridge A3 LMR21-52C (4-7)	Sway Bridge A3 LMR21-52C (7-10)	Sway Bridge A3 LMR21-53C (0-1)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	102	241	253	<u>399</u>	14.9
GASOLINE RANGE ORGANICS (GRO)	UG/KG			5970	14400	19400	
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	180	<u>404</u>	<u>387</u>	<u>402</u>	24.8
TOTAL OIL & GREASE	MG/KG		1480	2570	3460		368

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

			Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	REGION4_ESV	**LMR21-53C (1-4)**	**LMR21-53C (4-6)**	**LMR21-54C (0-1)**	**LMR21-54C (1-4)**	**LMR21-54C (1-4) FD**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	94.7	67.4	13.3	73.7	40.7
GASOLINE RANGE ORGANICS (GRO)	UG/KG			3440			3800
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	142	61.8	19.9	113	61.8
TOTAL OIL & GREASE	MG/KG		934		342	901	915

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1
NAME	UNITS	REGION4_ESV	**LMR21-54C (4-6)**	**LMR21-55C (0-1)**	**LMR21-55C (1-4)**	**LMR21-55C (4-7.5)**	**LMR21-56C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	106	44.7	170	296	<u>343</u>
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2130			3380	
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	127	81.3	277	308	<u>680</u>
TOTAL OIL & GREASE	MG/KG			463	1140	530	362

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	UNITS	REGION4_ESV	**LMR21-56C (1-4)**	**LMR21-56C (1-4) FD**	**LMR21-56C (4-7)**	**LMR21-56C (4-7) FD**	**LMR21-57C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	<u>673</u>	206	78.5	79	14.9
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2380			2940	
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>1040</u>	291	61.3	60.2	18.2
TOTAL OIL & GREASE	MG/KG		2120	1090			

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	UNITS	REGION4_ESV	**LMR21-57C (1-4)**	**LMR21-57C (4-6)**	**LMR21-58C (0-1)**	**LMR21-58C (1-4)**	**LMR21-58C (4-7)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	289	91.3	48.3	48.2	101
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2470	1370			
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>357</u>	68.6	60.5	61.1	136
TOTAL OIL & GREASE	MG/KG					352	599

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge B1	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	UNITS	REGION4_ESV	**LMR21-58C (4-7) FD**	**LMR21-59C (0-1)**	**LMR21-59C (1-4)**	**LMR21-59C (1-4) FD**	**LMR21-59C (4-7)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	173	10.6	238	205	8.2
GASOLINE RANGE ORGANICS (GRO)	UG/KG		4940				2620
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	229	10.6	300	280	13.5
TOTAL OIL & GREASE	MG/KG		607	1740	1350	1670	291

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge D	Sway Bridge D
NAME	UNITS	REGION4_ESV	**LMR21-60C (0-1)**	**LMR21-60C (1-4)**	**LMR21-60C (4-5)**	**LMR21-63C (0-1)**	**LMR21-63C (1-2.75)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	101	128	94.6	93.7	48.9
GASOLINE RANGE ORGANICS (GRO)	UG/KG				4850	5090	4610
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	153	172	79.1	66.5	35.5
TOTAL OIL & GREASE	MG/KG		571	250			

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge D	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**
NAME	UNITS	REGION4_ESV	**LMR21-64C (0-1.75)**	**LMR21-64C (0-1.75) FD**	**LMR21-65C (0-1)**	**LMR21-65C (1-2)**	**LMR21-66C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	59	35.6	96.3	49.4	45.6
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2260	2000	1860		
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	42.5	29.5	71.2	41	62.9
TOTAL OIL & GREASE	MG/KG						469

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	UNITS	REGION4_ESV	**LMR21-66C (1-2)**	**LMR21-67C (0-1)**	**LMR21-67C (0-1) FD**	**LMR21-67C (1-3)**	**LMR21-68C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	41.7	26.8	21.3	25	18.1
GASOLINE RANGE ORGANICS (GRO)	UG/KG						
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	31.6	28.4	21.8	28.8	16.7
TOTAL OIL & GREASE	MG/KG			280		218	

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2b Sediment Core Sample Results for Petroleum Hydrocarbons

			Sway Bridge D
NAME	UNITS	REGION4_ESV	**LMR21-68C (1-3.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	67.9
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2090
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	60.4
TOTAL OIL & GREASE	MG/KG		

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2c Composite Sediment Sample Results for Petroleum Hydrocarbons

NAME	UNITS	REGION4_ESV	**LMR21-SBA1**	**LMR21-SBA1 FD2**	**LMR21-SBA2**	**LMR21-SBA2 FD1**	**LMR21-SBA3**	**LMR21-SBA3 FD1**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	<u>486</u>	<u>475</u>	43.3	34.6	246	<u>786</u>
GASOLINE RANGE ORGANICS (GRO)	UG/KG		10300	6680	1740		8490	5030
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>461</u>	<u>473</u>	38.1	30.6	324	<u>973</u>
TOTAL OIL & GREASE	MG/KG		473	1010			1180	440

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2c Composite Sediment Sample Results for Petroleum Hydrocarbons

NAME	UNITS	REGION4_ESV	**LMR21-SBB1**	**LMR21-SBB1 FD1**	**LMR21-SBB2**	**LMR21-SBB2 FD1**	**LMR21-SBC**	**LMR21-SBC FD1**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	122	127	27.8	41.3	161	190
GASOLINE RANGE ORGANICS (GRO)	UG/KG							
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	174	183	25	42	189	227
TOTAL OIL & GREASE	MG/KG			392			272	

Underlined values exceed the EPA ESV
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2c Composite Sediment Sample Results for Petroleum Hydrocarbons

NAME	UNITS	REGION4_ESV	**LMR21-SBD**	**LMR21-SBD FD1**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	49.7	37.5	251	247	224	<u>843</u>	204
GASOLINE RANGE ORGANICS (GRO)	UG/KG				14800		4650		
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	46.5	45.2	<u>1330</u>	334	282	<u>1110</u>	290
TOTAL OIL & GREASE	MG/KG					504	823		785

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2c Composite Sediment Sample Results for Petroleum Hydrocarbons

NAME	UNITS	REGION4_ESV	**LMR21-WC1**	**LMR21-WC1-FD FD**	**LMR21-WC2**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	274	182	152
GASOLINE RANGE ORGANICS (GRO)	UG/KG		5030	7670	4530
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	<u>355</u>	249	212
TOTAL OIL & GREASE	MG/KG		274	496	3450

<u>Underlined values exceed the EPA ESV</u>
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.2d Maximum Concentrations of Petroleum Hydrocarbons in Surface Grab, Core, and Composite Sediment Samples

NAME	REGION4_ESV	UNITS	Max surface grab concentration	Max core concentration	Max composite concentration
DIESEL RANGE ORGANICS (DRO) C10-C28	340	MG/KG	8070	4040	843
GASOLINE RANGE ORGANICS (GRO)		UG/KG	84100	27300	14800
OIL RANGE ORGANICS (C20-C44)	340	MG/KG	5560	2890	1330
TOTAL OIL & GREASE		MG/KG	5800	7260	3450

NOTES:

Underlined values exceed the EPA ESL

ESV = ecological screening value

Table 4.2.3a Surface Grab Sediment Sample Results for Metals

				Sampling Area >	WWTP A2	WWTP A2	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-10S (0-0.5)	LMR21-12S (0-0.5)	LMR21-14S (0-0.5)	LMR21-15S (0-0.5)
ALUMINUM			42000	25000	17100	19300	16200	7500
ANTIMONY			0.84	2			1.4	1.4
ARSENIC	9.79	33	11	9.8	**13.3**	**11.9**	**11.9**	**14.7**
BARIUM			210	20	131	125	119	102
BERYLLIUM			0.8		0.86	0.96	0.79	
CADMIUM	0.99	4.98	0.96	1	0.83	0.67	0.68	**1.5**
CALCIUM			110000		30400	31300	35300	33000
CHROMIUM, TOTAL	43.4	111	51	43.4	32.9	29.3	28	**46.6**
COBALT			12	50	10.5	10.6	10.1	8
COPPER	31.6	149	42	31.6	**49.1**	**36.3**	**37.9**	**53.1**
IRON			44000	20000	28900	27600	26700	31000
LEAD	35.8	128	47	35.8	25	18.2	20.5	**38**
MAGNESIUM			29000		9920	10200	10400	9580
MANGANESE			1000	460	483	509	483	711
MERCURY	0.18	1.06	0.12	0.18				**0.25**
NICKEL	22.7	48.6	36	22.7	**36.2**	**34.5**	**33**	**34.7**
POTASSIUM			12000		2820	3310	2610	1110
SELENIUM			1.4	0.72				
SILVER			0.43	1				0.68
SODIUM					189	173	180	161
VANADIUM			40		35.7	38.2	33.2	19.4
ZINC	121	459	190	121	**172**	**131**	**138**	**225**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3a Surface Grab Sediment Sample Results for Metals

				Sampling Area >	WWTP A1	WWTP A3	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-17S (0-0.5)	LMR21-19S (0-0.5)	LMR21-25S (0-0.5)	LMR21-27S (0-0.5)
ALUMINUM			42000	25000	5900	5370	14800	17900
ANTIMONY			0.84	2	1.1	1.8		
ARSENIC	9.79	33	11	9.8	9.1	9.4	**12.1**	**15**
BARIUM			210	20	58.5	61	115	139
BERYLLIUM			0.8					0.98
CADMIUM	0.99	4.98	0.96	1	0.83	**4.5**	0.66	0.83
CALCIUM			110000		33400	27600	25500	36600
CHROMIUM, TOTAL	43.4	111	51	43.4	19.9	**53.2**	24.2	29
COBALT			12	50	6.4	6.3	9.4	11.6
COPPER	31.6	149	42	31.6	**33**	**72.8**	**34.6**	**42.6**
IRON			44000	20000	16300	17300	27300	31700
LEAD	35.8	128	47	35.8	32	**50.7**	17.7	22.8
MAGNESIUM			29000		8940	7090	8950	10300
MANGANESE			1000	460	408	368	451	536
MERCURY	0.18	1.06	0.12	0.18	0.13	**0.56**		
NICKEL	22.7	48.6	36	22.7	18.9	**27.8**	**31.3**	**37.9**
POTASSIUM			12000		920	698	2240	2790
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.82		
SODIUM					153	99.3	147	201
VANADIUM			40		15.6	12.5	27.9	33
ZINC	121	459	190	121	121	**238**	120	**147**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3a Surface Grab Sediment Sample Results for Metals

				Sampling Area >	Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-30S (0-0.5)	LMR21-35S (0-0.5)	LMR21-36S (0-0.5)	LMR21-37S (0-0.5)
ALUMINUM			42000	25000	15300	20600	17800	19700
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**13.6**	**16.7**	**14.5**	**16**
BARIUM			210	20	122	156	139	151
BERYLLIUM			0.8		0.82	1.1	0.95	1
CADMIUM	0.99	4.98	0.96	1	0.7	0.86	0.73	0.78
CALCIUM			110000		34000	36900	29000	29600
CHROMIUM, TOTAL	43.4	111	51	43.4	24.9	33.2	29.7	31.6
COBALT			12	50	10.5	12.5	11.1	11.9
COPPER	31.6	149	42	31.6	**35.3**	**45.8**	**41.4**	**41.9**
IRON			44000	20000	28600	36900	32900	36300
LEAD	35.8	128	47	35.8	18.9	27.2	24.1	25.1
MAGNESIUM			29000		11200	11900	9950	10200
MANGANESE			1000	460	528	613	625	729
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**33.2**	**41.8**	**37.6**	**39.5**
POTASSIUM			12000		2410	3270	2690	3110
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					160	218	200	207
VANADIUM			40		28.3	39.2	33.1	36.2
ZINC	121	459	190	121	**123**	**169**	**153**	**161**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3a Surface Grab Sediment Sample Results for Metals

				Sampling Area >	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-39S (0-0.5)	LMR21-41S (0-0.5)	LMR21-43S (0-0.5)	LMR21-45S (0-0.5)
ALUMINUM			42000	25000	13800	18300	17400	12700
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**13.9**	**15.3**	**16.2**	**19.9**
BARIUM			210	20	99.6	135	136	110
BERYLLIUM			0.8			0.95	0.9	0.73
CADMIUM	0.99	4.98	0.96	1		0.66	**2**	**1.3**
CALCIUM			110000		65500	29800	29200	37100
CHROMIUM, TOTAL	43.4	111	51	43.4	23.8	30.2	43.1	26.8
COBALT			12	50	11.1	10.8	10.8	10
COPPER	31.6	149	42	31.6	**32.1**	**39.5**	**44.7**	**44.3**
IRON			44000	20000	27000	38800	31400	30100
LEAD	35.8	128	47	35.8	16.3	24.9	**41.3**	**250**
MAGNESIUM			29000		15600	9160	9260	9730
MANGANESE			1000	460	489	738	582	541
MERCURY	0.18	1.06	0.12	0.18				**0.24**
NICKEL	22.7	48.6	36	22.7	**35.2**	**36.7**	**42.2**	**31.1**
POTASSIUM			12000		2690	2870	2510	1810
SELENIUM			1.4	0.72				
SILVER			0.43	1			0.37	
SODIUM					414	201	171	136
VANADIUM			40		28.5	34.4	31.5	26.1
ZINC	121	459	190	121	96.9	**146**	**185**	**204**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3a Surface Grab Sediment Sample Results for Metals

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-47S (0-0.5)	LMR21-48S (0-0.5)	LMR21-49S (0-0.5)	LMR21-52S (0-0.5)
ALUMINUM			42000	25000	12300	14100	14000	21600
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**22.6**	**14**	**30.9**	**16**
BARIUM			210	20	132	117	155	160
BERYLLIUM			0.8		0.98	0.89		1.1
CADMIUM	0.99	4.98	0.96	1	**2.6**	0.67	**2.3**	0.79
CALCIUM			110000		23100	29500	33900	29800
CHROMIUM, TOTAL	43.4	111	51	43.4	40	25.4	38.7	32.4
COBALT			12	50	8.1	9.2	10.5	12.3
COPPER	31.6	149	42	31.6	**54.6**	**33.4**	**45.6**	**42**
IRON			44000	20000	53500	32000	84300	35400
LEAD	35.8	128	47	35.8	**79.9**	21.9	**74.9**	23.4
MAGNESIUM			29000		6770	8600	9100	10300
MANGANESE			1000	460	777	672	1720	579
MERCURY	0.18	1.06	0.12	0.18	**0.49**		**0.32**	
NICKEL	22.7	48.6	36	22.7	**31.2**	**29.7**	**37.2**	**40.2**
POTASSIUM			12000		1560	2100	1830	3380
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.31			
SODIUM					133	154	187	182
VANADIUM			40		28.1	27.6	35.8	38.9
ZINC	121	459	190	121	**273**	**159**	**372**	**150**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

			Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-53S (0-0.5)	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)	LMR21-59S (0-0.5)
ALUMINUM			42000	25000	17400	17800	15600	15600
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	<u>**13.7**</u>	<u>**13.2**</u>	<u>**12.4**</u>	<u>**11.1**</u>
BARIUM			210	20	130	125	131	159
BERYLLIUM			0.8		<u>0.92</u>	<u>0.91</u>	<u>0.84</u>	<u>0.81</u>
CADMIUM	0.99	4.98	0.96	1	0.75	0.65	0.77	0.74
CALCIUM			110000		27100	28300	29000	30800
CHROMIUM, TOTAL	43.4	111	51	43.4	27.8	27	26.6	25.6
COBALT			12	50	10.6	10.4	10.7	10
COPPER	31.6	149	42	31.6	**37**	**35.6**	**37.5**	**35.7**
IRON			44000	20000	29900	29600	29000	27700
LEAD	35.8	128	47	35.8	21.1	18.8	23.8	32.9
MAGNESIUM			29000		9050	9550	9590	9470
MANGANESE			1000	460	514	494	470	521
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**35.1**	**33.7**	**34.8**	**32.1**
POTASSIUM			12000		2590	2640	2570	2900
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					151	175	161	222
VANADIUM			40		31.2	32.5	29.3	29.3
ZINC	121	459	190	121	**134**	**127**	**145**	**127**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3a Surface Grab Sediment Sample Results for Metals

				Sampling Area >	Biological Survey	Biological Survey	Sway Bridge D	Sway Bridge D
NAME	**TEC**	**PEC**	**OHIO_SRV**	**REGION4_ESV**	**LMR21-61S (0-0.5)**	**LMR21-62S (0-0.5)**	**LMR21-64S (0-0.5)**	**LMR21-66S (0-0.5)**
ALUMINUM			42000	25000	13300	13700	15200	19500
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**11.6**	**10.6**	**10.5**	**14.7**
BARIUM			210	20	107	108	116	151
BERYLLIUM			0.8					1
CADMIUM	0.99	4.98	0.96	1	0.8	0.57	0.61	0.81
CALCIUM			110000		28000	24700	20600	32400
CHROMIUM, TOTAL	43.4	111	51	43.4	25.5	23.3	24	31.8
COBALT			12	50	8.7	8.9	9.2	12.3
COPPER	31.6	149	42	31.6	**38**	31.4	30.7	**43.7**
IRON			44000	20000	25500	25900	26500	35100
LEAD	35.8	128	47	35.8	24.4	27.7	18.1	24.7
MAGNESIUM			29000		9530	8520	7500	10900
MANGANESE			1000	460	408	494	477	619
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**29.4**	**29.3**	**30.5**	**40.7**
POTASSIUM			12000		2270	2510	2790	3450
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					160	162	166	184
VANADIUM			40		27.4	28.2	29.3	37.6
ZINC	121	459	190	121	**131**	111	117	**160**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

			Sampling Area >		Sway Bridge D	Reference
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-68S (0-0.5)	LMR21-69S (0-0.5)
ALUMINUM			42000	25000	15800	18700
ANTIMONY			0.84	2		
ARSENIC	9.79	33	11	9.8	**<u>12.5</u>**	**<u>11.5</u>**
BARIUM			210	20	141	130
BERYLLIUM			0.8		<u>0.82</u>	
CADMIUM	0.99	4.98	0.96	1	0.66	0.63
CALCIUM			110000		29200	24000
CHROMIUM, TOTAL	43.4	111	51	43.4	25.3	27.4
COBALT			12	50	10.2	<u>19.2</u>
COPPER	31.6	149	42	31.6	**34.3**	**36.4**
IRON			44000	20000	29400	29400
LEAD	35.8	128	47	35.8	20.2	18.4
MAGNESIUM			29000		9780	8390
MANGANESE			1000	460	632	414
MERCURY	0.18	1.06	0.12	0.18		
NICKEL	22.7	48.6	36	22.7	**33.4**	**<u>65.3</u>**
POTASSIUM			12000		2680	3660
SELENIUM			1.4	0.72		
SILVER			0.43	1		
SODIUM					170	159
VANADIUM			40		31.4	35.8
ZINC	121	459	190	121	**126**	**125**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-01C (0-1)**	**LMR21-01C (1-4)**	**LMR21-01C (4-7)**	**LMR21-01C (7-8)**
ALUMINUM			42000	25000	18900	15200	8820	10600
ANTIMONY			0.84	2			1.1	
ARSENIC	9.79	33	11	9.8	**12.7**	**16.3**	**10.3**	6.8
BARIUM			210	20	139	118	70.6	76.9
BERYLLIUM			0.8		0.96	0.77	0.5	0.54
CADMIUM	0.99	4.98	0.96	1	0.69	**2.1**	0.37	0.3
CALCIUM			110000		29000	38100	33900	31900
CHROMIUM, TOTAL	43.4	111	51	43.4	30.8	**43.9**	15.6	16.8
COBALT			12	50	11.5	10.2	8.5	8.7
COPPER	31.6	149	42	31.6	40.7	51.6	22.3	19.5
IRON			44000	20000	30700	29700	18100	18500
LEAD	35.8	128	47	35.8	21.6	**58.3**	25.4	8.7
MAGNESIUM			29000		9660	11000	10500	13300
MANGANESE			1000	460	468	514	398	452
MERCURY	0.18	1.06	0.12	0.18		**0.22**	**0.23**	
NICKEL	22.7	48.6	36	22.7	**38.4**	**37.9**	**23.6**	**23.4**
POTASSIUM			12000		2910	2260	1260	1800
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.46		
SODIUM					163	145	86.4	112
VANADIUM			40		35.4	31	20.7	24.6
ZINC	121	459	190	121	**146**	**190**	77.8	54.5

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-02C (0-1)**	**LMR21-02C (1-4)**	**LMR21-02C (4-7)**	**LMR21-02C (7-8)**
ALUMINUM			42000	25000	29500	14300	15700	16400
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**14.9**	**15.4**	**19.8**	**22.2**
BARIUM			210	20	161	111	118	119
BERYLLIUM			0.8		1.1	0.75	0.82	0.83
CADMIUM	0.99	4.98	0.96	1	**2**	**3.4**	0.76	0.64
CALCIUM			110000		40800	28600	36300	34100
CHROMIUM, TOTAL	43.4	111	51	43.4	**58.4**	41.8	26.7	26
COBALT			12	50	10.9	9.8	11.5	11.6
COPPER	31.6	149	42	31.6	53	51.5	41	36.2
IRON			44000	20000	33400	29400	30400	31000
LEAD	35.8	128	47	35.8	**37**	**65.2**	**81.1**	**69.9**
MAGNESIUM			29000		13500	8960	11300	10900
MANGANESE			1000	460	545	400	565	564
MERCURY	0.18	1.06	0.12	0.18	**0.22**	**0.35**	**0.28**	**0.3**
NICKEL	22.7	48.6	36	22.7	**44.9**	**35.9**	**36.1**	**35.3**
POTASSIUM			12000		6370	2000	2430	2410
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.63	0.67	0.29	
SODIUM					231	134	132	123
VANADIUM			40		59.7	28.9	32.7	33.2
ZINC	121	459	190	121	**192**	**205**	**205**	**177**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-03C (0-1)**	**LMR21-03C (1-4)**	**LMR21-03C (1-4) FD**	**LMR21-03C (4-7)**
ALUMINUM			42000	25000	27300	12600	12800	12700
ANTIMONY			0.84	2		1.9	1.4	1
ARSENIC	9.79	33	11	9.8	**12.5**	**20.4**	**20.1**	**15.8**
BARIUM			210	20	143	104	107	91
BERYLLIUM			0.8		0.99	0.7	0.69	0.63
CADMIUM	0.99	4.98	0.96	1	0.99	**2.6**	**2.9**	0.5
CALCIUM			110000		36500	35200	35800	32000
CHROMIUM, TOTAL	43.4	111	51	43.4	40.4	36.8	37.4	20.1
COBALT			12	50	10	9.7	9.5	9.1
COPPER	31.6	149	42	31.6	41.4	54.8	52.6	31.6
IRON			44000	20000	29600	30500	30400	24100
LEAD	35.8	128	47	35.8	24.3	**105**	**92.9**	**52.7**
MAGNESIUM			29000		12100	10000	9820	9910
MANGANESE			1000	460	480	470	498	415
MERCURY	0.18	1.06	0.12	0.18	0.14	**0.69**	**0.56**	**0.19**
NICKEL	22.7	48.6	36	22.7	**35.1**	**34.3**	**34.3**	**28.1**
POTASSIUM			12000		5920	1740	1830	1880
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.67	0.58	
SODIUM					214	120	130	105
VANADIUM			40		56.2	27.9	27.1	26
ZINC	121	459	190	121	**145**	**240**	**225**	**147**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-04C (0-1)	LMR21-04C (1-4)	LMR21-04C (4-7)	LMR21-05C (0-1)
ALUMINUM			42000	25000	14100	13700	8660	22300
ANTIMONY			0.84	2		<u>1.7</u>	<u>1.1</u>	
ARSENIC	9.79	33	11	9.8	**<u>12.1</u>**	**<u>21.5</u>**	**<u>12.3</u>**	**<u>15</u>**
BARIUM			210	20	112	102	71.2	158
BERYLLIUM			0.8		0.68	0.67	0.49	<u>1.1</u>
CADMIUM	0.99	4.98	0.96	1	**<u>1.4</u>**	**<u>1.2</u>**	0.36	0.68
CALCIUM			110000		33000	36700	43800	27500
CHROMIUM, TOTAL	43.4	111	51	43.4	32.1	27.9	14.5	33.2
COBALT			12	50	9.1	9.6	8.3	<u>12.4</u>
COPPER	31.6	149	42	31.6	<u>43.8</u>	<u>46.8</u>	22.7	<u>42.3</u>
IRON			44000	20000	25700	25800	17900	34400
LEAD	35.8	128	47	35.8	35.6	**<u>98.9</u>**	30	21.6
MAGNESIUM			29000		10400	10700	9360	10200
MANGANESE			1000	460	421	397	353	505
MERCURY	0.18	1.06	0.12	0.18	<u>0.16</u>	**<u>0.39</u>**	0.11	
NICKEL	22.7	48.6	36	22.7	**33**	**33.4**	**23**	**<u>41.2</u>**
POTASSIUM			12000		2450	2130	1280	3660
SELENIUM			1.4	0.72				
SILVER			0.43	1	<u>0.46</u>	<u>0.8</u>		
SODIUM					144	122	92.8	175
VANADIUM			40		29.2	29.8	17.3	<u>42.1</u>
ZINC	121	459	190	121	**152**	**<u>225</u>**	79.5	**153**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-05C (1-4)**	**LMR21-05C (4-7)**	**LMR21-05C (7-8)**	**LMR21-06C (0-1)**
ALUMINUM			42000	25000	13500	22100	13800	36300
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**10.4**	**10.1**	**10.8**	**13.1**
BARIUM			210	20	96	120	107	172
BERYLLIUM			0.8		0.64	0.82	0.69	1.2
CADMIUM	0.99	4.98	0.96	1	0.62	0.64	0.78	0.64
CALCIUM			110000		43500	29500	36200	30200
CHROMIUM, TOTAL	43.4	111	51	43.4	21.9	29.6	24.5	**44.5**
COBALT			12	50	8.3	8.1	9.4	10.9
COPPER	31.6	149	42	31.6	29.2	32.3	33.8	41.1
IRON			44000	20000	21000	24000	23900	32400
LEAD	35.8	128	47	35.8	17	15.6	19.4	16.6
MAGNESIUM			29000		11700	9220	10200	12000
MANGANESE			1000	460	403	414	450	475
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**26.5**	**27.5**	**30.5**	**37**
POTASSIUM			12000		2260	4770	2080	8540
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					153	186	126	264
VANADIUM			40		27.6	43.1	26.9	72.9
ZINC	121	459	190	121	105	108	119	**136**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-06C (1-4)	LMR21-06C (4-6.3)	LMR21-07C (0-1)	LMR21-07C (1-4)
ALUMINUM			42000	25000	13200	13800	9790	10500
ANTIMONY			0.84	2			2.4	1
ARSENIC	9.79	33	11	9.8	**11.5**	**13.3**	**13.1**	**19.5**
BARIUM			210	20	117	128	75	88
BERYLLIUM			0.8		0.7	0.69		0.57
CADMIUM	0.99	4.98	0.96	1	**1.3**	**3.7**	0.75	0.54
CALCIUM			110000		35400	39800	69600	32100
CHROMIUM, TOTAL	43.4	111	51	43.4	30.1	**56.6**	20.2	18.8
COBALT			12	50	9.4	9.7	8.3	9.3
COPPER	31.6	149	42	31.6	38.6	53.7	30.3	32.8
IRON			44000	20000	25000	25100	19800	23100
LEAD	35.8	128	47	35.8	26	**51.9**	**45.2**	**77.3**
MAGNESIUM			29000		10100	10200	26100	10000
MANGANESE			1000	460	469	490	372	387
MERCURY	0.18	1.06	0.12	0.18	0.13	**0.19**	0.18	**0.33**
NICKEL	22.7	48.6	36	22.7	**34.8**	**46**	**26**	**28.3**
POTASSIUM			12000		2240	1940	1590	1320
SELENIUM			1.4	0.72				
SILVER			0.43	1		1.4		
SODIUM					148	128	356	99.9
VANADIUM			40		26.2	28	21.9	22.7
ZINC	121	459	190	121	**144**	**204**	**127**	**170**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-07C (4-7)	LMR21-07C (7-8)	LMR21-08C (0-1)	LMR21-08C (1-4)
ALUMINUM			42000	25000	16800	7600	16400	13200
ANTIMONY			0.84	2		0.8		<u>1.2</u>
ARSENIC	9.79	33	11	9.8	**<u>11.9</u>**	6.1	**<u>14</u>**	**<u>20.9</u>**
BARIUM			210	20	108	54.6	131	104
BERYLLIUM			0.8		0.74	0.42	<u>0.84</u>	0.68
CADMIUM	0.99	4.98	0.96	1	0.43	0.25	**<u>1.1</u>**	0.94
CALCIUM			110000		35200	27400	37900	41400
CHROMIUM, TOTAL	43.4	111	51	43.4	25.7	13	31.9	24.7
COBALT			12	50	11.1	7	11.1	10.2
COPPER	31.6	149	42	31.6	29.8	16.3	<u>44.3</u>	41.6
IRON			44000	20000	26300	14200	31700	26500
LEAD	35.8	128	47	35.8	28.8	10.4	**36.9**	**<u>88.3</u>**
MAGNESIUM			29000		12400	9350	11500	12400
MANGANESE			1000	460	571	304	536	474
MERCURY	0.18	1.06	0.12	0.18	**<u>0.2</u>**			**<u>0.52</u>**
NICKEL	22.7	48.6	36	22.7	**32.6**	19	**<u>37.9</u>**	**31.7**
POTASSIUM			12000		3090	1030	2820	2310
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					141	87.3	184	848
VANADIUM			40		36.6	17.7	33.8	29.7
ZINC	121	459	190	121	98.1	51.3	**163**	**183**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-08C (4-7)	LMR21-08C (7-8.1)	LMR21-09C (0-1)	LMR21-09C (1-4)
ALUMINUM			42000	25000	11800	11600	8630	13000
ANTIMONY			0.84	2			1.8	1.2
ARSENIC	9.79	33	11	9.8	**15.2**	**10.8**	**14.9**	**22.2**
BARIUM			210	20	95.2	104	83.5	109
BERYLLIUM			0.8		0.67	0.65		0.71
CADMIUM	0.99	4.98	0.96	1	0.58	0.42	**1.1**	0.64
CALCIUM			110000		36000	33900	50400	40000
CHROMIUM, TOTAL	43.4	111	51	43.4	20.2	19.7	19.9	23.3
COBALT			12	50	10.3	11	7.7	11
COPPER	31.6	149	42	31.6	33.9	27.1	35.8	37.7
IRON			44000	20000	22400	24900	21000	28700
LEAD	35.8	128	47	35.8	**47.8**	19.7	**55.5**	**90.7**
MAGNESIUM			29000		11400	11800	10600	11700
MANGANESE			1000	460	506	602	393	551
MERCURY	0.18	1.06	0.12	0.18	**0.29**	0.084	**0.29**	**0.37**
NICKEL	22.7	48.6	36	22.7	**29.9**	**31**	**27.1**	**34**
POTASSIUM			12000		1590	1780	1420	1930
SELENIUM			1.4	0.72				
SILVER			0.43	1			0.32	
SODIUM					172	710	212	140
VANADIUM			40		24.3	25.9	20.3	28.1
ZINC	121	459	190	121	116	86.4	**162**	**188**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-09C (4-7)	LMR21-09C (4-7) FD	LMR21-09C (7-7.5)	LMR21-10C (0-1)
ALUMINUM			42000	25000	16000	11600	13500	19300
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**<u>14.5</u>**	**<u>12</u>**	9.7	**<u>13.5</u>**
BARIUM			210	20	124	98.9	98.8	134
BERYLLIUM			0.8		0.8	0.65	0.67	<u>0.86</u>
CADMIUM	0.99	4.98	0.96	1	0.45	0.42	0.37	0.88
CALCIUM			110000		31600	27900	28100	50800
CHROMIUM, TOTAL	43.4	111	51	43.4	25.8	19.8	21	31.3
COBALT			12	50	<u>12.3</u>	10.4	10.2	11.6
COPPER	31.6	149	42	31.6	35.9	28.9	26.2	41.1
IRON			44000	20000	29200	23500	22800	30000
LEAD	35.8	128	47	35.8	**45.8**	**37.9**	17.9	24.5
MAGNESIUM			29000		10900	9580	9640	13900
MANGANESE			1000	460	605	503	510	622
MERCURY	0.18	1.06	0.12	0.18	<u>0.15</u>	<u>0.17</u>	0.098	**<u>0.49</u>**
NICKEL	22.7	48.6	36	22.7	**<u>37.2</u>**	**30.3**	**29.6**	**35.9**
POTASSIUM			12000		2270	1560	1900	3750
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					124	89.8	96.6	210
VANADIUM			40		32.5	24.4	27.4	39.5
ZINC	121	459	190	121	118	93.4	83.9	**143**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-10C (1-4)	LMR21-10C (4-7)	LMR21-10C (7-8.5)	LMR21-11C (0-1)
ALUMINUM			42000	25000	9440	5820	6560	9890
ANTIMONY			0.84	2	1.1	1.1	1.5	0.97
ARSENIC	9.79	33	11	9.8	**14**	6.2	6.1	**14.2**
BARIUM			210	20	98.7	50	55.1	82.7
BERYLLIUM			0.8		0.58			0.56
CADMIUM	0.99	4.98	0.96	1	**3.7**	0.49	0.43	0.92
CALCIUM			110000		64500	51700	47900	36900
CHROMIUM, TOTAL	43.4	111	51	43.4	**89.1**	14.3	13.1	21.7
COBALT			12	50	10.5	7.5	7.9	8.3
COPPER	31.6	149	42	31.6	66.3	18.4	19.1	32.3
IRON			44000	20000	23600	14200	16200	21300
LEAD	35.8	128	47	35.8	**68.3**	10	8.8	**68.9**
MAGNESIUM			29000		17800	15900	14900	10800
MANGANESE			1000	460	513	339	387	422
MERCURY	0.18	1.06	0.12	0.18	**0.25**			**0.28**
NICKEL	22.7	48.6	36	22.7	**51.3**	19.9	21.1	**28**
POTASSIUM			12000		1430	945	1050	1380
SELENIUM			1.4	0.72				
SILVER			0.43	1	1.6			0.29
SODIUM					152	97.3	92.3	120
VANADIUM			40		22.6	15.5	16.9	21.8
ZINC	121	459	190	121	**222**	54.2	52.6	**160**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-11C (1-4)	LMR21-11C (4-7)	LMR21-11C (7-9)	LMR21-12C (0-1)
ALUMINUM			42000	25000	8320	6960	9210	21400
ANTIMONY			0.84	2	1.7	1.1	1	
ARSENIC	9.79	33	11	9.8	**15.2**	5.7	6.3	**12.5**
BARIUM			210	20	83.7	54.2	57.5	138
BERYLLIUM			0.8		0.51			0.93
CADMIUM	0.99	4.98	0.96	1	**2.2**	0.37	0.38	0.65
CALCIUM			110000		44000	44800	48500	34100
CHROMIUM, TOTAL	43.4	111	51	43.4	26.1	12.6	15.6	32.4
COBALT			12	50	8.9	6.8	7.6	10.7
COPPER	31.6	149	42	31.6	43.8	17.5	18.3	38.4
IRON			44000	20000	22100	15300	16300	29900
LEAD	35.8	128	47	35.8	**91.7**	7.7	8.3	21.1
MAGNESIUM			29000		12600	13100	16100	10900
MANGANESE			1000	460	425	346	371	507
MERCURY	0.18	1.06	0.12	0.18	**0.26**			
NICKEL	22.7	48.6	36	22.7	**28**	19	20.2	**35.5**
POTASSIUM			12000		1120	1240	2060	4110
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.38			
SODIUM					110	102	135	266
VANADIUM			40		21	17.8	24	41.6
ZINC	121	459	190	121	**176**	52.7	51.6	**139**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

			Sampling Area >		WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-12C (10-13)	LMR21-12C (1-4)	LMR21-12C (4-7)	LMR21-12C (7-10)
ALUMINUM			42000	25000	8850	23400	17800	20600
ANTIMONY			0.84	2	1.1		1.3	
ARSENIC	9.79	33	11	9.8	9.7	**10.9**	**14.1**	**14.7**
BARIUM			210	20	79.5	125	144	166
BERYLLIUM			0.8		0.49	0.89	0.9	0.82
CADMIUM	0.99	4.98	0.96	1	0.82	0.62	**1.1**	**1.9**
CALCIUM			110000		41700	34400	41500	36900
CHROMIUM, TOTAL	43.4	111	51	43.4	23.1	30.7	35.5	**71.4**
COBALT			12	50	9	9.1	12.2	9.6
COPPER	31.6	149	42	31.6	28.2	39	47.9	54.4
IRON			44000	20000	19400	26200	30700	27000
LEAD	35.8	128	47	35.8	21.2	16.8	27.9	**48.3**
MAGNESIUM			29000		14000	10800	12100	10200
MANGANESE			1000	460	521	472	518	480
MERCURY	0.18	1.06	0.12	0.18				**0.24**
NICKEL	22.7	48.6	36	22.7	**28.3**	**29.5**	**41.8**	**47.1**
POTASSIUM			12000		1360	4910	2720	4340
SELENIUM			1.4	0.72				
SILVER			0.43	1				1.2
SODIUM					114	189	155	309
VANADIUM			40		21.4	42.8	33.7	42.3
ZINC	121	459	190	121	86.4	112	**170**	**217**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-13C (0-1)	LMR21-13C (1-4)	LMR21-13C (1-4) FD	LMR21-13C (4-7)
ALUMINUM			42000	25000	14600	10900	15000	19500
ANTIMONY			0.84	2		1.6	1.5	
ARSENIC	9.79	33	11	9.8	**11.6**	**20.4**	**29.6**	**19.7**
BARIUM			210	20	96.4	99.6	128	119
BERYLLIUM			0.8		0.58	0.6	0.74	0.83
CADMIUM	0.99	4.98	0.96	1	**2.3**	**3.1**	**3.2**	0.61
CALCIUM			110000		35200	41900	40900	40500
CHROMIUM, TOTAL	43.4	111	51	43.4	34.9	43.3	**48.5**	30.6
COBALT			12	50	8.6	9.9	11.1	11.2
COPPER	31.6	149	42	31.6	40.6	50.1	64.7	37.6
IRON			44000	20000	23400	26600	31000	28300
LEAD	35.8	128	47	35.8	**37.1**	**85.1**	**108**	**80.7**
MAGNESIUM			29000		10900	11200	11500	12500
MANGANESE			1000	460	484	496	538	563
MERCURY	0.18	1.06	0.12	0.18	**0.26**	**0.4**	**0.55**	**0.2**
NICKEL	22.7	48.6	36	22.7	**32.1**	**37.3**	**42.8**	**34.7**
POTASSIUM			12000		3350	1730	2460	4160
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.28	0.55	1	
SODIUM					172	131	169	179
VANADIUM			40		33.8	24.6	32.3	42.8
ZINC	121	459	190	121	**153**	**239**	**291**	**172**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-13C (7-9)	LMR21-14C (0-1)	LMR21-14C (1-4)	LMR21-14C (4-7)
ALUMINUM			42000	25000	23200	11400	7010	8390
ANTIMONY			0.84	2		1	0.98	1.4
ARSENIC	9.79	33	11	9.8	**15**	**11.3**	6.7	8.7
BARIUM			210	20	121	95.6	57.6	75.4
BERYLLIUM			0.8		0.89	0.57		0.5
CADMIUM	0.99	4.98	0.96	1	0.4	**1.2**	0.51	0.43
CALCIUM			110000		31800	43000	37200	45800
CHROMIUM, TOTAL	43.4	111	51	43.4	30.5	31.1	16.6	16.1
COBALT			12	50	10.4	9	8.3	12.7
COPPER	31.6	149	42	31.6	30.1	42.1	19.2	23.6
IRON			44000	20000	26200	23200	15800	19700
LEAD	35.8	128	47	35.8	**40.6**	26.5	14.8	12.2
MAGNESIUM			29000		11700	11800	12900	16200
MANGANESE			1000	460	524	482	493	696
MERCURY	0.18	1.06	0.12	0.18	0.16	0.17		
NICKEL	22.7	48.6	36	22.7	**30.3**	**30.9**	22.1	**30.2**
POTASSIUM			12000		5170	1950	990	1120
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					178	146	112	99.1
VANADIUM			40		48.3	25.2	18.3	21.7
ZINC	121	459	190	121	98.5	**132**	52.9	59.1

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Sampling depth interval is indicated in feet
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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-14C (7-10)	LMR21-14C (7-10) FD	LMR21-15C (0-1)	LMR21-15C (1-4)
ALUMINUM			42000	25000	6510	7060	13000	6830
ANTIMONY			0.84	2	1.1	1.3		
ARSENIC	9.79	33	11	9.8	5.8	6.4	**19.5**	**11.7**
BARIUM			210	20	52.6	52.6	338	295
BERYLLIUM			0.8					
CADMIUM	0.99	4.98	0.96	1	0.35	0.43	**5.1**	**6.2**
CALCIUM			110000		44600	51500	35400	14500
CHROMIUM, TOTAL	43.4	111	51	43.4	12.3	14.8	**332**	**242**
COBALT			12	50	8	8.7	10.7	4.6
COPPER	31.6	149	42	31.6	17.6	17.1	133	143
IRON			44000	20000	14400	15100	42400	24200
LEAD	35.8	128	47	35.8	8.1	8	**132**	**155**
MAGNESIUM			29000		14200	15600	10600	4530
MANGANESE			1000	460	348	371	562	240
MERCURY	0.18	1.06	0.12	0.18			**0.6**	**0.71**
NICKEL	22.7	48.6	36	22.7	20.7	21.7	**146**	**98.5**
POTASSIUM			12000		1010	1140	1910	1120
SELENIUM			1.4	0.72				
SILVER			0.43	1			9.3	9.4
SODIUM					82.2	106	225	78600
VANADIUM			40		16.4	18.1	29	16.1
ZINC	121	459	190	121	48.3	56	**635**	**644**

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Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

				Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-15C (1-4) FD**	**LMR21-15C (4-7)**	**LMR21-15C (4-7) FD**	**LMR21-15C (7-10)**
ALUMINUM			42000	25000	27400	13900	16100	11500
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**24.6**	**20.2**	**21.4**	**17.2**
BARIUM			210	20	551	454	419	158
BERYLLIUM			0.8		1.2	0.86	0.92	0.67
CADMIUM	0.99	4.98	0.96	1	**11.8**	**19.9**	**15.2**	**9.1**
CALCIUM			110000		29600	26400	26400	60300
CHROMIUM, TOTAL	43.4	111	51	43.4	**493**	**489**	**423**	**189**
COBALT			12	50	11.5	10.7	10.1	10
COPPER	31.6	149	42	31.6	**263**	**249**	**215**	114
IRON			44000	20000	57800	47200	45600	26000
LEAD	35.8	128	47	35.8	**286**	**225**	**208**	**101**
MAGNESIUM			29000		10700	7510	8150	14200
MANGANESE			1000	460	548	439	441	483
MERCURY	0.18	1.06	0.12	0.18	**0.79**	**2.1**	**1.8**	**0.94**
NICKEL	22.7	48.6	36	22.7	**209**	**241**	**199**	**63.6**
POTASSIUM			12000		5630	1730	2030	1820
SELENIUM			1.4	0.72				
SILVER			0.43	1	15.9	14.3	15.2	5.1
SODIUM					294	243	176	163
VANADIUM			40		59.9	24.3	29.4	25.2
ZINC	121	459	190	121	**1160**	**1160**	**933**	**448**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-16C (0-1)	LMR21-16C (1-4)	LMR21-16C (4-7)	LMR21-16C (4-7) FD
ALUMINUM			42000	25000	17600	14600	23500	19900
ANTIMONY			0.84	2	1.2			
ARSENIC	9.79	33	11	9.8	**18.2**	**28.7**	**16**	**16.6**
BARIUM			210	20	121	114	131	117
BERYLLIUM			0.8		0.8	0.72	0.94	0.84
CADMIUM	0.99	4.98	0.96	1	0.62	0.72	0.54	0.51
CALCIUM			110000		40000	30500	32500	31000
CHROMIUM, TOTAL	43.4	111	51	43.4	28.4	23.5	33.1	29.5
COBALT			12	50	12.3	10.2	11.1	10.7
COPPER	31.6	149	42	31.6	40.4	43.3	36.2	35.7
IRON			44000	20000	29100	28800	28600	27100
LEAD	35.8	128	47	35.8	**57.5**	**141**	**54.3**	**57.1**
MAGNESIUM			29000		13100	9730	11500	10600
MANGANESE			1000	460	605	420	527	487
MERCURY	0.18	1.06	0.12	0.18		**0.5**	0.17	**0.31**
NICKEL	22.7	48.6	36	22.7	**37.1**	**32.9**	**34.3**	**33.2**
POTASSIUM			12000		3060	2150	5420	4060
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.27		
SODIUM					247	151	189	158
VANADIUM			40		38.4	30	50.4	42.2
ZINC	121	459	190	121	**140**	**238**	**133**	**145**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-16C (7-11)**	**LMR21-17C (0-1)**	**LMR21-17C (10-13)**	**LMR21-17C (1-4)**
ALUMINUM			42000	25000	7510	12600	8030	28000
ANTIMONY			0.84	2	1.3		1.1	
ARSENIC	9.79	33	11	9.8	7.9	**15.7**	7.8	**21.9**
BARIUM			210	20	58.8	157	62.4	186
BERYLLIUM			0.8			0.62	0.5	1.2
CADMIUM	0.99	4.98	0.96	1	0.36	**9.3**	0.39	**7.3**
CALCIUM			110000		51400	41900	39500	36300
CHROMIUM, TOTAL	43.4	111	51	43.4	13.6	**175**	14.9	**92.9**
COBALT			12	50	8.7	9.9	8	12.3
COPPER	31.6	149	42	31.6	18.1	114	20.3	108
IRON			44000	20000	15500	28400	16900	49300
LEAD	35.8	128	47	35.8	12.6	**114**	19.4	**145**
MAGNESIUM			29000		14100	11100	12900	11400
MANGANESE			1000	460	345	517	363	609
MERCURY	0.18	1.06	0.12	0.18		**0.68**	0.087	**0.37**
NICKEL	22.7	48.6	36	22.7	21.4	**60.3**	22.7	**48**
POTASSIUM			12000		1310	2520	1160	6180
SELENIUM			1.4	0.72				
SILVER			0.43	1		4.8		1.6
SODIUM					116	190	111	283
VANADIUM			40		19.4	30.3	20	60.9
ZINC	121	459	190	121	60.7	**407**	66.8	**390**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A1	WWTP A1	WWTP A3	WWTP A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-17C (4-7)	LMR21-17C (7-10)	LMR21-18C (0-1)	LMR21-18C (10-12)
ALUMINUM			42000	25000	13100	23000	10900	14100
ANTIMONY			0.84	2	<u>1.6</u>			
ARSENIC	9.79	33	11	9.8	**<u>26.4</u>**	**<u>17.5</u>**	**<u>15</u>**	**<u>23.5</u>**
BARIUM			210	20	124	145	186	128
BERYLLIUM			0.8		0.73	<u>0.98</u>	0.62	0.79
CADMIUM	0.99	4.98	0.96	1	**<u>5.2</u>**	**<u>1</u>**	**<u>5.2</u>**	**<u>4.4</u>**
CALCIUM			110000		36900	33400	39600	40700
CHROMIUM, TOTAL	43.4	111	51	43.4	**<u>54.4</u>**	37.5	**<u>80.7</u>**	**<u>79</u>**
COBALT			12	50	10.5	<u>12.8</u>	9.3	11.1
COPPER	31.6	149	42	31.6	<u>65.5</u>	<u>44.1</u>	<u>103</u>	<u>71.2</u>
IRON			44000	20000	33500	32200	30300	33300
LEAD	35.8	128	47	35.8	**<u>121</u>**	**<u>64.5</u>**	**<u>102</u>**	**<u>146</u>**
MAGNESIUM			29000		9890	11200	11200	10600
MANGANESE			1000	460	541	609	452	534
MERCURY	0.18	1.06	0.12	0.18	**<u>0.57</u>**	**<u>0.85</u>**	**<u>0.31</u>**	**<u>0.56</u>**
NICKEL	22.7	48.6	36	22.7	**<u>39.4</u>**	**<u>40.9</u>**	**<u>43.2</u>**	**<u>43.5</u>**
POTASSIUM			12000		1920	4390	1600	2160
SELENIUM			1.4	0.72				
SILVER			0.43	1	<u>0.69</u>		<u>1.8</u>	<u>0.62</u>
SODIUM					138	176	152	133
VANADIUM			40		28.2	<u>46.8</u>	24.6	29.8
ZINC	121	459	190	121	**<u>302</u>**	**<u>167</u>**	**<u>328</u>**	**<u>319</u>**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-18C (1-4)**	**LMR21-18C (4-7)**	**LMR21-18C (7-10)**	**LMR21-19C (0-1)**
ALUMINUM			42000	25000	22800	12900	15300	9650
ANTIMONY			0.84	2	1.6	2.4	2.4	
ARSENIC	9.79	33	11	9.8	**21.3**	**19.4**	**29.6**	9.7
BARIUM			210	20	179	138	142	79.7
BERYLLIUM			0.8		1	0.77	0.92	0.53
CADMIUM	0.99	4.98	0.96	1	**8.1**	**5.2**	**5.8**	**1.2**
CALCIUM			110000		38800	34700	34600	32400
CHROMIUM, TOTAL	43.4	111	51	43.4	**88.9**	**52.4**	**65.8**	29.5
COBALT			12	50	12.2	11	12.1	8.5
COPPER	31.6	149	42	31.6	121	93	92.8	36.2
IRON			44000	20000	47300	37500	57100	20000
LEAD	35.8	128	47	35.8	**228**	**201**	**284**	**41.6**
MAGNESIUM			29000		11200	9610	9550	11000
MANGANESE			1000	460	625	580	818	342
MERCURY	0.18	1.06	0.12	0.18	**0.45**	**0.5**	**0.63**	0.17
NICKEL	22.7	48.6	36	22.7	**46.1**	**36.8**	**50.4**	**26.6**
POTASSIUM			12000		4670	1890	2190	1430
SELENIUM			1.4	0.72				
SILVER			0.43	1	1.7	1.1	1	0.26
SODIUM					211	145	148	142
VANADIUM			40		52.1	30.2	35.7	21.3
ZINC	121	459	190	121	**465**	**389**	**493**	111

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-19C (1-4)**	**LMR21-19C (4-7)**	**LMR21-19C (7-9)**	**LMR21-20C (0-1)**
ALUMINUM			42000	25000	6840	3220	3760	9070
ANTIMONY			0.84	2	<u>1.1</u>	<u>1.3</u>	<u>2.1</u>	
ARSENIC	9.79	33	11	9.8	6.2	5.2	3	9.4
BARIUM			210	20	57.4	20.1	27.2	94
BERYLLIUM			0.8					0.52
CADMIUM	0.99	4.98	0.96	1	0.36	0.24	0.34	**<u>3.4</u>**
CALCIUM			110000		36600	48200	78000	51100
CHROMIUM, TOTAL	43.4	111	51	43.4	12.9	7.2	9.8	**<u>99</u>**
COBALT			12	50	8	4.7	6.4	8.7
COPPER	31.6	149	42	31.6	18	9.7	17.8	<u>76.9</u>
IRON			44000	20000	15600	7700	9150	19600
LEAD	35.8	128	47	35.8	11.4	4.6	7	**<u>57.2</u>**
MAGNESIUM			29000		12700	12600	13500	9810
MANGANESE			1000	460	357	193	357	312
MERCURY	0.18	1.06	0.12	0.18				**<u>0.37</u>**
NICKEL	22.7	48.6	36	22.7	21.4	11.2	15.8	**<u>53</u>**
POTASSIUM			12000		956	589	733	1350
SELENIUM			1.4	0.72				
SILVER			0.43	1				<u>1.1</u>
SODIUM					126	98.5	119	137
VANADIUM			40		16.5	10	14.1	19.4
ZINC	121	459	190	121	56.8	29.1	48.7	**<u>219</u>**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP A3	WWTP A3	WWTP A3	WWTP B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-20C (1-4)	LMR21-20C (4-7)	LMR21-20C (7-10)	LMR21-21C (0-1)
ALUMINUM			42000	25000	18300	4210	2710	13000
ANTIMONY			0.84	2		1.4	2.2	
ARSENIC	9.79	33	11	9.8	8.2	6.4	4.6	**13.7**
BARIUM			210	20	100	34.6	22.9	129
BERYLLIUM			0.8		0.69			0.56
CADMIUM	0.99	4.98	0.96	1	0.5	0.34	0.25	**2.8**
CALCIUM			110000		37500	44100	73200	33500
CHROMIUM, TOTAL	43.4	111	51	43.4	30.2	8.8	6.1	**78.4**
COBALT			12	50	9.8	6.5	4.5	7.4
COPPER	31.6	149	42	31.6	25.5	12.1	9.7	76.3
IRON			44000	20000	21400	10500	7270	32400
LEAD	35.8	128	47	35.8	26.2	6.1	4.6	**70.6**
MAGNESIUM			29000		14100	12300	10200	10500
MANGANESE			1000	460	427	224	237	527
MERCURY	0.18	1.06	0.12	0.18				**0.34**
NICKEL	22.7	48.6	36	22.7	**27.9**	15.4	10.7	**47.2**
POTASSIUM			12000		4730	771	504	2890
SELENIUM			1.4	0.72				
SILVER			0.43	1				4.3
SODIUM					227	99.4	87	157
VANADIUM			40		42.3	12.2	10.8	31.8
ZINC	121	459	190	121	78.9	38.4	36.7	**256**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

			Sampling Area >		**WWTP B1**	**WWTP B1**	**WWTP B1**	**WWTP B1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-21C (1-4)**	**LMR21-21C (1-4) FD**	**LMR21-21C (4-7)**	**LMR21-22C (0-1)**
ALUMINUM			42000	25000	6080	5980	3190	21000
ANTIMONY			0.84	2	0.92		0.97	
ARSENIC	9.79	33	11	9.8	4.5	4.6	4.8	**13.4**
BARIUM			210	20	34	32.9	26	108
BERYLLIUM			0.8					0.87
CADMIUM	0.99	4.98	0.96	1	0.96	0.92	0.45	0.42
CALCIUM			110000		37800	33900	36200	29700
CHROMIUM, TOTAL	43.4	111	51	43.4	25.6	25.1	11.3	28.5
COBALT			12	50	5.2	5	5.4	10
COPPER	31.6	149	42	31.6	18.1	16.6	11.2	29.8
IRON			44000	20000	10000	9520	8170	24100
LEAD	35.8	128	47	35.8	10	10.2	6.6	**61.3**
MAGNESIUM			29000		11400	10400	10100	10800
MANGANESE			1000	460	206	193	182	437
MERCURY	0.18	1.06	0.12	0.18	0.097	0.092		**0.22**
NICKEL	22.7	48.6	36	22.7	15.4	14.6	12.9	**29.1**
POTASSIUM			12000		1310	1400	550	4470
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.38	0.33		
SODIUM					108	100	66.3	186
VANADIUM			40		16.7	17.1	8.9	44.4
ZINC	121	459	190	121	56.5	54.3	36.6	105

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

				Sampling Area >	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-22C (1-4)	LMR21-22C (4-6.5)	LMR21-22C (4-6.5) FD	LMR21-23C (0-1)
ALUMINUM			42000	25000	10000	6530	9020	7450
ANTIMONY			0.84	2	<u>0.97</u>	<u>1.1</u>		
ARSENIC	9.79	33	11	9.8	8.6	5.6	5.7	6.6
BARIUM			210	20	77.8	41	45	55.8
BERYLLIUM			0.8		0.58			
CADMIUM	0.99	4.98	0.96	1	0.37	0.29	0.26	0.3
CALCIUM			110000		37400	40200	39100	36100
CHROMIUM, TOTAL	43.4	111	51	43.4	17.5	10.7	14.6	18.2
COBALT			12	50	9.6	5.4	5.9	7.4
COPPER	31.6	149	42	31.6	22.7	9.5	12.1	17.2
IRON			44000	20000	21300	10600	12800	14400
LEAD	35.8	128	47	35.8	18.8	5	5.9	13.4
MAGNESIUM			29000		13300	10400	12500	11300
MANGANESE			1000	460	522	222	269	286
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**26.8**	12.6	15.2	22
POTASSIUM			12000		1270	1470	2160	1180
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					158	221	213	136
VANADIUM			40		22.1	18.1	23.6	16.4
ZINC	121	459	190	121	73.5	31.8	35.2	55.6

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP B1	WWTP B1	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-23C (1-4)	LMR21-23C (4-6)	LMR21-24C (0-1)	LMR21-24C (1-4)
ALUMINUM			42000	25000	5890	2150	40600	29800
ANTIMONY			0.84	2	<u>1</u>	<u>1.3</u>		
ARSENIC	9.79	33	11	9.8	4.7	3.3	**<u>14.2</u>**	**<u>16.1</u>**
BARIUM			210	20	31.2	13	192	182
BERYLLIUM			0.8				<u>1.3</u>	<u>1.1</u>
CADMIUM	0.99	4.98	0.96	1	0.3	0.21	0.57	**<u>5</u>**
CALCIUM			110000		38400	48000	23200	33900
CHROMIUM, TOTAL	43.4	111	51	43.4	10.3	5.3	**47**	**<u>107</u>**
COBALT			12	50	5.7	4.1	10.4	10
COPPER	31.6	149	42	31.6	10.2	4.6	40.5	<u>76.8</u>
IRON			44000	20000	10000	6020	34300	31400
LEAD	35.8	128	47	35.8	4.8	2.6	20.3	**<u>65.4</u>**
MAGNESIUM			29000		13200	11500	10100	10400
MANGANESE			1000	460	210	201	448	460
MERCURY	0.18	1.06	0.12	0.18				**<u>0.38</u>**
NICKEL	22.7	48.6	36	22.7	13.1	8	**<u>38.4</u>**	**<u>51.6</u>**
POTASSIUM			12000		1280	364	9530	6480
SELENIUM			1.4	0.72				
SILVER			0.43	1				<u>1.7</u>
SODIUM					110	78.8	404	271
VANADIUM			40		17.1	7.1	<u>79</u>	<u>56</u>
ZINC	121	459	190	121	36.3	19.4	**142**	**<u>257</u>**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-24C (4-8)	LMR21-25C (0-1)	LMR21-25C (1-4)	LMR21-25C (4-7)
ALUMINUM			42000	25000	31100	19200	27200	30700
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**15**	**12.3**	**15.1**	**16.3**
BARIUM			210	20	176	129	150	186
BERYLLIUM			0.8		1.1	0.88	1	1.2
CADMIUM	0.99	4.98	0.96	1	**4.2**	0.8	**1.9**	**4.2**
CALCIUM			110000		39300	27500	29400	31500
CHROMIUM, TOTAL	43.4	111	51	43.4	**90.4**	32.3	**54.7**	**81.5**
COBALT			12	50	9.9	10.8	9.8	11.3
COPPER	31.6	149	42	31.6	64.3	37.8	48	64.7
IRON			44000	20000	29500	28500	30100	33900
LEAD	35.8	128	47	35.8	**56.9**	24.1	34.5	**56.6**
MAGNESIUM			29000		11300	9440	10100	10700
MANGANESE			1000	460	452	415	440	480
MERCURY	0.18	1.06	0.12	0.18	**0.26**		0.13	**0.24**
NICKEL	22.7	48.6	36	22.7	**47.6**	**38**	**43.8**	**53.7**
POTASSIUM			12000		7630	2950	5410	5790
SELENIUM			1.4	0.72				
SILVER			0.43	1	1.1		0.74	1.2
SODIUM					494	152	181	193
VANADIUM			40		59.7	38.3	52.8	56.3
ZINC	121	459	190	121	**213**	**158**	**202**	**238**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-26C (0-1)**	**LMR21-26C (1-4)**	**LMR21-26C (4-8)**	**LMR21-27C (0-1)**
ALUMINUM			42000	25000	19800	19400	17200	20200
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**<u>13.2</u>**	**<u>13.8</u>**	**<u>15.1</u>**	**<u>12.8</u>**
BARIUM			210	20	145	144	141	137
BERYLLIUM			0.8		<u>0.96</u>	<u>0.95</u>	<u>0.83</u>	<u>0.94</u>
CADMIUM	0.99	4.98	0.96	1	0.7	<u>0.97</u>	**<u>2.7</u>**	0.78
CALCIUM			110000		31300	33300	32900	34200
CHROMIUM, TOTAL	43.4	111	51	43.4	30.7	33.3	**<u>52</u>**	32
COBALT			12	50	11.6	11.7	10.4	11.5
COPPER	31.6	149	42	31.6	39.7	<u>43.4</u>	<u>52.1</u>	41.2
IRON			44000	20000	31600	31600	29300	30600
LEAD	35.8	128	47	35.8	20.4	25.6	**44.4**	21.6
MAGNESIUM			29000		10400	10600	9600	10900
MANGANESE			1000	460	480	488	481	499
MERCURY	0.18	1.06	0.12	0.18			<u>0.13</u>	
NICKEL	22.7	48.6	36	22.7	**<u>38.2</u>**	**<u>40.5</u>**	**<u>47.5</u>**	**<u>38.2</u>**
POTASSIUM			12000		3400	3020	2470	3420
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.33	<u>0.78</u>	
SODIUM					172	153	133	197
VANADIUM			40		38	36.3	32.1	38.4
ZINC	121	459	190	121	**144**	**161**	**<u>199</u>**	**147**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-27C (1-3)	LMR21-28C (0-1)	LMR21-28C (1-4)	LMR21-29C (0-1)
ALUMINUM			42000	25000	13400	23200	12700	7600
ANTIMONY			0.84	2			1.3	1.4
ARSENIC	9.79	33	11	9.8	9.7	**13.7**	**11.8**	**15**
BARIUM			210	20	94	143	104	70.1
BERYLLIUM			0.8		0.66	1.1	0.63	
CADMIUM	0.99	4.98	0.96	1	0.7	0.85	**2.3**	0.57
CALCIUM			110000		37600	37800	58700	54300
CHROMIUM, TOTAL	43.4	111	51	43.4	24	36.7	**44.2**	14.7
COBALT			12	50	8.3	11.8	8.5	7.4
COPPER	31.6	149	42	31.6	29.8	43	40.9	21.5
IRON			44000	20000	20700	31700	22800	19700
LEAD	35.8	128	47	35.8	30.1	23.1	33.9	**64.8**
MAGNESIUM			29000		9960	11200	11100	11600
MANGANESE			1000	460	395	526	446	340
MERCURY	0.18	1.06	0.12	0.18			0.11	0.16
NICKEL	22.7	48.6	36	22.7	**26.3**	**41.6**	**34.6**	20.9
POTASSIUM			12000		2400	4050	2010	1210
SELENIUM			1.4	0.72				
SILVER			0.43	1			0.64	
SODIUM					144	297	144	226
VANADIUM			40		27.2	46	25.4	17.7
ZINC	121	459	190	121	99.9	**155**	**150**	**169**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-29C (1-4)**	**LMR21-29C (1-4) FD**	**LMR21-29C (4-6.5)**	**LMR21-29C (4-6.5) FD**
ALUMINUM			42000	25000	4370	3730	3610	3730
ANTIMONY			0.84	2	<u>1</u>	<u>1.2</u>	<u>1.2</u>	<u>1.2</u>
ARSENIC	9.79	33	11	9.8	4.4	4.9	4.5	4.7
BARIUM			210	20	37.5	32.4	35.9	34.2
BERYLLIUM			0.8					
CADMIUM	0.99	4.98	0.96	1	0.32	0.32	0.29	0.32
CALCIUM			110000		42300	42900	43500	47800
CHROMIUM, TOTAL	43.4	111	51	43.4	8.8	7.9	7.7	7.8
COBALT			12	50	5.3	5.4	6	5.6
COPPER	31.6	149	42	31.6	11.9	10.9	11.1	11.7
IRON			44000	20000	10900	10300	9840	10300
LEAD	35.8	128	47	35.8	6.7	6	5.5	5.4
MAGNESIUM			29000		12100	12500	11500	12400
MANGANESE			1000	460	279	268	266	288
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	13.9	12.9	13.8	13.3
POTASSIUM			12000		769	627	481	583
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					88.2	77	72.8	79.7
VANADIUM			40		12.1	11	10.3	10.3
ZINC	121	459	190	121	39.1	39.3	35.2	38.4

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-30C (0-1)**	**LMR21-30C (1-3)**	**LMR21-31C (0-1)**	**LMR21-31C (1-4)**
ALUMINUM			42000	25000	2380	1950	4090	2140
ANTIMONY			0.84	2		<u>1.4</u>		0.84
ARSENIC	9.79	33	11	9.8	3.4	3.6	4.9	2.6
BARIUM			210	20	17.4	7.2	30.5	14.9
BERYLLIUM			0.8					
CADMIUM	0.99	4.98	0.96	1	0.19		0.22	
CALCIUM			110000		30300	54300	27300	27800
CHROMIUM, TOTAL	43.4	111	51	43.4	5.7	7.1	8.6	5.4
COBALT			12	50	3.9	3.8	5.3	3.5
COPPER	31.6	149	42	31.6	5.9	3.6	9.7	4.7
IRON			44000	20000	6540	6530	10600	5540
LEAD	35.8	128	47	35.8	3.6	2.8	9.8	3.9
MAGNESIUM			29000		8880	11100	9240	8420
MANGANESE			1000	460	162	170	240	145
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	8.7	8.6	12.8	7.6
POTASSIUM			12000		407	264	602	412
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					66.1	92.5	90.9	54
VANADIUM			40		7.5	5.9	10.1	5.9
ZINC	121	459	190	121	24.8	18.4	35.8	18.6

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-32C (0-1)**	**LMR21-32C (1-5)**	**LMR21-33C (0-1)**	**LMR21-33C (1-5)**
ALUMINUM			42000	25000	16100	3120	2300	2090
ANTIMONY			0.84	2		1.4	0.78	0.91
ARSENIC	9.79	33	11	9.8	**12.6**	4.3	3.2	3.5
BARIUM			210	20	118	22.4	14.6	13.8
BERYLLIUM			0.8		0.8			
CADMIUM	0.99	4.98	0.96	1	0.77	0.33		0.22
CALCIUM			110000		27300	46400	26000	35800
CHROMIUM, TOTAL	43.4	111	51	43.4	28.1	8.1	6	5
COBALT			12	50	10.2	4.4	4	32.8
COPPER	31.6	149	42	31.6	37.4	22.7	5.9	5.1
IRON			44000	20000	28800	8380	6300	6020
LEAD	35.8	128	47	35.8	23.7	8.7	4	3.5
MAGNESIUM			29000		9480	15900	8840	9770
MANGANESE			1000	460	491	203	144	183
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**33.9**	11.2	8.7	**119**
POTASSIUM			12000		2810	504	364	370
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					173	76.4	54.4	53
VANADIUM			40		31.7	8	6.8	6.1
ZINC	121	459	190	121	**131**	33.8	21.5	28.8

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-34C (0-1)	LMR21-34C (1-4)	LMR21-34C (4-7)	LMR21-37C (0-1)
ALUMINUM			42000	25000	14300	16400	16300	14700
ANTIMONY			0.84	2		1.6	2.6	
ARSENIC	9.79	33	11	9.8	**18**	**40.8**	**38.4**	**12.2**
BARIUM			210	20	121	145	135	118
BERYLLIUM			0.8		0.78	1.1	0.93	
CADMIUM	0.99	4.98	0.96	1	**2**	**4.2**	**1.2**	0.71
CALCIUM			110000		30100	30500	32900	36100
CHROMIUM, TOTAL	43.4	111	51	43.4	34.6	**69.8**	33.6	25.4
COBALT			12	50	11.8	11.8	11.2	9.6
COPPER	31.6	149	42	31.6	54.6	70.4	51.6	32.8
IRON			44000	20000	38600	85900	56400	29000
LEAD	35.8	128	47	35.8	**64**	**158**	**171**	21.9
MAGNESIUM			29000		9240	9160	9880	14100
MANGANESE			1000	460	580	1200	716	518
MERCURY	0.18	1.06	0.12	0.18	**0.2**	**0.55**	**0.53**	
NICKEL	22.7	48.6	36	22.7	**43.8**	**45**	**39.6**	**31.8**
POTASSIUM			12000		2160	2320	2330	2740
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.42	0.82	0.48	
SODIUM					137	136	135	294
VANADIUM			40		30.3	44.2	38.1	29.4
ZINC	121	459	190	121	**253**	**668**	**573**	**127**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-37C (1-3)**	**LMR21-38C (0-1)**	**LMR21-38C (1-2.5)**	**LMR21-39C (0-1)**
ALUMINUM			42000	25000	4360	4480	6150	8130
ANTIMONY			0.84	2	<u>2.5</u>	<u>2</u>	<u>2.4</u>	<u>1.9</u>
ARSENIC	9.79	33	11	9.8	6.8	**10.9**	8.8	9.2
BARIUM			210	20	29.1	37.6	40.1	61.5
BERYLLIUM			0.8					
CADMIUM	0.99	4.98	0.96	1	0.39	**<u>1.1</u>**	0.25	0.21
CALCIUM			110000		91300	61400	77400	67700
CHROMIUM, TOTAL	43.4	111	51	43.4	10.8	13.1	18.4	16.1
COBALT			12	50	4.3	5.9	7.3	9.3
COPPER	31.6	149	42	31.6	26.4	16.2	15.8	20.7
IRON			44000	20000	11500	16400	17100	18300
LEAD	35.8	128	47	35.8	12.8	**<u>101</u>**	16.3	8.6
MAGNESIUM			29000		10700	12600	15000	13600
MANGANESE			1000	460	368	365	392	389
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	12.9	17	**24.7**	**27.7**
POTASSIUM			12000		831	775	1390	1770
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					302	119	143	164
VANADIUM			40		9.9	11.6	15.1	19
ZINC	121	459	190	121	47.3	108	50.4	52.7

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-39C (1-3)**	**LMR21-40C (0-1)**	**LMR21-41C (0-1)**	**LMR21-41C (1-3)**
ALUMINUM			42000	25000	10200	10500	7980	10600
ANTIMONY			0.84	2	<u>2.1</u>	<u>4.4</u>		<u>4</u>
ARSENIC	9.79	33	11	9.8	9.1	7.6	7.6	7.7
BARIUM			210	20	92	90.4	64.2	92.6
BERYLLIUM			0.8		0.51			
CADMIUM	0.99	4.98	0.96	1	0.3			
CALCIUM			110000		69000	72600	74900	76900
CHROMIUM, TOTAL	43.4	111	51	43.4	19.7	19.2	15	19.9
COBALT			12	50	10.5	10.3	8.7	11.2
COPPER	31.6	149	42	31.6	24	20.6	16.2	24.3
IRON			44000	20000	22000	20600	18600	22500
LEAD	35.8	128	47	35.8	8.8	8.7	7.7	10.2
MAGNESIUM			29000		15300	15500	16400	18900
MANGANESE			1000	460	410	378	385	415
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**33.1**	**30.4**	**24.2**	**33.5**
POTASSIUM			12000		2420	2470	1970	2650
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					207	220	195	255
VANADIUM			40		23.1	24.8	19.4	24.8
ZINC	121	459	190	121	61.2	54.7	77.8	58.7

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-41C (1-3) FD	LMR21-42C (0-1)	LMR21-43C (0-1)	LMR21-43C (1-3)
ALUMINUM			42000	25000	10300	11200	11300	10700
ANTIMONY			0.84	2	6.4			
ARSENIC	9.79	33	11	9.8	9.6	8.2	8.5	**10**
BARIUM			210	20	105	75	92.5	102
BERYLLIUM			0.8		3			
CADMIUM	0.99	4.98	0.96	1	**3.3**			
CALCIUM			110000		74800	71600	81200	75400
CHROMIUM, TOTAL	43.4	111	51	43.4	22.8	26.1	21	19.6
COBALT			12	50	24.2	10.9	11.4	11
COPPER	31.6	149	42	31.6	38.4	23.7	26.6	24.7
IRON			44000	20000	22300	22200	22900	22700
LEAD	35.8	128	47	35.8	12	10.9	9.8	10.3
MAGNESIUM			29000		18100	17400	19300	16800
MANGANESE			1000	460	412	452	430	424
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**46.4**	**34.7**	**34.3**	**32**
POTASSIUM			12000		2780	2870	3020	2760
SELENIUM			1.4	0.72	14.8			
SILVER			0.43	1	2.4			
SODIUM					528	197	251	267
VANADIUM			40		27.3	26.8	27.5	24.2
ZINC	121	459	190	121	64	60.9	60.3	55.6

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

				Sampling Area >	Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-44C (0-1)**	**LMR21-45C (0-1)**	**LMR21-45C (1-2)**	**LMR21-46C (0-1)**
ALUMINUM			42000	25000	7270	8820	8710	13700
ANTIMONY			0.84	2	1.9	4.1	4.3	1.3
ARSENIC	9.79	33	11	9.8	8.9	9.6	8.3	**19.9**
BARIUM			210	20	55.7	74.5	81.5	131
BERYLLIUM			0.8		0.39			0.86
CADMIUM	0.99	4.98	0.96	1	0.18			**2.7**
CALCIUM			110000		66100	79700	79100	37400
CHROMIUM, TOTAL	43.4	111	51	43.4	15.9	18.2	18.4	**46.9**
COBALT			12	50	8.4	11.1	10.5	10
COPPER	31.6	149	42	31.6	18.4	28.6	24	73.3
IRON			44000	20000	16000	22800	21300	45800
LEAD	35.8	128	47	35.8	7.3	11.9	9.4	**79.4**
MAGNESIUM			29000		15400	17100	17100	10400
MANGANESE			1000	460	312	479	419	719
MERCURY	0.18	1.06	0.12	0.18				**0.25**
NICKEL	22.7	48.6	36	22.7	**26.7**	**31.8**	**30.8**	**37.9**
POTASSIUM			12000		1750	2060	2120	2090
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					209	172	183	145
VANADIUM			40		18.4	20.5	20.2	33.2
ZINC	121	459	190	121	46.1	79.3	59.4	**254**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-46C (1-4)	LMR21-46C (1-4) FD	LMR21-46C (4-7)	LMR21-46C (7-8.5)
ALUMINUM			42000	25000	13200	13400	11400	6400
ANTIMONY			0.84	2	1.2	1.5	1.2	1.8
ARSENIC	9.79	33	11	9.8	**26.6**	**23.8**	**28.1**	8.8
BARIUM			210	20	136	131	111	51.7
BERYLLIUM			0.8		0.86	0.88	0.72	
CADMIUM	0.99	4.98	0.96	1	**5.3**	**3.6**	**2.4**	0.32
CALCIUM			110000		28900	27500	35500	58600
CHROMIUM, TOTAL	43.4	111	51	43.4	**47.7**	43.1	**46.4**	14.5
COBALT			12	50	10.9	10.6	9	7.8
COPPER	31.6	149	42	31.6	47.3	49.1	47.3	18.5
IRON			44000	20000	61800	61500	50800	16600
LEAD	35.8	128	47	35.8	**340**	**143**	**117**	12.7
MAGNESIUM			29000		8400	8410	9240	13400
MANGANESE			1000	460	958	898	872	349
MERCURY	0.18	1.06	0.12	0.18	**0.33**	**0.28**	**0.66**	
NICKEL	22.7	48.6	36	22.7	**38.5**	**37.5**	**32.1**	**23.6**
POTASSIUM			12000		1840	1890	1690	1290
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.39	0.46		
SODIUM					117	121	133	123
VANADIUM			40		34.2	33.8	28.3	15.4
ZINC	121	459	190	121	**690**	**505**	**337**	65.8

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-47C (0-1)	LMR21-47C (1-4)	LMR21-47C (4-8)	LMR21-49C (0-1)
ALUMINUM			42000	25000	31800	9690	6590	22500
ANTIMONY			0.84	2		2.4	1.7	1.3
ARSENIC	9.79	33	11	9.8	**14.7**	**10.9**	9.1	**12**
BARIUM			210	20	277	83.5	49.5	153
BERYLLIUM			0.8		1.6	0.77		1.1
CADMIUM	0.99	4.98	0.96	1	**3.2**	0.31	0.21	**1.1**
CALCIUM			110000		39700	46000	66600	32100
CHROMIUM, TOTAL	43.4	111	51	43.4	**47.4**	15.4	12.4	38.9
COBALT			12	50	12	7.6	8	11.3
COPPER	31.6	149	42	31.6	58	21.8	18.1	40.9
IRON			44000	20000	35200	24300	15700	42800
LEAD	35.8	128	47	35.8	**104**	**35.9**	8.5	32.5
MAGNESIUM			29000		11800	10600	12400	9650
MANGANESE			1000	460	1010	501	360	733
MERCURY	0.18	1.06	0.12	0.18	**0.26**			
NICKEL	22.7	48.6	36	22.7	**57.5**	22.3	**22.9**	**37**
POTASSIUM			12000		2940	1370	1620	3860
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					309	128	134	184
VANADIUM			40		52.4	19.7	15	44.3
ZINC	121	459	190	121	**212**	104	48	**192**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-49C (1-4)	LMR21-49C (4-7.5)	LMR21-50C (0-1)	LMR21-50C (1-4)
ALUMINUM			42000	25000	15300	13000	21500	17300
ANTIMONY			0.84	2	5.5	1		
ARSENIC	9.79	33	11	9.8	**33.7**	**24**	**15.1**	**16.5**
BARIUM			210	20	146	116	163	154
BERYLLIUM			0.8			0.84	1.1	0.95
CADMIUM	0.99	4.98	0.96	1	**3.1**	0.53	0.92	**4.1**
CALCIUM			110000		34500	38100	31200	33200
CHROMIUM, TOTAL	43.4	111	51	43.4	**45.4**	23.7	35.5	**54.8**
COBALT			12	50	14.8	9	12.4	11.3
COPPER	31.6	149	42	31.6	57.7	27.3	46.8	60.1
IRON			44000	20000	90000	69200	37900	33700
LEAD	35.8	128	47	35.8	**205**	**76.7**	27	**71.8**
MAGNESIUM			29000		9080	9680	11000	9810
MANGANESE			1000	460	1380	841	569	605
MERCURY	0.18	1.06	0.12	0.18	**0.57**			**0.27**
NICKEL	22.7	48.6	36	22.7	**40.7**	**23.7**	**42.6**	**49.1**
POTASSIUM			12000		2070	2520	3420	2340
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.29		0.77
SODIUM					203	162	203	159
VANADIUM			40		41.1	33.6	38.6	31
ZINC	121	459	190	121	**727**	**297**	**170**	**218**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-50C (4-7.5)	LMR21-51C (0-1)	LMR21-51C (1-4)	LMR21-51C (4-7.5)
ALUMINUM			42000	25000	15900	15100	18300	11900
ANTIMONY			0.84	2			<u>1.5</u>	
ARSENIC	9.79	33	11	9.8	**<u>29.9</u>**	7.3	**10.4**	**<u>13.2</u>**
BARIUM			210	20	154	112	133	109
BERYLLIUM			0.8		<u>1</u>	<u>0.81</u>	<u>0.93</u>	0.75
CADMIUM	0.99	4.98	0.96	1	**<u>4.1</u>**	0.7	**<u>1.3</u>**	**<u>2.5</u>**
CALCIUM			110000		36300	23700	34900	23300
CHROMIUM, TOTAL	43.4	111	51	43.4	**<u>81.2</u>**	22.9	31.7	39.2
COBALT			12	50	11.2	9	11.3	7.5
COPPER	31.6	149	42	31.6	<u>74.1</u>	30.8	39.2	37.8
IRON			44000	20000	<u>67500</u>	25500	30900	35200
LEAD	35.8	128	47	35.8	**<u>98.5</u>**	18.3	27.1	**<u>49.2</u>**
MAGNESIUM			29000		9550	7550	10400	6940
MANGANESE			1000	460	<u>1300</u>	395	595	711
MERCURY	0.18	1.06	0.12	0.18	**<u>0.42</u>**			**<u>0.19</u>**
NICKEL	22.7	48.6	36	22.7	**<u>49.1</u>**	**28.1**	**35.9**	**30.5**
POTASSIUM			12000		2340	2320	2720	1680
SELENIUM			1.4	0.72				
SILVER			0.43	1	<u>1.2</u>			<u>0.58</u>
SODIUM					214	121	169	136
VANADIUM			40		36	27.9	33.7	24.7
ZINC	121	459	190	121	**<u>378</u>**	112	**147**	**174**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-52C (0-1)	LMR21-52C (1-4)	LMR21-52C (1-4) FD	LMR21-52C (4-7)
ALUMINUM			42000	25000	23500	17800	19400	23400
ANTIMONY			0.84	2	1.7		1.5	1.3
ARSENIC	9.79	33	11	9.8	**11.6**	**11.9**	**15.9**	**16**
BARIUM			210	20	156	123	163	166
BERYLLIUM			0.8		1.1	0.9	1.1	1.2
CADMIUM	0.99	4.98	0.96	1	0.99	**2.1**	**2.8**	**3.9**
CALCIUM			110000		42000	30700	39700	34500
CHROMIUM, TOTAL	43.4	111	51	43.4	35.4	39.1	**49.6**	**62.7**
COBALT			12	50	12.7	9.7	11.8	12.3
COPPER	31.6	149	42	31.6	43.5	41.9	51.5	57.2
IRON			44000	20000	35800	31200	43200	50100
LEAD	35.8	128	47	35.8	22.9	**51.6**	**72**	**76.8**
MAGNESIUM			29000		10900	9500	11700	11900
MANGANESE			1000	460	558	658	1130	1220
MERCURY	0.18	1.06	0.12	0.18		0.13	0.15	**0.19**
NICKEL	22.7	48.6	36	22.7	**40.1**	**35.5**	**45.2**	**49.3**
POTASSIUM			12000		3840	2830	2710	3440
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.41	0.55	0.86
SODIUM					245	160	219	259
VANADIUM			40		43.5	34.7	37.8	45
ZINC	121	459	190	121	**157**	**157**	**207**	**248**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-52C (7-10)**	**LMR21-53C (0-1)**	**LMR21-53C (1-4)**	**LMR21-53C (4-6)**
ALUMINUM			42000	25000	11000	18000	22300	8400
ANTIMONY			0.84	2				9.2
ARSENIC	9.79	33	11	9.8	**21.4**	**11.2**	**14.8**	**13.3**
BARIUM			210	20	107	133	156	106
BERYLLIUM			0.8			0.96	1.1	5.3
CADMIUM	0.99	4.98	0.96	1	**2.4**	**1**	**2.1**	**5.9**
CALCIUM			110000		26200	35600	34800	105000
CHROMIUM, TOTAL	43.4	111	51	43.4	43.1	29	**45**	23
COBALT			12	50	8	11.1	13.3	33.3
COPPER	31.6	149	42	31.6	41.7	40	51.4	46.4
IRON			44000	20000	88600	32300	35600	21300
LEAD	35.8	128	47	35.8	**60.7**	24.4	**44.6**	22.4
MAGNESIUM			29000		7000	9980	10500	15800
MANGANESE			1000	460	1860	469	754	748
MERCURY	0.18	1.06	0.12	0.18	**0.27**		**0.19**	
NICKEL	22.7	48.6	36	22.7	**26.8**	**35.4**	**45.6**	**50.3**
POTASSIUM			12000		1580	2620	3200	2570
SELENIUM			1.4	0.72				23.3
SILVER			0.43	1			0.57	5.2
SODIUM					170	174	250	728
VANADIUM			40		31.1	33	41.3	25.4
ZINC	121	459	190	121	**333**	**150**	**229**	96.1

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-54C (0-1)	LMR21-54C (1-4)	LMR21-54C (1-4) FD	LMR21-54C (4-6)
ALUMINUM			42000	25000	23500	20600	21100	6120
ANTIMONY			0.84	2				1.6
ARSENIC	9.79	33	11	9.8	**14.3**	**16.5**	**16.5**	6.8
BARIUM			210	20	167	154	162	54.5
BERYLLIUM			0.8		1.1	1	1	
CADMIUM	0.99	4.98	0.96	1	0.75	**2.1**	**2.1**	0.36
CALCIUM			110000		28500	30200	31600	47900
CHROMIUM, TOTAL	43.4	111	51	43.4	33.7	42.6	42.9	11.9
COBALT			12	50	12.2	11.8	12.2	6.8
COPPER	31.6	149	42	31.6	42.5	49.6	54.4	15.7
IRON			44000	20000	36300	34400	36000	14200
LEAD	35.8	128	47	35.8	21.9	**40.4**	**42.1**	8
MAGNESIUM			29000		10900	10200	10600	9980
MANGANESE			1000	460	549	544	557	280
MERCURY	0.18	1.06	0.12	0.18		0.14	0.14	
NICKEL	22.7	48.6	36	22.7	**40.6**	**46.7**	**47.9**	19.9
POTASSIUM			12000		3870	2910	2920	1360
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.39	0.51	
SODIUM					217	183	183	126
VANADIUM			40		42.1	37	37.7	14.2
ZINC	121	459	190	121	**156**	**181**	**186**	41.8

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-55C (0-1)	LMR21-55C (1-4)	LMR21-55C (4-7.5)	LMR21-56C (0-1)
ALUMINUM			42000	25000	20400	21200	8690	22900
ANTIMONY			0.84	2		1.2		
ARSENIC	9.79	33	11	9.8	**10.7**	**16.1**	**21.1**	**14.8**
BARIUM			210	20	132	154	109	157
BERYLLIUM			0.8		0.97	1.1		1
CADMIUM	0.99	4.98	0.96	1	0.91	**3**	**1.8**	**1**
CALCIUM			110000		27900	37500	41500	39000
CHROMIUM, TOTAL	43.4	111	51	43.4	35	**46.7**	35.4	37.4
COBALT			12	50	10.6	11.9	8.7	12.4
COPPER	31.6	149	42	31.6	41.5	53.6	36.2	45.6
IRON			44000	20000	32600	42200	109000	34500
LEAD	35.8	128	47	35.8	21.9	**49.4**	**69.3**	34.8
MAGNESIUM			29000		9630	10600	9480	11000
MANGANESE			1000	460	511	857	2230	500
MERCURY	0.18	1.06	0.12	0.18		0.14		
NICKEL	22.7	48.6	36	22.7	**36.8**	**44.5**	**23.6**	**43.7**
POTASSIUM			12000		3110	3130	1410	4220
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.6		
SODIUM					189	257	199	403
VANADIUM			40		36.5	40.9	32.2	44.2
ZINC	121	459	190	121	**162**	**204**	**419**	**174**

Units are in mg/kg

Sampling depth interval is indicated in feet

Blank entry indicates the concentration was not reported above

Bolded values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Ohio SRV

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-56C (1-4)	LMR21-56C (1-4) FD	LMR21-56C (4-7)	LMR21-56C (4-7) FD
ALUMINUM			42000	25000	15800	15100	7530	6900
ANTIMONY			0.84	2			<u>2</u>	<u>2.2</u>
ARSENIC	9.79	33	11	9.8	**<u>19.5</u>**	**<u>20</u>**	9.4	**10.2**
BARIUM			210	20	137	132	52.4	47.9
BERYLLIUM			0.8		<u>0.85</u>	<u>0.88</u>	0.37	
CADMIUM	0.99	4.98	0.96	1	**<u>2.9</u>**	**<u>2.1</u>**	0.24	0.23
CALCIUM			110000		41800	29600	75000	74800
CHROMIUM, TOTAL	43.4	111	51	43.4	**48.6**	42.1	14.9	13.1
COBALT			12	50	11.4	10.4	8.4	8.3
COPPER	31.6	149	42	31.6	<u>57.9</u>	<u>43.3</u>	20.8	25.7
IRON			44000	20000	37600	<u>49700</u>	20100	18200
LEAD	35.8	128	47	35.8	**<u>62.9</u>**	**<u>54.6</u>**	9.6	7.7
MAGNESIUM			29000		10900	8970	15200	14400
MANGANESE			1000	460	841	923	431	388
MERCURY	0.18	1.06	0.12	0.18	**<u>0.28</u>**	<u>0.17</u>		
NICKEL	22.7	48.6	36	22.7	**<u>51.1</u>**	**<u>43.1</u>**	**24.9**	**24.5**
POTASSIUM			12000		2500	2030	1760	1650
SELENIUM			1.4	0.72				
SILVER			0.43	1	<u>0.51</u>	<u>0.45</u>		
SODIUM					198	190	179	168
VANADIUM			40		35.2	33.7	18.1	16.7
ZINC	121	459	190	121	**<u>217</u>**	**<u>245</u>**	63.4	58.2

Units are in mg/kg
Sampling depth interval is indicated in feet
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Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-57C (0-1)**	**LMR21-57C (1-4)**	**LMR21-57C (4-6)**	**LMR21-58C (0-1)**
ALUMINUM			42000	25000	14300	12900	8430	16300
ANTIMONY			0.84	2		1.7	2	
ARSENIC	9.79	33	11	9.8	**12.5**	**16.9**	9.3	**11.6**
BARIUM			210	20	130	114	73.4	121
BERYLLIUM			0.8		0.73	0.75	0.43	
CADMIUM	0.99	4.98	0.96	1	0.77	**1.1**	0.27	0.66
CALCIUM			110000		35900	61100	66500	27900
CHROMIUM, TOTAL	43.4	111	51	43.4	24	34.1	17	26.1
COBALT			12	50	9.6	12	9.7	13.8
COPPER	31.6	149	42	31.6	**171**	39.8	22.7	47.7
IRON			44000	20000	26000	41700	21000	28000
LEAD	35.8	128	47	35.8	21.8	**40.4**	10.1	20.4
MAGNESIUM			29000		8860	14500	14800	9340
MANGANESE			1000	460	453	818	404	448
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**30.9**	**40.2**	**30.4**	**45.1**
POTASSIUM			12000		2530	2180	1850	2920
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					202	188	180	173
VANADIUM			40		28	29.6	19.8	31.5
ZINC	121	459	190	121	**124**	**186**	65.3	**122**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-58C (1-4)	LMR21-58C (4-7)	LMR21-58C (4-7) FD	LMR21-59C (0-1)
ALUMINUM			42000	25000	16700	16400	17200	14500
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**15**	**14.3**	**16.6**	**13.2**
BARIUM			210	20	133	132	142	124
BERYLLIUM			0.8		0.85	0.86	0.86	0.74
CADMIUM	0.99	4.98	0.96	1	**1.8**	**1.7**	**2.5**	**1.4**
CALCIUM			110000		28900	29400	33400	28600
CHROMIUM, TOTAL	43.4	111	51	43.4	35.4	35.4	**44.1**	30.1
COBALT			12	50	10.9	10.6	11.2	9.8
COPPER	31.6	149	42	31.6	44.2	47.7	51.2	40.2
IRON			44000	20000	32100	28400	32600	28400
LEAD	35.8	128	47	35.8	**45**	**41.1**	**50.1**	**41.6**
MAGNESIUM			29000		9200	8990	9780	9070
MANGANESE			1000	460	575	465	522	421
MERCURY	0.18	1.06	0.12	0.18	0.14	0.13	**0.2**	
NICKEL	22.7	48.6	36	22.7	**40**	**39.8**	**46.5**	**35.9**
POTASSIUM			12000		2600	2240	2460	2180
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.51	0.52	
SODIUM					136	147	162	135
VANADIUM			40		32.6	30.4	31.9	28.4
ZINC	121	459	190	121	**190**	**168**	**194**	**142**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-59C (1-4)	LMR21-59C (1-4) FD	LMR21-59C (4-7)	LMR21-60C (0-1)
ALUMINUM			42000	25000	17100	16100	7650	10800
ANTIMONY			0.84	2			2	
ARSENIC	9.79	33	11	9.8	**28.8**	**23.1**	**13.8**	**15.4**
BARIUM			210	20	141	133	69.3	109
BERYLLIUM			0.8		0.94	0.83	0.43	0.63
CADMIUM	0.99	4.98	0.96	1	**3.8**	**3.3**	**1.1**	**2.2**
CALCIUM			110000		39700	37000	60800	35800
CHROMIUM, TOTAL	43.4	111	51	43.4	**59.5**	**51**	21.9	35.6
COBALT			12	50	12.6	11.4	8	8.9
COPPER	31.6	149	42	31.6	67.9	58.1	27.8	49.5
IRON			44000	20000	40600	35600	24600	26900
LEAD	35.8	128	47	35.8	**102**	**77.6**	29.9	**111**
MAGNESIUM			29000		10300	9910	12300	9550
MANGANESE			1000	460	711	665	457	514
MERCURY	0.18	1.06	0.12	0.18	**0.26**	**0.28**		**0.57**
NICKEL	22.7	48.6	36	22.7	**45.7**	**45.1**	**24.6**	**35**
POTASSIUM			12000		2490	2550	1490	1580
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.88	0.67		
SODIUM					173	172	151	155
VANADIUM			40		33.1	32.1	19.1	23.6
ZINC	121	459	190	121	**322**	**255**	118	**181**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-60C (1-4)**	**LMR21-60C (4-5)**	**LMR21-63C (0-1)**	**LMR21-63C (1-2.75)**
ALUMINUM			42000	25000	12500	7190	10400	8630
ANTIMONY			0.84	2		<u>2.2</u>		<u>1.9</u>
ARSENIC	9.79	33	11	9.8	**<u>13.9</u>**	**10.6**	**10.4**	8.9
BARIUM			210	20	114	55.4	82	61.5
BERYLLIUM			0.8		0.66			0.49
CADMIUM	0.99	4.98	0.96	1	**<u>1.9</u>**	0.36		0.36
CALCIUM			110000		44000	71000	77300	55300
CHROMIUM, TOTAL	43.4	111	51	43.4	**<u>51.6</u>**	15.1	19.4	16
COBALT			12	50	10.1	8	11.1	8.6
COPPER	31.6	149	42	31.6	41.1	20.1	25.7	19.2
IRON			44000	20000	26400	16700	23000	16700
LEAD	35.8	128	47	35.8	**<u>92.6</u>**	13	9.5	7.4
MAGNESIUM			29000		10700	17200	17100	12500
MANGANESE			1000	460	479	367	428	277
MERCURY	0.18	1.06	0.12	0.18	<u>0.13</u>			
NICKEL	22.7	48.6	36	22.7	**34.2**	**24.5**	**33.1**	**26.4**
POTASSIUM			12000		2080	1560	2640	2300
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					173	167	192	174
VANADIUM			40		25.6	16.7	25	22.4
ZINC	121	459	190	121	**184**	54.9	62.7	45

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-64C (0-1.75)	LMR21-64C (0-1.75) FD	LMR21-65C (0-1)	LMR21-65C (1-2)
ALUMINUM			42000	25000	7490	8190	11800	9010
ANTIMONY			0.84	2	<u>2</u>	<u>2</u>	<u>4.8</u>	<u>2</u>
ARSENIC	9.79	33	11	9.8	8.6	8.3	**9.8**	**9.8**
BARIUM			210	20	70.1	64.6	96.1	78.9
BERYLLIUM			0.8			0.42		0.45
CADMIUM	0.99	4.98	0.96	1	0.22	0.24		
CALCIUM			110000		64400	71500	79700	62400
CHROMIUM, TOTAL	43.4	111	51	43.4	16.7	16	21.8	17
COBALT			12	50	8.7	8.8	<u>12.4</u>	9.8
COPPER	31.6	149	42	31.6	18.9	18.9	26.7	22.2
IRON			44000	20000	17600	18100	25200	19700
LEAD	35.8	128	47	35.8	8.9	8.2	12.5	9.1
MAGNESIUM			29000		14900	17900	17100	12300
MANGANESE			1000	460	344	391	460	382
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**27.6**	**27.5**	**35.9**	**28.9**
POTASSIUM			12000		1640	1930	2980	2170
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					154	178	243	198
VANADIUM			40		18	19.8	26.3	20.5
ZINC	121	459	190	121	59.6	51.7	89	60.2

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

			Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-66C (0-1)	LMR21-66C (1-2)	LMR21-67C (0-1)	LMR21-67C (0-1) FD
ALUMINUM			42000	25000	14200	11400	18100	18600
ANTIMONY			0.84	2				
ARSENIC	9.79	33	11	9.8	**10.8**	9.3	**<u>12.9</u>**	**<u>12.5</u>**
BARIUM			210	20	120	84.3	140	133
BERYLLIUM			0.8				<u>0.9</u>	<u>0.89</u>
CADMIUM	0.99	4.98	0.96	1	0.7		0.67	0.65
CALCIUM			110000		27600	81000	29700	29000
CHROMIUM, TOTAL	43.4	111	51	43.4	26.1	21.7	28.9	29.3
COBALT			12	50	9.4	11.8	10.9	11
COPPER	31.6	149	42	31.6	33.1	25.1	36.6	36.8
IRON			44000	20000	25800	23500	29700	29500
LEAD	35.8	128	47	35.8	20.3	10.5	**41**	20.6
MAGNESIUM			29000		8410	20300	9500	9210
MANGANESE			1000	460	431	447	443	470
MERCURY	0.18	1.06	0.12	0.18				
NICKEL	22.7	48.6	36	22.7	**32.7**	**34.4**	**<u>36.7</u>**	**<u>36.4</u>**
POTASSIUM			12000		2480	3000	2930	3080
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					163	219	173	162
VANADIUM			40		27.4	27.3	34.8	35.1
ZINC	121	459	190	121	120	64.6	**137**	**140**

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3b Sediment Core Sample Results for Metals

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-67C (1-3)	LMR21-68C (0-1)	LMR21-68C (1-3.5)
ALUMINUM			42000	25000	16000	17700	8250
ANTIMONY			0.84	2			<u>2</u>
ARSENIC	9.79	33	11	9.8	**<u>11.6</u>**	**<u>12.9</u>**	9
BARIUM			210	20	124	136	76
BERYLLIUM			0.8		<u>0.81</u>	<u>0.85</u>	0.44
CADMIUM	0.99	4.98	0.96	1	0.68	**<u>1.1</u>**	0.36
CALCIUM			110000		22000	27000	64900
CHROMIUM, TOTAL	43.4	111	51	43.4	27.2	35.7	17.3
COBALT			12	50	10.1	10.7	9.3
COPPER	31.6	149	42	31.6	33.1	40.9	27.7
IRON			44000	20000	26700	28700	18800
LEAD	35.8	128	47	35.8	21.2	33.5	12.2
MAGNESIUM			29000		7270	8660	14000
MANGANESE			1000	460	438	463	369
MERCURY	0.18	1.06	0.12	0.18			
NICKEL	22.7	48.6	36	22.7	**34.7**	**<u>39</u>**	**28.8**
POTASSIUM			12000		2340	2670	1640
SELENIUM			1.4	0.72			
SILVER			0.43	1			
SODIUM					134	150	158
VANADIUM			40		29.4	32.7	18.8
ZINC	121	459	190	121	**130**	**184**	72.2

Units are in mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBA1**	**LMR21-SBA1 FD1**	**LMR21-SBA1 FD2**	**LMR21-SBA2**
ALUMINUM			42000	25000	14100	14600	9360	8600
ANTIMONY			0.84	2	1.3	1.1	2	2
ARSENIC	9.79	33	11	9.8	**16.6**	**17**	**10.8**	8.7
BARIUM			210	20	130	126	84.3	58.8
BERYLLIUM			0.8		0.92	0.87	0.56	0.46
CADMIUM	0.99	4.98	0.96	1	**2.3**	**2.3**	**1.2**	0.37
CALCIUM			110000		34500	33200	48300	64300
CHROMIUM, TOTAL	43.4	111	51	43.4	42	41.4	24.6	19.4
COBALT			12	50	9.4	9.5	8.1	8.6
COPPER	31.6	149	42	31.6	**40.2**	**44**	26.9	20.2
IRON			44000	20000	46000	48700	25300	17000
LEAD	35.8	128	47	35.8	**83.4**	**73.2**	34.2	9.2
MAGNESIUM			29000		8680	8730	10500	13300
MANGANESE			1000	460	775	736	451	322
MERCURY	0.18	1.06	0.12	0.18	**0.36**	0.14	0.15	
NICKEL	22.7	48.6	36	22.7	**32.7**	**32.7**	**26.5**	**27.4**
POTASSIUM			12000		2250	2410	1700	2310
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.55	0.66	0.29	
SODIUM					163	159	145	184
VANADIUM			40		31.2	32.2	19.9	21.3
ZINC	121	459	190	121	**269**	**274**	**129**	51.5

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-SBA2 FD1	LMR21-SBA2 FD2	LMR21-SBA3	LMR21-SBA3 FD1
ALUMINUM			42000	25000	9540	10100	16200	13900
ANTIMONY			0.84	2	2.7			
ARSENIC	9.79	33	11	9.8	7.9	**10.1**	**27.6**	**21.3**
BARIUM			210	20	85.9	85.1	149	149
BERYLLIUM			0.8		0.53		1.1	
CADMIUM	0.99	4.98	0.96	1	0.4		**2.2**	**2.6**
CALCIUM			110000		77600	76100	36500	34300
CHROMIUM, TOTAL	43.4	111	51	43.4	18.8	21.2	**151**	**47.1**
COBALT			12	50	10.6	11	12.3	10.9
COPPER	31.6	149	42	31.6	23.2	23.7	**66.4**	**48.9**
IRON			44000	20000	20700	21600	81400	94500
LEAD	35.8	128	47	35.8	9.4	10.8	**65.1**	**111**
MAGNESIUM			29000		13900	18600	10900	9160
MANGANESE			1000	460	394	399	1690	1930
MERCURY	0.18	1.06	0.12	0.18			**0.19**	**0.19**
NICKEL	22.7	48.6	36	22.7	**31.1**	**33.2**	**57.8**	**35.2**
POTASSIUM			12000		2180	2560	2440	1920
SELENIUM			1.4	0.72				
SILVER			0.43	1			0.5	
SODIUM					216	216	213	1570
VANADIUM			40		21.2	25	37.3	36.1
ZINC	121	459	190	121	86.2	65.3	**348**	**402**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-SBA3 FD2	LMR21-SBB1	LMR21-SBB1 FD1	LMR21-SBB1 FD2	LMR21-SBB2
ALUMINUM			42000	25000	14000	18900	16200	15200	14100
ANTIMONY			0.84	2	1.6	1.5	1.3		
ARSENIC	9.79	33	11	9.8	**20.4**	**16.4**	**14.6**	**15.5**	**11.1**
BARIUM			210	20	141	150	157	137	104
BERYLLIUM			0.8		1.1	0.98	0.91	0.85	
CADMIUM	0.99	4.98	0.96	1	**2.2**	**2**	**2.1**	**2.1**	0.51
CALCIUM			110000		29200	37500	37400	35900	46100
CHROMIUM, TOTAL	43.4	111	51	43.4	**45.3**	**46.2**	39.8	36.2	24.8
COBALT			12	50	10.4	12.2	11.5	11	9.2
COPPER	31.6	149	42	31.6	**48.8**	**56.7**	**50**	**46**	28.7
IRON			44000	20000	88800	46000	34800	30700	25100
LEAD	35.8	128	47	35.8	**62.3**	**54.8**	**66.3**	**62.5**	23.2
MAGNESIUM			29000		8010	10400	10300	10100	11000
MANGANESE			1000	460	1820	736	583	551	456
MERCURY	0.18	1.06	0.12	0.18	0.16	0.17	0.15	0.14	
NICKEL	22.7	48.6	36	22.7	**37.1**	**42**	**41.5**	**41.6**	**30.3**
POTASSIUM			12000		2020	3040	2350	2390	2470
SELENIUM			1.4	0.72		3.1			
SILVER			0.43	1	0.45		0.57		
SODIUM					189	194	178	174	247
VANADIUM			40		34.2	38.4	31.2	29.9	28.4
ZINC	121	459	190	121	**416**	**258**	**196**	**181**	108

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBB2 FD1**	**LMR21-SBB2 FD2**	**LMR21-SBC**	**LMR21-SBC FD1**
ALUMINUM			42000	25000	10300	10100	5790	5230
ANTIMONY			0.84	2	<u>1.7</u>		<u>1.2</u>	<u>1.5</u>
ARSENIC	9.79	33	11	9.8	7.3	8.1	9.1	9.3
BARIUM			210	20	80.9	75.7	52.3	49.1
BERYLLIUM			0.8					
CADMIUM	0.99	4.98	0.96	1	0.57	0.44	0.91	0.9
CALCIUM			110000		36700	32500	37600	37100
CHROMIUM, TOTAL	43.4	111	51	43.4	19.7	18	16.4	15.7
COBALT			12	50	7.6	6.5	7.1	6.3
COPPER	31.6	149	42	31.6	23.8	22	18.5	18.9
IRON			44000	20000	20500	18900	20200	19100
LEAD	35.8	128	47	35.8	18.1	35.1	30.8	33
MAGNESIUM			29000		8980	8090	10300	9700
MANGANESE			1000	460	422	336	365	334
MERCURY	0.18	1.06	0.12	0.18			0.11	
NICKEL	22.7	48.6	36	22.7	**24.1**	21.6	17.9	16.1
POTASSIUM			12000		1770	1760	830	728
SELENIUM			1.4	0.72				
SILVER			0.43	1				
SODIUM					196	208	93.7	99.1
VANADIUM			40		20.3	20.5	15.4	13.5
ZINC	121	459	190	121	91.2	84.6	**131**	**137**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBC FD2**	**LMR21-SBD**	**LMR21-SBD FD1**	**LMR21-SBD FD2**	**LMR21-WA1**
ALUMINUM			42000	25000	5820	9680	10200	9900	10200
ANTIMONY			0.84	2	<u>1.6</u>	<u>2.5</u>	<u>1.6</u>	<u>4</u>	<u>1.3</u>
ARSENIC	9.79	33	11	9.8	**<u>11.5</u>**	8.3	7.7	7.8	**<u>14.1</u>**
BARIUM			210	20	49	80.4	96	81.1	113
BERYLLIUM			0.8			0.52	0.54		0.63
CADMIUM	0.99	4.98	0.96	1	0.73	0.42	0.57		**<u>3.5</u>**
CALCIUM			110000		31100	70800	48800	68800	39400
CHROMIUM, TOTAL	43.4	111	51	43.4	16	19.8	19.6	20.1	**<u>64.5</u>**
COBALT			12	50	5.8	10.6	8.4	10.2	9.6
COPPER	31.6	149	42	31.6	19.2	24.7	23.4	25.5	**<u>53.1</u>**
IRON			44000	20000	21800	21400	19400	21600	24500
LEAD	35.8	128	47	35.8	**40.5**	10.7	15.4	12.5	**<u>73.2</u>**
MAGNESIUM			29000		9400	15300	13400	16400	11300
MANGANESE			1000	460	371	401	355	401	463
MERCURY	0.18	1.06	0.12	0.18					**<u>0.42</u>**
NICKEL	22.7	48.6	36	22.7	17.8	**32.9**	**26.5**	**32.1**	**<u>40.8</u>**
POTASSIUM			12000		924	1950	2000	2270	1610
SELENIUM			1.4	0.72					
SILVER			0.43	1					<u>1.6</u>
SODIUM					88.5	186	156	169	134
VANADIUM			40		15.7	21.5	21	22.7	22
ZINC	121	459	190	121	**172**	71.7	84.1	65.9	**<u>227</u>**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WA1 FD1**	**LMR21-WA1 FD2**	**LMR21-WA2**	**LMR21-WA2 FD1**
ALUMINUM			42000	25000	10700	12300	9540	12300
ANTIMONY			0.84	2		1.5	1.7	2.2
ARSENIC	9.79	33	11	9.8	**17.1**	**12.6**	7.8	8.6
BARIUM			210	20	113	124	80.3	92.7
BERYLLIUM			0.8		0.58	0.66	0.53	0.61
CADMIUM	0.99	4.98	0.96	1	**2.5**	**3.2**	**1.3**	**1.2**
CALCIUM			110000		37000	39600	45200	59600
CHROMIUM, TOTAL	43.4	111	51	43.4	**58.7**	**75.4**	30.7	29.1
COBALT			12	50	9.1	9.1	8.4	7.6
COPPER	31.6	149	42	31.6	**53.2**	**53.9**	31.3	29.1
IRON			44000	20000	25200	24700	18600	20000
LEAD	35.8	128	47	35.8	**77.7**	**69.3**	29.8	21.4
MAGNESIUM			29000		10900	11100	12900	7020
MANGANESE			1000	460	451	450	391	344
MERCURY	0.18	1.06	0.12	0.18	**0.35**	**0.27**	0.13	
NICKEL	22.7	48.6	36	22.7	**40**	**40.5**	**27.4**	**27.2**
POTASSIUM			12000		1680	2210	1620	2120
SELENIUM			1.4	0.72		2.7		
SILVER			0.43	1	1.2	2.3	0.38	0.33
SODIUM					130	154	119	130
VANADIUM			40		23.9	28.4	21.6	23.5
ZINC	121	459	190	121	**223**	**221**	111	**126**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-WA2 FD2	LMR21-WA3	LMR21-WA3 FD1	LMR21-WA3 FD2	LMR21-WB1
ALUMINUM			42000	25000	12500	8950	6690	10800	7020
ANTIMONY			0.84	2	<u>1.3</u>	<u>1.9</u>	<u>1.8</u>	<u>1.1</u>	<u>1.1</u>
ARSENIC	9.79	33	11	9.8	**10.1**	8.4	6.7	7.9	8.4
BARIUM			210	20	86.8	77.2	52.1	72.2	98.2
BERYLLIUM			0.8		0.57	0.52		0.5	
CADMIUM	0.99	4.98	0.96	1	**<u>1.2</u>**	**<u>1.7</u>**	**<u>1.5</u>**	0.9	**<u>4.8</u>**
CALCIUM			110000		50200	47100	42000	41700	38100
CHROMIUM, TOTAL	43.4	111	51	43.4	34.7	26	23.4	24.7	**<u>122</u>**
COBALT			12	50	8.9	8.5	7.2	8.3	7.5
COPPER	31.6	149	42	31.6	**32.5**	**32.9**	22.5	26.3	**<u>69.7</u>**
IRON			44000	20000	20800	19500	15400	18000	18100
LEAD	35.8	128	47	35.8	32.3	**<u>55.7</u>**	30.2	25.6	**<u>56.6</u>**
MAGNESIUM			29000		14600	11800	11700	12400	10400
MANGANESE			1000	460	432	368	294	366	338
MERCURY	0.18	1.06	0.12	0.18	0.1	0.091	0.12	<u>0.16</u>	**<u>0.52</u>**
NICKEL	22.7	48.6	36	22.7	**29.9**	**25.5**	19.1	**23.9**	**<u>44.4</u>**
POTASSIUM			12000		2630	1420	1220	2270	1100
SELENIUM			1.4	0.72					
SILVER			0.43	1		0.32		<u>0.66</u>	<u>3.4</u>
SODIUM					318	138	130	160	110
VANADIUM			40		29.5	20.5	17.5	27.5	16.1
ZINC	121	459	190	121	114	**138**	98.8	89.2	**<u>246</u>**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WB1 FD1**	**LMR21-WB1 FD2**	**LMR21-WB2**	**LMR21-WB2 FD1**
ALUMINUM			42000	25000	11600	6900	9800	9050
ANTIMONY			0.84	2		1.2	1.1	1.5
ARSENIC	9.79	33	11	9.8	6.9	6.5	**10.7**	**12.6**
BARIUM			210	20	66.6	83.3	82.5	84.2
BERYLLIUM			0.8					
CADMIUM	0.99	4.98	0.96	1	**1.4**	**3.9**	**1**	0.91
CALCIUM			110000		38900	38800	27500	28400
CHROMIUM, TOTAL	43.4	111	51	43.4	41.6	**93.7**	21.3	19.1
COBALT			12	50	6.2	7.3	7.7	7.7
COPPER	31.6	149	42	31.6	26.2	**54.7**	28.1	30.4
IRON			44000	20000	14100	16200	19100	19800
LEAD	35.8	128	47	35.8	20	**45.1**	**45.3**	**57**
MAGNESIUM			29000		11800	11000	8270	8350
MANGANESE			1000	460	274	303	362	345
MERCURY	0.18	1.06	0.12	0.18	**0.49**	0.12	**0.23**	**0.23**
NICKEL	22.7	48.6	36	22.7	22.5	**35**	**24.5**	**24.4**
POTASSIUM			12000		2940	1220	1470	1260
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.7	2.6	0.34	0.43
SODIUM					176	111	107	94.4
VANADIUM			40		28.2	17.1	20.5	19
ZINC	121	459	190	121	94.6	**193**	120	**147**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-WB2 FD2	LMR21-WC1	LMR21-WC1 FD1	LMR21-WC1 FD2
ALUMINUM			42000	25000	5070	14300	13500	12900
ANTIMONY			0.84	2		1.6	1.9	2
ARSENIC	9.79	33	11	9.8	5.8	**22.8**	**19.3**	**19**
BARIUM			210	20	100	114	120	116
BERYLLIUM			0.8			0.79	0.78	0.73
CADMIUM	0.99	4.98	0.96	1	0.61	**2.7**	**1.4**	**1.7**
CALCIUM			110000		16700	37000	39200	36000
CHROMIUM, TOTAL	43.4	111	51	43.4	11.2	37.8	29.3	30
COBALT			12	50	4.7	10.5	11.8	10.8
COPPER	31.6	149	42	31.6	17.2	**55.2**	**43.9**	**48**
IRON			44000	20000	10200	33900	30300	29800
LEAD	35.8	128	47	35.8	**63.9**	**101**	**92.6**	**101**
MAGNESIUM			29000		5150	10600	11600	10100
MANGANESE			1000	460	213	565	571	517
MERCURY	0.18	1.06	0.12	0.18	**0.27**	**0.46**	**0.37**	**0.21**
NICKEL	22.7	48.6	36	22.7	15.2	**37**	**36.2**	**35.6**
POTASSIUM			12000		768	2010	1970	1780
SELENIUM			1.4	0.72				
SILVER			0.43	1		0.29	0.32	0.47
SODIUM					72.8	131	184	122
VANADIUM			40		7.5	29.3	28.9	27
ZINC	121	459	190	121	71.5	**251**	**216**	**229**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WC1-FD FD**	**LMR21-WC1-FD FD1**	**LMR21-WC1-FD FD2**	**LMR21-WC2**
ALUMINUM			42000	25000	26500	13700	14000	17400
ANTIMONY			0.84	2		1.8	1.7	
ARSENIC	9.79	33	11	9.8	**18**	**17**	**16**	**12.2**
BARIUM			210	20	141	123	112	120
BERYLLIUM			0.8		0.98	0.79	0.76	0.8
CADMIUM	0.99	4.98	0.96	1	**1.8**	**2.2**	**2.2**	**1.3**
CALCIUM			110000		34100	38000	33500	30900
CHROMIUM, TOTAL	43.4	111	51	43.4	**44.7**	35.2	34.3	37.8
COBALT			12	50	9.8	10.9	10.1	9.7
COPPER	31.6	149	42	31.6	**48.7**	**49.2**	**45.8**	**40.6**
IRON			44000	20000	31000	29700	29600	26200
LEAD	35.8	128	47	35.8	**66.2**	**75.1**	**76.6**	27.9
MAGNESIUM			29000		11200	10800	9850	9310
MANGANESE			1000	460	482	498	486	411
MERCURY	0.18	1.06	0.12	0.18	**0.31**	**0.26**	**0.37**	
NICKEL	22.7	48.6	36	22.7	**35.7**	**36.2**	**33.5**	**36.2**
POTASSIUM			12000		6100	2060	2270	2740
SELENIUM			1.4	0.72				
SILVER			0.43	1	0.36	0.58	0.47	
SODIUM					207	139	130	146
VANADIUM			40		55.6	28.3	29.2	33.7
ZINC	121	459	190	121	**201**	**218**	**205**	**149**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Ohio SRV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3c Composite Sediment Sample Results for Metals

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WC2 FD1**	**LMR21-WC2 FD2**
ALUMINUM			42000	25000	14500	17700
ANTIMONY			0.84	2		<u>1.7</u>
ARSENIC	9.79	33	11	9.8	9	**<u>12.1</u>**
BARIUM			210	20	109	158
BERYLLIUM			0.8		0.73	<u>0.96</u>
CADMIUM	0.99	4.98	0.96	1	**<u>1.3</u>**	**<u>1.6</u>**
CALCIUM			110000		34800	54100
CHROMIUM, TOTAL	43.4	111	51	43.4	32.7	41.4
COBALT			12	50	8.9	<u>13.4</u>
COPPER	31.6	149	42	31.6	**33.9**	**<u>48.7</u>**
IRON			44000	20000	23400	31900
LEAD	35.8	128	47	35.8	25.3	34.2
MAGNESIUM			29000		8610	14800
MANGANESE			1000	460	390	645
MERCURY	0.18	1.06	0.12	0.18	<u>0.13</u>	
NICKEL	22.7	48.6	36	22.7	**30.4**	**<u>43</u>**
POTASSIUM			12000		2460	3210
SELENIUM			1.4	0.72		
SILVER			0.43	1	0.33	
SODIUM					140	189
VANADIUM			40		28.7	34.8
ZINC	121	459	190	121	**130**	**180**

Units are mg/kg
Sampling depth interval is indicated in feet
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Ohio SRV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

Table 4.2.3d Maximum Concentrations of Metals in Surface Grab, Core, and Composite Sediment Samples

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	UNITS	Max surface grab concentration	Max core concentration	Max composite concentration
ALUMINUM			42000	25000	MG/KG	21600	40600	26500
ANTIMONY			0.84	2	MG/KG	1.8	9.2	4
ARSENIC	9.79	33	11	9.8	MG/KG	**30.9**	**40.8**	**27.6**
BARIUM			210	20	MG/KG	160	551	158
BERYLLIUM			0.8		MG/KG	1.1	5.3	1.1
CADMIUM	0.99	4.98	0.96	1	MG/KG	**4.5**	**19.9**	**4.8**
CALCIUM			110000		MG/KG	65500	105000	77600
CHROMIUM, TOTAL	43.4	111	51	43.4	MG/KG	**53.2**	**493**	**151**
COBALT			12	50	MG/KG	19.2	33.3	13.4
COPPER	31.6	149	42	31.6	MG/KG	**72.8**	**263**	**69.7**
IRON			44000	20000	MG/KG	84300	109000	94500
LEAD	35.8	128	47	35.8	MG/KG	**250**	**340**	**111**
MAGNESIUM			29000		MG/KG	15600	26100	18600
MANGANESE			1000	460	MG/KG	1720	2230	1930
MERCURY	0.18	1.06	0.12	0.18	MG/KG	**0.56**	**2.1**	**0.52**
NICKEL	22.7	48.6	36	22.7	MG/KG	**65.3**	**241**	**57.8**
POTASSIUM			12000		MG/KG	3660	9530	6100
SELENIUM			1.4	0.72	MG/KG	0	23.3	3.1
SILVER			0.43	1	MG/KG	0.82	15.9	3.4
SODIUM					MG/KG	414	78600	1570
VANADIUM			40		MG/KG	39.2	79	55.6
ZINC	121	459	190	121	MG/KG	**372**	**1160**	**416**

NOTES:
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Ohio SRV

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

ESV = ecological screening value

NAME	TEC	PEC	REGION4_ESV	**WWTP A2 LMR21-10S (0-0.5)**	**WWTP A2 LMR21-12S (0-0.5)**	**WWTP A1 LMR21-14S (0-0.5)**	**WWTP A1 LMR21-15S (0-0.5)**	**WWTP A1 LMR21-17S (0-0.5)**	**WWTP A3 LMR21-19S (0-0.5)**
ACENAPHTHENE			6.7	13.14	7.3	13.4	57.23	61.22	125.66
ACENAPHTHYLENE			5.9	15.78	6.16	10.38	52.2	34.37	92.12
ANTHRACENE	57.2	845	57	**69.88**	24.97	43.64	**203.92**	**209.9**	**334.01**
BENZO(A)ANTHRACENE	108	1050	108	**233.99**	103.14	**154.03**	**587.88**	**493.1**	**690.6**
BENZO(A)PYRENE	150	1450	150	**274.6**	123.69	**182.98**	**633.83**	**501.84**	**667.3**
BENZO(B)FLUORANTHENE			190	292.46	153.73	236.81	658.27	530.14	685.81
BENZO(E)PYRENE				231.42	121.26	168.29	467.53	366.79	478.27
BENZO(G,H,I)PERYLENE			170	228.21	109.1	160.23	417.88	338.48	519.64
BENZO(K)FLUORANTHENE			240	332.11	170.37	228.15	657.85	516.44	666.1
BIPHENYL (DIPHENYL)				4.35	2.34	3.67	11.85	9.25	22.24
C1 - CHRYSENE				125.41	54.1	80.16	329	230.16	335.52
C1 - FLUORANTHENE/PYRENE				243.87	110.23	168.84	652.09	500.63	777.95
C1 - FLUORENE				14.73	8.48	12.13	58.08	60.8	123.84
C1 - NAPHTHALENE				20.97	11.19	15.66	51.3	42.63	111.38
C1 - PHENANTHRENE/ANTHRACENE				155.34	76.86	109	435.93	399.45	503.32
C2 - CHRYSENE				74.48	36.33	50.97	212.22	149	202.81
C2 - FLUORENE				34.15	16.02	24.34	143.31	115.67	242.22
C2 - NAPHTHALENE				29.37	18.25	23.47	85.81	82.48	157.06
C2 - PHENANTHRENE/ANTHRACENE				168.4	81.82	115.06	561.16	451.73	725.4
C2-FLUORANTHENES/PYRENES				184.09	90.32	137.66	539.97	383.8	563.79
C3 - CHRYSENE				51.49	23.53	32.33	155.23	94.43	146.44
C3 - FLUORENE				53.88	29.01	46.63	218.37	170.88	330.47
C3 - NAPHTHALENE				43.89	28.37	37.92	150.4	175.21	323.77
C3 - PHENANTHRENE/ANTHRACENE				173.84	82.75	125.1	722.95	506.95	986.51
C3- FLUORANTHENES/PYRENES				125.3	52.2	85.93	368.16	247.31	357.78
C4 - CHRYSENE				32.23	14.82	24.09	91.54	57.29	76.79
C4 - NAPHTHALENE				46.34	32.17	43.04	189.73	188.91	358.79
C4 - PHENANTHRENE/ANTHRACENE				74.03	36.06	71.59	345.27	248.5	428.68
CHRYSENE	166	1290	166	**288.51**	160.85	**216.67**	**615.12**	**494.06**	**676.36**
DIBENZ(A,H)ANTHRACENE	33		33	**45.83**	20.66	**33.63**	**103.97**	**81.46**	**117.14**
FLUORANTHENE	423	2230	423	**505.11**	290.18	416.05	**1026.95**	**1016.34**	**1334.22**
FLUORENE	77.4	536	77	23.69	15.61	24.93	**107.52**	**124.6**	**268.67**
INDENO(1,2,3-C,D)PYRENE			200	269.8	122.6	178.3	505.41	415.1	594.49
NAPHTHALENE	176	561	176	44.49	25.54	39.48	142.16	102.88	**481.67**
PERYLENE				298.14	215.6	313.15	389.7	315.46	274.74
PHENANTHRENE	204	1170	204	203.21	123.38	178.39	**599.99**	**617.12**	**658.84**
PYRENE	195	1520	195	**437.02**	**235.05**	**344.01**	**959.13**	**852.38**	**1189.95**
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		**3277.83**	**1692.33**	**2461.08**	**7329.31**	**6389.43**	**9102.58**
TOTAL PAH 34 (LAB REPORTED)	1610	22800		**5459.2**	**2831.7**	**4146.44**	**13497.06**	**11177.51**	**16608.11**

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

NAME	TEC	PEC	REGION4_ESV	WWTP C2 LMR21-25S (0-0.5)	WWTP C2 LMR21-27S (0-0.5)	Sway Bridge C LMR21-30S (0-0.5)	Sway Bridge B2 LMR21-35S (0-0.5)	Sway Bridge B2 LMR21-37S (0-0.5)	Sway Bridge B2 LMR21-39S (0-0.5)
ACENAPHTHENE			6.7	8.9	26.14	7.34	27.3	40.77	188.9
ACENAPHTHYLENE			5.9	6.28	10.08	3.68	19.18	19.31	20.14
ANTHRACENE	57.2	845	57	34.21	**58.41**	23.37	**93.9**	**119.99**	**234.71**
BENZO(A)ANTHRACENE	108	1050	108	97.47	**152.45**	57.96	**219.03**	**233.36**	**180.62**
BENZO(A)PYRENE	150	1450	150	118.44	140.39	72.89	**234.32**	**241.29**	**156.44**
BENZO(B)FLUORANTHENE			190	141.14	167.46	90.21	222.74	236.84	137.5
BENZO(E)PYRENE				110.56	134.11	69.41	180.88	186.1	108.49
BENZO(G,H,I)PERYLENE			170	113.24	121.72	63.95	177.48	182.53	94.01
BENZO(K)FLUORANTHENE			240	132.41	179.53	93.17	235.84	261.18	171.87
BIPHENYL (DIPHENYL)				3.05	4.7	1.78	4.96	8.1	15.34
C1 - CHRYSENE				75.7	83.75	28.63	138.14	125.71	80.98
C1 - FLUORANTHENE/PYRENE				114.85	159.97	66.06	232.71	233.22	232.12
C1 - FLUORENE				10.41	13.74	6.46	21.98	23.93	66.38
C1 - NAPHTHALENE				19.9	26.7	7.39	34.5	38.29	66.12
C1 - PHENANTHRENE/ANTHRACENE				99.36	124.96	50.83	202.94	191.32	302.27
C2 - CHRYSENE				56.39	54.46	21.44	94.94	86.54	59.84
C2 - FLUORENE				20.58	23.92	9.85	40	37.8	72.21
C2 - NAPHTHALENE				27.52	28.47	11.15	38.35	38.8	112.17
C2 - PHENANTHRENE/ANTHRACENE				105.94	119.17	58.03	217.53	192.77	250.07
C2-FLUORANTHENES/PYRENES				99.15	115.4	57.44	175.52	170.35	139.85
C3 - CHRYSENE				35.25	35.34	13.73	60.7	54.59	35.71
C3 - FLUORENE				30.76	37.26	17.89	53.5	52.25	74.94
C3 - NAPHTHALENE				36.6	38.83	21.7	54.53	57.57	187.36
C3 - PHENANTHRENE/ANTHRACENE				101.98	103.78	61.89	185.48	182.66	231.5
C3- FLUORANTHENES/PYRENES				70.19	71.37	33.69	111.86	111.05	96.17
C4 - CHRYSENE				21.14	21.07	10.87	36.16	30.42	25.83
C4 - NAPHTHALENE				39.58	39.38	27.54	53.46	59.72	178.26
C4 - PHENANTHRENE/ANTHRACENE				41.96	49.41	25.54	69.36	76.01	87.92
CHRYSENE	166	1290	166	136.93	**193.13**	93.45	**256.55**	**262.26**	**176**
DIBENZ(A,H)ANTHRACENE	33		33	23.62	26.14	10.15	**42.38**	**41.3**	20.24
FLUORANTHENE	423	2230	423	252.52	351.28	199.72	**459.89**	**501.79**	**583.79**
FLUORENE	77.4	536	77	17.38	38.91	13.21	56.3	74.17	**292.57**
INDENO(1,2,3-C,D)PYRENE			200	116.37	120.99	63.95	180.4	167.86	105.25
NAPHTHALENE	176	561	176	43.55	139.99	13.64	139.23	**221.63**	**184.32**
PERYLENE				210.43	232.08	240.45	217.89	194.03	224.79
PHENANTHRENE	204	1170	204	106.3	198.34	78.49	**250.92**	**279.58**	**756.69**
PYRENE	195	1520	195	**212.28**	**284.77**	152.5	**383.33**	**408.44**	**441.92**
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		1561.04	**2209.73**	1037.68	**2998.79**	**3292.3**	**3744.97**
TOTAL PAH 34 (LAB REPORTED)	1610	22800		**2889.29**	**3722.9**	**1877.67**	**5219.22**	**5435.43**	**6377.95**

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

NAME	TEC	PEC	REGION4_ESV	Sway Bridge A2 LMR21-41S (0-0.5)	Sway Bridge A2 LMR21-43S (0-0.5)	Sway Bridge A1 LMR21-45S (0-0.5)	Sway Bridge A1 LMR21-47S (0-0.5)	Sway Bridge A1 LMR21-49S (0-0.5)	Sway Bridge A3 LMR21-52S (0-0.5)
ACENAPHTHENE			6.7	72.24	456.79	2452.38	7172.71	48052.75	11.07
ACENAPHTHYLENE			5.9	96.31	72.21	347.74	15725.52	3943.53	6.96
ANTHRACENE	57.2	845	57	**232.88**	**438.32**	**3944.68**	**25521.91**	**50946.07**	35.38
BENZO(A)ANTHRACENE	108	1050	108	**733.61**	**630.82**	**3604.99**	**20027.01**	**34734.2**	84.96
BENZO(A)PYRENE	150	1450	150	**759.86**	**464.44**	**2300.67**	**16123.79**	**26286.91**	94.52
BENZO(B)FLUORANTHENE			190	650.98	450.91	2299.45	13651.64	18606.93	118.29
BENZO(E)PYRENE				470.48	333.88	1625.65	8842.5	16665.63	87.93
BENZO(G,H,I)PERYLENE			170	448.25	272.72	1073.22	7687.07	15026.93	80.53
BENZO(K)FLUORANTHENE			240	776.65	452.39	2490.24	15623.29	27344.03	124.8
BIPHENYL (DIPHENYL)				11.48	21.58	41.87	4005.13	6458.79	2.68
C1 - CHRYSENE				239.9	284.21	1925.63	3951.46	6016.53	35.58
C1 - FLUORANTHENE/PYRENE				587.25	788.37	5482.7	20209.24	33672.56	83.57
C1 - FLUORENE				43.35	165.89	1218.63	11753.9	4883.01	7.95
C1 - NAPHTHALENE				65.43	106.03	330.52	31459.68	28112.77	13.13
C1 - PHENANTHRENE/ANTHRACENE				366.15	784.62	6488.9	17237.68	29938.88	63.8
C2 - CHRYSENE				116.91	185.36	1188.82	1113.16	1996.57	23.99
C2 - FLUORENE				65.85	178.76	1697.17	4019.87	1867.68	12.92
C2 - NAPHTHALENE				57.12	169.83	1418.26	6500.71	9891.15	17.26
C2 - PHENANTHRENE/ANTHRACENE				314.62	638.48	5343.52	9370.95	8812.74	64.57
C2-FLUORANTHENES/PYRENES				318.54	444.81	3151.3	6530.92	9094.82	65.37
C3 - CHRYSENE				74.72	115.06	833.05	1007.1	868.18	16.1
C3 - FLUORENE				78.6	179.85	1616.09	2204.63	1631.5	22.18
C3 - NAPHTHALENE				91.55	319.72	3546.49	3651.82	3880.36	27.82
C3 - PHENANTHRENE/ANTHRACENE				257.69	581.41	3607.48	7532.87	4439.69	67.37
C3- FLUORANTHENES/PYRENES				157.09	273.68	1821.64	2170.42	2281.72	37.42
C4 - CHRYSENE				42.06	64.97	512.51	379.32	401.01	10.57
C4 - NAPHTHALENE				90.87	281.2	2472.96	5794.26	1565.03	29.93
C4 - PHENANTHRENE/ANTHRACENE				95.64	269.51	2347.6	2442.87	1026.57	24.8
CHRYSENE	166	1290	166	**601.35**	**547.29**	**3143.97**	**14472.91**	**27057.82**	120.95
DIBENZ(A,H)ANTHRACENE	33		33	**104.67**	**75.36**	**551.17**	**1956.48**	**3466.7**	14.34
FLUORANTHENE	423	2230	423	**1100.51**	**1604.3**	**8645.26**	**54164.5**	**116158.93**	240.51
FLUORENE	77.4	536	77	**129.65**	**708.8**	**3359.16**	**79201.4**	**46308.71**	21.59
INDENO(1,2,3-C,D)PYRENE			200	503.2	324.42	1370.37	10412.49	13920.36	84.75
NAPHTHALENE	176	561	176	**424.76**	**697.6**	**1032.67**	**1125275.32**	**476305.02**	47.1
PERYLENE				337.11	583.31	864.32	5128.64	10033.11	278.24
PHENANTHRENE	204	1170	204	**487.75**	**1463.7**	**8658.79**	**76604.39**	**185505.6**	121.86
PYRENE	195	1520	195	**886.3**	**1319.71**	**6921.65**	**38630.61**	**83549.23**	187.55
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		**8008.97**	**9979.78**	**52196.41**	**1522251.04**	**1177213.72**	1395.16
TOTAL PAH 34 (LAB REPORTED)	1610	22800		**11879.9**	**16728.73**	**99689.65**	**1673553.04**	**1354293.23**	**2385.66**

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.4a Surface Grab Sediment Sample Results for Semi-Volatile Organic Analyses

				Sway Bridge A3	Sway Bridge A3	Sway Bridge B1	Sway Bridge B1	Biological Survey	Biological Survey
NAME	TEC	PEC	REGION4_ESV	LMR21-53S (0-0.5)	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)	LMR21-59S (0-0.5)	LMR21-61S (0-0.5)	LMR21-62S (0-0.5)
ACENAPHTHENE			6.7	526.53	18.15	100.27	27	25.1	24.07
ACENAPHTHYLENE			5.9	583.84	12.2	14.46	8.05	32.09	11.49
ANTHRACENE	57.2	845	57	**1607.7**	48.64	**99.71**	55.9	**82.31**	44.74
BENZO(A)ANTHRACENE	108	1050	108	**2957.41**	**149.3**	**283.74**	**148.15**	**453.23**	**171.38**
BENZO(A)PYRENE	150	1450	150	**2891.59**	**182.86**	**275.65**	**170.79**	**512.09**	**211.74**
BENZO(B)FLUORANTHENE			190	2099.65	189.16	315.65	182.79	577.29	232.84
BENZO(E)PYRENE				2108.01	163.56	241.06	154.85	425.97	195.83
BENZO(G,H,I)PERYLENE			170	1975.33	223.9	289.49	203.93	548.59	260.84
BENZO(K)FLUORANTHENE			240	3155.9	235.91	303.27	222.74	553.51	266.86
BIPHENYL (DIPHENYL)				8.19	4.94	6.97	6.08	6.07	3.64
C1 - CHRYSENE				657.55	56.5	123.29	58.77	198.66	84.81
C1 - FLUORANTHENE/PYRENE				3038.22	142.34	333.03	156.27	434.65	188.01
C1 - FLUORENE				235.48	9.94	51.65	14.43	24.07	16.81
C1 - NAPHTHALENE				179.81	27.39	37.34	29.36	47.16	21.06
C1 - PHENANTHRENE/ANTHRACENE				1572.55	98.73	253.44	122.9	235.17	120.03
C2 - CHRYSENE				170.98	40.79	87.01	39.84	122.2	57.1
C2 - FLUORENE				142.55	16.18	66.9	28.12	46.14	33.66
C2 - NAPHTHALENE				292.3	31.06	70.88	40.97	70.13	35.46
C2 - PHENANTHRENE/ANTHRACENE				861.5	94.51	288.52	136.83	250.98	142.55
C2-FLUORANTHENES/PYRENES				615.2	83.05	167.97	80.82	236.56	102.86
C3 - CHRYSENE				163.02	35.6	69.28	33.23	94.62	46.76
C3 - FLUORENE				147.93	25.74	83.44	39.64	67.47	43.41
C3 - NAPHTHALENE				298.72	45.04	160.47	69.04	91.65	66.83
C3 - PHENANTHRENE/ANTHRACENE				502.94	78.09	238.88	110.46	183.73	116.03
C3- FLUORANTHENES/PYRENES				191.72	48.67	113.16	50.46	133.25	64.7
C4 - CHRYSENE				281.83	40.17	64.47	37.47	134.86	59.58
C4 - NAPHTHALENE				250.04	50.88	172.59	80.94	92.2	75.06
C4 - PHENANTHRENE/ANTHRACENE				194.36	41.32	130.69	53.52	106.93	58.9
CHRYSENE	166	1290	166	**2539.45**	**170.88**	**275.24**	**171.53**	**447.54**	**201.94**
DIBENZ(A,H)ANTHRACENE	33		33	**1948.16**	**38.49**	**49.24**	**34.28**	**102.53**	**46**
FLUORANTHENE	423	2230	423	**6687.19**	355.02	**643.21**	354.74	**849.86**	409.72
FLUORENE	77.4	536	77	**679.79**	29.38	**88.49**	40.28	41.49	30.86
INDENO(1,2,3-C,D)PYRENE			200	2415	218.99	306.89	204.88	496.2	254.88
NAPHTHALENE	176	561	176	**1453.65**	112.66	132.06	104.34	87.7	55.73
PERYLENE				1911.08	387.22	1123.97	353.37	632.17	601.86
PHENANTHRENE	204	1170	204	**4885.09**	183.35	**409.45**	202.62	**316.32**	172.47
PYRENE	195	1520	195	**4938.95**	**274.18**	**552.78**	**292.64**	**704.7**	**337.04**
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		**41345.23**	**2443.07**	**4139.6**	**2424.66**	**5830.55**	**2732.6**
TOTAL PAH 34 (LAB REPORTED)	1610	22800		**55161.02**	**3959.85**	**8017.64**	**4115.95**	**9459.12**	**4863.91**

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.4a Surface Grab Sediment Sample Results for Semi-Volatile Organic Analyses

NAME	TEC	PEC	REGION4_ESV	Sway Bridge D LMR21-64S (0-0.5)	Sway Bridge D LMR21-66S (0-0.5)	Sway Bridge D LMR21-68S (0-0.5)	Reference LMR21-69S (0-0.5)
ACENAPHTHENE			6.7	<u>199.18</u>	<u>69.23</u>	<u>90.46</u>	4.3
ACENAPHTHYLENE			5.9	<u>32.02</u>	<u>20.58</u>	<u>43.28</u>	3.58
ANTHRACENE	57.2	845	57	**<u>142.43</u>**	**<u>117.98</u>**	**<u>637.41</u>**	11.94
BENZO(A)ANTHRACENE	108	1050	108	**<u>251.51</u>**	**<u>237.9</u>**	**<u>1750.48</u>**	71.82
BENZO(A)PYRENE	150	1450	150	**<u>245.78</u>**	**<u>258.96</u>**	**<u>1508.11</u>**	108.34
BENZO(B)FLUORANTHENE			190	<u>230.45</u>	<u>222.53</u>	<u>1351.06</u>	132.4
BENZO(E)PYRENE				184.73	209.65	944.34	114.27
BENZO(G,H,I)PERYLENE			170	<u>226.76</u>	<u>273.71</u>	<u>1160.15</u>	158.6
BENZO(K)FLUORANTHENE			240	<u>281.26</u>	<u>340.07</u>	<u>1417.72</u>	157.31
BIPHENYL (DIPHENYL)				26.35	8.61	47.45	2.33
C1 - CHRYSENE				92.03	78.47	475.3	36.34
C1 - FLUORANTHENE/PYRENE				263.49	231.25	1492.3	85.59
C1 - FLUORENE				27.71	20.19	109.47	7.16
C1 - NAPHTHALENE				232.45	48.58	36.57	18.97
C1 - PHENANTHRENE/ANTHRACENE				215.17	152.59	1200.96	62.6
C2 - CHRYSENE				68.18	48.08	208.76	28.62
C2 - FLUORENE				37.5	25.49	116.34	11.45
C2 - NAPHTHALENE				87.64	45.04	92.76	25.43
C2 - PHENANTHRENE/ANTHRACENE				204.51	136.11	777.54	71.41
C2-FLUORANTHENES/PYRENES				111.27	91.09	605.42	53.68
C3 - CHRYSENE				63.54	39.94	166.61	24.06
C3 - FLUORENE				61.36	38.16	119.27	20.23
C3 - NAPHTHALENE				91.41	65.31	175.28	37.61
C3 - PHENANTHRENE/ANTHRACENE				172.09	102.08	363.19	63.33
C3- FLUORANTHENES/PYRENES				83	57.73	263.45	36.17
C4 - CHRYSENE				66.89	47.68	202.33	32.31
C4 - NAPHTHALENE				89.73	66.4	151.88	46.56
C4 - PHENANTHRENE/ANTHRACENE				87.51	53.62	142.79	32.82
CHRYSENE	166	1290	166	**<u>226.13</u>**	**<u>244.6</u>**	**<u>1144.17</u>**	110.59
DIBENZ(A,H)ANTHRACENE	33		33	**<u>40.86</u>**	**<u>47</u>**	**<u>275.36</u>**	24.7
FLUORANTHENE	423	2230	423	**<u>584.44</u>**	**<u>568.71</u>**	**<u>3219.46</u>**	213.16
FLUORENE	77.4	536	77	**<u>172.5</u>**	**<u>83.18</u>**	**<u>185.28</u>**	10.43
INDENO(1,2,3-C,D)PYRENE			200	<u>228.51</u>	<u>269.23</u>	<u>1212.82</u>	140.19
NAPHTHALENE	176	561	176	**<u>941.46</u>**	**<u>309.83</u>**	135.05	9.98
PERYLENE				385.47	569.2	780.98	490.96
PHENANTHRENE	204	1170	204	**<u>512.23</u>**	**<u>397.88</u>**	**<u>2020.63</u>**	83.96
PYRENE	195	1520	195	**<u>437.08</u>**	**<u>439.24</u>**	**<u>2554.16</u>**	169.7
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		**4752.6**	**3900.63**	**18705.6**	1411
TOTAL PAH 34 (LAB REPORTED)	1610	22800		**7378.28**	**6027.29**	**27131.14**	**2710.57**

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.4b Maximum Concentrations of Semi-Volatile Organic Analyses in Surface Grab Samples

NAME	TEC	PEC	REGION4_ESV	Max Surface Grab
ACENAPHTHENE			6.7	48052.75
ACENAPHTHYLENE			5.9	15725.52
ANTHRACENE	57.2	845	57	50946.07
BENZO(A)ANTHRACENE	108	1050	108	34734.2
BENZO(A)PYRENE	150	1450	150	26286.91
BENZO(B)FLUORANTHENE			190	18606.93
BENZO(E)PYRENE				16665.63
BENZO(G,H,I)PERYLENE			170	15026.93
BENZO(K)FLUORANTHENE			240	27344.03
BIPHENYL (DIPHENYL)				6458.79
C1 - CHRYSENE				6016.53
C1 - FLUORANTHENE/PYRENE				33672.56
C1 - FLUORENE				11753.9
C1 - NAPHTHALENE				31459.68
C1 - PHENANTHRENE/ANTHRACENE				29938.88
C2 - CHRYSENE				1996.57
C2 - FLUORENE				4019.87
C2 - NAPHTHALENE				9891.15
C2 - PHENANTHRENE/ANTHRACENE				9370.95
C2-FLUORANTHENES/PYRENES				9094.82
C3 - CHRYSENE				1007.1
C3 - FLUORENE				2204.63
C3 - NAPHTHALENE				3880.36
C3 - PHENANTHRENE/ANTHRACENE				7532.87
C3- FLUORANTHENES/PYRENES				2281.72
C4 - CHRYSENE				512.51
C4 - NAPHTHALENE				5794.26
C4 - PHENANTHRENE/ANTHRACENE				2442.87
CHRYSENE	166	1290	166	27057.82
DIBENZ(A,H)ANTHRACENE	33		33	3466.7
FLUORANTHENE	423	2230	423	116158.93
FLUORENE	77.4	536	77	79201.4
INDENO(1,2,3-C,D)PYRENE			200	13920.36
NAPHTHALENE	176	561	176	1125275.32
PERYLENE				10033.11
PHENANTHRENE	204	1170	204	185505.6
PYRENE	195	1520	195	83549.23
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		1,522,251.04
TOTAL PAH 34 (LAB REPORTED)	1610	22800		1,673,553.04

NOTES:
Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exxceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value

					WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-01C (1-4)	LMR21-01C (4-7)	LMR21-01C (7-8)	LMR21-02C (0-1)	LMR21-02C (1-4)	LMR21-02C (4-7)	LMR21-02C (7-8)	LMR21-03C (0-1)	LMR21-03C (1-4)	LMR21-03C (1-4) FD
2-METHYLNAPHTHALENE				20.2				57.5	44.5	50.2	30.9		111	52.9
ACENAPHTHENE				6.7	32.4	27.6			55.4	222	76		158	75
ACENAPHTHYLENE				5.9	72.6	28.4		59.6	86.9	147	136		265	124
ANTHRACENE		57.2	845	57	**82.8**	**89.2**		**71.1**	**121**	**330**	**231**	**80.5**	**400**	**183**
BENZO(A)ANTHRACENE		108	1050	108	**210**	**242**		**215**	**296**	**420**	**433**	**173**	**769**	**392**
BENZO(A)PYRENE		150	1450	150	**246**	**249**		**270**	**319**	**440**	**531**	**171**	**675**	**388**
BENZO(B)FLUORANTHENE				190	180	172		230	239	306	352	174	517	280
BENZO(G,H,I)PERYLENE				170	143	113		196	186	238	262	95	342	215
BENZO(K)FLUORANTHENE				240	174	168		211	197	332	368	133	464	287
CHRYSENE		166	1290	166	237	228		364	390	446	485	176	958	429
DIBENZ(A,H)ANTHRACENE		33		33	**38.4**	**42.1**		**61**	**61.6**	**61.5**	**66.6**		**101**	**59.4**
FLUORANTHENE		423	2230	423	330	381		331	**501**	**1040**	**868**	282	**1300**	**676**
FLUORENE		77.4	536	77	51.6	29.2		64.2	77.4	**303**	**138**	35.1	**283**	**92.6**
INDENO(1,2,3-C,D)PYRENE				200	143	117		162	171	240	263	106	331	190
NAPHTHALENE		176	561	176	73.8	63.5	50.9	158	164	153	136		**233**	99.1
PHENANTHRENE		204	1170	204	172	**230**		**209**	**400**	**1110**	**582**	171	**1280**	**568**
PYRENE		195	1520	195	**305**	**393**		**376**	**521**	**893**	**732**	**223**	**1440**	**707**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2715.6**	**2765**	1272.4	**3139.9**	**3830.8**	**6731.7**	**5690.5**	**2509.1**	**9627**	**4818**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

ESV = ecological screening value

Sampling depth interval is indicated in feet

					WWTP C1	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-03C (4-7)	LMR21-04C (0-1)	LMR21-04C (1-4)	LMR21-04C (4-7)	LMR21-05C (0-1)	LMR21-05C (1-4)	LMR21-05C (4-7)	LMR21-05C (7-8)	LMR21-06C (0-1)	LMR21-06C (1-4)
2-METHYLNAPHTHALENE				20.2	29.8		93.4	38.3						
ACENAPHTHENE				6.7	60		299	126						
ACENAPHTHYLENE				5.9	52		373	64.3						
ANTHRACENE		57.2	845	57	**127**	**103**	**401**	**282**				33.2		
BENZO(A)ANTHRACENE		108	1050	108	**228**	**243**	**1110**	**453**				89.9		
BENZO(A)PYRENE		150	1450	150	**249**	**323**	**1070**	**444**				127	128	**166**
BENZO(B)FLUORANTHENE				190	191	283	944	314		37		107	136	148
BENZO(G,H,I)PERYLENE				170	135	218	594	184				92		
BENZO(K)FLUORANTHENE				240	194	232	812	299				112		86
CHRYSENE		166	1290	166	247	310	1450	431				149		125
DIBENZ(A,H)ANTHRACENE		33		33	31.3		**187**	**57.4**						
FLUORANTHENE		423	2230	423	**491**	**473**	**2090**	**888**	51.1	61.6	38.8	264	213	273
FLUORENE		77.4	536	77	**104**		**369**	**129**						
INDENO(1,2,3-C,D)PYRENE				200	118	205	637	205		33.4		96.2		92
NAPHTHALENE		176	561	176	112	142	**286**	99.1				47.4		96.5
PHENANTHRENE		204	1170	204	**420**	**226**	**2120**	**712**				138	109	138
PYRENE		195	1520	195	**509**	**485**	**2160**	**852**		55.7	33.7	**220**	**200**	**256**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**3298.1**	**4992**	**14995.4**	**5578.1**	**2122.1**	1525.2	1576	**2068.7**	**5020**	**3771**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-06C (4-6.3)	LMR21-07C (0-1)	LMR21-07C (1-4)	LMR21-07C (4-7)	LMR21-07C (7-8)	LMR21-08C (0-1)	LMR21-08C (1-4)	LMR21-08C (4-7)	LMR21-08C (7-8.1)	LMR21-09C (0-1)
2-METHYLNAPHTHALENE				20.2			81.5			53.8	106	68.7		73.4
ACENAPHTHENE				6.7	80.2	360	187	217		53.4	236	152	36.4	188
ACENAPHTHYLENE				5.9	98	210	246	108		101	290	175		307
ANTHRACENE		57.2	845	57	**138**	**207**	**340**	**370**	**89.7**	**184**	**615**	**447**	**93.7**	**299**
BENZO(A)ANTHRACENE		108	1050	108	**364**	**795**	**1100**	**602**	**127**	**710**	**1430**	**1070**	**181**	**967**
BENZO(A)PYRENE		150	1450	150	**455**	**695**	**1120**	**721**		**799**	**1500**	**1320**	**219**	**1030**
BENZO(B)FLUORANTHENE				190	459	612	862	398	71.1	605	1040	674	142	825
BENZO(G,H,I)PERYLENE				170	277	379	575	394		401	706	616	101	520
BENZO(K)FLUORANTHENE				240	316	517	696	431	108	497	1070	775	148	714
CHRYSENE		166	1290	166	486	944	1170	582	105	1000	1560	1080	187	1210
DIBENZ(A,H)ANTHRACENE		33		33		**115**	**118**			**122**	**192**	**146**		**158**
FLUORANTHENE		423	2230	423	**770**	**1460**	**2040**	**1140**	288	**986**	**2590**	**1550**	376	**1470**
FLUORENE		77.4	536	77	**132**	**462**	**214**	**184**		**113**	**338**	**164**	61.8	**283**
INDENO(1,2,3-C,D)PYRENE				200	267	387	552	345		383	731	570	110	519
NAPHTHALENE		176	561	176	**180**	**261**	**256**	**298**	**177**	168	**289**	**179**	99.5	**268**
PHENANTHRENE		204	1170	204	**488**	**1690**	**1270**	**1230**	182	**281**	**1800**	**1140**	**270**	**1380**
PYRENE		195	1520	195	**869**	**1470**	**2090**	**1550**	**219**	**1100**	**2720**	**2060**	**429**	**1650**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**6200.7**	**11264**	**12917.5**	**9419.5**	**3203.3**	**7557.2**	**17213**	**12186.7**	**2801.9**	**11861.4**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
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TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-09C (1-4)	LMR21-09C (4-7)	LMR21-09C (4-7) FD	LMR21-09C (7-7.5)	LMR21-10C (0-1)	LMR21-10C (1-4)	LMR21-10C (4-7)	LMR21-10C (7-8.5)	LMR21-11C (0-1)	LMR21-11C (1-4)
2-METHYLNAPHTHALENE				20.2	101		28.7		170	138			120	178
ACENAPHTHENE				6.7	611	104	131		186	138			411	740
ACENAPHTHYLENE				5.9	341		120		310	134			243	342
ANTHRACENE		57.2	845	57	**639**	**196**	**278**	**81.9**	**454**	**334**			**679**	**997**
BENZO(A)ANTHRACENE		108	1050	108	**1170**	**358**	**686**	**165**	**1540**	**777**	26.1		**1230**	**1440**
BENZO(A)PYRENE		150	1450	150	**1300**	**430**	**875**	139	**1740**	**901**			**1100**	**1420**
BENZO(B)FLUORANTHENE				190	943	232	418	86	1380	760	35.5		836	1030
BENZO(G,H,I)PERYLENE				170	669	195	454	77	978	474			556	710
BENZO(K)FLUORANTHENE				240	837	263	512		1350	746			895	1080
CHRYSENE		166	1290	166	1250	356	690	93.6	2120	992	46.8		1400	1710
DIBENZ(A,H)ANTHRACENE		33		33	**174**		**84**		**279**	**152**			**180**	**199**
FLUORANTHENE		423	2230	423	**2420**	**571**	**1030**	249	**2790**	**1420**	65.7		**2830**	**3200**
FLUORENE		77.4	536	77	**721**	**86.9**	**123**		**614**	**304**			**537**	**911**
INDENO(1,2,3-C,D)PYRENE				200	675	188	402	80	945	462			583	692
NAPHTHALENE		176	561	176	**263**	124	90.6	142	**481**	**414**	169	174	**336**	**737**
PHENANTHRENE		204	1170	204	**2420**	**582**	**841**	196	**1300**	**1070**	72.5		**2450**	**3230**
PYRENE		195	1520	195	**2370**	**839**	**1370**	**319**	**2770**	**1590**	78.5		**2500**	**2820**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**16904**	**5543.9**	**8133.3**	**3273.5**	**19407**	**10806**	1365.6	1457.5	**16886**	**21436**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

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Bolded values exceed the TEC
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Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A1	WWTP A1	WWTP A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-11C (4-7)	LMR21-11C (7-9)	LMR21-12C (0-1)	LMR21-12C (10-13)	LMR21-12C (1-4)	LMR21-12C (4-7)	LMR21-12C (7-10)	LMR21-13C (0-1)	LMR21-13C (1-4)	LMR21-13C (1-4) FD
2-METHYLNAPHTHALENE				20.2								61	38.6	63.7
ACENAPHTHENE				6.7	52.9						45.6	70.6	75.1	135
ACENAPHTHYLENE				5.9	38.2			29.2			65.5	175	89.1	226
ANTHRACENE		57.2	845	57	**72.8**			**68.2**	49.6	36.2	**97.3**	**195**	**144**	**294**
BENZO(A)ANTHRACENE		108	1050	108	**143**		**120**	**163**	**173**	**122**	**224**	**573**	**265**	**736**
BENZO(A)PYRENE		150	1450	150	127	28.3	**195**	**165**	**223**	**162**	**340**	**717**	**271**	**657**
BENZO(B)FLUORANTHENE				190	99.1		207	129	235	146	323	617	228	510
BENZO(G,H,I)PERYLENE				170	66.7	24.7	163	62	164	99.7	215	408	139	336
BENZO(K)FLUORANTHENE				240	97.8		165	132	205	89.8	269	574	198	424
CHRYSENE		166	1290	166	158	40.1	216	172	248	158	340	665	330	1030
DIBENZ(A,H)ANTHRACENE		33		33					28.4		**45.1**	**103**	**40.3**	**113**
FLUORANTHENE		423	2230	423	270	66.2	321	222	**466**	241	**564**	**1070**	**485**	**1050**
FLUORENE		77.4	536	77	62.7				32.3		55.9	**117**	**131**	**233**
INDENO(1,2,3-C,D)PYRENE				200	63.9		147	74.2	166	103	231	416	140	283
NAPHTHALENE		176	561	176	136	160	109	27.7	87.5		64.9	152	76.2	110
PHENANTHRENE		204	1170	204	**231**	62.1	142	166	180	132	**289**	**578**	**550**	**1170**
PYRENE		195	1520	195	**240**	55.2	**265**	**199**	**371**	**228**	**531**	**1050**	**577**	**1220**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2103.6**	1266.6	**2935**	**2022.3**	**3019.3**	**2211.2**	**3921.8**	**7541.6**	**3777.3**	**8590.7**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

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Bolded values exceed the TEC

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Underlined values exceed the Region 4 ESV

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

ESV = ecological screening value

Sampling depth interval is indicated in feet

					WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-13C (4-7)**	**LMR21-13C (7-9)**	**LMR21-14C (0-1)**	**LMR21-15C (0-1)**	**LMR21-15C (1-4)**	**LMR21-15C (1-4) FD**	**LMR21-15C (4-7)**	**LMR21-15C (4-7) FD**	**LMR21-15C (7-10)**	**LMR21-16C (0-1)**
2-METHYLNAPHTHALENE				20.2	26.2		53.5	184	467	181	587		332	67.7
ACENAPHTHENE				6.7	52.5	38.5	75.1	191	291	119	412		302	114
ACENAPHTHYLENE				5.9	80.1	50.8	73.9	192	626	340	916		219	296
ANTHRACENE		57.2	845	57	**111**	**63.5**	**146**	**300**	**548**	**274**	**530**		**400**	**326**
BENZO(A)ANTHRACENE		108	1050	108	**314**	**148**	**378**	**667**	**1550**	**922**	**1620**	**1790**	**1010**	**745**
BENZO(A)PYRENE		150	1450	150	**423**	**198**	**405**	**947**	**3710**	**1930**		**4140**	**1120**	**608**
BENZO(B)FLUORANTHENE				190	230	106	356	816	3190			3550	1030	501
BENZO(G,H,I)PERYLENE				170	213	95	245	494	1960	1180	2260	2610	551	321
BENZO(K)FLUORANTHENE				240	281	119	346	712	1950			2410	832	421
CHRYSENE		166	1290	166	354	151	507	965	2350	1290	2820	2890	1520	1040
DIBENZ(A,H)ANTHRACENE		33		33	**48.5**		**67.5**	**137**	**375**		**152**		**161**	**102**
FLUORANTHENE		423	2230	423	**455**	241	**862**	**1400**	**2840**	**1610**	**3160**	**3320**	**2210**	**1210**
FLUORENE		77.4	536	77	54.5		**176**	**257**	**557**	**234**	**1030**		**684**	**233**
INDENO(1,2,3-C,D)PYRENE				200	205	91.2	246	498	2070	1090	2500	2360	511	316
NAPHTHALENE		176	561	176	66.2	40	159	**372**	**1030**	**381**	**1960**	**2100**	**638**	96.6
PHENANTHRENE		204	1170	204	**339**	184	**565**	**981**	**1790**	**702**	**1800**	**2030**	**1460**	**1600**
PYRENE		195	1520	195	**570**	**315**	**813**	**1720**	**4300**	**2180**	**3310**	**4040**	**2400**	**1510**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**3823**	**2210**	**5474**	**10833**	**29604**	**12785.5**	**23436.5**	**53665**	**15380**	**9507.3**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

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PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-16C (1-4)	LMR21-16C (4-7)	LMR21-16C (4-7) FD	LMR21-16C (7-11)	LMR21-17C (0-1)	LMR21-17C (10-13)	LMR21-17C (1-4)	LMR21-17C (4-7)	LMR21-17C (7-10)	LMR21-18C (0-1)
2-METHYLNAPHTHALENE				20.2	102		33		161		183	121	68.1	169
ACENAPHTHENE				6.7	306	75.8	107		227		166	170	178	348
ACENAPHTHYLENE				5.9	322	75.3	102		409		217	251	224	2060
ANTHRACENE		57.2	845	57	**756**	**131**	**201**		**499**	32.9	**412**	**583**	**333**	**1130**
BENZO(A)ANTHRACENE		108	1050	108	**1220**	**310**	**337**	25.7	**916**	74	**983**	**914**	**655**	**4560**
BENZO(A)PYRENE		150	1450	150	**1200**	**394**	**397**	28.9	**1080**	79.5	**996**	**837**	**678**	**4590**
BENZO(B)FLUORANTHENE				190	878	198	265		909	53.1	917	683	512	2970
BENZO(G,H,I)PERYLENE				170	644	196	212		655	52.2	534	423	351	2010
BENZO(K)FLUORANTHENE				240	912	240	252		779	54.3	667	581	431	2960
CHRYSENE		166	1290	166	1370	307	368	28.6	1170	71.5	1330	1040	771	4560
DIBENZ(A,H)ANTHRACENE		33		33	**177**	**41.8**	**49.7**		**185**		**166**	**132**	**82.1**	**611**
FLUORANTHENE		423	2230	423	**2680**	**435**	**620**	41.8	**1730**	171	**1910**	**1840**	**1110**	**6280**
FLUORENE		77.4	536	77	**501**	68.3	**121**		**656**		**483**	**342**	**232**	**671**
INDENO(1,2,3-C,D)PYRENE				200	635	185	196		650	46.9	527	425	323	2040
NAPHTHALENE		176	561	176	**254**	41.5	50.1		**497**		**539**	**261**	104	**431**
PHENANTHRENE		204	1170	204	**2150**	**389**	**605**	26.4	**1330**	110	**1420**	**1610**	**1110**	**3030**
PYRENE		195	1520	195	**2680**	**606**	**734**	48.8	**1710**	182	**1960**	**1710**	**1240**	**6570**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**16787**	**3901.2**	**4649.8**	1075.7	**13563**	1454.4	**13410**	**11923**	**8402.2**	**44990**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

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Sampling depth interval is indicated in feet

					WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-18C (10-12)	LMR21-18C (1-4)	LMR21-18C (4-7)	LMR21-18C (7-10)	LMR21-19C (0-1)	LMR21-19C (1-4)	LMR21-19C (4-7)	LMR21-19C (7-9)	LMR21-20C (0-1)	LMR21-20C (1-4)
2-METHYLNAPHTHALENE				20.2	303	117	101	188	69.9				439	40.5
ACENAPHTHENE				6.7	373	140	129	198	147	35.2			1420	73
ACENAPHTHYLENE				5.9	441	198	185	308	171				589	38.7
ANTHRACENE		57.2	845	57	**1030**	**360**	**283**	**689**	**268**	**114**			**2330**	**208**
BENZO(A)ANTHRACENE		108	1050	108	**1950**	**777**	**584**	**2110**	**669**	**173**			**3580**	**319**
BENZO(A)PYRENE		150	1450	150	**1810**	**817**	**546**	**1730**	**714**	136			**3310**	**242**
BENZO(B)FLUORANTHENE				190	1370	610	458	1350	533	122			2700	191
BENZO(G,H,I)PERYLENE				170	910	456	296	860	370	64.3			1610	90
BENZO(K)FLUORANTHENE				240	1380	649	426	1110	496	84.4			2730	190
CHRYSENE		166	1290	166	2240	942	735	2990	790	169			3850	290
DIBENZ(A,H)ANTHRACENE		33		33	**328**	**131**	**92.2**	**371**	**101**				**453**	27.2
FLUORANTHENE		423	2230	423	**3520**	**1530**	**1120**	**2590**	**1110**	339			**8840**	**636**
FLUORENE		77.4	536	77	**768**	**231**	**237**	**478**	**143**	31			**3900**	**205**
INDENO(1,2,3-C,D)PYRENE				200	872	443	292	769	363	61.6			1800	104
NAPHTHALENE		176	561	176	**538**	**532**	**213**	**291**	173	102	81.8	108	**865**	122
PHENANTHRENE		204	1170	204	**3070**	**1110**	**973**	**2310**	**629**	**286**			**7100**	**482**
PYRENE		195	1520	195	**3440**	**1500**	**1070**	**3540**	**1270**	**285**			**7640**	**573**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**24343**	**10543**	**7740.2**	**21882**	**8016.9**	**2322.5**	1081.8	1143.5	**53156**	**3831.4**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

ESV = ecological screening value

Sampling depth interval is indicated in feet

					WWTP A3	WWTP A3	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-20C (4-7)**	**LMR21-20C (7-10)**	**LMR21-21C (0-1)**	**LMR21-21C (1-4)**	**LMR21-21C (1-4) FD**	**LMR21-21C (4-7)**	**LMR21-22C (0-1)**	**LMR21-22C (1-4)**	**LMR21-22C (4-6.5)**	**LMR21-22C (4-6.5) FD**
2-METHYLNAPHTHALENE				20.2			161	103	31.8		55.1			
ACENAPHTHENE				6.7			184	93.9	25.3		93.9	34.8		
ACENAPHTHYLENE				5.9			227	82.5			74.8			
ANTHRACENE		57.2	845	57			**493**	**123**	33.4		**225**	**82.2**		
BENZO(A)ANTHRACENE		108	1050	108			**1020**	**310**	84.7		**487**	**169**		
BENZO(A)PYRENE		150	1450	150			**1230**	**353**	95.1	21.9	**549**	**170**		
BENZO(B)FLUORANTHENE				190			1100		105	23.2	358	139		
BENZO(G,H,I)PERYLENE				170			649	171	49.1		284	95.4		
BENZO(K)FLUORANTHENE				240			933		58.2			123		
CHRYSENE		166	1290	166			1300	423	110	31.7	519	175	23.3	29.4
DIBENZ(A,H)ANTHRACENE		33		33			**174**	**48.8**			**66.5**			
FLUORANTHENE		423	2230	423			**2090**	**610**	170	46.7	**925**	319	20.3	31.7
FLUORENE		77.4	536	77			**356**	**231**	54.3		62.4	30.8		
INDENO(1,2,3-C,D)PYRENE				200			692	174	46.6		266	88.3		
NAPHTHALENE		176	561	176	70.1	62.8	**473**	**236**	117	82.7	**203**	94.9	96.5	101
PHENANTHRENE		204	1170	204			**1330**	**386**	112	32.8	**520**	196		30.6
PYRENE		195	1520	195			**2050**	**704**	193	48.2	**1240**	**406**	25.7	33.8
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1203.6	1062.8	**14462**	**4183.2**	1415.5	1024.7	**6011.7**	**2503.9**	1032.8	1164.5
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
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ESV = ecological screening value
Sampling depth interval is indicated in feet

					WWTP B1	WWTP B1	WWTP B1	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-23C (0-1)**	**LMR21-23C (1-4)**	**LMR21-23C (4-6)**	**LMR21-24C (0-1)**	**LMR21-24C (1-4)**	**LMR21-24C (4-8)**	**LMR21-25C (0-1)**	**LMR21-25C (1-4)**	**LMR21-25C (4-7)**	**LMR21-26C (0-1)**
2-METHYLNAPHTHALENE				20.2	27.1	28.4		38.7	179	333	35.2	66	85.8	
ACENAPHTHENE				6.7	31.9				233	144		56	65.1	
ACENAPHTHYLENE				5.9								53.2	59.2	
ANTHRACENE		57.2	845	57	**157**	30.4			**316**	**273**	43.1	**137**	**113**	
BENZO(A)ANTHRACENE		108	1050	108	**267**	58.4		92.2	**710**	**814**	**132**	**302**	**340**	90.1
BENZO(A)PYRENE		150	1450	150	**206**	44.4		120	**708**	**836**	**164**	**325**	**385**	114
BENZO(B)FLUORANTHENE				190	136	42.5		121	683	715	145	348	401	131
BENZO(G,H,I)PERYLENE				170	70.9	27.4		95.4	404	474	108	202	255	82.3
BENZO(K)FLUORANTHENE				240	180	42.6		96.2	431	452	120	250	237	72.8
CHRYSENE		166	1290	166	237	73.6		141	1100	1350	179	412	530	127
DIBENZ(A,H)ANTHRACENE		33		33					**155**	**209**		**47**	**70**	
FLUORANTHENE		423	2230	423	**513**	123		195	**1360**	**1020**	256	**576**	**612**	184
FLUORENE		77.4	536	77	44.2				**667**	**355**	36.6	**107**	**133**	
INDENO(1,2,3-C,D)PYRENE				200	77.9			72.4	358	341	97.2	196	212	73.7
NAPHTHALENE		176	561	176	99	114	86	137	**1120**	**916**	139	**261**	**344**	92.3
PHENANTHRENE		204	1170	204	**287**	**249**		108	**1300**	**1120**	147	**439**	**468**	86.5
PYRENE		195	1520	195	**452**	108		191	**1550**	**1400**	**271**	**651**	**753**	168
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2942**	1274.2	1192	**1922.9**	**11362**	**10834**	**2173.1**	**4428.2**	**5063.1**	**2115.2**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
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SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-26C (1-4)	LMR21-26C (4-8)	LMR21-27C (0-1)	LMR21-27C (1-3)	LMR21-28C (0-1)	LMR21-28C (1-4)	LMR21-29C (0-1)	LMR21-29C (1-4)	LMR21-29C (1-4) FD	LMR21-31C (0-1)
2-METHYLNAPHTHALENE				20.2		<u>70.9</u>		<u>56.3</u>		<u>52.4</u>				
ACENAPHTHENE				6.7		<u>53.3</u>		<u>83.5</u>		<u>171</u>	<u>80.2</u>			
ACENAPHTHYLENE				5.9		<u>50.8</u>		<u>100</u>		<u>53.4</u>	<u>49.1</u>			
ANTHRACENE		57.2	845	57	34.9	**<u>101</u>**	51.1	**<u>126</u>**	**<u>65.3</u>**	**<u>311</u>**	**<u>67</u>**			23.7
BENZO(A)ANTHRACENE		108	1050	108	**<u>111</u>**	**<u>263</u>**	**<u>128</u>**	**<u>2430</u>**	**<u>151</u>**	**<u>351</u>**	**<u>162</u>**			
BENZO(A)PYRENE		150	1450	150	139	**<u>323</u>**	148	**<u>2130</u>**	**<u>170</u>**	**<u>351</u>**	**<u>155</u>**			33.6
BENZO(B)FLUORANTHENE				190	139	<u>272</u>	143	<u>1870</u>	172	<u>329</u>	146			
BENZO(G,H,I)PERYLENE				170	101	<u>206</u>	104	<u>710</u>	128	<u>206</u>	103			
BENZO(K)FLUORANTHENE				240	112	<u>246</u>	133	<u>1880</u>	161	<u>282</u>	128			32.5
CHRYSENE		166	1290	166	162	389	168	1710	208	494	194			
DIBENZ(A,H)ANTHRACENE		33		33		**<u>50.7</u>**		**<u>216</u>**		**<u>51.2</u>**				
FLUORANTHENE		423	2230	423	247	**<u>503</u>**	296	**<u>1570</u>**	341	**<u>1060</u>**	368			96.9
FLUORENE		77.4	536	77		**<u>99.3</u>**	45.5	**<u>107</u>**	68.9	**<u>357</u>**	66.5			
INDENO(1,2,3-C,D)PYRENE				200	90.1	184	105	<u>922</u>	130	<u>204</u>	95.1			
NAPHTHALENE		176	561	176	98.9	**<u>326</u>**	119	**<u>376</u>**	163	**<u>365</u>**	103	24.9		54.5
PHENANTHRENE		204	1170	204	133	**<u>374</u>**	184	**<u>325</u>**	**<u>219</u>**	**<u>1390</u>**	**<u>213</u>**			58.1
PYRENE		195	1520	195	**<u>250</u>**	**<u>574</u>**	**<u>262</u>**	**<u>2050</u>**	**<u>311</u>**	**<u>895</u>**	**<u>367</u>**			93
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2234.4**	**4086**	**2610.1**	**16661.8**	**3003.7**	**6923**	**2626.4**	1193.4	1243.5	1159.3
2-METHYLNAPHTHALENE	SIM			20.2									2.3	
ACENAPHTHENE	SIM			6.7									1.1	
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57									1.2	
BENZO(A)ANTHRACENE	SIM	108	1050	108									1.7	
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190									1.5	
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166									3.5	
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423									4.7	
FLUORENE	SIM	77.4	536	77									1.7	
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176									12.2	
PHENANTHRENE	SIM	204	1170	204									3.6	
PYRENE	SIM	195	1520	195									4.6	
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800										51.3	

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Bolded values exceed the TEC

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<u>Underlined values exceed the Region 4 ESV</u>

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

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Sampling depth interval is indicated in feet

					Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge B2	Sway Bridge B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-31C (1-4)	LMR21-32C (0-1)	LMR21-32C (1-5)	LMR21-33C (0-1)	LMR21-33C (1-5)	LMR21-34C (0-1)	LMR21-34C (1-4)	LMR21-34C (4-7)	LMR21-37C (0-1)	LMR21-37C (1-3)
2-METHYLNAPHTHALENE				20.2						37.6	126	116		29.1
ACENAPHTHENE				6.7						51.3	124	234		127
ACENAPHTHYLENE				5.9						106	277	382	56.2	87.7
ANTHRACENE		57.2	845	57		45.2				**134**	**466**	**971**	54.5	**113**
BENZO(A)ANTHRACENE		108	1050	108		104		30.1		**456**	**1340**	**1900**	**137**	**236**
BENZO(A)PYRENE		150	1450	150		140	25.2	29.7		**475**	**1340**	**1710**	149	**262**
BENZO(B)FLUORANTHENE				190		138	33.3	21.9		422	1100	1380	154	209
BENZO(G,H,I)PERYLENE				170		109	27.3			266	650	795	78.4	131
BENZO(K)FLUORANTHENE				240		168	31.8	24.9		386	1050	1390	84.4	187
CHRYSENE		166	1290	166		165	38.3	27.1		572	1600	2060	63.4	274
DIBENZ(A,H)ANTHRACENE		33		33						**56.7**	**162**	**173**		**39**
FLUORANTHENE		423	2230	423		307	83.1	76		**1000**	**2460**	**4620**	338	**505**
FLUORENE		77.4	536	77						**125**	**400**	**600**		**176**
INDENO(1,2,3-C,D)PYRENE				200		98				254	632	876	85.2	134
NAPHTHALENE		176	561	176	47.8	49.6	42.3	33.4	33.9	114	**459**	**394**	70.4	151
PHENANTHRENE		204	1170	204		129	44.1	30.9		**636**	**1520**	**3150**	184	**427**
PYRENE		195	1520	195		**238**	64.5	59.4		**846**	**2150**	**3740**	**212**	**386**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1189.3	**2474.3**	976.4	885.9	1078.4	**5937.6**	**15856**	**24491**	**2399.5**	**3473.8**
2-METHYLNAPHTHALENE	SIM			20.2			9.9		7.3	26.9			8.6	
ACENAPHTHENE	SIM			6.7			9.4		0.97	36.6			18.7	
ACENAPHTHYLENE	SIM			5.9			3.8			63.3			34.2	
ANTHRACENE	SIM	57.2	845	57			12.1		1.5	**102**			49.9	
BENZO(A)ANTHRACENE	SIM	108	1050	108			28.1			**354**			**118**	
BENZO(A)PYRENE	SIM	150	1450	150			29.5			**363**			133	
BENZO(B)FLUORANTHENE	SIM			190			26.9			289			96.5	
BENZO(G,H,I)PERYLENE	SIM			170			17.2		3.3	159			48.3	
BENZO(K)FLUORANTHENE	SIM			240			26.9			302			109	
CHRYSENE	SIM	166	1290	166			43		9.2	426			93.7	
DIBENZ(A,H)ANTHRACENE	SIM	33		33			4.9			**51.2**			18.8	
FLUORANTHENE	SIM	423	2230	423			69		4.3	**644**			267	
FLUORENE	SIM	77.4	536	77			8.4		1.2	**113**			37.7	
INDENO(1,2,3-C,D)PYRENE	SIM			200			16.3			192			65.1	
NAPHTHALENE	SIM	176	561	176			40.7		34.2	86.8			61.1	
PHENANTHRENE	SIM	204	1170	204			44.4		5	**479**			165	
PYRENE	SIM	195	1520	195			63.5		5.2	**593**			**196**	
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800				454		85.82	**4280.8**			1520.6	

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Bolded values exceed the TEC

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ESV = ecological screening value

Sampling depth interval is indicated in feet

NAME	SIM	TEC	PEC	REGION4_ESV	Sway Bridge B2 LMR21-38C (0-1)	Sway Bridge B2 LMR21-38C (1-2.5)	Sway Bridge B2 LMR21-39C (0-1)	Sway Bridge B2 LMR21-39C (1-3)	Sway Bridge A2 LMR21-40C (0-1)	Sway Bridge A2 LMR21-41C (0-1)	Sway Bridge A2 LMR21-41C (1-3)	Sway Bridge A2 LMR21-41C (1-3) FD	Sway Bridge A2 LMR21-42C (0-1)	Sway Bridge A2 LMR21-43C (0-1)
2-METHYLNAPHTHALENE				20.2	<u>386</u>	<u>61.4</u>	<u>48.9</u>	<u>37.4</u>	<u>27.7</u>	<u>56.2</u>	<u>27.4</u>	<u>25.1</u>	<u>43.2</u>	<u>31</u>
ACENAPHTHENE				6.7	<u>9170</u>	<u>918</u>	<u>81.2</u>			<u>80.1</u>			<u>43.4</u>	
ACENAPHTHYLENE				5.9	<u>2450</u>	<u>145</u>	<u>104</u>			<u>62.1</u>				
ANTHRACENE		57.2	845	57	**<u>8730</u>**	**<u>727</u>**	**<u>159</u>**			**<u>158</u>**			24.8	28.5
BENZO(A)ANTHRACENE		108	1050	108	**<u>7550</u>**	**<u>545</u>**	**<u>314</u>**			**<u>225</u>**				
BENZO(A)PYRENE		150	1450	150	**<u>7230</u>**	**<u>450</u>**	**<u>278</u>**			**<u>215</u>**				31.7
BENZO(B)FLUORANTHENE				190	<u>5520</u>	<u>291</u>	<u>221</u>			187				27.9
BENZO(G,H,I)PERYLENE				170	<u>2990</u>	<u>186</u>	110	28.6		101				23.9
BENZO(K)FLUORANTHENE				240	<u>5250</u>	<u>374</u>	213			176				
CHRYSENE		166	1290	166	7580	522	321	24.3		204				
DIBENZ(A,H)ANTHRACENE		33		33	**<u>822</u>**	**<u>40.4</u>**	**<u>34.3</u>**			21.2				
FLUORANTHENE		423	2230	423	**<u>19300</u>**	**<u>2030</u>**	**<u>800</u>**			**<u>587</u>**			45.6	88
FLUORENE		77.4	536	77	**<u>10200</u>**	**<u>1070</u>**	**<u>187</u>**			**<u>94.8</u>**			44.2	
INDENO(1,2,3-C,D)PYRENE				200	<u>3650</u>	200	115			98				
NAPHTHALENE		176	561	176	**<u>1830</u>**	**<u>190</u>**	**<u>230</u>**	78.1	44.5	85.9	46	33.7	**<u>407</u>**	38.7
PHENANTHRENE		204	1170	204	**<u>31300</u>**	**<u>3190</u>**	**<u>471</u>**	76.5	46.8	**<u>487</u>**	43	47.3	122	112
PYRENE		195	1520	195	**<u>14800</u>**	**<u>1380</u>**	**<u>564</u>**			**<u>381</u>**			40.8	57
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**138758**	**12319.8**	**4251.4**	958.9	917	**3219.3**	907.4	918.1	1320	902.7
2-METHYLNAPHTHALENE	SIM			20.2	<u>327</u>	<u>53.7</u>		<u>32.6</u>						
ACENAPHTHENE	SIM			6.7	<u>6460</u>	<u>94.5</u>		5.3						
ACENAPHTHYLENE	SIM			5.9	<u>1770</u>	<u>129</u>								
ANTHRACENE	SIM	57.2	845	57	**<u>2850</u>**	**<u>452</u>**		8.2						
BENZO(A)ANTHRACENE	SIM	108	1050	108	**<u>4770</u>**	**<u>882</u>**		5.7						
BENZO(A)PYRENE	SIM	150	1450	150	**<u>4450</u>**	**<u>730</u>**		7.5						
BENZO(B)FLUORANTHENE	SIM			190	<u>4950</u>	<u>677</u>		9.6						
BENZO(G,H,I)PERYLENE	SIM			170	<u>993</u>	<u>218</u>		12.8						
BENZO(K)FLUORANTHENE	SIM			240	<u>2420</u>	<u>575</u>		4.9						
CHRYSENE	SIM	166	1290	166	4810	938		26.3						
DIBENZ(A,H)ANTHRACENE	SIM	33		33	**<u>558</u>**	**<u>95.8</u>**								
FLUORANTHENE	SIM	423	2230	423	**<u>4930</u>**	**<u>1400</u>**		14						
FLUORENE	SIM	77.4	536	77	**<u>7030</u>**	**<u>265</u>**		17.2						
INDENO(1,2,3-C,D)PYRENE	SIM			200	<u>1540</u>	<u>291</u>		4.9						
NAPHTHALENE	SIM	176	561	176	**<u>1280</u>**	**<u>179</u>**		75.7						
PHENANTHRENE	SIM	204	1170	204	**<u>7420</u>**	**<u>1290</u>**		66.6						
PYRENE	SIM	195	1520	195	**<u>5060</u>**	**<u>1350</u>**		16.7						
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		**61618**	**9620**		311.9						

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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					Sway Bridge A2	Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-43C (1-3)	LMR21-44C (0-1)	LMR21-45C (0-1)	LMR21-46C (0-1)	LMR21-46C (1-4)	LMR21-46C (1-4) FD	LMR21-46C (4-7)	LMR21-46C (7-8.5)	LMR21-47C (0-1)	LMR21-47C (1-4)
2-METHYLNAPHTHALENE				20.2	37.8	25.6		762	7160	3820	33600	584	1800	4990
ACENAPHTHENE				6.7				1880	4890	2950	22500	361	2710	2410
ACENAPHTHYLENE				5.9				986	2100	1360	3850	119	827	2010
ANTHRACENE		57.2	845	57				**3020**	**7700**	**4460**	**33900**	**575**	**2000**	**4850**
BENZO(A)ANTHRACENE		108	1050	108			20.5	**4950**	**9420**	**5690**	**27000**	**526**	**2220**	**3890**
BENZO(A)PYRENE		150	1450	150			26.5	**5430**	**8600**	**5470**	**22600**	**417**	**2330**	**3280**
BENZO(B)FLUORANTHENE				190				4090	7000	3920	15600	353	1770	2390
BENZO(G,H,I)PERYLENE				170				2530	3850	2420	6810	155	1070	1290
BENZO(K)FLUORANTHENE				240			20.3	3690	6720	4220	10700	295	1900	2740
CHRYSENE		166	1290	166				5190	9620	5800	25200	516	2310	3670
DIBENZ(A,H)ANTHRACENE		33		33				**741**	**1120**	**706**	**2250**	**53.8**	**276**	**358**
FLUORANTHENE		423	2230	423			38.8	**10600**	**22700**	**13200**	**76400**	**1400**	**5930**	**10400**
FLUORENE		77.4	536	77				**4070**	**8730**	**5220**	**36500**	**568**	**3030**	**5470**
INDENO(1,2,3-C,D)PYRENE				200				3000	4310	2890	8510	176	1270	1540
NAPHTHALENE		176	561	176	33.2	48.1	25.8	**8260**	**17800**	**9680**	**40300**	**734**	**17500**	**52300**
PHENANTHRENE		204	1170	204	70.9	65	45.7	**9150**	**23700**	**14200**	**101000**	**1790**	**6690**	**14200**
PYRENE		195	1520	195		20.8	33.2	**7950**	**16800**	**9730**	**53700**	**954**	**4340**	**8240**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		946.9	913.5	878.3	**76299**	**162220**	**95736**	**520420**	**9576.8**	**57973**	**124028**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
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SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-47C (4-8)	LMR21-49C (0-1)	LMR21-49C (1-4)	LMR21-49C (4-7.5)	LMR21-50C (0-1)	LMR21-50C (1-4)	LMR21-50C (4-7.5)	LMR21-51C (0-1)	LMR21-51C (1-4)	LMR21-51C (4-7.5)
2-METHYLNAPHTHALENE				20.2	134	87.8	28400	399	66		141		76.2	410
ACENAPHTHENE				6.7	65.7	271	13400	224	53.2	33.4	412		99.4	584
ACENAPHTHYLENE				5.9	56	285	1770	24.5	97.8		168		54	256
ANTHRACENE		57.2	845	57	**126**	**176**	**10800**	**169**	**102**	47.3	**2500**		**105**	**823**
BENZO(A)ANTHRACENE		108	1050	108	91.4	**804**	**8150**	105	**268**	90.9	**841**		**400**	**1520**
BENZO(A)PYRENE		150	1450	150	74.7	**1050**	**7300**	85.9	**308**	110	**883**		**767**	**2120**
BENZO(B)FLUORANTHENE				190	59.5	689	5440	57.1	304	77.6	619		572	1700
BENZO(G,H,I)PERYLENE				170	37.3	547	3010	38.2	161	57.4	424		509	1250
BENZO(K)FLUORANTHENE				240	59.4	838	5510	46.2	176	54.6	749		546	1430
CHRYSENE		166	1290	166	104	689	6980	105	246	108	2190	50.9	561	1850
DIBENZ(A,H)ANTHRACENE		33		33		**139**	**902**				**127**		**83.9**	**228**
FLUORANTHENE		423	2230	423	283	**1120**	**30900**	327	**527**	193	**1610**	75.6	**623**	**3280**
FLUORENE		77.4	536	77	**132**	**358**	**19900**	**233**	**95.6**	46.2	**617**		**126**	**1010**
INDENO(1,2,3-C,D)PYRENE				200	33.1	598	3600	47.7	147	60.7	495		478	1300
NAPHTHALENE		176	561	176	**764**	**1660**	**324000**	**4060**	**502**	68.1	**880**	71.9	**557**	**3420**
PHENANTHRENE		204	1170	204	**406**	**763**	**52400**	**560**	**300**	182	**1930**	42.1	**450**	**3040**
PYRENE		195	1520	195	**211**	**778**	**22000**	**231**	**388**	172	**1250**	55.6	**529**	**2550**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2695.6**	**10852.8**	**544462**	**6774.1**	**3857.6**	**1716.7**	**15836**	**1871.6**	**6536.5**	**26771**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

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Bolded values exceed the TEC

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Underlined values exceed the Region 4 ESV

TEC = threshold effects concentration

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SRV = sediment reference value

ESV = ecological screening value

Sampling depth interval is indicated in feet

					Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-52C (0-1)	LMR21-52C (1-4)	LMR21-52C (1-4) FD	LMR21-52C (4-7)	LMR21-52C (7-10)	LMR21-53C (0-1)	LMR21-53C (1-4)	LMR21-53C (4-6)	LMR21-54C (0-1)	LMR21-54C (1-4)
2-METHYLNAPHTHALENE				20.2		166	474	522	2180			39.1		81.6
ACENAPHTHENE				6.7		547	1670	707	551		64.2	33.1		460
ACENAPHTHYLENE				5.9		84.9	553	226	453		123			124
ANTHRACENE		57.2	845	57		**363**	**4080**	**431**	**1210**		**101**	29.7		**230**
BENZO(A)ANTHRACENE		108	1050	108	63.1	**368**	**4690**	**1320**	**1060**	54.8	**273**	44.6	43.1	**596**
BENZO(A)PYRENE		150	1450	150	56.8	**453**	**6760**	**1810**	**961**	76.8	**310**	36.5	58.8	**741**
BENZO(B)FLUORANTHENE				190	57.9	381	5500	1390	731	49	254	32.3	66	630
BENZO(G,H,I)PERYLENE				170		283	3930	950	418	53.2	148	31.5	49.6	457
BENZO(K)FLUORANTHENE				240	68.9	314	4940	1380	736	58.3	233	37.9	63.1	608
CHRYSENE		166	1290	166	80.2	465	5520	1660	1150	54.5	293	67.2	69.5	727
DIBENZ(A,H)ANTHRACENE		33		33			**791**	**201**	**111**		**37.1**			**92.6**
FLUORANTHENE		423	2230	423	136	**1640**	**12600**	**2170**	**3130**	176	**579**	123	109	**1300**
FLUORENE		77.4	536	77		**614**	**2550**	**629**	**1800**		**87.9**	36.6		**371**
INDENO(1,2,3-C,D)PYRENE				200		286	4150	1100	490		163	26.7		442
NAPHTHALENE		176	561	176	81.7	**706**	**1980**	**1210**	**14500**	**443**	**184**	73.5	55.8	**289**
PHENANTHRENE		204	1170	204	73.3	**2470**	**13000**	**1680**	**4290**	116	**310**	197	47.6	**1210**
PYRENE		195	1520	195	99.1	**1080**	**8620**	**1730**	**2170**	122	**390**	95.4	82.3	**1080**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**1920.5**	**10313.9**	**81808**	**19116**	**35941**	**2303.6**	**3800.7**	1016.1	**1719.8**	**9439.2**
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
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ESV = ecological screening value
Sampling depth interval is indicated in feet

					Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-54C (1-4) FD	LMR21-54C (4-6)	LMR21-55C (0-1)	LMR21-55C (1-4)	LMR21-55C (4-7.5)	LMR21-56C (0-1)	LMR21-56C (1-4)	LMR21-56C (1-4) FD	LMR21-56C (4-7)	LMR21-56C (4-7) FD
2-METHYLNAPHTHALENE				20.2	65	277		75.3	570		81.9	119	27.8	34.8
ACENAPHTHENE				6.7	361	1680		149	297		199	390		
ACENAPHTHYLENE				5.9	87.9	311			184	41.2	126	137		
ANTHRACENE		57.2	845	57	**274**	**1410**		**76.7**	**547**	40.4	**308**	**393**		
BENZO(A)ANTHRACENE		108	1050	108	**429**	**1360**	91.8	**118**	**595**	**142**	**700**	**1040**		
BENZO(A)PYRENE		150	1450	150	**481**	**1480**	97.9	140	**543**	**158**	**954**	**1920**		
BENZO(B)FLUORANTHENE				190	366	1130	92.8	111	414	158	739	1330		
BENZO(G,H,I)PERYLENE				170	280	850	64.3	84.2	271	101	571	1420		
BENZO(K)FLUORANTHENE				240	423	994	88.4	117	334	152	702	1280		
CHRYSENE		166	1290	166	477	1320	103	138	646	171	879	1220		30.8
DIBENZ(A,H)ANTHRACENE		33		33	**47.1**	**137**			**51.9**		**117**	**233**		
FLUORANTHENE		423	2230	423	**1130**	**5110**	196	352	**1760**	298	**1530**	**2100**		24.6
FLUORENE		77.4	536	77	**333**	**1390**		**178**	**1160**		**299**	**415**		
INDENO(1,2,3-C,D)PYRENE				200	269	864	64.9	76	296	105	583	1320		
NAPHTHALENE		176	561	176	**216**	**763**	80.4	**270**	**7830**	52.5	**323**	**791**	64.2	80.3
PHENANTHRENE		204	1170	204	**1240**	**6070**	100	**622**	**2290**	122	**1430**	**1630**	75.6	73.9
PYRENE		195	1520	195	**927**	**3770**	167	**296**	**1340**	**244**	**1370**	**1860**	20.8	22.2
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**7406**	**28916**	**1962.5**	**2980.2**	**19128.9**	**2432.1**	**10911.9**	**17598**	948.9	910.1
2-METHYLNAPHTHALENE	SIM			20.2										
ACENAPHTHENE	SIM			6.7										
ACENAPHTHYLENE	SIM			5.9										
ANTHRACENE	SIM	57.2	845	57										
BENZO(A)ANTHRACENE	SIM	108	1050	108										
BENZO(A)PYRENE	SIM	150	1450	150										
BENZO(B)FLUORANTHENE	SIM			190										
BENZO(G,H,I)PERYLENE	SIM			170										
BENZO(K)FLUORANTHENE	SIM			240										
CHRYSENE	SIM	166	1290	166										
DIBENZ(A,H)ANTHRACENE	SIM	33		33										
FLUORANTHENE	SIM	423	2230	423										
FLUORENE	SIM	77.4	536	77										
INDENO(1,2,3-C,D)PYRENE	SIM			200										
NAPHTHALENE	SIM	176	561	176										
PHENANTHRENE	SIM	204	1170	204										
PYRENE	SIM	195	1520	195										
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800											

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

NAME	SIM	TEC	PEC	REGION4_ESV	**Sway Bridge B1 LMR21-57C (0-1)**	**Sway Bridge B1 LMR21-57C (1-4)**	**Sway Bridge B1 LMR21-57C (4-6)**	**Sway Bridge B1 LMR21-58C (0-1)**	**Sway Bridge B1 LMR21-58C (1-4)**	**Sway Bridge B1 LMR21-58C (4-7)**	**Sway Bridge B1 LMR21-58C (4-7) FD**	**Sway Bridge B1 LMR21-59C (0-1)**	**Sway Bridge B1 LMR21-59C (1-4)**	**Sway Bridge B1 LMR21-59C (1-4) FD**
2-METHYLNAPHTHALENE				20.2		106	40.3			52.3	60.4		85.5	45.1
ACENAPHTHENE				6.7	37.2	89.7				53.7	55		98.5	54.8
ACENAPHTHYLENE				5.9		70.8				53.2	50.1		121	65.5
ANTHRACENE		57.2	845	57	**64.9**	**193**			34.3	**117**	**113**		**230**	**101**
BENZO(A)ANTHRACENE		108	1050	108	**148**	**298**		96	96.4	**238**	**225**	85	**450**	**221**
BENZO(A)PYRENE		150	1450	150	**179**	**268**		107	114	**276**	**254**	113	**478**	**241**
BENZO(B)FLUORANTHENE				190	167	217		107	104	242	249	90.7	393	228
BENZO(G,H,I)PERYLENE				170	119	131	24.5	80.9	64.9	142	155	67.5	243	137
BENZO(K)FLUORANTHENE				240	152	229		100	90.7	220	198	60.7	371	190
CHRYSENE		166	1290	166	197	372		111	123	295	303	92.1	530	282
DIBENZ(A,H)ANTHRACENE		33		33		**36.2**							**52.3**	**48.2**
FLUORANTHENE		423	2230	423	413	**775**		191	204	**556**	**527**	187	**994**	**448**
FLUORENE		77.4	536	77	56.2	**284**			30.5	**110**	**110**		**231**	**95**
INDENO(1,2,3-C,D)PYRENE				200	107	125		83.1	67.1	144	140	59.7	256	154
NAPHTHALENE		176	561	176	95.4	**533**	65.5	84.4	73.3	176	**246**		**306**	137
PHENANTHRENE		204	1170	204	**217**	**719**	79.7	71.4	120	**373**	**353**	108	**725**	**323**
PYRENE		195	1520	195	**315**	**633**		153	181	**493**	**444**	166	**858**	**403**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2768.2**	**5079.7**	964	**2101.8**	**1811.2**	**3630.7**	**3570.5**	**1847.2**	**6422.3**	**3173.6**
2-METHYLNAPHTHALENE	SIM			20.2	19.9		24.9	12.3	17.2		58.1	11.8	74	36.7
ACENAPHTHENE	SIM			6.7	21.9			7	14.7		49.7	12	72.3	39.2
ACENAPHTHYLENE	SIM			5.9	15			8.2	13.8		39.8	11	84.5	45
ANTHRACENE	SIM	57.2	845	57	47.4		4.2	15.1	32.5		**110**	25.2	**207**	**90.7**
BENZO(A)ANTHRACENE	SIM	108	1050	108	101		2.3	50.9	80.3		**210**	69.3	**386**	**191**
BENZO(A)PYRENE	SIM	150	1450	150	121			72.4	94.7		**241**	85	**385**	**221**
BENZO(B)FLUORANTHENE	SIM			190	121			74.6	81.5		212	75.8	318	187
BENZO(G,H,I)PERYLENE	SIM			170	46.4		9	32.6	57.9		96.2	39.1	134	64.6
BENZO(K)FLUORANTHENE	SIM			240	113			72.3	82.6		205	71.9	326	192
CHRYSENE	SIM	166	1290	166	133		19.9	75.1	108		267	86.2	455	235
DIBENZ(A,H)ANTHRACENE	SIM	33		33	14.7			10.2	18.2		**35.6**	13.7	**54.3**	27.8
FLUORANTHENE	SIM	423	2230	423	264		6.8	128	162		396	142	**691**	340
FLUORENE	SIM	77.4	536	77	42.7		6.1	14.4	28.5		**106**	22.6	**188**	**88**
INDENO(1,2,3-C,D)PYRENE	SIM			200	58.5			41.1	65.8		117	46.7	164	83.4
NAPHTHALENE	SIM	176	561	176	67.8		58	61.6	65.6		**213**	26.4	**236**	119
PHENANTHRENE	SIM	204	1170	204	164		50.9	52.7	106		**321**	89.5	**591**	**277**
PYRENE	SIM	195	1520	195	**222**		10.5	107	150		**370**	131	**657**	**324**
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		1573.3		205.9	835.5	1179.3		**3047.4**	959.2	**5023.1**	**2561.4**

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-59C (4-7)	LMR21-60C (0-1)	LMR21-60C (1-4)	LMR21-60C (4-5)	LMR21-63C (0-1)	LMR21-63C (1-2.75)	LMR21-64C (0-1.75)	LMR21-64C (0-1.75) FD	LMR21-65C (0-1)	LMR21-65C (1-2)
2-METHYLNAPHTHALENE				20.2	127	103	57.6	45.8	47		47.6	20.3	25.6	35.2
ACENAPHTHENE				6.7	132	65.5	96.4				220	28	70.6	
ACENAPHTHYLENE				5.9	147	63.5	47.7							
ANTHRACENE		57.2	845	57	**344**	**134**	**131**				**175**		28.2	
BENZO(A)ANTHRACENE		108	1050	108	**705**	**355**	**391**	22.5			107			
BENZO(A)PYRENE		150	1450	150	**715**	**401**	**420**				74			
BENZO(B)FLUORANTHENE				190	536	356	351	25.5			68.6			
BENZO(G,H,I)PERYLENE				170	330	226	210	28.6			40.6			
BENZO(K)FLUORANTHENE				240	581	345	376				64.6			
CHRYSENE		166	1290	166	781	445	474	59.3			129			
DIBENZ(A,H)ANTHRACENE		33		33	**74.7**	**52.9**	**43.2**							
FLUORANTHENE		423	2230	423	**1600**	**865**	**1110**	59.2			423	39.2	65.2	25.1
FLUORENE		77.4	536	77	**358**	**104**	**130**				**251**	27.9	75.5	
INDENO(1,2,3-C,D)PYRENE				200	338	256	198				38.8			
NAPHTHALENE		176	561	176	**585**	**233**	**290**	72.1	**218**	27	75.4	41.6	41.6	66.9
PHENANTHRENE		204	1170	204	**1140**	**533**	**654**	108	74.6	40.6	**646**	75.4	155	74.8
PYRENE		195	1520	195	**1320**	**777**	**803**	54.4			**295**	31.6	49.1	20.3
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**9813.7**	**5314.9**	**5782.9**	955.4	1165.6	1069.1	**2777.6**	849	1059.8	906.3
2-METHYLNAPHTHALENE	SIM			20.2	114	93.1	49.9							
ACENAPHTHENE	SIM			6.7	107	47.1	84.1							
ACENAPHTHYLENE	SIM			5.9	103	45.8	28.1							
ANTHRACENE	SIM	57.2	845	57	**347**	**119**	**120**							
BENZO(A)ANTHRACENE	SIM	108	1050	108	**671**	**303**	**352**							
BENZO(A)PYRENE	SIM	150	1450	150	**671**	**352**	**352**							
BENZO(B)FLUORANTHENE	SIM			190	558	325	308							
BENZO(G,H,I)PERYLENE	SIM			170	156	99.1	106							
BENZO(K)FLUORANTHENE	SIM			240	579	329	309							
CHRYSENE	SIM	166	1290	166	730	377	405							
DIBENZ(A,H)ANTHRACENE	SIM	33		33	**66.5**	**39.6**	**45.4**							
FLUORANTHENE	SIM	423	2230	423	**1210**	**628**	**744**							
FLUORENE	SIM	77.4	536	77	**184**	**94.6**	**113**							
INDENO(1,2,3-C,D)PYRENE	SIM			200	204	127	141							
NAPHTHALENE	SIM	176	561	176	**492**	**196**	**248**							
PHENANTHRENE	SIM	204	1170	204	**1040**	**449**	**539**							
PYRENE	SIM	195	1520	195	**1100**	**609**	**643**							
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		**8332.5**	**4233.3**	**4587.5**							

Units are µg/kg

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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-66C (0-1)**	**LMR21-66C (1-2)**	**LMR21-67C (0-1)**	**LMR21-67C (0-1) FD**	**LMR21-67C (1-3)**	**LMR21-68C (0-1)**	**LMR21-68C (1-3.5)**
2-METHYLNAPHTHALENE				20.2	47.3	478					48
ACENAPHTHENE				6.7	81.8	401					
ACENAPHTHYLENE				5.9							
ANTHRACENE		57.2	845	57	**76.1**	**70.6**				**84.4**	
BENZO(A)ANTHRACENE		108	1050	108	**145**		42.2	58	47.6	**188**	
BENZO(A)PYRENE		150	1450	150	**180**		46.2	78	43	**172**	
BENZO(B)FLUORANTHENE				190	130			63.9	69.6	173	
BENZO(G,H,I)PERYLENE				170	95.4			52.4		108	
BENZO(K)FLUORANTHENE				240	156			78.2	45.7	147	
CHRYSENE		166	1290	166	171		56.9	93.3	68.8	215	37.5
DIBENZ(A,H)ANTHRACENE		33		33							
FLUORANTHENE		423	2230	423	334	91.9	75.7	144	119	**460**	24.8
FLUORENE		77.4	536	77	**100**	**311**				52.6	
INDENO(1,2,3-C,D)PYRENE				200	115			56	33.7	99.2	
NAPHTHALENE		176	561	176	**392**	**2060**			37.5	57.2	70.8
PHENANTHRENE		204	1170	204	**262**	**458**		73.1	75.5	**298**	81.5
PYRENE		195	1520	195	**250**	54.7	61.2	117	99.9	**364**	30.7
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2791.6**	**4456.2**	**1926.2**	**1840.4**	1406.3	**3056.4**	969.8
2-METHYLNAPHTHALENE	SIM			20.2							
ACENAPHTHENE	SIM			6.7							
ACENAPHTHYLENE	SIM			5.9							
ANTHRACENE	SIM	57.2	845	57							
BENZO(A)ANTHRACENE	SIM	108	1050	108							
BENZO(A)PYRENE	SIM	150	1450	150							
BENZO(B)FLUORANTHENE	SIM			190							
BENZO(G,H,I)PERYLENE	SIM			170							
BENZO(K)FLUORANTHENE	SIM			240							
CHRYSENE	SIM	166	1290	166							
DIBENZ(A,H)ANTHRACENE	SIM	33		33							
FLUORANTHENE	SIM	423	2230	423							
FLUORENE	SIM	77.4	536	77							
INDENO(1,2,3-C,D)PYRENE	SIM			200							
NAPHTHALENE	SIM	176	561	176							
PHENANTHRENE	SIM	204	1170	204							
PYRENE	SIM	195	1520	195							
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800								

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.4d Composite Sediment Sample Results for Semi-Volatile Organic Analyses

NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-SBA1	LMR21-SBA1 FD2	LMR21-SBA2	LMR21-SBA2 FD1	LMR21-SBA3	LMR21-SBA3 FD1	LMR21-SBB1	LMR21-SBB1 FD1
2-METHYLNAPHTHALENE				20.2	532	218		23.1	347	963	171	37.2
ACENAPHTHENE				6.7	423	165			561	924	211	53.2
ACENAPHTHYLENE				5.9	114	51.3			108	245	107	36.4
ANTHRACENE		57.2	845	57	**468**	**184**			**557**	**1070**	**322**	**60**
BENZO(A)ANTHRACENE		108	1050	108	**455**	**185**			**508**	**1210**	**603**	**121**
BENZO(A)PYRENE		150	1450	150	**405**	**165**			**462**	**1160**	**622**	117
BENZO(B)FLUORANTHENE				190	297	120			419	928	604	103
BENZO(G,H,I)PERYLENE				170	189	77.4			262	570	355	77.2
BENZO(K)FLUORANTHENE				240	335	127			339	880	619	88.9
CHRYSENE		166	1290	166	**473**	**185**		31.7	**550**	**1320**	**690**	134
DIBENZ(A,H)ANTHRACENE		33		33	**59.6**	25.4			**68.4**	**124**	**88.3**	
FLUORANTHENE		423	2230	423	**1150**	**499**		29.3	**1580**	**3570**	**1630**	262
FLUORENE		77.4	536	77	**581**	**213**			**869**	**1860**	**424**	**77.7**
INDENO(1,2,3-C,D)PYRENE				200	231	90.6			276	571	409	69
NAPHTHALENE		176	561	176	**3680**	**1540**	36.4	44.9	**2360**	**7600**	**1120**	133
PHENANTHRENE		204	1170	204	**1510**	**622**	47.5	53.6	**2440**	**4690**	**1330**	**250**
PYRENE		195	1520	195	**793**	**357**		19.8	**1290**	**2800**	**1250**	**201**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**11695.6**	**4824.7**	1061.4	829.4	**12996.4**	**30485**	**10555.3**	**1913.1**
2-METHYLNAPHTHALENE	SIM			20.2							30.3	
ACENAPHTHENE	SIM			6.7							45.6	
ACENAPHTHYLENE	SIM			5.9							24.8	
ANTHRACENE	SIM	57.2	845	57							**62.7**	
BENZO(A)ANTHRACENE	SIM	108	1050	108							98.3	
BENZO(A)PYRENE	SIM	150	1450	150							118	
BENZO(B)FLUORANTHENE	SIM			190							93.4	
BENZO(G,H,I)PERYLENE	SIM			170							80.7	
BENZO(K)FLUORANTHENE	SIM			240							94.8	
CHRYSENE	SIM	166	1290	166							121	
DIBENZ(A,H)ANTHRACENE	SIM	33		33							22.1	
FLUORANTHENE	SIM	423	2230	423							218	
FLUORENE	SIM	77.4	536	77							**78.1**	
INDENO(1,2,3-C,D)PYRENE	SIM			200							85.1	
NAPHTHALENE	SIM	176	561	176							129	
PHENANTHRENE	SIM	204	1170	204							**246**	
PYRENE	SIM	195	1520	195							193	
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800								**1740.9**	

Units are µg/kg

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Bolded values exceed the TEC
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Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-SBB2	LMR21-SBB2 FD1	LMR21-SBC	LMR21-SBC FD1	LMR21-SBD	LMR21-SBD FD1	LMR21-WA1	LMR21-WA1 FD1	LMR21-WA2
2-METHYLNAPHTHALENE				20.2	37	39.9	25.8	25.5	46.2	45.5	89.7	50.3	61.5
ACENAPHTHENE				6.7	425	630	52.9	36.1			217	73.4	179
ACENAPHTHYLENE				5.9	84	243	57.4	43.4			242	111	84.6
ANTHRACENE		57.2	845	57	**324**	**643**	**119**	**86**			**517**	**161**	**235**
BENZO(A)ANTHRACENE		108	1050	108	**308**	**650**	**275**	**232**			**903**	**361**	**419**
BENZO(A)PYRENE		150	1450	150	**292**	**701**	**235**	**204**			**917**	**414**	**443**
BENZO(B)FLUORANTHENE				190	210	582	233	192			675	307	346
BENZO(G,H,I)PERYLENE				170	160	364	112	97.6			495	228	242
BENZO(K)FLUORANTHENE				240	219	545	185	175			692	302	311
CHRYSENE		166	1290	166	**326**	**667**	**315**	**274**		23.2	**1120**	**483**	**524**
DIBENZ(A,H)ANTHRACENE		33		33	**37.1**	**82.4**	27				**132**	**60.8**	**75.9**
FLUORANTHENE		423	2230	423	**879**	**1720**	**601**	**439**	34.7	36.4	**1920**	**665**	**949**
FLUORENE		77.4	536	77	**503**	**824**	**79**	61.7			**415**	**146**	**227**
INDENO(1,2,3-C,D)PYRENE				200	127	357	109	100			475	230	225
NAPHTHALENE		176	561	176	152	**203**	81.8	77	96.2	87.1	**210**	145	**257**
PHENANTHRENE		204	1170	204	**1260**	**2600**	**404**	**271**	83.5	85.6	**1770**	**531**	**899**
PYRENE		195	1520	195	**625**	**1200**	**494**	**386**	30.6	30.4	**1890**	**703**	**816**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**5968.1**	**12051.3**	**3405.9**	**2769.3**	999.2	995.7	**12679.7**	**4971.5**	**6294**
2-METHYLNAPHTHALENE	SIM			20.2									
ACENAPHTHENE	SIM			6.7									
ACENAPHTHYLENE	SIM			5.9									
ANTHRACENE	SIM	57.2	845	57									
BENZO(A)ANTHRACENE	SIM	108	1050	108									
BENZO(A)PYRENE	SIM	150	1450	150									
BENZO(B)FLUORANTHENE	SIM			190									
BENZO(G,H,I)PERYLENE	SIM			170									
BENZO(K)FLUORANTHENE	SIM			240									
CHRYSENE	SIM	166	1290	166									
DIBENZ(A,H)ANTHRACENE	SIM	33		33									
FLUORANTHENE	SIM	423	2230	423									
FLUORENE	SIM	77.4	536	77									
INDENO(1,2,3-C,D)PYRENE	SIM			200									
NAPHTHALENE	SIM	176	561	176									
PHENANTHRENE	SIM	204	1170	204									
PYRENE	SIM	195	1520	195									
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800										

Units are µg/kg

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Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-WA2 FD1	LMR21-WA3	LMR21-WA3 FD1	LMR21-WB1	LMR21-WB1 FD1	LMR21-WB2	LMR21-WB2 FD1	LMR21-WC1
2-METHYLNAPHTHALENE				20.2	26.2	43.5	77	98.5	61.3	70.4	53.3	71.4
ACENAPHTHENE				6.7	34.9	67.8	75.6	267	57	234	218	123
ACENAPHTHYLENE				5.9	43.8	41.9	77.6	235	60.9	257	136	119
ANTHRACENE		57.2	845	57	**69.5**	**142**	**194**	**597**	**125**	**423**	**346**	**244**
BENZO(A)ANTHRACENE		108	1050	108	**140**	**209**	**433**	**1070**	**235**	**1220**	**775**	**448**
BENZO(A)PYRENE		150	1450	150	**168**	**182**	**435**	**968**	**278**	**1290**	**849**	**439**
BENZO(B)FLUORANTHENE				190	124	154	331	928	196	957	566	326
BENZO(G,H,I)PERYLENE				170	87.9	92.4	227	480	141	592	397	245
BENZO(K)FLUORANTHENE				240	110	135	318	799	213	930	596	310
CHRYSENE		166	1290	166	**192**	**240**	**530**	**1240**	**303**	**1320**	**838**	**536**
DIBENZ(A,H)ANTHRACENE		33		33			**66.4**	**136**	**44.8**	**180**	**108**	**63.8**
FLUORANTHENE		423	2230	423	311	423	**718**	**2360**	**558**	**2200**	**1620**	**888**
FLUORENE		77.4	536	77	58.2	**115**	**163**	**437**	**82.9**	**382**	**291**	**208**
INDENO(1,2,3-C,D)PYRENE				200	91.8	91.8	214	487	141	613	381	293
NAPHTHALENE		176	561	176	78.1	**185**	**253**	**342**	**190**	172	152	**214**
PHENANTHRENE		204	1170	204	**228**	**350**	**548**	**1890**	**358**	**1680**	**1340**	**958**
PYRENE		195	1520	195	**307**	**429**	**761**	**2360**	**492**	**2430**	**1590**	**836**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**2146.9**	**2971.4**	**5421.6**	**14694.5**	**3536.9**	**14950.4**	**10256.3**	**6322.2**
2-METHYLNAPHTHALENE	SIM			20.2								
ACENAPHTHENE	SIM			6.7								
ACENAPHTHYLENE	SIM			5.9								
ANTHRACENE	SIM	57.2	845	57								
BENZO(A)ANTHRACENE	SIM	108	1050	108								
BENZO(A)PYRENE	SIM	150	1450	150								
BENZO(B)FLUORANTHENE	SIM			190								
BENZO(G,H,I)PERYLENE	SIM			170								
BENZO(K)FLUORANTHENE	SIM			240								
CHRYSENE	SIM	166	1290	166								
DIBENZ(A,H)ANTHRACENE	SIM	33		33								
FLUORANTHENE	SIM	423	2230	423								
FLUORENE	SIM	77.4	536	77								
INDENO(1,2,3-C,D)PYRENE	SIM			200								
NAPHTHALENE	SIM	176	561	176								
PHENANTHRENE	SIM	204	1170	204								
PYRENE	SIM	195	1520	195								
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800									

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.4d Composite Sediment Sample Results for Semi-Volatile Organic Analyses

NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-WC1 FD1**	**LMR21-WC1-FD FD**	**LMR21-WC1-FD FD1**	**LMR21-WC2**	**LMR21-WC2 FD1**
2-METHYLNAPHTHALENE				20.2	96.1	107		39	54.9
ACENAPHTHENE				6.7	378	199	156	73	60.9
ACENAPHTHYLENE				5.9	224	198	166	42.3	33.9
ANTHRACENE		57.2	845	57	**675**	**467**	**304**	**102**	**104**
BENZO(A)ANTHRACENE		108	1050	108	**994**	**828**	**527**	**216**	**231**
BENZO(A)PYRENE		150	1450	150	**927**	**797**	**520**	**260**	**266**
BENZO(B)FLUORANTHENE				190	812	622	502	283	233
BENZO(G,H,I)PERYLENE				170	460	372	288	183	164
BENZO(K)FLUORANTHENE				240	644	603	294	179	190
CHRYSENE		166	1290	166	**1110**	**934**	**637**	**309**	**332**
DIBENZ(A,H)ANTHRACENE		33		33	**149**	**133**			**48.4**
FLUORANTHENE		423	2230	423	**2210**	**1590**	**1120**	**504**	**510**
FLUORENE		77.4	536	77	**527**	**350**	**258**	**121**	**131**
INDENO(1,2,3-C,D)PYRENE				200	416	403	270	146	148
NAPHTHALENE		176	561	176	**322**	**282**	**180**	**194**	**219**
PHENANTHRENE		204	1170	204	**2430**	**1610**	**1140**	**412**	**420**
PYRENE		195	1520	195	**2280**	**1670**	**1040**	**485**	**523**
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		**14654.1**	**11165**	**8299**	**3641.3**	**3669.1**
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.4e Maximum Concentrations of Semi-Volatile Organic Analyses in Sediment Core and Composite Samples

NAME	SIM	TEC	PEC	REGION4_ESV	Max Cores	Max Composites
2-METHYLNAPHTHALENE				20.2	33600	963
ACENAPHTHENE				6.7	22500	924
ACENAPHTHYLENE				5.9	3850	257
ANTHRACENE		57.2	845	57	33900	1070
BENZO(A)ANTHRACENE		108	1050	108	27000	1220
BENZO(A)PYRENE		150	1450	150	22600	1290
BENZO(B)FLUORANTHENE				190	15600	957
BENZO(G,H,I)PERYLENE				170	6810	592
BENZO(K)FLUORANTHENE				240	10700	930
CHRYSENE		166	1290	166	25200	1320
DIBENZ(A,H)ANTHRACENE		33		33	2250	180
FLUORANTHENE		423	2230	423	76400	3570
FLUORENE		77.4	536	77	36500	1860
INDENO(1,2,3-C,D)PYRENE				200	8510	613
NAPHTHALENE		176	561	176	324000	7600
PHENANTHRENE		204	1170	204	101000	4690
PYRENE		195	1520	195	53700	2800
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		544,462	30,485
2-METHYLNAPHTHALENE	SIM			20.2	327	30.3
ACENAPHTHENE	SIM			6.7	6460	45.6
ACENAPHTHYLENE	SIM			5.9	1770	24.8
ANTHRACENE	SIM	57.2	845	57	2850	62.7
BENZO(A)ANTHRACENE	SIM	108	1050	108	4770	98.3
BENZO(A)PYRENE	SIM	150	1450	150	4450	118
BENZO(B)FLUORANTHENE	SIM			190	4950	93.4
BENZO(G,H,I)PERYLENE	SIM			170	993	80.7
BENZO(K)FLUORANTHENE	SIM			240	2420	94.8
CHRYSENE	SIM	166	1290	166	4810	121
DIBENZ(A,H)ANTHRACENE	SIM	33		33	558	22.1
FLUORANTHENE	SIM	423	2230	423	4930	218
FLUORENE	SIM	77.4	536	77	7030	78.1
INDENO(1,2,3-C,D)PYRENE	SIM			200	1540	85.1
NAPHTHALENE	SIM	176	561	176	1280	129
PHENANTHRENE	SIM	204	1170	204	7420	246
PYRENE	SIM	195	1520	195	5060	193
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		61,618	1,741

NOTES:
Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration PEC = probable effects concentration
SRV = sediment reference value ESV = ecological screening value

					WWTP A2	WWTP A2	WWTP A1	WWTP A1	WWTP A1	WWTP A3	WWTP C2
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-10S (0-0.5)	LMR21-12S (0-0.5)	LMR21-14S (0-0.5)	LMR21-15S (0-0.5)	LMR21-17S (0-0.5)	LMR21-19S (0-0.5)	LMR21-25S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.0799	0.0691	0.106	0.3	0.845	1.1	0.0762
PCB10	2,6-DICHLOROBIPHENYL				0.0131	0.0063	0.0134	0.101	0.334	0.224	0.00987
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0321	0.0163	0.0301	0.182	0.191	0.291	0.0134
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0022	0.000534	0.00254	0.00778	0.0118	0.00443	0.0005
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.807	0.689	0.784	4.37	5.4	10.9	0.515
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL									0	
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.182	0.144	0.174	0.828	0.953	2.04	0.116
PCB11	3,3'-DICHLOROBIPHENYL				0.243	0.288	0.361	0.371	0.395	0.256	0.26
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.0022		0.00351	0.01	0.0054	0.0074	0.0011
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00658	0.00212	0.0067	0.0255			0.0012
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0465	0.0357	0.0433	0.285	0.341	0.683	0.0285
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.99	1.62	1.87	11	11.9	25.8	1.21
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0108	0.00689	0.0079	0.0497	0.0316	0.0558	0.00613
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.0019		0.0015	0.005	0.0042		
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.018	0.0209	0.0266	0.122	0.126	0.271	0.0169
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0291	0.0297	0.019	0.142	0.215	0.317	0.0228
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.00604	0.00513	0.00621	0.0267	0.023	0.021	0.004
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0022	0.0024	0.0022	0.0094	0.0073	0.0266	0.0018
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.144	0.129	0.13	0.631	0.574	1.6	0.109
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0282	0.0238	0.0233	0.126	0.146	0.418	0.018
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.716	0.608	0.637	3.18	2.88	8.25	0.471
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.036	0.0304	0.0386	0.154	0.124	0.325	0.0243
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.167	0.116	0.143	0.967	0.984	2.8	0.127
PCB14	3,5-DICHLOROBIPHENYL							0.0037	0.00609	0.0061	
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.398	0.335	0.369	1.68	1.72	4.59	0.278
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL								0.0026	0.00589	
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0868	0.0691	0.0815	0.229			0.0535
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.000761		0.000773	0.00487	0.00417	0.0121	0.00032
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.391	0.317	0.371	1.41	1.23	3.36	0.245
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00653	0.00308	0.0068	0.023	0.0187	0.0288	0.00309
PCB15	4,4'-DICHLOROBIPHENYL				0.986	0.512	0.854	5.45	9.31	8.14	0.681
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00567	0.0021	0.00479	0.0229	0.0179	0.034	0.0019
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.0018	0.00135	0.0016	0.0116	0.013	0.0247	0.00142
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0358	0.0182	0.0306	0.127	0.0845	0.171	0.0184
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.00232	0.000784	0.00172	0.0076	0.0035	0.0024	0.00079
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.176	0.154	0.175	0.878	0.862	2.44	0.125
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0156	0.0113	0.0134	0.0594	0.0507	0.122	0.00998
PCB16	2,2',3-TRICHLOROBIPHENYL				0.582	0.244	0.513	4.83	8.83	8.78	0.241
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.00712	0.00774	0.0067	0.0282	0.0264	0.0769	0.00576
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0042	0.0019	0.00414	0.0164	0.0137	0.0295	0.0028
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0768	0.0714	0.069	0.306	0.324	0.857	0.0511
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0049	0.005	0.0043	0.027	0.023	0.07	0.0052
PCB17	2,2',4-TRICHLOROBIPHENYL				1.04	0.504	1.15	6.85	13.5	13.5	0.531
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.371	0.206	0.283	1.88	1.59	3.93	0.218
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.0913	0.0745	0.0741	0.357	0.308	0.771	0.0481
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.518	0.403	0.44	2.37	1.9	4.38	0.294
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL				0.0251	0.0181	0.0191	0.101	0.087	0.201	0.013
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.0557	0.0396	0.0467	0.27	0.233	0.546	0.036
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.252	0.198	0.212	1.07	1.03	2.4	0.154
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.101	0.0783	0.101	0.475	0.388	0.942	0.062
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.197	0.124	0.159	0.906	0.784	1.91	0.129
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL				0.00514	0.00455	0.00376	0.024	0.0196	0.049	0.00331
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL				0.0036	0.0034	0.0028	0.0168	0.0104	0.0183	0.0017
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.322	0.245	0.277	1.33	1.14	2.79	0.182
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.00615	0.0017	0.00316	0.0145	0.00679	0.0059	0.0013
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL								0.203	0.369	0.0306
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL							0.00098			
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.781	0.578	0.682	3.09	2.46	5.18	0.451
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL				0.00152	0.00061	0.00088	0.00355	0.0024	0.00719	0.00077
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.0207	0.0173	0.0169	0.0688	0.0665	0.174	0.0129
PCB19	2,2',6-TRICHLOROBIPHENYL				0.212	0.141	0.316	1.29	3.66	2.99	0.127
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.073	0.0566	0.0545	0.332	0.293	0.79	0.0424
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL				0.0176	0.0265	0.029	0.0761	0.0631	0.171	0.00874

PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL										
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.235	0.147	0.202	0.963	0.755	2.36	0.139
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.0276	0.0165	0.0244	0.249	0.178	0.572	0.0231
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL				0.131	0.0811	0.11	0.523	0.44	1.1	0.0758
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL				0.0092	0.0053	0.0101	0.043	0.0335	0.0961	0.0057
PCB2	3-CHLOROBIPHENYL				0.036	0.0276	0.0353	0.131	0.171	0.205	0.0431
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.028	0.017	0.0281	0.12	0.0959	0.338	0.016
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.0248	0.012	0.0242	0.142	0.109	0.355	0.0169
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.0823	0.0422	0.0633	0.221	0.179	0.62	0.0405
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.193	0.122	0.156	0.683	0.546	1.57	0.109
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL				0.00034						
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.0111	0.00854	0.0104	0.0486	0.0444	0.112	0.0068
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.238	0.125	0.277	0.584	0.423	1.64	0.118
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0216	0.0162	0.0278	0.0631	0.0458	0.163	0.0145
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0943	0.0407	0.0978	0.155	0.104	0.456	0.0375
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.125	0.145	0.179	0.303	0.171	1.1	0.122
PCB22	2,3,4'-TRICHLOROBIPHENYL				1.36	0.628	1.22	6.46	12.7	11.7	0.583
PCB23	2,3,5-TRICHLOROBIPHENYL				0.0027	0.0016	0.0029	0.0213	0.0549	0.0471	0.0013
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0191	0.00882	0.0176	0.188	0.485	0.348	0.0085
PCB25	2,3',4-TRICHLOROBIPHENYL				0.694	0.308	0.713	4.41	5.77	7.66	0.35
PCB27	2,3',6-TRICHLOROBIPHENYL				0.132	0.0653	0.142	0.987	2.23	1.81	0.0789
PCB3	4-CHLOROBIPHENYL				0.0606	0.0454	0.0586	0.29	0.376	0.693	0.0581
PCB31	2,4',5-TRICHLOROBIPHENYL				3.5	1.69	3.48	17.9	32.7	31	1.61
PCB32	2,4',6-TRICHLOROBIPHENYL				0.654	0.314	0.7	4.8	7.97	7.94	0.309
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0303	0.0143	0.034	0.231	0.387	0.377	0.0157
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0647	0.028	0.0541	0.376	0.571	0.618	0.0301
PCB36	3,3',5-TRICHLOROBIPHENYL										
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.929	0.417	0.794	4.98	7.93	7.85	0.458
PCB38	3,4,5-TRICHLOROBIPHENYL				0.00288		0.0027	0.014	0.0252	0.0262	0.0018
PCB39	3,4',5-TRICHLOROBIPHENYL				0.015	0.0103	0.0203	0.13	0.224	0.216	0.011
PCB4	2,2'-DICHLOROBIPHENYL				0.493	0.359	0.737	2.23	7.35	4.89	0.397
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				1.04	0.493	0.922	6.07	8.29	10	0.5
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.14	0.0638	0.128	1.13	1.96	1.9	0.0615
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.159	0.0716	0.146	1.45	2.67	2.63	0.0748
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.677	0.294	0.585	5.06	6.83	8.19	0.28
PCB5	2,3-DICHLOROBIPHENYL				0.00773	0.00486	0.0082	0.044	0.227	0.084	0.00521
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				3.5	1.82	3.45	23	28.5	47.2	1.78
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.011	0.00641	0.0153	0.0719	0.131	0.0848	0.00566
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.06	0.0332	0.0623	0.43	0.464	0.977	0.0276
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				1.64	0.857	1.45	8.61	12.8	14.1	0.841
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0208	0.0126	0.0251	0.136	0.211	0.172	0.0137
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.0091	0.00612	0.0125	0.0883	0.0932	0.115	0.008
PCB6	2,3'-DICHLOROBIPHENYL				0.299	0.156	0.353	2.72	4.82	4.92	0.199
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.691	0.385	0.639	3.69	6.27	6.68	0.358
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.159	0.0873	0.158	0.973	1.51	1.43	0.0878
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1.53	0.77	1.42	9.28	13.1	15.6	0.815
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				3.07	1.72	2.86	14.3	22.5	22.1	1.71
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.135	0.0556	0.117	1.14	1.24	2.11	0.0609
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0263	0.0145	0.0272	0.134	0.21	0.166	0.0155
PCB7	2,4-DICHLOROBIPHENYL				0.0385	0.0247	0.0476	0.194	0.589	0.438	0.0286
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0372	0.0209	0.0356	0.231	0.319	0.327	0.0214
PCB73	2,3',5',6-TETRACHLOROBIPHENYL										
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.291	0.158	0.25	1.68	2.26	2.65	0.161
PCB78	3,3',4,5-TETRACHLOROBIPHENYL										
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0196	0.015	0.0191	0.0978	0.115	0.237	0.0148
PCB8	2,4'-DICHLOROBIPHENYL				0.796	0.433	0.893	2.23	12	10.6	0.361
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL										
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00842	0.0049	0.00742	0.0427	0.0726	0.0704	0.00599
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.405	0.275	0.354	2.22	2.63	4.53	0.212
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.633	0.415	0.537	3.96	4.11	9.02	0.344
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0386	0.0227	0.0355	0.274	0.42	0.539	0.0195
PCB9	2,5-DICHLOROBIPHENYL				0.0456	0.0259	0.0505	0.366	1.14	0.839	0.0269
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.503	0.37	0.475	2.44	2.54	6.11	0.263
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0241	0.0106	0.0218	0.15	0.183	0.218	0.0103
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				1.38	0.9	1.19	9.06	8.98	24.6	0.888

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.0158	0.0082	0.0139	0.15	0.231	0.292	0.00839
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.285	0.139	0.27	2.15	3.56	3.42	0.176
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)				1.48	0.634	1.45	11.8	23.5	25.6	0.649
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)				4.89	2.36	4.69	24.4	42.6	39.4	2.34
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)				1.26	0.58	1.16	7.22	15	14.4	0.497
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)				0.78	0.393	0.905	5.42	7.64	7.21	0.47
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				1.76	0.83	1.62	11.6	16.8	20	0.875
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				3.24	1.57	2.98	19.5	28	35	1.71
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.5	0.224	0.465	4.67	5.71	6.87	0.249
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				2.47	1.22	2.37	14.6	18.7	25.1	1.21
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.367	0.157	0.348	3.48	3.99	5.36	0.192
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.286	0.137	0.254	2.05	3.28	3.16	0.152
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				5.64	3.08	5.26	31.5	45.4	55.6	2.89
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.58	1.19	1.5	8.07	9.08	18	0.899
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				1.51	1.15	1.38	8.48	10.5	21.3	0.882
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.422	0.269	0.379	2.43	2.76	4.67	0.238
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)				2.38	1.84	2.22	12	12.8	30.5	1.29
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.152	0.0807	0.14	0.928	1.23	1.62	0.0715
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0782	0.0708	0.0799	0.364	0.432	1.02	0.0502
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.371	0.35	0.336	1.49	1.37	3.73	0.238
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				2.34	2.05	2.15	9.91	9.53	25.8	1.67
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0877	0.0817	0.0963	0.529	0.541	1.49	0.0786
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.681	0.486	0.635	3.12	2.91	7.89	0.455
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0393	0.0356	0.0401	0.178	0.177	0.513	0.0295
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.76	1.35	1.65	7.1	5.97	17.9	1.28
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.91	1.55	1.75	7.14	6.4	17.5	1.22
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.239	0.232	0.207	1.05	1.03	3.17	0.152
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.118	0.107	0.101	0.602	0.534	1.31	0.0663
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				1.11	0.843	0.933	4.74	3.97	9.19	0.617
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)				0.345	0.208	0.301	1.27	0.913	2.98	0.19
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				3.33	2.64	3.07	16	19.6	39.6	1.5
PCB-CO84	PCB-137; PCB-164				0.264	0.248	0.262	1.16	1.11	3.11	0.193
PCCTOT	TOTAL PCB CONGENERS	59.8	676	59.8	**79.7**	48.7	**75.3**	**432**	**610**	**862**	43.5
TDCBP	TOTAL DICHLOROBIPHENYLS				3.21	1.95	3.59	15.9	39.7	33.8	2.14
TEQ_PCB_LB	TEQ PCB Lower Bound				0.000732	0.00061	0.000738	0.00337	0.000826	0.00154	0.0000777
TEQ_PCB_MP	TEQ PCB Mid Point				0.000879	0.000761	0.000868	0.00418	0.00382	0.00574	0.000634
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000879	0.000761	0.000868	0.00418	0.00382	0.00574	0.000634
THCBP	TOTAL HEPTACHLOROBIPHENYL				4.07	3.03	3.44	17.7	15.1	35.1	2.37
THXBP	TOTAL HEXACHLOROBIPHENYL				10	8.29	9.24	41.6	38.1	106	6.87
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.177	0.142	0.2	0.721	1.39	2	0.177
TNCBP	TOTAL NONACHLOROBIPHENYL				0.354	0.182	0.403	0.802	0.573	2.26	0.17
TOCBP	TOTAL OCTACHLOROBIPHENYL				1.09	0.66	0.93	4.26	3.29	10.1	0.623
TPCBP	TOTAL PENTACHLOROBIPHENYL				15.6	11.8	14.4	83.6	94.7	202	8.61
TTCBP	TOTAL TETRACHLOROBIPHENYL				27.5	14.1	25.6	165	231	288	14.1
TTRBP	TOTAL TRICHLOROBIPHENYL				17.6	8.34	17.4	102	186	181	8.31
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	**79.739401**	48.653938	**75.341003**	**432.15318**	**610.29785**	**862.46961**	43.52273

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					WWTP C2	Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-27S (0-0.5)	LMR21-30S (0-0.5)	LMR21-35S (0-0.5)	LMR21-37S (0-0.5)	LMR21-39S (0-0.5)	LMR21-41S (0-0.5)	LMR21-43S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.325	0.244	0.06	0.0804	0.0509	0.111	0.204
PCB10	2,6-DICHLOROBIPHENYL				0.0295	0.0289	0.0114	0.00864	0.0113	0.0177	0.0579
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0204	0.0115	0.0256	0.0211	0.0195	0.0286	0.183
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0016	0.000705	0.0023	0.001	0.000392	0.0011	0.0025
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.55	0.37	0.653	0.66	0.554	0.891	3.73
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.122	0.0775	0.14	0.148	0.124	0.168	1.14
PCB11	3,3'-DICHLOROBIPHENYL				0.247	0.182	0.217	0.213	0.091	0.211	0.107
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.0016			0.0022	0.002	0.0014	0.009
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.0015	0.00263					
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0331	0.0179	0.0379	0.037	0.031	0.0414	0.23
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.36	0.886	1.58	1.57	1.31	1.88	9.67
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.00595	0.00441	0.00674	0.00712	0.00531	0.0093	0.0492
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL						0.000997	0.00125		0.00087	0.00263
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0224	0.007	0.012	0.0201	0.0136	0.0176	0.122
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0205	0.0158	0.02	0.0303	0.0216	0.0338	
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.00584	0.0036	0.0057	0.0092	0.00321	0.006	0.0283
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0016	0.0015	0.0023	0.00202	0.0015	0.0021	0.01
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.112	0.0756	0.124	0.126	0.0899	0.166	0.614
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0221	0.0133	0.0242	0.023	0.0221	0.0374	0.12
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.517	0.335	0.663	0.64	0.485	0.846	3.33
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0291	0.0176	0.0335	0.0341	0.018	0.0433	0.149
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.133	0.0855	0.179	0.155	0.145	0.26	0.9
PCB14	3,5-DICHLOROBIPHENYL										
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.288	0.19	0.368	0.351	0.235	0.464	1.63
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL										
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0577	0.0382	0.0893	0.0855	0.0584	0.108	0.372
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL					0.00045		0.000438	0.00057	0.000638	0.00387
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.265	0.187	0.324	0.347	0.194	0.368	1.59
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.0037	0.00194	0.0024	0.0037	0.00266	0.00064	0.0187
PCB15	4,4'-DICHLOROBIPHENYL				1.01	1.01	0.641	0.809	0.476	1.12	2.62
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00331	0.0018	0.0037	0.00359	0.00269	0.0018	0.0192
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.00203	0.0011	0.0013	0.0014	0.0016	0.0022	0.00913
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0188	0.0132	0.0237	0.0275	0.0188	0.0347	0.147
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000713	0.00042	0.000892	0.000715		0.000584	0.00142
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.137	0.101	0.144	0.14	0.0934	0.186	0.715
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0114	0.0073	0.012	0.0141	0.00639	0.019	0.0524
PCB16	2,2',3-TRICHLOROBIPHENYL				0.514	0.222	0.386	0.326	0.511	0.479	3.7
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.00601	0.004	0.0071	0.00753	0.00436	0.01	0.027
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0026	0.0017	0.00349	0.0026	0.0017	0.0047	
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0525	0.0401	0.0729	0.0673	0.0451	0.0865	0.307
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0037	0.0025	0.00734	0.00722	0.0029	0.0079	0.023
PCB17	2,2',4-TRICHLOROBIPHENYL				1.68	0.94	0.656	0.71	0.869	0.697	6.04
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.191	0.174	0.298	0.235	0.165	0.408	1.36
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.0528	0.0467	0.0646	0.0683	0.0411	0.0924	0.3
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.309	0.255	0.363	0.365	0.238	0.588	1.62
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL				0.011	0.0125	0.018	0.021	0.011	0.0247	0.0894
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.035	0.028	0.0475	0.0484	0.0363	0.075	0.219
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.162	0.136	0.185	0.203	0.128	0.269	0.913
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.0679	0.0537	0.0785	0.0939	0.0492	0.106	0.397
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.132	0.0935	0.157	0.156	0.116	0.233	0.731
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL				0.0024	0.00234	0.00358	0.0029	0.0019	0.00564	0.0146
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL				0.0022	0.00199	0.0027	0.00392	0.00163	0.00342	0.00836
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.184	0.153	0.265	0.284	0.164	0.388	1.05
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.0013	0.00075	0.0012	0.0014		0.00214	0.00229
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.0308	0.019	0.033	0.034	0.0204		0.138
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL										
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.456	0.383	0.589	0.628	0.345	0.869	2.37
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL				0.00081	0.000924	0.00061	0.00119		0.00171	0.00342
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.0118	0.00977	0.0187	0.0165	0.00968	0.0205	0.0732
PCB19	2,2',6-TRICHLOROBIPHENYL				0.64	0.693	0.158	0.171	0.189	0.229	1.07
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.044	0.0426	0.0596	0.0631	0.038	0.0892	0.267
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL				0.0141	0.013	0.0128	0.016	0.013	0.0213	0.0681

PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL										
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.138	0.117	0.214	0.193	0.109	0.267	0.827
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.0198	0.0199	0.022	0.0192	0.012	0.0413	0.117
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL				0.0732	0.0645	0.101	0.0973	0.0496	0.133	0.444
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL				0.00609	0.00512	0.00761	0.01	0.00532	0.0136	0.0344
PCB2	3-CHLOROBIPHENYL				0.0448	0.0216	0.0212	0.0239	0.0228	0.0412	0.0532
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.0207	0.015	0.0237	0.0224	0.0133	0.0244	0.0948
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.0155	0.0143	0.014	0.0152	0.01	0.0305	0.083
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.0401	0.0325	0.0574	0.057	0.0258	0.0747	0.201
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.108	0.0942	0.163	0.148	0.077	0.175	0.559
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL										
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.00788	0.00647	0.011	0.00951	0.00473	0.013	0.039
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.12	0.0994	0.185	0.163	0.0803	0.232	0.494
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0158	0.0129	0.0219	0.019	0.0083	0.026	0.0564
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0366	0.0302	0.0571	0.0508	0.0247	0.0693	0.144
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.111	0.0864	0.161	0.166	0.0573	0.149	0.324
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.938	0.448	0.754	0.738	0.752	0.922	4.97
PCB23	2,3,5-TRICHLOROBIPHENYL				0.0026		0.00198	0.0021	0.00226	0.00232	0.0143
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0191	0.00725	0.0147	0.0123			0.0987
PCB25	2,3',4-TRICHLOROBIPHENYL				0.823	0.427	0.313	0.415	0.292	0.614	2.05
PCB27	2,3',6-TRICHLOROBIPHENYL				0.248	0.156	0.0891	0.0917	0.015	0.013	0.68
PCB3	4-CHLOROBIPHENYL				0.107	0.111	0.0505	0.0714	0.0305	0.0894	0.176
PCB31	2,4',5-TRICHLOROBIPHENYL				3.06	1.49	1.96	2.07	2.2	2.65	14.7
PCB32	2,4',6-TRICHLOROBIPHENYL				0.956	0.77	0.411	0.417	0.506	0.607	3.48
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0329	0.0195	0.0142	0.019	0.0212	0.025	0.177
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0396	0.0188	0.0374	0.0359	0.0228	0.0405	0.201
PCB36	3,3',5-TRICHLOROBIPHENYL				0.0018						
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.634	0.283	0.585	0.548	0.551	0.719	3.74
PCB38	3,4,5-TRICHLOROBIPHENYL				0.00253	0.0018		0.00239	0.0028		0.011
PCB39	3,4',5-TRICHLOROBIPHENYL				0.0197	0.00882	0.011	0.0135	0.0161	0.016	0.116
PCB4	2,2'-DICHLOROBIPHENYL				1.71	2.3	0.354	0.428	0.4	0.65	1.64
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.715	0.385	0.626	0.656	0.751	1.2	5.6
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.105	0.0544	0.0908	0.0985	0.126	0.161	1.02
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.153	0.0722	0.111	0.0973	0.153	0.21	1.21
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.403	0.195	0.422	0.402	0.601	0.688	4.62
PCB5	2,3-DICHLOROBIPHENYL				0.025	0.00514	0.0045	0.00537	0.004	0.0066	0.021
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				2.81	1.48	2.31	2.28	2.94	4.2	20.9
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.0255	0.0126	0.0278	0.00759	0.00686	0.00986	0.0452
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0357	0.0165	0.0304	0.0346	0.0207	0.046	0.191
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.916	0.499	0.875	0.969	1.09	1.67	7.88
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0196	0.0114	0.0132	0.0159	0.0138	0.0306	0.104
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.0071	0.0045	0.0045	0.00893	0.0061	0.0106	0.0514
PCB6	2,3'-DICHLOROBIPHENYL				0.508	0.419	0.19	0.222	0.179	0.348	0.941
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.423	0.228	0.4	0.432	0.418	0.689	3.14
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.115	0.0634	0.0919	0.107	0.11	0.191	0.855
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1.07	0.585	1	1.01	1.18	1.91	7.74
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.84	1.07	1.82	2.01	2.1	3.47	14.9
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.073	0.0367	0.0711	0.0727	0.0786	0.128	0.607
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0224	0.0126	0.0144	0.0177	0.0122	0.0331	0.124
PCB7	2,4-DICHLOROBIPHENYL				0.0625	0.0563	0.031	0.032	0.0207	0.0415	0.14
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0318	0.0192	0.0218	0.0259	0.0224	0.0471	0.23
PCB73	2,3',5',6-TETRACHLOROBIPHENYL										
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.171	0.102	0.175	0.187	0.168	0.248	1.27
PCB78	3,3',4,5-TETRACHLOROBIPHENYL							0.00097	0.000927	0.0015	0.0071
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0194	0.00912	0.0149	0.0158	0.0153	0.0264	0.104
PCB8	2,4'-DICHLOROBIPHENYL				0.763	1.15	0.592	0.603	0.267	0.572	2.81
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL							0.011	0.00959	0.013	0.0721
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00554	0.00368	0.00597	0.00597	0.00488		0.0347
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.248	0.147	0.281	0.291	0.266	0.349	2.06
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.432	0.259	0.46	0.451	0.501	0.66	3.46
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0236	0.0149	0.0255	0.0265	0.0334	0.0388	0.264
PCB9	2,5-DICHLOROBIPHENYL				0.0529	0.0307	0.038	0.0328	0.0358	0.0477	0.197
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.327	0.209	0.372	0.395	0.328	0.439	2.69
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0189	0.0079	0.0157	0.0155	0.014	0.0198	0.113
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				1.08	0.675	1.19	1.08	1.32	1.68	8.06

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.0139	0.0067	0.0137	0.0118	0.016	0.0211	0.112
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.361	0.263	0.144	0.213	0.129	0.3	0.59
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)				1.47	0.721	0.969	0.859	1.48	1.29	11
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)				3.64	1.88	2.64	2.87	2.73	3.72	19.3
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)				0.814	0.332	0.801	0.684	0.744	0.829	5.37
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)				1.12	0.647	0.47	0.565	0.511	0.822	3.62
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				1.31	0.698	1.13	1.11	1.37	2.07	10.3
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				2.74	1.46	2.14	2.08	2.42	3.95	16.3
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.581	0.274	0.452	0.314	0.442	0.67	3.25
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				1.91	1.03	1.54	1.57	1.82	2.81	14
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.471	0.223	0.275	0.213	0.353	0.508	2.55
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.217	0.108	0.185	0.187	0.224	0.364	1.56
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				3.37	1.9	3.23	3.5	4.04	5.98	27.4
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.02	0.662	1.19	1.24	1.09	1.51	8.5
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				1.05	0.679	1.17	1.18	1.13	1.57	7.62
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.297	0.184	0.3	0.305	0.311	0.429	2.09
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)				1.49	0.963	1.83	1.85	1.66	2.22	12.8
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.102	0.0571	0.115	0.104	0.0996	0.137	0.773
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0563	0.0361	0.058	0.0587	0.0557	0.067	0.37
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.254	0.189	0.321	0.31	0.21	0.392	1.4
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				1.83	1.25	2.3	2.17	1.46	2.98	9.58
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0817	0.0531	0.0783	0.0831	0.0768	0.138	0.478
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.5	0.315	0.667	0.616	0.443	0.803	3.43
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0317	0.0212	0.0372	0.0373	0.0288	0.0512	0.154
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.38	0.874	1.65	1.58	1.15	2.2	7.75
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.33	0.901	1.79	1.78	1.12	2.24	8.08
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.154	0.118	0.217	0.202	0.142	0.245	1
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0645	0.0599	0.0733	0.0897	0.0562	0.117	0.415
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.642	0.576	0.804	0.82	0.512	1.17	3.67
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)				0.197	0.17	0.279	0.258	0.137	0.365	1.01
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				1.96	1.44	2.52	2.59	1.9	2.22	15
PCB-CO84	PCB-137; PCB-164				0.21	0.138	0.249	0.24	0.169	0.312	1.07
PCCTOT	TOTAL PCB CONGENERS	59.8	676	59.8	**<u>62.5</u>**	40	55.5	56.3	53.2	**<u>81.1</u>**	**<u>376</u>**
TDCBP	TOTAL DICHLOROBIPHENYLS				4.77	5.45	2.22	2.57	1.61	3.31	9.12
TEQ_PCB_LB	TEQ PCB Lower Bound				0.000668	0.000055	0.000317	0.000315	0.000403	0.000121	0.00342
TEQ_PCB_MP	TEQ PCB Mid Point				0.000779	0.00049	0.000887	0.00123	0.00049	0.000958	0.00411
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000779	0.00049	0.000887	0.00123	0.00049	0.000959	0.00411
THCBP	TOTAL HEPTACHLOROBIPHENYL				2.41	2.06	3.08	3.15	1.95	4.48	13.7
THXBP	TOTAL HEXACHLOROBIPHENYL				7.44	4.98	9.39	9.06	6.23	12	43
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.477	0.377	0.132	0.176	0.104	0.242	0.433
TNCBP	TOTAL NONACHLOROBIPHENYL				0.172	0.143	0.264	0.233	0.113	0.327	0.694
TOCBP	TOTAL OCTACHLOROBIPHENYL				0.626	0.539	0.893	0.83	0.444	1.14	3.41
TPCBP	TOTAL PENTACHLOROBIPHENYL				10.3	6.74	12	12.1	10.8	14.4	79.1
TTCBP	TOTAL TETRACHLOROBIPHENYL				19.6	10.6	17.1	17.4	20.5	31.3	146
TTRBP	TOTAL TRICHLOROBIPHENYL				16.7	9.07	10.3	10.5	11.4	13.7	80.3
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	**<u>62.487503</u>**	39.985929	55.517309	56.275863	53.229259	**<u>81.114322</u>**	**<u>376.15692</u>**

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1
for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

					Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-45S (0-0.5)	LMR21-47S (0-0.5)	LMR21-49S (0-0.5)	LMR21-52S (0-0.5)	LMR21-53S (0-0.5)	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.025	0.165	0.188	0.0263	0.0727	0.028	0.18
PCB10	2,6-DICHLOROBIPHENYL				0.00205	0.0192	0.00888	0.0016	0.00954	0.0066	0.0297
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.00385	0.028	0.0274	0.00231	0.0187	0.0158	0.0195
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.000241	0.0017	0.000807		0.000978	0.00102	0.00164
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.176	2.21	1.21	0.118	0.616	0.52	0.859
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.0366	0.414	0.236	0.0232	0.133	0.116	0.198
PCB11	3,3'-DICHLOROBIPHENYL				0.029	0.16	0.124	0.164	0.237	0.307	0.222
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.001	0.00554	0.0041	0.00079	0.00358	0.00229	0.00322
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL										
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0109	0.147	0.0799	0.00822	0.0443	0.0391	0.0514
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				0.432	7.35	3.04	0.267	1.52	1.19	2.21
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.00194	0.00831	0.0105	0.00182	0.0076	0.00609	0.0111
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.000172		0.000339		0.00054	0.00057	0.00082
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.00687	0.0866	0.0453	0.00714	0.0309	0.0183	0.0305
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.00396	0.0477	0.0317	0.00394	0.0164	0.014	0.0165
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.0018	0.0165	0.00863	0.0009	0.00588	0.00622	0.00641
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.00059	0.0117	0.00539		0.0034	0.00168	0.00323
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.0285	0.527	0.209	0.0179	0.119	0.0902	0.187
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.00486	0.116	0.0425	0.0032	0.0212	0.0165	0.0362
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.12	2.26	0.867	0.0933	0.509	0.342	0.768
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.00569	0.0612	0.0374	0.00465	0.0271	0.0208	0.0427
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.0268	0.674	0.273	0.0189	0.123	0.101	0.215
PCB14	3,5-DICHLOROBIPHENYL				0.000969	0.00346	0.00139		0.000637	0.00056	0.00067
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.0653	1.36	0.555	0.0359	0.253	0.209	0.411
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL					0.0014	0.00042				
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0148	0.281	0.124	0.00622	0.0525	0.0448	0.0941
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.00016	0.00381	0.00127		0.00042	0.000496	0.000842
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.0679	0.654	0.448	0.0442	0.274	0.213	0.419
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00073	0.00313	0.00371	0.000417	0.00326	0.00277	0.00535
PCB15	4,4'-DICHLOROBIPHENYL				0.135	0.853	0.483	0.114	0.522	0.763	0.898
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.000586	0.0077	0.00447	0.000337	0.00221	0.00225	0.00401
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.000352	0.00689	0.00239	0.00015	0.0012	0.00145	0.0026
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.003	0.0165	0.0264	0.0024	0.0208	0.00893	0.0241
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.00012	0.00065	0.000528	0.00038	0.000554	0.000864	0.000673
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.0372	0.658	0.286	0.0206	0.148	0.102	0.211
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.00321	0.0698	0.0282	0.00183	0.0121	0.00887	0.0171
PCB16	2,2',3-TRICHLOROBIPHENYL				0.0702	0.52	0.352	0.0382	0.214	0.128	0.538
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.0015	0.0222	0.0104	0.00116	0.00642	0.00487	0.00923
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.000754	0.012	0.0053	0.00033	0.0022	0.00196	0.00395
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0169	0.239	0.122	0.0115	0.0753	0.0525	0.1
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0023	0.018	0.011	0.000825	0.0041	0.0039	0.0057
PCB17	2,2',4-TRICHLOROBIPHENYL				0.139	0.965	0.645	0.0667	0.479	0.551	1.33
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.0906	2.12	0.669	0.0767	0.347	0.267	0.439
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.0185	0.295	0.12	0.0132	0.0642	0.0504	0.0832
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.094	2.4	0.733	0.0586	0.307	0.255	0.439
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL				0.00433	0.0509	0.0299	0.00243	0.0158	0.0121	0.0202
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.0105	0.275	0.0862	0.00525	0.0347	0.03	0.0568
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.0516	1.25	0.388	0.0383	0.189	0.142	0.238
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.0226	0.263	0.135	0.0121	0.0713	0.054	0.0968
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.0358	0.936	0.28	0.0171	0.108	0.0994	0.184
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL				0.000895	0.0207	0.00625	0.00052	0.00353	0.00256	0.00512
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL				0.000911	0.0093	0.00428	0.00091	0.00401	0.00263	0.00394
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.0642	0.757	0.434	0.0394	0.211	0.171	0.282
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.00027	0.00109	0.00106	0.00046	0.00079	0.00115	0.000949
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.00986	0.212	0.0557	0.0034	0.023	0.026	0.0457
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL					0.000734	0.0002				
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.165	2.24	0.957	0.0898	0.459	0.402	0.619
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL				0.00033	0.00242	0.00152	0.00019	0.0012	0.00086	0.00168
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.00458	0.0501	0.0267	0.00301	0.0163	0.0115	0.0208
PCB19	2,2',6-TRICHLOROBIPHENYL				0.0391	0.278	0.159	0.0268	0.143	0.111	0.314
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.0216	0.464	0.146	0.013	0.0666	0.0499	0.0812
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL				0.0052	0.0869	0.0302	0.00403	0.0121	0.00912	0.016

PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL						0.00025				
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.0932	2.08	0.487	0.0488	0.211	0.18	0.294
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.0238	0.552	0.14	0.014	0.0641	0.0509	0.0806
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL				0.0504	0.769	0.249	0.0221	0.107	0.0912	0.149
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL				0.00332	0.0183	0.0145	0.0015	0.00826	0.007	0.0117
PCB2	3-CHLOROBIPHENYL				0.0259	0.29	0.457	0.0136	0.0264	0.0291	0.0479
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.0109	0.303	0.0598	0.00427	0.0208	0.018	0.0358
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.0159	0.0832	0.0711	0.0052	0.0283	0.0218	0.0381
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.0443	0.352	0.163	0.0114	0.0519	0.0456	0.0657
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.0968	1.03	0.436	0.0405	0.169	0.142	0.23
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL				0.00023		0.000562		0.00018	0.00021	0.00028
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.00403	0.0341	0.0194	0.00186	0.00866	0.00734	0.012
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.271	1.3	0.727	0.0346	0.143	0.127	0.182
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0209	0.0829	0.0665	0.00487	0.0188	0.017	0.0239
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.101	0.384	0.258	0.0114	0.043	0.039	0.0536
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.292	1.2	0.925	0.0214	0.128	0.126	0.114
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.127	0.766	0.536	0.0979	0.467	0.355	0.889
PCB23	2,3,5-TRICHLOROBIPHENYL				0.000414	0.00279	0.00155		0.00138	0.0011	0.00307
PCB24	2,3,6-TRICHLOROBIPHENYL				0.00247		0.00832	0.00113	0.00861	0.0051	0.023
PCB25	2,3',4-TRICHLOROBIPHENYL				0.0606	0.305	0.252	0.0337	0.269	0.771	0.606
PCB27	2,3',6-TRICHLOROBIPHENYL				0.0164	0.137	0.0855	0.0105	0.0692	0.0918	0.213
PCB3	4-CHLOROBIPHENYL				0.0277	0.232	0.255	0.0152	0.0411	0.0387	0.089
PCB31	2,4',5-TRICHLOROBIPHENYL				0.333	1.73	1.49	0.192	1.28	1.79	2.87
PCB32	2,4',6-TRICHLOROBIPHENYL				0.0794	0.383	0.224	0.042	0.289	0.423	0.777
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.00345	0.019	0.0184	0.0012	0.0133	0.0254	0.0327
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0074	0.0977	0.0338	0.00675	0.0247	0.0194	0.033
PCB36	3,3',5-TRICHLOROBIPHENYL				0.00031	0.00468	0.00161		0.0007	0.00165	0.0013
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.12	0.934	0.58	0.0862	0.447	0.294	0.691
PCB38	3,4,5-TRICHLOROBIPHENYL				0.000726	0.0026	0.00229		0.0014	0.000931	0.00154
PCB39	3,4',5-TRICHLOROBIPHENYL				0.00242	0.0189	0.0151	0.00152	0.00869	0.00922	0.0149
PCB4	2,2'-DICHLOROBIPHENYL				0.0844	0.583	0.304	0.0936	0.433	0.31	1.19
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.103	0.705	0.625	0.0729	0.452	0.465	0.575
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0137	0.086	0.0918	0.00756	0.0593	0.0795	0.107
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.0202	0.156	0.134	0.0139	0.0835	0.1	0.145
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.0737	0.51	0.486	0.0332	0.241	0.14	0.393
PCB5	2,3-DICHLOROBIPHENYL				0.00136	0.0116	0.00581	0.00177	0.0053	0.0041	0.01
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				0.49	4.64	3.34	0.17	1.56	2.06	2.89
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.00188	0.0111	0.00712	0.00151	0.00763	0.00949	0.0152
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0059	0.0748	0.0404	0.0164	0.0563	0.0195	0.0309
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.196	1.28	1.1	0.137	0.675	0.406	0.9
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.00246	0.0189	0.0136	0.00094	0.0114	0.0234	0.012
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.00079	0.00485	0.0047	0.00067	0.00479	0.0055	0.00302
PCB6	2,3'-DICHLOROBIPHENYL				0.0327	0.242	0.135	0.023	0.159	0.214	0.368
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.0869	0.631	0.382	0.0845	0.322	0.226	0.392
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0186	0.117	0.108	0.00986	0.0733	0.0886	0.0677
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.18	1.26	1.13	0.113	0.69	0.538	0.787
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				0.35	2.39	1.97	0.266	1.38	0.814	1.46
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0118	0.108	0.0715	0.00578	0.0445	0.0341	0.0441
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.00298	0.0189	0.0182	0.00167	0.014	0.0197	0.0139
PCB7	2,4-DICHLOROBIPHENYL				0.00473	0.0331	0.0216	0.00479	0.0239	0.0173	0.0708
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.00468	0.041	0.0338	0.00212	0.0211	0.0278	0.0237
PCB73	2,3',5',6-TETRACHLOROBIPHENYL						0.0125				
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.0363	0.282	0.212	0.0253	0.146	0.133	0.217
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.00028	0.00295	0.0012		0.00077	0.00063	0.00085
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.00407	0.0577	0.0309	0.0018	0.0142	0.00936	0.0209
PCB8	2,4'-DICHLOROBIPHENYL				0.0934	0.91	0.386	0.078	0.362	0.319	0.725
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL										
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.0012	0.00964	0.00563	0.00073	0.00473	0.00464	0.0061
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.0774	0.808	0.432	0.0654	0.242	0.191	0.331
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.0978	1.2	0.628	0.0862	0.42	0.336	0.44
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.00593	0.0623	0.037	0.0045	0.0213	0.0174	0.0253
PCB9	2,5-DICHLOROBIPHENYL				0.00546	0.0698	0.029	0.00386	0.0239	0.0236	0.101
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.0876	0.992	0.588	0.0435	0.308	0.309	0.477
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.00266	0.0319	0.0185	0.0017	0.0115	0.0149	0.0124
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.266	4.28	2.26	0.156	0.984	0.703	1.04

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.00203	0.0281	0.0177	0.00225	0.0112	0.0136	0.0162
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.0329	0.223	0.103	0.0393	0.135	0.352	0.247
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)				0.168	1.42	1.03	0.0694	0.534	0.528	1.62
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)				0.551	3.2	2.43	0.361	1.93	1.95	3.92
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)				0.133	1.22	0.673	0.107	0.483	0.266	1.03
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)				0.0887	0.671	0.447	0.0393	0.385	1.07	1.04
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				0.214	1.5	1.28	0.138	0.816	0.92	0.997
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				0.391	3.01	2.59	0.222	1.52	1.75	2.23
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.0608	0.446	0.419	0.0346	0.246	0.292	0.479
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				0.294	1.93	1.82	0.134	1.08	1.54	1.73
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.0436	0.417	0.329	0.0217	0.172	0.3	0.395
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.0292	0.228	0.208	0.0193	0.143	0.126	0.197
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				0.675	6.15	4.35	0.384	2.42	1.43	2.51
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				0.298	3.16	1.9	0.184	1.02	0.856	1.53
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				0.312	3.91	2.1	0.199	1.01	0.817	1.58
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.0659	0.784	0.469	0.0508	0.277	0.255	0.268
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)				0.453	4.95	2.96	0.24	1.49	1.13	2.35
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.016	0.162	0.105	0.0102	0.0602	0.0634	0.0614
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0167	0.228	0.114	0.0108	0.0604	0.0479	0.089
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.0787	1.36	0.529	0.0561	0.295	0.215	0.4
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				0.481	9.09	3.61	0.313	1.9	1.5	2.93
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0171	0.39	0.15	0.0118	0.0685	0.0634	0.129
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.113	2.04	0.906	0.0484	0.399	0.36	0.737
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.00713	0.147	0.058	0.00427	0.0291	0.0245	0.0511
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				0.286	4.29	2.25	0.152	1.02	0.878	1.77
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				0.358	3.62	2.5	0.223	1.36	1.04	2.01
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.0512	0.764	0.404	0.0334	0.233	0.152	0.311
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0271	0.702	0.215	0.0208	0.101	0.0732	0.136
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.249	4.01	1.66	0.168	0.793	0.631	0.977
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)				0.172	2.78	0.711	0.0657	0.269	0.247	0.382
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				0.653	10.3	4.03	0.537	1.59	1.41	2.46
PCB-CO84	PCB-137; PCB-164				0.0507	1.02	0.397	0.0299	0.203	0.152	0.318
PCCTOT	TOTAL PCB CONGENERS	59.8	676	59.8	12.7	**141**	**76.8**	7.69	42.5	39.5	**67.5**
TDCBP	TOTAL DICHLOROBIPHENYLS				0.422	3.11	1.6	0.524	1.91	2.32	3.86
TEQ_PCB_LB	TEQ PCB Lower Bound				0.0000245	0.00201	0.00103	0.0000406	0.00068	0.000696	0.000772
TEQ_PCB_MP	TEQ PCB Mid Point				0.000274	0.00255	0.00136	0.000131	0.000803	0.000813	0.000943
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000274	0.00255	0.00136	0.000131	0.000803	0.000813	0.000943
THCBP	TOTAL HEPTACHLOROBIPHENYL				0.877	16.1	5.98	0.567	2.83	2.29	3.75
THXBP	TOTAL HEXACHLOROBIPHENYL				1.84	29.7	13.9	1.14	7.16	5.61	11.2
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.0786	0.687	0.9	0.0551	0.14	0.0958	0.317
TNCBP	TOTAL NONACHLOROBIPHENYL				0.393	1.77	1.05	0.0509	0.205	0.183	0.26
TOCBP	TOTAL OCTACHLOROBIPHENYL				0.515	8	2.35	0.215	0.938	0.811	1.3
TPCBP	TOTAL PENTACHLOROBIPHENYL				3.03	41.2	20.4	2.02	9.91	8.1	14.1
TTCBP	TOTAL TETRACHLOROBIPHENYL				3.31	26.1	20.8	1.92	12.3	11.6	16.6
TTRBP	TOTAL TRICHLOROBIPHENYL				1.94	12.7	8.98	1.18	7.05	8.39	15.9
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	12.70529	**140.606944**	**76.828976**	7.694299	42.527349	39.485981	**67.493294**

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

PARLABEL	NAME	TEC	PEC	REGION4_ESV	Sway Bridge B1 LMR21-59S (0-0.5)	Biological Survey LMR21-61S (0-0.5)	Biological Survey LMR21-62S (0-0.5)	Sway Bridge D LMR21-64S (0-0.5)	Sway Bridge D LMR21-66S (0-0.5)	Sway Bridge D LMR21-68S (0-0.5)	Reference LMR21-69S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.208	0.121	0.0657	0.0522	0.0845	0.334	0.0257
PCB10	2,6-DICHLOROBIPHENYL				0.0221	0.0188	0.00775	0.0068	0.00839	0.0322	0.00325
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0166	0.0376	0.0125	0.0133	0.0147	0.0224	0.0101
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.00199	0.00212	0.000684	0.000832	0.00113	0.00155	0.00105
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.638	1.39	0.48	0.517	0.689	0.626	0.315
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.156	0.24	0.0912	0.108	0.149	0.127	0.06
PCB11	3,3'-DICHLOROBIPHENYL				0.26	0.298	0.281	0.177	0.25	0.302	0.204
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.00312	0.00773	0.0029	0.00238	0.00293	0.00355	0.00184
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL					0.0109	0.00653	0.00378	0.00496	0.00619	0.00312
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0371	0.0957	0.0342	0.0327	0.0414	0.039	0.0186
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.64	3.11	1.12	1.25	1.75	1.54	0.725
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0102	0.0167	0.00612	0.00712	0.0111	0.0079	0.0044
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.00088	0.0015	0.00077	0.000618	0.000833	0.000878	0.000698
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0222	0.0655	0.0228	0.0175	0.0268	0.0244	0.0138
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0157	0.0675	0.0235	0.0217	0.0335	0.028	0.0142
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.00663	0.0385	0.0133	0.0146	0.0188	0.0172	0.011
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0022	0.0055	0.00211	0.00186	0.00264	0.00191	0.0013
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.134	0.222	0.0822	0.0886	0.127	0.111	0.07
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0258	0.041	0.0142	0.0155	0.0216	0.0203	0.0111
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.553	0.97	0.34	0.377	0.552	0.448	0.266
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0308	0.0517	0.0183	0.02	0.0265	0.0253	0.0176
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.158	0.237	0.0845	0.0883	0.132	0.123	0.067
PCB14	3,5-DICHLOROBIPHENYL				0.00045	0.001	0.000546	0.00059	0.000683	0.000782	0.00034
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.298	0.468	0.176	0.186	0.223	0.249	0.168
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.00026						
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0611	0.111	0.0378	0.0391	0.0458	0.0571	0.034
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.000616	0.00125	0.000377	0.000361	0.00047	0.000531	0.000294
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.303	0.475	0.186	0.216	0.283	0.26	0.185
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00462	0.00625	0.0021	0.00278	0.00414	0.00357	0.00235
PCB15	4,4'-DICHLOROBIPHENYL				0.714	1.26	0.527	0.507	0.653	0.923	0.191
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00256	0.00432	0.00141	0.00178	0.00272	0.00232	0.00145
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.00204	0.00267	0.000948	0.000894	0.0014	0.00151	0.000979
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0217	0.0381	0.0108	0.0162	0.0224	0.0161	0.0148
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000818	0.00191	0.000551	0.000567	0.000713	0.000589	0.000482
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.142	0.265	0.0948	0.1	0.136	0.126	0.0808
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0117	0.0222	0.00822	0.00856	0.0113	0.0103	0.00856
PCB16	2,2',3-TRICHLOROBIPHENYL				0.412	0.617	0.206	0.225	0.308	0.283	0.0718
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.0064	0.0102	0.00376	0.00398	0.00559	0.0052	0.00366
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.00301	0.00506	0.00196	0.00198	0.00259	0.00279	0.00212
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0687	0.129	0.0476	0.0529	0.0713	0.0605	0.0395
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0052	0.00873	0.00363	0.00393	0.00426	0.0041	0.0033
PCB17	2,2',4-TRICHLOROBIPHENYL				0.816	1.19	0.45	0.475	0.657	1.05	0.155
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.325	0.617	0.247	0.29	0.407	0.298	0.226
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.0635	0.114	0.0435	0.0549	0.0668	0.0562	0.0433
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.331	0.572	0.227	0.262	0.346	0.289	0.22
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL				0.0159	0.0277	0.0105	0.0133	0.0148	0.0141	0.01
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.0409	0.0646	0.0247	0.0292	0.0363	0.0353	0.0251
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.184	0.347	0.137	0.157	0.218	0.163	0.12
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.0709	0.134	0.0521	0.0621	0.0751	0.0672	0.0529
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.132	0.207	0.0826	0.091	0.119	0.115	0.0844
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL				0.00359	0.00634	0.0025	0.00244	0.00315	0.00348	0.00223
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL				0.00306	0.00579	0.0025	0.00247	0.00349	0.0036	0.00265
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.222	0.375	0.146	0.184	0.214	0.193	0.149
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.00113	0.00344	0.00101	0.00108	0.00103	0.000795	0.000816
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.0342	0.059	0.0227	0.02	0.0296	0.0223	0.0177
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL										
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.512	0.86	0.339	0.42	0.503	0.456	0.348
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL				0.00153	0.00177	0.00078	0.00111	0.00163	0.00121	0.00102
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.0147	0.0279	0.0107	0.0119	0.0168	0.013	0.0103
PCB19	2,2',6-TRICHLOROBIPHENYL				0.414	0.295	0.122	0.122	0.182	0.402	0.0449
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.062	0.12	0.0469	0.0566	0.0733	0.0598	0.044
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL				0.00953	0.0235	0.00736	0.0108	0.0129	0.00886	0.00785

PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL						0.000198				
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.244	0.384	0.154	0.191	0.275	0.209	0.157
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.0472	0.119	0.0486	0.052	0.0879	0.0558	0.0476
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL				0.129	0.188	0.0773	0.0916	0.128	0.107	0.078
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL				0.0095	0.0138	0.00521	0.00659	0.00785	0.00717	0.00571
PCB2	3-CHLOROBIPHENYL				0.0328	0.0567	0.0267	0.027	0.0359	0.0325	0.0209
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.0256	0.0364	0.0135	0.0172	0.0245	0.0198	0.0149
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.03	0.0492	0.0172	0.0249	0.0298	0.0242	0.0182
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.0597	0.0936	0.0362	0.0459	0.0656	0.0498	0.035
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.206	0.279	0.112	0.144	0.199	0.152	0.116
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL				0.000329	0.000419	0.00016	0.00019	0.000339	0.00022	0.00013
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.0083	0.0178	0.00694	0.00727	0.0104	0.00779	0.00661
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.194	0.24	0.0978	0.147	0.185	0.141	0.0869
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0244	0.0295	0.0129	0.0198	0.0225	0.0175	0.0124
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0574	0.0682	0.0315	0.0501	0.0555	0.0425	0.0289
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.104	0.142	0.0852	0.209	0.112	0.0895	0.077
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.673	1.31	0.442	0.472	0.666	0.553	0.172
PCB23	2,3,5-TRICHLOROBIPHENYL				0.00196	0.00286	0.00112	0.00115	0.00123	0.00165	0.000433
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0131	0.0226	0.0079	0.0082	0.00873	0.00952	0.00316
PCB25	2,3',4-TRICHLOROBIPHENYL				0.67	0.677	0.253	0.253	0.366	0.611	0.0775
PCB27	2,3',6-TRICHLOROBIPHENYL				0.193	0.169	0.0646	0.0658	0.0954	0.16	0.025
PCB3	4-CHLOROBIPHENYL				0.0899	0.07	0.0384	0.0344	0.0541	0.109	0.0163
PCB31	2,4',5-TRICHLOROBIPHENYL				2.32	3.49	1.19	1.27	1.65	1.98	0.456
PCB32	2,4',6-TRICHLOROBIPHENYL				0.912	0.732	0.263	0.268	0.376	0.642	0.0851
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0307	0.0332	0.0125	0.0137	0.0184	0.0279	0.00394
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0275	0.0697	0.0243	0.0235	0.0327	0.0261	0.00965
PCB36	3,3',5-TRICHLOROBIPHENYL				0.00184	0.0019	0.00109	0.00067	0.00131	0.00124	0.000902
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.428	1.27	0.405	0.423	0.577	0.464	0.17
PCB38	3,4,5-TRICHLOROBIPHENYL					0.0028	0.00115	0.00074	0.00064	0.00108	0.00026
PCB39	3,4',5-TRICHLOROBIPHENYL				0.0104	0.0222	0.00746	0.00813	0.00956	0.0104	0.00288
PCB4	2,2'-DICHLOROBIPHENYL				1.37	0.847	0.395	0.333	0.51	1.61	0.147
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.294	1.19	0.39	0.363	0.434	0.502	0.154
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0611	0.182	0.0584	0.0528	0.0528	0.0853	0.0239
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.123	0.229	0.072	0.0724	0.099	0.111	0.0263
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.219	0.711	0.219	0.214	0.217	0.253	0.0816
PCB5	2,3-DICHLOROBIPHENYL				0.00907	0.0113	0.0035	0.00362	0.00443	0.00944	0.00237
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				2.12	4.18	1.4	1.3	1.37	2.43	0.698
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.0214	0.0153	0.00535	0.00626	0.00889	0.0159	0.0045
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0142	0.131	0.0368	0.0213	0.017	0.0238	0.011
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.571	2.01	0.642	0.657	0.811	0.682	0.263
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0144	0.0272	0.0094	0.00827	0.00803	0.0216	0.00353
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.00461	0.0121	0.004	0.0029	0.0039	0.0041	0.00131
PCB6	2,3'-DICHLOROBIPHENYL				0.476	0.368	0.169	0.135	0.175	0.447	0.0547
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.266	0.855	0.28	0.265	0.334	0.293	0.129
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0495	0.194	0.0653	0.0597	0.0598	0.0912	0.0269
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.473	1.93	0.631	0.556	0.611	0.739	0.273
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				0.953	3.76	1.25	1.21	1.38	1.42	0.574
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0349	0.145	0.0445	0.0386	0.0357	0.0562	0.0167
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0141	0.0293	0.0112	0.0104	0.0109	0.0221	0.0056
PCB7	2,4-DICHLOROBIPHENYL				0.0553	0.047	0.0218	0.0175	0.0246	0.0533	0.00904
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0119	0.0441	0.0166	0.0152	0.0146	0.0304	0.00763
PCB73	2,3',5',6-TETRACHLOROBIPHENYL										
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.137	0.414	0.132	0.141	0.187	0.147	0.0652
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.0007	0.0015	0.00054	0.00048	0.00065	0.00051	0.000515
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0138	0.0297	0.0095	0.0118	0.0142	0.0151	0.00621
PCB8	2,4'-DICHLOROBIPHENYL				0.696	0.799	0.342	0.281	0.392	0.632	0.127
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL					0.018	0.0027	0.0019	0.0017	0.00351	0.00063
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00485	0.0128	0.00418	0.00458	0.00572	0.00494	0.00247
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.258	0.576	0.195	0.219	0.327	0.239	0.0987
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.371	0.981	0.317	0.327	0.44	0.445	0.157
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0185	0.0629	0.0195	0.0197	0.0247	0.0226	0.00727
PCB9	2,5-DICHLOROBIPHENYL				0.0495	0.0556	0.0243	0.0204	0.0223	0.0573	0.00997
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.398	0.615	0.224	0.245	0.299	0.374	0.147
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0126	0.0275	0.00914	0.00831	0.00976	0.016	0.00618
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.841	2.15	0.719	0.651	0.767	1.08	0.432

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.00145	0.0289	0.0084	0.00794	0.00916	0.0111	0.00424
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.267	0.331	0.156	0.14	0.173	0.357	0.0456
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)				1.4	1.54	0.525	0.543	0.693	0.955	0.195
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)				2.97	5.35	1.84	2.04	2.92	2.61	0.702
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)				0.623	1.34	0.422	0.447	0.572	0.467	0.155
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)				1.22	0.939	0.359	0.36	0.481	0.968	0.126
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				0.68	2.26	0.73	0.652	0.775	0.963	0.279
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				1.63	3.84	1.3	1.23	1.47	1.92	0.595
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.386	0.67	0.208	0.201	0.253	0.359	0.0926
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				1.31	2.71	0.904	0.871	0.987	1.49	0.417
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.337	0.467	0.152	0.143	0.185	0.3	0.0687
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.0255	0.392	0.126	0.11	0.113	0.155	0.0539
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				1.67	6.76	2.18	2.04	2.07	2.55	0.969
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.13	2.16	0.788	0.876	1.24	1.08	0.493
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB109 & PCB119 & PCB125				1.21	2.16	0.782	0.86	1.24	1.06	0.449
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.224	0.622	0.208	0.21	0.271	0.29	0.124
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)				1.76	3.04	1.1	1.21	1.56	1.65	0.703
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.0386	0.16	0.0511	0.044	0.0508	0.0682	0.0231
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0684	0.123	0.0448	0.0512	0.0689	0.0598	0.0312
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.306	0.531	0.196	0.22	0.321	0.255	0.163
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				2.14	3.4	1.31	1.44	1.97	1.74	1.17
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0987	0.147	0.0528	0.0558	0.075	0.0759	0.0401
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.52	0.805	0.3	0.312	0.393	0.451	0.28
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0364	0.0577	0.0204	0.0218	0.0295	0.0294	0.0173
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.31	2.03	0.752	0.797	1.07	1.07	0.686
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.48	2.34	0.932	1.08	1.39	1.26	0.893
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.206	0.375	0.141	0.156	0.207	0.184	0.107
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0963	0.186	0.068	0.0817	0.117	0.084	0.0638
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.78	1.44	0.554	0.687	0.838	0.716	0.529
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)				0.341	0.469	0.188	0.242	0.32	0.273	0.192
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				1.72	4.06	1.27	1.34	2.3	1.49	0.642
PCB-CO84	PCB-137; PCB-164				0.224	0.372	0.135	0.149	0.202	0.18	0.117
PCCTOT	TOTAL PCB CONGENERS	59.8	676	59.8	52	**<u>98.9</u>**	35	36.2	46.8	51.7	19.9
TDCBP	TOTAL DICHLOROBIPHENYLS				3.92	4.04	1.93	1.62	2.21	4.42	0.794
TEQ_PCB_LB	TEQ PCB Lower Bound				0.000757	0.00431	0.00151	0.00165	0.00211	0.00181	0.00114
TEQ_PCB_MP	TEQ PCB Mid Point				0.000913	0.00431	0.00151	0.00165	0.00211	0.00193	0.00124
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000913	0.00431	0.00151	0.00165	0.00211	0.00193	0.00124
THCBP	TOTAL HEPTACHLOROBIPHENYL				2.9	5.19	2.03	2.44	3.1	2.6	1.96
THXBP	TOTAL HEXACHLOROBIPHENYL				8.15	13.1	4.95	5.46	7.33	6.77	4.45
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.331	0.248	0.131	0.114	0.175	0.476	0.0424
TNCBP	TOTAL NONACHLOROBIPHENYL				0.276	0.338	0.142	0.217	0.263	0.201	0.128
TOCBP	TOTAL OCTACHLOROBIPHENYL				1.1	1.65	0.659	0.823	1.15	0.906	0.671
TPCBP	TOTAL PENTACHLOROBIPHENYL				10.6	21.9	7.55	8.06	11.4	10.3	4.5
TTCBP	TOTAL TETRACHLOROBIPHENYL				11.4	33.2	10.9	10.3	11.5	14.7	4.85
TTRBP	TOTAL TRICHLOROBIPHENYL				13.1	19.1	6.6	7.02	9.62	11.2	2.46
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	51.966843	**<u>98.884259</u>**	34.959754	36.218712	46.839448	51.711385	19.946499

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5b Maximum Concentrations of Polychlorinated Biphenyl Congeners in Sediment Grab Samples

PARLABEL	NAME	TEC	PEC	REGION4_ESV	Max Surface Grabs
PCB1	2-CHLOROBIPHENYL				1.1
PCB10	2,6-DICHLOROBIPHENYL				0.334
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.291
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0118
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				10.9
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				2.04
PCB11	3,3'-DICHLOROBIPHENYL				0.395
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.01
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.0255
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.683
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				25.8
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0558
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.005
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.271
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.317
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.0385
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0266
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				1.6
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.418
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				8.25
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.325
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				2.8
PCB14	3,5-DICHLOROBIPHENYL				0.0061
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				4.59
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.00589
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.372
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.0121
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				3.36
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.0288
PCB15	4,4'-DICHLOROBIPHENYL				9.31
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.034
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.0247
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.171
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.0076
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				2.44
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.122
PCB16	2,2',3-TRICHLOROBIPHENYL				8.83
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.0769
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0295
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.857
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.07
PCB17	2,2',4-TRICHLOROBIPHENYL				13.5
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				3.93
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.771
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				4.38
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL				0.201

Table 4.2.5b Maximum Concentrations of Polychlorinated Biphenyl Congeners in Sediment Grab Samples

PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.546
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				2.4
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.942
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				1.91
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL				0.049
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL				0.0183
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				2.79
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.0145
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.369
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL				0.00098
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				5.18
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL				0.00719
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.174
PCB19	2,2',6-TRICHLOROBIPHENYL				3.66
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.79
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL				0.171
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL				0.00025
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				2.36
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.572
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL				1.1
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL				0.0961
PCB2	3-CHLOROBIPHENYL				0.457
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.338
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.355
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.62
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				1.57
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL				0.000562
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.112
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				1.64
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.163
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.456
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				1.2
PCB22	2,3,4'-TRICHLOROBIPHENYL				12.7
PCB23	2,3,5-TRICHLOROBIPHENYL				0.0549
PCB24	2,3,6-TRICHLOROBIPHENYL				0.485
PCB25	2,3',4-TRICHLOROBIPHENYL				7.66
PCB27	2,3',6-TRICHLOROBIPHENYL				2.23
PCB3	4-CHLOROBIPHENYL				0.693
PCB31	2,4',5-TRICHLOROBIPHENYL				32.7
PCB32	2,4',6-TRICHLOROBIPHENYL				7.97
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.387
PCB35	3,3',4-TRICHLOROBIPHENYL				0.618
PCB36	3,3',5-TRICHLOROBIPHENYL				0.00468
PCB37	3,4,4'-TRICHLOROBIPHENYL				7.93
PCB38	3,4,5-TRICHLOROBIPHENYL				0.0262
PCB39	3,4',5-TRICHLOROBIPHENYL				0.224
PCB4	2,2'-DICHLOROBIPHENYL				7.35

Table 4.2.5b Maximum Concentrations of Polychlorinated Biphenyl Congeners in Sediment Grab Samples

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				10
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				1.96
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				2.67
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				8.19
PCB5	2,3-DICHLOROBIPHENYL				0.227
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				47.2
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.131
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.977
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				14.1
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.211
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.115
PCB6	2,3'-DICHLOROBIPHENYL				4.92
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				6.68
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				1.51
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				15.6
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				22.5
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				2.11
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.21
PCB7	2,4-DICHLOROBIPHENYL				0.589
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.327
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.0125
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				2.65
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.0071
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.237
PCB8	2,4'-DICHLOROBIPHENYL				12
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.0721
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.0726
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				4.53
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				9.02
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.539
PCB9	2,5-DICHLOROBIPHENYL				1.14
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				6.11
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.218
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				24.6
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.292
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				3.56
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)				25.6
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)				42.6
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)				15
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)				7.64
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				20
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				35
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				6.87
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				25.1
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				5.36
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				3.28
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB7				55.6

Table 4.2.5b Maximum Concentrations of Polychlorinated Biphenyl Congeners in Sediment Grab Samples

PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				18
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				21.3
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				4.67
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCI				30.5
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB				1.62
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				1.02
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				3.73
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB1				25.8
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				1.49
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				7.89
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.513
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				17.9
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				17.5
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				3.17
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				1.31
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				9.19
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)				2.98
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				39.6
PCB-CO84	PCB-137; PCB-164				3.11
PCCTOT	**TOTAL PCB CONGENERS (LAB REPORTED)**	59.8	676	59.8	**862**
TDCBP	TOTAL DICHLOROBIPHENYLS				39.7
TEQ_PCB_LB	TEQ PCB Lower Bound				0.00431
TEQ_PCB_MP	TEQ PCB Mid Point				0.00574
TEQ_PCB_UB	TEQ PCB Upper Bound				0.00574
THCBP	TOTAL HEPTACHLOROBIPHENYL				35.1
THXBP	TOTAL HEXACHLOROBIPHENYL				106
TMCBP	TOTAL MONOCHLOROBIPHENYL				2
TNCBP	TOTAL NONACHLOROBIPHENYL				2.26
TOCBP	TOTAL OCTACHLOROBIPHENYL				10.1
TPCBP	TOTAL PENTACHLOROBIPHENYL				202
TTCBP	TOTAL TETRACHLOROBIPHENYL				288
TTRBP	TOTAL TRICHLOROBIPHENYL				186
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	**862**

NOTES:

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

ESV = ecological screening value

				WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP B2	WWTP B2
NAME	TEC	PEC	REGION4_ESV	**LMR21-01C (1-4)**	**LMR21-02C (0-1)**	**LMR21-02C (1-4)**	**LMR21-03C (0-1)**	**LMR21-04C (0-1)**	**LMR21-05C (1-4)**
PCB-1248 (AROCHLOR 1248)				112	719		61.3	64.1	21
PCB-1254 (AROCHLOR 1254)				86.7	404	24	50.1	63.9	
PCB-1260 (AROCHLOR 1260)				22.6		17.9	21.8	25.6	
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>221</u>**	**<u>1120</u>**	41.8	**<u>133</u>**	**<u>153</u>**	44.8
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>221.3</u>**	**<u>1123</u>**	41.9	**<u>133.2</u>**	**<u>153.6</u>**	21

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP A2	WWTP A2
NAME	TEC	PEC	REGION4_ESV	**LMR21-05C (4-7)**	**LMR21-05C (7-8)**	**LMR21-06C (1-4)**	**LMR21-06C (4-6.3)**	**LMR21-10C (0-1)**	**LMR21-10C (1-4)**
PCB-1248 (AROCHLOR 1248)				37.2	38.6	91.5	239	382	929
PCB-1254 (AROCHLOR 1254)				25.4	29.1	60.1	145	317	
PCB-1260 (AROCHLOR 1260)						19.6	29	64.8	
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**70.6**	**74.2**	**171**	**413**	**764**	**929**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**62.6**	**67.7**	**171.2**	**413**	**763.8**	**929**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	REGION4_ESV	**LMR21-10C (4-7)**	**LMR21-11C (0-1)**	**LMR21-11C (1-4)**	**LMR21-12C (10-13)**	**LMR21-12C (1-4)**	**LMR21-12C (4-7)**
PCB-1248 (AROCHLOR 1248)				40.9	28.2	146	49.5	24.1	41.8
PCB-1254 (AROCHLOR 1254)				19.6	15.1	51.3	37.2		29
PCB-1260 (AROCHLOR 1260)						18.1			
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**65.4**	50.8	**216**	**96**	44.5	**70.7**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**60.5**	43.3	**215.4**	**86.7**	24.1	**70.8**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				WWTP A2	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	REGION4_ESV	**LMR21-12C (7-10)**	**LMR21-13C (0-1)**	**LMR21-13C (1-4)**	**LMR21-13C (1-4) FD**	**LMR21-14C (0-1)**
PCB-1248 (AROCHLOR 1248)				62.2	190	145	136	205
PCB-1254 (AROCHLOR 1254)				38	99.3	76.9	71.3	161
PCB-1260 (AROCHLOR 1260)					32		17	32.3
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>100</u>**	**<u>322</u>**	**<u>232</u>**	**<u>224</u>**	**<u>398</u>**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>100.2</u>**	**<u>321.3</u>**	**<u>221.9</u>**	**<u>224.3</u>**	**<u>398.3</u>**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5c Sediment Core Sample Results for Polychlorinated Biphenyls

				WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	REGION4_ESV	**LMR21-14C (1-4)**	**LMR21-15C (0-1)**	**LMR21-15C (1-4)**	**LMR21-15C (1-4) FD**	**LMR21-15C (4-7)**
PCB-1248 (AROCHLOR 1248)				20.7	522	716	1370	5520
PCB-1254 (AROCHLOR 1254)				16.2	297	526	971	3110
PCB-1260 (AROCHLOR 1260)					97.6	119	226	1150
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	42.9	**917**	**1360**	**2560**	**9710**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	36.9	**916.6**	**1361**	**2567**	**9780**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	REGION4_ESV	**LMR21-15C (4-7) FD**	**LMR21-15C (7-10)**	**LMR21-17C (0-1)**	**LMR21-17C (1-4)**	**LMR21-17C (4-7)**
PCB-1248 (AROCHLOR 1248)				2990	5740	902	70.4	
PCB-1254 (AROCHLOR 1254)				2040	2770	693	130	
PCB-1260 (AROCHLOR 1260)				639		141	82.4	19.3
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>5830</u>**	**<u>8510</u>**	**<u>1740</u>**	**<u>283</u>**	42.3
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>5669</u>**	**<u>8510</u>**	**<u>1736</u>**	**<u>282.8</u>**	19.3

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	TEC	PEC	REGION4_ESV	**LMR21-18C (0-1)**	**LMR21-18C (1-4)**	**LMR21-18C (4-7)**	**LMR21-18C (7-10)**	**LMR21-19C (0-1)**	**LMR21-20C (0-1)**
PCB-1248 (AROCHLOR 1248)				1020	115			36.3	441
PCB-1254 (AROCHLOR 1254)				518	91			25.2	363
PCB-1260 (AROCHLOR 1260)				152	57.3	26.8	19.6		76.5
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>1690</u>**	**<u>263</u>**	36	30.9	**<u>72.1</u>**	**<u>880</u>**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>1690</u>**	**<u>263.3</u>**	26.8	19.6	**<u>61.5</u>**	**<u>880.5</u>**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5c Sediment Core Sample Results for Polychlorinated Biphenyls

				WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP C2	WWTP C2
NAME	TEC	PEC	REGION4_ESV	**LMR21-21C (0-1)**	**LMR21-21C (1-4)**	**LMR21-21C (1-4) FD**	**LMR21-21C (4-7)**	**LMR21-24C (1-4)**	**LMR21-24C (4-8)**
PCB-1248 (AROCHLOR 1248)				454	2570	483	92.5	886	603
PCB-1254 (AROCHLOR 1254)				222	1050	236	46.9	542	439
PCB-1260 (AROCHLOR 1260)				40.2	100	26.4		81	69.9
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**716**	**3910**	**746**	**147**	**1510**	**1110**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**716.2**	**3720**	**745.4**	**139.4**	**1509**	**1111.9**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	TEC	PEC	REGION4_ESV	**LMR21-25C (0-1)**	**LMR21-25C (1-4)**	**LMR21-25C (4-7)**	**LMR21-26C (1-4)**	**LMR21-26C (4-8)**	**LMR21-27C (1-3)**
PCB-1248 (AROCHLOR 1248)				43.8	51.2	346	25.2	113	36.9
PCB-1254 (AROCHLOR 1254)				33.4	37.3	180	18.3	76	19.7
PCB-1260 (AROCHLOR 1260)						54.3			
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>84.8</u>**	**<u>98.4</u>**	**<u>580</u>**	43.5	**<u>204</u>**	**<u>62.8</u>**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>77.2</u>**	**<u>88.5</u>**	**<u>580.3</u>**	43.5	**<u>189</u>**	56.6

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				WWTP C2	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge B2	Sway Bridge A1
NAME	TEC	PEC	REGION4_ESV	**LMR21-28C (1-4)**	**LMR21-32C (0-1)**	**LMR21-32C (1-5)**	**LMR21-34C (0-1)**	**LMR21-37C (1-3)**	**LMR21-46C (0-1)**
PCB-1248 (AROCHLOR 1248)				625	30.4	24.3	85	26.6	61
PCB-1254 (AROCHLOR 1254)				334			55.5	18.5	79.8
PCB-1260 (AROCHLOR 1260)				54.2					20.6
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**1010**	48.6	40.1	**150**	45	**161**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**1013.2**	30.4	24.3	**140.5**	45.1	**161.4**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	REGION4_ESV	**LMR21-47C (0-1)**	**LMR21-49C (0-1)**	**LMR21-49C (1-4)**	**LMR21-50C (1-4)**	**LMR21-50C (4-7.5)**	**LMR21-51C (1-4)**
PCB-1248 (AROCHLOR 1248)				296	21.7		954	423	46.2
PCB-1254 (AROCHLOR 1254)				194		28.4	530	282	32
PCB-1260 (AROCHLOR 1260)				46.8			87.9	59.6	
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>537</u>**	38.8	28.3	**<u>1570</u>**	**<u>765</u>**	**<u>78.1</u>**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>536.8</u>**	21.7	28.4	**<u>1571.9</u>**	**<u>764.6</u>**	**<u>78.2</u>**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	REGION4_ESV	**LMR21-51C (4-7.5)**	**LMR21-52C (1-4)**	**LMR21-52C (1-4) FD**	**LMR21-52C (4-7)**	**LMR21-52C (7-10)**
PCB-1248 (AROCHLOR 1248)				249	154	217	426	196
PCB-1254 (AROCHLOR 1254)				207	96.5	133	274	149
PCB-1260 (AROCHLOR 1260)				46.9	22	26.7	51.1	43.2
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**503**	**273**	**376**	**751**	**388**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**502.9**	**272.5**	**376.7**	**751.1**	**388.2**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				Sway Bridge A3	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	TEC	PEC	REGION4_ESV	**LMR21-53C (1-4)**	**LMR21-54C (1-4)**	**LMR21-54C (1-4) FD**	**LMR21-55C (1-4)**	**LMR21-55C (4-7.5)**
PCB-1248 (AROCHLOR 1248)				105	97.7	98.8	153	104
PCB-1254 (AROCHLOR 1254)				69.3	62.7	66.4	106	66.3
PCB-1260 (AROCHLOR 1260)							26.9	
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**175**	**160**	**165**	**286**	**170**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**174.3**	**160.4**	**165.2**	**285.9**	**170.3**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	REGION4_ESV	**LMR21-56C (0-1)**	**LMR21-56C (1-4)**	**LMR21-56C (1-4) FD**	**LMR21-57C (0-1)**	**LMR21-57C (1-4)**	**LMR21-58C (1-4)**
PCB-1248 (AROCHLOR 1248)				32.1	304	170	26	20.8	70.2
PCB-1254 (AROCHLOR 1254)				25.2	186	119	29.7		53
PCB-1260 (AROCHLOR 1260)					33.9	25.4			
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**66.1**	**524**	**313**	**63.3**	44.7	**136**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	57.3	**523.9**	**314.4**	55.7	20.8	**123.2**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				Sway Bridge B1	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	TEC	PEC	REGION4_ESV	**LMR21-58C (4-7)**	**LMR21-58C (4-7) FD**	**LMR21-59C (0-1)**	**LMR21-59C (1-4)**	**LMR21-59C (1-4) FD**
PCB-1248 (AROCHLOR 1248)				73.5	261	46.6	235	230
PCB-1254 (AROCHLOR 1254)				62	206	37	182	184
PCB-1260 (AROCHLOR 1260)					45.1		48.7	51.6
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>153</u>**	**<u>511</u>**	**<u>94.9</u>**	**<u>466</u>**	**<u>466</u>**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>135.5</u>**	**<u>512.1</u>**	**<u>83.6</u>**	**<u>465.7</u>**	**<u>465.6</u>**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

				Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge D
NAME	TEC	PEC	REGION4_ESV	**LMR21-59C (4-7)**	**LMR21-60C (0-1)**	**LMR21-60C (1-4)**	**LMR21-60C (4-5)**	**LMR21-68C (0-1)**
PCB-1248 (AROCHLOR 1248)				41.5	138	75.4	13.7	39.8
PCB-1254 (AROCHLOR 1254)				34.8	116	61.9	12.4	37.8
PCB-1260 (AROCHLOR 1260)					33.8			
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**76.2**	**287**	**152**	26.1	**77.5**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**76.3**	**287.8**	**137.3**	26.1	**77.6**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ESV	**LMR21-SBA1**	**LMR21-SBA1 FD2**	**LMR21-SBA3**	**LMR21-SBA3 FD1**
PCB-1248 (AROCHLOR 1248)				160	120	213	89.6
PCB-1254 (AROCHLOR 1254)				99.7	72.4	153	62.7
PCB-1260 (AROCHLOR 1260)				15.9			
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**275**	**205**	**366**	**152**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**275.6**	**192.4**	**366**	**152.3**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ESV	**LMR21-SBB1**	**LMR21-SBB1 FD1**	**LMR21-WA1**	**LMR21-WA1 FD1**	**LMR21-WA2**
PCB-1248 (AROCHLOR 1248)				85.1	63.9	157	1570	117
PCB-1254 (AROCHLOR 1254)				65.6	46.4	89.6	779	69.2
PCB-1260 (AROCHLOR 1260)						35.5	94.9	
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**151**	**110**	**282**	**2450**	**200**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**150.7**	**110.3**	**282.1**	**2443.9**	**186.2**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ESV	**LMR21-WA2 FD1**	**LMR21-WA3**	**LMR21-WA3 FD1**	**LMR21-WB1**
PCB-1248 (AROCHLOR 1248)				251	23.2	35.6	1020
PCB-1254 (AROCHLOR 1254)				145	15	26.9	
PCB-1260 (AROCHLOR 1260)				30.5		15.2	
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**426**	38.1	**77.6**	**1020**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**426.5**	38.2	**77.7**	**1020**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ESV	**LMR21-WB1 FD1**	**LMR21-WB2**	**LMR21-WB2 FD1**	**LMR21-WC1 FD1**
PCB-1248 (AROCHLOR 1248)				602	26.2	39.6	21.3
PCB-1254 (AROCHLOR 1254)				306		23.8	19.7
PCB-1260 (AROCHLOR 1260)				41.3			
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**949**	40.9	**69.1**	53.8
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**949.3**	26.2	**63.4**	41

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
Underlined values exceed the Region 4 ESV
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ESV	**LMR21-WC1-FD FD**	**LMR21-WC1-FD FD1**	**LMR21-WC2**	**LMR21-WC2 FD1**
PCB-1248 (AROCHLOR 1248)				39.3	39.1	130	95.5
PCB-1254 (AROCHLOR 1254)				34.8	29.2	80	57.2
PCB-1260 (AROCHLOR 1260)							
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**<u>87.6</u>**	**<u>81.1</u>**	**<u>224</u>**	**<u>161</u>**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**<u>74.1</u>**	**<u>68.3</u>**	**<u>210</u>**	**<u>152.7</u>**

Units are µg/kg
Blank entry indicates the concentration was not reported above
Bolded values exceed the TEC
Bolded and shaded values exceed the PEC
<u>Underlined values exceed the Region 4 ESV</u>
TEC = threshold effects concentration
PEC = probable effects concentration
SRV = sediment reference value
ESV = ecological screening value
Sampling depth interval is indicated in feet

Table 4.2.5e Maximum Concentrations of Polychlorinated Biphenyls in Sediment Core and Composite Samples

NAME	TEC	PEC	REGION4_ESV	Max Cores	Max Composites
PCB-1248 (AROCHLOR 1248)				5740	1570
PCB-1254 (AROCHLOR 1254)				3110	779
PCB-1260 (AROCHLOR 1260)				1150	94.9
PCB, TOTAL (LAB REPORTED)	59.8	676	59.8	**9710**	**2450**
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	**9780**	**2444**

NOTES:

Units are µg/kg

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the TEC

Bolded and shaded values exceed the PEC

Underlined values exceed the Region 4 ESV

TEC = threshold effects concentration

PEC = probable effects concentration

SRV = sediment reference value

ESV = ecological screening value

Table 4.2.6 Composite Sediment Sample Results for Miscellaneous Assays

NAME	PRCNAME	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**	**LMR21-SBD**
CYANIDE	MISCELLANEOUS ASSAYS	2.8	0.2	2.5	0.5	0.54	0.75	
NITROGEN, AMMONIA	MISCELLANEOUS ASSAYS	189	9.8	272	314	129	100	71.6
NITROGEN, TOTAL KJELDAHL (TKN)	MISCELLANEOUS ASSAYS	1810	602	1720	1880	1510	908	835
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MISCELLANEOUS ASSAYS	1110	504	1060	1070	842	653	626
PHOSPHORUS, TOTAL (AS P)	MISCELLANEOUS ASSAYS	1410	653	1260	1460	848	58.6	726
SULFIDE	ANIONS	5.6	6.21	3.2	6.21	4.4	4.8	2.8

Units are mg/kg

Table 4.2.6 Composite Sediment Sample Results for Miscellaneous Assays

NAME	PRCNAME	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC1-FD FD**
CYANIDE	MISCELLANEOUS ASSAYS		0.96	0.71	11.1	0.46	0.49	
NITROGEN, AMMONIA	MISCELLANEOUS ASSAYS	632	433	204	323	262	320	299
NITROGEN, TOTAL KJELDAHL (TKN)	MISCELLANEOUS ASSAYS	2920	2250	1050	1870	1230	1830	1760
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MISCELLANEOUS ASSAYS	1750	1380	765	1280	744	1070	1050
PHOSPHORUS, TOTAL (AS P)	MISCELLANEOUS ASSAYS	340	128	69.7	248	109	115	105
SULFIDE	ANIONS	4.8	5.6	12.8	2.4	8	3.2	6.4

Units are mg/kg

Table 4.2.6 Composite Sediment Sample Results for Miscellaneous Assays

NAME	PRCNAME	**LMR21-WC2**
CYANIDE	MISCELLANEOUS ASSAYS	0.5
NITROGEN, AMMONIA	MISCELLANEOUS ASSAYS	403
NITROGEN, TOTAL KJELDAHL (TKN)	MISCELLANEOUS ASSAYS	2250
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MISCELLANEOUS ASSAYS	1190
PHOSPHORUS, TOTAL (AS P)	MISCELLANEOUS ASSAYS	159
SULFIDE	ANIONS	12.7

Units are mg/kg

NAME	PRCNAME	Regulatory Level (mg/L)	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**	**LMR21-SBD**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**
BARIUM	TCLP METALLIC SPECIES	100	1.1	1.4	0.86	0.87	0.55	0.81	1.4	0.47	0.49	0.6	0.58
CADMIUM	TCLP METALLIC SPECIES	1	0.006			0.0045				0.004		0.0055	0.004
NICKEL	TCLP METALLIC SPECIES		0.06	0.033	0.044	0.044		0.042		0.12		0.046	0.037
ZINC	TCLP METALLIC SPECIES		0.37	0.036	0.1	0.11	0.059	0.59		0.42	0.1	0.2	0.1
CHLOROFORM	TCLP VOLATILE ORGANIC ANALYSES	6								0.0094	0.0081	0.0088	

Units are mg/L

NAME	PRCNAME	Regulatory Level (mg/L)	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC1-FD FD**	**LMR21-WC2**
BARIUM	TCLP METALLIC SPECIES	100	0.64	0.72	0.64	0.64
CADMIUM	TCLP METALLIC SPECIES	1			0.0035	0.005
NICKEL	TCLP METALLIC SPECIES			0.037	0.036	0.05
ZINC	TCLP METALLIC SPECIES		0.11	0.32	0.19	0.16
CHLOROFORM	TCLP VOLATILE ORGANIC ANALYSES	6	0.0092	0.0085		

Units are mg/L

PARLABEL	NAME	LMR21-10S REP A	LMR21-10S REP B	LMR21-10S REP C	LMR21-10S REP D	LMR21-10S REP E	LMR21-12S REP A	LMR21-12S REP B	LMR21-12S REP C	LMR21-12S REP D	LMR21-12S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.057	0.0706	0.0673	0.0651	0.0609	0.0607	0.0957	0.0671	0.0704	0.0718
PCB1	2-CHLOROBIPHENYL	0.0371	0.0159	0.01	0.0144	0.0059		0.04	0.0051	0.0076	0.00897
PCB10	2,6-DICHLOROBIPHENYL	0.0043		0.001	0.00254						0.0013
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0522	0.0406	0.043	0.0452	0.0356	0.0124	0.0202	0.015	0.0125	0.0143
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00288	0.00265	0.0024	0.00257	0.00215	0.00063	0.000931	0.000767	0.000685	0.00063
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.387	0.374	0.338	0.348	0.29	0.129	0.189	0.143	0.136	0.129
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL					0					
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.128	0.132	0.125	0.131	0.101	0.0388	0.0628	0.0485	0.0438	0.0435
PCB11	3,3'-DICHLOROBIPHENYL	0.192	0.12	0.322	0.347	0.312	0.233	0.242	0.145	0.141	0.128
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00254	0.00228	0.0021	0.00243	0.0018	0.00111	0.0014	0.000683	0.000702	0.00082
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL										
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0307	0.0263	0.0279	0.0272	0.0219	0.00999	0.0145	0.0115	0.00998	0.0105
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	1.13	1.08	0.973	1.01	0.823	0.348	0.514	0.388	0.355	0.341
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.0125	0.0129	0.0117	0.0111	0.00836	0.00341	0.0051	0.00395	0.00352	0.00382
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.0022	0.00185	0.0019	0.00207	0.00155	0.000733	0.00117	0.000471	0.000555	0.000542
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0206	0.0206	0.0199	0.0206	0.015	0.00815	0.0126	0.00882	0.00832	0.00799
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.0217	0.0156	0.0186	0.0148	0.012	0.00656	0.00775	0.00786	0.00615	0.00718
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00256	0.00248	0.00154	0.00165	0.00157	0.0007	0.00103	0.000882	0.000594	0.00071
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.00188	0.0012	0.0012	0.001	0.00068		0.00064	0.000544	0.000566	0.000455
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.133	0.117	0.112	0.122	0.158	0.0511	0.0718	0.0592	0.0522	0.0525
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0174	0.0122	0.0125	0.0148	0.0217	0.0075	0.0086	0.00743	0.00632	0.00617
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.615	0.445	0.448	0.491	0.696	0.225	0.307	0.245	0.21	0.218
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0635	0.0531	0.0532	0.0505	0.0769	0.0215	0.0317	0.0259	0.0221	0.024
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.215	0.138	0.147	0.169	0.231	0.0738	0.0936	0.0894	0.0655	0.0708
PCB14	3,5-DICHLOROBIPHENYL				0.00058	0.00053					
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.142	0.109	0.106	0.112	0.134	0.0364	0.0479	0.0372	0.0435	0.0339
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL										
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0913	0.0679	0.0709	0.082	0.112	0.0278	0.0414	0.0326	0.0295	0.0309
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00114	0.000698	0.000795	0.00106	0.00091		0.000557	0.000436	0.000415	0.00037
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.519	0.424	0.414	0.434	0.635	0.168	0.251	0.19	0.169	0.182
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.012	0.00812	0.00835	0.00863	0.0121	0.00256	0.00401	0.0029	0.0024	0.00292
PCB15	4,4'-DICHLOROBIPHENYL	0.528	0.243	0.134	0.204	0.0898	0.205	0.739	0.059	0.0669	0.0702
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00738	0.0042	0.00484	0.00597	0.00872	0.00191	0.00248	0.00206	0.00159	0.00197
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.0027	0.0016	0.00177	0.00221	0.00331	0.000796	0.0011	0.00102	0.000755	0.000818
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0616	0.0466	0.0493	0.0543	0.0703	0.0168	0.0261	0.0207	0.0162	0.0195
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.0048	0.0042	0.00454	0.00535	0.00396	0.00228	0.00214	0.00164	0.00148	0.00143
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.149	0.121	0.117	0.127	0.179	0.0496	0.0664	0.0541	0.051	0.0487
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.0105	0.0106	0.00932	0.0116	0.0144	0.0045	0.0069	0.00592	0.00543	0.00491
PCB16	2,2',3-TRICHLOROBIPHENYL	0.154	0.113	0.108	0.118	0.1	0.0508	0.0978	0.0531	0.0492	0.0494
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00808	0.00751	0.00755	0.00738	0.0106	0.00375	0.005	0.00395	0.00403	0.00365
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00292	0.0025	0.00248	0.00311	0.00382	0.00066	0.001	0.00066	0.000758	0.000686
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0686	0.0629	0.0642	0.064	0.0683	0.0248	0.0358	0.0284	0.0264	0.0265
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL		0.00412	0.00353	0.00479	0.0041			0.00273	0.00324	0.00198
PCB17	2,2',4-TRICHLOROBIPHENYL	0.289	0.219	0.205	0.235	0.2	0.0855	0.175	0.0981	0.0927	0.0906
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.243	0.305	0.274	0.29	0.247	0.127	0.186	0.153	0.158	0.134
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.068	0.0732	0.0711	0.0716	0.0613	0.0312	0.0465	0.0374	0.0374	0.0347
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.267	0.248	0.226	0.262	0.234	0.108	0.155	0.123	0.128	0.11
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0179	0.016	0.0155	0.0158	0.0128	0.00704	0.00997	0.00814	0.00798	0.00756
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0624	0.0476	0.0483	0.0582	0.0513	0.0247	0.0345	0.0288	0.0267	0.0268
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.244	0.243	0.227	0.25	0.213	0.121	0.166	0.141	0.13	0.124
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.166	0.141	0.139	0.15	0.132	0.0643	0.0976	0.0767	0.0701	0.0746
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.22	0.161	0.164	0.204	0.179	0.09	0.125	0.104	0.0936	0.0937
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.00425	0.00406	0.00323	0.00387	0.00282	0.0022	0.00247	0.00242	0.00201	0.0019
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL										
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.307	0.275	0.259	0.264	0.24	0.108	0.171	0.127	0.128	0.117
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0102	0.0068	0.00884	0.0101	0.0084	0.00393	0.00439	0.00311	0.00297	0.00304
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL		0.0391	0.0556	0.0632	0.038	0.0235	0.0226	0.0267	0.0174	0.0257
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL			0.000125	0.00017						0.000101
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	2.46	2.27	2.08	2.24	1.98	0.884	1.28	0.948	0.886	0.921
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00279	0.00258	0.00218	0.00221	0.00182	0.00128	0.00177	0.00158	0.00125	0.00118
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0121	0.0129	0.0108	0.0112	0.00987	0.00627	0.00808	0.00594	0.00551	0.00552
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0674	0.0535	0.0484	0.0527	0.0435	0.0323	0.0508	0.0304	0.0305	0.03
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0693	0.0931	0.085	0.0885	0.0481	0.0399	0.0598	0.0479	0.0494	0.0453
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00934	0.0117	0.00964	0.00911	0.00708	0.00378	0.00531	0.00408	0.00464	0.00368
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL			0.000139	0.00011						0.000084
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.127	0.131	0.118	0.121	0.109	0.0577	0.0859	0.0647	0.0715	0.0619
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0595	0.0593	0.0579	0.0637	0.0608	0.033	0.0453	0.0378	0.036	0.0369
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0515	0.0539	0.0515	0.0537	0.0488	0.0258	0.0358	0.0277	0.0294	0.0277
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.0133	0.00902	0.0095	0.00974	0.00888	0.00552	0.0062	0.00596	0.00609	0.00618
PCB2	3-CHLOROBIPHENYL	0.0133	0.00585	0.0058	0.00682	0.00429	0.0118	0.0176	0.0042	0.00483	0.00472
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0296	0.0264	0.0235	0.029	0.0291	0.0144	0.0191	0.0159	0.0144	0.0159
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0467	0.0401	0.0403	0.0446	0.0354	0.0231	0.0323	0.0264	0.0232	0.0266
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0798	0.0744	0.0744	0.075	0.0501	0.0424	0.0652	0.0528	0.0485	0.0489
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.2	0.235	0.217	0.233	0.236	0.12	0.178	0.133	0.134	0.136
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL		0.00053	0.000498	0.000537	0.00047	0.00036		0.00028	0.00028	0.000382
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.0103	0.0106	0.0101	0.0104	0.00849	0.00571	0.0081	0.00598	0.00586	0.00604
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.109	0.114	0.1	0.104	0.0882	0.0753	0.108	0.0815	0.0783	0.0771
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0173	0.0169	0.0171	0.0179	0.0144	0.0139	0.0188	0.0144	0.0131	0.0133
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0489	0.054	0.0481	0.0504	0.04	0.0385	0.0562	0.0449	0.0408	0.042
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.057	0.0706	0.0673	0.0651	0.0609	0.0607	0.0957	0.0671	0.0704	0.0718
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.313	0.235	0.219	0.237	0.18	0.121	0.229	0.0864	0.0849	0.0813
PCB23	2,3,5-TRICHLOROBIPHENYL	0.0016		0.000909	0.00079	0.000897		0.00147	0.00037		0.00035
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00548	0.00361	0.00318	0.00473	0.00386	0.00238	0.0044	0.00164	0.00156	0.0014
PCB25	2,3',4-TRICHLOROBIPHENYL	0.148	0.12	0.106	0.114	0.0934	0.0398	0.0795	0.0366	0.0318	0.0319
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0389	0.025	0.0261	0.0307	0.0247	0.013	0.0232	0.0132	0.0117	0.0117
PCB3	4-CHLOROBIPHENYL	0.0514	0.0209	0.0132	0.0199	0.00792	0.022	0.0666	0.0101	0.0167	0.016
PCB31	2,4',5-TRICHLOROBIPHENYL	0.853	0.638	0.56	0.618	0.491	0.301	0.581	0.223	0.211	0.195
PCB32	2,4',6-TRICHLOROBIPHENYL	0.203	0.156	0.14	0.157	0.13	0.0627	0.12	0.0657	0.061	0.0603
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.00923	0.0063	0.00701	0.0077	0.0059	0.00248	0.00423	0.00251	0.00228	0.00219
PCB35	3,3',4-TRICHLOROBIPHENYL	0.00929		0.0116	0.0146	0.0114	0.00654	0.00768	0.00361	0.00388	0.00362
PCB36	3,3',5-TRICHLOROBIPHENYL										
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0942	0.073	0.0731	0.087	0.071	0.0395	0.0727	0.0285	0.0315	0.0262
PCB38	3,4,5-TRICHLOROBIPHENYL			0.0011	0.00105	0.0011	0		0.000643		0.000487
PCB39	3,4',5-TRICHLOROBIPHENYL	0.00896	0.00841	0.00743	0.00784	0.00683	0.0032	0.00438	0.00316	0.00273	0.00256
PCB4	2,2'-DICHLOROBIPHENYL	0.18	0.104	0.0785	0.0956	0.0648	0.079	0.183	0.0496	0.056	0.0621
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.505	0.416	0.396	0.433	0.357	0.139	0.203	0.16	0.146	0.141
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.079	0.0659	0.0649	0.0794	0.0663	0.0245	0.0367	0.0299	0.0253	0.0278
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0714	0.0564	0.0597	0.0631	0.0507	0.0208	0.0314	0.0283	0.0231	0.0252
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.341	0.265	0.256	0.302	0.26	0.0965	0.138	0.112	0.101	0.0979
PCB5	2,3-DICHLOROBIPHENYL	0.012	0.0057	0.00266	0.00415	0.0023	0.0033	0.0125	0.0015	0.0017	0.00198
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	2.13	1.61	1.52	1.8	1.53	0.585	0.799	0.681	0.607	0.57
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00861	0.00919	0.00756	0.00799	0.00645	0.00279	0.0044	0.00319	0.0031	0.00315
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.0129	0.0113	0.0114	0.0128	0.00945	0.0044	0.00547	0.00409	0.00333	0.00344
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.471	0.414	0.373	0.404	0.325	0.131	0.186	0.136	0.135	0.121
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00952	0.00882	0.00781	0.00917	0.00718	0.00296	0.0038	0.00301	0.00302	0.00252
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL		0.0039	0.00639	0.0034	0.00485	0.00093	0.00226	0.00168	0.00226	0.0012
PCB6	2,3'-DICHLOROBIPHENYL	0.139	0.0696	0.0424	0.0654	0.0346	0.043	0.14	0.0215	0.0255	0.0274
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.17	0.144	0.139	0.154	0.123	0.0593	0.0763	0.0581	0.0596	0.0531
PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.0801	0.0665	0.0677	0.0733	0.0595	0.0203	0.0327	0.0256	0.0233	0.0213
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.725	0.606	0.567	0.634	0.517	0.218	0.304	0.25	0.224	0.204

PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.958	0.844	0.744	0.809	0.659	0.279	0.392	0.289	0.279	0.247
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0467	0.0381	0.0383	0.0432	0.0351	0.0112	0.0142	0.0113	0.0108	0.00963
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.015	0.011	0.0143	0.0164	0.0115	0.00464	0.00617	0.00518	0.00467	0.00416
PCB7	2,4-DICHLOROBIPHENYL	0.0331	0.0153	0.00852	0.0147	0.00644	0.0102	0.0365	0.00425	0.0055	0.00605
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0255	0.0204	0.0217	0.0228	0.0181	0.00623	0.00862	0.00706	0.00598	0.00592
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00517	0.00652	0.00592	0.00798	0.00502	0.00223	0.004	0.00259	0.00182	0.00231
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0425	0.0398	0.0374	0.0419	0.0333	0.0143	0.0189	0.0134	0.0141	0.0119
PCB78	3,3',4,5-TETRACHLOROBIPHENYL										
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.017	0.0141	0.0132	0.0162	0.0117	0.00575	0.00653	0.00593	0.00538	0.00499
PCB8	2,4'-DICHLOROBIPHENYL	0.84	0.383	0.222	0.354	0.15	0.303	0.982	0.106	0.124	0.155
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00195	0.0015	0.00142	0.00142	0.00158	0.00053	0.00077	0.000704	0.00063	0.000565
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.264	0.249	0.246	0.241	0.192	0.0888	0.141	0.106	0.0916	0.098
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.452	0.359	0.362	0.375	0.293	0.145	0.215	0.179	0.148	0.153
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0378	0.0335	0.0323	0.0329	0.025	0.0138	0.0211	0.0173	0.0136	0.0147
PCB9	2,5-DICHLOROBIPHENYL	0.0388	0.0175	0.0102	0.0171	0.00835	0.0126	0.0407	0.00523	0.0061	0.00674
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.754	0.642	0.608	0.637	0.517	0.217	0.34	0.256	0.234	0.239
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.0244	0.018	0.0201	0.0241	0.0185	0.00684	0.011	0.00867	0.00715	0.00751
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	1.59	1.33	1.27	1.45	1.15	0.558	0.741	0.67	0.545	0.533
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0165	0.0134	0.0147	0.015	0.0115	0.00565	0.00877	0.0083	0.00566	0.00655
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.108	0.0467	0.0347	0.045	0.0221	0.041	0.136	0.0143	0.0154	0.0163
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.38	0.307	0.277	0.337	0.296	0.128	0.233	0.138	0.132	0.122
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	1.11	0.812	0.699	0.767	0.582	0.399	0.805	0.271	0.257	0.249
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.341	0.24	0.209	0.237	0.179	0.139	0.285	0.0859	0.085	0.0802
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.169	0.126	0.117	0.133	0.105	0.0568	0.111	0.0528	0.0451	0.0426
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.834	0.686	0.653	0.71	0.585	0.251	0.348	0.28	0.257	0.243
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	1.49	1.23	1.15	1.29	1.06	0.434	0.599	0.492	0.439	0.405
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.264	0.203	0.205	0.234	0.195	0.0746	0.108	0.101	0.0825	0.0828
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	1.23	1.03	0.948	1.07	0.907	0.327	0.473	0.381	0.339	0.322
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.198	0.155	0.151	0.176	0.151	0.0577	0.0804	0.0785	0.0633	0.0624
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.145	0.12	0.112	0.125	0.103	0.0387	0.0552	0.0479	0.0415	0.0394
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	2	1.74	1.54	1.71	1.4	0.549	0.748	0.578	0.563	0.478
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.76	1.55	1.45	1.51	1.22	0.531	0.817	0.626	0.546	0.55
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	1.19	1.06	0.997	1.06	0.845	0.399	0.572	0.461	0.404	0.391
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.466	0.376	0.37	0.394	0.309	0.14	0.207	0.175	0.144	0.149
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	2.88	2.5	2.32	2.41	1.96	0.846	1.3	0.951	0.855	0.875
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.168	0.128	0.135	0.152	0.12	0.0479	0.0713	0.0613	0.0488	0.0514
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0687	0.062	0.0619	0.0631	0.0491	0.0213	0.033	0.0256	0.0242	0.0237
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.364	0.353	0.312	0.325	0.477	0.138	0.204	0.152	0.142	0.142
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	2.38	2.19	1.95	2.16	3.1	0.906	1.23	0.985	0.883	0.87
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0789	0.0339	0.036	0.0414	0.0568	0.017	0.0236	0.0214	0.0179	0.0166
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	1.3	0.942	0.931	1.09	1.55	0.398	0.541	0.431	0.37	0.403
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0395	0.0273	0.0296	0.0343	0.0478	0.0148	0.0189	0.0157	0.0134	0.0144
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5,6'-HxCB (PCB147&PCB149)	2.6	1.76	1.68	1.97	2.82	0.793	1.03	0.841	0.715	0.761
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	2.48	2.11	1.95	2.01	2.96	0.841	1.24	0.93	0.839	0.871
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.197	0.182	0.175	0.183	0.151	0.0699	0.0979	0.0778	0.0741	0.0726
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0857	0.0907	0.0844	0.093	0.00868	0.0431	0.0612	0.0505	0.0486	0.0449
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.224	0.32	0.26	0.266	0.22	0.104	0.15	0.108	0.155	0.101
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.424	0.435	0.405	0.441	0.0268	0.226	0.325	0.252	0.248	0.251
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	2.88	2.73	2.48	2.56	1.99	0.983	1.4	1.1	0.977	0.952
PCB-CO84	PCB-137; PCB-164	0.219	0.187	0.177	0.194	0.264	0.0792	0.107	0.0886	0.079	0.0778
PCCTOT	TOTAL PCB CONGENERS	50.1	41.9	38.9	42.6	40.1	16.9	26.1	17.9	16.3	16
TDCBP	TOTAL DICHLOROBIPHENYLS	2.08	1	0.856	1.15	0.691	0.93	2.51	0.406	0.442	0.475
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000316	0.000428	0.000312	0.000363	0.000202	0.0000193	0.000131	0.000192	0.000176	0.00015
TEQ_PCB_MP	TEQ PCB Mid Point	0.000381	0.000429	0.000312	0.000363	0.000325	0.000133	0.000193	0.000192	0.000177	0.00015
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000445	0.000429	0.000312	0.000363	0.000325	0.000176	0.000254	0.000192	0.000177	0.00015
THCBP	TOTAL HEPTACHLOROBIPHENYL	4.47	4.36	4.02	4.35	3.7	1.79	2.59	2	1.95	1.88
THXBP	TOTAL HEXACHLOROBIPHENYL	11.8	9.43	8.88	9.78	13.9	3.98	5.5	4.35	3.85	3.96
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.102	0.0427	0.029	0.0411	0.0181	0.0338	0.124	0.0194	0.0291	0.0297
TNCBP	TOTAL NONACHLOROBIPHENYL	0.175	0.185	0.165	0.172	0.143	0.128	0.183	0.141	0.132	0.132
TOCBP	TOTAL OCTACHLOROBIPHENYL	1.04	1.08	1.01	1.08	0.614	0.554	0.801	0.623	0.617	0.618
TPCBP	TOTAL PENTACHLOROBIPHENYL	14.3	12.8	11.9	12.5	10	4.56	6.71	5.28	4.62	4.6
TTCBP	TOTAL TETRACHLOROBIPHENYL	11.9	9.82	9.11	10.3	8.49	3.36	4.69	3.79	3.46	3.19
TTRBP	TOTAL TRICHLOROBIPHENYL	4.2	3.14	2.82	3.16	2.53	1.48	2.89	1.2	1.13	1.08
	TOTAL PCB CONGENERS (ND SET TO 0)	50.18177	41.950598	38.957976	42.658727	40.186187	16.942979	26.175548	17.93053	16.37916	16.10993
	Average total PCB concentration per sediment sample			**42.8**					**18.7**		

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

PARLABEL	NAME	LMR21-14S REP A	LMR21-14S REP B	LMR21-14S REP C	LMR21-14S REP D	LMR21-14S REP E	LMR21-15S REP A	LMR21-15S REP B	LMR21-15S REP C	LMR21-15S REP D	LMR21-15S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.061	0.0728	0.0688	0.0711	0.0718	0.0816	0.0705	0.0659	0.0797	0.0658
PCB1	2-CHLOROBIPHENYL	0.025	0.0065	0.00474	0.00552	0.00778	0.0622	0.022	0.0173	0.0164	0.0234
PCB10	2,6-DICHLOROBIPHENYL		0.0015	0.00098	0.00148	0.00242	0.012	0.0109	0.011	0.0107	0.00911
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0329	0.0336	0.029	0.0333	0.0345	0.261	0.238	0.232	0.242	0.248
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00244	0.00213	0.0016	0.00215	0.00215	0.0066	0.00758	0.00675	0.00706	0.00568
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.291	0.349	0.291	0.26	0.268	3.64	3.11	2.67	2.65	2.53
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0931	0.112	0.0913	0.0873	0.0788	1.11	0.952	0.882	0.852	0.847
PCB11	3,3'-DICHLOROBIPHENYL	0.166	0.294	0.177	0.0739	0.156	0.26	0.341	0.229	0.196	0.196
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.0019	0.0019	0.00137	0.00156	0.0017	0.014	0.0103	0.00856	0.00944	0.00941
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL										
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0227	0.0288	0.0242	0.0223	0.0223	0.287	0.254	0.224	0.202	0.203
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.802	0.935	0.798	0.717	0.734	10.3	8.55	7.41	8.11	7.05
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00719	0.00746	0.0063	0.007	0.00616	0.0713	0.0616	0.0633	0.0647	0.0682
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.00186	0.0012	0.00109	0.00134	0.00132	0.00527	0.0054	0.00557	0.00619	0.00582
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0176	0.0223	0.0175	0.0159	0.0159	0.199	0.172	0.173	0.154	0.16
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.011	0.0179	0.0142	0.0129	0.015	0.156	0.11	0.112	0.114	0.117
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00112	0.00148	0.00129	0.00124	0.00146	0.0144	0.015	0.0112	0.0104	0.0095
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL		0.000716	0.000626	0.00055						
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0852	0.11	0.0875	0.086	0.0916	0.783	0.643	0.532	0.53	0.457
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0109	0.0151	0.0118	0.0106	0.0119	0.139	0.118	0.0929	0.0963	0.0708
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL		0.458	0.385	0.356	0.388	4.04	3.43	2.94	3.03	2.7
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0423	0.0421	0.0376	0.0429	0.0399	0.222	0.196	0.168	0.129	0.135
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.113	0.171	0.136	0.122	0.147	1.3	1.08	0.778	0.797	0.56
PCB14	3,5-DICHLOROBIPHENYL						0.002		0.000804	0.000651	
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0635	0.0774	0.0711	0.0629	0.0648	0.593	0.484	0.344	0.397	0.316
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL					0.000225					
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0514	0.0674	0.0575	0.0555	0.059	0.584	0.479	0.37	0.344	0.329
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.000867	0.00079	0.000848	0.000672	0.00104	0.00793	0.00647	0.00531	0.00501	0.00406
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.317	0.345	0.296	0.304	0.318	2.11	1.81	1.66	1.57	1.63
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00721	0.00701	0.0057	0.00718	0.00712	0.0271	0.027	0.0268	0.028	0.0269
PCB15	4,4'-DICHLOROBIPHENYL	0.33	0.0739	0.0438	0.0521	0.0881	1.44	0.624	0.436	0.458	0.527
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00419	0.00484	0.00403	0.0047	0.00514	0.0192	0.0193	0.016	0.0174	0.0139
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00176	0.00217	0.00175	0.00191	0.00222	0.00846	0.00801	0.00647	0.00606	0.00423
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0367	0.0393	0.0327	0.0386	0.0367	0.177	0.172	0.166	0.156	0.159
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.00308	0.00314	0.00237	0.00243	0.00263	0.00495	0.00657	0.00614	0.00646	0.00458
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0854	0.111	0.0924	0.0869	0.0916	0.83	0.698	0.564	0.553	0.461
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00758	0.0098	0.00751	0.00677	0.00716	0.0462	0.04	0.0328	0.0309	0.0244
PCB16	2,2',3-TRICHLOROBIPHENYL	0.108	0.141	0.118	0.103	0.137	1.83	1.85	1.48	1.36	1.15
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00579	0.00682	0.00553	0.00526	0.00552	0.0324	0.0286	0.0268	0.0246	0.0221
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00257	0.00191	0.00187	0.00213	0.00231	0.00822	0.00686	0.00865	0.00714	0.00678
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0457	0.0538	0.0465	0.0438	0.0443	0.341	0.291	0.267	0.259	0.242
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00367	0.00315	0.00294	0.00302	0.00314	0.0126	0.0104	0.00843	0.00919	0.00769
PCB17	2,2',4-TRICHLOROBIPHENYL	0.207	0.259	0.212	0.206	0.263	3.16	3.26	2.6	2.4	2.04
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.207	0.262	0.214	0.206	0.201	1.21	0.975	0.828	0.94	0.691
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0468	0.0583	0.0509	0.0503	0.0481	0.195	0.17	0.142	0.161	0.124
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.163	0.236	0.184	0.174	0.205	1.31	1.12	0.84	0.947	0.698
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0111	0.0138	0.0111	0.0116	0.0116	0.0648	0.0599	0.0546	0.0619	0.0546
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0365	0.0555	0.0425	0.0438	0.0487	0.287	0.244	0.195	0.209	0.156
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.187	0.243	0.187	0.191	0.202	1.14	0.953	0.782	0.856	0.652
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.11	0.134	0.107	0.116	0.119	0.55	0.491	0.452	0.474	0.439
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.132	0.198	0.156	0.154	0.178	0.96	0.837	0.638	0.684	0.496
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0041	0.00344	0.00266	0.00294	0.00331	0.0161	0.0151	0.0104	0.0117	0.00704
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL								0		
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.176	0.221	0.182	0.187	0.193	1.01	0.934	0.808	0.926	0.811
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0044	0.00623	0.00494	0.00514	0.00571	0.01	0.0136	0.0135	0.0142	0.0101
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0404	0.0348	0.0424	0.0433	0.0389	0.372	0.233	0.263	0.178	0.169
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL			0.000099				0.000478	0.00023	0.0004	
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	1.59	1.75	1.5	1.56	1.53	7.48	6.68	6.53	5.69	6.14
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00215	0.00214	0.00163	0.00199	0.00182	0.00454	0.00378	0.00357	0.00399	0.00316
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.00958	0.00915	0.00887	0.00837	0.00819	0.0426	0.0365	0.0331	0.0327	0.0295
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0603	0.0672	0.0589	0.0566	0.0715	0.794	0.693	0.605	0.511	0.556
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0646	0.0835	0.0661	0.0681	0.066	0.339	0.292	0.236	0.259	0.19
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.0061	0.00709	0.00643	0.00629	0.00577	0.036	0.0304	0.024	0.0288	0.0217
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL							0.00022		0.00022	
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0857	0.101	0.0921	0.0896	0.0824	0.347	0.265	0.208	0.303	0.183
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0477	0.0622	0.0508	0.0487	0.051	0.204	0.178	0.164	0.177	0.125
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0393	0.0424	0.038	0.0392	0.0355	0.186	0.143	0.111	0.161	0.111
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00807	0.0095	0.00801	0.00853	0.00841	0.0223	0.0232	0.0275	0.027	0.0254
PCB2	3-CHLOROBIPHENYL	0.0085	0.00411	0.00274		0.00298	0.024	0.0107	0.00566	0.00559	0.0063
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0209	0.0261	0.0224	0.0213	0.0235	0.0909	0.076	0.0634	0.0672	0.049
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.034	0.0381	0.0341	0.0341	0.0362	0.124	0.103	0.108	0.111	0.12
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0678	0.072	0.0606	0.0645	0.0673	0.197	0.178	0.161	0.185	0.155
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.185	0.205	0.179	0.181	0.171	0.579	0.506	0.474	0.49	0.438
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.0005	0.00031	0.00042	0.00036			0.0004	0.00057	0.00053	0.0014
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00857	0.00899	0.0078	0.00781	0.00834	0.0273	0.0246	0.0231	0.0242	0.0212
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.0879	0.101	0.0906	0.0955	0.0932	0.206	0.175	0.157	0.227	0.152
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0165	0.0167	0.0147	0.0156	0.0154	0.0287	0.0259	0.024	0.0316	0.0233
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0466	0.0501	0.0457	0.0471	0.0469	0.0752	0.0677	0.0671	0.0829	0.0618
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.061	0.0728	0.0688	0.0711	0.0718	0.0816	0.0705	0.0659	0.0797	0.0658
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.227	0.222	0.18	0.159	0.18	3.8	3.39	2.83	2.45	2.44
PCB23	2,3,5-TRICHLOROBIPHENYL		0.000949	0.000781	0.00065	0.000898	0.0101	0.0111	0.00828	0.00735	0.00641
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00409	0.00478	0.00375	0.00297	0.00374	0.0762	0.0718	0.0475	0.0415	0.0295
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0878	0.098	0.0699	0.0775	0.0852	4.53	4.05	2.71	2.66	2.64
PCB27	2,3',6-TRICHLOROBIPHENYL	0.026	0.0346	0.0272	0.0255	0.0325	0.499	0.438	0.307	0.275	0.229
PCB3	4-CHLOROBIPHENYL	0.0291	0.00678	0.00307	0.00393	0.00791	0.0867	0.0259	0.0152	0.0195	0.0237
PCB31	2,4',5-TRICHLOROBIPHENYL	0.617	0.621	0.484	0.442	0.522	11.9	13.8	7.95	9.04	6.5
PCB32	2,4',6-TRICHLOROBIPHENYL	0.147	0.183	0.147	0.14	0.169	2.91	2.36	1.82	1.58	1.48
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.0058	0.00675	0.00538	0.00586	0.0066	0.129	0.138	0.105	0.0947	0.0844
PCB35	3,3',4-TRICHLOROBIPHENYL		0.0106	0.00718	0.00417	0.00595	0.229	0.195	0.159	0.138	0.145
PCB36	3,3',5-TRICHLOROBIPHENYL										
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0739	0.0819	0.0622	0.0506	0.063	0.981	0.791	0.644	0.664	0.615
PCB38	3,4,5-TRICHLOROBIPHENYL		0.0011	0.00107	0.000852	0.00107	0.0151	0.0134	0.00979	0.00826	0.00659
PCB39	3,4',5-TRICHLOROBIPHENYL	0.00736	0.00891	0.00744	0.00679	0.00649	0.135	0.124	0.0925	0.0801	0.0742
PCB4	2,2'-DICHLOROBIPHENYL	0.123	0.0837	0.0733	0.0707	0.0958	0.59	0.459	0.384	0.346	0.41
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.349	0.431	0.379	0.337	0.365	6.14	5.26	4.62	4.4	4.23
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.0595	0.0848	0.0749	0.0666	0.0762	0.965	0.907	0.677	0.637	0.564
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0535	0.0745	0.0656	0.0563	0.0714	1.04	0.927	0.742	0.689	0.619
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.242	0.332	0.298	0.255	0.297	4.08	3.75	2.86	2.71	2.35
PCB5	2,3-DICHLOROBIPHENYL		0.00207	0.0013	0.00163	0.00283	0.0142	0.0118	0.00625	0.00598	0.00748
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	1.38	1.89	1.61	1.46	1.76	26.7	26.9	19.8	18.7	17.2
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00812	0.00877	0.00756	0.00841	0.00904	0.0478	0.0528	0.0477	0.0456	0.0419
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.00738	0.0114	0.00959	0.00831	0.00918	0.549	0.482	0.424	0.368	0.384
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.332	0.399	0.36	0.303	0.316	6.36	5.5	4.82	4.71	4.59
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00631	0.00921	0.0069	0.0072	0.00747	0.133	0.119	0.0956	0.0882	0.0797
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.0034	0.00533	0.00264	0.00407						
PCB6	2,3'-DICHLOROBIPHENYL	0.0676	0.0398	0.0229	0.0273	0.0413	0.762	0.644	0.484	0.427	0.407
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.132	0.17	0.15	0.125	0.13	2.34	2.1	1.86	1.76	1.72
PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.0521	0.072	0.0597	0.0565	0.0571	1	0.89	0.744	0.711	0.67
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.497	0.66	0.576	0.5	0.546	9.65	7.81	6.4	6	5.36

PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.679	0.835	0.721	0.62	0.656	8.9	7.9	6.8	8.55	6.21
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0257	0.0384	0.0307	0.0278	0.0302	1.33	1.12	0.85	0.765	0.725
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00785	0.0117	0.00895	0.0089	0.00935	0.15	0.132	0.115	0.111	0.111
PCB7	2,4-DICHLOROBIPHENYL	0.016	0.0069	0.00427	0.00527	0.00821	0.0623	0.0438	0.0298	0.031	0.0309
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0135	0.0179	0.0137	0.0153	0.0153	0.288	0.259	0.215	0.202	0.201
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00367	0.00588	0.00488	0.0055	0.0068	0.0725	0.105	0.0507	0.0452	0.0434
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.03	0.0445	0.0328	0.0287	0.0315	0.835	0.644	0.541	0.557	0.536
PCB78	3,3',4,5-TETRACHLOROBIPHENYL										
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.00996	0.0148	0.0118	0.0106	0.0111	0.167	0.134	0.114	0.104	0.0895
PCB8	2,4'-DICHLOROBIPHENYL	0.431	0.157	0.0923	0.113	0.177	1.64	0.994	0.656	0.645	0.654
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.0014	0.00161	0.00138	0.00116	0.00116	0.0165	0.014	0.0128	0.0141	0.0122
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.21	0.234	0.211	0.182	0.187	2.75	2.37	2.3	2.39	2.56
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.309	0.382	0.328	0.285	0.316	4.42	3.67	3.21	3.34	2.92
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0283	0.0366	0.0337	0.0286	0.031	0.4	0.369	0.347	0.356	0.337
PCB9	2,5-DICHLOROBIPHENYL	0.0176	0.00947	0.005	0.00587	0.00976	0.0849	0.0595	0.0388	0.0387	0.0363
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.499	0.545	0.476	0.47	0.486	4.95	4.13	3.83	3.81	3.92
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.018	0.0229	0.0197	0.0203	0.0217	0.154	0.145	0.128	0.136	0.111
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	1.03	1.48	1.24	1.08	1.27	15.8	15.5	11.6	11.3	9.4
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0133	0.0188	0.015	0.014	0.016	0.116	0.119	0.0945	0.0976	0.07
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0638	0.0215	0.0125	0.0147	0.0196	0.782	0.561	0.421	0.367	0.432
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.277	0.415	0.331	0.291	0.396	5.66	5.82	4.06	3.66	2.97
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.78	0.679	0.533	0.503	0.592	14.2	16	9.6	11.2	10.9
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.263	0.236	0.188	0.158	0.193	2.41	2.32	1.79	1.67	1.41
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.119	0.138	0.101	0.104	0.122	2.55	2.3	1.54	1.36	1.15
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.596	0.758	0.679	0.584	0.652	10.9	11.2	7.89	8.92	7.02
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	1.01	1.33	1.12	1.01	1.14	18	18.5	14.1	13.7	12.1
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.187	0.275	0.234	0.211	0.268	3.39	3	2.31	2.21	1.75
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.821	1.05	0.886	0.831	0.925	14.4	14.6	9.39	10.9	10.4
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.138	0.218	0.181	0.166	0.216	2.6	2.35	1.67	1.59	1.25
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.089	0.127	0.107	0.0977	0.109	1.85	1.54	1.31	1.26	0.931
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	1.37	1.74	1.48	1.28	1.36	27.3	29.4	22.7	22.3	20.4
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.19	1.35	1.14	1.08	1.11	11.6	11.9	8.82	9.98	9.85
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.83	1.03	0.875	0.776	0.835	10.8	8.9	7.83	8.66	7.24
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.298	0.377	0.319	0.3	0.329	3.53	2.9	2.6	2.66	2.41
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.91	2.08	1.81	1.74	1.8	20.4	20.2	17.3	17	18
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.111	0.145	0.122	0.121	0.131	1.18	1.04	0.927	0.917	0.803
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0464	0.06	0.0516	0.0453	0.0461	0.512	0.455	0.414	0.393	0.406
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.256	0.283	0.241	0.231	0.233	1.97	1.68	1.46	1.43	1.44
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.6	1.89	1.56	1.48	1.53	13.4	12.7	9.15	10.6	8.74
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0276	0.0439	0.032	0.0311	0.0609	0.585	0.498	0.412	0.422	0.325
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.71	0.881	0.767	0.756	0.795	6.8	5.69	4.85	4.23	4.11
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0237	0.0314	0.0243	0.0241	0.0265	0.198	0.179	0.146	0.147	0.119
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	1.32	1.6	1.36	1.34	1.54	12.8	11.8	9	9.29	7.56
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.58	1.66	1.4	1.41	1.41	9.73	8.16	7.33	8.66	7.2
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.132	0.159	0.132	0.126	0.128	1.27	1.05	0.921	0.905	0.866
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0691	0.0896	0.0683	0.0676	0.0714	0.462	0.389	0.317	0.369	0.266
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.188	0.213	0.173	0.172	0.165	1.27	0.922	0.673	0.991	0.637
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.336	0.378	0.334	0.336	0.33	1.03	0.906	0.859	0.885	0.767
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	2.03	2.37	2.02	1.83	1.86	25.5	25.4	22.3	21.9	21.1
PCB-CO84	PCB-137; PCB-164	0.132	0.169	0.142	0.134	0.141	1.15	0.996	0.825	0.788	0.683
PCCTOT	TOTAL PCB CONGENERS	33.3	39.2	33	30.8	33.5	408	387	303	309	279
TDCBP	TOTAL DICHLOROBIPHENYLS	1.22	0.69	0.433	0.366	0.601	5.65	3.75	2.7	2.53	2.71
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000265	0.000294	0.00026	0.000254	0.00028	0.00239	0.00228	0.00178	0.00174	0.00157
TEQ_PCB_MP	TEQ PCB Mid Point	0.000265	0.000294	0.00026	0.000254	0.00028	0.00239	0.00228	0.00178	0.00174	0.00157
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000265	0.000294	0.00026	0.000254	0.00028	0.00239	0.00228	0.00178	0.00174	0.00157
THCBP	TOTAL HEPTACHLOROBIPHENYL	3.05	3.62	3.01	3.07	3.1	16.8	14.4	12.8	12.8	11.6
THXBP	TOTAL HEXACHLOROBIPHENYL	7.04	8.25	6.94	6.78	7.19	59.2	52.3	42.1	44.5	38.2
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0626	0.0174	0.0106	0.0114	0.0187	0.173	0.0586	0.0382	0.0415	0.0534
TNCBP	TOTAL NONACHLOROBIPHENYL	0.151	0.168	0.151	0.158	0.156	0.31	0.269	0.248	0.342	0.237
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.834	0.944	0.827	0.831	0.814	2.81	2.4	2.2	2.43	2
TPCBP	TOTAL PENTACHLOROBIPHENYL	9.81	11.6	9.94	9.13	9.62	118	111	93.5	95.4	90.4
TTCBP	TOTAL TETRACHLOROBIPHENYL	8.1	10.6	9.11	8.09	9.08	149	146	111	112	99.6
TTRBP	TOTAL TRICHLOROBIPHENYL	3.02	3.21	2.54	2.34	2.85	55.8	57.6	38.4	39.2	34.4
	TOTAL PCB CONGENERS (ND SET TO 0)	33.023537	39.301185	33.101984	30.909084	33.575483	408.24977	387.132568	303.286734	309.413721	279.33484
	Average total PCB concentration per sediment sample			**34.0**					**337.5**		

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

PARLABEL	NAME	LMR21-17S REP A	LMR21-17S REP B	LMR21-17S REP C	LMR21-17S REP D	LMR21-17S REP E	LMR21-19S REP A	LMR21-19S REP B	LMR21-19S REP C	LMR21-19S REP D	LMR21-19S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0968	0.0895	0.0899	0.0875	0.08	0.306	0.0518	0.438	0.246	0.203
PCB1	2-CHLOROBIPHENYL	0.0633	0.07	0.0306	0.0216	0.0258	0.084	0.022	0.0417	0.0444	0.035
PCB10	2,6-DICHLOROBIPHENYL	0.0271	0.034	0.0223	0.0175	0.0241	0.029	0.00512	0.0201		0.0171
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.381	0.369	0.427	0.308	0.313	0.501	0.0639	0.453	0.449	0.427
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00877	0.00854	0.00764	0.00713	0.0065	0.00845	0.000965	0.00433		0.00524
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	7.81	7.85	8.19	7.17	6.98	15.4	1.83	8.75	10.4	9.75
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	1.94	1.93	2.29	1.63	1.69	4.32	0.439	2.63	3.51	2.52
PCB11	3,3'-DICHLOROBIPHENYL	0.447	0.78	0.207	0.189	0.151	0.638	0.574	0.19	0.173	0.132
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.0105	0.0102	0.0124	0.00955	0.0105	0.0193	0.00339	0.0212	0.031	0.0369
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL										
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.688	0.67	0.677	0.613	0.54	1.22	0.129	0.675	0.803	0.725
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	20.1	18.4	19.5	15.7	15.9	43.9	4.67	24.2	30.8	27.3
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.0777	0.0729	0.0952	0.0663	0.0605	0.179	0.0207	0.115	0.156	0.111
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.0065	0.00586	0.0054	0.00489	0.00432	0.00707	0.00125	0.00525		0.005
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.529	0.519	0.654	0.472	0.478	0.939	0.0986	0.593	0.73	0.634
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.365	0.36	0.397	0.372	0.279	0.685	0.0758	0.332		0.385
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.0279	0.0286	0.037	0.0354	0.0285	0.0546	0.00602	0.0397	0.0463	0.037
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL		0.006	0.0121	0.00652	0.0056	0.0378	0.00572	0.0197	0.0343	0.021
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.911	0.936	0.882	0.813	0.743	2.64	0.29	1.6	1.86	1.72
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.157	0.164	0.172	0.136	0.155	0.394	0.0469	0.348	0.293	0.263
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	4.76	5.1	4.99	4.2	4.46	12.8	1.7	9.29	10.4	9.64
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.238	0.246	0.235	0.249	0.206	0.666	0.0654	0.388	0.491	0.486
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	1.26	1.31	1.13	1.08	1.25	2.88	0.367	2.27	2.58	2.73
PCB14	3,5-DICHLOROBIPHENYL	0.00146		0.00121	0.00084	0.000983			0.00115		
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.776	0.719	0.782	0.627	0.591	3.18	0.468	1.71	1.73	1.75
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.0017	0.0016	0.00324	0.0019	0.00314	0.00504		0.00464		
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.656	0.642	0.702	0.605	0.637	1.73	0.196	0.845	1.38	1.38
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00965	0.00801	0.0121	0.00878	0.0116	0.0162	0.00231	0.0222	0.0094	
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	2.71	2.76	2.23	2.17	1.97	6.75	0.724	3.47	5	4.65
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.0286	0.0277	0.0325	0.0255	0.0249	0.0463	0.00786	0.0467	0.0361	0.039
PCB15	4,4'-DICHLOROBIPHENYL	1.38	1.6	0.991	0.754	0.753	1.71	0.379	0.714	0.776	0.625
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.0203	0.0191	0.0231	0.0174	0.02	0.0357	0.00549	0.0443	0.0318	0.0338
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.0114	0.0125	0.00838	0.00954	0.0104	0.0185	0.00246	0.0112	0.0225	0.0181
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.229	0.217	0.223	0.187	0.183	0.458	0.062	0.366	0.349	0.344
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.00832	0.00839	0.00696	0.00564	0.00561	0.0049	0.00276	0.00466	0.00591	0.0035
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	1.1	1.08	1.16	0.967	0.952	3.65	0.393	2.22	2.53	2.23
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.0527	0.0471	0.0477	0.0418	0.0372	0.139	0.0178	0.0866	0.136	0.105
PCB16	2,2',3-TRICHLOROBIPHENYL	4.06	4.81	3.78	2.95	3.41	3.55	0.616	2.53	2.18	2.13
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.0503	0.0519	0.0523	0.0422	0.0435	0.146	0.014	0.101	0.088	0.0731
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00693	0.0062	0.00638	0.00492	0.00531	0.01	0.0012	0.0129		
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.554	0.534	0.561	0.486	0.442	1.65	0.185	0.967	1.08	1.03
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0147	0.0129	0.0139	0.0122	0.0117	0.0404	0.00429	0.0225	0.046	0.0418
PCB17	2,2',4-TRICHLOROBIPHENYL	6.96	7.77	6.94	5.27	7.23	5.96	0.897	4.02	3.62	3.63
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	1.67	1.69	1.55	1.28	1.17	5.16	0.627	2.52	3.05	2.58
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.301	0.287	0.293	0.249	0.213	0.877	0.103	0.456	0.477	0.424
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	1.51	1.5	1.41	1.23	1.09	4.17	0.504	2.65	2.31	2.55
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0976	0.0955	0.115	0.0849	0.0817	0.26	0.0312	0.175	0.13	0.149
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.318	0.322	0.327	0.275	0.27	0.788	0.0803	0.554	0.489	0.518
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	1.37	1.41	1.17	1.07	0.933	3.31	0.391	1.9	2.2	2.14
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.716	0.728	0.751	0.615	0.574	1.68	0.192	1.11	0.982	1.02
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	1.01	1	1.07	0.866	0.874	2.43	0.25	1.86	1.56	1.71
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0194	0.017	0.0198		0.0176	0.0532	0.00543	0.0384	0.044	0.0415
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL										
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	1.61	1.59	1.67	1.29	1.21	4.44	0.525	2.45	2.36	2.5
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0162	0.0162	0.0167		0.0133	0.0186	0.00391	0.0164	0.0074	0.015
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.319	0.31	0.282	0.268	0.224	0.823	0.0743	0.543	0.813	0.526
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL			0.0011		0.00072	0.002		0.00236		
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	11	10.5	11.2	10.2	9.44	25.2	2.15	17.4	17.9	16.6
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.0036	0.00432	0.004		0.00304	0.00827	0.00359	0.00517	0.0063	0.0062
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0647	0.0635	0.071	0.0582	0.0567	0.178	0.0234	0.111	0.129	0.129
PCB19	2,2',6-TRICHLOROBIPHENYL	1.5	1.8	1.49	1.1	1.32	1.52	0.236	0.878	0.448	0.701
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.454	0.432	0.439	0.372	0.326	1.25	0.116	0.581	0.767	0.648
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.0529	0.0502	0.0475	0.0424	0.0336	0.186	0.0218	0.0848	0.111	0.0878
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL										
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.448	0.462	0.399	0.357	0.331	1.5	0.277	0.718	0.754	0.539
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.285	0.286	0.324	0.26	0.271	0.74	0.109	0.489	0.467	0.374
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.228	0.248	0.204	0.208	0.177	0.739	0.154	0.401	0.406	0.343
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.0459	0.0452	0.0437	0.0383	0.0372	0.0905	0.0171	0.0573	0.0629	0.0753
PCB2	3-CHLOROBIPHENYL	0.0144	0.0208	0.00681	0.00509	0.00573	0.022		0.00774		
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.103	0.105	0.129	0.117	0.115	0.312	0.0362	0.25	0.204	0.191
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.183	0.188	0.19	0.183	0.148	0.454	0.0746	0.287	0.333	0.332
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.272	0.245	0.279	0.248	0.223	0.667	0.089	0.407	0.498	0.454
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.824	0.873	0.801	0.808	0.726	2.42	0.306	1.39	1.71	1.54
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00106	0.0013	0.000622	0.002	0.000857	0.0028		0.001		
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.0451	0.0456	0.0479	0.0408	0.0392	0.0979	0.0134	0.0667	0.066	0.0697
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.293	0.289	0.284	0.268	0.24	0.911	0.151	0.559	0.566	0.6
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0452	0.0443	0.0419	0.0425	0.0351	0.116	0.0216	0.0785	0.092	0.0981
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.108	0.104	0.109	0.0985	0.0922	0.301	0.0512	0.208	0.234	0.21
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0968	0.0895	0.0899	0.0875	0.08	0.306	0.0518	0.438	0.246	0.203
PCB22	2,3,4'-TRICHLOROBIPHENYL	7.91	8.8	8.32	6.44	7.87	9.54	1.47	5.41	5.02	4.87
PCB23	2,3,5-TRICHLOROBIPHENYL	0.0288	0.0303	0.0369	0.0229	0.0255	0.021	0.00318	0.0197		0.0128
PCB24	2,3,6-TRICHLOROBIPHENYL	0.105	0.115	0.12	0.0936	0.13	0.105	0.0106	0.0855		0.0563
PCB25	2,3',4-TRICHLOROBIPHENYL	3.64	4.01	3.78	2.95	2.95	6.95	0.993	3.88	3.88	3.87
PCB27	2,3',6-TRICHLOROBIPHENYL	0.726	0.857	0.773	0.58	0.688	0.726	0.0955	0.559	0.487	0.503
PCB3	4-CHLOROBIPHENYL	0.058	0.0818	0.0202	0.0157	0.0151	0.0759	0.0217	0.0264	0.029	0.0216
PCB31	2,4',5-TRICHLOROBIPHENYL	27.6	24.2	23.5	18	23	25.6	3.4	16.1	13.7	13.7
PCB32	2,4',6-TRICHLOROBIPHENYL	4.94	5.67	4.17	3.96	4.1	5.14	0.692	2.74	3.23	3.32
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.216	0.227	0.248	0.169	0.18	0.193	0.0242	0.152	0.0914	0.099
PCB35	3,3',4-TRICHLOROBIPHENYL	0.283	0.319	0.358	0.239	0.228	0.378	0.0674	0.223	0.161	0.173
PCB36	3,3',5-TRICHLOROBIPHENYL										
PCB37	3,4,4'-TRICHLOROBIPHENYL	2.69	2.99	2.44	2.09	1.96	3.11	0.487	1.54	1.75	1.47
PCB38	3,4,5-TRICHLOROBIPHENYL	0.0217	0.0237	0.026	0.019	0.0228	0.0257	0.0024	0.0184		0.016
PCB39	3,4',5-TRICHLOROBIPHENYL	0.237	0.251	0.247	0.206	0.215	0.259	0.0239	0.148	0.125	0.119
PCB4	2,2'-DICHLOROBIPHENYL	1.16	1.47	1.02	0.746	0.937	0.975	0.205	0.523	0.427	0.463
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	11.6	11.8	13.9	11.8	10.9	11.4	1.6	8.49	10.6	9.03
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	1.81	1.85	2.1	1.68	1.81	1.54	0.193	1.45	1.44	1.19
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	1.76	1.93	1.85	1.49	1.6	1.5	0.243	1.25	1.45	1.34
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	8.86	8.86	10.4	8.66	8.91	7.35	0.914	6.13	6.09	5.4
PCB5	2,3-DICHLOROBIPHENYL	0.0264	0.0311	0.0236	0.016	0.0212	0.0237	0.00618	0.0151		0.012
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	47.1	46.1	48.3	40.1	43	73.2	5.8	45.2	48	43.3
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.099	0.101	0.111	0.0776	0.0875	0.0916	0.0117	0.0605	0.064	0.0495
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.572	0.58	0.651	0.53	0.517	1.5	0.207	1.01	1.24	1.14
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	15.6	16	18.1	15.2	15	18.1	2.36	10.7	13.9	11.5
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.241	0.233	0.267	0.201	0.212	0.211	0.023	0.186	0.132	0.12
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL			0.102	0.0769	0.0839	0.112	0.0156	0.0759	0.0706	0.0873
PCB6	2,3'-DICHLOROBIPHENYL	0.784	0.874	0.665	0.494	0.576	1.26	0.237	0.57	0.751	0.576
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	7.37	7.38	8.2	6.84	6.9	8.84	1.2	5.05	6.35	5.35
PCB63	2,3,4',5-TETRACHLOROBIPHENYL	2.03	1.99	2.28	1.8	1.76	2.19	0.247	1.57	1.46	1.35
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	20.2	16.9	19.5	16.6	16.4	17.6	2.16	13.7	16.2	13.6

PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	35.2	29.6	33.8	28	27.7	28.9	3.53	17.5	22.4	18.3
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	1.23	1.25	1.38	1.06	1.08	2.39	0.261	1.72	1.58	1.5
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.173	0.17	0.198	0.149	0.15	0.238	0.029	0.185	0.13	0.159
PCB7	2,4-DICHLOROBIPHENYL	0.115	0.127	0.0943	0.0692	0.0788	0.0944	0.0214	0.0576	0.055	0.0472
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.338	0.323	0.383	0.288	0.295	0.47	0.0499	0.375	0.326	0.293
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.0609	0.0646	0.0685	0.0467	0.0521	0.0831	0.00808	0.0667	0.155	0.0953
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	1.65	1.74	1.69	1.41	1.3	2.12	0.286	1.16	1.31	1.2
PCB78	3,3',4,5-TETRACHLOROBIPHENYL										
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.206	0.22	0.193	0.202	0.182	0.44	0.0394	0.235	0.311	0.261
PCB8	2,4'-DICHLOROBIPHENYL	2.58	2.98	1.82	1.44	1.65	2.92	0.657	1.32	1.69	1.34
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.0708	0.0675	0.071	0.0618	0.0578	0.0694	0.00803	0.0432		0.0363
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	5.68	5.81	6.84	5.26	4.9	9.43	1.31	5.88	7.88	6.88
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	6.53	6.99	7.53	5.71	6.07	11.4	1.7	8.66	10.5	9.1
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.937	0.946	1.11	0.827	0.846	0.887	0.129	0.689	0.789	0.691
PCB9	2,5-DICHLOROBIPHENYL	0.151	0.167	0.122	0.0888	0.11	0.142	0.0277	0.0953	0.08	0.0655
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	7.61	7.38	8.26	6.68	6.47	15.5	1.74	10.8	12.9	11.6
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.259	0.247	0.302	0.218	0.241	0.24	0.0308	0.252	0.234	0.211
PCB95	2,3',3',5,6-PENTACHLOROBIPHENYL	22	20.3	23.5	18.8	20.6	56.5	4.73	37.3	39.9	36.6
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.239	0.234	0.264	0.205	0.245	0.19	0.0315	0.215	0.17	0.172
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.606	0.699	0.678	0.434	0.452	1.03	0.213	0.549	0.499	0.372
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	10.8	11.8	11.3	9.03	12.6	10.6	1.35	8.86	6.37	6.47
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	31.8	28.5	27.4	21	25.2	28.7	4.15	17.5	16.1	15.8
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	7.63	8.36	8.28	6.48	8.12	8.36	1.31	5.35	4.55	4.49
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	3.44	3.75	3.77	2.73	3.08	4.04	0.494	2.77	2.05	2.11
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	24.8	22.2	25.5	21.6	21.1	20.7	2.87	15.9	18.8	15.9
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	35.4	31.1	35.3	29.6	30.9	42.2	4.07	25.9	28.8	24.5
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	5.36	5.66	5.28	4.51	5.7	4.44	0.606	4.11	4.48	4.17
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	28.1	24.6	28	23.4	23.1	25.3	3.15	20.3	23.3	20.3
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	3.97	4.06	3.94	3.39	3.86	3.47	0.429	3.31	3.61	3.3
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	2.86	2.9	2.96	2.47	2.66	2.66	0.322	2.25	2.42	2.27
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	74	71.3	65.8	54.4	57.5	89	8.52	47.7	57.1	46.6
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	23.2	21.4	23.3	19.4	19.3	44.6	4.45	24.9	30.9	27.8
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	20	18.8	21	17.3	17.1	40.9	4.43	24.6	29.8	25.9
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	5.67	5.95	3.91	4.62	4.12	8.73	1.15	4.42	8.08	7.27
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	36.9	33.4	38.5	31.4	29.8	85.2	8.24	49.1	60.3	53.2
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	2.06	1.99	2.31	1.77	1.86	2.26	0.275	2.01	2.04	1.91
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	1.15	1.09	1.35	1.02	0.991	2.71	0.267	1.66	1.59	1.48
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	2.61	2.74	2.4	2.38	2.03	8.06	0.958	3.56	6.22	5.32
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	17.9	16.7	18.2	15.5	15.8	52.8	5.04	31.9	38.3	32.7
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.654	0.682	0.715	0.601	0.622	1.72	0.204	1.34	1.25	1.25
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	7.52	7.11	8.54	6.88	6.82	18.5	1.74	16.2	14.9	15
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.25	0.252	0.28	0.223	0.25	0.63	0.0664	0.54	0.417	0.439
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	14.5	14	15.3	11.7	13	43.3	3.65	26.9	30.6	30.7
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	13.3	13.8	15.3	12.9	12.1	42.4	4.26	24.7	29.6	26.3
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	1.93	1.91	1.96	1.69	1.54	6.14	0.677	3.47	3.91	3.77
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.568	0.575	0.562	0.469	0.45	1.55	0.183	0.927	0.91	0.858
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	1.43	1.64	1.15	0.981	0.793	5.13	1.02	1.93	2.11	1.86
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	1.53	1.51	1.63	1.49	1.44	4.21	0.507	2.66	2.75	2.51
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	47.5	46.1	48.7	40.4	39.3	103	10.7	58.8	76.7	65.8
PCB-CO84	PCB-137; PCB-164	1.49	1.44	1.63	1.31	1.36	4.52	0.479	3.02	3.03	2.84
PCCTOT	TOTAL PCB CONGENERS	765	732	767	632	655	1220	134	758	870	
TDCBP	TOTAL DICHLOROBIPHENYLS	7.28	8.76	5.64	4.25	4.75	8.82	2.33	4.06	4.45	
TEQ_PCB_LB	TEQ PCB Lower Bound	0.00436	0.00433	0.00525	0.00485	0.00412	0.00898	0.000989	0.00593	0.00617	0.00268
TEQ_PCB_MP	TEQ PCB Mid Point	0.00436	0.00433	0.00525	0.00485	0.00412	0.00898	0.000989	0.00593	0.00756	0.00638
TEQ_PCB_UB	TEQ PCB Upper Bound	0.00436	0.00433	0.00525	0.00485	0.00412	0.00898	0.000989	0.00593	0.00756	0.00638
THCBP	TOTAL HEPTACHLOROBIPHENYL	22.5	22.2	22.1	19.4	17.8	57.5	6.3	35.3	36.4	
THXBP	TOTAL HEXACHLOROBIPHENYL	73.7	72.5	77.6	64.9	65.3	215	21.6	135	156	
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.136	0.173	0.0576	0.0424	0.0466	0.182	0.0496	0.0758	0.0734	
TNCBP	TOTAL NONACHLOROBIPHENYL	0.446	0.437	0.435	0.409	0.367	1.33	0.224	0.846	0.892	
TOCBP	TOTAL OCTACHLOROBIPHENYL	3.97	4.01	4.05	3.75	3.51	11.2	1.58	6.73	7.25	
TPCBP	TOTAL PENTACHLOROBIPHENYL	212	201	219	180	178	449	46.5	267	329	
TTCBP	TOTAL TETRACHLOROBIPHENYL	331	309	330	276	283	366	39.2	236	272	
TTRBP	TOTAL TRICHLOROBIPHENYL	115	114	107	83.3	102	115	16.3	72.8	63.8	
	TOTAL PCB CONGENERS (ND SET TO 0)	765.18609	732.45742	766.596742	631.8295	655.17981	1224.73233	134.217135	758.8895	870.03431	777.11994
	Average total PCB concentration per sediment sample			**710.2**					**753.0**		

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

PARLABEL	NAME	LMR21-25S REP A	LMR21-25S REP B	LMR21-25S REP C	LMR21-25S REP D	LMR21-25S REP E	LMR21-27S REP A	LMR21-27S REP B	LMR21-27S REP C	LMR21-27S REP D	LMR21-27S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0824	0.0813	0.0729	0.0714	0.0693	0.0878	0.0796	0.0721	0.0616	0.0636
PCB1	2-CHLOROBIPHENYL		0.0147	0.00474	0.00367	0.00581	0.0151	0.012	0.00434	0.00564	0.006
PCB10	2,6-DICHLOROBIPHENYL				0.000641	0.0013			0.0015	0.00143	0.00167
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0162	0.0152	0.0108	0.0131	0.012	0.02	0.0202	0.0126	0.017	0.0156
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL		0.00052	0.00057	0.00046	0.000527	0.00243		0.000979	0.00138	0.00105
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.221	0.139	0.13	0.109	0.113	0.152	0.229	0.12	0.125	0.113
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0627	0.0461	0.0415	0.0381	0.0399	0.0475	0.068	0.0435	0.0441	0.0401
PCB11	3,3'-DICHLOROBIPHENYL	0.35	0.272	0.124	0.156	0.0452	0.118	0.286	0.0606	0.0535	0.0552
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00132	0.00138	0.00076	0.000658	0.000609	0.0016	0.00168	0.000764	0.00081	0.00088
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL										
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0157	0.0108	0.0103	0.00683	0.00857	0.0118	0.018	0.00927	0.00835	0.00812
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.558	0.379	0.345	0.28	0.3	0.428	0.645	0.323	0.323	0.303
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00554	0.0045	0.00424	0.00343	0.00327	0.0039	0.0064	0.00349	0.0035	0.00333
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.00056	0.00064	0.000575	0.000542	0.000363	0.00119		0.000602	0.000712	0.000609
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0141	0.0105	0.0101	0.00836	0.00746	0.00888	0.0171	0.00729	0.00791	0.00711
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.00866	0.00647	0.00589	0.00462	0.00602	0.00757	0.0112	0.00605	0.00546	0.00548
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.0015	0.00151	0.00158	0.00087	0.000874	0.0012	0.0025	0.00084	0.0008	0.000878
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.00034	0.000385			0.00043	0.000542	0.00025
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0628	0.0506	0.0466	0.0333	0.045	0.0648	0.0763	0.057	0.0503	0.0474
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.00786	0.00507	0.00429	0.00529	0.00612	0.0086	0.0096	0.0066	0.00726	0.00687
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.323	0.235	0.198	0.24	0.203	0.268	0.279	0.227	0.226	0.217
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0267	0.0263	0.0221	0.0123	0.0174	0.033	0.0351	0.0261	0.0173	0.0247
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.0654	0.0464	0.0386	0.0642	0.0719	0.0997	0.0982	0.0797	0.089	0.0858
PCB14	3,5-DICHLOROBIPHENYL				0.00019						
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0516	0.0319	0.0293	0.0275	0.0384	0.0472	0.0595	0.0507	0.0517	0.0437
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL									0	
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0293	0.0231	0.0207	0.0236	0.0293	0.0377	0.0439	0.0343	0.0353	0.0325
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL		0.00019		0.000358	0.00035			0.000511	0.00039	0.000475
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.217	0.193	0.165	0.162	0.174	0.243	0.255	0.211	0.192	0.184
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00344	0.00333	0.0026	0.00279	0.00237	0.00497	0.0045	0.00365	0.00427	0.00403
PCB15	4,4'-DICHLOROBIPHENYL	0.0677	0.0577	0.0276	0.0296	0.0671	0.0448	0.0647	0.0289	0.0363	0.0382
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.002	0.00152	0.00124	0.00175	0.00178	0.00322	0.00397	0.00223	0.00302	0.00284
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00094	0.000562	0.000472	0.00061	0.000829	0.00184	0.000938	0.00101	0.00118	0.00124
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0231	0.0224	0.016	0.0186	0.0173	0.0284	0.0276	0.0212	0.0233	0.0229
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.0014	0.00142		0.00144	0.000874	0.00221	0.0018	0.00141	0.00135	0.00123
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0619	0.0432	0.0441	0.0417	0.0483	0.0625	0.0773	0.0621	0.0553	0.0512
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00466	0.00365	0.00374	0.00314	0.00425	0.00508	0.00772	0.00574	0.00456	0.0044
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0734	0.0405	0.0277	0.0335	0.0507	0.0636	0.106	0.0542	0.054	0.0498
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00482	0.00459	0.004	0.00346	0.00343	0.00431	0.00542	0.00422	0.00367	0.0033
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.001	0.000895	0.00077	0.000666	0.0008	0.0016	0.00218	0.000794	0.00107	0.00113
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0352	0.0283	0.0245	0.0221	0.0234	0.0308	0.0376	0.0244	0.0256	0.0232
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00229	0.0017	0.00146	0.00149	0.00184	0.00276	0.00254	0.0031	0.0017	0.00188
PCB17	2,2',4-TRICHLOROBIPHENYL	0.124	0.0711	0.0571	0.0609	0.0957	0.127	0.205	0.12	0.131	0.117
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.169	0.141	0.144	0.125	0.128	0.165	0.201	0.168	0.137	0.134
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0394	0.0374	0.0356	0.0317	0.0352	0.0417	0.0519	0.0439	0.0386	0.0351
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.125	0.1	0.0932	0.0994	0.118	0.155	0.176	0.151	0.142	0.137
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.00919	0.00801	0.00767	0.00734	0.00783	0.00952	0.0118	0.0089	0.00886	0.0084
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0243	0.0191	0.0177	0.0211	0.0265	0.0354	0.0359	0.0305	0.0309	0.0301
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.137	0.12	0.107	0.0825	0.111	0.154	0.17	0.129	0.116	0.121
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.0789	0.0725	0.0624	0.067	0.0701	0.0913	0.0954	0.0792	0.081	0.0752
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.0814	0.0634	0.0559	0.0715	0.0957	0.127	0.122	0.109	0.116	0.112
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.00198	0.00178	0.00151	0.00131	0.00201	0.00266	0.0034	0.00198	0.00226	0.0015
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL										
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.16	0.138	0.122	0.129	0.118	0.143	0.172	0.147	0.139	0.126
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.00251	0.00264	0.00226	0.00257	0.00191	0.0031	0.0036	0.00282	0.003	0.00296
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0124	0.011	0.0167		0.0173	0.027	0.0304	0.0233	0.0118	0.0128
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL										0.000074
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	0.934	0.87	0.769	0.755	0.809	1.18	1.29	0.965	0.964	0.877
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.0015	0.0014	0.0012	0.00101	0.00105	0.0021	0.0028	0.00144	0.00122	0.00133
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.00826	0.00679	0.00601	0.00515	0.0052	0.0063	0.00861	0.00626	0.00542	0.00505
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0376	0.0307	0.025	0.0196	0.0251	0.0448	0.0556	0.0426	0.0425	0.0436
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.037	0.0377	0.03	0.0213	0.0412	0.0522	0.0661	0.0433	0.0426	0.0369
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00466	0.00404	0.00397	0.00295	0.00354	0.00498	0.0064	0.00475	0.00411	0.00392
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL				0.000095						0.0000712
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0827	0.0673	0.0676	0.0585	0.0538	0.0721	0.093	0.0802	0.0562	0.0659
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0415	0.0325	0.0362	0.0354	0.0329	0.0427	0.046	0.0424	0.0339	0.0362
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0418	0.0289	0.0297	0.0284	0.0254	0.0324	0.0383	0.0353	0.029	0.0282
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00925	0.0075	0.0061	0.0071	0.00634	0.00815	0.008	0.00693	0.00658	0.00671
PCB2	3-CHLOROBIPHENYL					0.00187	0.00388	0.0048	0.00128	0.00144	0.0013
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0172	0.0125	0.0123	0.0164	0.0151	0.0194	0.0197	0.0184	0.0188	0.0166
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.04	0.0326	0.0299	0.0294	0.0251	0.034	0.0372	0.0296	0.0308	0.0294
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0508	0.0554	0.0434	0.0396	0.0437	0.0557	0.0603	0.0422	0.0458	0.0392
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.155	0.132	0.139	0.132	0.119	0.15	0.179	0.155	0.126	0.122
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00068	0.00053	0.0004	0.000471	0.00024			0.000354	0.00034	0.00033
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00739	0.00631	0.00598	0.0053	0.00548	0.00804	0.00804	0.00591	0.00521	0.00514
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.0948	0.0946	0.083	0.0752	0.0741	0.0951	0.099	0.0841	0.0767	0.0749
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0167	0.0167	0.0142	0.012	0.0123	0.018	0.017	0.0134	0.0122	0.0129
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0477	0.05	0.0428	0.0396	0.0395	0.0474	0.0503	0.0411	0.0384	0.0385
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0824	0.0813	0.0729	0.0714	0.0693	0.0878	0.0796	0.0721	0.0616	0.0636
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.181	0.102	0.0701	0.07	0.0848	0.0975	0.177	0.0744	0.0851	0.0696
PCB23	2,3,5-TRICHLOROBIPHENYL				0.000247	0.00029			0.000324	0.000303	0.000301
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00156	0.00073		0.00074	0.00151	0.00165	0.00487	0.0023	0.00193	0.00176
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0909	0.0351	0.0292	0.0269	0.0412	0.0591	0.0974	0.0383	0.0587	0.0426
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0154	0.00844	0.00702	0.00788	0.0132	0.0178	0.0291	0.0155	0.0169	0.0162
PCB3	4-CHLOROBIPHENYL			0.0026	0.0029	0.00567	0.0076	0.0132	0.00291	0.00359	0.00336
PCB31	2,4',5-TRICHLOROBIPHENYL	0.361	0.188	0.148	0.133	0.216	0.284	0.541	0.204	0.242	0.203
PCB32	2,4',6-TRICHLOROBIPHENYL	0.0841	0.048	0.0378	0.0378	0.0591	0.0932	0.144	0.0774	0.0911	0.0771
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.00362	0.00158	0.00161	0.00151	0.00225	0.0024		0.00244	0.00297	0.00244
PCB35	3,3',4-TRICHLOROBIPHENYL	0.013	0.0078	0.00564	0.00589	0.00205	0.0036	0.0058	0.00201	0.00234	0.0018
PCB36	3,3',5-TRICHLOROBIPHENYL										
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0775	0.0411	0.0282	0.0301	0.0271	0.0305	0.0584	0.021	0.0287	0.022
PCB38	3,4,5-TRICHLOROBIPHENYL				0.000296	0.00039			0.00045	0.000452	0.00047
PCB39	3,4',5-TRICHLOROBIPHENYL	0.0028	0.00183	0.00149	0.0013	0.00195	0.00362		0.0023	0.00237	0.0021
PCB4	2,2'-DICHLOROBIPHENYL	0.0628	0.0611	0.0428	0.039	0.0508	0.0796	0.09	0.0676	0.0656	0.0781
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.233	0.154	0.116	0.132	0.127	0.168	0.261	0.128	0.144	0.136
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.0257	0.0179	0.0146	0.0186	0.0216	0.0266	0.0449	0.0226	0.0249	0.025
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0315	0.0188	0.0138	0.018	0.0212	0.0308	0.0425	0.0224	0.0274	0.0253
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.0996	0.0598	0.0503	0.0583	0.0816	0.107	0.189	0.0861	0.0948	0.0925
PCB5	2,3-DICHLOROBIPHENYL	0.0015	0.0009		0.000735	0.00195			0.0013	0.00164	0.0015
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	0.647	0.41	0.347	0.385	0.55	0.814	1.17	0.558	0.672	0.611
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00304	0.0025	0.0022	0.0019	0.00216	0.0065	0.0065	0.00448	0.00571	0.00503
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.0127	0.00442	0.00485	0.0036	0.0029	0.00348	0.0099	0.00304	0.00411	0.0033
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.258	0.148	0.125	0.12	0.109	0.136	0.273	0.105	0.119	0.109
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00468	0.00269	0.00214	0.00203	0.00262	0.00379	0.00525	0.00247	0.0031	0.00272
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.0018	0.00075	0.0014	0.000988	0.0013	0.0021		0.0013	0.00128	0.0015
PCB6	2,3'-DICHLOROBIPHENYL	0.027	0.0142	0.012	0.0124	0.0282	0.028	0.0452	0.022	0.0237	0.0231
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.115	0.0629	0.0557	0.0541	0.0456	0.0543	0.122	0.0439	0.0528	0.0466
PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.029	0.02	0.0179	0.0178	0.0186	0.0276	0.0418	0.0186	0.0237	0.0209
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.279	0.177	0.148	0.163	0.191	0.245	0.423	0.186	0.208	0.197

PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.462	0.293	0.245	0.226	0.224	0.3	0.584	0.223	0.245	0.236
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0179	0.00756	0.00712	0.00727	0.00942	0.0125	0.0265	0.00889	0.0114	0.0105
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00642	0.00524	0.00308	0.00478	0.00339	0.0069	0.0112	0.00438	0.00547	0.0046
PCB7	2,4-DICHLOROBIPHENYL	0.00517	0.0029		0.0023	0.00561	0.0086		0.00366	0.00391	0.00401
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.00881	0.00605	0.00469	0.00501	0.00554	0.00949	0.0133	0.00552	0.00733	0.00648
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00208	0.0014	0.00163	0.000961	0.00142	0.00422	0.00423	0.00196	0.00218	0.00201
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0339	0.0152	0.0141	0.0119	0.0116	0.0143	0.0274	0.0102	0.0131	0.012
PCB78	3,3',4,5-TETRACHLOROBIPHENYL		0								
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.0053	0.0035	0.00377	0.00393	0.00414	0.00645	0.0062	0.00447	0.00423	0.00424
PCB8	2,4'-DICHLOROBIPHENYL	0.117	0.0876	0.0551	0.053	0.13	0.106	0.162	0.0797	0.0781	0.0811
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.000958	0.00047	0.000585	0.000447	0.000496			0.00043	0.000539	0.000591
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.18	0.135	0.111	0.106	0.0834	0.0959	0.141	0.0803	0.085	0.0818
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.225	0.155	0.12	0.153	0.136	0.166	0.207	0.127	0.145	0.14
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0214	0.015	0.012	0.0134	0.0114	0.0143	0.0199	0.0103	0.0122	0.0121
PCB9	2,5-DICHLOROBIPHENYL					0.00711			0.0045	0.00449	0.0048
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.285	0.241	0.196	0.204	0.206	0.27	0.316	0.208	0.227	0.212
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.00757	0.00599	0.00494	0.006	0.00596	0.0122	0.011	0.00777	0.0101	0.00965
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	0.583	0.416	0.351	0.45	0.515	0.681	0.844	0.518	0.592	0.567
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.00666	0.00455	0.00297	0.00515	0.00525	0.00914	0.00905	0.00599	0.00727	0.00719
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0251	0.0169	0.0106	0.00935	0.0143	0.0136		0.00806	0.0109	0.00939
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.138	0.0684	0.0589	0.0684	0.141	0.176	0.313	0.161	0.165	0.153
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.523	0.301	0.214	0.195	0.268	0.326	0.584	0.228	0.273	0.228
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.144	0.0825	0.0561	0.0593	0.0839	0.106	0.186	0.0758	0.0825	0.0683
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.0764	0.0339	0.0272	0.0285	0.0533	0.0744	0.125	0.0547	0.071	0.0589
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.377	0.24	0.191	0.208	0.221	0.3	0.483	0.228	0.259	0.237
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.537	0.357	0.279	0.334	0.383	0.608	0.89	0.406	0.487	0.438
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.0816	0.0517	0.039	0.0569	0.072	0.132	0.157	0.087	0.117	0.102
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.426	0.272	0.219	0.244	0.296	0.481	0.664	0.311	0.39	0.344
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.0554	0.035	0.0275	0.0402	0.0593	0.104	0.122	0.0725	0.0961	0.0876
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0476	0.0301	0.0244	0.0289	0.0375	0.0515	0.0797	0.0369	0.0436	0.0414
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	0.786	0.437	0.397	0.378	0.44	0.626	1.23	0.443	0.502	0.475
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	0.714	0.576	0.485	0.482	0.468	0.621	0.838	0.485	0.508	0.48
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.575	0.4	0.361	0.355	0.363	0.467	0.639	0.372	0.393	0.372
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.193	0.147	0.112	0.141	0.131	0.169	0.21	0.132	0.151	0.147
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.15	0.923	0.766	0.732	0.767	1.01	1.32	0.774	0.812	0.76
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0514	0.0436	0.0327	0.0414	0.0305	0.0407	0.053	0.03	0.0368	0.0363
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0334	0.0245	0.0237	0.019	0.0212	0.0245	0.0386	0.0227	0.0237	0.0209
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.21	0.17	0.151	0.139	0.132	0.177	0.198	0.159	0.136	0.13
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.05	0.824	0.781	0.761	0.794	1.19	1.35	1.01	0.891	0.856
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0319	0.0216	0.0203	0.0272	0.0283	0.0377	0.0416	0.0324	0.0322	0.0318
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.362	0.288	0.254	0.3	0.374	0.547	0.568	0.446	0.467	0.434
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0161	0.0117	0.0106	0.0128	0.0131	0.017	0.019	0.0154	0.0158	0.0151
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	0.8	0.632	0.549	0.663	0.737	1.07	1.12	0.868	0.885	0.836
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.14	0.966	0.845	0.766	0.781	1.13	1.25	0.964	0.837	0.813
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.102	0.0746	0.0689	0.0597	0.0633	0.083	0.104	0.07	0.0683	0.0555
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0469	0.0424	0.036	0.031	0.0449	0.0562	0.0652	0.0512	0.049	0.0449
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.155	0.106	0.0976	0.0848	0.0987	0.13	0.172	0.143	0.124	0.11
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.28	0.242	0.238	0.24	0.231	0.291	0.326	0.255	0.267	0.239
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	1.53	1.13	1.01	0.947	0.875	1.15	1.61	0.908	0.925	0.869
PCB-CO84	PCB-137; PCB-164	0.0897	0.0685	0.066	0.0662	0.0747	0.101	0.118	0.0929	0.0869	0.082
PCCTOT	TOTAL PCB CONGENERS	21.4	15.7	13.4	13.5	14.8	20.3	27	16.2	16.7	15.6
TDCBP	TOTAL DICHLOROBIPHENYLS	0.66	0.518	0.272	0.306	0.352	0.399	0.648	0.278	0.28	0.297
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000101	0.000172	0.000221	0.000148	0.000159	0.000106	0.000361	0.000111	0.0000983	0.000161
TEQ_PCB_MP	TEQ PCB Mid Point	0.000251	0.000223	0.000221	0.000148	0.000159	0.000226	0.000361	0.000195	0.000149	0.000161
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000251	0.000223	0.000221	0.000148	0.000159	0.000226	0.000361	0.000195	0.000149	0.000161
THCBP	TOTAL HEPTACHLOROBIPHENYL	2.03	1.78	1.61	1.54	1.74	2.39	2.68	2.11	2.02	1.88
THXBP	TOTAL HEXACHLOROBIPHENYL	4.73	3.78	3.37	3.46	3.69	5.3	5.8	4.48	4.21	4.01
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0187	0.0249	0.00927	0.00849	0.0134	0.0266	0.03	0.00853	0.0107	0.0107
TNCBP	TOTAL NONACHLOROBIPHENYL	0.159	0.161	0.14	0.127	0.126	0.161	0.166	0.139	0.127	0.126
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.726	0.618	0.609	0.593	0.558	0.713	0.816	0.671	0.62	0.589
TPCBP	TOTAL PENTACHLOROBIPHENYL	6.46	4.83	4.15	4.12	4.11	5.42	7.28	4.21	4.47	4.21
TTCBP	TOTAL TETRACHLOROBIPHENYL	4.59	2.83	2.36	2.53	2.94	4.28	6.89	3.03	3.56	3.28
TTRBP	TOTAL TRICHLOROBIPHENYL	1.95	1.06	0.795	0.782	1.17	1.51	2.63	1.18	1.35	1.16
	TOTAL PCB CONGENERS (ND SET TO 0)	21.457078	15.761047	13.453262	13.600615	14.833277	20.37313	27.095398	16.242198	16.773858	15.6879992
	Average total PCB concentration per sediment sample			**15.8**					**19.2**		

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

PARLABEL	NAME	LMR21-45S REP A	LMR21-45S REP B	LMR21-45S REP C	LMR21-45S REP D	LMR21-45S REP E	LMR21-64S REP A	LMR21-64S REP B	LMR21-64S REP C	LMR21-64S REP D	LMR21-64S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0884	0.094	0.0848	0.084	0.0814	0.082	0.0893	0.0738	0.0741	0.0719
PCB1	2-CHLOROBIPHENYL	0.00731	0.00707	0.00417	0.00383	0.00403	0.00653	0.00518	0.00328	0.00298	0.00542
PCB10	2,6-DICHLOROBIPHENYL	0.00164	0.0021	0.00121	0.00144	0.0017	0.00167	0.00164	0.00114	0.00129	0.00217
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0254	0.0158	0.0249	0.0297	0.0219	0.0192	0.0253	0.0191	0.0178	0.0249
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00141	0.00094	0.00107	0.00134	0.00115	0.00116	0.00159	0.00108	0.001	0.00139
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.306	0.215	0.23	0.268	0.276	0.164	0.19	0.136	0.133	0.195
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0952	0.0731	0.0844	0.0915	0.0927	0.048	0.0631	0.0463	0.0449	0.064
PCB11	3,3'-DICHLOROBIPHENYL	0.16	0.23	0.145	0.0711	0.0637	0.163	0.105	0.0665	0.05	0.0772
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00136	0.0016	0.00132	0.00135	0.00174	0.00112	0.00132	0.00104	0.000916	0.00132
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL										
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0199	0.014	0.0146	0.0169	0.0185	0.0129	0.0142	0.0105	0.00946	0.0138
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.825	0.599	0.626	0.757	0.767	0.457	0.542	0.378	0.364	0.54
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00727	0.00607	0.00671	0.008	0.00765	0.00453	0.0061	0.0045	0.00395	0.00609
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.000949	0.0005	0.000754	0.000907	0.000816	0.000715	0.00066	0.000634	0.000516	0.000739
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0157	0.011	0.0142	0.0162	0.0171	0.011	0.0111	0.00862	0.00881	0.0123
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.0131	0.00853	0.009	0.0116	0.0111	0.00825	0.00945	0.00816	0.00722	0.0104
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00261	0.00223	0.00177	0.00239	0.0028	0.0014	0.00161	0.00138	0.00122	0.00192
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL			0.00025	0.00074	0.00082	0.00048	0.000524	0.000495	0.000577	0.0007
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0913	0.0759	0.0875	0.0969	0.0923	0.0799	0.0947	0.0666	0.0687	0.0858
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0136	0.00979	0.014	0.0123	0.0111	0.0114	0.0124	0.01	0.00972	0.0114
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.408	0.3	0.386	0.372	0.351	0.359	0.427	0.318	0.317	0.363
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0356	0.0275	0.0246	0.027	0.029	0.0344	0.0432	0.0292	0.0284	0.0384
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.138	0.0915	0.149	0.139	0.118	0.159	0.188	0.135	0.146	0.152
PCB14	3,5-DICHLOROBIPHENYL			0.00027						0.00011	
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0597	0.0357	0.0565	0.0629	0.0617	0.0806	0.0859	0.0727	0.0771	0.0969
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL										
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0691	0.0477	0.0685	0.0724	0.0614	0.0524	0.0646	0.0521	0.0496	0.0573
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00048		0.000854	0.000844	0.000695	0.000799	0.000835	0.000711	0.000727	0.000683
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.366	0.282	0.34	0.341	0.311	0.271	0.349	0.268	0.244	0.284
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00583	0.0033	0.00522	0.00522	0.00461	0.00521	0.0065	0.00502	0.00442	0.00535
PCB15	4,4'-DICHLOROBIPHENYL	0.0683	0.085	0.0443	0.0406	0.0464	0.0387	0.0441	0.0284	0.0293	0.0547
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.0042	0.00278	0.00416	0.00411	0.00308	0.00403	0.0052	0.00398	0.0039	0.00439
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00137	0.000854	0.0014	0.00142	0.00126	0.0017	0.00233	0.00164	0.00168	0.00191
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0357	0.027	0.0345	0.0383	0.0316	0.031	0.0451	0.0337	0.0313	0.038
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.00171	0.00129	0.0012	0.0014	0.00128	0.0014	0.00158	0.00111	0.000867	0.00144
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0931	0.0708	0.0902	0.0943	0.0919	0.082	0.101	0.0763	0.0759	0.0869
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00627	0.00564	0.00621	0.00771	0.00733	0.00843	0.00871	0.00712	0.00604	0.00754
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0623	0.047	0.0464	0.0589	0.0648	0.0528	0.0676	0.053	0.0504	0.0806
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00599	0.00544	0.00579	0.00637	0.00555	0.00528	0.00691	0.00532	0.00502	0.00516
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.0018	0.0012	0.00217	0.0015	0.0016	0.00094	0.00199	0.0013	0.00137	0.0011
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0447	0.0348	0.0411	0.0473	0.045	0.036	0.0429	0.0323	0.0304	0.0381
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00334	0.00338	0.00291	0.00369	0.0032	0.0044	0.00501	0.00399	0.00365	0.00425
PCB17	2,2',4-TRICHLOROBIPHENYL	0.135	0.0931	0.101	0.136	0.146	0.106	0.145	0.108	0.0996	0.166
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.186	0.172	0.191	0.22	0.227	0.217	0.242	0.18	0.17	0.224
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0366	0.033	0.0436	0.0509	0.0478	0.052	0.0593	0.0489	0.0458	0.0564
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.185	0.165	0.215	0.223	0.211	0.213	0.223	0.167	0.172	0.219
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0138	0.00929	0.0138	0.0139	0.012	0.0122	0.0138	0.0109	0.0106	0.0133
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0444	0.0348	0.0514	0.0493	0.0433	0.0445	0.0519	0.0399	0.0399	0.0492
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.178	0.159	0.167	0.192	0.181	0.169	0.194	0.14	0.119	0.175
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.118	0.0953	0.13	0.13	0.118	0.1	0.118	0.0946	0.0906	0.115
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.154	0.116	0.178	0.168	0.152	0.161	0.184	0.143	0.146	0.172
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0029	0.0024	0.00329	0.00311	0.00346	0.00265	0.00319	0.00245	0.00207	0.00283
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL										
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.2	0.156	0.206	0.197	0.184	0.175	0.197	0.164	0.15	0.187
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.00267	0.0018	0.00238	0.00239	0.00206	0.00206	0.0024	0.00212	0.00213	0.00266
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0424	0.0413	0.0454	0.0605	0.0568	0.0385	0.0415	0.0312	0.0291	0.0359
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL				0.00012			0.000164	0.00011	0.000142	0.000122
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	1.53	1.3	1.78	1.95	1.75	1.29	1.49	1.23	1.16	1.26
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00295	0.00271	0.00217	0.00235	0.00234	0.00234	0.00282	0.00187	0.00141	0.0027
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0075	0.00646	0.00746	0.00798	0.00761	0.00746	0.00862	0.00649	0.00636	0.00759
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0354	0.0271	0.0295	0.0356	0.0421	0.0284	0.0373	0.0278	0.0261	0.0442
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0657	0.0615	0.0665	0.0802	0.0792	0.066	0.0687	0.0515	0.0432	0.0624
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.0046	0.00442	0.0053	0.00636	0.00549	0.0066	0.00683	0.00486	0.00502	0.00637
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL									0.0000798	0.000117
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0624	0.0577	0.0515	0.0784	0.073	0.116	0.109	0.0882	0.0804	0.0987
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.044	0.0407	0.0447	0.0501	0.0496	0.06	0.0609	0.048	0.049	0.0544
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0352	0.0333	0.037	0.038	0.0397	0.0528	0.0554	0.0444	0.047	0.0493
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00979	0.00762	0.00965	0.00816	0.0103	0.0122	0.0127	0.00944	0.0114	0.011
PCB2	3-CHLOROBIPHENYL	0.00379	0.0039	0.00313	0.00194	0.00304	0.0028	0.0021	0.00167	0.00144	0.00243
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0231	0.0186	0.0287	0.0257	0.0228	0.0294	0.034	0.0268	0.0329	0.026
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0473	0.0339	0.0471	0.0406	0.0406	0.052	0.0512	0.0424	0.0463	0.0475
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.079	0.0728	0.0741	0.0782	0.0746	0.064	0.0663	0.0538	0.0537	0.0647
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.205	0.185	0.207	0.206	0.215	0.224	0.245	0.193	0.207	0.194
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00027	0.00024	0.000452	0.00027	0.000479	0.00063	0.00049	0.00041	0.0004	0.000605
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00688	0.00583	0.00697	0.00771	0.0075	0.00753	0.00842	0.00639	0.00651	0.00678
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.129	0.132	0.119	0.125	0.119	0.121	0.128	0.107	0.103	0.106
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0189	0.0181	0.0166	0.0194	0.0175	0.0205	0.0199	0.0167	0.0146	0.0171
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0671	0.0705	0.0615	0.0642	0.0594	0.0598	0.0647	0.0506	0.0491	0.0536
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0884	0.094	0.0848	0.084	0.0814	0.082	0.0893	0.0738	0.0741	0.0719
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.134	0.0957	0.0971	0.115	0.131	0.0713	0.0944	0.071	0.069	0.125
PCB23	2,3,5-TRICHLOROBIPHENYL	0.00069		0.000355	0.000482			0.000366	0.00024	0.000232	0.000498
PCB24	2,3,6-TRICHLOROBIPHENYL	0.0027	0.0025	0.00194	0.00264	0.00291	0.00239	0.00247	0.00214	0.00178	0.00333
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0647	0.0432	0.0498	0.0626	0.0662	0.0352	0.0524	0.0358	0.0356	0.0679
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0215	0.0163	0.0183	0.0226	0.0238	0.0158	0.0214	0.0155	0.0151	0.0246
PCB3	4-CHLOROBIPHENYL	0.00602	0.00743	0.00385	0.00272	0.00299	0.00501			0.00216	0.00359
PCB31	2,4',5-TRICHLOROBIPHENYL	0.42	0.293	0.285	0.357	0.41	0.225	0.293	0.205	0.192	0.371
PCB32	2,4',6-TRICHLOROBIPHENYL	0.102	0.0756	0.0758	0.0937	0.106	0.0623	0.0853	0.0627	0.0579	0.102
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.0042	0.00283	0.00326	0.0035	0.00392	0.00262	0.00342	0.00255	0.00224	0.00408
PCB35	3,3',4-TRICHLOROBIPHENYL	0.00597	0.00591	0.00502	0.00424	0.0041	0.00359	0.00267	0.00194	0.00197	0.00294
PCB36	3,3',5-TRICHLOROBIPHENYL			0.000516	0.00023						0.00026
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0653	0.0516	0.0501	0.0547	0.0628	0.0274	0.0373	0.0241	0.0268	0.0472
PCB38	3,4,5-TRICHLOROBIPHENYL			0.000828	0.000925	0.000989		0.00072	0.000592	0.00056	0.000768
PCB39	3,4',5-TRICHLOROBIPHENYL	0.0047	0.00252	0.0032	0.00416	0.00467	0.0023	0.00316	0.00245	0.00231	0.00388
PCB4	2,2'-DICHLOROBIPHENYL	0.0441	0.0414	0.0327	0.0354	0.0452	0.0448	0.0548	0.0434	0.0406	0.0673
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.233	0.153	0.202	0.253	0.243	0.157	0.213	0.153	0.146	0.225
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.0329	0.0236	0.0329	0.0418	0.0392	0.0267	0.0376	0.0282	0.0278	0.039
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0399	0.0278	0.0378	0.044	0.0388	0.0303	0.0383	0.0288	0.0281	0.0405
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.159	0.0956	0.129	0.17	0.164	0.11	0.14	0.108	0.0994	0.156
PCB5	2,3-DICHLOROBIPHENYL	0.0018	0.0025	0.0013	0.00106	0.001	0.00186	0.0013	0.00128	0.00101	0.0018
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	1.2	0.755	0.973	1.2	1.13	0.832	1.02	0.726	0.673	1.06
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.0036	0.00268	0.00318	0.0041	0.00453	0.00405	0.00498	0.0037	0.00315	0.00499
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.00576	0.00375	0.00482	0.00674	0.00683	0.0027	0.00362	0.00313	0.00294	0.00577
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.268	0.179	0.206	0.259	0.278	0.134	0.168	0.123	0.121	0.202
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.0043	0.00369	0.00445	0.00561	0.00549	0.00306	0.00458	0.00296	0.00279	0.00416
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.00395	0.0013	0.00183	0.00389	0.00435	0.0026	0.0029	0.00202	0.00224	0.00367
PCB6	2,3'-DICHLOROBIPHENYL	0.0272	0.0309	0.018	0.0206	0.0237	0.0211	0.0268	0.0176	0.0178	0.0348
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.101	0.065	0.0761	0.0963	0.102	0.0535	0.0646	0.0488	0.0486	0.0795
PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.0407	0.0255	0.0364	0.0464	0.0443	0.0232	0.031	0.0233	0.0215	0.0343
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.415	0.301	0.371	0.43	0.422	0.246	0.32	0.234	0.225	0.344

PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.602	0.405	0.471	0.58	0.612	0.29	0.37	0.26	0.249	0.42
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0213	0.0135	0.0188	0.0229	0.0223	0.0111	0.0144	0.0106	0.0106	0.0186
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.01	0.00788	0.00813	0.00985	0.00848	0.0063	0.00684	0.0054	0.00444	0.00755
PCB7	2,4-DICHLOROBIPHENYL	0.0051	0.0057	0.00335	0.00372	0.00396	0.00412	0.0048	0.00311	0.00281	0.00509
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0131	0.0087	0.0117	0.0141	0.0131	0.00724	0.00971	0.00703	0.00685	0.0099
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00256	0.00253	0.00254	0.00286	0.00287	0.00169	0.00252	0.0017	0.00165	0.00244
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0362	0.0246	0.0289	0.0325	0.0343	0.0153	0.0182	0.0129	0.0134	0.0229
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.000818	0.00068	0.000537			0.00027	
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.00952	0.007	0.00974	0.0102	0.0108	0.00553	0.00663	0.0043	0.00479	0.00796
PCB8	2,4'-DICHLOROBIPHENYL	0.106	0.141	0.0642	0.0681	0.0764	0.0776	0.0911	0.0618	0.0573	0.111
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00146	0.00094	0.0012	0.0012	0.0015	0.000872	0.000859	0.00054	0.000456	0.000804
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.17	0.119	0.143	0.16	0.159	0.106	0.119	0.0934	0.0902	0.128
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.287	0.189	0.258	0.273	0.245	0.214	0.237	0.173	0.175	0.234
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0192	0.0142	0.0191	0.0208	0.0178	0.0153	0.0176	0.0136	0.0136	0.019
PCB9	2,5-DICHLOROBIPHENYL	0.0059	0.00851	0.00412	0.00443	0.00471	0.0052	0.00523	0.00393	0.00336	0.00673
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.423	0.292	0.373	0.436	0.394	0.292	0.354	0.268	0.251	0.354
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.0109	0.00788	0.0117	0.0129	0.0107	0.0102	0.0127	0.00928	0.0095	0.0123
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	1.1	0.801	1.12	1.17	1.05	0.899	1.01	0.734	0.738	1.01
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.00764	0.00508	0.00852	0.00991	0.008	0.00998	0.0122	0.00834	0.00905	0.0111
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0178	0.0176	0.0114	0.0107	0.0122	0.0101	0.0103	0.00712	0.0077	0.0151
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.203	0.15	0.154	0.203	0.228	0.174	0.222	0.165	0.154	0.254
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.495	0.364	0.344	0.424	0.483	0.245	0.325	0.224	0.216	0.417
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.13	0.1	0.0916	0.107	0.123	0.0752	0.0948	0.0696	0.0663	0.124
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.092	0.0627	0.071	0.0885	0.096	0.0597	0.0795	0.0552	0.0513	0.0911
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.403	0.268	0.343	0.416	0.407	0.279	0.356	0.265	0.253	0.385
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.786	0.521	0.657	0.818	0.789	0.572	0.716	0.515	0.483	0.751
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.143	0.0989	0.138	0.16	0.144	0.114	0.143	0.105	0.102	0.148
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.637	0.404	0.52	0.671	0.628	0.412	0.551	0.394	0.363	0.574
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.111	0.082	0.116	0.134	0.117	0.101	0.127	0.0898	0.0895	0.126
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0793	0.0592	0.0782	0.0869	0.0844	0.0474	0.0662	0.0484	0.0454	0.0718
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	1.22	0.79	0.901	1.12	1.17	0.614	0.737	0.531	0.507	0.85
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.02	0.717	0.873	1.08	1.01	0.705	0.848	0.635	0.599	0.864
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.815	0.573	0.692	0.778	0.77	0.536	0.618	0.455	0.438	0.638
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.269	0.196	0.268	0.286	0.257	0.203	0.244	0.181	0.176	0.241
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.73	1.19	1.4	1.65	1.54	1.08	1.28	0.962	0.888	1.31
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0573	0.0394	0.0607	0.0959	0.0804	0.0687	0.0825	0.0637	0.0606	0.0827
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0446	0.0325	0.0388	0.046	0.0445	0.0277	0.0342	0.0267	0.0247	0.0339
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.261	0.21	0.238	0.26	0.25	0.208	0.254	0.193	0.18	0.207
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.75	1.45	1.68	1.79	1.74	1.42	1.78	1.31	1.24	1.44
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0619	0.0409	0.0626	0.0374	0.0357	0.0452	0.0478	0.0407	0.0396	0.028
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.789	0.585	0.847	0.864	0.729	0.66	0.819	0.643	0.609	0.674
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0262	0.0205	0.0281	0.0269	0.0241	0.0233	0.0298	0.0226	0.0224	0.0256
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	1.66	1.26	1.71	1.69	1.49	1.36	1.64	1.28	1.21	1.28
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.59	1.22	1.4	1.56	1.45	1.34	1.68	1.26	1.11	1.37
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.138	0.104	0.118	0.136	0.132	0.0928	0.112	0.0822	0.0801	0.104
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.074	0.0619	0.0804	0.0797	0.0764	0.0468	0.0358	0.0238	0.0305	0.0691
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.155	0.126	0.156	0.182	0.184	0.223	0.192	0.154	0.154	0.215
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.375	0.332	0.414	0.4	0.404	0.396	0.418	0.327	0.372	0.368
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	1.96	1.54	1.75	1.95	1.95	1.27	1.5	1.09	1.05	1.51
PCB-CO84	PCB-137; PCB-164	0.147	0.116	0.15	0.152	0.144	0.129	0.16	0.121	0.122	0.137
PCCTOT	TOTAL PCB CONGENERS	30.2	22.7	27.3	30.6	29.4	22.5	26.8	20.1	19.2	25.8
TDCBP	TOTAL DICHLOROBIPHENYLS	0.438	0.565	0.326	0.257	0.279	0.368	0.345	0.234	0.211	0.376
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000406	0.000356	0.000299	0.000391	0.000138	0.000157	0.000341	0.000279	0.000252	0.000349
TEQ_PCB_MP	TEQ PCB Mid Point	0.000406	0.000357	0.000299	0.000391	0.000418	0.000297	0.000341	0.000279	0.000252	0.000349
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000406	0.000357	0.000299	0.000391	0.000418	0.000297	0.000341	0.000279	0.000252	0.000349
THCBP	TOTAL HEPTACHLOROBIPHENYL	3	2.55	3.34	3.62	3.34	2.83	3.14	2.5	2.38	2.88
THXBP	TOTAL HEXACHLOROBIPHENYL	7.81	6.03	7.56	7.85	7.23	6.51	8.02	6.08	5.72	6.55
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0171	0.0184	0.0112	0.00849	0.0101	0.0143	0.0111	0.00717	0.00658	0.0114
TNCBP	TOTAL NONACHLOROBIPHENYL	0.215	0.221	0.197	0.209	0.196	0.201	0.213	0.174	0.167	0.177
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.888	0.788	0.921	0.933	0.938	1.01	1.06	0.84	0.907	0.921
TPCBP	TOTAL PENTACHLOROBIPHENYL	9.23	6.66	8.03	9.17	8.76	6.17	7.24	5.33	5.12	7.32
TTCBP	TOTAL TETRACHLOROBIPHENYL	6.58	4.33	5.38	6.64	6.53	4.1	5.17	3.74	3.54	5.59
TTRBP	TOTAL TRICHLOROBIPHENYL	1.98	1.43	1.43	1.77	2	1.19	1.57	1.13	1.07	1.93
	TOTAL PCB CONGENERS (ND SET TO 0)	30.335659	22.788314	27.368289	30.636236	29.439069	22.557363	26.933348	20.165282	19.2572628	25.899486
	Average total PCB concentration per sediment sample			**28.1**					**23.0**		

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

PARLABEL	NAME	LMR21-66S REP A	LMR21-66S REP B	LMR21-66S REP C	LMR21-66S REP D	LMR21-66S REP E	LMR21-68S REP A	LMR21-68S REP B	LMR21-68S REP C	LMR21-68S REP D	LMR21-68S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0931	0.0932	0.082	0.0827	0.0832	0.089	0.0834	0.0756	0.0737	0.0737
PCB1	2-CHLOROBIPHENYL	0.0051	0.00681	0.00482	0.00623	0.00718	0.0131	0.0163	0.557	0.0165	0.0637
PCB10	2,6-DICHLOROBIPHENYL	0.0027		0.00178	0.00295	0.00247	0.00316	0.00399	0.125	0.00595	0.0152
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0264	0.0318	0.0252	0.0391	0.0334	0.0388	0.0322	0.03	0.0245	0.0241
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.0013	0.00138	0.00113	0.00121	0.00131	0.0032	0.00249	0.0019	0.00162	0.00175
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.245	0.27	0.161	0.382	0.243	0.199	0.213	0.144	0.152	0.132
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL										
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0867	0.0992	0.0607	0.139	0.0826	0.0685	0.0689	0.0527	0.0494	0.0464
PCB11	3,3'-DICHLOROBIPHENYL	0.0684	0.0935	0.049	0.0535	0.0585	0.0795	0.139	0.153	0.0533	0.0557
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00182	0.0019	0.000932	0.0023	0.00161	0.00239	0.00211	0.00156	0.00158	0.00162
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL		0.0056	0.0026							
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.019	0.0223	0.0124	0.0341	0.0208	0.0152	0.0153	0.0108	0.0122	0.00996
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.752	0.824	0.473	1.23	0.758	0.591	0.619	0.415	0.436	0.383
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00862	0.00846	0.00524	0.0117	0.00797	0.0075	0.00773	0.00553	0.00553	0.0052
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.000997		0.000623	0.00056	0.000603	0.00142	0.00125	0.000869	0.00069	0.00064
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0193	0.0205	0.0119	0.0322	0.0182	0.0128	0.012	0.00991	0.00899	0.00813
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.0127	0.0151	0.00735	0.0178	0.0136	0.0107	0.00814	0.00622	0.00831	0.00561
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00183		0.00075	0.00134	0.00119	0.00107	0.00103	0.000768	0.000846	0.000944
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.000755		0.00063	0.0016	0.000826	0.00064	0.000669	0.000521	0.000512	0.00046
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.11	0.132	0.0895	0.18	0.132	0.11	0.11	0.0775	0.0848	0.077
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0152	0.017	0.0137	0.0271	0.0204	0.0151	0.0148	0.0112	0.0112	0.0102
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.436	0.492	0.38	0.69	0.52	0.431	0.438	0.321	0.323	0.319
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0431	0.0451	0.0271	0.059	0.0458	0.0456	0.0453	0.0261	0.0381	0.0344
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.173	0.221	0.189	0.298	0.251	0.209	0.204	0.153	0.151	0.167
PCB14	3,5-DICHLOROBIPHENYL										
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0851	0.11	0.0659	0.132	0.0747	0.0855	0.0857	0.0756	0.0798	0.0731
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL										
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0615	0.0728	0.0583	0.0985	0.0735	0.0615	0.0578	0.0445	0.0466	0.0443
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00086	0.00128	0.00112	0.00178	0.00157	0.000898	0.00104	0.000983	0.000882	0.00058
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.345	0.389	0.277	0.47	0.372	0.336	0.335	0.243	0.263	0.227
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00576	0.00566	0.00498	0.00583	0.00599	0.00782	0.00688	0.00552	0.00598	0.00499
PCB15	4,4'-DICHLOROBIPHENYL	0.0444	0.0546	0.0337	0.0526	0.0535	0.0511	0.0919	1.07	0.0577	0.109
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00493	0.00497	0.00472	0.00486	0.00547	0.00725	0.00556	0.00423	0.00392	0.00429
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00204	0.00242	0.00232	0.00307	0.00281	0.00416	0.00318	0.00222	0.00203	0.00214
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0403	0.0446	0.0361	0.0485	0.0422	0.0415	0.0404	0.0302	0.0312	0.029
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.0015	0.00134	0.000972	0.000792	0.00106	0.00143	0.00146	0.000947	0.000938	0.000949
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.109	0.126	0.0808	0.155	0.105	0.0989	0.0986	0.0724	0.0788	0.0698
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00937	0.0104	0.00747	0.014	0.0104	0.00869	0.00986	0.00718	0.00808	0.00712
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0788	0.109	0.0751	0.148	0.106	0.0571	0.063	0.0649	0.0548	0.0537
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00783	0.00793	0.00483	0.00999	0.00744	0.00665	0.00629	0.00451	0.00516	0.00425
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.0017			0.00145	0.00178	0.00252	0.0021	0.00129	0.00152	0.0012
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0508	0.0571	0.0359	0.0785	0.0512	0.0456	0.0473	0.0333	0.0369	0.0297
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00388	0.003	0.00344	0.00474	0.00365	0.00356	0.00386	0.00281	0.00288	0.00353
PCB17	2,2',4-TRICHLOROBIPHENYL	0.171	0.205	0.151	0.253	0.199	0.231	0.226	2.53	0.262	0.407
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.292	0.319	0.204	0.356	0.248	0.259	0.263	0.202	0.227	0.173
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0678	0.0774	0.0468	0.0789	0.0581	0.0641	0.0633	0.0542	0.0577	0.0449
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.249	0.274	0.199	0.292	0.221	0.233	0.223	0.183	0.189	0.196
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0148	0.0166	0.0133	0.0172	0.0147	0.0143	0.0143	0.0115	0.0124	0.0108
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0538	0.0616	0.0548	0.0706	0.0644	0.0581	0.0554	0.0445	0.0448	0.0421
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.229	0.274	0.193	0.292	0.237	0.231	0.234	0.174	0.187	0.168
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.126	0.143	0.111	0.133	0.128	0.125	0.122	0.096	0.102	0.0881
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.192	0.222	0.194	0.229	0.219	0.204	0.196	0.153	0.154	0.154
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.00405	0.0052	0.00319	0.00713	0.00505	0.00381	0.0041	0.00303	0.00334	0.0032
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL										
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.22	0.276	0.189	0.316	0.217	0.223	0.215	0.171	0.193	0.155
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0018	0.00251	0.00221	0.001	0.00251	0.00221	0.00237	0.0018	0.00148	0.00182
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0464	0.0567	0.0392		0.0492	0.0296	0.0449	0.0332	0.0371	0.0284
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL			0.000192	0.00013	0.000273	0.000222		0.000079		
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	1.65	1.83	1.23	1.85	1.5	1.5	1.51	1.16	1.18	1.09
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00301	0.00314	0.00204	0.00195	0.00242	0.00292	0.00293	0.00178	0.00191	0.00191
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0105	0.011	0.00732	0.0127	0.0095	0.00977	0.00979	0.00697	0.00787	0.00684
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0468	0.0526	0.0439	0.0602	0.0571	0.0943	0.0919	1.35	0.115	0.186
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0883	0.0921	0.0602	0.11	0.0805	0.0801	0.0792	0.0616	0.0668	0.0509
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00785	0.00908	0.00542	0.00954	0.00618	0.00731	0.0075	0.00616	0.00662	0.00503
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL				0	0.0000954			0.000097	0.000075	
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.131	0.137	0.0874	0.135	0.0944	0.117	0.113	0.0988	0.106	0.0757
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0694	0.0691	0.0517	0.0711	0.0658	0.0632	0.059	0.0502	0.0525	0.0427
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0612	0.0628	0.0421	0.0571	0.044	0.0501	0.0484	0.0407	0.0461	0.0364
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.0122	0.0125	0.011	0.0102	0.0115	0.0114	0.0101	0.0078	0.00917	0.00919
PCB2	3-CHLOROBIPHENYL	0.00167						0.0037	0.0066		
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0335	0.0339	0.0273	0.0351	0.0329	0.0316	0.0296	0.0251	0.0248	0.0239
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0543	0.0562	0.056	0.0475	0.0493	0.0482	0.0463	0.037	0.0384	0.0384
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.092	0.0953	0.0707	0.0886	0.085	0.0829	0.0836	0.0621	0.0661	0.0598
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.269	0.259	0.19	0.252	0.226	0.222	0.215	0.168	0.179	0.164
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00055	0.00044	0.0018	0.00026	0.000455	0.00047	0.000522	0.00031	0.00034	0.00037
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00995	0.0105	0.0075	0.00958	0.00881	0.00888	0.00874	0.00697	0.00746	0.00688
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.164	0.168	0.133	0.157	0.139	0.147	0.133	0.118	0.12	0.116
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0262	0.026	0.0212	0.0238	0.0238	0.0239	0.0231	0.0189	0.0193	0.0191
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0732	0.0759	0.0608	0.0695	0.0686	0.0692	0.0665	0.0557	0.0557	0.0544
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0931	0.0932	0.082	0.0827	0.0832	0.089	0.0834	0.0756	0.0737	0.0737
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.111	0.152	0.0915	0.175	0.119	0.0781	0.0924	0.0759	0.0666	0.0673
PCB23	2,3,5-TRICHLOROBIPHENYL			0.00031	0.000789	0.000472	0.00026	0.000449	0.00031	0.00023	0.00043
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00357	0.0035	0.00284	0.00517	0.00373	0.00195	0.00215	0.00285	0.00206	0.00202
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0568	0.0661	0.0465	0.0658	0.0566	0.0801	0.0819	0.807	0.0797	0.11
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0251	0.031	0.0232	0.0363	0.0308	0.0386	0.0381	0.528	0.0473	0.0767
PCB3	4-CHLOROBIPHENYL		0.0048	0.0026	0.00404	0.00428		0.0105	0.135	0.00479	0.0154
PCB31	2,4',5-TRICHLOROBIPHENYL	0.359	0.441	0.253	0.519	0.361	0.281	0.316	1.05	0.239	0.281
PCB32	2,4',6-TRICHLOROBIPHENYL	0.108	0.135	0.0933	0.167	0.127	0.147	0.152	1.36	0.156	0.231
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.00499	0.00528	0.0034	0.00742	0.00514	0.00449	0.00446	0.0278	0.00415	0.0052
PCB35	3,3',4-TRICHLOROBIPHENYL	0.0021	0.00299	0.00207	0.00358	0.00298	0.00229	0.00317	0.00225	0.00166	0.00169
PCB36	3,3',5-TRICHLOROBIPHENYL								0.00103		
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0428	0.0504	0.0306	0.0646	0.044	0.0313	0.0362	0.029	0.0264	0.0223
PCB38	3,4,5-TRICHLOROBIPHENYL		0.00165	0.000638	0.00168	0.000955	0.000675	0.000821	0.00072	0.000664	0.00058
PCB39	3,4',5-TRICHLOROBIPHENYL	0.0039	0.00606	0.00345	0.0093	0.00581	0.00333	0.00332	0.00688	0.00265	0.00248
PCB4	2,2'-DICHLOROBIPHENYL	0.066	0.0749	0.0638	0.0769	0.0829	0.145	0.14	3.25	0.184	0.403
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.248	0.303	0.198	0.385	0.271	0.221	0.207	0.209	0.163	0.166
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.045	0.0587	0.0364	0.0829	0.0551	0.0391	0.0361	0.0358	0.0316	0.03
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0439	0.0539	0.04	0.0749	0.0559	0.0472	0.0433	0.0541	0.0391	0.0386
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.172	0.221	0.139	0.317	0.205	0.127	0.116	0.0917	0.0936	0.0894
PCB5	2,3-DICHLOROBIPHENYL	0.0022	0.002	0.00109	0.00207	0.00143	0.0014	0.00214	0.00139	0.000896	0.00181
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	1.22	1.5	0.969	2.06	1.44	1.27	1.22	1.18	0.914	0.97
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00619	0.00594	0.00457	0.00592	0.00577	0.0135	0.0111	0.0376	0.0098	0.0116
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.005	0.00962	0.00385	0.00739	0.00541	0.00389	0.00425	0.00349	0.00298	0.00307
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.233	0.264	0.146	0.38	0.227	0.159	0.15	0.113	0.111	0.105
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00527	0.00581	0.00414	0.00643	0.00504	0.00937	0.00837	0.00959	0.0062	0.00672
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.0041	0.00362	0.00186							0.00199
PCB6	2,3'-DICHLOROBIPHENYL	0.0323	0.034	0.0223	0.0308	0.03	0.0329	0.0405	0.251	0.0306	0.0511
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.0816	0.0943	0.0574	0.129	0.081	0.0627	0.0586	0.0451	0.047	0.0418
PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.041	0.0447	0.0289	0.0633	0.0426	0.037	0.0319	0.0348	0.025	0.0231
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.389	0.464	0.293	0.623	0.419	0.308	0.299	0.227	0.228	0.225

PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.507	0.591	0.326	0.8	0.491	0.361	0.351	0.253	0.259	0.239
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0169	0.0211	0.0133	0.0301	0.0204	0.0163	0.0153	0.0129	0.0114	0.00997
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00813	0.0083	0.00634	0.0109	0.00851	0.0123	0.0117	0.0206	0.00812	0.00784
PCB7	2,4-DICHLOROBIPHENYL	0.0051	0.0066	0.00357	0.00575	0.00533	0.00618	0.00832	0.176	0.00847	0.0179
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0137	0.0145	0.00996	0.0225	0.0157	0.0172	0.0155	0.0263	0.012	0.0119
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00408	0.00465	0.00125	0.00465	0.00452	0.00637	0.00599	0.0112	0.0047	0.00408
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0202	0.0244	0.0151	0.0319	0.0222	0.0167	0.0156	0.0133	0.0127	0.0102
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.00123	0.000815	0.00049	0.000847	0.000427	0.00039	
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.01	0.0123	0.00766	0.0206	0.0137	0.00887	0.00874	0.00672	0.00652	0.00536
PCB8	2,4'-DICHLOROBIPHENYL	0.104	0.132	0.0741	0.119	0.111	0.09	0.146	0.608	0.0841	0.161
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00056	0.0011	0.000703	0.00159	0.000937	0.00079	0.00068	0.000482	0.000511	0.00056
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.152	0.169	0.108	0.265	0.165	0.13	0.131	0.101	0.0969	0.0933
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.294	0.353	0.251	0.53	0.361	0.295	0.295	0.244	0.214	0.217
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0215	0.0248	0.0181	0.0406	0.0283	0.02	0.0179	0.0157	0.0148	0.0142
PCB9	2,5-DICHLOROBIPHENYL	0.00688	0.0073	0.00417	0.00719	0.00675	0.00634	0.00931	0.136	0.00769	0.0173
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.448	0.499	0.335	0.739	0.496	0.485	0.46	0.366	0.336	0.333
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.0139	0.0161	0.0132	0.0204	0.0174	0.031	0.0222	0.023	0.0167	0.017
PCB95	2,3',3',5',6-PENTACHLOROBIPHENYL	1.24	1.59	1.1	2.5	1.72	1.41	1.38	1.07	1.01	0.997
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0123	0.0172	0.0142	0.0243	0.0196	0.0187	0.016	0.0189	0.0134	0.0142
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0106	0.013	0.00825	0.0113	0.0118	0.0161	0.023	0.531	0.0201	0.04
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.267	0.342	0.232	0.452	0.329	0.209	0.207	0.268	0.183	0.195
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.389	0.492	0.277	0.557	0.39	0.287	0.325	0.254	0.227	0.236
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.127	0.179	0.0994	0.224	0.142	0.0795	0.1	0.0805	0.0662	0.068
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.0868	0.11	0.0751	0.117	0.0967	0.123	0.126	0.63	0.103	0.129
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.435	0.512	0.333	0.7	0.48	0.403	0.383	0.576	0.306	0.327
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.839	1.03	0.657	1.3	0.918	0.911	0.846	1.16	0.631	0.686
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.161	0.208	0.152	0.269	0.207	0.233	0.201	0.473	0.177	0.207
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.649	0.747	0.484	0.958	0.68	0.679	0.623	0.807	0.487	0.516
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.141	0.181	0.137	0.236	0.184	0.202	0.175	0.346	0.16	0.18
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0761	0.0951	0.0619	0.126	0.086	0.0697	0.0662	0.0653	0.0524	0.0505
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	1.03	1.21	0.653	1.72	1.04	0.724	0.714	0.495	0.499	0.479
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.1	1.22	0.777	1.76	1.16	0.959	0.96	0.693	0.688	0.641
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.829	0.952	0.609	1.46	0.917	0.741	0.749	0.556	0.531	0.52
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.289	0.348	0.248	0.464	0.341	0.328	0.302	0.247	0.227	0.228
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.68	1.88	1.19	2.84	1.82	1.54	1.52	1.09	1.05	1.04
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0933	0.116	0.0863	0.156	0.119	0.135	0.112	0.102	0.0835	0.0821
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0475	0.0506	0.0303	0.077	0.0476	0.036	0.0373	0.0272	0.0251	0.0221
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.277	0.298	0.184	0.387	0.267	0.233	0.243	0.175	0.182	0.173
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.88	2.17	1.4	2.79	1.98	1.73	1.77	1.25	1.34	1.21
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0583	0.0791	0.0684	0.0713	0.0552	0.0441	0.0392	0.0336	0.033	0.052
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.777	0.915	0.702	1.12	0.893	0.801	0.778	0.574	0.578	0.606
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0299	0.0335	0.0267	0.05	0.0385	0.0306	0.0291	0.0221	0.0234	0.0204
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	1.66	1.8	1.37	2.24	1.73	1.54	1.53	1.12	1.17	1.27
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.73	1.81	1.21	2.17	1.64	1.48	1.52	1.06	1.17	1.06
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.143	0.159	0.0973	0.23	0.146	0.123	0.125	0.0892	0.095	0.0787
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0936	0.112	0.0798	0.12	0.0985	0.0931	0.0906	0.071	0.0781	0.0624
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.217	0.253	0.147	0.23	0.166	0.205	0.205	0.165	0.221	0.145
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.509	0.499	0.369	0.469	0.417	0.425	0.416	0.335	0.345	0.327
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	2.01	2.25	1.4	3.28	2.04	1.76	1.83	1.33	1.27	1.27
PCB-CO84	PCB-137; PCB-164	0.171	0.2	0.133	0.252	0.178	0.158	0.158	0.118	0.125	0.113
PCCTOT	TOTAL PCB CONGENERS	31.4	36.1	24	46.9	33.2	29.4	29.3	38.2	22.5	22.8
TDCBP	TOTAL DICHLOROBIPHENYLS	0.343	0.418	0.262	0.362	0.364	0.432	0.604	6.3	0.453	0.872
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000338	0.0000432	0.000129	0.000339	0.000268	0.000246	0.000251	0.000184	0.000195	0.000221
TEQ_PCB_MP	TEQ PCB Mid Point	0.000339	0.000153	0.000204	0.000339	0.000268	0.000246	0.000252	0.000184	0.000195	0.000221
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000339	0.000173	0.000204	0.000339	0.000268	0.000246	0.000252	0.000184	0.000195	0.000221
THCBP	TOTAL HEPTACHLOROBIPHENYL	3.57	4.04	2.78	4.13	3.33	3.35	3.34	2.6	2.77	2.43
THXBP	TOTAL HEXACHLOROBIPHENYL	8.23	9.21	6.47	11.6	8.66	7.66	7.71	5.56	5.89	5.69
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0107	0.0137	0.00882	0.0119	0.0135	0.0205	0.0305	0.699	0.0228	0.081
TNCBP	TOTAL NONACHLOROBIPHENYL	0.263	0.27	0.215	0.25	0.231	0.24	0.223	0.193	0.195	0.19
TOCBP	TOTAL OCTACHLOROBIPHENYL	1.24	1.24	0.915	1.18	1.04	1.06	1.03	0.832	0.875	0.784
TPCBP	TOTAL PENTACHLOROBIPHENYL	9.41	10.8	6.94	16	10.4	8.84	8.82	6.56	6.28	6.11
TTCBP	TOTAL TETRACHLOROBIPHENYL	6.41	7.69	4.78	10.4	6.99	5.96	5.62	6.31	4.3	4.45
TTRBP	TOTAL TRICHLOROBIPHENYL	1.88	2.38	1.5	2.87	2.08	1.75	1.87	9.07	1.64	2.08
	TOTAL PCB CONGENERS (ND SET TO 0)	31.537342	36.22764	24.0469	46.967391	33.2891014	29.481945	29.411408	38.276203	22.569764	22.823203
	Average total PCB concentration per sediment sample			**34.4**					**28.5**		

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

PARLABEL	NAME	LMR21-69S REP A	LMR21-69S REP B	LMR21-69S REP C	LMR21-69S REP D	LMR21-69S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0682	0.0628	0.0558	0.0574	0.0618
PCB1	2-CHLOROBIPHENYL			0.0114	0.00294	0.0471
PCB10	2,6-DICHLOROBIPHENYL	0.0012		0.00293	0.000731	0.00235
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.011	0.0106	0.00945	0.00939	0.0103
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00084	0.00104	0.000809	0.000791	0.000823
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.0627	0.062	0.0594	0.0643	0.0578
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0				
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0185	0.0207	0.017	0.0185	0.0177
PCB11	3,3'-DICHLOROBIPHENYL	0.0677	0.067	0.0707	0.0477	0.0763
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.000696	0.000867	0.000463	0.000636	0.000577
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL					
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.00454	0.00458	0.00409	0.004	0.00356
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.175	0.18	0.154	0.167	0.153
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00249	0.00259	0.00229	0.00232	0.0024
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.000476	0.00052	0.00038	0.000391	0.000389
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.00423	0.00404	0.00343	0.00392	0.00346
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.00301	0.00296	0.0033	0.00303	0.00254
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00065	0.00095	0.00044	0.000504	0.000446
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.00032		0.00019	0.000279	0.000161
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0468	0.0472	0.0421	0.0426	0.0382
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.00539	0.0049	0.00501	0.00572	0.005
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.177	0.179	0.157	0.169	0.152
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.023	0.0248	0.0184	0.0146	0.0144
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.0899	0.0885	0.0776	0.0789	0.0766
PCB14	3,5-DICHLOROBIPHENYL			0.00029	0.00014	
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0307	0.0356	0.0321	0.0339	0.0273
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL					
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0251	0.0261	0.0226	0.0231	0.0222
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00038	0.000424	0.000351	0.00031	0.000305
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.152	0.158	0.141	0.143	0.144
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.0033	0.0036	0.00291	0.00269	0.0031
PCB15	4,4'-DICHLOROBIPHENYL	0.0348	0.0173	0.147	0.016	0.126
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00311	0.0031	0.00257	0.00251	0.00277
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00117	0.00116	0.001	0.00105	0.00111
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.022	0.0227	0.0188	0.0191	0.0204
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.000912	0.00112	0.000796	0.000773	0.000873
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0387	0.0414	0.036	0.0394	0.0345
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00484	0.00586	0.00437	0.00419	0.00404
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0262	0.0285	0.0438	0.0231	0.039
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00294	0.00335	0.00265	0.00239	0.00247
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00127	0.00084	0.000889	0.0007	0.000864
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0171	0.0188	0.0167	0.0176	0.0162
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0023	0.00276	0.0017	0.00184	0.00189
PCB17	2,2',4-TRICHLOROBIPHENYL	0.0463	0.0464	0.0631	0.0393	0.0593
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.129	0.136	0.128	0.131	0.128
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0322	0.0336	0.0342	0.033	0.0341
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.135	0.142	0.114	0.109	0.112
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.00835	0.00885	0.00738	0.00716	0.00777
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0323	0.0313	0.03	0.0303	0.0309
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.136	0.134	0.119	0.117	0.112
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.0731	0.0764	0.068	0.0678	0.0715
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.122	0.116	0.107	0.108	0.112
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0019	0.0013	0.00183	0.00209	0.00156
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL					
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.124	0.12	0.113	0.112	0.111
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.00178	0.0019	0.00145	0.00151	0.00158
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0212	0.0225	0.0224	0.0206	0.0207
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL			0.000083	0.0000731	
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	0.779	0.834	0.739	0.726	0.773
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00194	0.002	0.00153	0.0015	0.00153
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.00493	0.0052	0.00414	0.00421	0.00433
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0126	0.0138	0.0168	0.0129	0.017
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0407	0.0434	0.0403	0.041	0.0407
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00367	0.00382	0.00345	0.00314	0.00313
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL			0.0000744	0.000063	
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0493	0.0543	0.0526	0.0518	0.0584
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0339	0.0364	0.0367	0.0347	0.0388
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0272	0.0291	0.0271	0.0233	0.0264
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00732	0.00911	0.00629	0.00651	0.00777
PCB2	3-CHLOROBIPHENYL			0.00315		0.003
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.018	0.018	0.0179	0.016	0.0176
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0297	0.033	0.0279	0.0255	0.0285
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0487	0.0496	0.0449	0.0425	0.045
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.119	0.127	0.114	0.105	0.12
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00028	0.00059	0.00029	0.000311	0.000315
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00568	0.00566	0.00511	0.00476	0.00516
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.0767	0.0803	0.071	0.0674	0.0737
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0145	0.0148	0.0127	0.0121	0.0136
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0417	0.0418	0.0384	0.0374	0.0417
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0682	0.0628	0.0558	0.0574	0.0618
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.0318	0.0333	0.0574	0.0252	0.0521
PCB23	2,3,5-TRICHLOROBIPHENYL			0.000225	0.0001	0.00018
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00125	0.00119	0.0016	0.000834	0.00167
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0125	0.0114	0.0184	0.00948	0.0166
PCB27	2,3',6-TRICHLOROBIPHENYL	0.00725	0.00738	0.0104	0.00631	0.00958
PCB3	4-CHLOROBIPHENYL			0.0145		0.0192
PCB31	2,4',5-TRICHLOROBIPHENYL	0.0858	0.0833	0.145	0.0643	0.133
PCB32	2,4',6-TRICHLOROBIPHENYL	0.0253	0.0268	0.0374	0.0223	0.0347
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.000775		0.000894	0.000587	0.000817
PCB35	3,3',4-TRICHLOROBIPHENYL	0.00124	0.0011	0.00147	0.00074	0.00133
PCB36	3,3',5-TRICHLOROBIPHENYL					
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0103	0.0112	0.0173	0.0085	0.0153
PCB38	3,4,5-TRICHLOROBIPHENYL			0.000268	0.000232	0.000294
PCB39	3,4',5-TRICHLOROBIPHENYL	0.000692	0.0011	0.000777	0.00083	0.000916
PCB4	2,2'-DICHLOROBIPHENYL	0.0321	0.028	0.0585	0.0257	0.057
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.0494	0.0524	0.0476	0.044	0.0489
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.00812	0.0082	0.00837	0.00752	0.0086
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.00954	0.0112	0.00951	0.00894	0.00977
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.0303	0.0331	0.0302	0.0266	0.0315
PCB5	2,3-DICHLOROBIPHENYL	0.0014		0.00325	0.000627	0.00336
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	0.29	0.314	0.246	0.24	0.26
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00205	0.00242	0.00205	0.00202	0.00204
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.000888	0.00178	0.000947	0.000859	0.000792
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.0379	0.0364	0.0337	0.0317	0.0322
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.000959	0.0008	0.000849	0.000691	0.000827
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.000681				
PCB6	2,3'-DICHLOROBIPHENYL	0.0168	0.014	0.049	0.0103	0.0387
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.0159	0.0175	0.0157	0.0146	0.0154
PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.00658	0.0069	0.00597	0.00555	0.00616
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.084	0.0887	0.0757	0.0703	0.0775

PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.0901	0.0899	0.0773	0.0745	0.0791
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.00281	0.00327	0.00284	0.00256	0.00287
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00226	0.00309	0.00222		0.00278
PCB7	2,4-DICHLOROBIPHENYL	0.00361	0.003	0.0115	0.00195	0.00867
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.00242	0.0022	0.00203	0.00183	0.00209
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00078	0.0014	0.000685	0.000672	0.000978
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.00445	0.0041	0.00433	0.00385	0.00414
PCB78	3,3',4,5-TETRACHLOROBIPHENYL			0.00011		0.000084
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.0021	0.00269	0.00213	0.00246	0.00188
PCB8	2,4'-DICHLOROBIPHENYL	0.0765	0.0592	0.273	0.0421	0.212
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00025		0.000221	0.00021	0.0002
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.0353	0.0389	0.0334	0.0359	0.0334
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.0773	0.082	0.0719	0.0788	0.0731
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.00443	0.00449	0.00418	0.00428	0.00429
PCB9	2,5-DICHLOROBIPHENYL	0.0045	0.00386	0.0146	0.00246	0.0114
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.124	0.129	0.112	0.116	0.118
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.00574	0.00624	0.00498	0.00488	0.00505
PCB95	2,3',3',5',6-PENTACHLOROBIPHENYL	0.393	0.424	0.357	0.387	0.378
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0041	0.00436	0.004	0.00398	0.004
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.00678	0.0032	0.0225	0.00376	0.0193
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.076	0.0817	0.106	0.0638	0.103
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.102	0.0934	0.178	0.0725	0.16
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.0359	0.0362	0.0762	0.0267	0.0677
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.0202	0.0198	0.0332	0.0166	0.0299
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.086	0.0917	0.0819	0.0745	0.0835
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.205	0.222	0.18	0.171	0.19
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.0431	0.047	0.0403	0.0385	0.0436
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.137	0.145	0.119	0.112	0.124
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.0372	0.0392	0.0336	0.0328	0.0361
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0163	0.0176	0.0155	0.0141	0.0158
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	0.175	0.178	0.151	0.144	0.154
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	0.292	0.311	0.257	0.271	0.272
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.209	0.215	0.189	0.205	0.194
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.0931	0.094	0.0815	0.0846	0.0854
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	0.444	0.48	0.38	0.409	0.403
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0301	0.0325	0.0286	0.0289	0.0302
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0107	0.0119	0.00994	0.0109	0.00996
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.104	0.11	0.095	0.0997	0.0932
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	0.739	0.8	0.658	0.692	0.659
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0247	0.0245	0.0134	0.0153	0.0131
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.358	0.366	0.308	0.301	0.313
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0127	0.0132	0.0113	0.0118	0.0113
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	0.775	0.805	0.601	0.589	0.624
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	0.729	0.79	0.623	0.631	0.634
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.0417	0.0432	0.0407	0.0465	0.0397
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0479	0.0519	0.0476	0.0494	0.0473
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.0956	0.104	0.0972	0.0954	0.0948
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.236	0.253	0.226	0.205	0.234
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	0.527	0.582	0.471	0.502	0.477
PCB-CO84	PCB-137; PCB-164	0.0665	0.0707	0.0621	0.0643	0.0588
PCCTOT	TOTAL PCB CONGENERS	10.7	11.2	10.4	9.5	10.4
TDCBP	TOTAL DICHLOROBIPHENYLS	0.245	0.196	0.653	0.151	0.555
TEQ_PCB_LB	TEQ PCB Lower Bound	0.00000971	0.0000926	0.000104	0.000115	0.00011
TEQ_PCB_MP	TEQ PCB Mid Point	0.000144	0.000188	0.000104	0.000115	0.00011
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000144	0.000188	0.000104	0.000115	0.00011
THCBP	TOTAL HEPTACHLOROBIPHENYL	1.79	1.87	1.68	1.66	1.71
THXBP	TOTAL HEXACHLOROBIPHENYL	3.5	3.69	3	3.05	3.01
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.00951	0.00835	0.0291	0.00574	0.0693
TNCBP	TOTAL NONACHLOROBIPHENYL	0.133	0.137	0.122	0.117	0.129
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.575	0.616	0.559	0.515	0.582
TPCBP	TOTAL PENTACHLOROBIPHENYL	2.53	2.71	2.26	2.42	2.34
TTCBP	TOTAL TETRACHLOROBIPHENYL	1.34	1.42	1.19	1.13	1.23
TTRBP	TOTAL TRICHLOROBIPHENYL	0.496	0.497	0.808	0.394	0.742
	TOTAL PCB CONGENERS (ND SET TO 0)	10.750269	11.257161	10.4092314	9.5530841	10.498901
	Average total PCB concentration per sediment sample			**10.5**		

Units are µg/kg
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Table 4.4.1 Elutriate Sample Results for Miscellaneous Assays

NAME	Aquatic_Life_OZMAa	LMR21-SBA1	LMR21-SBA2	LMR21-SBA3	LMR21-SBB1	LMR21-SBB2	LMR21-SBC	LMR21-SBD	LMR21-WA1	LMR21-WA2	LMR21-WA3
HARDNESS (AS CACO3)											
NITROGEN, AMMONIA	0.5	**12.4**	**0.782**	**11.9**	**5.27**	**6.27**	**13.3**	**2.44**	**30.1**	**19.9**	**17.5**
NITROGEN, TOTAL KJELDAHL (TKN)		12		10.4	3.8	5.1	12.8	2.5	28.8	20.2	17.7
PHOSPHORUS, TOTAL (AS P)		0.27	0.022	0.25	0.025	0.13	0.3		0.31	0.26	0.22
TOTAL ORGANIC CARBON		6.4	1.4	5.6	2.3	3.2	6.5	1.4	6.1	6.7	3.9

Units are mg/L
Samples SC21-CDF-WAT and SC21-MR-WAT were collected in Lake Erie near the CDF, and in Maumee River
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the Aquatic Life OZMA, Lake Erie basin values (Ohio EPA 2021)
OZMA: Outside mixing zone average

Table 4.4.1 Elutriate Sample Results for Miscellaneous Assays

NAME	Aquatic_Life_OZMAa	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC2**	**SC21-CDF-WAT**	**SC21-MR-WAT**
HARDNESS (AS CACO3)						227	238
NITROGEN, AMMONIA	0.5	**24.9**	**6.9**	**8.59**	**16.4**	0.13	0.1
NITROGEN, TOTAL KJELDAHL (TKN)		26.5	6.7	9.1	17.3	1.2	1.1
PHOSPHORUS, TOTAL (AS P)		0.38		0.058	0.32	0.19	0.17
TOTAL ORGANIC CARBON		7.6	2.2	2.5	6.1		

Units are mg/L
Samples SC21-CDF-WAT and SC21-MR-WAT were collected in Lake Erie near the CDF, and in Maumee River
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the Aquatic Life OZMA, Lake Erie basin values (Ohio EPA 2021)
OZMA: Outside mixing zone average

Table 4.4.2 Elutriate Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	**LMR21-SBA1**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/L	7.8	1.5	0.042	0.3	2.7	0.55	0.35	0.31	1.2
GASOLINE RANGE ORGANICS (GRO)	UG/L	157	35.7							
OIL RANGE ORGANICS (C20-C44)	MG/L	6.4	2		0.31	2.9	0.53	0.4	0.29	1.5
TOTAL OIL & GREASE	MG/L	3.1								
TOTAL PETROLEUM HYDROCARBONS	MG/L									

Table 4.4.2 Elutriate Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC2**	**SC21-CDF-WAT**	**SC21-MR-WAT**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/L	0.055	0.13	0.96		
GASOLINE RANGE ORGANICS (GRO)	UG/L					
OIL RANGE ORGANICS (C20-C44)	MG/L		0.15	1.2		
TOTAL OIL & GREASE	MG/L				4.1	3.6
TOTAL PETROLEUM HYDROCARBONS	MG/L				0.27	

NAME	Aquatic_Life_OZMAa	Human_Health_NonDrink_Values	Table1a_freshwater_chronic_value	LMR21-SBA1	LMR21-SBA2	LMR21-SBA3	LMR21-SBB1	LMR21-SBB2	LMR21-SBC	LMR21-SBD	LMR21-WA1	LMR21-WA2	LMR21-WA3	LMR21-WB1
ALUMINUM		4500	87	1200	650	1500	170	410	2400	2400	7700	10300	10700	1900
ARSENIC	150			12				9.3	23		17	14	12	
BARIUM	640			89	110	84	44	75	92	94	110	150	100	110
CADMIUM	2.5			0.89		0.89			1.8		**2.9**	2.1	**3.1**	2
CALCIUM				26900	20300	20200	25600	34600	27200	22800	23700	30700	26900	31200
CHROMIUM, TOTAL	86			3.8		3.9			6.3	2.7	35	33	16	20
COBALT	24										3.4	4.7	3.2	
COPPER	9.3			9		**9.6**			**24**	3.8	**44**	**47**	**46**	**29**
IRON				2400	810	2400	250	1300	5900	2000	7600	14000	7400	4800
LEAD	6.4			**20**		**12**			**62**		**52**	**40**	**75**	**20**
MAGNESIUM				12000	11700	14500	11400	11500	9700	11800	9300	11000	9500	11400
MANGANESE				150	21	200	46	490	230	43	89	190	100	200
MERCURY	0.91								0.31					
NICKEL	52										20	19	11	16
POTASSIUM				6500	3200	8300	3900	6200	6000	4200	7100	6700	6300	6800
SODIUM				28100	31400	31000	29100	33800	26900	28800	28300	27000	28800	26500
VANADIUM	44			2.9		3.6			5.1	5.6	16	16	10	3.9
ZINC	120			30		24			**160**	11	**130**	120	**130**	75

Units are µg/L

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the Aquatic Life OZMA, Lake Erie basin values (Ohio EPA 2021)

Shaded values exceed the Human Health NonDrink Values

Underlined values exceed the Table 1a Freshwater Chronic Value

OZMA: Outside mixing zone average

NAME	Aquatic_Life_OZMAa	Human_Health_NonDrink_Values	Table1a_freshwater_chronic_value	LMR21-WB2	LMR21-WC1	LMR21-WC2	SC21-CDF-WAT	SC21-MR-WAT
ALUMINUM		4500	87	1900	2900	2000	1610	1560
ARSENIC	150				12	11		
BARIUM	640			62	74	92	45.8	47
CADMIUM	2.5					1.2		
CALCIUM				27900	28800	36500	63900	67200
CHROMIUM, TOTAL	86				5.3	7.1	2.9	
COBALT	24							
COPPER	9.3			6.8	**16**	**21**		
IRON				2200	3800	5200	1720	1640
LEAD	6.4			**9.4**	**27**	**17**		
MAGNESIUM				10000	10100	12600	16400	17000
MANGANESE				67	96	310	36.1	33.2
MERCURY	0.91							
NICKEL	52					7.8		
POTASSIUM				3700	4100	6400	6500	6270
SODIUM				27100	26400	28700	17500	14600
VANADIUM	44			3.1	5.4	4.4	3.5	
ZINC	120			17	49	42	9.9	

Units are µg/L

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the Aquatic Life OZMA, Lake Erie basin values (Ohio EPA 2021)

Shaded values exceed the Human Health NonDrink Values

Underlined values exceed the Table 1a Freshwater Chronic Value

OZMA: Outside mixing zone average

Table 4.4.4 Elutriate Sample Results for Semi-Volatile Organic Analyses

NAME	Aquatic_Life_ OZMAa	Human_Health_N onDrink_ Values	Table1a_freshwater_c hronic_value	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**	**LMR21-SBD**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**
2-METHYLNAPHTHALENE			4.7	39.4	0.0099	0.061	0.014		0.017		0.01		0.023
ACENAPHTHENE	15			**45.4**	0.012	3.7	0.085	0.75	0.21	0.029	0.25	0.29	0.24
ACENAPHTHYLENE	13			1.7		0.097	0.017	0.033	0.15			0.019	
ANTHRACENE	0.02			**16.9**		**0.44**	0.017	**0.082**	**0.29**		**0.097**	**0.097**	**0.12**
BENZO(A)ANTHRACENE	4.7			**9**		0.26		0.12	0.91		0.22	0.16	0.31
BENZO(A)PYRENE	0.06			**5.8**		**0.18**		**0.12**	**0.73**		**0.19**	**0.13**	**0.21**
BENZO(B)FLUORANTHENE	2.6			**4.2**				0.086	0.69		0.18	0.13	0.2
BENZO(G,H,I)PERYLENE			0.012	1.5		0.096		0.063	0.31		0.098	0.071	0.096
BENZO(K)FLUORANTHENE		0.13	0.06	4.7		0.16		0.093	0.67		0.15	0.12	0.18
CHRYSENE	4.7			**7.4**		0.27	0.013	0.11	1.1		0.3	0.23	0.39
DIBENZ(A,H)ANTHRACENE		0.0013	0.012	0.63				0.023	0.11		0.029	0.023	0.041
FLUORANTHENE	0.8			**37**	0.015	**1.6**	0.078	0.36	**1.9**	0.031	0.54	0.43	0.66
FLUORENE	19			**47**	0.011	2.3	0.068	0.31	0.48	0.029	0.27	0.22	0.3
INDENO(1,2,3-C,D)PYRENE		0.013	0.012	1.9				0.065	0.32		0.092	0.059	0.092
NAPHTHALENE	21			**312**	0.062	0.066	0.23		0.075	0.055			
PHENANTHRENE	2.3			**75**	0.023	**2.8**	0.09	0.16	1.6	0.044	0.18	0.41	0.61
PYRENE	4.6			**25.1**	0.012	1.3	0.07	0.31	1.9	0.028	0.61	0.46	0.72
TOTAL 17 PAH (ND SET TO 1/2 RL)				634.63	0.3799	13.4005	0.8465	2.732	11.462	0.4745	3.263	2.896	4.239

Units are µg/L

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the Aquatic Life OZMA, Lake Erie basin valuees (Ohio EPA 2021)

Shaded values exceed the Human Health NonDrink Values

Underlined values exceed the Table 1a Freshwater Chronic Value

OZMA: Outside mixing zone average

NAME	Aquatic_Life_OZMAa	Human_Health_NonDrink_ Values	Table1a_freshwater_chronic_value	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC2**
2-METHYLNAPHTHALENE			4.7	0.18			0.012
ACENAPHTHENE	15			0.36	0.27	0.34	0.12
ACENAPHTHYLENE	13					0.016	0.016
ANTHRACENE	0.02			**0.1**	**0.058**	**0.14**	**0.036**
BENZO(A)ANTHRACENE	4.7			0.23	0.049	0.14	0.089
BENZO(A)PYRENE	0.06			**0.2**	0.032	**0.092**	
BENZO(B)FLUORANTHENE	2.6			0.19	0.029	0.088	0.096
BENZO(G,H,I)PERYLENE			0.012	0.093	0.016	0.045	0.055
BENZO(K)FLUORANTHENE		0.13	0.06	0.16	0.03	0.08	0.059
CHRYSENE	4.7			0.3	0.058	0.16	0.15
DIBENZ(A,H)ANTHRACENE		0.0013	0.012			0.016	0.018
FLUORANTHENE	0.8			0.6	0.25	0.46	0.21
FLUORENE	19			0.53	0.23	0.35	0.18
INDENO(1,2,3-C,D)PYRENE		0.013	0.012	0.081	0.016	0.044	
NAPHTHALENE	21			0.064			
PHENANTHRENE	2.3			0.33	0.44	0.56	0.2
PYRENE	4.6			0.63	0.25	0.47	0.25
TOTAL 17 PAH (ND SET TO 1/2 RL)				4.095	1.822	3.048	1.5615

Units are µg/L

Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.

Bolded values exceed the Aquatic Life OZMA, Lake Erie basin valuees (Ohio EPA 2021)

Shaded values exceed the Human Health NonDrink Values

Underlined values exceed the Table 1a Freshwater Chronic Value

OZMA: Outside mixing zone average

Table 4.4.5 Elutriate Sample Results for Polychlorinated Biphenyls

NAME	Aquatic_Life_OZMAa	Human_Health_NonDrink_Values	**LMR21-WB1**
PCB, TOTAL	0.00012	0.000026	**1.4**
PCB-1248 (AROCHLOR 1248)			1.4

NOTES:
Units are µg/L
Blank entry indicates the concentration was not reported above detection limits. Please see the corresponding table in Appendix 1 for sample-specific detection limit, as well as qualifiers on other results.
Bolded values exceed the Aquatic Life OZMA, Lake Erie basin valuees (Ohio EPA 2021)
Shaded values exceed the Human Health NonDrink Values
OZMA: Outside mixing zone average

Table 5.1 Percent survival and mass (and one standard deviation from the mean) in 10-d whole sediment toxicity bioassays

Sediment	*Hyalella azteca* (% Survival)	*Chironomus dilutus* (% Survival)	*Chironomus dilutus* (Individual dry weight, mg)
Control	100 ± 0	90 ± 12	2.66 ± 0.59
LMR21-69S (Reference)	94 ± 9	96 ± 5	2.45 ± 0.27
LMR21-11S	98 ± 4	§80 ± 16	2.79 ± 0.58
LMR21-12S	96 ± 5	94 ± 13	2.45 ± 0.27
LMR21-14S	94 ± 9	86 ± 9	2.91 ± 0.24
LMR21-15S	#90 ± 7	88 ± 11	2.52 ± 0.24
LMR21-17S	94 ± 9	90 ± 7	2.74 ± 0.09
LMR21-19S	90 ± 14	82 ± 22	2.75 ± 0.46
LMR21-25S	98 ± 4	84 ± 15	2.49 ± 0.48
LMR21-27S	96 ± 9	§76 ± 15	2.66 ± 0.30
LMR21-30S	96 ± 5	*§#62 ± 31	3.36 ± 0.64
LMR21-35S	#86 ± 21	88 ± 13	2.41 ± 0.22
LMR21-37S	96 ± 5	90 ± 7	2.38 ± 0.32
LMR21-39S	#88 ± 4	§80 ± 16	2.61 ± 0.46
LMR21-41S	98 ± 4	88 ± 8	2.59 ± 0.16
LMR21-43S	#92 ± 8	84 ± 15	2.42 ± 0.34
LMR21-45S	96 ± 5	92 ± 4	#2.15 ± 0.17
LMR21-47S	*§#14 ± 21	*§#52 ± 13	§#0.70 ± 0.34
LMR21-48S	90 ± 22	84 ± 15	2.43 ± 0.30
LMR21-49S	*§#70 ± 31	*§#62 ± 15	§#1.25 ± 0.38
LMR21-52S	96 ± 5	94 ± 9	#2.01 ± 0.26
LMR21-53S	98 ± 4	§#76 ± 5	#2.22 ± 0.13
LMR21-55S	94 ± 13	86 ± 15	#2.13 ± 0.13
LMR21-57S	98 ± 4	92 ± 4	#2.17 ± 0.29
LMR21-59S	94 ± 5	*§#68 ± 19	2.45 ± 0.60
LMR21-61S	98 ± 4	84 ± 19	2.37 ± 0.71
LMR21-62S	96 ± 5	86 ± 11	2.29 ± 0.39
LMR21-64S	98 ± 4	§82 ± 13	2.31 ± 0.26
LMR21-66S	92 ± 11	§76 ± 23	2.66 ± 0.59
LMR21-68S	#88 ± 18	84 ± 17	2.79 ± 0.58

* Survival ≥10% different (*H. azteca*) or 20% different (*C. dilutus*) and significantly different from LMR-69S (Reference) sediment. One-tailed Fisher’s LSD procedure (α=0.05).

§ Survival or growth significantly different from reference (One-tailed Fisher's LSD; α =0.05)
# Survival or growth significantly different from control (One-tailed Fisher's LSD; α =0.05)

Table 5.2.1 Mean % Lipid concentration. (± one standard deviation from the mean). The minimum and maximum range of the data is provided in parentheses

Sediment	% Lipid
LMR21-11S	1.91 ± 0.11 (2.01 - 0.06)
LMR21-12S	1.70 ± 0.28 (2.09 - 0.16)
LMR21-14S	1.96 ± 0.26 (2.42 - 0.13)
LRM21-15S	2.60 ± 0.19 (2.86 - 0.07)
LRM21-17S	2.22 ± 0.40 (2.65 - 0.18)
LMR21-19S	2.06 ± 0.15 (2.23 - 0.07)
LMR21-25S	1.65 ± 0.27 (2.07 - 0.16)
LMR21-27S	1.53 ± 0.21 (1.74 - 0.14)
LMR21-45S	1.69 ± 0.14 (1.90 - 0.08)
LMR21-64S	1.57 ± 0.20 (1.80 - 0.13)
LMR21-66S	1.42 ± 0.09 (1.55 - 0.06)
LMR21-68S	1.42 ± 0.20 (1.72 - 0.14)
LMR21-69S (Reference)	1.34 ± 0.09 (1.49 - 0.07)

Table 5.2.2 Summary of total PCB (tPCB) congener accumulation in worm tissues, corresponding sediment tPCB congener concentrations, and associated biota sediment accumulation factors (BSAF)

Area	**WWTP A3**	**WWTP A2**	**WWTP A1**			**WWTP A2**	**WWTP C2**		**Sway Bridge A1**	**Sway Bridge D**			**Reference**
replicate / sample (LMR21-_)	**10S***	**12S***	**14S***	**15S***	**17S***	**19S***	**25S***	**27S***	**45S***	**64S***	**66S***	**68S***	**69S**
A	50.08	16.78	33.3	408.21	765.18	1224.62	21.41	20.24	30.3	22.53	31.5	29.49	10.74
B	41.87	26.12	39.28	387.11	732.44	134.22	15.73	26.89	22.75	26.92	36.19	29.4	11.23
C	38.94	17.92	33.1	303.29	766.6	758.89	13.43	16.22	27.36	20.16	23.97	38.27	10.41
D	42.65	16.37	30.91	309.41	631.83	869.05	13.59	16.77	30.63	19.26	46.96	22.57	9.55
E	40.16	16.11	33.58	279.21	655.17	777.03	14.83	15.68	29.43	25.89	33.29	22.82	10.79
mean worm tPCB (μg/kg)	**42.79**	**18.71**	**33.98**	**337.48**	**710.25**	**753.00**	**15.82**	**19.23**	**28.11**	**22.96**	**34.41**	**28.51**	**10.49**
mean % lipid	1.91%	1.70%	1.96%	2.60%	2.22%	2.06%	1.65%	1.53%	1.69%	1.57%	1.42%	1.42%	1.34%
lipid normalized PCB (μg/kg - lipid)	2,240.2	1,100.4	1,733.8	12,980.1	31,993.2	36,553.3	958.9	1,257.2	1,663.5	1,462.6	2,423.5	2,007.9	783.1
sediment tPCB (μg/kg)	**79.7**	**48.7**	**75.3**	**432.2**	**610.3**	**862.5**	**43.5**	**62.5**	**12.7**	**36.2**	**46.8**	**51.7**	**19.9**
sediment TOC mg/kg	40,300	34,000	36,100	44,700	37,500	29,700	29,700	31,300	35,800	23,800	29,000	34,300	28,800
sediment TOC %	4.0%	3.4%	3.6%	4.5%	3.8%	3.0%	3.0%	3.1%	3.6%	2.4%	2.9%	3.4%	2.9%
TOC normalized tPCB (μg/kg-TOC sediment)	1,978.6	1,431.0	2,087.0	9,667.9	16,274.6	29,039.4	1,465.4	1,996.4	354.9	1,521.8	1,615.2	1,507.6	692.6
BSAF	**1.13**	**0.77**	**0.83**	**1.34**	**1.97**	**1.26**	**0.65**	**0.63**	**4.69**	**0.96**	**1.50**	**1.33**	**1.13**

NOTES:
* Indicates worm tissue residues from this sample are statistically greater than the reference sample (LMR21-69S)
Worm lipid results are taken from Table 5.2
Sediment PCB congener results are taken from Table 4.2.5a
Sediment TOC results are taken from Table 4.2.1a

Table 5.3 Elutriate toxicity test results and toxicity reference values

			Toxicity reference values, in % of elutriate			Ammonia measurements and evaluations as potential confounding cause of toxicity			
Sediment	**Test species**	**statistically signifcant toxicity?**	**NOEC**	**LOEC**	**LC50**	**TAN**	**UIA**	**> UIA TRV (> 1.2 or 0.6 - 1.0 mg/L)**	**Toxicity reduction evaluation (TRE) conclusion for ammonia**
LMR21-SBA1	*Ceriodaphnia dubia*	Yes	50	100	68	12	0.8	No	Not tested
	Pimephales promelas	Yes	50	100	69	12	0.74	Maybe	Not tested
LMR21-SBA2	*Ceriodaphnia dubia*	No	100	>100	>100	0.93	0.06	No	Not toxic
	Pimephales promelas	No	100	>100	>100	0.6	0.03	No	Not toxic
LMR21-SBA3	*Ceriodaphnia dubia*	Yes	50	100	>100	17.8	1.35	Yes	Not tested
	Pimephales promelas	Yes	100	>100	>100	11.3	0.72	Maybe	Not toxic
LMR21-SBB1	*Ceriodaphnia dubia*	No	100	>100	>100	16.3	1.07	No	Not toxic
	Pimephales promelas	No	100	>100	>100	4.01	0.19	No	Not toxic
LMR21-SBB2	*Ceriodaphnia dubia*	No	100	>100	>100	5.24	0.34	No	Not toxic
	Pimephales promelas	No	100	>100	>100	5.15	0.27	No	Not toxic
LMR21-SBC	*Ceriodaphnia dubia*	Yes	50	100	>100	13.9	0.77	No	Ammonia toxicity unlikely
	Pimephales promelas	Yes	100	>100	>100	12	0.66	Maybe	Not toxic
LMR21-SBD	*Ceriodaphnia dubia*	No	100	>100	>100	2.28	0.29	No	Not toxic
	Pimephales promelas	No	100	>100	>100	2.28	0.15	No	Not toxic
LMR21-WA1	*Ceriodaphnia dubia*	Yes	50	100	60	29.9	3.26	Yes	Not tested
	Pimephales promelas	Yes	25	50	41	29.9	2.66	Yes	Not tested
LMR21-WA2	*Ceriodaphnia dubia*	Yes	25	50	59	19	1.81	Yes	Not tested
	Pimephales promelas	Yes	50	100	66	19	1.81	Yes	Not tested
LMR21-WA3	*Ceriodaphnia dubia*	Yes	50	100	71	17.3	2	Yes	Not tested
	Pimephales promelas	Yes	50	100	74	17.3	1.4	Yes	Not tested
LMR21-WB1	*Ceriodaphnia dubia*	Yes	50	100	66	26.8	1.55	Yes	Not tested
	Pimephales promelas	Yes	10	50	27	26.8	1.5	Yes	Not tested
LMR21-WB2	*Ceriodaphnia dubia*	No	100	>100	>100	6.62	0.96	No	Not toxic
	Pimephales promelas	No	100	>100	>100	6.62	0.58	No	Not toxic
LMR21-WC1	*Ceriodaphnia dubia*	No	100	>100	>100	8.23	1	No	Not toxic
	Pimephales promelas	No	100	>100	>100	8.23	0.61	Yes	Not toxic
LMR21-WC2	*Ceriodaphnia dubia*	Yes	50	100	>100	17.3	1.66	Yes	Ammonia toxicity likely
	Pimephales promelas	Yes	10	50	56	17.3	1.57	Yes	Ammonia toxicity likely

LC50 = Lethal median concentration
NOEC = no observable effect concentration
LOEC = lowest observable effect concentration
TAN = total ammonia-Nitrogen
UIA = un-ionized ammonia
>UIA TRV = greater than un-ionized ammonia toxicity reference value (Ceriodaphnia LC50 = 1.2 mg/L (Anderson and Buckely 1998); Pimephales = 0.6 – 1.0 mg/L (Nimmo et al. 1989; Buhl et al 2002)

Area	Chemical	PEC	Number sediment locations sampled	Total number sediment samples collected	Number of surface (0-1') sediment samples	Number of subsurface (>1') sediment samples	Number results above detection limits	Detection frequency (%)	Minimum detected concentration	Maximum detected concentration	Units	Location of maximum concentration	Depth interval of maximum concentration (feet)	Average surface (0-1') sediment concentration (SWAC)	Average subsurface (>1') sediment concentration
	Arsenic	33	5	24	8	16	24	100%	6.4	29.6	MG/KG	LMR21-13C	1-4	14.0	17.3
	Cadmium	4.98	5	24	8	16	24	100%	0.36	**19.90**	MG/KG	LMR21-15C	4-7	2.69	3.87
	Chromium	111	5	24	8	16	24	100%	13.6	**493.0**	MG/KG	LMR21-15C	1-4	87.0	99.9
	Copper	149	5	24	8	16	24	100%	17.6	**263.0**	MG/KG	LMR21-15C	1-4	61.8	72.1
	Lead	128	5	24	8	16	24	100%	8.1	**286.0**	MG/KG	LMR21-15C	1-4	57.2	89.8
	Mercury	1.06	5	23	7	16	18	78%	0.078	**2.10**	MG/KG	LMR21-15C	4-7	0.32	0.49
WWTP	Nickel	48.6	5	24	8	16	24	100%	18.9	**241**	MG/KG	LMR21-15C	4-7	**49**	**58**
Area A1	Zinc	459	5	24	8	16	24	100%	52.9	**1,160**	MG/KG	LMR21-15C	1-4	244	304
	Diesel range organics	340	3	3	3	0	3	100%	72.2	**1,080**	MG/KG	LMR21-15S	0-0.5	**477**	
	Oil range organics	340	3	3	3	0	3	100%	154	**1,710**	MG/KG	LMR21-15S	0-0.5	**779**	
	total 17 PAHs	22,800	5	21	5	16	18	86%	1,076	**53,665**	UG/KG	LMR21-15C	4-7	9,384	10,932
	total 34 PAHs	22,800	3	3	3	0	3	100%	4,146	13,497	UG/KG	LMR21-15S	0-0.5	9,607	
	total PCB aroclors	676	5	21	5	16	11	52%	0	**9,780**	UG/KG	LMR21-15C	4-7	674	**1,263**
	total PCB congeners	676	3	3	3	0	3	100%	75	610	UG/KG	LMR21-17S	0-0.5	373	
	Arsenic	33	3	15	5	10	15	100%	5.7	15.2	MG/KG	LMR21-11C	1-4	13.1	10.3
	Cadmium	4.98	3	15	5	10	15	100%	0.37	3.70	MG/KG	LMR21-10C	1-4	0.79	1.20
	Chromium	111	3	15	5	10	15	100%	12.6	89.1	MG/KG	LMR21-10C	1-4	29.5	33.2
	Copper	149	3	15	5	10	15	100%	17.5	66.3	MG/KG	LMR21-10C	1-4	39.4	35.3
	Lead	128	3	15	5	10	15	100%	7.7	91.7	MG/KG	LMR21-11C	1-4	31.5	30.9
	Mercury	1.06	3	15	5	10	5	33%	0.088	0.49	MG/KG	LMR21-10C	0-1	0.24	0.14
WWTP	Nickel	48.6	3	15	5	10	15	100%	19	**51**	MG/KG	LMR21-10C	1-4	34	31
Area A2	Zinc	459	3	15	5	10	15	100%	51.6	222	MG/KG	LMR21-10C	1-4	149	119
	Diesel range organics	340	2	2	2	0	2	100%	99.5	224	MG/KG	LMR21-10S	0-0.5	162	
	Oil range organics	340	2	2	2	0	2	100%	210	**451**	MG/KG	LMR21-10S	0-0.5	331	
	total 17 PAHs	22,800	3	13	3	10	13	100%	1,267	21,436	UG/KG	LMR21-11C	1-4	13,076	4,961
	total 34 PAHs	22,800	2	2	2	0	2	100%	2,832	5,459	UG/KG	LMR21-10S	0-0.5	4,145	
	total PCB aroclors	676	3	13	3	10	9	69%	0	**929**	UG/KG	LMR21-10C	1-4	269	149
	total PCB congeners	676	2	2	2	0	2	100%	49	80	UG/KG	LMR21-10S	0-0.5	64	
	Arsenic	33	3	14	4	10	14	100%	3	29.6	MG/KG	LMR21-18C	7-10	10.9	12.7
	Cadmium	4.98	3	14	4	10	14	100%	0.24	**8.10**	MG/KG	LMR21-18C	1-4	3.58	2.55
	Chromium	111	3	14	4	10	14	100%	6.1	99.0	MG/KG	LMR21-20C	0-1	65.6	36.1
	Copper	149	3	14	4	10	14	100%	9.7	121.0	MG/KG	LMR21-18C	1-4	72.2	47.1
	Lead	128	3	14	4	10	14	100%	4.6	**284.0**	MG/KG	LMR21-18C	7-10	62.9	91.9
	Mercury	1.06	3	14	4	10	8	57%	0.069	0.63	MG/KG	LMR21-18C	7-10	0.35	0.26
WWTP	Nickel	48.6	3	14	4	10	14	100%	10.7	**53**	MG/KG	LMR21-20C	0-1	38	28
Area A3	Zinc	459	3	14	4	10	14	100%	29.1	**493**	MG/KG	LMR21-18C	7-10	224	195
	Diesel range organics	340	1	1	1	0	1	100%	1,200	**1,200**	MG/KG	LMR21-19S	0-0.5	**1,200**	
	Oil range organics	340	1	1	1	0	1	100%	1,710	**1,710**	MG/KG	LMR21-19S	0-0.5	**1,710**	
	total 17 PAHs	22,800	3	13	3	10	13	100%	1,063	**53,156**	UG/KG	LMR21-20C	0-1	**35,388**	7,515
	total 34 PAHs	22,800	1	1	1	0	1	100%	16,608	16,608	UG/KG	LMR21-19S	0-0.5	16,608	
	total PCB aroclors	676	3	13	3	10	6	46%	0	**1,690**	UG/KG	LMR21-18C	0-1	**877**	31
	total PCB congeners	676	1	1	1	0	1	100%	862	**862**	UG/KG	LMR21-19S	0-0.5	**862**	
	Arsenic	33	3	9	3	6	9	100%	3.3	13.7	MG/KG	LMR21-21C	0-1	11.2	5.3
	Cadmium	4.98	3	9	3	6	9	100%	0.21	2.80	MG/KG	LMR21-21C	0-1	1.17	0.43
	Chromium	111	3	9	3	6	9	100%	5.3	78.4	MG/KG	LMR21-21C	0-1	41.7	14.1
	Copper	149	3	9	3	6	9	100%	4.6	76.3	MG/KG	LMR21-21C	0-1	41.1	13.2
	Lead	128	3	9	3	6	9	100%	2.6	70.6	MG/KG	LMR21-21C	0-1	48.4	8.2
	Mercury	1.06	3	9	3	6	3	33%	0.081	0.34	MG/KG	LMR21-21C	0-1	0.22	0.09
WWTP	Nickel	48.6	3	9	3	6	9	100%	8	47	MG/KG	LMR21-21C	0-1	33	15
Area B1	Zinc	459	3	9	3	6	9	100%	19.4	256	MG/KG	LMR21-21C	0-1	139	43
	Diesel range organics	340	0	0	-	-	-	-	-		-	-	-		
	Oil range organics	340	0	0	-	-	-	-	-		-	-	-		
	total 17 PAHs	22,800	3	9	3	6	9	100%	1024.7	14,462	UG/KG	LMR21-21C	0-1	7,805	1,890
	total 34 PAHs	22,800	0	0	-	-	-	-	-		-	-	-		
	total PCB aroclors	676	3	9	3	6	3	33%	0	**3,720**	UG/KG	LMR21-21C	1-4	239	643
	total PCB congeners	676	0	0	-	-	-	-	-		-	-	-		
	Arsenic	33	6	22	6	16	22	100%	6.1	22.2	MG/KG	LMR21-09C	1-4	13.7	13.8
	Cadmium	4.98	6	22	6	16	22	100%	0.25	3.70	MG/KG	LMR21-06C	4-6.3	0.95	0.83
	Chromium	111	6	22	6	16	22	100%	13	56.6	MG/KG	LMR21-06C	4-6.3	30.3	24.8

Area	Chemical	PEC	Number sediment locations sampled	Total number sediment samples collected	Number of surface (0-1') sediment samples	Number of subsurface (>1') sediment samples	Number results above detection limits	Detection frequency (%)	Minimum detected concentration	Maximum detected concentration	Units	Location of maximum concentration	Depth interval of maximum concentration (feet)	Average surface (0-1') sediment concentration (SWAC)	Average subsurface (>1') sediment concentration
WWTP Area B2	Copper	149	6	22	6	16	22	100%	16.3	53.7	MG/KG	LMR21-06C	4-6.3	39.6	33.7
	Lead	128	6	22	6	16	22	100%	10.4	98.9	MG/KG	LMR21-04C	1-4	35.2	42.8
	Mercury	1.06	6	22	6	16	15	68%	0.084	0.52	MG/KG	LMR21-08C	1-4	0.18	0.21
	Nickel	48.6	6	22	6	16	22	100%	19	46	MG/KG	LMR21-06C	4-6.3	34	31
	Zinc	459	6	22	6	16	22	100%	51.3	225	MG/KG	LMR21-04C	1-4	149	130
	Diesel range organics	340	0	0	-	-	-	-	-		-	-	-		
	Oil range organics	340	0	0	-	-	-	-	-		-	-	-		
	total 17 PAHs	22,800	6	22	6	16	22	100%	1525.2	17,213	UG/KG	LMR21-08C	1-4	7,136	7,610
	total 34 PAHs	22,800	0	0	-	-	-	-	-		-	-	-		
	total PCB aroclors	676	6	22	6	16	6	27%	0	413	UG/KG	LMR21-06C	4-6.3	26	46
	total PCB congeners	676	0	0	-	-	-	-	-		-	-	-		
WWTP Area C1	Arsenic	33	3	11	3	8	11	100%	6.8	22.2	MG/KG	LMR21-02C	7-8	13.4	15.9
	Cadmium	4.98	3	11	3	8	11	100%	0.3	3.40	MG/KG	LMR21-02C	1-4	1.23	1.37
	Chromium	111	3	11	3	8	11	100%	15.6	58.4	MG/KG	LMR21-02C	0-1	43.2	28.5
	Copper	149	3	11	3	8	11	100%	19.5	54.8	MG/KG	LMR21-03C	1-4	45.0	38.6
	Lead	128	3	11	3	8	11	100%	8.7	105.0	MG/KG	LMR21-03C	1-4	27.6	58.3
	Mercury	1.06	3	11	3	8	9	82%	0.089	0.69	MG/KG	LMR21-03C	1-4	0.18	0.29
	Nickel	48.6	3	11	3	8	11	100%	23.4	45	MG/KG	LMR21-02C	0-1	39	32
	Zinc	459	3	11	3	8	11	100%	54.5	240	MG/KG	LMR21-03C	1-4	161	162
	Diesel range organics	340	0	0	-	-	-	-	-		-	-	-		
	Oil range organics	340	0	0	-	-	-	-	-		-	-	-		
	total 17 PAHs	22,800	3	11	3	8	10	91%	1272.4	9,627	UG/KG	LMR21-03C	1-4	2,669	4,491
	total 34 PAHs	22,800	0	0	-	-	-	-	-		-	-	-		
	total PCB aroclors	676	3	11	3	8	4	36%	0	**1,123**	UG/KG	LMR21-02C	0-1	419	33
	total PCB congeners	676	0	0	-	-	-	-	-		-	-	-		
WWTP Area C2	Arsenic	33	5	15	7	8	15	100%	9.7	16.3	MG/KG	LMR21-25C	4-7	13.3	14.1
	Cadmium	4.98	5	15	7	8	15	100%	0.57	**5.00**	MG/KG	LMR21-24C	1-4	0.74	2.75
	Chromium	111	5	15	7	8	15	100%	24	107.0	MG/KG	LMR21-24C	1-4	33.1	60.9
	Copper	149	5	15	7	8	15	100%	29.8	76.8	MG/KG	LMR21-24C	1-4	39.9	52.5
	Lead	128	5	15	7	8	15	100%	17.7	65.4	MG/KG	LMR21-24C	1-4	21.4	43.4
	Mercury	1.06	5	15	7	8	6	40%	0.1	0.38	MG/KG	LMR21-24C	1-4	0.15	0.18
	Nickel	48.6	5	15	7	8	15	100%	26.3	**54**	MG/KG	LMR21-25C	4-7	38	43
	Zinc	459	5	15	7	8	15	100%	99.9	257	MG/KG	LMR21-24C	1-4	145	190
	Diesel range organics	340	2	2	2	0	2	100%	94.9	163	MG/KG	LMR21-27S	0-0.5	129	
	Oil range organics	340	2	2	2	0	2	100%	202	**497**	MG/KG	LMR21-27S	0-0.5	**350**	
	total 17 PAHs	22,800	5	13	5	8	13	100%	1,923	16,662	UG/KG	LMR21-27C	1-3	2,365	7,699
	total 34 PAHs	22,800	2	2	2	0	2	100%	2,889	3,723	UG/KG	LMR21-27S	0-0.5	3,306	
	total PCB aroclors	676	5	13	5	8	9	69%	0	**1,509**	UG/KG	LMR21-24C	1-4	15	574
	total PCB congeners	676	2	2	2	0	2	100%	44	62	UG/KG	LMR21-27S	0-0.5	53	

NOTES:

Bolded and shaded values exceed the PEC

PEC = probable effects concentration

SRV = sediment reference value

Table 6.2.1 Summary of Constituents of Potential Concern in the Sway Bridge Areas

Area	Chemical	PEC	Number sediment locations sampled	Total number sediment samples collected	Number of surface (0-1') sediment samples	Number of subsurface (>1') sediment samples	Number results above detection limits	Detection frequency (%)	Minimum detected concentration	Maximum detected concentration	Units	Location of maximum concentration	Depth interval of maximum concentration (feet)	Average surface (0-1') sediment concentration (SWAC)	Average subsurface (>1') sediment concentration
Sway Bridge Area A1	Arsenic	33	7	19	9	10	19	100%	8.3	**33.7**	MG/KG	LMR21-49C	1-4	17.6	19.6
	Cadmium	4.98	7	19	9	10	17	89%	0.21	**5.30**	MG/KG	LMR21-46C	1-4	1.74	2.12
	Chromium	111	7	19	9	10	19	100%	12.4	81.2	MG/KG	LMR21-50C	4-7.5	35.3	36.0
	Copper	149	7	19	9	10	19	100%	18.1	74.1	MG/KG	LMR21-50C	4-7.5	47.3	39.8
	Lead	128	7	19	9	10	19	100%	8.5	**340.0**	MG/KG	LMR21-46C	1-4	75.7	97.6
	Mercury	1.06	7	19	9	10	10	53%	0.073	0.66	MG/KG	LMR21-46C	4-7	0.23	0.26
	Nickel	48.6	7	19	9	10	19	100%	22.3	**58**	MG/KG	LMR21-47C	0-1	37	33
	Zinc	459	7	19	9	10	19	100%	48	**727**	MG/KG	LMR21-49C	1-4	213	292
	Diesel range organics	340	9	19	9	10	19	100%	44.3	**8,070**	MG/KG	LMR21-47S	0-0.5	**1,465**	**1,137**
	Oil range organics	340	9	19	9	10	19	100%	37.6	**5,560**	MG/KG	LMR21-47S	0-0.5	**1,194**	**951**
	total 17 PAHs	22,800	7	15	5	10	14	93%	878	**544,462**	UG/KG	LMR21-49C	1-4	**29,972**	**138,882**
	total 34 PAHs	22,800	3	3	3	0	3	100%	99,690	**1,673,553**	UG/KG	LMR21-47S	0-0.5	**1,042,512**	
	total PCB aroclors	676	7	15	5	10	6	40%	0	**1,572**	UG/KG	LMR21-50C	1-4	144	236
	total PCB congeners	676	3	3	3	0	3	100%	13	141	UG/KG	LMR21-47S	0-0.5	77	
Sway Bridge Area A2	Arsenic	33	5	9	7	2	9	100%	7.6	16.2	MG/KG	LMR21-43S	0-0.5	10.3	9.8
	Cadmium	4.98	5	9	7	2	4	44%	0.18	3.30	MG/KG	LMR21-41C	1-3	0.95	2.10
	Chromium	111	5	9	7	2	9	100%	15	43.1	MG/KG	LMR21-43S	0-0.5	24.4	21.2
	Copper	149	5	9	7	2	9	100%	16.2	44.7	MG/KG	LMR21-43S	0-0.5	27.1	31.6
	Lead	128	5	9	7	2	9	100%	7.3	41.3	MG/KG	LMR21-43S	0-0.5	15.8	11.2
	Mercury	1.06	5	9	7	2	0	0%	0.071	0.17	MG/KG	LMR21-41S	0-0.5	0.10	0.07
	Nickel	48.6	5	9	7	2	9	100%	24.2	46	MG/KG	LMR21-41C	1-3	33	39
	Zinc	459	5	9	7	2	9	100%	46.1	185	MG/KG	LMR21-43S	0-0.5	90	60
	Diesel range organics	340	7	9	7	2	9	100%	36.1	167	MG/KG	LMR21-41S	0-0.5	66	41
	Oil range organics	340	7	9	7	2	9	100%	30.5	337	MG/KG	LMR21-41S	0-0.5	80	34
	total 17 PAHs	22,800	5	7	5	2	7	100%	902.7	3,219	UG/KG	LMR21-41C	0-1	1,455	933
	total 34 PAHs	22,800	2	2	2	0	2	100%	11,880	16,729	UG/KG	LMR21-43S	0-0.5	14,304	
	total PCB aroclors	676	5	7	5	2	0	0%	0	0	UG/KG	-	-	0	0
	total PCB congeners	676	2	2	2	0	2	100%	81	376	UG/KG	LMR21-43S	0-0.5	229	
Sway Bridge Area A3	Arsenic	33	5	19	8	11	19	100%	6.8	21.4	MG/KG	LMR21-52C	7-10	12.3	15.0
	Cadmium	4.98	5	19	8	11	19	100%	0.36	**5.90**	MG/KG	LMR21-53C	4-6	0.82	2.56
	Chromium	111	5	19	8	11	19	100%	11.9	62.7	MG/KG	LMR21-52C	4-7	30.4	39.2
	Copper	149	5	19	8	11	19	100%	15.7	57.2	MG/KG	LMR21-52C	4-7	39.1	44.1
	Lead	128	5	19	8	11	19	100%	8	76.8	MG/KG	LMR21-52C	4-7	21.6	47.4
	Mercury	1.06	5	19	8	11	7	37%	0.068	0.27	MG/KG	LMR21-52C	7-10	0.15	0.15
	Nickel	48.6	5	19	8	11	19	100%	19.9	**50**	MG/KG	LMR21-53C	4-6	36	38
	Zinc	459	5	19	8	11	19	100%	41.8	419	MG/KG	LMR21-55C	4-7.5	144	208
	Diesel range organics	340	8	19	8	11	19	100%	13.3	**399**	MG/KG	LMR21-52C	7-10	31	169
	Oil range organics	340	8	19	8	11	19	100%	19.5	**402**	MG/KG	LMR21-52C	7-10	59	217
	total 17 PAHs	22,800	5	16	5	11	16	100%	1,016	**81,808**	UG/KG	LMR21-52C	1-4	1,956	21,405
	total 34 PAHs	22,800	3	3	3	0	3	100%	2,386	**55,161**	UG/KG	LMR21-53S	0-0.5	20,502	
	total PCB aroclors	676	5	16	5	11	9	56%	0	**751**	UG/KG	LMR21-52C	4-7	0	263
	total PCB congeners	676	3	3	3	0	3	100%	8	43	UG/KG	LMR21-53S	0-0.5	30	
Sway Bridge Area B1	Arsenic	33	5	17	7	10	17	100%	9.3	28.8	MG/KG	LMR21-59C	1-4	13.0	15.5
	Cadmium	4.98	5	17	7	10	17	100%	0.24	3.80	MG/KG	LMR21-59C	1-4	1.08	1.60
	Chromium	111	5	17	7	10	17	100%	14.9	59.5	MG/KG	LMR21-59C	1-4	29.3	34.2
	Copper	149	5	17	7	10	17	100%	20.1	**171.0**	MG/KG	LMR21-57C	0-1	61.0	39.8
	Lead	128	5	17	7	10	17	100%	9.6	111.0	MG/KG	LMR21-60C	0-1	40.9	45.6
	Mercury	1.06	5	17	7	10	6	35%	0.074	0.57	MG/KG	LMR21-60C	0-1	0.20	0.14
	Nickel	48.6	5	17	7	10	17	100%	24.5	**51**	MG/KG	LMR21-56C	1-4	37	36
	Zinc	459	5	17	7	10	17	100%	54.9	322	MG/KG	LMR21-59C	1-4	145	162
	Diesel range organics	340	7	17	7	10	17	100%	8.2	**673**	MG/KG	LMR21-56C	1-4	79	175
	Oil range organics	340	7	17	7	10	17	100%	10.6	**1,040**	MG/KG	LMR21-56C	1-4	137	229
	total 17 PAHs	22,800	5	15	5	10	15	100%	949	17,598	UG/KG	LMR21-56C	1-4	2,893	5,301
	total 34 PAHs	22,800	2	2	2	0	2	100%	4,116	8,018	UG/KG	LMR21-57S	0-0.5	6,067	
	total PCB aroclors	676	5	15	5	10	12	80%	0	524	UG/KG	LMR21-56C	1-4	97	189
	total PCB congeners	676	2	2	2	0	2	100%	52	67	UG/KG	LMR21-57S	0-0.5	60	
Sway Bridge Area B2	Arsenic	33	6	10	7	3	10	100%	6.8	16.7	MG/KG	LMR21-35S	0-0.5	13.3	8.2
	Cadmium	4.98	6	10	7	3	9	90%	0.21	1.20	MG/KG	LMR21-39S	0-0.5	0.80	0.31
	Chromium	111	6	10	7	3	10	100%	10.8	33.2	MG/KG	LMR21-35S	0-0.5	24.7	16.3
	Copper	149	6	10	7	3	10	100%	15.8	45.8	MG/KG	LMR21-35S	0-0.5	33.0	22.1
	Lead	128	6	10	7	3	10	100%	8.6	101.0	MG/KG	LMR21-38C	0-1	32.0	12.6
	Mercury	1.06	6	10	7	3	0	0%	0.07	0.19	MG/KG	LMR21-37S	0-0.5	0.14	0.08
	Nickel	48.6	6	10	7	3	10	100%	12.9	42	MG/KG	LMR21-35S	0-0.5	33	24
	Zinc	459	6	10	7	3	10	100%	47.3	169	MG/KG	LMR21-35S	0-0.5	124	53
	Diesel range organics	340	7	10	7	3	10	100%	14.4	**534**	MG/KG	LMR21-38C	0-1	143	60
	Oil range organics	340	7	10	7	3	10	100%	20.1	**476**	MG/KG	LMR21-38C	0-1	159	49
	total 17 PAHs	22,800	6	6	3	3	6	100%	959	**138,758**	UG/KG	LMR21-38C	0-1	**48,470**	5,584
	total 34 PAHs	22,800	3	3	3	0	3	100%	5,219	6,378	UG/KG	LMR21-39S	0-0.5	5,678	
	total PCB aroclors	676	6	6	3	3	1	17%	0	45	UG/KG	LMR21-37C	1-3	0	15
	total PCB congeners	676	3	3	3	0	3	100%	53	56	UG/KG	LMR21-37S	0-0.5	55	

Area	Chemical	PEC	Number sediment locations sampled	Total number sediment samples collected	Number of surface (0-1') sediment samples	Number of subsurface (>1') sediment samples	Number results above detection limits	Detection frequency (%)	Minimum detected concentration	Maximum detected concentration	Units	Location of maximum concentration	Depth interval of maximum concentration (feet)	Average surface (0-1') sediment concentration (SWAC)	Average subsurface (>1') sediment concentration
Sway Bridge Area C	Arsenic	33	6	15	7	8	15	100%	2.6	**40.8**	MG/KG	LMR21-34C	1-4	10.1	12.9
	Cadmium	4.98	6	15	7	8	12	80%	0.18	4.20	MG/KG	LMR21-34C	1-4	0.66	0.87
	Chromium	111	6	15	7	8	15	100%	5	69.8	MG/KG	LMR21-34C	1-4	17.5	18.2
	Copper	149	6	15	7	8	15	100%	3.6	70.4	MG/KG	LMR21-34C	1-4	24.3	22.7
	Lead	128	6	15	7	8	15	100%	2.8	**171.0**	MG/KG	LMR21-34C	4-7	27.0	45.0
	Mercury	1.06	6	15	7	8	4	27%	0.068	0.55	MG/KG	LMR21-34C	1-4	0.13	0.19
	Nickel	48.6	6	15	7	8	15	100%	7.6	**119**	MG/KG	LMR21-33C	1-5	23	32
	Zinc	459	6	15	7	8	15	100%	18.4	**668**	MG/KG	LMR21-34C	1-4	108	177
	Diesel range organics	340	7	15	7	8	15	100%	28.3	**348**	MG/KG	LMR21-34C	4-7	71	100
	Oil range organics	340	7	15	7	8	15	100%	83.9	**398**	MG/KG	LMR21-34C	4-7	138	121
	total 17 PAHs	22,800	6	14	6	8	10	71%	886	**24,491**	UG/KG	LMR21-34C	4-7	2,382	5,891
	total 34 PAHs	22,800	1	1	1	0	1	100%	1,878	1,878	UG/KG	LMR21-30S	0-0.5	1,878	
	total PCB aroclors	676	6	14	6	8	3	21%	0	141	UG/KG	LMR21-34C	0-1	28	3
	total PCB congeners	676	1	1	1	0	1	100%	40	40	UG/KG	LMR21-30S	0-0.5	40	
Sway Bridge Area D	Arsenic	33	6	14	9	5	14	100%	8.6	14.7	MG/KG	LMR21-66S	0-0.5	11.5	9.7
	Cadmium	4.98	6	14	9	5	10	71%	0.2	1.10	MG/KG	LMR21-68C	0-1	0.73	0.52
	Chromium	111	6	14	9	5	14	100%	16	35.7	MG/KG	LMR21-68C	0-1	25.6	19.8
	Copper	149	6	14	9	5	14	100%	18.9	43.7	MG/KG	LMR21-66S	0-0.5	32.3	25.5
	Lead	128	6	14	9	5	14	100%	7.4	41.0	MG/KG	LMR21-67C	0-1	21.0	12.1
	Mercury	1.06	6	14	9	5	0	0%	0.00	0.19	MG/KG	LMR21-64S	0-0.5	0.13	0.07
	Nickel	48.6	6	14	9	5	14	100%	26.4	41	MG/KG	LMR21-66S	0-0.5	34	31
	Zinc	459	6	14	9	5	14	100%	45	184	MG/KG	LMR21-68C	0-1	118	74
	Diesel range organics	340	9	14	9	5	14	100%	9.6	97	MG/KG	LMR21-64S	0-0.5	53	47
	Oil range organics	340	9	14	9	5	13	93%	16.7	79	MG/KG	LMR21-68S	0-0.5	50	39
	total 17 PAHs	22,800	6	11	6	5	11	100%	906	4,456	UG/KG	LMR21-66C	1-2	2,130	1,762
	total 34 PAHs	22,800	3	3	3	0	3	100%	6,027	**27,131**	UG/KG	LMR21-68S	0-0.5	13,512	
	total PCB aroclors	676	6	11	6	5	1	9%	0	78	UG/KG	LMR21-68C	0-1	13	0
	total PCB congeners	676	3	3	3	0	3	100%	36	52	UG/KG	LMR21-68S	0-0.5	45	

NOTES:
Bolded and shaded values exceed the PEC
PEC = probable effects concentration
SRV = sediment reference value

	Area / Sample ID >		REFERENCE	WWTP A2	WWTP A1	WWTP C2	Sway Bridge C	Sway Bridge B2	Sway Bridge B2
TOXICITY TEST STATISTICAL EVALUATION	**Result**		**LMR21-69S**	**LMR21-11S**	**LMR21-15S**	**LMR21-27S**	**LMR21-30S**	**LMR21-35S**	**LMR21-39S**
Survival or growth significantly different from control	*Yes - Chironomus and/or Hyalella (blank if No)*				*Hyalella*		*Chironomus survival*	*Hyalella*	*Hyalella*
Survival or growth significantly different from reference	*Yes - Chironomus and/or Hyalella (blank if No)*			*Chironomus survival*		*Chironomus survival*	*Chironomus survival*		*Chironomus survival*
Survival ≥10% different (*H. azteca*) or 20% different (*C. dilutus*) and significantly different from LMR-69S (Reference) sediment.	*Yes - Chironomus and/or Hyalella (blank if No)*						*Chironomus survival*		
CHEMICAL PARAMETER	**UNITS**	**Screening level**							
CLAY + SILT	PERCENT		78.60%	59.5%	71.2%	82.0%	67.3%	81.2%	77.5%
TOTAL ORGANIC CARBON	PERCENT		2.88%	3.75%	4.47%	3.13%	4.79%	3.48%	3.40%
CLASSIFICATION	NA		Silty clay	Silty clay	Silty clay with organic matter	Silty clay	Sandy silty clay with organic material	Clayey silt	Silty clay with lots of gravel
ODOR OR SHEEN	NA		none observed	none observed	none observed	none observed	none observed	Oil sheen and smell	none observed
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	26.2 J-	224	1,080	163	41	95	205
GASOLINE RANGE ORGANICS (GRO)	UG/KG		4630 UJ	4220 UJ	3370 UJ	3810 UJ	3680 U	4900 UJ	1930 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	25.2 J-	451	1,710	497	304	210	264
TOTAL OIL & GREASE	MG/KG		300 U	300 U	1,820	300 U	300 U	300 U	200 U
ARSENIC	MG/KG	33	11.5	13	15	15	14	17	13.9 J
CADMIUM	MG/KG	4.98	0.63 J	0.83 J	1.50	0.83 J	0.70	0.86 J	1.2 U
CHROMIUM, TOTAL	MG/KG	111	27.4	33	47	29	25	33	24
COPPER	MG/KG	149	36.4	49	53	43	35	46	32
LEAD	MG/KG	128	18.4	25	38	23	19	27	16
MERCURY	MG/KG	1.06	0.17 U	0.15 U	0.25 J	0.15 U	0.16U	0.17 U	0.097 U
NICKEL	MG/KG	48.6	65.3	36	35	38	33	42	35
ZINC	MG/KG	459	125	172	225	147	123	169	97
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 F	UG/KG	22,800	1,411	3,278	7,329	2,210	1,038	2,999	3,745
TOTAL PAH 34 (LAB REPORTED)	UG/KG	22,800	2,711	5,459	13,497	3,723	1,878	5,219	6,378
TOTAL PCB CONGENERS (ND SET TO 0)	UG/KG	676	20	80	432	62	40	56	53

Screening Level is the PEC, except for DRO and ORO, for which the EPA Region 4 ESV is used.
Shaded values exceed the sediment screening level.

	Area / Sample ID >		REFERENCE	Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
TOXICITY TEST STATISTICAL EVALUATION	**Result**		**LMR21-69S**	**LMR21-43S**	**LMR21-45S**	**LMR21-47S**	**LMR21-49S**	**LMR21-52S**	**LMR21-53S**	**LMR21-55S**
Survival or growth significantly different from control	*Yes - Chironomus and/or Hyalella (blank if No)*			*Hyalella*	*Chironomus growth*	*Chironomus (survival and growth) and Hyalella*	*Chironomus (survival and growth) and Hyalella*	*Chironomus growth*	*Chironomus survival and growth*	*Chironomus growth*
Survival or growth significantly different from reference	*Yes - Chironomus and/or Hyalella (blank if No)*					*Chironomus (survival and growth) and Hyalella*	*Chironomus (survival and growth) and Hyalella*		*Chironomus survival*	
Survival ≥10% different (*H. azteca*) or 20% different (*C. dilutus*) and significantly different from LMR-69S (Reference) sediment.	*Yes - Chironomus and/or Hyalella (blank if No)*					*Chironomus (survival and growth) and Hyalella*	*Chironomus (survival and growth) and Hyalella*			
CHEMICAL PARAMETER	**UNITS**	**Screening level**								
CLAY + SILT	PERCENT		78.60%	83.6%	84.7%	68.6%	68.2%	77.7%	82.6%	80.9%
TOTAL ORGANIC CARBON	PERCENT		2.88%	4.63%	3.58%	8.96%	6.21%	2.80%	2.59%	3.12%
CLASSIFICATION	NA		Silty clay	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay with a few rocks
ODOR OR SHEEN	NA		none observed	none observed	Petroleum smell	Chemical smell and oil sheen	Chemical smell and oil sheen	none observed	none observed	none observed
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	26.2 J-	100	1,030	8,070	1,110	72	24.8 J-	14.3 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		4630 UJ	3530 UJ	3100 UJ	84,100	14,400	4130 UJ	3840 UJ	3950 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	25.2 J-	52	1,080	5,560	932	161	29.5 J-	19.5 J-
TOTAL OIL & GREASE	MG/KG		300 U	399 J	3420	5,800	3,950	300 U	200 U	200 U
ARSENIC	MG/KG	33	11.5	16	20	23	31	16	14	13
CADMIUM	MG/KG	4.98	0.63 J	2	1.30	2.60	2.30	0.79 J	0.75 J	0.65 J
CHROMIUM, TOTAL	MG/KG	111	27.4	43	27	40	39	32	28	27
COPPER	MG/KG	149	36.4	45	44	55	46	42	37	36
LEAD	MG/KG	128	18.4	41	250	80	75	23	21	19
MERCURY	MG/KG	1.06	0.17 U	0.15 U	0.24 J	0.49	0.32	0.15 U	0.16 U	0.15 U
NICKEL	MG/KG	48.6	65.3	42	31	31	37	40	35	34
ZINC	MG/KG	459	125	185	204	273	372	150	134	127
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 F	UG/KG	22,800	1,411	9,980	52,196	1,522,251	1,177,214	1,395	41,345	2,443
TOTAL PAH 34 (LAB REPORTED)	UG/KG	22,800	2,711	16,729	99,690	1,673,553	1,354,293	2,386	55,161	3,960
TOTAL PCB CONGENERS (ND SET TO 0)	UG/KG	676	20	376	13	141	77	8	43	39

Screening Level is the PEC, except for DRO and ORO, for which the EPA Region 4 ESV is used.
Shaded values exceed the sediment screening level.

	Area / Sample ID >		REFERENCE	Sway Bridge B1	Sway Bridge B1	Sway Bridge D	Sway Bridge D	Sway Bridge D
TOXICITY TEST STATISTICAL EVALUATION	**Result**		**LMR21-69S**	**LMR21-57S**	**LMR21-59S**	**LMR21-64S**	**LMR21-66S**	**LMR21-68S**
Survival or growth significantly different from control	*Yes - Chironomus and/or Hyalella (blank if No)*			*Chironomus growth*	*Chironomus survival*			*Hyalella*
Survival or growth significantly different from reference	*Yes - Chironomus and/or Hyalella (blank if No)*				*Chironomus survival*	*Chironomus survival*	*Chironomus survival*	
Survival ≥10% different (*H. azteca*) or 20% different (*C. dilutus*) and significantly different from LMR-69S (Reference) sediment.	*Yes - Chironomus and/or Hyalella (blank if No)*				*Chironomus survival*			
CHEMICAL PARAMETER	**UNITS**	**Screening level**						
CLAY + SILT	PERCENT		78.60%	87.1%	78%	91.3%	79.8%	81.2%
TOTAL ORGANIC CARBON	PERCENT		2.88%	2.52%	2.78%	2.38%	2.90%	3.43%
CLASSIFICATION	NA		Silty clay	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay
ODOR OR SHEEN	NA		none observed	none observed	none observed	none observed	none observed	none observed
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	26.2 J-	21 J-	14 J	97	29.3 J-	9.6 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		4630 UJ	3790 UJ	3520 U	5120 UJ	5000 UJ	3510 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	25.2 J-	23.7 J-	15.2 J	79	31.7 J-	12.6 UJ
TOTAL OIL & GREASE	MG/KG		300 U	200 U	200 U	300 U	300 U	300 U
ARSENIC	MG/KG	33	11.5	12	11	11	15	13
CADMIUM	MG/KG	4.98	0.63 J	0.77 J	0.74	0.61 J	0.81 J	0.66 J
CHROMIUM, TOTAL	MG/KG	111	27.4	27	26	24	32	25
COPPER	MG/KG	149	36.4	38	36	31	44	34
LEAD	MG/KG	128	18.4	24	33	18	25	20
MERCURY	MG/KG	1.06	0.17 U	0.16 U	0.15U	0.19 U	0.16 U	0.15 U
NICKEL	MG/KG	48.6	65.3	35	32	31	41	33
ZINC	MG/KG	459	125	145	127	117	160	126
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 F	UG/KG	22,800	1,411	4,140	2,425	4,753	3,901	18,706
TOTAL PAH 34 (LAB REPORTED)	UG/KG	22,800	2,711	8,018	4,116	7,378	6,027	27,131
TOTAL PCB CONGENERS (ND SET TO 0)	UG/KG	676	20	67	52	36	47	52

Screening Level is the PEC, except for DRO and ORO, for which the EPA Region 4 ESV is used.
Shaded values exceed the sediment screening level.

PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	LMR21-SBA1 sediment results	LMR21-SBA1 elutriate results	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		68.4			NA
NITROGEN, AMMONIA	mg/kg		189	12.4	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		1810	12		mg/L
TOTAL ORGANIC CARBON	mg/kg		51800	6.4		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	481	7.8		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		8490	157		µg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	467	6.4		mg/L
TOTAL OIL & GREASE	mg/kg		741.5	3.1	10	mg/L
ALUMINUM	mg/kg	42000	12,687	1200		µg/L
ANTIMONY	mg/kg	0.84	1.5	10 U		µg/L
ARSENIC	mg/kg	33	14.8	12	340	µg/L
BERYLLIUM	mg/kg	0.8	0.78	1.4 U	93	µg/L
CADMIUM	mg/kg	4.98	1.93	0.89	4.5	µg/L
CHROMIUM, TOTAL	mg/kg	111	36	3.8	1800	µg/L
COBALT	mg/kg	12	9	2 U	220	µg/L
COPPER	mg/kg	149	37.0	9	14	µg/L
IRON	mg/kg	44,000	40,000	2400		µg/L
LEAD	mg/kg	128	63.6	20	120	µg/L
MANGANESE	mg/kg	1,000	654	150		µg/L
MERCURY	mg/kg	1.06	0.22	0.16 U	1.7	µg/L
NICKEL	mg/kg	48.6	30.6	7.3 U	470	µg/L
SELENIUM	mg/kg	1.4	2.4 U	7.3 U	62	µg/L
SILVER	mg/kg	0.43	0.5	1.4 U	1.6	µg/L
VANADIUM	mg/kg	40	27.8	2.9		µg/L
ZINC	mg/kg	459	224	30	120	µg/L
2-METHYLNAPHTHALENE	µg/kg		375	39.4		µg/L
ACENAPHTHENE	µg/kg		294	45.4	19	µg/L
ACENAPHTHYLENE	µg/kg		83	1.7	120	µg/L
ANTHRACENE	µg/kg		326	16.9	0.18	µg/L
BENZO(A)ANTHRACENE	µg/kg		320	9	42	µg/L
BENZO(A)PYRENE	µg/kg		285	5.8	0.54	µg/L
BENZO(B)FLUORANTHENE	µg/kg		209	4.2	23	µg/L
BENZO(G,H,I)PERYLENE	µg/kg		133	1.5		µg/L
BENZO(K)FLUORANTHENE	µg/kg		231	4.7		µg/L
CHRYSENE	µg/kg		329	7.4	42	µg/L
DIBENZ(A,H)ANTHRACENE	µg/kg		43	0.63		µg/L
FLUORANTHENE	µg/kg		825	37	3.7	µg/L
FLUORENE	µg/kg		397	47	110	µg/L
INDENO(1,2,3-C,D)PYRENE	µg/kg		161	1.9		µg/L
NAPHTHALENE	µg/kg		2,610	312	170	µg/L
PHENANTHRENE	µg/kg		1,066	75	31	µg/L
PYRENE	µg/kg		575	25.1	42	µg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	µg/kg	22,800	8,260	635		µg/L
TOTAL PCB AROCLORS (ND SET TO 0)	µg/kg	676	240	0.2 U	0.00012	µg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

			LMR21-SBA3			
PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	**sediment results**	**elutriate results**	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		61.7			NA
NITROGEN, AMMONIA	mg/kg		272	11.9	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		1720	10.4		mg/L
TOTAL ORGANIC CARBON	mg/kg		55800	5.6		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	516	1.5		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		6760	35.7 J		µg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	649	2		mg/L
TOTAL OIL & GREASE	mg/kg		810	1.2 U	10	mg/L
ALUMINUM	mg/kg	42,000	14,700	1500		µg/L
ANTIMONY	mg/kg	0.84	1.6	10 U		µg/L
ARSENIC	mg/kg	33	23.1	9.3 U	340	µg/L
BERYLLIUM	mg/kg	0.8	1.10	1.4 U	93	µg/L
CADMIUM	mg/kg	4.98	2.33	0.89 J	4.5	µg/L
CHROMIUM, TOTAL	mg/kg	111	81.1	3.9 J	1800	µg/L
COBALT	mg/kg	12	11.2	2 U	220	µg/L
COPPER	mg/kg	149	54.7	9.6 J	14	µg/L
IRON	mg/kg	44,000	88,233	2400		µg/L
LEAD	mg/kg	128	79.5	12	120	µg/L
MANGANESE	mg/kg	1,000	1,813	200		µg/L
MERCURY	mg/kg	1.06	0.18	0.16 U	1.7	µg/L
NICKEL	mg/kg	48.6	43.4	7.3 U	470	µg/L
SELENIUM	mg/kg	1.4	5.7 U	7.3 U	62	µg/L
SILVER	mg/kg	0.43	0.475	1.4 U	1.6	µg/L
VANADIUM	mg/kg	40	35.9	3.6 J		µg/L
ZINC	mg/kg	459	389	24	120	µg/L
2-METHYLNAPHTHALENE	µg/kg		655	0.061		µg/L
ACENAPHTHENE	µg/kg		743	3.7	19	µg/L
ACENAPHTHYLENE	µg/kg		177	0.097	120	µg/L
ANTHRACENE	µg/kg		814	0.44	0.18	µg/L
BENZO(A)ANTHRACENE	µg/kg		859	0.26	42	µg/L
BENZO(A)PYRENE	µg/kg		811	0.18	0.54	µg/L
BENZO(B)FLUORANTHENE	µg/kg		674		23	µg/L
BENZO(G,H,I)PERYLENE	µg/kg		416	0.096		µg/L
BENZO(K)FLUORANTHENE	µg/kg		610	0.16		µg/L
CHRYSENE	µg/kg		935	0.27	42	µg/L
DIBENZ(A,H)ANTHRACENE	µg/kg		96			µg/L
FLUORANTHENE	µg/kg		2,575	1.6	3.7	µg/L
FLUORENE	µg/kg		1,365	2.3	110	µg/L
INDENO(1,2,3-C,D)PYRENE	µg/kg		424			µg/L
NAPHTHALENE	µg/kg		4,980	0.066	170	µg/L
PHENANTHRENE	µg/kg		3,565	2.8	31	µg/L
PYRENE	µg/kg		2,045	1.3	42	µg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	µg/kg	22,800	21,741	13		µg/L
TOTAL PCB AROCLORS (ND SET TO 0)	µg/kg	676	259	0.19 U	0.00012	µg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

Table 6.3 Summary of Analytical Results for Composite Sediment and Elutriate Samples Exhibiting Aquatic Toxicity

			LMR21-SBC			
PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	sediment results	elutriate results	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		43.3			NA
NITROGEN, AMMONIA	mg/kg		100	13.3	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		908	12.8		mg/L
TOTAL ORGANIC CARBON	mg/kg		25300	6.5		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	176	2.7		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		2940 U	29 U		µg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	208	2.9		mg/L
TOTAL OIL & GREASE	mg/kg		186 J	1.2 U	10	mg/L
ALUMINUM	mg/kg	42,000	5,613	2400		µg/L
ANTIMONY	mg/kg	0.84	1.4	10 U		µg/L
ARSENIC	mg/kg	33	10.0	23 J	340	µg/L
BERYLLIUM	mg/kg	0.8	0.44 U	1.4 U	93	µg/L
CADMIUM	mg/kg	4.98	0.85	1.8 J	4.5	µg/L
CHROMIUM, TOTAL	mg/kg	111	16.0	6.3	1800	µg/L
COBALT	mg/kg	12	6.4	2 U	220	µg/L
COPPER	mg/kg	149	18.9	24	14	µg/L
IRON	mg/kg	44,000	20,367	5900		µg/L
LEAD	mg/kg	128	34.8	62	120	µg/L
MANGANESE	mg/kg	1,000	357	230		µg/L
MERCURY	mg/kg	1.06	0.11	0.31 J	1.7	µg/L
NICKEL	mg/kg	48.6	17.3	7.3 U	470	µg/L
SELENIUM	mg/kg	1.4	2.2 U	7.3 U	62	µg/L
SILVER	mg/kg	0.43	0.22 U	1.4 U	1.6	µg/L
VANADIUM	mg/kg	40	14.9	5.1 J		µg/L
ZINC	mg/kg	459	147	160	120	µg/L
2-METHYLNAPHTHALENE	µg/kg		26	0.017		µg/L
ACENAPHTHENE	µg/kg		45	0.21	19	µg/L
ACENAPHTHYLENE	µg/kg		50	0.15	120	µg/L
ANTHRACENE	µg/kg		103	0.29	0.18	µg/L
BENZO(A)ANTHRACENE	µg/kg		254	0.91	42	µg/L
BENZO(A)PYRENE	µg/kg		220	0.73	0.54	µg/L
BENZO(B)FLUORANTHENE	µg/kg		213	0.69	23	µg/L
BENZO(G,H,I)PERYLENE	µg/kg		105	0.31		µg/L
BENZO(K)FLUORANTHENE	µg/kg		180	0.67		µg/L
CHRYSENE	µg/kg		295	1.1	42	µg/L
DIBENZ(A,H)ANTHRACENE	µg/kg		27	0.11		µg/L
FLUORANTHENE	µg/kg		520	1.9	3.7	µg/L
FLUORENE	µg/kg		70	0.48	110	µg/L
INDENO(1,2,3-C,D)PYRENE	µg/kg		105	0.32		µg/L
NAPHTHALENE	µg/kg		79	0.075	170	µg/L
PHENANTHRENE	µg/kg		338	1.6	31	µg/L
PYRENE	µg/kg		440	1.9	42	µg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	µg/kg	22,800	3,088	11		µg/L
TOTAL PCB AROCLORS (ND SET TO 0)	µg/kg	676	14.2U	0.2 U	0.00012	µg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

Table 6.3 Summary of Analytical Results for Composite Sediment and Elutriate Samples Exhibiting Aquatic Toxicity

			LMR21-WA1			
PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	sediment results	elutriate results	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		18			NA
NITROGEN, AMMONIA	mg/kg		632	30.1	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		2920	28.8		mg/L
TOTAL ORGANIC CARBON	mg/kg		37400	6.1		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	251	0.55		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		14800 J	29 U		µg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	1330	0.53		mg/L
TOTAL OIL & GREASE	mg/kg		200 U	1 U	10	mg/L
ALUMINUM	mg/kg	42,000	11,067	7700		µg/L
ANTIMONY	mg/kg	0.84	1.4	10 U		µg/L
ARSENIC	mg/kg	33	14.6	17 J	340	µg/L
BERYLLIUM	mg/kg	0.8	0.62	1.4 U	93	µg/L
CADMIUM	mg/kg	4.98	3.07	2.9	4.5	µg/L
CHROMIUM, TOTAL	mg/kg	111	66.2	35	1800	µg/L
COBALT	mg/kg	12	9.3	3.4 J	220	µg/L
COPPER	mg/kg	149	53.4	44	14	µg/L
IRON	mg/kg	44,000	24,800	7600		µg/L
LEAD	mg/kg	128	73.4	52	120	µg/L
MANGANESE	mg/kg	1,000	455	89		µg/L
MERCURY	mg/kg	1.06	0.35	0.16 U	1.7	µg/L
NICKEL	mg/kg	48.6	40.4	20 J	470	µg/L
SELENIUM	mg/kg	1.4	2.7 U	7.3 U	62	µg/L
SILVER	mg/kg	0.43	1.7	1.4 U	1.6	µg/L
VANADIUM	mg/kg	40	24.8	16		µg/L
ZINC	mg/kg	459	224	130	120	µg/L
2-METHYLNAPHTHALENE	µg/kg		70	0.01		µg/L
ACENAPHTHENE	µg/kg		145	0.25	19	µg/L
ACENAPHTHYLENE	µg/kg		177		120	µg/L
ANTHRACENE	µg/kg		339	0.097	0.18	µg/L
BENZO(A)ANTHRACENE	µg/kg		632	0.22	42	µg/L
BENZO(A)PYRENE	µg/kg		666	0.19	0.54	µg/L
BENZO(B)FLUORANTHENE	µg/kg		491	0.18	23	µg/L
BENZO(G,H,I)PERYLENE	µg/kg		362	0.098		µg/L
BENZO(K)FLUORANTHENE	µg/kg		497	0.15		µg/L
CHRYSENE	µg/kg		802	0.3	42	µg/L
DIBENZ(A,H)ANTHRACENE	µg/kg		96	0.029		µg/L
FLUORANTHENE	µg/kg		1,293	0.54	3.7	µg/L
FLUORENE	µg/kg		281	0.27	110	µg/L
INDENO(1,2,3-C,D)PYRENE	µg/kg		353	0.092		µg/L
NAPHTHALENE	µg/kg		178		170	µg/L
PHENANTHRENE	µg/kg		1,151	0.18	31	µg/L
PYRENE	µg/kg		1,297	0.61	42	µg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	µg/kg	22,800	8,826	3		µg/L
TOTAL PCB AROCLORS (ND SET TO 0)	µg/kg	676	282	0.19 U	0.00012	µg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

			LMR21-WA2			
PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	**sediment results**	**elutriate results**	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		48			NA
NITROGEN, AMMONIA	mg/kg		433	19.9	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		2250	20.2		mg/L
TOTAL ORGANIC CARBON	mg/kg		28800	6.7		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	247	0.35		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		2440 U	29 U		µg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	334	0.4		mg/L
TOTAL OIL & GREASE	mg/kg		504	1.2 U	10	mg/L
ALUMINUM	mg/kg	42,000	11,447	10300		µg/L
ANTIMONY	mg/kg	0.84	1.7	10 U		µg/L
ARSENIC	mg/kg	33	8.8	14 J	340	µg/L
BERYLLIUM	mg/kg	0.8	0.57	1.4 U	93	µg/L
CADMIUM	mg/kg	4.98	1.23	2.1 J	4.5	µg/L
CHROMIUM, TOTAL	mg/kg	111	31.5	33	1800	µg/L
COBALT	mg/kg	12	8.3	4.7 J	220	µg/L
COPPER	mg/kg	149	31.0	47	14	µg/L
IRON	mg/kg	44,000	19,800	14000		µg/L
LEAD	mg/kg	128	27.8	40	120	µg/L
MANGANESE	mg/kg	1,000	389	190		µg/L
MERCURY	mg/kg	1.06	0.12	0.16 U	1.7	µg/L
NICKEL	mg/kg	48.6	28.2	19 J	470	µg/L
SELENIUM	mg/kg	1.4	2.6 U	7.3 U	62	µg/L
SILVER	mg/kg	0.43	0.355	1.4 U	1.6	µg/L
VANADIUM	mg/kg	40	24.9	16		µg/L
ZINC	mg/kg	459	117	120	120	µg/L
2-METHYLNAPHTHALENE	µg/kg		44			µg/L
ACENAPHTHENE	µg/kg		107	0.29	19	µg/L
ACENAPHTHYLENE	µg/kg		64	0.019	120	µg/L
ANTHRACENE	µg/kg		152	0.097	0.18	µg/L
BENZO(A)ANTHRACENE	µg/kg		280	0.16	42	µg/L
BENZO(A)PYRENE	µg/kg		306	0.13	0.54	µg/L
BENZO(B)FLUORANTHENE	µg/kg		235	0.13	23	µg/L
BENZO(G,H,I)PERYLENE	µg/kg		165	0.071		µg/L
BENZO(K)FLUORANTHENE	µg/kg		211	0.12		µg/L
CHRYSENE	µg/kg		358	0.23	42	µg/L
DIBENZ(A,H)ANTHRACENE	µg/kg		76	0.023		µg/L
FLUORANTHENE	µg/kg		630	0.43	3.7	µg/L
FLUORENE	µg/kg		143	0.22	110	µg/L
INDENO(1,2,3-C,D)PYRENE	µg/kg		158	0.059		µg/L
NAPHTHALENE	µg/kg		168		170	µg/L
PHENANTHRENE	µg/kg		564	0.41	31	µg/L
PYRENE	µg/kg		562	0.46	42	µg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	µg/kg	22,800	4,220	3		µg/L
TOTAL PCB AROCLORS (ND SET TO 0)	µg/kg	676	313	0.4 U	0.00012	µg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

Table 6.3 Summary of Analytical Results for Composite Sediment and Elutriate Samples Exhibiting Aquatic Toxicity

			LMR21-WA3			
PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	**sediment results**	**elutriate results**	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		63.3			NA
NITROGEN, AMMONIA	mg/kg		204	17.5	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		1050	17.7		mg/L
TOTAL ORGANIC CARBON	mg/kg		37700	3.9		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	224	0.31		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		4650 J	29 U		μg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	282	0.29		mg/L
TOTAL OIL & GREASE	mg/kg		823	1.2 U	10	mg/L
ALUMINUM	mg/kg	42,000	8,813	10700		μg/L
ANTIMONY	mg/kg	0.84	1.6	10 U		μg/L
ARSENIC	mg/kg	33	7.7	12 J	340	μg/L
BERYLLIUM	mg/kg	0.8	0.51	1.4 U	93	μg/L
CADMIUM	mg/kg	4.98	1.37	3.1	4.5	μg/L
CHROMIUM, TOTAL	mg/kg	111	24.7	16	1800	μg/L
COBALT	mg/kg	12	8	3.2 J	220	μg/L
COPPER	mg/kg	149	27.2	46	14	μg/L
IRON	mg/kg	44,000	17,633	7400		μg/L
LEAD	mg/kg	128	37.2	75	120	μg/L
MANGANESE	mg/kg	1,000	343	100		μg/L
MERCURY	mg/kg	1.06	0.12	0.16 U	1.7	μg/L
NICKEL	mg/kg	48.6	22.8	11 J	470	μg/L
SELENIUM	mg/kg	1.4	2.3 U	7.3 U	62	μg/L
SILVER	mg/kg	0.43	0.49	1.4 U	1.6	μg/L
VANADIUM	mg/kg	40	21.8	10		μg/L
ZINC	mg/kg	459	109	130	120	μg/L
2-METHYLNAPHTHALENE	μg/kg		60	0.023		μg/L
ACENAPHTHENE	μg/kg		72	0.24	19	μg/L
ACENAPHTHYLENE	μg/kg		60		120	μg/L
ANTHRACENE	μg/kg		168	0.12	0.18	μg/L
BENZO(A)ANTHRACENE	μg/kg		321	0.31	42	μg/L
BENZO(A)PYRENE	μg/kg		309	0.21	0.54	μg/L
BENZO(B)FLUORANTHENE	μg/kg		243	0.2	23	μg/L
BENZO(G,H,I)PERYLENE	μg/kg		160	0.096		μg/L
BENZO(K)FLUORANTHENE	μg/kg		227	0.18		μg/L
CHRYSENE	μg/kg		385	0.39	42	μg/L
DIBENZ(A,H)ANTHRACENE	μg/kg		66	0.041		μg/L
FLUORANTHENE	μg/kg		571	0.66	3.7	μg/L
FLUORENE	μg/kg		139	0.3	110	μg/L
INDENO(1,2,3-C,D)PYRENE	μg/kg		153	0.092		μg/L
NAPHTHALENE	μg/kg		219		170	μg/L
PHENANTHRENE	μg/kg		449	0.61	31	μg/L
PYRENE	μg/kg		595	0.72	42	μg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	μg/kg	22,800	4,197	4		μg/L
TOTAL PCB AROCLORS (ND SET TO 0)	μg/kg	676	58	0.2 U	0.00012	μg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	LMR21-WB1 sediment results	LMR21-WB1 elutriate results	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		52.1			NA
NITROGEN, AMMONIA	mg/kg		323	24.9	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		1870	26.5		mg/L
TOTAL ORGANIC CARBON	mg/kg		42000	7.6		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	843	1.2		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		2180 U	29 U		µg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	1110	1.5		mg/L
TOTAL OIL & GREASE	mg/kg		100 U	1.2 U	10	mg/L
ALUMINUM	mg/kg	42,000	8,507	1900		µg/L
ANTIMONY	mg/kg	0.84	1.2	10 U		µg/L
ARSENIC	mg/kg	33	7.3	9.3 U	340	µg/L
BERYLLIUM	mg/kg	0.8	0.46 U	1.4 U	93	µg/L
CADMIUM	mg/kg	4.98	3.37	2 J	4.5	µg/L
CHROMIUM, TOTAL	mg/kg	111	85.8	20	1800	µg/L
COBALT	mg/kg	12	7	2 U	220	µg/L
COPPER	mg/kg	149	50.2	29	14	µg/L
IRON	mg/kg	44,000	16,133	4800		µg/L
LEAD	mg/kg	128	40.6	20	120	µg/L
MANGANESE	mg/kg	1,000	305	200		µg/L
MERCURY	mg/kg	1.06	0.38	0.16 U	1.7	µg/L
NICKEL	mg/kg	48.6	34.0	16 J	470	µg/L
SELENIUM	mg/kg	1.4	2.4 U	7.3 U	62	µg/L
SILVER	mg/kg	0.43	2.2	1.4 U	1.6	µg/L
VANADIUM	mg/kg	40	20.5	3.9 J		µg/L
ZINC	mg/kg	459	178	75	120	µg/L
2-METHYLNAPHTHALENE	µg/kg		80	0.18		µg/L
ACENAPHTHENE	µg/kg		162	0.36	19	µg/L
ACENAPHTHYLENE	µg/kg		148		120	µg/L
ANTHRACENE	µg/kg		361	0.1	0.18	µg/L
BENZO(A)ANTHRACENE	µg/kg		653	0.23	42	µg/L
BENZO(A)PYRENE	µg/kg		623	0.2	0.54	µg/L
BENZO(B)FLUORANTHENE	µg/kg		562	0.19	23	µg/L
BENZO(G,H,I)PERYLENE	µg/kg		311	0.093		µg/L
BENZO(K)FLUORANTHENE	µg/kg		506	0.16		µg/L
CHRYSENE	µg/kg		772	0.3	42	µg/L
DIBENZ(A,H)ANTHRACENE	µg/kg		90			µg/L
FLUORANTHENE	µg/kg		1,459	0.6	3.7	µg/L
FLUORENE	µg/kg		260	0.53	110	µg/L
INDENO(1,2,3-C,D)PYRENE	µg/kg		314	0.081		µg/L
NAPHTHALENE	µg/kg		266	0.064	170	µg/L
PHENANTHRENE	µg/kg		1,124	0.33	31	µg/L
PYRENE	µg/kg		1,426	0.63	42	µg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	µg/kg	22,800	9,116	4		µg/L
TOTAL PCB AROCLORS (ND SET TO 0)	µg/kg	676	985	1.4	0.00012	µg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

PARAMETER	sediment units	Sediment Screening Level (PEC, SRV, or ESV)	LMR21-WC2 sediment results	LMR21-WC2 elutriate results	Elutriate Screening Level (OMZM)	elutriate units
CLAY + SILT	%		74.2			NA
NITROGEN, AMMONIA	mg/kg		403	16.4	12.6	mg/L
NITROGEN, TOTAL KJELDAHL (TKN)	mg/kg		2250	17.3		mg/L
TOTAL ORGANIC CARBON	mg/kg		32600	6.1		mg/L
DIESEL RANGE ORGANICS (DRO) C10-C28	mg/kg	340	152	0.96		mg/L
GASOLINE RANGE ORGANICS (GRO)	ug/kg		4530 J	29 U		µg/L
OIL RANGE ORGANICS (C20-C44)	mg/kg	340	212	1.2		mg/L
TOTAL OIL & GREASE	mg/kg		3450	1.2 U	10	mg/L
ALUMINUM	mg/kg	42,000	16,533	2000		µg/L
ANTIMONY	mg/kg	0.84	1.7	10 U		µg/L
ARSENIC	mg/kg	33	11.1	11 J	340	µg/L
BERYLLIUM	mg/kg	0.8	0.83	1.4 U	93	µg/L
CADMIUM	mg/kg	4.98	1.40	1.2 J	4.5	µg/L
CHROMIUM, TOTAL	mg/kg	111	37.3	7.1	1800	µg/L
COBALT	mg/kg	12	10.7	2 U	220	µg/L
COPPER	mg/kg	149	41.1	21	14	µg/L
IRON	mg/kg	44,000	27,167	5200		µg/L
LEAD	mg/kg	128	29.1	17	120	µg/L
MANGANESE	mg/kg	1,000	482	310		µg/L
MERCURY	mg/kg	1.06	0.13	0.16 U	1.7	µg/L
NICKEL	mg/kg	48.6	36.5	7.8 J	470	µg/L
SELENIUM	mg/kg	1.4	3.1 U	7.3 U	62	µg/L
SILVER	mg/kg	0.43	0.33	1.4 U	1.6	µg/L
VANADIUM	mg/kg	40	32.4	4.4 J		µg/L
ZINC	mg/kg	459	153	42	120	µg/L
2-METHYLNAPHTHALENE	µg/kg		47	0.012		µg/L
ACENAPHTHENE	µg/kg		67	0.12	19	µg/L
ACENAPHTHYLENE	µg/kg		38	0.016	120	µg/L
ANTHRACENE	µg/kg		103	0.036	0.18	µg/L
BENZO(A)ANTHRACENE	µg/kg		224	0.089	42	µg/L
BENZO(A)PYRENE	µg/kg		263		0.54	µg/L
BENZO(B)FLUORANTHENE	µg/kg		258	0.096	23	µg/L
BENZO(G,H,I)PERYLENE	µg/kg		174	0.055		µg/L
BENZO(K)FLUORANTHENE	µg/kg		185	0.059		µg/L
CHRYSENE	µg/kg		321	0.15	42	µg/L
DIBENZ(A,H)ANTHRACENE	µg/kg		48	0.018		µg/L
FLUORANTHENE	µg/kg		507	0.21	3.7	µg/L
FLUORENE	µg/kg		126	0.18	110	µg/L
INDENO(1,2,3-C,D)PYRENE	µg/kg		147			µg/L
NAPHTHALENE	µg/kg		207		170	µg/L
PHENANTHRENE	µg/kg		416	0.2	31	µg/L
PYRENE	µg/kg		504	0.25	42	µg/L
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	µg/kg	22,800	3,655	2		µg/L
TOTAL PCB AROCLORS (ND SET TO 0)	µg/kg	676	181	0.2 U	0.00012	µg/L

Results presented in this table are the average of field duplicate and primary result (sediment composite samples)

Shaded values exceed the media-specific screening level

Attachments

Attachment 1
Chain of Custody/Request for Analysis Forms

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-1

ALS Quote #:

Client Name: USACE Buffalo
Address: 1776 Niagara Street
Buffalo, NY 14207
Contact: Jay Miller
Phone#: 716-879-4394
Project Name/#: Lower Maumee River
Bill To:

TAT
- [X] Normal-Standard TAT is 10-12 business days.
- [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?
Email? [ ] -Y
Fax? [ ] -Y No.:

Container Type	CG
Container Size	8oz
Perservative	NA

ANALYSES/METHOD REQUESTED: TOC, Metals, PCBs, 8270 PAHs

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, Metals, PCBs, 8270 PAHs	Sample/COC Comments
1	See attached sample log						
2							
3							
4							
5							
6							
7							
8							
9							
10							

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature]	8/12	1300	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables
- [ ] Standard
- [ ] CLP-like
- [X] USACE/DOD
- [ ]

Special Processing
- USACE [X]
- Navy [ ]

State Samples Collected In
- [ ] NY
- [ ] NJ
- [ ] PA
- [ ] NC
- [X] OH
- other

Reportable to PADEP? Yes [ ] No [X]
PWSID #

Sample Disposal
- Lab [X]
- Special [ ]

EDDS: Format Type-

ALS-1

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS - 8oz Clear Glass Jars - TOC, Metals, PCBs, 8270 PAH

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-10C-1-4'	8/10/21	1406			
-15C 7-10'		1645			
-12C 4-7'		1527			
MSMSD -14C 1-4'		1619			
-14C 7-10'		1617			
-14C 4-7'		1616			
FD -14C 7-10'		1618			
-15C 0-1'		1642			
-12C 10-13'		1529			
-18C 0-1'		1806			
-14C 1-4'		1615			
-17C 4-7'		1732			
-18C 7-10'		1809			
-20C 0-1'		1836			
-14C 0-1'		1614			
-18C 4-7'		1808			
-18C 10-12'		1810			
-17C 10-13'		1734			
-19C 7-9'		1823			
-19C 1-4'		1822			
-WA-1		1745			
-13C 0-1'		1557			
-12C 0-1'		1524			
-12C 7-10'		1528			
-WA-3		1845			
-17C 1-4'		1731			
-17C 7-10'		1733			
-17C 0-1'		1736			
MS MSD -16C 7-11'		1706			
-15C 4-7'		1644			
FD -16C 4-7'		1707			
FD -13C 1-4'		1601			
FD -15C 1-4'		1646			
-20C 1-4'		1837			
-18C 1-4'		1807			

ALS

301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-2

ALS Quote #:

1 of 1

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type	CG								
Container Size	8oz								
Perservative	NA								

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment

Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, Metals, PCBs, 8270 PAHs									Sample/COC Comments
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1		6/12	1300	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ACS-2

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS Jar

Size/Type: 8oz. **Analyses:** TOC, metals, PCBs, 8270 PAH

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-16C 4-7	8/10/21	1704			
13C 4-7		1559			
10C 0-1		1405			
MS/MSD 12C 1-4		1526			
07C 4-7		1148			
11C 7-9		1456			
WB-2		1358			
WA-2		1549			
16C 7-11		1705			
10C 7-8.5		1408			
08C 0-1		1205			
09C 7-8.1		1237			
13C 1-4		1558			
11C 4-7		1455			
15C 4-7		1647			
10C 4-7		1407			
06C 1-4		1127			
08C 1-4		1206			
09C 0-1		1233			
MS/MSD 09C 4-7		1236			
20C 4-7		1838			
11C 1-4		1454			
15C 1-4		1643			
16C 1-4		1703			
12C 1-4		1525			
19C 4-7		1823			
08C 4-7		1207			
09C 1-4		1234			
16C 0-1		1702			
09C 4-7		1235			
FD 08C 4-7		1209			
06C 0-1		1126			
MS/MSD 13C 4-7		1602			

301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-3

ALS Quote #:

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type	CG
Container Size	8oz
Perservative	NA

ANALYSES/METHOD REQUESTED: TOC, Metals, PCBs, 8270 PAHs

Receipt Information (completed by Receiving Lab)

W.O. Temp: Therm ID:

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, Metals, PCBs, 8270 PAHs	Sample/COC Comments
1	See attached sample log						
2							
3							
4							
5							
6							
7							
8							
9							
10							

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature]	8/12	1300	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ACS-3

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS — Jar

Size/Type: 8oz. Analyses: TOC, metals, PCBs, 8270 PAH

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-WC-1 FD	08/10/21	1044			
-21C 1-4ft	08/11/21	0733			
-21C 1-4ft FD	08/11/21	0735			
~~21-W~~					
-WB-1	08/11/21	0837			
-24C 1-4ft	08/11/21	0852			
-05C 4-7ft	08/10/21	1035			
-02C 0-1ft	08/10/21	0930			
-24C 0-1ft	08/11/21	0851			
-23C 1-4ft	08/11/21	0825			
-03C 0-1ft	08/10/21	0950			
-21C 0-1ft	08/11/21	0732			
-22C 4-6.5ft FD	08/11/21	0809			
-22C 0-1ft	08/11/21	0805			
-22C 1-4ft MS/MSD	08/11/21	0808			
-23C 1-4ft	08/11/21	0920			
-25C 4-7ft	08/11/21	0923			
-22C 4-6ft	08/11/21	0807			
-24C 4-8ft	08/11/21	0853			
-13C 7-9ft	08/10/21	1600			
-01C 1-4ft	08/10/21	0901			
-27C 0-1ft	08/11/21	0957			
-03C 4-7ft	08/10/21	0953			
-02C 4-7ft	08/10/21	0932			
-04C 4-7ft	08/10/21	1108			
-22C 1-4ft	08/11/21	0806			
-20C 7-10ft	08/10/21	1839			
-31C 4-7ft MS/MSD	08/11/21	0736			
-WC-1	08/10/21	1043			
-26C 1-4ft	08/11/21	0944			
-01C 7-8ft	08/10/21	0903			
-02C 7-8ft	08/10/21	0933			

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ACS - 4

ALS Quote #:

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges. Approved?

Date Required:

Email? [ ]-Y

Fax? [ ]-Y No.:

Container Type			CG	CG								
Container Size			8oz	16oz								
Preservative			NA	NA								
ANALYSES/METHOD REQUESTED	*G or C	**Matrix	TOC, Metals, PCBs, 8270 PAHs	TCLP								

Receipt Information (completed by Receiving Lab)

W.O. Temp: ______ Therm ID: ______

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, Metals, PCBs, 8270 PAHs	TCLP									Sample/COC Comments
1	See attached sample log															
2																
3																
4																
5																
6																
7																
8																
9																
10																

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature]	8/12	1300	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS-4

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS Jar

Size/Type: 8 oz **Analyses:** TOC, metals, PCBs, 8270 PAH

SAMPLE ID	DATE	TIME
LMR21-05C 0-1ft	08/10/21	1033
LMR21-23C-4-6ft	08/11/21	0826
LMR21-03C 1-4ft	08/10/21	0952
LMR21-27C 1-3ft	08/11/21	0958
LMR21-28C 1-4ft	08/11/21	1009
-26C 4-8ft	08/11/21	0945
-19C 0-1ft	08/10/21	1821
-26C 0-1ft	08/11/21	0945
-23C 0-1ft	08/11/21	0824
-04C 0-1ft	08/10/21	1106
-21C 4-7ft	08/11/21	0734
-02C 1-4ft	08/10/21	0931
-01C 0-1ft	08/10/21	0900
-25C 0-1ft	08/11/21	0921
-04C 1-4ft	08/10/21	1107
-01C 4-7ft	08/10/21	0902
-05C 1-4ft	08/10/21	1034
-05C 7-8ft	08/10/21	1036
-03C 1-4ft	08/10/21	0951
-WC-1 MS/MSD	08/10/21	1045
-28C 0-1ft	08/11/21	1008
-WC-2	08/11/21	1017
-07C 0-1ft	08/10/21	1146
-11C 0-1ft	08/10/21	1453
-06C 4-6.3ft	08/10/21	1128
-08C 7-7.5ft	08/10/21	1208
-07C 7-8ft	08/10/21	1149
-07C 1-4ft	08/10/21	1147

SAMPLE ID	DATE	TIME
TCLPS		
LMR21-WA-3	08/10/21	1845
-WB-2	08/10/21	1358
-WA-1	08/10/21	1745
-WC-1 MS/MSD	08/10/21	1045
-WA-2	08/10/21	1549
-WC-1	08/10/21	1043

301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-5

ALS Quote #:

1 of 1

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type	CG
Container Size	8oz
Perservative	NA

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: □ Pickup □ Labor
□ Composite Sampling □ Rental Equipment
Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners										Sample/COC Comments
1	See attached sample log															
2																
3																
4																
5																
6																
7																
8																
9																
10																

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables
[ ] Standard
[ ] CLP-like
[X] USACE/DOD
[ ]

Special Processing
USACE [X]
Navy [ ]
[ ]

State Samples Collected In
[ ] NY
[ ] NJ
[ ] PA
[ ] NC
[X] OH
other

Reportable to PADEP?
Yes [ ] No [X]
PWSID #

Sample Disposal
Lab [X]
Special [ ]

EDDS: Format Type-

ALS 5

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS - 8oz Clear Glass Jars - ~~TOC,~~ ~~Metals, PCBs, 8270 PAH~~ PCB CONGENERS

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR-21-11S	8/10/21	0802			
LMR-21-12S	8/10/21	0830			
LMR-21-14S	8/10/21	0904			
LMR-21-16S	8/10/21	0930			
LMR-21-17S	8/10/21	0940			
LMR-21-19S	8/10/21	0954			
LMR-21-25S	8/10/21	1030			
LMR-21-27S	8/10/21	1130			
LMR-21-30S	8/10/21	1205			
LMR-21-35S	8/10/21	1225			
LMR-21-37S	8/10/21	1430			
LMR-21-39S	8/10/21	1440			
LMR-21-41S	8/10/21	1500			
LMR-21-43S	8/10/21	1510			
LMR-21-49S	8/10/21	1620			
LMR-21-45S	8/10/21	1525			
LMR-21-47S	8/10/21	1600			
LMR-21-52S	8/10/21	0915			
LMR-21- 53S	8/12/21	0845			
LMR-21 55S	8/12/21	0900			
LMR21 57S	8/12/21	0905			
LMR21 59S	8/12/21	0915			
LMR21 61S	8/12/21	1115			
LMR21 62S	8/12/21	1125			
LMR21 64S	8/12/21	1015			
LMR21 66S	8/12/21	0945			
LMR21 68S	8/12/21	0930			
LMR21 69S	8/12/21	1035			

ALS
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Middletown, PA 17057
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F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-6

ALS Quote #:

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type	CG										
Container Size	8oz										
Perservative	NA										

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, Metals, Oil and Grease, TPHDRO										Sample/COC Comments
1	See attached sample log															
2																
3																
4																
5																
6																
7																
8																
9																
10																

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS-4

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS - 8oz Clear Glass Jars - TOC, O+G, TPH DRO Metals, ~~PCBs, 8270 PAH~~

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-11S	8/10/21	0902			
LMR21-12S		0930			
LMR21-14S		0904			
LMR21-15S		0930			
LMR21-17S		0940			
LMR21-19S		0954			
LMR21-25S		1030			
LMR21-27S		1130			
LMR21-30S		1205			
LMR21-35S		1225			
LMR21-37S		1430			
LMR21-39S		1440			
LMR21-41S		1500			
LMR21-43S		1510			
LMR21-49S		1620			
LMR21-45S		1525			
LMR21-47S	8/10/21	1600			
LMR21-52S	8/11/21	0915			
LMR21-36S	8/12/21	0815			
LMR21-48S	8/12/21	0830			
LMR21-53S	8/12/21	0845			
LMR21-55S	8/12/21	0900			
LMR21-57S	8/12/21	0905			
LMR21-59S	8/12/21	0915			
LMR21-61S	8/12/21	1115			
LMR21-62S	8/12/21	1125			
LMR21-64S	8/12/21	1015			
LMR21-66S	8/12/21	0945			
LMR21-68S	8/12/21	0930			
LMR21-69S	8/12/21	1035			

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-7

ALS Quote #:

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ]-Y

Fax? [ ]-Y No.:

Container Type	CG	CG								
Container Size	16oz	40ml								
Perservative	NA	MeOH								

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

W.O. Temp: ______ Therm ID: ______

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TCLP	GRO									Sample/COC Comments
1	See attached sample log															
2																
3																
4																
5																
6																
7																
8																
9																
10																

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/13	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS-7 pg. 1 of 2

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS Jar

Size/Type: GLASS VIAL (40 ml.) **Analyses:** GRO

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-34C 0-1	8/11/21	1527	LMR21-SBB2	8/12/21	1217
LMR21-56C 0-1	8/12/21	0733	LMR21-WA-3	8/10/21	1845
LMR21-17S	8/10/21	0940	LMR21-32C 1-5	8/11/21	1457
LMR21-14S	8/10/21	0904	LMR21-WC-1 FD	8/10/21	1044
LMR21-63C 1-2.5 MS/MSD		1242	LMR21-42C 0-1	8/12/21	1921
LMR21-37S	8/10/21	1430	LMR21-44C 0-1	8/12/21	1435
LMR21-SBD	8/12/21	1348	LMR21-43C MS/MSD 1-3	8/12/21	1437
LMR21-38C 0-1	8/12/21	0941	LMR21-39C 0-1	8/12/21	0947
LMR21-63C 1-2.5FD	8/12/21	1241	LMR21-64C FD 0-1.75	8/12/21	1301
LMR21-47S	8/10/21	1600	LMR21-66C 1-2	8/12/21	1332
LMR21-49S	8/10/21	1620	LMR21-25S	8/10/21	1030
LMR21-29C 1-4 FD	8/11/21	1349	LMR21-37C 1-3ft.	8/12/21	0934
LMR21-19S	8/10/21	0934	LMR21 58C 0-1	8/11/21	0812
LMR21-65C 0-1	8/12/21	1307	LMR21 56C 1-4ft. FD	8/12/21	0736
LMR21-43S	8/10/21	1510	LMR21-58C 1-4ft.	8/11/21	0812
LMR21-12S	8/10/21	0830	LMR21-52C 1-4	8/12/21	1527
LMR21-65C 1-2	8/12/21	1308	LMR21-51C 1-4	8/12/21	~~08~~ 1517
LMR21-56C 4-7 MS/MSD	8/12/21	0737	LMR21-52C 1-4FD	8/12/21	1530
LMR21-29C 0-1	8/11/21	1346	LMR21-34C 1-4	8/11/21	1528
LMR21-WA-2	8/10/21	1549	LMR21-41S	8/10/21	1500
LMR21-57C 0-1	8/12/21	0749	LMR21-58C 4-7FD	8/12/21	0815
LMR21-27S	8/10/21	1130	LMR21-59C 0-1	8/12/21	0831
LMR21-35S	8/10/21	1225	LMR21-56C 4-7	8/12/21	0735
LMR21-31C 0-1	8/11/21	1437	LMR21-30C 1-3	8/11/21	1421
LMR21-34C 4-7	8/11/21	1529	LMR21-45S	8/10/21	1525
LMR21-67C 0-1	8/12/21	1153	LMR21-60C 4-5	8/12/21	0853
LMR21-29C 1-4	8/11/21	1347	LMR21-33C 1-5ft.	8/11/21	1513
LMR21-31C 1-4	8/11/21	1438	LMR21-40C 0-1ft.	8/12/21	1350
LMR21-11S	8/10/21	0802	LMR21-29C 4-6.5 MS/MSD	8/11/21	1350
LMR21-60C 0-1ft.	8/12/21	0851	LMR21-57C 4-6	8/12/21	0751
LMR21-66C 0-1	8/12/21	1331	LMR21-33C 0-1	8/11/21	1512
LMR21-32C 0-1	8/11/21	1456	LMR21-67C 1-3 MS/MSD	8/12/21	1156
LMR21-57C 1-4	8/11/21	0750	LMR21-60C 1-4	8/12/21	0852
LMR21-WC-1	8/10/21	1043	LMR21 WA-1	8/10/21	1745
LMR21-59C 1-4	8/12/21	0832	LMR21-SBB1	8/12/21	0901
LMR21-67C 1-3	8/12/21	1154	LMR21-37C 0-1	8/12/21	0933

ALS-7 pg. 2 of 2

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS Jar

Size/Type: GLASS VIAL (40ml) **Analyses:** GRO

SAMPLE ID	DATE	TIME
LMR21-39S	8/10/21	1440
LMR21-39C 1-3	8/12/21	0948
LMR21-68C 0-1	8/12/21	1207
LMR21-63C 0-1	8/12/21	1240
LMR21-30C 0-1	8/11/21	1420
LMR21-41C 1-3	8/12/21	1401
LMR21-43C 0-1	8/12/21	1435
LMR21-29C 4-6.5	8/11/21	1348
LMR21-SBA2	8/12/21	1445
LMR21-67C 0-1 FD	8/12/21	1155
LMR21-59C 4-7	8/11/21	0833
LMR21-43C 1-3	8/12/21	1436
LMR21-59C 1-4 MS/MSD	8/12/21	0834
LMR21-58C 4-7	8/12/21	0814
LMR21-30S	8/10/21	1205
LMR21-WC-1 MS/MSD	8/10/21	1045
LMR21-51C 0-1	8/12/21	1516
LMR21-52C 7-10 MS/MSD	8/12/21	1530
LMR21-52C 0-1	8/12/21	1526
LMR21-15S	8/10/21	0930
LMR21-52C 4-7	8/12/21	1528
LMR21-52C 7-10	8/12/21	1529
LMR21-56C 1-4	8/12/21	0734
LMR21-WC-2	8/11/21	1017
LMR21-WB-2	8/10/21	1358
LMR21-38C 1-2.5	8/12/21	0942
LMR21-51C 4-7.5	8/12/21	1518
LMR21-WB-1	8/11/21	0837
LMR21-41C 1-3 FD	8/12/21	1402
LMR21-SBC	8/11/21	1536
LMR21-64C 0-1.75	8/12/21	1300
LMR21-68C 1-3.5	8/12/21	1208
LMR21-41C 0-1 A	8/12/21	1400
LMR21-64S	8/12/21	1015
LMR21-59S	8/12/21	0915
LMR21-36S	8/12/21	0815

SAMPLE ID	DATE	TIME
LMR21-52S	8/11/21	0915
LMR21-68S	8/12/21	0930
LMR21-~~35~~ 48S	8/12/21	0830
LMR21-61S	8/12/21	1115
LMR21-57S	8/12/21	0905
LMR21-53S	8/12/21	0845
LMR21-66S	8/12/21	~~08~~ 0945
LMR21-69S	8/12/21	1035
LMR21-62S	8/12/21	1125
LMR21-55S	8/12/21	0900

ALS-7

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS Jar

Size/Type: Clear Glass 16 oz. Analyses: TCLP

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-WB-1	8/11/21	0837			
LMR21-SBB-1	8/12/21	0901			
LMR21 SBB2	8/12/21	1217			
LMR21-SBD	8/12/21	1248			
LMR21-WC-2	8/11/21	1017			
LMR21-WC-1FD	8/10/21	1044			
LMR21-SBC	8/11/21	1536			
LMR21-SBA2	8/12/21	1445			

301 Fulling Mill Rd
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P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-8

ALS Quote #:

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ]-Y

Fax? [ ]-Y No.:

Container Type	CG								
Container Size	8oz								
Perservative	NA								

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, O&G, TPHDRO, Metals, PCBs, 8270 PAHs									Sample/COC Comments
						Enter Number of Containers Per Sample or Field Results Below.									
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

Receipt Information (completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature]	8/13	1500	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS-8

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS Jar 8oz

Size/Type: Clear Glass 8oz **Analyses:** TOC, OG, TPHDRO, Metals, PCBs, 8270 PAH

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-57C 0-1ft	8/12/21	0749	LMR21 29C 0-1ft	8/11/21	1346
~~LMR21-57C 1-4ft~~	~~8/12/21~~	~~0750~~	LMR21-SBC	8/11/21	1536
~~LMR21-58C 1-4ft~~	~~8/12/21~~	~~[illegible]~~	LMR21 34C 1-4ft	8/11/21	1528
LMR21-58C-0-1ft	8/12/21	0812	LMR21 56C 4-7ft	8/12/21	0735
LMR21-57C-4-6ft	8/12/21	0751	LMR21 34C 4-7ft	8/11/21	1529
~~LMR21 58C 4-7ft~~	~~8/12/21~~	~~0814~~	LMR21 56C 0-1ft	8/12/21	0733
LMR21 58C 4-7ft	8/12/21	0815	LMR21 56C 4-7ft	8/12/21	0737
LMR21 58C 1-4ft	8/12/21	0813			
LMR21 59C 1-4ft	8/12/21	0832			
~~LMR21-39C 0-1ft~~	~~8/12/21~~	~~0947~~			
LMR21-60C-0-1ft	8/12/21	0851			
LMR21-59C 4-7ft	8/12/21	0833			
LMR21-59C 0-1ft	8/12/21	0831			
LMR21 39C 1-3ft	8/12/21	0948			
LMR21 37C 0-1ft	8/12/21	0933			
LMR21 60C 1-4ft	8/12/21	0852			
~~LMR21 60C 4-5ft~~	~~8/12/21~~	~~0853~~			
~~LMR21 37C 1-3ft~~	~~8/12/21~~	~~0934~~			
LMR21 59C 1-4ft	8/12/21	0834			
LMR21 38C 1-2.5ft	8/12/21	0942			
LMR21-SBB1	8/12/21	0901			
LMR21 38C 0-1ft	8/12/21	0941			
LMR21 33C 1-5ft	8/11/21	1513			
LMR21-29C 1-4ft	8/11/21	1349			
LMR21-34C-0-1ft	8/11/21	1527			
LMR21 32C 1-5ft	8/11/21	1457			
LMR21 33C 0-1ft	8/11/21	1512			
LMR21 56C 1-4ft	8/12/21	0736			
LMR21 29C 4-6.5ft	8/11/21	1348			
LMR21 31C 0-1ft	8/11/21	1437			
LMR21 30C 1-3ft	8/11/21	1421			
LMR21 29C 1-4ft	8/11/21	1347			
LMR21 30C 0-1ft	8/11/21	1420			
LMR21 31C 1-4ft	8/11/21	1438			
LMR21 32C 0-1ft	8/11/21	1456			
~~LMR21 29C 4-6.5ft~~	~~8/11/21~~	~~1350~~			

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-9
ALS Quote #:

Client Name: USACE Buffalo
Address: 1776 Niagara Street
Buffalo, NY 14207
Contact: Jay Miller
Phone#: 716-879-4394
Project Name/#: Lower Maumee River
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [ ]-Y
Fax? [ ]-Y No.:

Container Type	CG								
Container Size	8oz								
Perservative	NA								

ANALYSES/METHOD REQUESTED: TOC, O&G, TPHDRO, Metals, PCBs, 8270 PAHs

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, O&G, TPHDRO, Metals, PCBs, 8270 PAHs									Sample/COC Comments
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print): Jay Miller
Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/13	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]
Special Processing: USACE [X] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other
Reportable to PADEP? Yes [ ] No [X]
PWSID #
Sample Disposal: Lab [X] Special [ ]
EDDS: Format Type-

ALS-9

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS LMR21- ~~2021~~ | **Jar** 8oz Clear

Size/Type: Clear Glass **Analyses:** TOC, OG, TPH DRO, metals, 8270 PAH, PCBs,

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-46C 4-7' MS/MD	8/13	0814	LMR21-		
LMR21-47C 0-1'	8/13	0840	LMR21-		
LMR21-46C 1-4 FD	8/13	0813	LMR21-		
LMR21-47C 1-4'	8/13	0841	LMR21-		
LMR21-46C 7-8.5'	8/13	0815	LMR21-		
LMR21-47C 4-8'	8/13	0842	LMR21-		
LMR21-46C 0-1'	8/13	0810	LMR21-		
LMR21-46C 1-4'	8/13	0811	LMR21-		
LMR21-46C 4-7'	8/13	0812	LMR21-		
LMR21-50C 1-4'	8/13	0508	LMR21-		
LMR21-50C 4-7.5'	8/13	0509	LMR21-		
LMR21-54C 1-4'	8/12	1415	LMR21-		
LMR21-SBA3	8/12	1655	LMR21-		
LMR21-50C 0-1'	8/13	0507	LMR21-		
LMR21-54C 1-4' FD	8/12	1617			
LMR21-54C 0-1'	8/12	1614			
LMR21-54C 4-6'	8/12	1616			
LMR21-53C 0-1'	8/12	1551			
LMR21-53C 4-6'	8/12	1553			
LMR21-55C 0-1'	8/12	1641			
LMR21-52C 4-7'	8/12	1528			
LMR21-52C 0-1'	8/12	1526			
LMR21-53C 1-4'	8/12	1552			
LMR21-55C 1-4'	8/12	1642			
LMR21-52C 1-4'	8/12	1527			
LMR21-55C 4-7.5'	8/12	1643			
LMR21-52C 1-4' FD	8/12	1531			
LMR21-55C 1-4' MS/MD	8/12	1644			
LMR21-52C 7-10'	8/12	1529			
LMR21-51C 0-1'	8/12	1516			
LMR21-51C 1-4'	8/12	1517			
LMR21-51C 4-7.5	8/12	1518			
LMR21-SBA2	8/12	1445			
LMR21-43C 1-3' MS/MD	8/12	1437			
LMR21-41C 0-1'	8/12	1400			
LMR21-					

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-10 | 1 of 1
ALS Quote #:

Client Name: USACE Buffalo
Address: 1776 Niagara Street
Buffalo, NY 14207
Contact: Jay Miller
Phone#: 716-879-4394
Project Name/#: Lower Maumee River
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [ ] -Y
Fax? [ ] -Y No.:

Container Type	CG
Container Size	8oz
Perservative	NA

ANALYSES/METHOD REQUESTED: TOC, O&G, TPHDRO, Metals, PCBs, 8270 PAHs

Receipt Information (completed by Receiving Lab)
W.O. Temp: Therm ID:
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, O&G, TPHDRO, Metals, PCBs, 8270 PAHs	Sample/COC Comments
1	See attached sample log						
2							
3							
4							
5							
6							
7							
8							
9							
10							

SAMPLED BY (Please Print): Jay Miller
Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/13	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]
PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS-10

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS 2021 **Jar** 8oz

Size/Type: Clear Glass 8oz **Analyses:** TOC, OG, TPHDRO, metals, TCBS, 8270PAH

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21 60C4-5A	8/12/21	0853			
LMR21 56C 1-4	8/12/21	0736			
LMR21 29C 4-6.5	8/11/21	1348			
LMR21 57C 1-4A	8/12/21	0750			
LMR21 58C 4-7'	8/12/21	0814			
LMR21 39C 0-1'	8/12/21	0947			
LMR21 37C 1-3'	8/12/21	0934			
LMR21 44C 0-1'	8/12/21	1435			
LMR21 67C 1-3 MS MSD	8/12	1156			
LMR21 68C 1-3.5'	8/12	1208			
LMR21 67C 0-1'	8/12	1153			
LMR21 67C 1-3'	8/12	1154			
LMR21 67C 0-1 FD	8/12	1155			
LMR21-68C 0-1'	8/12	1207			
LMR21-64C 0-1.75 FD	8/12	1301			
LMR21-64C 0-1.75	8/12	1300			
LMR21-SBB2	8/12	1217			
LMR21-66C 0-1'	8/12	1331			
LMR21-65C 1-2	8/12	1308			
LMR21-63C 1-2.7 MS MSD	8/12	1242			
LMR21-63C 0-1'	8/12	1240			
LMR21-66C 1-2'	8/12	1332			
LMR21-52C 7-10 MS MSD	8/12	1530			
LMR21-SBD	8/12	1348			
LMR21-65C 0-1'	8/12	1307			
LMR21-41C 1-3'	8/12	1401			
LMR21-49C 1-4'	8/13	942			
LMR21-45C 1-2'	8/13	926			
LMR21-45C 0-1'	8/13	925			
LMR21-49C 0-1'	8/13	941			
LMR21-43C 0-3	8/12	1436			
LMR21-63C 1-2.75	8/12	1241			
LMR21-41C 1-3' FD	8/12	1402			
LMR21 42C 0-1'	8/12	1421			
LMR21-43C 0-1'	8/12	1455			
LMR21-40C 0-1'	8/12	1350			

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ACS-11

ALS Quote #:

Client Name: USACE Buffalo
Address: 1776 Niagara Street
Buffalo, NY 14207
Contact: Jay Miller
Phone#: 716-879-4394
Project Name/#: Lower Maumee River
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?
Email? [ ]-Y
Fax? [ ]-Y No.:

Container Type	CG	CG	CG
Container Size	8oz	8oz	16oz
Perservative	NA	Na	NA

ANALYSES/METHOD REQUESTED: DOD 8270, 8082, O&G, TPHDRO | DOD-Metals, CN, TKN, NH3, PHOS, TOC | TCLP

Receipt Information (completed by Receiving Lab)
W.O. Temp: Therm ID:
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD 8270, 8082, O&G, TPHDRO	DOD-Metals, CN, TKN, NH3, PHOS, TOC	TCLP							Sample/COC Comments
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	8/13	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]
PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS - 11

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS

Jar Size/Type: 8oz **Analyses:** DOD 8270, 8082, oil and grease, TPH DRO

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR21-SBA1	08/13/21	1000	LMR21-WC-2	08/11/21	1017
LMR21-SBB1	08/12/21	0901			
LMR21-SBA2	08/12/21	1445			
LMR21-WB-2	08/10/21	1358			
LMR21-WB-1	08/10/21	0837			
LMR21-SBD	08/12/21	1348			
LMR21-WA-3	08/10/21	1845			
LMR21-WC-1FD	08/10/21	1044			
LMR21-WA-2	08/10/21	1549			
LMR21-SBC	08/11/21	1536			
LMR21-SBB2	08/12/21	1217			
LMR21-WC-1	08/10/21	1043			
LMR21-WA-1	08/10/21	1745			
LMR21-SBA3	08/12/21	1655			
LMR21-WC-1 MS/MSD	08/10/21	1045			
8oz	DOD-metals, CN		TKN NH3 phos	TOC	
LMR21-WC-1	08/10/21	1043			
LMR21-WB-2	08/10/21	1358			
LMR21-SBC	08/11/21	1536			
LMR21-SBA3	08/12/21	1655			
-SBB2	08/12/21	1217			
-SBA2	08/12/21	1445			
-SBB1	08/12/21	0901			
-SBD	08/12/21	1348	16 oz. TCLP		
-SBA1	08/13/21	1000	LMR21-SBA1	08/13/21	1000
-WC-1FD	08/10/21	1044	LMR21-SBA3	08/12/21	1655
-WA-3	08/10/21	1845			
-WC-1 MS/MSD	08/10/21	1045			
-WB-1	08/11/21	0837			
-WA-1	08/10/21	1745			
-WC-2	08/11/21	1017			
-WA-2	08/10/21	1549			

ALS
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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ALS-12
ALS Quote #:

Client Name: USACE Buffalo
Address: 1776 Niagara Street
Buffalo, NY 14207
Contact: Jay Miller
Phone#: 716-879-4394
Project Name/#: Lower Maumee River
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [ ]-Y
Fax? [ ]-Y No.:

Container Type	CG	CG								
Container Size	8oz	40ml								
Perservative	NA	MeOH								

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)
W.O. Temp: Therm ID:
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	TOC, O&G, TPHDRO, Metals, PCBs, 8270 PAHs	GRO								Sample/COC Comments
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature]	8/13	1500	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]
PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS-12

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS

Jar Size/Type: 8 oz. **Analyses:** TOC, OG, TPH DRO, metals, PCBs, 8270 PAH

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
UMR21-SBA1	08/13/21	1000			
-49C 4-7.5ft	08/13/21	0943			
GRO - 40ML VIALS					
UMR21-50C 1-4ft	08/13/21	0908			
~~-44~~ 47C 4-8ft	08/13/21	0842			
-46C 4-7ft	MS/MSD 08/13/21	0814			
-46C 4-7ft	08/13/21	0812			
-54C 1-4ft FD	08/12/21	1617			
-47C 1-4ft	08/13/21	0841			
-49C 0-1ft	08/13/21	0941			
-49C 4-7.5ft	08/13/21	0943			
-53C 1-4ft	08/12/21	1552			
-46C 1-4ft FD	08/13/21	0813			
-55C 4-7.5ft	08/12/21	1643			
-46C 0-1ft	08/13/21	0810			
-53C 0-1ft	08/12/21	1551			
-45C 0-1ft	08/13/21	0925			
-46C 1-4ft	08/13/21	0811			
-47C 0-1ft	08/13/21	1840			
-50C 4-7.5ft	08/13/21	0909			
-53C 4-6ft	08/12/21	1553			
-55C 0-1ft	08/12/21	1641			
-54C 0-1ft	08/12/21	1614			
-54C 1-4ft	08/12/21	1615			
-46C 7-8.5ft	08/13/21	0815			
-54C 4-6ft	08/12/21	1616			
-50C 0-1ft	08/13/21	0907			
-SBA1	08/13/21	1000			
-55C 1-4ft	08/12/21	1642			
-55C 1-4ft	MS/MSD 08/12/21	1644			
-SBA3	08/12/21	1655			
-45C 1-2ft	08/13/21	0926			
-49C 1-4ft	08/13/21	0942			

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ACS-13

ALS Quote #: /

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ]-Y

Fax? [ ]-Y No.:

Container Type: Various
Container Size: "
Perservative: "

ANALYSES/METHOD REQUESTED: Equipment Blank Bottles

Receipt Information (completed by Receiving Lab)

W.O. Temp: ______ Therm ID: ______

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment

Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Equipment Blank Bottles									Sample/COC Comments
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/13	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

Suite BNC ALS-13

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS

Jar Size/Type: Suite BNC **Analyses:** Suite A

SAMPLE ID	DATE	TIME		SAMPLE ID	DATE	TIME
2x 1L AW TPHDRO	8/13/2021	1115	H2SO4	2x 1L AW TPHDRO	8/13/21	1107
1 2x 40mL C TPHDRO			HCl	2x 40 mL C TPHDRO		
3 125mL P TAL Metals			HNO3	125 mL P TAL Metals		
2x 125mL AN PCB 8082				250mL AW O+Grease		
2x 1L AN PAH 8270				2x AW 1668 PCB Congeners		
				JS		

ALS
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Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: ACS-14

ALS Quote #:

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type	Various									
Container Size	"									
Perservative	"									

ANALYSES/METHOD REQUESTED: Equipment Blank Bottles

Receipt Information (completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Equipment Blank Bottles									Sample/COC Comments
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	8/13	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

ALS-14

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ALS 2021

Jar Size/Type: Varies Analyses: Equipment blanks as noted

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
2 - 1L	amber wide mouth		H_2SO_4 - TPH DRO	core composite	
~~1-250 mL AW~~		~~H_2SO_4~~		8/13/21	1110
1-250 mL AW	H_2SO_4		Core composite	O+G 8/13/21	1110
1-250 mL P	H_2SO_4	TKN	NH_3 P ~~Core composite~~	8/13/21	1110
1-250 mL P	HNO_3	TAL	metals core composite		
~~1-250 mL Amb Ammonia~~		~~Cyanide~~	~~PCBs~~	8/13/21	1110
2-125 mL AN	none	PCBS	core composite	8/13/21	1110
1-250 mL P	NaOH	cyanide	core composite	8/13/21	1110
2-40 mL AV	HCl	TOC	core composite	8/13/21	1110
2-40 mL C	HCL	TPH GRO	core composite	8/13/21	1110

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Quote #: 852797

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street
Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

	Container Type	PL	PL	PL	AG	AG	AG	AG	CG		
	Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL		
	Perservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL		

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon [on Elutriate]		Sample/COC Comments
1	LMR21-SBA1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
2	LMR21-SBA2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
3	LMR21-SBA3	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
4	LMR21-SBB1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
5	LMR21-SBB2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
6	LMR21-SBC	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
7																
8																
9																
10																

Enter Number of Containers Per Sample or Field Results Below.

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May	8/24/21	1009	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Reportable to PADEP? Yes [ ] No [x]
PWSID #

Special Processing: USACE [x] Navy [ ]

Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

EDDS: Format Type- Custom

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: | 2 of 3

ALS Quote #: 852797

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street
Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Container Type	PL	PL	PL	AG	AG	AG	AG	CG	
Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL	
Perservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL	

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon [on Elutriate]		Sample/COC Comments
1	LMR21-SBA1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
2	LMR21-SBA2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
3	LMR21-SBA3	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
4	LMR21-SBB1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
5	LMR21-SBB2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
6	LMR21-SBC	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
7																
8																
9																
10																

Enter Number of Containers Per Sample or Field Results Below.

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May	8/24/21	1009	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Special Processing: USACE [x] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

Reportable to PADEP? Yes [ ] No [x]
PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type- Custom

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

ALS
301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Quote #: 852797

Client Name: USACE BUFFALO DISTRICT

Address: 1776 Niagara Street
Buffalo NY 14207

Contact: Jay Miller

Phone#: (716) 879-4394

Project Name/#: Maumee AOC Lower Maumee OH

Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 21 BD Approved?

Email? [x] -Y James.Miller@usace.army.mil

Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____

Courier/Tracking #:

Purchase Order #: W912P421F0023

Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment

Other:

ANALYSES/METHOD REQUESTED

					Container Type	PL	PL	PL	AG	AG	AG	AG	CG		
					Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL		
					Preservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL		
	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon [on Elutriate]	Sample/COC Comments
1	LMR21-SBA1	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
2	LMR21-SBA2	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
3	LMR21-SBA3	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
4	LMR21-SBB1	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
5	LMR21-SBB2	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
6	LMR21-SBC	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
7															
8															
9															
10															

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May	8/24/21	1009	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Special Processing: USACE [x] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

Reportable to PADEP? Yes [ ] No [x]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type- Custom

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: BATELLE - 1

ALS Quote #:

Client Name: USACE Buffalo/USEPA GLNPO

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT
[X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type	AG
Container Size	9oz
Perservative	NA

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

W.O. Temp: _____ Therm ID: _____

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment

Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	34 PAHs									Sample/COC Comments
						Enter Number of Containers Per Sample or Field Results Below.									
1	See attached sample log														
2															
3															
4															
5															
6															
7															
8															
9															
10															

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

DATELE - 1

LOWER MAUMEE RIVER SAMPLE LOG FOR COCs - ~~ALS~~ - 4oz ~~Clear~~ AMBER Glass Jars - ~~TOC, Metals, PCBs, 8270 PAH~~

34 PAH'S

SAMPLE ID	DATE	TIME	SAMPLE ID	DATE	TIME
LMR-21-455	8/10/21	1525			
LMR-21-435	8/10/21	1510			
LMR21-375	8/10/21	1430			
LMR-21-115	8/10/21	0802			
LMR21-255	8/10/21	1030			
LMR21-195	8/10/21	0954			
LMR21-415	8/10/21	1500			
LMR21-495	8/10/21	1620			
LMR21-175	8/10/21	0940			
LMR21-475	8/10/21	1600			
LMR21-145	8/10/21	0904			
LMR21-355	8/10/21	1225			
LMR21-305	8/10/21	1205			
LMR21-125	8/10/21	0830			
LMR21-155	8/10/21	0930			
LMR21-275	8/10/21	1130			
LMR21-525	8/11/21	0915			
LMR21-395	8/10/21	1440			
LMR21-535	8/12/21	0845			
LMR21-555		0900			
LMR21-575		0905			
LMR21-595		0915			
LMR21-615		1115			
LMR21-625		1125			
LMR21-645		1015			
LMR21-665		0945			
LMR21-685		0930			
LMR-21-695	8/12/21	1035			

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Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Quote #:

Client Name: USACE Buffalo

Address: 1776 Niagara Street
Buffalo, NY 14207

Contact: Jay Miller

Phone#: 716-879-4394

Project Name/#: Lower Maumee River

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ] -Y

Fax? [ ] -Y No.:

Container Type	PL									
Container Size	2-GAL									
Perservative	NA									

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Receiving Lab)

W.O. Temp: Therm ID:

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Biological Testing										Sample/COC Comments
						Enter Number of Containers Per Sample or Field Results Below.										
1	See attached sample log															
2																
3																
4																
5																
6																
7																
8																
9																
10																

SAMPLED BY (Please Print): Jay Miller

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]

Special Processing: USACE [X] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other

Reportable to PADEP? Yes [ ] No [X]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

Lower Maumee River ERDC COC			
SampleID	**#of Buckets Collected**	**Date**	**Time**
LMR21-11S	4	8/10/2021	8:07
LMR21-12S	4	8/10/2021	8:30
LMR21-14S	4	8/10/2021	9:04
LMR21-15S	4	8/10/2021	9:30
LMR21-17S	4	8/10/2021	9:40
LMR21-19S	4	8/10/2021	9:54
LMR21-25S	4	8/10/2021	10:30
LMR21-27S	4	8/10/2021	11:30
LMR21-30S	**1**	8/10/2021	12:05
LMR21-35S	**1**	8/10/2021	12:25
LMR21-37S	**1**	8/10/2021	14:30
LMR21-39S	**1**	8/10/2021	14:40
LMR21-41S	**1**	8/10/2021	15:00
LMR21-43S	**1**	8/10/2021	15:10
LMR21-45S	4	8/10/2021	15:25
LMR21-47S	4	8/10/2021	16:00
LMR21-49S	4	8/10/2021	16:20
LMR21-52S	**1**	8/11/2021	9:15
LMR21-53S	**1**	8/12/2021	8:45
LMR21-55S	**1**	8/12/2021	9:00
LMR21-57S	**1**	8/12/2021	9:05
LMR21-59S	**1**	8/12/2021	9:15
LMR21-61S	**1**	8/12/2021	11:15
LMR21-62S	**1**	8/12/2021	11:25
LMR21-64S	4	8/12/2021	10:15
LMR21-66S	4	8/12/2021	9:45
LMR21-68S	4	8/12/2021	9:30
LMR21-69S**	**5**	8/12/2021	10:35
*Reference Sediment			
Total	74		

ERDC COC

SampleID	DATE	TIME	# of Buckets
Sway Bridge Area C			
Composite of Above: LMR21-SBC	8/11/2021	15:36	1
Sway Bridge Area B2			
Composite of Above: LMR21-SBB2	8/12/2021	12:17	1
Sway Bridge Area A2			
Composite of Above: LMR21-SBA2	8/12/2021	14:45	1
Sway Bridge Area A1			
Composite of Above: LMR21-SBA1	8/13/2021	10:00	2
Sway Bridge Area A3			
Composite of Above: LMR21-SBA3	8/12/2021	16:55	2
Sway Bridge Area B1			
Composite of Above: LMR21-SBB1	8/12/2021	9:01	1
Sway Bridge Area D			
Composite of Above: LMR21-SBD	8/12/2021	13:48	1
WWTP Area C1			
Composite of Above: LMR21-WC-1	8/10/2021	10:43	1
WWTP Area B2			
Composite of Above: LMR21-WB-2	8/10/2021	13:58	1
WWTP Area A2			
Composite of Above: LMR21-WA-2	8/10/2021	15:49	1
WWTP Area A1			
Composite of Above: LMR21-WA-1	8/10/2021	17:45	1
WWTP Area A3			
Composite of Above: LMR21-WA-3	8/10/2021	18:45	1
WWTP Area B1			
Composite of Above: LMR21-WB-1	8/11/2021	8:37	1
WWTP Area C2			
Composite of Above: LMR21-WC-2	8/11/2021	10:17	1
		Total	16
		Grand Total:	90

Attachment 2
Surface Sediment Sample (ponar) Field Log

Lower Maumee River Surface Grab Summary and Field Sheet

SampleID	Latitude	Longitude	#of Buckets Required (plus sample jars for TOC, O&G, Grain Size, TPH, Metals, 34 PAHS, PCB Congeners)	Date	Time	Field Notes
-35S	—	—	35S	8/12/21	0810	clayey silt
LMR21-48S	41.67355	-83.4893	B 2 Jars + 5 ml + 1/2 gal extra	8/12/21	0830	clayey silt, oily sheen, slag(?) product in sediment, no recovery at 48S - moved to 0205
LMR21-36S	41.68315	-83.4801	B 2 Jars + 5 ml + 1/2 gal extra	8/12/21	0815	clayey silt
LMR21-11S	41.6933	-83.4722	4	08/10/21	0807	samples taken at LMR21-10 because LMR21-11 is on land. Brown silty clay
LMR21-12S	41.692201	-83.471416	4	08/10/21	0830	silty clay
LMR21-14S	41.690686	-83.4737	4	08/10/21	0904	silty clay
LMR21-15S	41.690175	-83.4763	4	08/10/21	0930	silty clay w/ a little organic
LMR21-17S	41.687703	-83.477595	4	08/10/21	0940	silty clay
LMR21-19S	41.687502	-83.479392	4	08/10/21	0954	sandy silty clay
LMR21-25S	41.693903	-83.4663	4	08/10/21	1030	silty clay
LMR21-27S	41.688998	-83.4725	4	08/10/21	1130	silty clay
LMR21-30S	**41.675035**	**-83.4911**	1	08/10/21	1205	sandy silty clay w/organic
LMR21-35S *	**41.683035**	**-83.479542**	1	08/10/21	1225	silty clay. oil sheen, smell. sample location near pipelines, mussel w/ zebra mussels att
LMR21-37S	**41.68195**	**-83.481672**	1	08/10/21	1430	silty clay
LMR21-39S	**41.679938**	**-83.48399**	1	08/10/21	1440	silty clay - lots of clay, gravel
LMR21-41S	**41.678537**	**-83.484806**	1	08/10/21	1500	silty clay
LMR21-43S	**41.678162**	**-83.485767**	1	08/10/21	1510	silty clay
LMR21-45S	41.676707	-83.487059	4	08/10/21	1525	silty clay, petroleum smell!
LMR21-47S **	41.67446	-83.488538	4	08/10/21	1600	silty clay, sticks, gravel, chemical smell, chunks of slag(?) in sediment
LMR21-49S	41.673368	-83.4902	4	08/10/21	1620	silty clay, chemical smell, oil sheen, chunks of slag(?)
LMR21-52S	**41.671292**	**-83.4927**	1	8/11/21	0915	silty clay
LMR21-53S	**41.671197**	**-83.493426**	1	8/12/21	0845	silty clay
LMR21-55S	**41.670586**	**-83.493667**	1	8/12/21	0900	silty clay w/ a few rocks
LMR21-57S	**41.669375**	**-83.4959**	1	8/12/21	0905	silty clay
LMR21-59S	**41.667823**	**-83.498388**	1	8/12/21	0915	silty clay
LMR21-61S	**41.685**	**-83.4839**	1	8/12/21	1115	silty clay Too shallow at sample point, taken at 0206
LMR21-62S	**41.683405**	**-83.482592**	1	8/12/21	1125	silty clay
LMR21-64S	41.675838	-83.488409	4	8/12/21	1015	silty clay
LMR21-66S	41.673009	-83.491199	4	8/12/21	0945	silty clay
LMR21-68S	41.667802	-83.498905	4	8/12/21	0930	silty clay
LMR21-69S**	**41.6603**	**-83.5078**	X (or 5 if being used as ref)	8/12/21	1035	silty clay
[redacted]**			5**			

** Lake (or river) Reference Sample; also need surface water chemistry and additional sediment analyses. Location LMR21-69S may be reference, and if so, LMR21-70 would not be sampled.

ALSO NEED TO COLLECT 2 FD AND 2 MS/MSD SAMPLES

Attachment 3
Sediment Core Sample Collection Field Log

Lower Maumee River Data Gap INV. GLLA EPA

8/10/21 75°F light rain overcast
p.1 water choppy - WSW wind 13 mph

ATL using 10' vibracore

LMR 21-01 C = 94" all soft clay -
1st grab all sloughed out

7:50 AM

LMR 21-02 C = 96" all soft grey clay

LM 21-03 C = 92" soft grey clay
end WWTP C1

WWTP C1

WWTP B2 : 8:15 AM
04 C = 83" all soft grey clay not to refusal

05 C = 96" grey clay not to refusal 8:50 AM
(eagles to the N)

06C = 72" all grey clay not to refusal 9:09 AM
(eagles!)

07 C = 92" all grey clay 9:24 AM

08 C = 103" stiffer grey clay 9:38 AM

09 C = 90" (1-7 = very soft) 9:52 AM

WWTP A2
10 C = 101" grey clay 10:08 AM

Switch to 15' vibracore

LMR 21-11 C maps to onshore - offset into river 11:10
103" mostly grey clay but mussels/organics on top
N 739845.299 } actual
E 1703030.819 } coordinates

8/10/21 p. 2

LMR 21-12 = 156" stiffer 11:48 Am

WWTP A-1↓

LMR 21-13C = 103" grey clay @ noon (12pm)

14C = 110" grey clay 12:15 pm

15C = 128" 12:30 pm

16C = 131" 12:47 pm

17C = 157" 1:05 pm

WWTP A3↓

18 C = 147" very stiff 1:30 pm

19 = 101" difficult to core - a lot of resistance 1:45 pm

20 = 127" 2:15 pm

WWTP B1↓ Switch to 10' coring equipment

LMR21-21C = 79" 3:45 pm

22C = 82" 4:05 pm

23 = 76" 4:20 pm
took multiple times but no offset

WWTP C2↓

23 - adjacent to coal dock / RR cars unloading coal
45" @ 4:47 pm

8/10/21 p. 3

LMR 21 ~~-27~~ (27C) = 42" 5:07pm

-26C = 96" 5:30pm

-25 = 92" 5:45pm } photo of pull

-24 = 97" 6pm done

8/11/21 p. 1
planning notes: (review utility maps)

cores being skipped due to utility changes

LMR 21 - 35, -36, -61 -62 surface only

61, 62, + 35 take surface as planned

* (36) Δ to surface grab and analyze for suite B chemistry (Shaw bridge)

Also skip LMR 21-48
add surface there w/ Suite B

offset core @ -47 to upstream (NE)
offset core @ -49 to downstream (SW)
to avoid utilities

use 15' core for -45 to -50
otherwise use 10' core

8/11/2021 p. 2

Sway bridge C

LMR21-29 c = 77" @ 8:13 Am

X Erie Sway bridge
rain + lightning
hover by sway bridge until
storm passed completely
(~3-4 lightning strikes in
far distant clouds)

LMR21-30 = 1st pull ~ 18" discard
sand + gravel
repull = 2nd 39" ~9:10 Am

31 = 55" @ 9:27 Am

32 = Could be in channel (via eyeballing
buoys)
- gravel base - very loose + rocky
- far shore has covered pile
60" @ 9:41 Am (+) photo
of measurement

33 - bottom petrified wood fragments
60"

34 = 89" @ 10:11 (not to refusal)

(B1) 60 = hard native clay (grey) @
bottom 61" 10:30 Am

(D) 68 = very stiff grey clay @ bottom
62" 10:48 Am

8/11/21 p-3

59 = 81" @ 11:05 Am

58 = Concrete shore line w/ tires 11:20
83"

57 = 74" 11:37Am

(B1) 56 = 81" = 11:55Am

(A) → 67 = 37" — 12:19pm
Heavy grey clay — deep H2O

(B2) 37 - adjacent to dock w/ material
being off loaded rail road ties
just upstream of CSX bridge
49"

38 — bottom black pebbles - coal ?
- 26" @ 2:40pm

39 - off sch ~50' upstream due to
Sign — warning do not anchor
pipeline crossing —
although that did not show
up on utility map.
34"
N 734570.827
E 1699665.562

"Rite in the Rain"
ALL-WEATHER WRITING PAPER

8/12/2021 Lower Maumee River Sampling

ATL vibracore 8:20 Start delayed due to thunderstorm
10' tube 76°F mostly cloudy bridge delay

LMR 21 - 40C adjacent to coal dock
22" dense (hard) clay 9:17 Am

Susan Bridge A2

LMR 21 - 41C boat touching tire on sheet wall dock (photo)
44" hard clay 9:37 Am

LMR 21 - 42C 9" hard clay 9:50 Am
(probably native)

LMR 21 - 43C hard clay (probably native) 10:05 Am
39"

LMR 21 - 44C hard grey clay 24" 10:20 Am

LMR21 - 63C (SBD) hard grey clay (very hard) 37" 10:37 Am

LMR 21 - 64C (SBD) hard grey clay 23" 10:57

LMR 21 - 65C (SBD) - offset to avoid utilities near bridge
N 733337.553 new actual coordinates
E 1698316.433
24" @ 11:12 Am

LMR 21 - 66C (SBD) - 26" 11:35 Am

(Skip 45 - 50)

SBR3 LMR 21 - 55C petroleum odor @ base 97" 11:55 Am

LMR 21 - 54C (no odor) 70" @ 12:13 pm CSO (photo)

LMR 21 - 53C (no odor) 67" @ 12:28 pm

LMR 21 - 52C 108" @ 12:45 pm shore photo

LMR 21 - 51C strong petro odor 90" @ 1 pm Shore photos (sign + pipe) (ice)

"Rite in the Rain" ALL-WEATHER WRITING PAPER switch to 15' corer 3/12/21 p. 2

LMR 21-50c 87" @ 1:29 pm

LMR21-45 C 24" refusal - native clay (hard) 1:56 pm

LMR 21-49 C offset upstream to ensure utility clearance
N 732514.932 actual coordinates
E 1697883.088
bottom stiff grey clay (native) - layers of tarry
coal - tar like substance
92" @ 3:30 pm
(skip -48, utilities)

LMR 21-47 c ~~offset downstream to ensure utility clearance~~
~~N~~ planned offset not needed planned original
~~E~~ coordinates were far enough away from utility
based on visual of pipeline + signage.
- stiff gooey black at bottom - sheen bubbling up
(photos of core removal)
93" 3:51 pm

LMR 21-46 98" @ 4:09
adjacent to rail road (photo of core removal)

Attachment 4
Sediment Core Processing Tabular Log

LMR21-01C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021		94	8/10/2021	92	0-1	9:00
					1-4	9:01
					4-7	9:02
					7-8	9:03

Field Notes
All soft clay - first grab all sloughed out

Processing Notes
Gray silty clay
3" sand layer at 5'
Strong petroleum odor 4-8'

LMR21-02C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	7:50	96	8/10/2021	94	0-1	9:30
					1-4	9:31
					4-7	9:32
					7-8	9:33

Field Notes
All soft grey clay

Processing Notes
Grey brown silty clay
Strong petroleum odor 4'-8'

LMR21-03C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021		92	8/10/2021	89	0-1	9:50
					1-4	9:51
					1-4 FD	9:52
					4-7	9:53

Field Notes
Soft grey clay

Processing Notes
Homogenous grey silty clay, wet
At 3': 1" sand layer

LMR21-04C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	8:15	83	8/10/2021	84	0-1	11:06
					1-4	11:07
					4-7	11:08

Field Notes
All soft grey clay, not to refusal

Processing Notes
Grey silty clay
1'6"-1'8": layer of shells
5'-6': layer of sand and gravel
1'-7': petroleum odor

LMR21-05C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	8:50	96	8/10/2021	96	0-1	10:33
					1-4	10:34

4-7	10:35
7-8	10:36

Field Notes
Grey clay, not to refusal
Eagles to the North

Processing Notes
Grey silty clay

LMR21-06C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	9:09	72	8/10/2021	75	0-1	11:26
					1-4	11:27
					4-6.3	11:28

Field Notes
All grey clay, not to refusal
Eagles!

Processing Notes
Grey silty clay

LMR21-07C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	9:24	92	8/10/2021	94	0-1	11:46
					1-4	11:47
					4-7	11:48
					7-8	11:49

Field Notes
All grey clay

Processing Notes
Grey silty clay
1'-8': strong petroleum odor
2" layer of organic material (6'0"-6'2")
At 7'9": layer of sand

LMR21-08C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	9:38	103	8/10/2021	90	0-1	12:05
					1-4	12:06
					4-7	12:07
					4-7 FD	12:09
					7-7.5	12:08

Field Notes
Stiffer grey clay

Processing Notes
Grey silty clay

* Cores 8 and 9 were apparently switched during processing

LMR21-09C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	9:52	90	8/10/2021	103	0-1	12:33
					1-4	12:34
					4-7	12:35
					4-7 MS/MSD	12:36
					7-8	12:37

Field Notes
1-7 = very soft

Processing Notes
Grey silty clay
Big shells in 1'-4' interval

* Cores 8 and 9 were apparently switched during processing

LMR21-10C **Vibracore Length 10'** **Core Composite Group** LMR21-WA-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	10:08	101	8/10/2021	102	0-1	14:05
					1-4	14:06
					4-7	14:07
					7-8.5	14:08

Field Notes
Grey clay

Processing Notes
Grey silty clay
8'1"-8'6": sand layer

LMR21-11C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	11:10	103	8/10/2021	104	0-1	14:53
					1-4	14:54
					4-7	14:55
					7-9	14:56

Field Notes
Maps to onshore - offset into river
Mostly grey clay but mussels/organics on top
Actual coordinates:
N 739845.299
E 1703030.819

Processing Notes
0'-0.5': gravel and shells at top
Grey silty clay
6': transitions to sandy silt
0'-1': not included in composite; remainder was gravel

LMR21-12C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	11:43	156	8/10/2021	160	0-1	15:24
					1-4	15:25
					1-4 MS/MSD	15:26
					4-7	15:27
					7-10	15:28
					10-13	15:29

Field Notes
Stiffer

Processing Notes
Grey silty clay
Petroleum odor 1'-4'
Black lines and liquid sheen around 5'
Sand layer 5'-6.5'

LMR21-13C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	12:00	103	8/10/2021	108	0-1	15:57

1-4	15:58
1-4 FD	16:01
4-7	15:59
4-7 MS/MSD	16:02
7-9	16:00

Field Notes
Grey clay

Processing Notes
Black/grey silty clay 1'-4'
Otherwise grey silty clay

LMR21-14C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	12:15	110	8/10/2021	122	0-1	16:14
					1-4	16:15
					1-4 MS/MSD	16:19
					4-7	16:16
					7-10	16:17
					7-10 FD	16:18

Field Notes
Grey clay

Processing Notes
Grey silty clay
Bottom 4' were sand

LMR21-15C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	12:30	128	8/10/2021	127	0-1	16:42
					1-4	16:43
					1-4 FD	16:46
					4-7	16:44
					4-7 MS/MSD	16:47
					7-10	16:45

Field Notes
NA

Processing Notes
Grey silty clay
7'-9': black color
9'-10': sand

LMR21-16C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	12:47	131	8/10/2021	133	0-1	17:02
					1-4	17:03
					4-7	17:04
					4-7 FD	17:07
					7-11	17:05
					7-11 MS/MSD	17:06

Field Notes
NA

Processing Notes
Grey silty clay

LMR21-17C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	13:05	157	8/10/2021	159	0-1	17:30
					1-4	17:31

4-7	17:32
7-10	17:33
10-13	17:34

Field Notes
NA

Processing Notes
Top 1' sandy silt
Remainder grey silty clay
A few black streaks between 7'-10'

LMR21-18C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	13:30	147	8/10/2021	144	0-1	18:06
					1-4	18:07
					4-7	18:08
					7-10	18:09
					10-12	18:10

Field Notes
Very stiff

Processing Notes
1'-1.5': layer of sand
4'-6': layer of shells, sand and silt
4'-7': brown color, petroeum odor
Grey silty clay overall
4'-10': damp
10'-12': moist

LMR21-19C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	13:45	101	8/10/2021	103	0-1	18:21
					1-4	18:22
					4-7	18:23
					7-9	18:24

Field Notes
Difficult to core - a lot of resistance

Processing Notes
Overall grey silty clay
4.5'-6.5' layer with rocks, gravel, sand
6.5'-7.5': rocks, gravel, silt
7.5'-end: brown sand

LMR21-20C **Vibracore Length 15'** **Core Composite Group** LMR21-WA-3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	14:15	127	8/10/2021	123	0-1	18:36
					1-4	18:37
					4-7	18:38
					7-10	18:39

Field Notes
NA

Processing Notes
From 8"-12": layer of sand
3'-4': layer of sand
5'-7': sandy silt with gravel and rocks
7'-10': sandy silt with intermittend rocks and shells
Otherwise grey silty clay

LMR21-21C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	15:45	79	8/11/2021	85	0-1	7:32
					1-4	7:33
					1-4 FD	7:35
					4-7	7:34
					4-7 MS/MSD	7:36

Field Notes
NA

Processing Notes
Sandy silt from 0.5'-1.5'
Sandy silt from 3'-6'
Black staining around 3'-4' with petroleum odor
Otherwise grey silty clay

LMR21-22C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	16:05	82	8/11/2021	78	0-1	8:05
					1-4	8:06
					1-4 MS/MSD	8:08
					4-7	8:07
					4-7 FD	8:09

Field Notes
NA

Processing Notes
Silty clay 0'-2'
Sandy layer with shells 5'-6'
Otherwise grey clay (fat)

LMR21-23C **Vibracore Length 10'** **Core Composite Group** LMR21-WB-1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	16:20	76	8/11/2021	73	0-1	8:24
					1-4	8:25
					4-7	8:26

Field Notes
Took multiple times but no offset

Processing Notes
Grey silty clay; some sand interspersed
4.5'-5.5': sandy silty
5.5'-end of core: gravel and sand

LMR21-24C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	18:00	97	8/11/2021	97	0-1	8:51
					1-4	8:52
					4-8	8:53

Field Notes
NA

Processing Notes
Homogenous grey silty fat clay
Shells interspersed 0'-4'
Top 1' wet
Petroleum odor 4'-8'

LMR21-25C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	17:45	92	8/11/2021	89	0-1	9:21

1-4	9:22
4-7.5	9:23

Field Notes
Photo of pull

Processing Notes
Homogenous moist grey clay
Top 1' wet

LMR21-26C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	17:30	96	8/11/2021	94	0-1	9:43
					1-4	9:44
					4-8	9:45

Field Notes
NA

Processing Notes
Homogenous (fat) grey silty clay
Black streaks of color from 1.5'-2.5'
Strong petroleum odor 0'-1'

LMR21-27C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	17:07	42	8/11/2021	39	0-1	9:57
					1-3	9:58

Field Notes
NA

Processing Notes
Grey silty clay - very wet
Sandy layer between 6"-7"
2'-3': brown/grey in color; sandy layer with shells

LMR21-28C **Vibracore Length 10'** **Core Composite Group** LMR21-WC-2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/10/2021	16:47	45	8/11/2021	47	0-1	10:08
					1-4	10:09

Field Notes
Adjacent to coal dock/RR; cars unloading coal

Processing Notes
A few big rocks (3" wide) found along core
0'-1' brown silty clay, wet
1'-2': sandy silty
2'-4': 75% sand, silt, with shells interspersed

LMR21-29C **Vibracore Length 10'** **Core Composite Group** LMR21-SBC

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	8:13	77	8/11/2021	77	0-1	13:46
					1-4	13:47
					1-4 FD	13:49
					4-6.5	13:48
					4-6.5 MS/MSD	13:50

Field Notes
Erie sway bridge
Rain and lightning
Hovered by sway bridge until storm passed completely (~3-4 lightning strikes in far distant clouds)

Processing Notes

8"-12": 3" layer of organic matter (leaves, etc)
Top 1': shells interspersed
Sandy silt (mostly silt), but sand increased with depth
Grey brown in color

LMR21-30C **Vibracore Length 10'** **Core Composite Group** LMR21-SBC

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	9:10	39	8/11/2021	40	0-1	14:20
					1-3	14:21

Field Notes
1st pull ~18", discard, sand and gravel
Repull 39"

Processing Notes
Top 1': sandy silt
1'-bottom of core: mixture of sand, gravel, pebbles, and some larger rocks (3"+)

LMR21-31C **Vibracore Length 10'** **Core Composite Group** LMR21-SBC

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	9:27	55	8/11/2021	53	0-1	14:37
					1-4	14:38

Field Notes
NA

Processing Notes
0'-0.5' and 1'-bottom of core: silty sand
0.5-1': silty clay, grey
4'-4.5': layer of shells

LMR21-32C **Vibracore Length 10'** **Core Composite Group** LMR21-SBC

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	9:41	60	8/11/2021	59	0-1	14:56
					1-5	14:57

Field Notes
Could be in channel (via ? buoys)
Grand at base - very loose and rocky
Far shore has covered piles
*Photo of measurement

Processing Notes
0'-2': grey saturated silty clay
2'-4': silty sand
4'-bottom of core: sandy with substantial gravel

LMR21-33C **Vibracore Length 10'** **Core Composite Group** LMR21-SBC

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021		60	8/11/2021	60	0-1	15:12
					1-5	15:13

Field Notes
Bottom petrified wood fragments

Processing Notes
Top 5": silt with large rocks and gravel
Remainder: grey brown sand

LMR21-34C **Vibracore Length 10'** **Core Composite Group** LMR21-SBC

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time

8/11/2021	10:11	89	8/11/2021	84	0-1	15:27
					1-4	15:28
					4-7	15:29

Field Notes
Not to refusal

Processing Notes
Grey silty clay
Last 6": shells and gravel
4'-7': strong petroleum odor

LMR21-35C **Core Composite Group** LMR21-SBB2

No core collected; surface grab collected as planned

LMR21-36C **Core Composite Group** LMR21-SBB2

No core collected; utility line interference

LMR21-37C **Vibracore Length 10'** **Core Composite Group** LMR21-SBB2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021		49	8/12/2021	40	0-1	9:33
					1-3	9:34

Field Notes
Adjacent to dock with material being off loaded; rail road ties just upstream of CSX bridge

Processing Notes
Top 2' saturated silty clay, brown
Bottom 1': sandy silt with lots of gravel

LMR21-38C **Vibracore Length 10'** **Core Composite Group** LMR21-SBB2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	14:40	26	8/12/2021	31	0-1	9:41
					1-2.5	9:42

Field Notes
Bottom black pebbles - coal?

Processing Notes
Homogenous gravel-filled sandy silt with shells
Grey brown

LMR21-39C **Vibracore Length 10'** **Core Composite Group** LMR21-SBB2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021		34	8/12/2021	34	0-1	9:47
					1-3	9:48

Field Notes
Offset ~50' upstream due to sign - warning do not anchor pipeline crossing - although that did not show up on utility map
N 734970.827
E 1699665.562

Processing Notes
Top 6": gravel and sand
Remainder - damp, packed silty grey clay

LMR21-40C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	9:17	22	8/12/2021	22	0-2	13:50

Field Notes
Adjacent to coal dock

Dense hard clay

Processing Notes
Packed silty clay mixed with large shells and rocks throughout core
Rocks - 1"+ in size

LMR21-41C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	9:37	44	8/12/2021	36	0-1	14:00
					1-3	14:01
					1-3 FD	14:02

Field Notes
Boat touching tire on steel wall dock (photo)
Hard clay

Processing Notes
0'-0.5': silty clay with substantial gravel
The rest: packed silty clay with shells and gravel interspersed

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LMR21-42C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	9:50	9	8/12/2021	12	0-1	14:21

Field Notes
Hard clay (probably native)

Processing Notes
Silty clay, top 3" were wet, remainder were damp and packed
Lare shell 3"+ found in top 1'

LMR21-43C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	10:05	39	8/12/2021	38	0-1	14:35
					1-3	14:36
					1-3 MS/MSD	14:37

Field Notes
Hard clay (probably native)

Processing Notes
Damp homogenous packed silty clay
Grey brown; shells and small rocks equally distributed

LMR21-44C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA2

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	10:20	24	8/12/2021	22	0-1	14:35

Field Notes
Hard grey clay

Processing Notes
Homogenous packed damp silty grey clay

LMR21-45C **Vibracore Length 15'** **Core Composite Group** LMR21-SBA1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	13:56	24	8/13/2021	24	0-1	9:25
					1-2	9:26

Field Notes
Refusal - native clay, hard

Processing Notes
Sandy packed brown clay with shells interspersed

LMR21-46C **Vibracore Length 15'** **Core Composite Group** LMR21-SBA1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	16:09	98	8/13/2021	100	0-1	8:10
					1-4	8:11
					1-4 FD	8:13
					4-7	8:12
					4-7 MS/MSD	8:14
					7-8.5	8:15

Field Notes
Adjacent to railroad
Photo of core removal

Processing Notes
Brown silty clay
4'-7' interval: black with strong petroleum odor
Bottom 1': very packed brown clay

LMR21-47C **Vibracore Length 15'** **Core Composite Group** LMR21-SBA1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	15:51	93	8/13/2021	94	0-1	8:40
					1-4	8:41
					4-8	8:42

Field Notes
Planned offset not needed; planned original coordinates were far enough away from utility based on visual of pipeline and signage
Stiff gooey brack at bottom- sheen bubbling up (photos of core removal)

Processing Notes
Top 1' saturated grey clay
1'-2': packed, fat, damp clay
2': layer of only gravel and sand; black with sheen
Strong petroleum smell
2'-8': black-brown, gritty sandy silt and clay with gravel

LMR21-48C **Core Composite Group** LMR21-SBA1

No core collected; utility line interference

LMR21-49C **Vibracore Length 15'** **Core Composite Group** LMR21-SBA1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	15:30	92	8/13/2021	88	0-1	9:41
					1-4	9:42
					4-7.5	9:43

Field Notes
Offset upstream to ensure utility clearance
N 732514.932
E 1697883.088
Bottom stiff grey clay (native) - layers of coal/tar-like substance

Processing Notes
Brown-grey wet silty clay
2'-4.5': black inside, strong petroleum odor
Bottom 2': packed silty clay

LMR21-50C **Vibracore Length 15'** **Core Composite Group** LMR21-SBA1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	13:29	87	8/13/2021	92	0-1	9:07
					1-4	9:08
					4-7.5	9:09

Field Notes
NA

Processing Notes
Homogenous brown wet silty clay
Bottom 0.5': packed light brown clay

LMR21-51C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	13:00	90	8/12/2021	90	0-1	15:16
					1-4	15:17
					4-7.5	15:18

Field Notes
Strong petroleum odor
Shore photos - sign and pipeline

Processing Notes
Wet grey silty clay
A few sandy spots randomly distributed
Strong petroleum odor

LMR21-52C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	12:45	108	8/12/2021	119	0-1	15:26
					1-4	15:27
					1-4 FD	15:31
					4-7	15:28
					7-10	15:29
					7-10 MS/MSD	15:30

Field Notes
Shore photos

Processing Notes
Top 1' saturated grey clay
Remainder silty grey clay
0.5' long sand layers at 4' and 7'
Super strong smell of petroleum 7'-10'; bottom 4' black in color
Black sheen from 7'-10'

LMR21-53C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	12:28	67	8/12/2021	70	0-1	15:51
					1-4	15:52
					4-6	15:53

Field Notes
No odor

Processing Notes
Top 3.5' saturated grey clay
Bottom 1.5' damp packed silty clay

LMR21-54C **Vibracore Length 10'** **Core Composite Group** LMR21-SBA3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	12:13	70	8/12/2021	71	0-1	16:14
					1-4	16:15
					1-4 FD	16:17
					4-6	16:16

Field Notes
No odor
CSO photo

Processing Notes
Soft saturated grey clay 0'-4'
Last 2' silty grey clay, packed, damp

LMR21-55C | **Vibracore Length 10'** | **Core Composite Group** LMR21-SBA3

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	11:55	97	8/12/2021	90	0-1	16:41
					1-4	16:42
					1-4 MS/MSD	16:44
					4-7.5	16:43

Field Notes
Petroleum odor at base

Processing Notes
Top 1'-3' grey silty wet clay
3'-4': layer of gravel
5': 5" layer of gravel
Bottom 2': dark brown/black, petroleum odor, sandy

LMR21-56C | **Vibracore Length 10'** | **Core Composite Group** LMR21-SBB1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	11:55	81	8/12/2021	80	0-1	7:33
					1-4	7:34
					1-4 FD	7:36
					4-7	7:35
					4-7 MS/MSD	7:37

Field Notes
NA

Processing Notes
Top 1'-3' grey saturated silty clay
3'-4': very silty, borderline sandy
Bottom 3': very stiff, dry, packed clay

LMR21-57C | **Vibracore Length 10'** | **Core Composite Group** LMR21-SBB1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	11:37	74	8/12/2021	70	0-1	7:49
					1-4	7:50
					4-6	7:51

Field Notes
NA

Processing Notes
Grey silty clay
Very packed (3'-6')
A few pebbles and rocks in 3'-4' interval

LMR21-58C | **Vibracore Length 10'** | **Core Composite Group** LMR21-SBB1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	11:20	83	8/12/2021	84	0-1	8:12
					1-4	8:13
					4-7	8:14
					4-7 FD	8:15

Field Notes
Concrete shoreline with tires

Processing Notes
Grey silty wet clay
1'-2': brown in color
2'-3.5' interval: organic matter (wood chips, etc)

LMR21-59C **Vibracore Length 10'** **Core Composite Group** LMR21-SBB1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	11:05	81	8/12/2021	81	0-1	8:31
					1-4	8:32
					1-4 MS/MSD	8:34
					4-7	8:33

Field Notes
NA

Processing Notes
Grey silty clay
Bottom 2': gravel and rocks interspersed; fat clay with silt

LMR21-60C **Vibracore Length 10'** **Core Composite Group** LMR21-SBB1

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	10:30	61	8/12/2021	61	0-1	8:51
					1-4	8:52
					4-5	8:53

Field Notes
Hard native clay
Grey at bottom

Processing Notes
Brown-gray silty clay with rocks/gravel evenly dispersed throughout core (10 rocks/1' segment)
Bottom 1': packed damp clay

LMR21-61C

No core collected; surface grab collected as planned

LMR21-62C

No core collected; surface grab collected as planned

LMR21-63C **Vibracore Length 10'** **Core Composite Group** LMR21-SBD

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	10:37	37	8/12/2021	33	0-1	12:40
					1-2.75	12:41
					1-2.75 MS/MSD	12:42

Field Notes
Hard grey clay (very hard)

Processing Notes
Silty clay - packed and damp
Grey but gradually increases in brown color from top to bottom
Rocks interspersed; bottom 6" mostly gravel and rocks

LMR21-64C **Vibracore Length 10'** **Core Composite Group** LMR21-SBD

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	10:57	23	8/12/2021	21	0-2	13:00
					0-2 FD	13:01

Field Notes
Hard grey clay

Processing Notes
Silty clay, packed
Top had lots of rocks and gravel
Grey
Top 6" most pliable to touch

LMR21-65C **Vibracore Length 10'** **Core Composite Group** LMR21-SBD

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	11:12	24	8/12/2021	24	0-1	13:07
					1-2	13:08

Field Notes
Offset to avoid utilities near bridge
New actual coordinates
N 733337.553
E 1698316.433

Processing Notes
Damp, packed, silty clay
Gray brown
Interspersed rocks

LMR21-66C **Vibracore Length 10'** **Core Composite Group** LMR21-SBD

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/12/2021	11:35	26	8/12/2021	24	0-1	13:31
					1-2	13:32

Field Notes
NA

Processing Notes
Top 1' saturated grey silty clay
Bottom 1': hard packed damp silty clay

LMR21-67C **Vibracore Length 10'** **Core Composite Group** LMR21-SBD

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	12:19	37	8/12/2021	36	0-1	11:53
					0-1 FD	11:55
					1-3	11:54
					1-3 MS/MSD	11:56

Field Notes
Heavy grey clay; deep water

Processing Notes
Homogenous, thin, saturated grey silty clay

LMR21-68C **Vibracore Length 10'** **Core Composite Group** LMR21-SBD

Collection Date	Field Sampling Time	Field Measurement (inches)	Processing Date	Processing Measurement (inches)	Sampling Intervals (feet)	Packaging Time
8/11/2021	10:48	62	8/12/2021	42	0-1	12:07
					1-3.5	12:08

Field Notes
Very stiff grey clay at bottom

Processing Notes
0'-1': saturated grey clay
Remainder: damp, thick, fat, packed silty clay

Attachment 5
Sediment Core Processing
Field Log

USACE - Buffalo District		**SEDIMENT CORE LOG**	
PROJECT:	Maumee River AOC/Maumee River Data Gap Investigation	STATION ID:	LMR21-01C
PROJECT NUMBER:		SHEET:	1 of 1
CLIENT:	USEPA	DATE:	August 10, 2021
BORING CONTRACTOR:	ATL	START TIME:	
EQUIPMENT:	Vibracore	END TIME:	
DRILLER:		NORTHING:	
LOGGER:		EASTING:	
		WATER DEPTH:	

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				gray silty clay	
3					
4					
5				3" sand layer at 5' strong petroleum smell 4 - 8 ft	
6					
7		92in		sampling interval (ft)	
		~~7 ft~~		0 - 1 0900	
8		8 in.		1 - 4 0901	
		92 in		4 - 7 0902	
9				7 - 8 0903	
10				sampled at	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-02C
PROJECT NUMBER:	SHEET: 1 of 1
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				gray brown silty clay	
3					
4					
5				strong petroleum smell 4-8 ft	
6		94in			
7		7 ft 10 in		sampling intervals (ft)	
8		94 in		0-1 0930	
9				1-4 0931	
10				4-7 0932	
11				7-8 0933	

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-03C
PROJECT NUMBER:	SHEET: 1 of 1
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				homogenous grey silty clay wet	
2					
3				3 ft - 1 in sand layer	
4					
5					
6				petroleum odor in 1-4, 4-7 ft sample	
7		7 ft 5 in		7 ft 1 in - 5 in: layer of sand + gravel	
8				sampling intervals:	
9		89 in		0-1 ft 0950 1-4 ft 0951 + FD 0952	
10				4-7 ft 0953	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR 21-04C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
				grey silty clay	
1				1 ft 6" - 1 ft 8": layer of shells	
2					
3					
4					
5				5-6' = layer of sand/gravel	
6					
7					
8		7 ft		0-1 ft 1106	
				1-4 ft 1107	
9		84in		4-7 ft 1108	
10				Bottom 2 layers petro odor	
11					

Remarks:

USACE - Buffalo District

SEDIMENT CORE LOG

PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-05C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2020
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				grey silty clay	
2					
3					
4					
5					
6					
7					
8		8ft		sampling intervals	
				0-1 ft 1033	
		96in		1-4 ft 1034	
9				4-7 ft 1035	
10				7-8 ft 1036	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UME21-06C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				gray silty clay	
2					
3					
4					
5					
6					
7		6'3"		sampling intervals	
8				0-1 ft. 1126	
		75in		1-4 ft 1127	
9				4-6.3 ft 1128	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-01C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				gray silty clay	
2					
3				1 - 8 ft : strong petroleum odor	
4					
5					
6				2 in. layer of organic material (6 ft - 6 ft 2 in)	
7	7 ft 10 in.			7 ft 9 in - layer of sand	
8				Sampling intervals 0 - 1 ft 1146	
9		94 in		1 - 4 1147 4 - 7 1148	
10				7 - 7 ft 10 in 1149 (~8 ft)	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-08c
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
	EASTING:
LOGGER:	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				grey silty clay	
2					
3					
4					
5					
6					
7		7ft 6in		sampling intervals	
8				0-1 ft 1205	
		90in		1-4 ft 1206	
9				4-7 ft 1207	
10				7-7.5 ft 1208	
				field dup 4-7 ft 1209	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-09C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
				grey silty clay	
1					
2					
3				big shells in 1-4 ft interval	
4					
5					
6					
7				sampling intervals	
8		8 ft 7 in		0-1 1233 4-7 ft	
9		103in		1-4 1234 MS/MSD 1236	
				4-7 1235	
10				7 - 8 ft 7 in (9 ft) 1237	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-~~[illegible]~~ 10C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				gray silty clay	
2					
3					
4					
5					
6				8'1" – 8'6" sand layer	
7				sampling interval	
8		8 ft 6 in		0–1 ft 1405 1–4 ft 1406	
9		102 in		4–7 ft 1407 7–8.5 ft 1408	
10					
11					

Remarks:

USACE - Buffalo District	**SEDIMENT CORE LOG**
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR221-11C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2011
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
				0-0.5 ft gravel and shells at top	
1					
2				gray silty clay	
3					
4					
5				~6ft transitions to sandy silt	
6					
7	8 ft			sampling intervals	
8	8 in.			0-1 1453	
9	104 in			1-4 1454	
				4-7 1455	
10				7-9 1456	
				(8 ft 8 in)	
11					

Remarks: 0-1 ft not included in composite - remainder was gravel

USACE - Buffalo District	**SEDIMENT CORE LOG**
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UMR21-12C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
				gray silty clay	
1				petroleum Odor 1-4 ft	
2				black lines (liquid sheen around 5 ft) sand layer 5-6.5 ft	
3					
4					
5					
6				sample intervals	
7				0-1 ft 1524	
8				1-4 ft 1525 1-4 ft MS/MSD 1526	
9		160in		4-7 ft 1527	
10				7-10 ft 1528	
		13 ft 4in		10-13 ft 4 in 1529	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR-13C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2					
3				black/gray silty clay 1-4 ft	
4				otherwise gray silty clay	
5					
6					
7				sampling intervals	
8				0-1 ft 1557	1-4 ft 1601
		9 ft		1-4 ft 1558 FD	
9				4-7 ft 1559	4-7 ft MS/MSD 1602
10				7-9 ft 1600	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-14C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				grey silty clay	
2					
3				bottom 4' were sand	
4					
5					
6					
7					
8		122in		sampling interval 0-1 ft 1614 1-4 ft 1615 MS/MSD	1-4 ft 1619
9		10 ft 2 in		4-7 ft 1616	
10				7-10 ft 1617 FD	7-10 ft 1618
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: MR 21-15C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 18, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				9–10 ft all sand	
3				7–9 ft black color	
4				otherwise gray	
5				silty clay	
6					
7				sampling intervals	
				0–1 1642	
8		10 ft 7 in		1–4 1643	1–4 ft FD
9		127 in		4–7 1644	1646
				7–~10 1645	4–7 ft
10					MSMSD 1647
11					

Remarks:

USACE - Buffalo District

SEDIMENT CORE LOG

PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UMR21-16C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				grey silty clay	
3					
4					
5					
6					
7				sampling intervals 0-1 ft 1702	
8		133in		1-4 ft 1703 4-7 ft 1704	
9		11 ft 1 in		7-11 ft 1705	
10				7-11 ft 1706 MS/MSD FD 4-7 ft	1707
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LM221-17C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 10, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 1' sandy silt remainder gray silty clay a few black streaks between 7-10 ft	
2					
3					
4					
5					
6					
7				sampling intervals	
8		13 ft 3 in		0-1 ft 1730 1-4 ft 1731 4-7 ft 1732	
9					
10				7-10 ft 1733 10-~13 ft 1734	
11					

Remarks:

USACE - Buffalo District

SEDIMENT CORE LOG

PROJECT: Maumee River AOC/Maumee River Data Gap Investigation
PROJECT NUMBER:
CLIENT: USEPA
BORING CONTRACTOR: ATL
EQUIPMENT: Vibracore
DRILLER:
LOGGER:

STATION ID: LMR21-18C
SHEET: of
DATE: August
START TIME:
END TIME:
NORTHING:
EASTING:
WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				1-1.6 ft layer of sand	
2				4-6 ft layer of shell, sand + silt	
3				4-7 ft brown color, petroleum odor	
4				gray ~~sand~~ silty clay overall	
5				middle sampling intervals 4-10 ft damp	
6					
7				10-12 ft moist	
8				0-1 ft 1806	
				1-4 ft 1807	
9				4-7 ft 1808	
				7-10 ft 1809	
10		12 ft		10-12 ft 1810	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-19C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				overall grey silty clay	
2				4.5-6.5 ft layer with rocks, gravel, sand	
3				6.5-7.5 ft rocks, gravel, silt	
4				7.5-8+ sand, brown	
5					
6				sampling intervals	
7				0-1 0821	
8				1-4 1822 4-7 1823	
9	10	8 ft 7 in		7-9 1824	
10		103 in			
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-20C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				8 in.-12 in layer of sand	
2				3-4 ft layer of sand	
3					
4				5-7 ft sandy silt with gravel rocks	
5				7-10+ sandy silt with intermittent rocks + shells	
6					
7				otherwise gray silty clay	
8		123 in		sampling interval	
9	10 ft 3 in			0-1 1836 1-4 1837	
10				4-7 1838 7-10+ 1839	
11					

Remarks:

cores 21 – 28
recovery on Aug 10,
sampled + packaged Aug 11

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-21C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				sandy silt from 0.5-1ft	
2				sandy silt 1.2 1.5 ft	
3					
4				otherwise gray silty clay	
5				sandy silt from 3-6 black staining around 3-4 ft w/ petroleum odor	
6				sampling intervals	
7		7 ft 1 in		0-1 ft 0732	
8		85 in		1-4 ft 0733 4-7 ft 0734	
9				FD 1-4 ft 0735	
10				MSMSD 4-7 ft 0736	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMK21-22C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				otherwise gray clay (fat)	
2				silty clay 0-1-2 ft	
3					
4				sandy layer with shells 5-6 ft	
5					
6					
7		6ft 6in		sampling intervals	
8		78in		0-1 ft 0805	
9				1-4 ft 0806	
10				4-6.5 ft 0807 1-4 ft MS/MSD 0808	
11				4-6 ft FD 0809	

Remarks:

USACE - Buffalo District	**SEDIMENT CORE LOG**
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-23C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				grey silty clay - some sand interspersed as well	
2				4.5-5.5 - sandy silt	
3					
4				5.5 - 6ft 1in - gravel and sand	
5					
6		6ft 1in			
7		73 in		sampling intervals	
8				0-1 0824	
9				1-4 0825	
10				4-6 0826	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-24C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				homogenous gray silty clay	
2				shells interspersed 0-4 ft	
3					
4				(fat) top 1 foot wet	
5				petroleum odor 4-8 ft	
6					
7				sampling intervals 0-1 0851	
8		8 ft 1 in		1-4 0852	
9				4-7 0853 ~~7-8 0854~~	
10					
11					

Remarks:

USACE - Buffalo District	**SEDIMENT CORE LOG**
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-25C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				homogenous ~~(fat)~~ moist gray clay	
3				top 1 ft wet	
4					
5					
6					
7		7 ft 5 in			
8				sampling intervals	
				0-1 0921	
9				1-4 0922	
				4-7.5 0923	
10					
11					

Remarks:

USACE - Buffalo District	**SEDIMENT CORE LOG**
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-26C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
				homogenous (tan) gray silty clay	
1					
2				black streaks of color from 1.5-2.5ft	
3				strong petroleum odor ~~1-2ft~~ 0-1 ft	
4					
5					
6					
7		7ft 10in		sampling intervals	
8				0-1 0943	
9		94in		1-4 0944	
10				4-8 0945	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR 21-27C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				grey silty clay - very wet	
2					
3		3 ft 3 in		sandy layer between 6 + 7"	
4		39 in		2-3 ft - brown/gray in color	
5					
6				bottom 1 ft sandy layer with shells	
7					
8				sampling intervals 0-1 0957	
9				1-3 0958	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR 21 - 28C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 1'
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				a few big rocks	
2				(3" wide) found along core	
3		3 ft 11 in		0-1 ft brown silty clay, wet	
4		47 in		1-2 ft sandy silt	
5				2-4 ft 75% sand, silt; shells interspersed	
6					
7				sampling intervals	
8				0-1 1008	
9				1-4 1009	
10					
11					

Remarks:

USACE - Buffalo District		SEDIMENT CORE LOG	
PROJECT:	Maumee River AOC/Maumee River Data Gap Investigation	STATION ID:	LMR21-29C
PROJECT NUMBER:		SHEET:	of
CLIENT:	USEPA	DATE:	August 11, 2021
BORING CONTRACTOR:	ATL	START TIME:	
EQUIPMENT:	Vibracore	END TIME:	
DRILLER:		NORTHING:	
LOGGER:		EASTING:	
		WATER DEPTH:	

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				8"-3" layer of organic matter (leaves, etc)	
2					
3				top 1' - shells interspersed	
4					
5				sandy/silt (mostly silt, but sand increased with depth)	
6	6	6 ft 5 in		gray brown	
7		77 in			
8				sampling intervals 0-1 1346	
9				1-4 1347	
10				4-6.5 1348 FD 1-4 1349 MS/MSD 4-6.5 1350	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR-30C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				Top 1': ~~silty sand~~ sandy silt	
2				1 - ~~3'~~ bottom: mixture	
3		3 ft 4 in		of sand, gravel, pebbles and some	
4				larger rocks (3"+)	
5		40 in			
6					
7					
8				sampling interval 0-1 1420	
9				1-3 1421	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-31C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				0.5 - 1 ft silty clay, gray	
2				0 - 0.5 and 1ft - bottom silty sand	
3				layer of shells	
4		4ft 5 in		4 - 4.5 ft	
5		53 in			
6					
7				sampling interval	
8				0-1 1437	
9				1-4 1438	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: 22C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				0-2 ft: gray (saturated) silty clay	
3				2-4 ft: ~~San~~ silty sand	
4		4 ft 11 in		4-4 ft 11 in: sandy with substantial gravel	
5		59 in			
6					
7				Sampling intervals	
8				0-1 1456	
9				~~ft~~	
10				1-2.5 1457	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: 33C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11, 2021
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 5": silt with large rocks + gravel	
2				remainder - grey brown sand	
3					
4					
5		5ft			
6		60in			
7				Sampling intervals	
8				0-1 ft 1512	
9				1-5 ft 1513	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: 34C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 11
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				gray silty clay	
3					
4				last 6": shells + gravel	
5				4-7 ft strong petroleum odor	
6					
7		7ft 84in		sampling intervals 0-1 1527 1-4 1528 4-7 1529	
8					
9					
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-37C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				top 2 ft saturated silty clay (brown)	
3		3 ft 4 in			
4				bottom 1 ft - sandy silt with lots of gravel	
5		40 in			
6					
7				Sampling intervals	
8				0-1 0933	
9				1-3 0934	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-38C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2		2ft 7in		homogenous gravel-filled sandy silt with shells grey-brown	
3					
4					
5					
6					
7				Sampling interval	
8				0-1 0941	
9				1-2.5 0942	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-39C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 6": gravel + sand	
2		2ft 10in		remainder - damp, packed silty clay (gray)	
3		34 in			
4					
5					
6					
7				sampling intervals	
8				0-1 0947	
9				1-3 0948	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21 - 40C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1		1 ft 10 in			
2				packed silty ~~sand~~ clay	
3		22 in		mixed with large shells + rocks throughout core 1" t.	
4					
5					
6					
7					
8				Sampling interval all in 1	
9				1350	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21 - 41C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				0-0.5ft silty clay with substantial gravel	
3		3 ft		the rest - packed silty ~~sand~~ clay with shells and gravel interspersed	
4		36 in			
5					
6					
7				sampling interval	
8				0-1 1400 1-3 1401	
9				1-3 FD 1402	
10					
11					

Remarks:

USACE - Buffalo District	**SEDIMENT CORE LOG**
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21 - 42C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1		1ft		sandy silt top 3" were wet, remainder was damp + packed clay large shell 3" + found in top 1 foot	
2					
3					
4					
5					
6					
7				sampling interval	
8				0-1 1421	
9					
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21 - 43C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				damp	
				homogenous packed	
2				silty sand gray	
				brown - shells	
3		3 ft		and small rocks	
		2 in		equally distributed	
4		38 in		remainder clay	
5					
6					
7				sampling intervals	
				0-1 1435	
8				1-3 1436	
9				1-3 MS MSD 1437	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-44C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2		1ft 10in		homogenous packed damp silty clay gray	
3					
4					
5					
6				sampling intervals	
7				0-1 1435	
8					
9					
10					
11					

Remarks:

USACE - Buffalo District		SEDIMENT CORE LOG	
PROJECT:	Maumee River AOC/Maumee River Data Gap Investigation	STATION ID:	UMR21-45C
PROJECT NUMBER:		SHEET:	of
CLIENT:	USEPA	DATE:	August 13
BORING CONTRACTOR:	ATL	START TIME:	
EQUIPMENT:	Vibracore	END TIME:	
DRILLER:		NORTHING:	
LOGGER:		EASTING:	
		WATER DEPTH:	

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				sandy packed	
2		2ft		brown clay with shells interspersed	
3					
4					
5					
6					
7				sampling intervals	
8				0-1 0925	
9				1-2 0926	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-46C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 13
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1 2 3 4 5 6 7 8 9 10 11		8 ft 4 in 100in		brown silty clay 4-7 interval black w/ strong petroleum odor bottom ft very packed brown clay sampling intervals 0-1 0810 1-4 0811 4-7 0812 1-4 FD 0813 4-7 MS/MSD 0814	

Remarks: 7-8.5 0815

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UMB21-97C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 1 ft saturated gray clay	
2				1-2 ft ~~ft~~ racked, fat, damp clay	
3				@ 2 ft layer of oily gravel + sand } black with sheen	
4				strong petroleum smell	
5				last 2 ft silty clay - brown; middle layers black-brown, gritty, sandy silt/clay with gravel	
6					
7		7ft 10in		sampling intervals	
8		~~97in~~		0-1 0840; 1-4 0841	
9		94in		4-8 0842	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMZ21-49C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 13
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				brown-gray wet silty clay	
2					
3				2-4.5 ft black inside, strong petroleum odor	
4					
5				bottom 2 ft packed silty clay	
6					
7		7ft 4in		sampling intervals	
8		88in		0-1 0941 1-4 0942 4-7.5 ft 0943	
9					
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21 - 50C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				homogenous brown wet silty clay	
2					
3				bottom 0.5 ft is packed light brown clay	
4					
5					
6					
7		7ft 8in			
8		92in		0-1 0907	
9				1-4 0908 4-7.5 0909	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-S1C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				wet grey silty clay	
2				a few sandy spots randomly distributed	
3					
4				Strong petroleum odor	
5					
6					
7		7 ft 6 in		sampling intervals	
8		90 in		0-1 1516	
9				1-4 1517	
10				4-7.5 1518	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UMR21-57C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 1ft saturated clay grey	
2				remainder silty grey clay	
3				sand layers (~0.5ft)	
4				at 4-5ft and 7-8ft	super strong
5				bottom 4 ft more black in color	smell of petroleum 7-10ft
6				black sheen in bottom layer	
7				Sampling interval	
8				0-1 1526	MS/MSD 7-10 1530
9		9 ft 11in		1-4 1527	FD
10		119in		4-7 1528 7-10 1529	1-4 1531
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LME21-53C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 3.5 ft - saturated gray clay	
2					
3				bottom 1.5 feet damp packed silty clay	
4					
5		5ft 10in			
6					
7				sampling interval	
8				0-1 1551 1-4 1552 4-6 1553	
9					
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UMR21-54C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				Soft saturated gray clay 0-4 last 2 ~~feet~~ silty gray clay, packed, damp	
2					
3					
4					
5		5ft 11in 71in			
6					
7				sampling intervals 0-1 1619 1-4 1615 4-6 1616 1-4 FD 1617	
8					
9					
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UMR21-SSC
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2					
3				top 1-4 ft gray silty clay (wet)	
4				3-4 ft layer of gravel	
5				5 ft - 5" layer of gravel	
6				bottom 2 feet dark brown/	
7		7ft 6in		black, petroleum odor, sandy Sampling intervals	
8		90in		0-1 1641	
9				1-4 1642	
10				4-7.5 1643	
11				1-4 MS/MSD 1644	

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMK21-56C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 1-3 ft gray saturated silty clay	
2				3-4 ft very silty, borderline sandy	
3				bottom 3 ft very stiff, dry, packed	
4				clay	
5					
6		6ft			
7		8in			
8		80 in		sampling intervals	
9				0-1 0733 1-4 0734	
10				4-7 0735	
11				1-4 0736	FD MS/MSD
				4-7 0737	

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-57C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August 12
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2				grey silty clay	
3				packed (very packed) 3-6 ft	
4				a few pebbles, rocks in 3-4 ft interval	
5		5ft 10in			
6		70in			
7					
8				sampling intervals 0-1 0749	
9				1-4 0750	
10				4-6 0751	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMB21-58C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				gray silty clay (wet)	
2				1-2 ft brown in color	
3				2 ft - 3-5" interval with organic material (wood chips, etc)	
4					
5					
6					
7		7 ft			
8		84 in		sampling intervals 0-1 0812	
9				1-4 0813	
10				4-7 0814 4-7 ft FD 0815	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-59C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				gray silty clay	
2					
3				bottom 2 ft had gravel + rocks interspersed, fat clay with silt	
4					
5					
6		6 ft 9 in			
7		8/12		Sampling intervals	
8				0-1 0831	
9				1-4 0832 4-7 0833	
10				1-4 0834 MS/MSD ~~4-7 0835 FD~~	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-60c
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
				brown-gray silty clay with rocks/gravel evenly dispersed throughout core (10 rocks/1 ft segment)	
1					
2					
3					
4				bottom 1 ft: packed damp clay	
5		5ft 1in			
6		61in			
7				sampling intervals	
8				0-1 0851	
9				1-4 0852	
				4-5 0853	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-63c
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1					
2		2ft 9in 33in		silty clay - packed, damp grey, but gradually increases in brown color from top to bottom rocks interspersed bottom 6" mostly gravel, rocky	
3					
4					
5					
6					
7				sampling intervals 0-1 ft 1240 1-2.75 ft 1241 MS/MSD 1-2.75 ft 1242	
8					
9					
10					
11					

Remarks:

USACE - Buffalo District		**SEDIMENT CORE LOG**	
PROJECT:	Maumee River AOC/Maumee River Data Gap Investigation	STATION ID:	CMR21-64C
PROJECT NUMBER:		SHEET:	of
CLIENT:	USEPA	DATE:	August
BORING CONTRACTOR:	ATL	START TIME:	
EQUIPMENT:	Vibracore	END TIME:	
DRILLER:		NORTHING:	
LOGGER:		EASTING:	
		WATER DEPTH:	

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				silty clay, packed	
2		1 ft 9 in		top has lots of rocks/ gravel	
3				grey, top 6" most pliable to touch	
4		21 in			
5					
6					
7				sampling interval	
8				all in 1 1300	
9				FD 1301	
10					
11					

Remarks:

USACE - Buffalo District		**SEDIMENT CORE LOG**
PROJECT:	Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: UMR21-65C
PROJECT NUMBER:		SHEET: of
CLIENT:	USEPA	DATE: August 12
BORING CONTRACTOR:	ATL	START TIME:
EQUIPMENT:	Vibracore	END TIME:
DRILLER:		NORTHING:
LOGGER:		EASTING:
		WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				damp, packed silty clay (gray-brown) interspersed rocks	
2		2ft			
3					
4					
5					
6					
7				Sampling intervals	
8				0-1 ft 1307	
9				1-2 ft 1308	
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-66C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				top 1' saturated gray silty clay	
2		2 ft		bottom foot - hard packed damp silty clay	
3					
4					
5					
6					
7				Sampling intervals 0-1 1331 1-2 1332	
8					
9					
10					
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-67C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				homogenous saturated gray silty clay (thin)	
2					
3		3ft			
4					
5					
6					
7					
8				Sampling interval	
9				0-1 1153 1-3 1154	
10				0-1 FD 1155 1-3 MS/MSD 1156	
11					

Remarks:

USACE - Buffalo District	SEDIMENT CORE LOG
PROJECT: Maumee River AOC/Maumee River Data Gap Investigation	STATION ID: LMR21-68C
PROJECT NUMBER:	SHEET: of
CLIENT: USEPA	DATE: August
BORING CONTRACTOR: ATL	START TIME:
EQUIPMENT: Vibracore	END TIME:
DRILLER:	NORTHING:
LOGGER:	EASTING:
	WATER DEPTH:

DEPTH (FT)	PENETRATION (FT)	RECOVERY (FT)	SAMPLE TYPE	SEDIMENT DESCRIPTION (TYPE, PARTICLE SIZE, COLOR, MOISTURE, CONSISTENCY, OBSERVATION, ETC.)	COMMENTS (SAMPLE ID, QA/QC, ETC.)
1				0-1 ft saturated grey clay	
2				remainder: damp, thick, fat packed silty clay	
3		3ft 6in			
4		42in			
5					
6					
7				sampling intervals 0-1 ft 1207	
8				1-3.5 ft 1208	
9					
10					
11					

Remarks:

Attachment 6
Locational Data Checklist

Locational Data Checklist and Metadata Recording Form

This document accompanies the *Great Lakes Legacy Act Data Reporting Standard* , which provides detailed data reporting guidance for GLLA projects, including electronic data deliverables (EDD) requirements. GLLA data providers should review this document prior to collecting data. Copies of completed forms should be uploaded to the GLLA Data Submission Site on GLNPO.net with the complete GLLA data submission.

Contact Information

Contact Name: Jay Miller — Phone Number: 716-879-4394

Affiliation: USACE - Buffalo — E-mail Address: James.Miller@usace.army.mil

Study Information

Project Title: Lower Maumee River Data Gap Investigation - Maumee AOC

Site Name: Lower Maume River - Maumee AOC, Toledo Ohio

Sampling Start Date: August 10, 2021 — Sampling End Date: August 12, 2021

Preparation Activities (please confirm each activity in the boxes to the right)

1. Sampling staff are trained in GPS Field Data Collection and have familiarized themselves with the GPS unit used for this project (certified training recommended). [X]

2. Determined window of satellite availability. https://www.gnssplanning.com [X]

3. Locate at least one control point to assess GPS accuracy. [NA]
For assistance locating control points, visit http://www.ngs.noaa.gov/datasheets or http://www.geocaching.com/mark/. This may not be feasible if the GPS unit is mounted to a vessel.*

4. If a control point cannot be located, establish at least one reference point.* [X]

Data Collection Activities (please confirm each activity in the boxes to the right)

1. GPS unit was configured to collect data only when the following requirements were met:
   a. A minimum of four satellites [Y]
   b. Position dilution of precision (PDOP) ≤ 6 [Y]
   c. Satellite elevation ≥ 15° above the horizon [Y]
   d. A minimum signal-to-noise ratio (refer to GPS user manual for recommendation) [Y]

2. Collected point data based on the nearest base station's logging interval. [Y]

3. Collected point data for a period of at least 1 minute per location. [Y]

4. Reported locational data in WGS 84 or NAD 83 (please specify__________________). [NAD83]

Please provide an explanation if a box was not checked for any of the responses above and specify deviations (include sample IDs if applicable):

*At minimum, collect on the first day of sampling prior to beginning data collection and on the last day of sampling following data collection. It is recommended to collect at the start and end of each sampling day. Record on page 2.

GPS Unit Specifications

GPS brand and model number: Garmin GPSMAP 7410

Model accuracy: +/-10'

Data Processing

Which of the following best describes any data correction that may have been performed:

☐ real-time correction - specify type

☐ post processed differential correction - provide base station id and location

☑ no correction

☐ other, please specify

Quality Information

Describe any difficulties in collecting locational data:

Data Provider:

Confirm required information has been provided.

James M. Miller — September 22, 2021

Signature — Date

Attachment 7
Reduced Elutriate Volume Test Plan

Reduced Elutriate Volume Test Plan

13 August 2021

ERDC-EL was notified that approximately 50% of the anticipated sediment used for elutriate analysis was collected from some of the composite samples. The original sediment volume was requested to cover (1) analytical chemistry; (2) *Ceriodaphnia* toxicity testing; (3) fish toxicity testing; (4) toxicity reduction evaluations for both species; (5) archive material in case elutriates need to be recreated due to loss of test materials during shipment to the analytical chemistry lab or if there is need for other re-testing.

This white paper presents a reduced testing plan to accommodate the available material. The assumption made is that 1.8 gallons of usable sediment will be present in the 2 gallon bucket. The following analyses are most critical to execute with the reduced available volume, ranked in order of importance: (1) analytical chemistry (2) *Ceriodaphnia* testing; (3) fish testing; (4) archiving material for reanalysis. A summary of these volumes is provided in the table below.

Recommendation: generate elutriate for analytical chemistry, and the standard elutriate test for both organisms. Reduce the planned number of dilutions from five (100, 50, 25, 13, 6%) to the three (100, 50, 10%) that are recommended in the Inland Testing Manual (USEPA/USACE 1998). Archive remaining sediment in case there is need for re-analysis. Once priority analysis is completed successfully, consensus discussions determine what to do with archive sediment based on analytical and biological results.

Table 1. Detailed summary of prioritized plan for available test material.

Sediment volume		**Comment**
Sediment for elutriate (gal)	1.8	Conservative estimate, 2 gal bucket
Sediment for elutriate (L)	6.8	
20L elutriate pail 1 (L)	4.0	assumes 16L water, 4L elutriate
Remaining sediment (L)	2.8	Archive for FedEx non-delivery, testing repeats
Water volume		
Estimated elutriate water (L)	12.0	
Analytical requirement (L)	6.0	
Analytical requirement (L), QAQC	2.0	If available after centrifuging
Fish requirement (100, 50, 10% elutriate), no TRE	3.2	2 water change * (1L + 0.5L + 0.1L), for 3 dilutions (100%, 50% and 10%) reduced from 5 dilutions (100, 50, 25, 13, 6%)
Ceriodaphnia requirement (100, 50, 10% elutriate), no TRE	0.8	1 water change * (1L + 0.5L + 0.1L), for 3 dilutions (100%, 50% and 10%) reduced from 5 dilutions (100, 50, 25, 13, 6%)
Remaining elutriate water (L)	0.0	
Archive plans		
Sediment volume (L)	2.8	
Maximum elutriate volume (L)	8.4	
Analytical chemistry requirement (L)	6	
Bioassay testing	4.0	
Remaining	-1.6	Insufficient material for all testing. Conference call for consensus decision needed.

REFERENCES

USEPA/USACE (1998). Evaluation of dredged material proposed for discharge in waters of the US-testing manual: Inland Testing Manual. US Environmental Protection Agency and US Army Corps of Engineers, Washington, DC, EPA-823-B-987-004.

APPENDICES

FINAL Sediment Characterization Report

Lower Maumee River

Wastewater Treatment Plant and Sway Bridge

Data Gap Investigation

Maumee Area of Concern, Toledo Ohio

Prepared For:
United States Environmental Protection Agency
Great Lakes National Program Office
77 West Jackson Boulevard, SR-6J
Chicago, Illinois 60604-3507
Interagency Agreement/Amendment No. DW-096-95916501 – 8

Prepared By:
United States Army Corps of Engineers – Buffalo District and
Engineer Research and Development Center – Environmental Laboratory
1776 Niagara Street
Buffalo, NY 14207

August 2022

Appendix 1
Sample Analytical Results

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Appendix 1
Sample Analytical Results

Table A1.1a Surface Sediment Grab Sample Results for Grain Size

Sampling Area >	**WWTP A2**	**WWTP A2**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A3**
NAME	**LMR21-10S (0-0.5)**	**LMR21-12S (0-0.5)**	**LMR21-14S (0-0.5)**	**LMR21-15S (0-0.5)**	**LMR21-17S (0-0.5)**	**LMR21-19S (0-0.5)**
CLAY	64.7	52	63.3	39.2	20.5	0
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0.2	0	1.00E-01	0.8	0.3	0.3
FINE GRAVEL	0	0	0	0	0	0
FINE SAND	5	10	6.3	26.1	38.4	65.7
MEDIUM SAND	2.8	1.1	1.4	1.9	1.8	9.3
SILT	27.3	36.9	28.9	32	39	24.7

Units are percent

Sampling Area >	**WWTP C2**	**WWTP C2**	**Sway Bridge C**	**Sway Bridge B2**	**Sway Bridge B2**	**Sway Bridge B2**
NAME	**LMR21-25S (0-0.5)**	**LMR21-27S (0-0.5)**	**LMR21-30S (0-0.5)**	**LMR21-35S (0-0.5)**	**LMR21-36S (0-0.5)**	**LMR21-37S (0-0.5)**
CLAY	67.1	47.8	25.8	36.9	44	50.9
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0.4	0	0.6	0	0	0
FINE GRAVEL	0	0	1.00E-01	0	0	0.2
FINE SAND	8.1	16.2	27.5	16.3	19.5	13.7
MEDIUM SAND	0.8	1.8	4.5	2.5	2.2	5
SILT	23.6	34.2	41.5	44.3	34.3	30.2

Units are percent

Table A1.1a Surface Sediment Grab Sample Results for Grain Size

Sampling Area >	**Sway Bridge B2**	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**
NAME	**LMR21-39S (0-0.5)**	**LMR21-41S (0-0.5)**	**LMR21-43S (0-0.5)**	**LMR21-45S (0-0.5)**	**LMR21-47S (0-0.5)**	**LMR21-48S (0-0.5)**
CLAY	58.5	64.1	54.6	49.2	35.5	59.1
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	2.9	1	3.2	0.6	2	0.6
FINE GRAVEL	6.9	0	0.7	0.2	6.3	8.2
FINE SAND	7	6.1	7.1	11.3	12.7	7
MEDIUM SAND	5.7	4.9	5.4	3.2	10.4	3.3
SILT	19	23.9	29	35.5	33.1	21.8

Units are percent

Table A1.1a Surface Sediment Grab Sample Results for Grain Size

Sampling Area >	**Sway Bridge A1**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	**LMR21-49S (0-0.5)**	**LMR21-52S (0-0.5)**	**LMR21-53S (0-0.5)**	**LMR21-55S (0-0.5)**	**LMR21-57S (0-0.5)**	**LMR21-59S (0-0.5)**
CLAY	25.9	41.5	48.2	46.5	64.8	42.8
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0.2	0	0	0.8	0	0
FINE GRAVEL	0.2	0	0	1.00E-01	0	0
FINE SAND	20.2	17.8	16.6	14.1	10.9	17.2
MEDIUM SAND	11.2	4.5	0.8	4.1	2	4.8
SILT	42.3	36.2	34.4	34.4	22.3	35.2

Units are percent

Table A1.1a Surface Sediment Grab Sample Results for Grain Size

Sampling Area >	**Biological Survey**	**Biological Survey**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Reference**
NAME	**LMR21-61S (0-0.5)**	**LMR21-62S (0-0.5)**	**LMR21-64S (0-0.5)**	**LMR21-66S (0-0.5)**	**LMR21-68S (0-0.5)**	**LMR21-69S (0-0.5)**
CLAY	27.2	44	64.7	44	47.7	44
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0	0	1.00E-01	0	1	0
FINE GRAVEL	0	0	0	0	0	0
FINE SAND	28	19.7	5.5	17.6	13.9	17.6
MEDIUM SAND	3.7	2.3	3.1	2	3.9	3.8
SILT	41.1	34	26.6	35.8	33.5	34.6

Units are percent

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**
NAME	**LMR21-01C (0-1)**	**LMR21-01C (1-4)**	**LMR21-01C (4-7)**	**LMR21-01C (7-8)**	**LMR21-02C (0-1)**	**LMR21-02C (1-4)**	**LMR21-02C (4-7)**
CLAY	64.7	64.8	25.9	43.7	64.8	64.8	53.7
COARSE GRAVEL	0	0	0	0	0	0	0
COARSE SAND	0.2	0	0.1	1.00E-01	0	0	0.2
FINE GRAVEL	0	0	1.00E-01	0	0	0	0
FINE SAND	8.2	3.9	23.1	13	7.4	5.1	13.6
MEDIUM SAND	1	1.2	3.3	4	0.9	0.9	2
SILT	25.9	30.1	47.5	39.2	26.9	29.2	30.5

Units are percent

Sampling depth
interval is
indicated in feet

Sampling Area >	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP B2**
NAME	**LMR21-02C (7-8)**	**LMR21-03C (0-1)**	**LMR21-03C (1-4)**	**LMR21-03C (1-4) FD**	**LMR21-03C (4-7)**	**LMR21-04C (0-1)**
CLAY	64.7	64.7	49.6	64.7	43.7	39.4
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0	1.00E-01	0	1.00E-01	4.4	0.3
FINE GRAVEL	0	0	0	0	4.1	0
FINE SAND	6.9	4.9	11.7	5.4	9	20.5
MEDIUM SAND	0.5	1.1	1.5	0.6	6.9	4.2
SILT	27.9	29.2	37.2	29.2	31.9	35.6

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**
NAME	**LMR21-04C (1-4)**	**LMR21-04C (4-7)**	**LMR21-05C (0-1)**	**LMR21-05C (1-4)**	**LMR21-05C (4-7)**	**LMR21-05C (7-8)**	**LMR21-06C (0-1)**
CLAY	56.8	35.9	64.8	53.6	65.8	64.7	64.8
COARSE GRAVEL	0	0	0	0	0	0	0
COARSE SAND	0	3.7	0	0.3	0	1.00E-01	0
FINE GRAVEL	0	2.6	0	0	0	0	0
FINE SAND	14.6	14.3	4.9	12.4	6.3	6.2	5.5
MEDIUM SAND	2.9	8.1	0.8	0.8	1	0.9	0.8
SILT	25.7	35.4	29.5	32.9	26.9	28.1	28.9

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**
NAME	**LMR21-06C (1-4)**	**LMR21-06C (4-6.3)**	**LMR21-07C (0-1)**	**LMR21-07C (1-4)**	**LMR21-07C (4-7)**	**LMR21-07C (7-8)**
CLAY	50.7	64.8	32.5	64.7	64.8	36.8
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1.00E-01	0	0.5	1.00E-01	0	0.3
FINE GRAVEL	0	0	0.7	0	0	0
FINE SAND	13.4	8.5	23.4	4.4	4.5	31.3
MEDIUM SAND	1.8	2	3.2	0.8	0.9	2.7
SILT	34	24.7	39.7	30	29.8	28.9

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**
NAME	**LMR21-08C (0-1)**	**LMR21-08C (1-4)**	**LMR21-08C (4-7)**	**LMR21-08C (4-7) FD**	**LMR21-08C (7-8)**	**LMR21-09C (0-1)**
CLAY	50.4	38.3	64.6	55.1	64.7	43.7
COARSE GRAVEL	0	0	0	1.42E-14	0	0
COARSE SAND	0.8	0	0.2	1.42E-14	0.2	0
FINE GRAVEL	0.4	0	1.00E-01	0	0	1.00E-01
FINE SAND	17.2	21.4	9.5	13.5	7.4	14.8
MEDIUM SAND	0.7	2.3	1.6	2.2	1.2	2.3
SILT	30.5	38	24	29.2	26.5	39.1

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP B2**	**WWTP A2**	**WWTP A2**
NAME	**LMR21-09C (1-4)**	**LMR21-09C (4-7)**	**LMR21-09C (4-7) FD**	**LMR21-09C (7-7.5)**	**LMR21-10C (0-1)**	**LMR21-10C (1-4)**
CLAY	64.7	45.3	67.3	48.2	17.6	46.8
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1.00E-01	0.2	1.00E-01	0	0.2	1.00E-01
FINE GRAVEL	0	0	0	0	0	0
FINE SAND	8.6	15.1	5.8	14.7	33.7	15.7
MEDIUM SAND	1.4	0.9	1.9	2.2	2.7	2.1
SILT	25.2	38.5	24.9	34.9	45.8	35.3

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**
NAME	**LMR21-10C (4-7)**	**LMR21-10C (7-8.5)**	**LMR21-11C (0-1)**	**LMR21-11C (1-4)**	**LMR21-11C (4-7)**	**LMR21-11C (7-9)**
CLAY	64.8	20.5	21.9	44	64.7	62
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0	1.00E-01	10.3	1.00E-01	0.1	1.00E-01
FINE GRAVEL	0	0	16.6	0	1.00E-01	0
FINE SAND	5.5	31.3	10.6	19.2	13.4	12.6
MEDIUM SAND	1.4	2.8	15	0.8	0.6	0.7
SILT	28.3	45.3	25.6	35.9	21.1	24.6

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**	**WWTP A2**
NAME	**LMR21-12C (0-1)**	**LMR21-12C (10-13)**	**LMR21-12C (1-4)**	**LMR21-12C (1-4) FD**	**LMR21-12C (4-7)**	**LMR21-12C (7-10)**
CLAY	52.2	30	17.6	28	28	30
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1.00E-01	1	0.2	1	1	0
FINE GRAVEL	0	0	0	1	0	0
FINE SAND	14.5	38	34.7	40	31	38
MEDIUM SAND	0.9	2	3.5	3	11	2
SILT	32.3	29	44	27	29	30

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**
NAME	**LMR21-13C (0-1)**	**LMR21-13C (1-4)**	**LMR21-13C (1-4) FD**	**LMR21-13C (4-7)**	**LMR21-13C (4-7) FD**	**LMR21-13C (7-9)**
CLAY	10	0	1	0	0	9
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1	3	1	0	3	1
FINE GRAVEL	0	2	0	0	1	4
FINE SAND	53	47	58	58	83	43
MEDIUM SAND	4	17	3	8	4	9
SILT	32	31	37	34	9	34

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**
NAME	**LMR21-14C (0-1)**	**LMR21-14C (1-4)**	**LMR21-14C (1-4) FD**	**LMR21-14C (4-7)**	**LMR21-14C (7-10)**	**LMR21-14C (7-10) FD**
CLAY	8	19	0	0	0	0
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1	3	0	5	1	0
FINE GRAVEL	0	7	0	1	0	0
FINE SAND	55	34	72	33	77	65
MEDIUM SAND	3	9	3	36	2	4
SILT	33	28	25	25	20	31

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**
NAME	**LMR21-15C (0-1)**	**LMR21-15C (1-4)**	**LMR21-15C (1-4) FD**	**LMR21-15C (4-7)**	**LMR21-15C (4-7) FD**	**LMR21-15C (7-10)**
CLAY	22	16	16	20	15	6
COARSE GRAVEL	2	0	0	0	0	0
COARSE SAND	2	3	1	3	0	0
FINE GRAVEL	5	1	2	9	0	0
FINE SAND	35	46	47	36	46	61
MEDIUM SAND	6	4	1	5	9	1
SILT	28	30	33	27	30	32

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**
NAME	**LMR21-16C (0-1)**	**LMR21-16C (1-4)**	**LMR21-16C (4-7)**	**LMR21-16C (4-7) FD**	**LMR21-16C (7-11)**	**LMR21-16C (7-11) FD**
CLAY	0	0	24	0	0	22
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1	1	0	6	1	0
FINE GRAVEL	1	2	0	4	0	0
FINE SAND	48	67	49	37	84	38
MEDIUM SAND	16	11	1	38	3	10
SILT	34	19	26	15	12	30

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A3**
NAME	**LMR21-17C (0-1)**	**LMR21-17C (10-13)**	**LMR21-17C (1-4)**	**LMR21-17C (4-7)**	**LMR21-17C (7-10)**	**LMR21-18C (0-1)**
CLAY	12.2	25.9	23	29	64.8	8.7
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0	1.00E-01	3	1	0	0
FINE GRAVEL	0	0	1	1	0	0
FINE SAND	40.1	31.2	36	30	6.5	38.5
MEDIUM SAND	4.2	4.8	9	8	1.2	5.7
SILT	43.5	38	28	31	27.5	47.1

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**
NAME	**LMR21-18C (10-12)**	**LMR21-18C (1-4)**	**LMR21-18C (4-7)**	**LMR21-18C (7-10)**	**LMR21-19C (0-1)**	**LMR21-19C (1-4)**
CLAY	64.8	19.1	64.8	64.8	22.9	11.4
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0	0	0	0	1.00E-01	0
FINE GRAVEL	0	0	0	0	0.4	0
FINE SAND	8.9	33.7	10.8	8.4	30.6	38.2
MEDIUM SAND	1.4	6	2	0.8	4.8	4
SILT	24.9	41.2	22.4	26	41.2	46.4

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**	**WWTP A3**
NAME	**LMR21-19C (4-7)**	**LMR21-19C (7-9)**	**LMR21-20C (0-1)**	**LMR21-20C (1-4)**	**LMR21-20C (4-7)**	**LMR21-20C (7-10)**
CLAY	0	0	14.9	39.4	11.6	0
COARSE GRAVEL	6.9	5.7	0	0	0	0
COARSE SAND	3.8	3.3	0	0.1	1.3	3
FINE GRAVEL	10.8	5.2	0	1.00E-01	3.6	1
FINE SAND	35	39.2	34.9	18.9	31.1	57.6
MEDIUM SAND	12.7	11.5	5.5	2.9	4.6	11.5
SILT	30.8	35.1	44.5	38.6	47.8	26.9

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP B1**	**WWTP B1**	**WWTP B1**	**WWTP B1**	**WWTP B1**	**WWTP B1**
NAME	**LMR21-21C (0-1)**	**LMR21-21C (1-4)**	**LMR21-21C (1-4) FD**	**LMR21-21C (4-7)**	**LMR21-21C (4-7) FD**	**LMR21-22C (2')**
CLAY	9.6	0	0	0.8	0	64.7
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0.3	0.2	1.00E-01	0.1	0.3	0.2
FINE GRAVEL	0	0	0	1.00E-01	0	0
FINE SAND	36.6	62.2	52.1	47.8	61.7	6.6
MEDIUM SAND	7.9	4.6	3.5	3.5	6.1	1.5
SILT	45.6	33	44.3	47.7	31.9	27

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP B1**	**WWTP B1**	**WWTP B1**	**WWTP B1**	**WWTP B1**	**WWTP B1**
NAME	**LMR21-22C (0-1)**	**LMR21-22C (1-4)**	**LMR21-22C (4-6.5)**	**LMR21-22C (4-6.5) FD**	**LMR21-23C (0-1)**	**LMR21-23C (1-4)**
CLAY	54	64.8	10.8	0	9.2	64.8
COARSE GRAVEL	0	0	0	0	3.55E-15	0
COARSE SAND	0	0	1.2	0.6	3	0
FINE GRAVEL	0	0	0.7	1.6	1.8	0
FINE SAND	13.7	9.8	37.9	44.5	31.1	6.8
MEDIUM SAND	2.8	1.4	16.7	16.3	11.5	0.9
SILT	29.5	24	32.7	37	43.4	27.5

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP B1**	**WWTP C2**	**WWTP C2**	**WWTP C2**	**WWTP C2**	**WWTP C2**
NAME	**LMR21-23C (4-6)**	**LMR21-24C (0-1)**	**LMR21-24C (1-4)**	**LMR21-24C (4-7)**	**LMR21-25C (0-1)**	**LMR21-25C (1-4)**
CLAY	64.7	17	64.8	58.1	51	64.8
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0.2	0.6	0	0	0	0
FINE GRAVEL	0	3.1	0	0	0	0
FINE SAND	10.1	28.7	7.1	10.2	14.1	10.3
MEDIUM SAND	1.7	5.5	1.4	1.2	2.5	1.2
SILT	23.3	45.1	26.7	30.5	32.4	23.7

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP C2**	**WWTP C2**	**WWTP C2**	**WWTP C2**	**WWTP C2**	**WWTP C2**
NAME	**LMR21-25C (4-7.5)**	**LMR21-26C (0-1)**	**LMR21-26C (1-4)**	**LMR21-26C (4-8)**	**LMR21-27C (0-1)**	**LMR21-27C (1-3)**
CLAY	56.8	64.8	64.6	64.6	46.8	12.1
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0	0	0.3	0.3	1.00E-01	0.5
FINE GRAVEL	0	0	0	0	0	0.3
FINE SAND	11.3	8.6	10.9	10	18.3	36.9
MEDIUM SAND	2.2	1.1	1	1.4	3.2	4.7
SILT	29.7	25.5	23.2	23.7	31.6	45.5

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**WWTP C2**	**WWTP C2**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**
NAME	**LMR21-28C (0-1)**	**LMR21-28C (1-4)**	**LMR21-29C (0-1)**	**LMR21-29C (1-4)**	**LMR21-29C (1-4) FD**	**LMR21-29C (4-6.5)**
CLAY	45.7	19	64.2	0	0	12.2
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	0	2.3	0.8	0.6	1.00E-01	0.4
FINE GRAVEL	0	5.4	0	0.6	0	0
FINE SAND	19.3	22.2	6.7	49	59.3	41.6
MEDIUM SAND	1.5	10.9	3.8	6.3	3.1	2.5
SILT	33.5	40.2	24.5	43.5	37.5	43.3

Units are percent

Sampling depth
interval is
indicated in feet

Sampling Area >	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**
NAME	**LMR21-29C (4-6.5) FD**	**LMR21-30C (0-1)**	**LMR21-30C (1-3)**	**LMR21-31C (0-1)**	**LMR21-31C (1-4)**	**LMR21-32C (0-1)**
CLAY	12.2	0	0	0	0	38.6
COARSE GRAVEL	0	0	2.8	0	0	0
COARSE SAND	0	0.5	12.9	1.00E-01	0	0.2
FINE GRAVEL	0	0.1	23.1	0	0.3	0.2
FINE SAND	38.1	70.5	28.3	63.5	71.1	16.6
MEDIUM SAND	3.1	5.5	27.3	6	9.1	4.1
SILT	46.6	23.4	5.6	30.4	19.5	40.3

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge B2**
NAME	**LMR21-32C (1-5)**	**LMR21-33C (0-1)**	**LMR21-33C (1-5)**	**LMR21-34C (0-1)**	**LMR21-34C (1-4)**	**LMR21-34C (4-7)**	**LMR21-37C (0-1)**
CLAY	0	0	0	67.3	62.1	20.5	64.5
COARSE GRAVEL	5.7	3	0	0	0	0	0
COARSE SAND	2.9	1.3	0.6	1.00E-01	1.1	1.00E-01	0.5
FINE GRAVEL	4.8	4	1	0	3	0	0
FINE SAND	51.7	70.1	68.2	9.4	7.4	36.3	6.3
MEDIUM SAND	21.7	10.6	10.7	1.1	2.2	3.2	5.5
SILT	13.2	11	19.5	22.1	24.2	39.9	23.2

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge B2**	**Sway Bridge B2**	**Sway Bridge B2**	**Sway Bridge B2**	**Sway Bridge B2**	**Sway Bridge A2**
NAME	**LMR21-37C (1-3)**	**LMR21-38C (0-1)**	**LMR21-38C (1-2.5)**	**LMR21-39C (0-1)**	**LMR21-39C (1-3)**	**LMR21-40C (0-1)**
CLAY	4.1	0	11	40.1	54.9	47.3
COARSE GRAVEL	24	6.3	1.9	18.4	0	0
COARSE SAND	7.2	5.9	13.5	2.8	0.4	0.5
FINE GRAVEL	11.5	6.7	11.1	2.1	0.4	1.3
FINE SAND	9.6	29.4	15.2	7.8	12.2	12.4
MEDIUM SAND	22	29.7	11.4	4.9	2.9	4.2
SILT	21.6	22	35.9	23.9	29.2	34.3

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A2**
NAME	**LMR21-41C (0-1)**	**LMR21-41C (1-3)**	**LMR21-41C (1-3) FD**	**LMR21-42C (0-1)**	**LMR21-43C (0-1)**	**LMR21-43C (1-3)**
CLAY	45.5	47.9	37.5	35	44.8	60.3
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1.4	2.8	0.9	1.1	1.4	3.1
FINE GRAVEL	2.2	1.3	2.3	1.2	2.9	3.9
FINE SAND	10.8	11.8	18.8	22.8	16.5	9.2
MEDIUM SAND	4.6	4.6	4.3	3.9	4.6	4
SILT	35.5	31.6	36.2	36	29.8	19.5

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge A2**	**Sway Bridge A2**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**
NAME	**LMR21-43C (1-3) FD**	**LMR21-44C (0-1)**	**LMR21-45C (0-1)**	**LMR21-45C (1-2)**	**LMR21-46C (0-1)**	**LMR21-46C (1-4)**
CLAY	62.4	61	53	48.2	64.3	56.5
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	3	3.2	4.4	1.7	0.7	0.4
FINE GRAVEL	0.6	2.7	2.4	1.5	0	0.2
FINE SAND	8.9	9.4	12.6	13.7	9.6	14.1
MEDIUM SAND	4.5	3.9	5.6	6.7	1.2	2.9
SILT	20.6	19.8	22	28.2	24.2	25.9

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**
NAME	**LMR21-46C (1-4) FD**	**LMR21-46C (4-7)**	**LMR21-46C (4-7) FD**	**LMR21-46C (7-8.5)**	**LMR21-47C (0-1)**	**LMR21-47C (1-4)**
CLAY	59.3	31.2	34.5	49.8	13.1	25.9
COARSE GRAVEL	0	0	0	0	1.78E-15	6.9
COARSE SAND	1.00E-01	0.5	0.9	2.7	8.8	7.3
FINE GRAVEL	0	0	1.4	2	17.2	8.3
FINE SAND	10.6	20.5	19	15.3	16	15.7
MEDIUM SAND	1.7	6.9	5.5	5.6	9.3	6.2
SILT	28.3	40.9	38.7	24.6	35.6	29.7

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	**LMR21-47C (4-8)**	**LMR21-49C (0-1)**	**LMR21-49C (1-4)**	**LMR21-49C (4-7.5)**	**LMR21-50C (0-1)**	**LMR21-50C (1-4)**
CLAY	13.8	47.5	22.8	39.2	61.6	47.4
COARSE GRAVEL	0	0	0	0	1.42E-14	0
COARSE SAND	4.8	3.6	1	1.8	0.8	1.6
FINE GRAVEL	2.9	3.6	1.00E-01	1.00E-01	0	0
FINE SAND	28.6	12.5	28.4	16.9	10	15.1
MEDIUM SAND	7.3	6.2	6.1	6.5	2	1.4
SILT	42.6	26.6	41.6	35.5	25.6	34.5

Units are percent

Sampling depth interval is indicated in feet

Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	LMR21-50C (4-7.5)	LMR21-51C (0-1)	LMR21-51C (1-4)	LMR21-51C (4-7.5)	LMR21-52C (0-1)	LMR21-52C (1-4)
CLAY	38.3	52.3	46.7	38.7	64.4	34.2
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1	0.2	0.4	0	0.6	1
FINE GRAVEL	1.00E-01	0	0	0	0	0.3
FINE SAND	19.3	16.1	18.5	22.9	7.3	24.8
MEDIUM SAND	3.1	2.9	3	2.3	1.9	5.6
SILT	38.2	28.5	31.4	36.1	25.8	34.1

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	**LMR21-52C (1-4) FD**	**LMR21-52C (4-7)**	**LMR21-52C (7-10)**	**LMR21-52C (7-10) FD**	**LMR21-53C (0-1)**	**LMR21-53C (1-4)**
CLAY	67	64.5	16.4	20	20.4	55.5
COARSE GRAVEL	0	0	0	0	0	2.1
COARSE SAND	0.5	0.2	2.7	2.5	0.9	1
FINE GRAVEL	0	0.3	4.3	0.2	0	3.3
FINE SAND	6.3	8	29.9	29.8	31.3	10.5
MEDIUM SAND	3.7	2.9	5	5.8	4.4	1.7
SILT	22.5	24.1	41.7	41.7	43	25.9

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	**LMR21-53C (4-6)**	**LMR21-54C (0-1)**	**LMR21-54C (1-4)**	**LMR21-54C (1-4) FD**	**LMR21-54C (4-6)**	**LMR21-55C (0-1)**
CLAY	19.5	45	52	49.2	19.8	46
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	3.9	1.4	0.4	1.2	2.8	1.4
FINE GRAVEL	1.6	0	0.4	0	1	0.4
FINE SAND	26.5	18.1	18.8	16.6	25.6	18.7
MEDIUM SAND	7.2	2.5	1.2	2.7	7.4	3
SILT	41.3	33	27.2	30.3	43.4	30.5

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	**LMR21-55C (1-4)**	**LMR21-55C (1-4) FD**	**LMR21-55C (4-7.5)**	**LMR21-56C (0-1)**	**LMR21-56C (1-4)**	**LMR21-56C (1-4) FD**
CLAY	63.3	34.7	11.2	36.9	49.5	41
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	2.1	4.8	4.7	1.00E-01	2	1.5
FINE GRAVEL	0.2	2.6	3.4	0	3.3	1.4
FINE SAND	8.4	17.5	32.1	16.9	15.9	20.3
MEDIUM SAND	3	6.2	6.2	2.5	5.1	3.3
SILT	23	34.2	42.4	43	24.2	33.2

Units are percent

Sampling depth interval is indicated in feet

Sampling Area >	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	**LMR21-56C (4-7)**	**LMR21-56C (4-7) FD**	**LMR21-57C (0-1)**	**LMR21-57C (1-4)**	**LMR21-57C (4-6)**	**LMR21-58C (0-1)**
CLAY	16.2	19.1	20.3	33.7	33.9	41.5
COARSE GRAVEL	3.55E-15	0	0	0	0	0
COARSE SAND	4.1	4.3	0.5	2.5	3.7	0
FINE GRAVEL	4.2	2.7	0.6	3.5	1.6	0
FINE SAND	26.2	24.8	29.6	20.7	19.7	17.2
MEDIUM SAND	8.2	6.6	4	4.6	4	4.3
SILT	41.1	42.5	45	35	37.1	37

Units are percent

Sampling depth
interval is
indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	**LMR21-58C (1-4)**	**LMR21-58C (4-7)**	**LMR21-58C (4-7) FD**	**LMR21-59C (0-1)**	**LMR21-59C (1-4)**	**LMR21-59C (1-4) FD**
CLAY	63.9	64.8	64.7	43.7	64.8	64.7
COARSE GRAVEL	1.42E-14	0	0	0	0	0
COARSE SAND	1.42E-14	0	1.00E-01	0.8	0	1.00E-01
FINE GRAVEL	1.4	0	0	3.4	0	0
FINE SAND	7.7	10.9	9.1	15	7.6	8.8
MEDIUM SAND	1.2	0.8	0.8	3.3	0.6	1.3
SILT	25.8	23.5	25.3	33.8	27	25.1

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge D**	**Sway Bridge D**
NAME	**LMR21-59C (4-7)**	**LMR21-60C (0-1)**	**LMR21-60C (1-4)**	**LMR21-60C (4-5)**	**LMR21-63C (0-1)**	**LMR21-63C (1-2.75)**
CLAY	26.9	47.4	42.2	41.7	47.9	45.5
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	2	1.1	4.5	3	1.4	2
FINE GRAVEL	1.2	0.5	5.4	2.4	2.5	0.8
FINE SAND	25	14.4	11.6	13.2	10.8	13
MEDIUM SAND	8.6	5.5	9.2	7.3	5.5	6
SILT	36.3	31.1	27.1	32.4	31.9	32.7

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**
NAME	**LMR21-63C (1-2.75) FD**	**LMR21-64C (0-1)**	**LMR21-64C (0-1) FD**	**LMR21-65C (0-1)**	**LMR21-65C (1-2)**	**LMR21-66C (0-1)**
CLAY	59.1	38.3	39	48.8	59.2	45.7
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1.4	1.2	1.5	2.6	1.4	0
FINE GRAVEL	1.5	6.6	4.4	1.9	1.3	0
FINE SAND	10.6	15.8	16	14.1	10.5	17.3
MEDIUM SAND	4.9	5	4.4	6.5	5	4.2
SILT	22.5	33.1	34.7	26.1	22.6	32.8

Units are percent

Sampling depth interval is indicated in feet

Table A1.1b Discrete Sediment Core Sample Results for Grain Size

Sampling Area >	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**
NAME	**LMR21-66C (1-2)**	**LMR21-67C (0-1)**	**LMR21-67C (0-1) FD**	**LMR21-67C (1-3)**	**LMR21-67C (1-3) FD**	**LMR21-68C (0-1)**
CLAY	37.9	49.8	41.5	64.6	55.3	52.2
COARSE GRAVEL	0	0	0	0	0	0
COARSE SAND	1.6	0	0	1.00E-01	0	0
FINE GRAVEL	3.5	0	0	0.2	0	0
FINE SAND	19	16	21.3	9.4	16.2	15.6
MEDIUM SAND	4.5	0.9	1.2	1.2	1.2	1.2
SILT	33.5	33.3	36	24.5	27.3	31

Units are percent

Sampling depth
interval is
indicated in feet

Sampling Area >	Sway Bridge D
NAME	LMR21-68C (1-3.5)
CLAY	52.6
COARSE GRAVEL	0
COARSE SAND	1.1
FINE GRAVEL	1.5
FINE SAND	10.3
MEDIUM SAND	3.5
SILT	31

Units are percent

Sampling depth interval is indicated in feet

Table A1.1c Composite Sediment Sample Results for Grain Size

NAME	LMR21-SBA1	LMR21-SBA2	LMR21-SBA3	LMR21-SBB1	LMR21-SBB2	LMR21-SBC	LMR21-SBD	LMR21-WA1
CLAY	46.7	60.5	16.9	63.5	16.6	3.7	57.6	0
COARSE GRAVEL	0	0	0	0	0	4.4	0	0
COARSE SAND	3.8	2.7	3.7	0.8	2.7	2	1.7	3
FINE GRAVEL	7.1	3.9	0.7	1.1	2.8	5.6	3.5	13
FINE SAND	15.4	9.1	28.4	8.3	20.2	37.1	10.8	55
MEDIUM SAND	5.3	4.3	5.5	4.4	14.7	7.6	6.6	11
SILT	21.7	19.5	44.8	21.9	43	39.6	19.8	18

Units are percent

Table A1.1c Composite Sediment Sample Results for Grain Size

NAME	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC1 FD**	**LMR21-WC2**
CLAY	19	19.7	12	64	58.1	56.8	37.2
COARSE GRAVEL	0	0	0	0	0	0	0
COARSE SAND	2	1.2	1.4	0.7	0	0	0.3
FINE GRAVEL	0	2.9	0.2	0.5	0	0	0.5
FINE SAND	49	28.2	39.2	7.1	13.5	4.3	21.5
MEDIUM SAND	2	4.4	7.1	2	1.1	0.6	3
SILT	29	43.6	40.1	25.7	27.3	38.3	37

Units are percent

		Sampling Area >	WWTP A2	WWTP A2	WWTP A1	WWTP A1	WWTP A1
NAME	UNITS	REGION4_ESV	LMR21-10S (0-0.5)	LMR21-12S (0-0.5)	LMR21-14S (0-0.5)	LMR21-15S (0-0.5)	LMR21-17S (0-0.5)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	224	99.5	72.2	1080	280
GASOLINE RANGE ORGANICS (GRO)	UG/KG		4220 UJ	3860 UJ	3460 UJ	3370 UJ	3080 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	451	210	154	1710	472
TOTAL OIL & GREASE	MG/KG		300 U	200 U	200 U	1820	200 U

Sampling depth interval is indicated in feet

		Sampling Area >	WWTP A3	WWTP C2	WWTP C2	Sway Bridge C	Sway Bridge B2
NAME	UNITS	REGION4_ESV	LMR21-19S (0-0.5)	LMR21-25S (0-0.5)	LMR21-27S (0-0.5)	LMR21-30S (0-0.5)	LMR21-35S (0-0.5)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	1200	94.9	163	41.3	95.1
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2240 UJ	4210 UJ	3810 UJ	3680 UJ	4900 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	1710	202	497	304	210
TOTAL OIL & GREASE	MG/KG		200 U	300 U	300 U	300 U	300 U

Sampling depth interval is indicated in feet

Table A1.2a Surface Sediment Grab Sample Results for Petroleum Hydrocarbon Mixtures

		Sampling Area >	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2
NAME	UNITS	REGION4_ESV	LMR21-36S (0-0.5)	LMR21-37S (0-0.5)	LMR21-39S (0-0.5)	LMR21-41S (0-0.5)	LMR21-43S (0-0.5)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	32.7	14.4 J	205	167	99.9
GASOLINE RANGE ORGANICS (GRO)	UG/KG		4240 UJ	4720 UJ	1930 UJ	4190 UJ	3530 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	37.4	27.4 J	264	337	52.4
TOTAL OIL & GREASE	MG/KG		498 J	300 U	200 U	534 J	399 J

Sampling depth interval is indicated in feet

		Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
NAME	UNITS	REGION4_ESV	LMR21-45S (0-0.5)	LMR21-47S (0-0.5)	LMR21-48S (0-0.5)	LMR21-49S (0-0.5)	LMR21-52S (0-0.5)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	1030	8070	44.3 J-	1110	71.5
GASOLINE RANGE ORGANICS (GRO)	UG/KG		3100 UJ	84100 J	3300 UJ	14400 J	4130 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	1080	5560	37.6 J-	932	161
TOTAL OIL & GREASE	MG/KG		3420	5800	322 J	3950	300 U

Sampling depth interval is indicated in feet

		Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1	Sway Bridge B1	Biological Survey
NAME	UNITS	REGION4_ESV	**LMR21-53S (0-0.5)**	**LMR21-55S (0-0.5)**	**LMR21-57S (0-0.5)**	**LMR21-59S (0-0.5)**	**LMR21-61S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	24.8 J-	14.3 J-	21 J-	14 J-	29.7 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		3840 UJ	3950 UJ	3790 UJ	3520 UJ	4420 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	29.5 J-	19.5 J-	23.7 J-	15.2 J-	35.8 J-
TOTAL OIL & GREASE	MG/KG		200 U	200 U	200 U	200 U	499 J

Sampling depth interval is indicated in feet

		Sampling Area >	Biological Survey	Sway Bridge D	Sway Bridge D	Sway Bridge D	Reference
NAME	UNITS	REGION4_ESV	**LMR21-62S (0-0.5)**	**LMR21-64S (0-0.5)**	**LMR21-66S (0-0.5)**	**LMR21-68S (0-0.5)**	**LMR21-69S (0-0.5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	23.6 J-	96.6	29.3 J-	9.6 J-	26.2 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		3850 UJ	5120 UJ	5000 UJ	3510 UJ	4630 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	22.8 J-	79.1	31.7 J-	12.6 UJ	25.2 J-
TOTAL OIL & GREASE	MG/KG		300 U	300 U	300 U	300 U	300 U

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	UNITS	REGION4_ESV	**LMR21-29C (0-1)**	**LMR21-29C (1-4)**	**LMR21-29C (1-4) FD**	**LMR21-29C (4-6.5)**	**LMR21-29C (4-6.5) FD**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	64.7 J	47.4	31.4	40.4	35
GASOLINE RANGE ORGANICS (GRO)	UG/KG		5510 J	2040 UJ	2440 UJ	2180 UJ	2290 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	83.9 J	67	48.5	79.5	54.1
TOTAL OIL & GREASE	MG/KG		234 J	100 U	100 U	100 U	100 U

Sampling depth interval is indicated in feet

	Sampling Area >		Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	UNITS	REGION4_ESV	**LMR21-30C (0-1)**	**LMR21-30C (1-3)**	**LMR21-31C (0-1)**	**LMR21-31C (1-4)**	**LMR21-32C (0-1)**	**LMR21-32C (1-5)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	44.8	35.9	39.2	42.3	113	85.1
GASOLINE RANGE ORGANICS (GRO)	UG/KG		1090 UJ	1900 UJ	1920 UJ	2120 UJ	2740 UJ	1490 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	61.4	37.4	54.1	65.7	201	109
TOTAL OIL & GREASE	MG/KG		100 U	100 U	1750	100 U	200 U	100 U

Sampling depth interval is indicated in feet

	Sampling Area >		Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge B2
NAME	UNITS	REGION4_ESV	**LMR21-33C (0-1)**	**LMR21-33C (1-5)**	**LMR21-34C (0-1)**	**LMR21-34C (1-4)**	**LMR21-34C (4-7)**	**LMR21-37C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	28.3	56.6	168	144 J	348	25 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2600 UJ	1660 UJ	1780 UJ	1570 UJ	3020 UJ	2770 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	44.5	53.4	216	157 J	398	25.1 J-
TOTAL OIL & GREASE	MG/KG		100 U	100 U	654	2160	200 U	300 U

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge A2
NAME	UNITS	REGION4_ESV	**LMR21-37C (1-3)**	**LMR21-38C (0-1)**	**LMR21-38C (1-2.5)**	**LMR21-39C (0-1)**	**LMR21-39C (1-3)**	**LMR21-40C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	50.7	534	100	91.6	29.1	37.7
GASOLINE RANGE ORGANICS (GRO)	UG/KG		1850 UJ	5990 J	2570 J	850 UJ	1370 UJ	1750 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	38.2	476	87.9	72	20.1	31.5
TOTAL OIL & GREASE	MG/KG		100 U	1040	100 U	100 U	100 U	100 U

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	UNITS	REGION4_ESV	LMR21-41C (0-1)	LMR21-41C (1-3)	LMR21-41C (1-3) FD	LMR21-42C (0-1)	LMR21-43C (0-1)	LMR21-43C (1-3)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	39.1	36.1	42.1	43.1	36.5	45.8 J
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2800 J	1090 UJ	1860 J	1880 UJ	1660 J	1810 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	34.7	30.5	34.7	37	30.7	37.9
TOTAL OIL & GREASE	MG/KG		100 U	100 U	100 U	100 U	100 U	100 U

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	UNITS	REGION4_ESV	LMR21-44C (0-1)	LMR21-45C (0-1)	LMR21-46C (0-1)	LMR21-46C (1-4)	LMR21-46C (1-4) FD	LMR21-46C (4-7)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	39.6	95.2	1240	1730	1810	2650
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2920 UJ	3820 J	17400 J	7670 J	4250 J	5280 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	33.5	73.9	1080	1490	1490	2200
TOTAL OIL & GREASE	MG/KG		100 U	0	1940	2920	2970	7260

Sampling depth interval is indicated in feet

	Sampling Area >		Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	UNITS	REGION4_ESV	LMR21-46C (7-8.5)	LMR21-47C (0-1)	LMR21-47C (1-4)	LMR21-47C (4-8)	LMR21-49C (0-1)	LMR21-49C (1-4)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	134	1340	699	81.8	194	4040
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2770 J	4750 UJ	2060 UJ	1710 UJ	3470 UJ	27300 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	118	1630	506	70.4	242	2890
TOTAL OIL & GREASE	MG/KG		119	4350	544	36	454	5540

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge A1	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	REGION4_ESV	LMR21-49C (4-7.5)	LMR21-50C (0-1)	LMR21-50C (1-4)	LMR21-50C (4-7.5)	LMR21-51C (0-1)	LMR21-51C (1-4)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	217	59	767	947	48.2	40.2 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		6600 J	4010 UJ	9330 J	15800 J	4480 UJ	17000 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	207	109	1050	900	111	68.1 J
TOTAL OIL & GREASE	MG/KG		386	239	1980	2960	200 U	518 J

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	REGION4_ESV	**LMR21-51C (4-7.5)**	**LMR21-52C (0-1)**	**LMR21-52C (1-4)**	**LMR21-52C (1-4) FD**	**LMR21-52C (4-7)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	257	18.6 J-	102 J-	241 J-	253
GASOLINE RANGE ORGANICS (GRO)	UG/KG		11100 J	5440 UJ	2670 UJ	5970 J	14400 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	319	27.7 J	180 J	404 J	387
TOTAL OIL & GREASE	MG/KG		2600	300 U	1480	2570	3460

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	REGION4_ESV	LMR21-52C (7-10)	LMR21-53C (0-1)	LMR21-53C (1-4)	LMR21-53C (4-6)	LMR21-54C (0-1)	LMR21-54C (1-4)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	399	14.9 J	94.7	67.4	13.3 J-	73.7 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		19400 J	4920 UJ	5560 UJ	3440 J	4210 UJ	2950 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	402	24.8 J	142 J	61.8 J	19.9 J	113 J-
TOTAL OIL & GREASE	MG/KG		100 U	368 J	934	100 U	342 J	901

Sampling depth interval is indicated in feet

	Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1
NAME	UNITS	REGION4_ESV	LMR21-54C (1-4) FD	LMR21-54C (4-6)	LMR21-55C (0-1)	LMR21-55C (1-4)	LMR21-55C (4-7.5)	LMR21-56C (0-1)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	40.7 J-	106 J-	44.7	170	296	343
GASOLINE RANGE ORGANICS (GRO)	UG/KG		3800 J	2130 J	3760 UJ	3290 UJ	3380 J	2450 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	61.8 J	127 J	81.3 J	277 J	308	680
TOTAL OIL & GREASE	MG/KG		915	100 U	463 J	1140	530	362 J

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	UNITS	REGION4_ESV	**LMR21-56C (1-4)**	**LMR21-56C (1-4) FD**	**LMR21-56C (4-7)**	**LMR21-56C (4-7) FD**	**LMR21-57C (0-1)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	673 J	206 J	78.5	79	14.9 J
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2380 J	3230 UJ	1190 UJ	2940 J	3630 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	1040 J	291 J	61.3	60.2	18.2 J
TOTAL OIL & GREASE	MG/KG		2120	1090	100 U	100 U	200 U

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	UNITS	REGION4_ESV	**LMR21-57C (1-4)**	**LMR21-57C (4-6)**	**LMR21-58C (0-1)**	**LMR21-58C (1-4)**	**LMR21-58C (4-7)**	**LMR21-58C (4-7) FD**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	289	91.3	48.3	48.2	101	173
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2470 J	1370 J	4070 UJ	2160 UJ	3210 UJ	4940 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	357	68.6	60.5	61.1	136	229
TOTAL OIL & GREASE	MG/KG		200 U	100 U	200 U	352 J	599	607

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	UNITS	REGION4_ESV	**LMR21-59C (0-1)**	**LMR21-59C (1-4)**	**LMR21-59C (1-4) FD**	**LMR21-59C (4-7)**	**LMR21-60C (0-1)**	**LMR21-60C (1-4)**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	10.6 J-	238	205	8.2 J-	101	128
GASOLINE RANGE ORGANICS (GRO)	UG/KG		1870 UJ	3050 UJ	2310 UJ	2620 J	2330 UJ	1440 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	10.6 J-	300	280	13.5 J-	153	172
TOTAL OIL & GREASE	MG/KG		1740	1350	1670	291 J	571	250 J

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge B1	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	UNITS	REGION4_ESV	LMR21-60C (4-5)	LMR21-63C (0-1)	LMR21-63C (1-2.75)	LMR21-64C (0-1.75)	LMR21-64C (0-1.75) FD
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	94.6	93.7	48.9 J	59	35.6
GASOLINE RANGE ORGANICS (GRO)	UG/KG		4850 J	5090 J	4610 J	2260 J	2000 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	79.1	66.5	35.5	42.5	29.5
TOTAL OIL & GREASE	MG/KG		100 U	100 U	100 U	100 U	100 U

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	UNITS	REGION4_ESV	**LMR21-65C (0-1)**	**LMR21-65C (1-2)**	**LMR21-66C (0-1)**	**LMR21-66C (1-2)**	**LMR21-67C (0-1)**	**LMR21-67C (0-1) FD**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	96.3	49.4	45.6	41.7	26.8 J-	21.3 J
GASOLINE RANGE ORGANICS (GRO)	UG/KG		1860 J	1390 UJ	3470 UJ	1120 UJ	5310 UJ	4170 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	71.2	41	62.9	31.6	28.4 J-	21.8 J
TOTAL OIL & GREASE	MG/KG		100 U	100 U	469 J	100 U	280 J	200 U

Sampling depth interval is indicated in feet

Table A1.2b Discrete Sediment Core Sample Results for Petroleum Hydrocarbon Mixtures

	Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	UNITS	REGION4_ESV	LMR21-67C (1-3)	LMR21-68C (0-1)	LMR21-68C (1-3.5)
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	25	18.1 J-	67.9
GASOLINE RANGE ORGANICS (GRO)	UG/KG		2760 UJ	3970 UJ	2090 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	28.8	16.7 J-	60.4
TOTAL OIL & GREASE	MG/KG		218 J	200 U	100 U

Sampling depth interval is indicated in feet

Table A1.2c Composite Sediment Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	REGION4_ESV	**LMR21-SBA1**	**LMR21-SBA1 FD2**	**LMR21-SBA2**	**LMR21-SBA2 FD1**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	486	475	43.3	34.6
GASOLINE RANGE ORGANICS (GRO)	UG/KG		10300 J	6680 J	1740 J	3050 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	461	473	38.1	30.6
TOTAL OIL & GREASE	MG/KG		473	1010	100 U	100 U

Table A1.2c Composite Sediment Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	REGION4_ESV	**LMR21-SBA3**	**LMR21-SBA3 FD1**	**LMR21-SBB1**	**LMR21-SBB1 FD1**	**LMR21-SBB2**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	246	786	122	127	27.8 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		8490 J	5030 J	2540 UJ	4570 UJ	3490 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	324 J	973	174	183	25 J-
TOTAL OIL & GREASE	MG/KG		1180	440 J	200 U	392 J	200 U

Table A1.2c Composite Sediment Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	REGION4_ESV	**LMR21-SBB2 FD1**	**LMR21-SBC**	**LMR21-SBC FD1**	**LMR21-SBD**	**LMR21-SBD FD1**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	41.3 J-	161	190	49.7	37.5
GASOLINE RANGE ORGANICS (GRO)	UG/KG		5530 UJ	3120 UJ	2760 UJ	1660 UJ	3210 UJ
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	42 J-	189	227	46.5	45.2
TOTAL OIL & GREASE	MG/KG		200 U	272 J	100 U	100 U	100 U

Table A1.2c Composite Sediment Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	REGION4_ESV	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	251	247	224	843	204	274 J-
GASOLINE RANGE ORGANICS (GRO)	UG/KG		14800 J	2440 UJ	4650 J	2180 UJ	3140 UJ	5030 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	1330	334	282	1110	290	355
TOTAL OIL & GREASE	MG/KG		200 U	504	823	100 U	785	274 J

Table A1.2c Composite Sediment Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	REGION4_ESV	**LMR21-WC1-FD FD**	**LMR21-WC2**
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/KG	340	182	152
GASOLINE RANGE ORGANICS (GRO)	UG/KG		7670 J	4530 J
OIL RANGE ORGANICS (C20-C44)	MG/KG	340	249	212
TOTAL OIL & GREASE	MG/KG		496 J	3450

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	WWTP A2	WWTP A2	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-10S (0-0.5)	LMR21-12S (0-0.5)	LMR21-14S (0-0.5)	LMR21-15S (0-0.5)
ALUMINUM			42000	25000	17100	19300	16200	7500
ANTIMONY			0.84	2	1.5 U	1.6 U	1.4 J	1.4 J
ARSENIC	9.79	33	11	9.8	13.3	11.9	11.9	14.7
BARIUM			210	20	131	125	119	102
BERYLLIUM			0.8		0.86 J	0.96 J	0.79 J	0.65 U
CADMIUM	0.99	4.98	0.96	1	0.83 J	0.67 J	0.68 J	1.5
CALCIUM			110000		30400	31300	35300	33000
CHROMIUM, TOTAL	43.4	111	51	43.4	32.9	29.3	28	46.6
COBALT			12	50	10.5	10.6	10.1	8
COPPER	31.6	149	42	31.6	49.1	36.3	37.9	53.1
IRON			44000	20000	28900	27600	26700	31000
LEAD	35.8	128	47	35.8	25	18.2	20.5	38
MAGNESIUM			29000		9920	10200	10400	9580
MANGANESE			1000	460	483	509	483	711
MERCURY	0.18	1.06	0.12	0.18	0.15 U	0.14 U	0.13 U	0.25 J
NICKEL	22.7	48.6	36	22.7	36.2	34.5	33	34.7
POTASSIUM			12000		2820	3310	2610	1110
SELENIUM			1.4	0.72	3.8 U	4 U	3.1 U	3.2 U
SILVER			0.43	1	0.38 U	0.4 U	0.31 U	0.68 J
SODIUM					189	173	180	161
THALLIUM			4.7		2.3 U	2.4 U	1.9 U	2 U
VANADIUM			40		35.7	38.2	33.2	19.4
ZINC	121	459	190	121	172	131	138	225

Units are mg/kg

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	WWTP A1	WWTP A3	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-17S (0-0.5)	LMR21-19S (0-0.5)	LMR21-25S (0-0.5)	LMR21-27S (0-0.5)
ALUMINUM			42000	25000	5900	5370	14800	17900
ANTIMONY			0.84	2	1.1 J	1.8 J	1.6 U	1.7 U
ARSENIC	9.79	33	11	9.8	9.1	9.4	12.1	15
BARIUM			210	20	58.5	61	115	139
BERYLLIUM			0.8		0.55 U	0.51 U	0.81 U	0.98 J
CADMIUM	0.99	4.98	0.96	1	0.83	4.5	0.66 J	0.83 J
CALCIUM			110000		33400	27600	25500	36600
CHROMIUM, TOTAL	43.4	111	51	43.4	19.9	53.2	24.2	29
COBALT			12	50	6.4	6.3	9.4	11.6
COPPER	31.6	149	42	31.6	33	72.8	34.6	42.6
IRON			44000	20000	16300	17300	27300	31700
LEAD	35.8	128	47	35.8	32	50.7	17.7	22.8
MAGNESIUM			29000		8940	7090	8950	10300
MANGANESE			1000	460	408	368	451	536
MERCURY	0.18	1.06	0.12	0.18	0.13 J	0.56	0.16 U	0.15 U
NICKEL	22.7	48.6	36	22.7	18.9	27.8	31.3	37.9
POTASSIUM			12000		920	698	2240	2790
SELENIUM			1.4	0.72	2.7 U	2.5 U	4.1 U	4.2 U
SILVER			0.43	1	0.27 U	0.82	0.41 U	0.42 U
SODIUM					153	99.3	147	201
THALLIUM			4.7		1.7 U	1.5 U	2.4 U	2.5 U
VANADIUM			40		15.6	12.5	27.9	33
ZINC	121	459	190	121	121	238	120	147

Units are mg/kg

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-30S (0-0.5)	LMR21-35S (0-0.5)	LMR21-36S (0-0.5)	LMR21-37S (0-0.5)
ALUMINUM			42000	25000	15300	20600	17800	19700
ANTIMONY			0.84	2	1.6 U	1.9 U	1.8 U	1.8 U
ARSENIC	9.79	33	11	9.8	13.6	16.7	14.5	16
BARIUM			210	20	122	156	139	151
BERYLLIUM			0.8		0.82 J	1.1 J	0.95 J	1 J
CADMIUM	0.99	4.98	0.96	1	0.7 J	0.86 J	0.73 J	0.78 J
CALCIUM			110000		34000	36900	29000	29600
CHROMIUM, TOTAL	43.4	111	51	43.4	24.9	33.2	29.7	31.6
COBALT			12	50	10.5	12.5	11.1	11.9
COPPER	31.6	149	42	31.6	35.3	45.8	41.4	41.9
IRON			44000	20000	28600	36900	32900	36300
LEAD	35.8	128	47	35.8	18.9	27.2	24.1	25.1
MAGNESIUM			29000		11200	11900	9950	10200
MANGANESE			1000	460	528	613	625	729
MERCURY	0.18	1.06	0.12	0.18	0.16 U	0.17 U	0.18 U	0.19 U
NICKEL	22.7	48.6	36	22.7	33.2	41.8	37.6	39.5
POTASSIUM			12000		2410	3270	2690	3110
SELENIUM			1.4	0.72	3.9 U	4.7 U	4.5 U	4.5 U
SILVER			0.43	1	0.39 U	0.47 U	0.45 U	0.45 U
SODIUM					160	218	200	207
THALLIUM			4.7		2.3 U	2.9 U	2.7 U	2.7 U
VANADIUM			40		28.3	39.2	33.1	36.2
ZINC	121	459	190	121	123	169	153	161

Units are mg/kg

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-39S (0-0.5)	LMR21-41S (0-0.5)	LMR21-43S (0-0.5)	LMR21-45S (0-0.5)
ALUMINUM			42000	25000	13800	18300	17400	12700
ANTIMONY			0.84	2	4.7 U	1.6 U	1.4 U	1.2 U
ARSENIC	9.79	33	11	9.8	13.9 J	15.3	16.2	19.9
BARIUM			210	20	99.6	135	136	110
BERYLLIUM			0.8		2.4 U	0.95 J	0.9 J	0.73 J
CADMIUM	0.99	4.98	0.96	1	1.2 U	0.66 J	2	1.3
CALCIUM			110000		65500	29800	29200	37100
CHROMIUM, TOTAL	43.4	111	51	43.4	23.8	30.2	43.1	26.8
COBALT			12	50	11.1	10.8	10.8	10
COPPER	31.6	149	42	31.6	32.1	39.5	44.7	44.3
IRON			44000	20000	27000	38800	31400	30100
LEAD	35.8	128	47	35.8	16.3	24.9	41.3	250
MAGNESIUM			29000		15600	9160	9260	9730
MANGANESE			1000	460	489	738	582	541
MERCURY	0.18	1.06	0.12	0.18	0.097 U	0.17 U	0.15 U	0.24 J
NICKEL	22.7	48.6	36	22.7	35.2	36.7	42.2	31.1
POTASSIUM			12000		2690	2870	2510	1810
SELENIUM			1.4	0.72	11.8 U	3.9 U	3.6 U	2.9 U
SILVER			0.43	1	1.2 U	0.39 U	0.37 J	0.29 U
SODIUM					414	201	171	136
THALLIUM			4.7		7.1 U	2.4 U	2.1 U	1.7 U
VANADIUM			40		28.5	34.4	31.5	26.1
ZINC	121	459	190	121	96.9	146	185	204

Units are mg/kg

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-47S (0-0.5)	LMR21-48S (0-0.5)	LMR21-49S (0-0.5)	LMR21-52S (0-0.5)
ALUMINUM			42000	25000	12300	14100	14000	21600
ANTIMONY			0.84	2	1.1 U	1.3 U	5.4 U	1.6 U
ARSENIC	9.79	33	11	9.8	22.6	14	30.9	16
BARIUM			210	20	132	117	155	160
BERYLLIUM			0.8		0.98 J	0.89 J	2.7 U	1.1 J
CADMIUM	0.99	4.98	0.96	1	2.6	0.67 J	2.3 J	0.79 J
CALCIUM			110000		23100	29500	33900	29800
CHROMIUM, TOTAL	43.4	111	51	43.4	40	25.4	38.7	32.4
COBALT			12	50	8.1	9.2	10.5	12.3
COPPER	31.6	149	42	31.6	54.6	33.4	45.6	42
IRON			44000	20000	53500	32000	84300	35400
LEAD	35.8	128	47	35.8	79.9	21.9	74.9	23.4
MAGNESIUM			29000		6770	8600	9100	10300
MANGANESE			1000	460	777	672	1720	579
MERCURY	0.18	1.06	0.12	0.18	0.49	0.12 U	0.32 J	0.15 U
NICKEL	22.7	48.6	36	22.7	31.2	29.7	37.2	40.2
POTASSIUM			12000		1560	2100	1830	3380
SELENIUM			1.4	0.72	2.8 U	3.3 U	13.4 U	4 U
SILVER			0.43	1	0.31 J	0.33 U	1.3 U	0.4 U
SODIUM					133	154	187 J	182
THALLIUM			4.7		1.7 U	2 U	8 U	2.4 U
VANADIUM			40		28.1	27.6	35.8	38.9
ZINC	121	459	190	121	273	159	372	150

Units are mg/kg

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-53S (0-0.5)	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)	LMR21-59S (0-0.5)
ALUMINUM			42000	25000	17400	17800	15600	15600
ANTIMONY			0.84	2	1.6 U	1.4 U	1.4 U	1.6 U
ARSENIC	9.79	33	11	9.8	13.7	13.2	12.4	11.1
BARIUM			210	20	130	125	131	159
BERYLLIUM			0.8		0.92 J	0.91 J	0.84 J	0.81 J
CADMIUM	0.99	4.98	0.96	1	0.75 J	0.65 J	0.77 J	0.74 J
CALCIUM			110000		27100	28300	29000	30800
CHROMIUM, TOTAL	43.4	111	51	43.4	27.8	27	26.6	25.6
COBALT			12	50	10.6	10.4	10.7	10
COPPER	31.6	149	42	31.6	37	35.6	37.5	35.7
IRON			44000	20000	29900	29600	29000	27700
LEAD	35.8	128	47	35.8	21.1	18.8	23.8	32.9
MAGNESIUM			29000		9050	9550	9590	9470
MANGANESE			1000	460	514	494	470	521
MERCURY	0.18	1.06	0.12	0.18	0.16 U	0.15 U	0.16 U	0.15 U
NICKEL	22.7	48.6	36	22.7	35.1	33.7	34.8	32.1
POTASSIUM			12000		2590	2640	2570	2900
SELENIUM			1.4	0.72	4 U	3.6 U	3.5 U	3.9 U
SILVER			0.43	1	0.4 U	0.36 U	0.35 U	0.39 U
SODIUM					151	175	161	222
THALLIUM			4.7		2.4 U	2.2 U	2.1 U	2.4 U
VANADIUM			40		31.2	32.5	29.3	29.3
ZINC	121	459	190	121	134	127	145	127

Units are mg/kg

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	Biological Survey	Biological Survey	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-61S (0-0.5)	LMR21-62S (0-0.5)	LMR21-64S (0-0.5)	LMR21-66S (0-0.5)
ALUMINUM			42000	25000	13300	13700	15200	19500
ANTIMONY			0.84	2	1.6 U	1.6 U	1.7 U	1.7 U
ARSENIC	9.79	33	11	9.8	11.6	10.6	10.5	14.7
BARIUM			210	20	107	108	116	151
BERYLLIUM			0.8		0.8 U	0.8 U	0.84 U	1 J
CADMIUM	0.99	4.98	0.96	1	0.8 J	0.57 J	0.61 J	0.81 J
CALCIUM			110000		28000	24700	20600	32400
CHROMIUM, TOTAL	43.4	111	51	43.4	25.5	23.3	24	31.8
COBALT			12	50	8.7	8.9	9.2	12.3
COPPER	31.6	149	42	31.6	38	31.4	30.7	43.7
IRON			44000	20000	25500	25900	26500	35100
LEAD	35.8	128	47	35.8	24.4	27.7	18.1	24.7
MAGNESIUM			29000		9530	8520	7500	10900
MANGANESE			1000	460	408	494	477	619
MERCURY	0.18	1.06	0.12	0.18	0.16 U	0.15 U	0.19 U	0.16 U
NICKEL	22.7	48.6	36	22.7	29.4	29.3	30.5	40.7
POTASSIUM			12000		2270	2510	2790	3450
SELENIUM			1.4	0.72	4 U	4 U	4.2 U	4.2 U
SILVER			0.43	1	0.4 U	0.4 U	0.42 U	0.42 U
SODIUM					160	162	166	184
THALLIUM			4.7		2.4 U	2.4 U	2.5 U	2.5 U
VANADIUM			40		27.4	28.2	29.3	37.6
ZINC	121	459	190	121	131	111	117	160

Units are mg/kg

Table A1.3a Surface Sediment Grab Sample Results for Metallic Species

				Sampling Area >	Sway Bridge D	Reference
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-68S (0-0.5)	LMR21-69S (0-0.5)
ALUMINUM			42000	25000	15800	18700
ANTIMONY			0.84	2	1.6 U	1.9 U
ARSENIC	9.79	33	11	9.8	12.5	11.5
BARIUM			210	20	141	130
BERYLLIUM			0.8		0.82 J	0.95 U
CADMIUM	0.99	4.98	0.96	1	0.66 J	0.63 J
CALCIUM			110000		29200	24000
CHROMIUM, TOTAL	43.4	111	51	43.4	25.3	27.4
COBALT			12	50	10.2	19.2
COPPER	31.6	149	42	31.6	34.3	36.4
IRON			44000	20000	29400	29400
LEAD	35.8	128	47	35.8	20.2	18.4
MAGNESIUM			29000		9780	8390
MANGANESE			1000	460	632	414
MERCURY	0.18	1.06	0.12	0.18	0.15 U	0.17 U
NICKEL	22.7	48.6	36	22.7	33.4	65.3
POTASSIUM			12000		2680	3660
SELENIUM			1.4	0.72	3.9 U	4.7 U
SILVER			0.43	1	0.39 U	0.47 U
SODIUM					170	159
THALLIUM			4.7		2.3 U	2.8 U
VANADIUM			40		31.4	35.8
ZINC	121	459	190	121	126	125

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-01C (0-1)**	**LMR21-01C (1-4)**	**LMR21-01C (4-7)**	**LMR21-01C (7-8)**
ALUMINUM			42000	25000	18900	15200	8820	10600
ANTIMONY			0.84	2	1.6 U	1.1 U	1.1 J	0.92 U
ARSENIC	9.79	33	11	9.8	12.7	16.3	10.3	6.8
BARIUM			210	20	139	118	70.6	76.9
BERYLLIUM			0.8		0.96 J	0.77 J	0.5 J	0.54 J
CADMIUM	0.99	4.98	0.96	1	0.69 J	2.1	0.37 J	0.3 J
CALCIUM			110000		29000	38100	33900	31900
CHROMIUM, TOTAL	43.4	111	51	43.4	30.8	43.9	15.6	16.8
COBALT			12	50	11.5	10.2	8.5	8.7
COPPER	31.6	149	42	31.6	40.7	51.6	22.3	19.5
IRON			44000	20000	30700	29700	18100	18500
LEAD	35.8	128	47	35.8	21.6	58.3	25.4	8.7
MAGNESIUM			29000		9660	11000	10500	13300
MANGANESE			1000	460	468	514	398	452
MERCURY	0.18	1.06	0.12	0.18	0.17 U	0.22 J	0.23 J	0.089 U
NICKEL	22.7	48.6	36	22.7	38.4	37.9	23.6	23.4
POTASSIUM			12000		2910	2260	1260	1800
SELENIUM			1.4	0.72	4.1 U	2.9 U	2.4 U	2.3 U
SILVER			0.43	1	0.41 U	0.46 J	0.24 U	0.23 U
SODIUM					163	145	86.4	112
THALLIUM			4.7		2.5 U	1.7 U	1.5 U	1.4 U
VANADIUM			40		35.4	31	20.7	24.6
ZINC	121	459	190	121	146	190	77.8	54.5

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-02C (0-1)	LMR21-02C (1-4)	LMR21-02C (4-7)	LMR21-02C (7-8)
ALUMINUM			42000	25000	29500	14300	15700	16400
ANTIMONY			0.84	2	1.3 U	1.1 U	0.97 U	1.1 U
ARSENIC	9.79	33	11	9.8	14.9	15.4	19.8	22.2
BARIUM			210	20	161	111	118	119
BERYLLIUM			0.8		1.1 J	0.75 J	0.82 J	0.83 J
CADMIUM	0.99	4.98	0.96	1	2	3.4	0.76	0.64 J
CALCIUM			110000		40800	28600	36300	34100
CHROMIUM, TOTAL	43.4	111	51	43.4	58.4	41.8	26.7	26
COBALT			12	50	10.9	9.8	11.5	11.6
COPPER	31.6	149	42	31.6	53	51.5	41	36.2
IRON			44000	20000	33400	29400	30400	31000
LEAD	35.8	128	47	35.8	37	65.2	81.1	69.9
MAGNESIUM			29000		13500	8960	11300	10900
MANGANESE			1000	460	545	400	565	564
MERCURY	0.18	1.06	0.12	0.18	0.22 J	0.35	0.28 J	0.3
NICKEL	22.7	48.6	36	22.7	44.9	35.9	36.1	35.3
POTASSIUM			12000		6370	2000	2430	2410
SELENIUM			1.4	0.72	3.4 U	2.8 U	2.4 U	2.7 U
SILVER			0.43	1	0.63 J	0.67 J	0.29 J	0.27 U
SODIUM					231	134	132	123
THALLIUM			4.7		2 U	1.7 U	1.5 U	1.6 U
VANADIUM			40		59.7	28.9	32.7	33.2
ZINC	121	459	190	121	192	205	205	177

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-03C (0-1)	LMR21-03C (1-4)	LMR21-03C (1-4) FD	LMR21-03C (4-7)
ALUMINUM			42000	25000	27300	12600	12800	12700
ANTIMONY			0.84	2	1.4 U	1.9 J	1.4 J	1 J
ARSENIC	9.79	33	11	9.8	12.5	20.4	20.1	15.8
BARIUM			210	20	143	104	107	91
BERYLLIUM			0.8		0.99 J	0.7 J	0.69 J	0.63 J
CADMIUM	0.99	4.98	0.96	1	0.99 J	2.6	2.9	0.5 J
CALCIUM			110000		36500	35200	35800 J	32000
CHROMIUM, TOTAL	43.4	111	51	43.4	40.4	36.8	37.4	20.1
COBALT			12	50	10	9.7	9.5	9.1
COPPER	31.6	149	42	31.6	41.4	54.8	52.6	31.6
IRON			44000	20000	29600	30500	30400	24100
LEAD	35.8	128	47	35.8	24.3	105	92.9	52.7
MAGNESIUM			29000		12100	10000	9820 J	9910
MANGANESE			1000	460	480	470	498 J	415
MERCURY	0.18	1.06	0.12	0.18	0.14 J	0.69	0.56	0.19 J
NICKEL	22.7	48.6	36	22.7	35.1	34.3	34.3	28.1
POTASSIUM			12000		5920	1740	1830	1880
SELENIUM			1.4	0.72	3.5 U	2.8 U	2.5 U	2.4 U
SILVER			0.43	1	0.35 U	0.67 J	0.58 J	0.24 U
SODIUM					214	120	130	105
THALLIUM			4.7		2.1 U	1.7 U	1.5 U	1.4 U
VANADIUM			40		56.2	27.9	27.1	26
ZINC	121	459	190	121	145	240	225	147

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-04C (0-1)	LMR21-04C (1-4)	LMR21-04C (4-7)	LMR21-05C (0-1)
ALUMINUM			42000	25000	14100	13700	8660	22300
ANTIMONY			0.84	2	1.2 U	1.7 J	1.1 J	1.6 U
ARSENIC	9.79	33	11	9.8	12.1	21.5	12.3	15
BARIUM			210	20	112	102	71.2	158
BERYLLIUM			0.8		0.68 J	0.67 J	0.49 J	1.1 J
CADMIUM	0.99	4.98	0.96	1	1.4	1.2	0.36 J	0.68 J
CALCIUM			110000		33000 J	36700	43800	27500 J
CHROMIUM, TOTAL	43.4	111	51	43.4	32.1	27.9	14.5	33.2
COBALT			12	50	9.1	9.6	8.3	12.4
COPPER	31.6	149	42	31.6	43.8	46.8	22.7	42.3
IRON			44000	20000	25700	25800	17900	34400
LEAD	35.8	128	47	35.8	35.6	98.9	30	21.6
MAGNESIUM			29000		10400 J	10700	9360	10200 J
MANGANESE			1000	460	421 J	397	353	505 J
MERCURY	0.18	1.06	0.12	0.18	0.16 J	0.39	0.11 J	0.15 U
NICKEL	22.7	48.6	36	22.7	33	33.4	23	41.2
POTASSIUM			12000		2450	2130	1280	3660
SELENIUM			1.4	0.72	3 U	2.5 U	2.2 U	3.9 U
SILVER			0.43	1	0.46 J	0.8	0.22 U	0.39 U
SODIUM					144	122	92.8	175
THALLIUM			4.7		1.8 U	1.5 U	1.3 U	2.3 U
VANADIUM			40		29.2	29.8	17.3	42.1
ZINC	121	459	190	121	152	225	79.5	153

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-05C (1-4)**	**LMR21-05C (4-7)**	**LMR21-05C (7-8)**	**LMR21-06C (0-1)**
ALUMINUM			42000	25000	13500	22100	13800	36300
ANTIMONY			0.84	2	1.3 U	1.2 U	1.2 U	1.5 U
ARSENIC	9.79	33	11	9.8	10.4	10.1	10.8	13.1 J
BARIUM			210	20	96	120	107	172 J
BERYLLIUM			0.8		0.64 J	0.82 J	0.69 J	1.2 J
CADMIUM	0.99	4.98	0.96	1	0.62 J	0.64 J	0.78 J	0.64 J
CALCIUM			110000		43500	29500	36200	30200
CHROMIUM, TOTAL	43.4	111	51	43.4	21.9	29.6	24.5	44.5 J+
COBALT			12	50	8.3	8.1	9.4	10.9
COPPER	31.6	149	42	31.6	29.2	32.3	33.8	41.1
IRON			44000	20000	21000	24000	23900	32400
LEAD	35.8	128	47	35.8	17	15.6	19.4	16.6 J+
MAGNESIUM			29000		11700	9220	10200	12000
MANGANESE			1000	460	403	414	450	475
MERCURY	0.18	1.06	0.12	0.18	0.11 U	0.12 U	0.11 U	0.14 U
NICKEL	22.7	48.6	36	22.7	26.5	27.5	30.5	37
POTASSIUM			12000		2260	4770	2080	8540
SELENIUM			1.4	0.72	3.1 U	3 U	2.9 U	3.8 U
SILVER			0.43	1	0.31 U	0.3 U	0.29 U	0.38 U
SODIUM					153	186	126	264
THALLIUM			4.7		1.9 U	1.8 U	1.7 U	2.3 U
VANADIUM			40		27.6	43.1	26.9	72.9 J
ZINC	121	459	190	121	105	108	119	136

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-06C (1-4)	LMR21-06C (4-6.3)	LMR21-07C (0-1)	LMR21-07C (1-4)
ALUMINUM			42000	25000	13200	13800	9790	10500
ANTIMONY			0.84	2	1.2 U	1 U	2.4 J	1 J
ARSENIC	9.79	33	11	9.8	11.5	13.3	13.1	19.5
BARIUM			210	20	117	128	75	88
BERYLLIUM			0.8		0.7 J	0.69 J	0.54 U	0.57 J
CADMIUM	0.99	4.98	0.96	1	1.3	3.7	0.75 J	0.54 J
CALCIUM			110000		35400 J	39800	69600	32100
CHROMIUM, TOTAL	43.4	111	51	43.4	30.1	56.6	20.2	18.8
COBALT			12	50	9.4	9.7	8.3	9.3
COPPER	31.6	149	42	31.6	38.6	53.7	30.3	32.8
IRON			44000	20000	25000	25100	19800	23100
LEAD	35.8	128	47	35.8	26	51.9	45.2	77.3
MAGNESIUM			29000		10100 J	10200	26100	10000
MANGANESE			1000	460	469	490	372	387
MERCURY	0.18	1.06	0.12	0.18	0.13 J	0.19 J	0.18 J	0.33
NICKEL	22.7	48.6	36	22.7	34.8	46	26	28.3
POTASSIUM			12000		2240 J	1940	1590	1320
SELENIUM			1.4	0.72	2.9 U	2.5 U	2.7 U	2.5 U
SILVER			0.43	1	0.29 U	1.4	0.27 U	0.25 U
SODIUM					148	128	356	99.9
THALLIUM			4.7		1.7 U	1.5 U	1.6 U	1.5 U
VANADIUM			40		26.2	28	21.9	22.7
ZINC	121	459	190	121	144	204	127	170

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-07C (4-7)	LMR21-07C (7-8)	LMR21-08C (0-1)	LMR21-08C (1-4)
ALUMINUM			42000	25000	16800	7600	16400	13200
ANTIMONY			0.84	2	0.99 U	0.8 J	1.3 U	1.2 J
ARSENIC	9.79	33	11	9.8	11.9	6.1	14	20.9
BARIUM			210	20	108	54.6	131	104
BERYLLIUM			0.8		0.74 J	0.42 J	0.84 J	0.68 J
CADMIUM	0.99	4.98	0.96	1	0.43 J	0.25 J	1.1	0.94
CALCIUM			110000		35200	27400	37900 J	41400
CHROMIUM, TOTAL	43.4	111	51	43.4	25.7	13	31.9	24.7
COBALT			12	50	11.1	7	11.1	10.2
COPPER	31.6	149	42	31.6	29.8	16.3	44.3	41.6
IRON			44000	20000	26300	14200	31700	26500
LEAD	35.8	128	47	35.8	28.8	10.4	36.9	88.3
MAGNESIUM			29000		12400	9350	11500 J	12400
MANGANESE			1000	460	571	304	536	474
MERCURY	0.18	1.06	0.12	0.18	0.2 J	0.084 U	0.15 U	0.52
NICKEL	22.7	48.6	36	22.7	32.6	19	37.9	31.7
POTASSIUM			12000		3090	1030	2820 J	2310
SELENIUM			1.4	0.72	2.5 U	2 U	3.3 U	2.3 U
SILVER			0.43	1	0.25 U	0.2 U	0.33 U	0.23 U
SODIUM					141	87.3	184	848
THALLIUM			4.7		1.5 U	1.2 U	2 U	1.4 U
VANADIUM			40		36.6	17.7	33.8	29.7
ZINC	121	459	190	121	98.1	51.3	163	183

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-08C (4-7)	LMR21-08C (7-8.1)	LMR21-09C (0-1)	LMR21-09C (1-4)
ALUMINUM			42000	25000	11800	11600	8630	13000
ANTIMONY			0.84	2	1 U	0.94 U	1.8 J	1.2 J
ARSENIC	9.79	33	11	9.8	15.2 J	10.8	14.9	22.2
BARIUM			210	20	95.2 J	104	83.5	109
BERYLLIUM			0.8		0.67 J	0.65 J	0.53 U	0.71 J
CADMIUM	0.99	4.98	0.96	1	0.58 J	0.42 J	1.1	0.64 J
CALCIUM			110000		36000	33900 J	50400 J	40000 J
CHROMIUM, TOTAL	43.4	111	51	43.4	20.2 J	19.7	19.9	23.3
COBALT			12	50	10.3	11	7.7	11
COPPER	31.6	149	42	31.6	33.9	27.1	35.8	37.7
IRON			44000	20000	22400	24900	21000	28700
LEAD	35.8	128	47	35.8	47.8 J	19.7	55.5	90.7
MAGNESIUM			29000		11400	11800 J	10600 J	11700 J
MANGANESE			1000	460	506	602	393	551
MERCURY	0.18	1.06	0.12	0.18	0.29	0.084 J	0.29 J	0.37
NICKEL	22.7	48.6	36	22.7	29.9	31	27.1	34
POTASSIUM			12000		1590 J	1780 J	1420 J	1930 J
SELENIUM			1.4	0.72	2.5 U	2.3 U	2.6 U	2.2 U
SILVER			0.43	1	0.25 U	0.23 U	0.32 J	0.22 U
SODIUM					172	710	212	140
THALLIUM			4.7		1.5 U	1.4 U	1.6 U	1.3 U
VANADIUM			40		24.3 J	25.9	20.3	28.1
ZINC	121	459	190	121	116	86.4	162	188

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-09C (4-7)	LMR21-09C (4-7) FD	LMR21-09C (7-7.5)	LMR21-10C (0-1)
ALUMINUM			42000	25000	16000	11600	13500	19300
ANTIMONY			0.84	2	0.93 U	0.92 U	0.96 U	1.4 U
ARSENIC	9.79	33	11	9.8	14.5	12	9.7	13.5
BARIUM			210	20	124	98.9	98.8	134
BERYLLIUM			0.8		0.8 J	0.65 J	0.67 J	0.86 J
CADMIUM	0.99	4.98	0.96	1	0.45 J	0.42 J	0.37 J	0.88 J
CALCIUM			110000		31600	27900	28100	50800
CHROMIUM, TOTAL	43.4	111	51	43.4	25.8	19.8	21	31.3
COBALT			12	50	12.3	10.4	10.2	11.6
COPPER	31.6	149	42	31.6	35.9	28.9	26.2	41.1
IRON			44000	20000	29200	23500	22800	30000
LEAD	35.8	128	47	35.8	45.8	37.9	17.9	24.5
MAGNESIUM			29000		10900	9580	9640	13900
MANGANESE			1000	460	605	503	510	622
MERCURY	0.18	1.06	0.12	0.18	0.15 J	0.17 J	0.098 J	0.49
NICKEL	22.7	48.6	36	22.7	37.2	30.3	29.6	35.9
POTASSIUM			12000		2270	1560	1900	3750
SELENIUM			1.4	0.72	2.3 U	2.3 U	2.4 U	3.5 U
SILVER			0.43	1	0.23 U	0.23 U	0.24 U	0.35 U
SODIUM					124	89.8	96.6	210
THALLIUM			4.7		1.4 U	1.4 U	1.4 U	2.1 U
VANADIUM			40		32.5	24.4	27.4	39.5
ZINC	121	459	190	121	118	93.4	83.9	143

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-10C (1-4)	LMR21-10C (4-7)	LMR21-10C (7-8.5)	LMR21-11C (0-1)
ALUMINUM			42000	25000	9440	5820	6560	9890
ANTIMONY			0.84	2	1.1 J	1.1 J	1.5 J	0.97 J
ARSENIC	9.79	33	11	9.8	14	6.2	6.1	14.2
BARIUM			210	20	98.7	50	55.1	82.7
BERYLLIUM			0.8		0.58 J	0.43 U	0.42 U	0.56 J
CADMIUM	0.99	4.98	0.96	1	3.7	0.49 J	0.43 J	0.92
CALCIUM			110000		64500	51700 J	47900 J	36900
CHROMIUM, TOTAL	43.4	111	51	43.4	89.1	14.3	13.1	21.7
COBALT			12	50	10.5	7.5	7.9	8.3
COPPER	31.6	149	42	31.6	66.3	18.4	19.1	32.3
IRON			44000	20000	23600	14200	16200	21300
LEAD	35.8	128	47	35.8	68.3	10	8.8	68.9
MAGNESIUM			29000		17800	15900 J	14900 J	10800
MANGANESE			1000	460	513	339	387	422
MERCURY	0.18	1.06	0.12	0.18	0.25 J	0.094 U	0.094 U	0.28
NICKEL	22.7	48.6	36	22.7	51.3	19.9	21.1	28
POTASSIUM			12000		1430 J	945 J	1050 J	1380
SELENIUM			1.4	0.72	2.1 U	2.1 U	2.1 U	2.4 U
SILVER			0.43	1	1.6	0.21 U	0.21 U	0.29 J
SODIUM					152	97.3	92.3	120
THALLIUM			4.7		1.3 U	1.3 U	1.3 U	1.4 U
VANADIUM			40		22.6	15.5	16.9	21.8
ZINC	121	459	190	121	222	54.2	52.6	160

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-11C (1-4)	LMR21-11C (4-7)	LMR21-11C (7-9)	LMR21-12C (0-1)
ALUMINUM			42000	25000	8320	6960	9210	21400
ANTIMONY			0.84	2	1.7 J	1.1 J	1 J	1.5 U
ARSENIC	9.79	33	11	9.8	15.2	5.7	6.3	12.5
BARIUM			210	20	83.7	54.2	57.5	138
BERYLLIUM			0.8		0.51 J	0.39 U	0.45 U	0.93 J
CADMIUM	0.99	4.98	0.96	1	2.2	0.37 J	0.38 J	0.65 J
CALCIUM			110000		44000	44800 J	48500	34100
CHROMIUM, TOTAL	43.4	111	51	43.4	26.1	12.6	15.6	32.4
COBALT			12	50	8.9	6.8	7.6	10.7
COPPER	31.6	149	42	31.6	43.8	17.5	18.3	38.4
IRON			44000	20000	22100	15300	16300	29900
LEAD	35.8	128	47	35.8	91.7	7.7	8.3	21.1
MAGNESIUM			29000		12600	13100 J	16100	10900
MANGANESE			1000	460	425	346	371	507
MERCURY	0.18	1.06	0.12	0.18	0.26 J	0.089 U	0.088 U	0.15 U
NICKEL	22.7	48.6	36	22.7	28	19	20.2	35.5
POTASSIUM			12000		1120	1240 J	2060	4110
SELENIUM			1.4	0.72	2 U	1.9 U	2.3 U	3.8 U
SILVER			0.43	1	0.38 J	0.19 U	0.23 U	0.38 U
SODIUM					110	102	135	266
THALLIUM			4.7		1.2 U	1.2 U	1.4 U	2.3 U
VANADIUM			40		21	17.8	24	41.6
ZINC	121	459	190	121	176	52.7	51.6	139

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-12C (10-13)	LMR21-12C (1-4)	LMR21-12C (4-7)	LMR21-12C (7-10)
ALUMINUM			42000	25000	8850	23400	17800	20600
ANTIMONY			0.84	2	1.1 J	1.1 U	1.3 J	1 U
ARSENIC	9.79	33	11	9.8	9.7	10.9 J	14.1	14.7
BARIUM			210	20	79.5	125 J	144	166
BERYLLIUM			0.8		0.49 J	0.89 J	0.9 J	0.82 J
CADMIUM	0.99	4.98	0.96	1	0.82	0.62 J	1.1	1.9
CALCIUM			110000		41700	34400	41500	36900
CHROMIUM, TOTAL	43.4	111	51	43.4	23.1	30.7 J+	35.5	71.4
COBALT			12	50	9	9.1	12.2	9.6
COPPER	31.6	149	42	31.6	28.2	39	47.9	54.4
IRON			44000	20000	19400	26200	30700	27000
LEAD	35.8	128	47	35.8	21.2	16.8 J+	27.9	48.3
MAGNESIUM			29000		14000	10800	12100	10200
MANGANESE			1000	460	521	472	518	480
MERCURY	0.18	1.06	0.12	0.18	0.09 U	0.098 U	0.11 U	0.24 J
NICKEL	22.7	48.6	36	22.7	28.3	29.5	41.8	47.1
POTASSIUM			12000		1360 J	4910	2720 J	4340
SELENIUM			1.4	0.72	2.1 U	2.8 U	2.9 U	2.5 U
SILVER			0.43	1	0.21 U	0.28 U	0.29 U	1.2
SODIUM					114	189	155	309
THALLIUM			4.7		1.3 U	1.7 U	1.7 U	1.5 U
VANADIUM			40		21.4	42.8 J	33.7	42.3
ZINC	121	459	190	121	86.4	112	170	217

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-13C (0-1)	LMR21-13C (1-4)	LMR21-13C (1-4) FD	LMR21-13C (4-7)
ALUMINUM			42000	25000	14600	10900	15000	19500
ANTIMONY			0.84	2	1.1 U	1.6 J	1.5 J	0.88 U
ARSENIC	9.79	33	11	9.8	11.6	20.4	29.6	19.7
BARIUM			210	20	96.4	99.6	128	119
BERYLLIUM			0.8		0.58 J	0.6 J	0.74 J	0.83 J
CADMIUM	0.99	4.98	0.96	1	2.3	3.1	3.2	0.61 J
CALCIUM			110000		35200	41900 J	40900	40500
CHROMIUM, TOTAL	43.4	111	51	43.4	34.9	43.3	48.5	30.6
COBALT			12	50	8.6	9.9	11.1	11.2
COPPER	31.6	149	42	31.6	40.6	50.1	64.7	37.6
IRON			44000	20000	23400	26600	31000	28300
LEAD	35.8	128	47	35.8	37.1	85.1	108	80.7
MAGNESIUM			29000		10900	11200 J	11500	12500
MANGANESE			1000	460	484	496	538	563
MERCURY	0.18	1.06	0.12	0.18	0.26 J	0.4	0.55	0.2 J
NICKEL	22.7	48.6	36	22.7	32.1	37.3	42.8	34.7
POTASSIUM			12000		3350	1730 J	2460	4160
SELENIUM			1.4	0.72	2.7 U	2.3 U	2.5 U	2.2 U
SILVER			0.43	1	0.28 J	0.55 J	1	0.22 U
SODIUM					172	131	169	179
THALLIUM			4.7		1.6 U	1.4 U	1.5 U	1.3 U
VANADIUM			40		33.8	24.6	32.3	42.8
ZINC	121	459	190	121	153	239	291	172

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-13C (7-9)	LMR21-14C (0-1)	LMR21-14C (1-4)	LMR21-14C (4-7)
ALUMINUM			42000	25000	23200	11400	7010	8390
ANTIMONY			0.84	2	1 U	1 J	0.98 J	1.4 J
ARSENIC	9.79	33	11	9.8	15	11.3	6.7	8.7
BARIUM			210	20	121	95.6	57.6	75.4
BERYLLIUM			0.8		0.89 J	0.57 J	0.4 U	0.5 J
CADMIUM	0.99	4.98	0.96	1	0.4 J	1.2	0.51 J	0.43 J
CALCIUM			110000		31800	43000	37200	45800
CHROMIUM, TOTAL	43.4	111	51	43.4	30.5	31.1	16.6	16.1
COBALT			12	50	10.4	9	8.3	12.7
COPPER	31.6	149	42	31.6	30.1	42.1	19.2	23.6
IRON			44000	20000	26200	23200	15800	19700
LEAD	35.8	128	47	35.8	40.6	26.5	14.8	12.2
MAGNESIUM			29000		11700	11800	12900	16200
MANGANESE			1000	460	524	482	493	696
MERCURY	0.18	1.06	0.12	0.18	0.16 J	0.17 J	0.079 U	0.092 U
NICKEL	22.7	48.6	36	22.7	30.3	30.9	22.1	30.2
POTASSIUM			12000		5170	1950 J	990 J	1120 J
SELENIUM			1.4	0.72	2.5 U	2.5 U	2 U	2 U
SILVER			0.43	1	0.25 U	0.25 U	0.2 U	0.2 U
SODIUM					178	146	112	99.1
THALLIUM			4.7		1.5 U	1.5 U	1.2 U	1.2 U
VANADIUM			40		48.3	25.2	18.3	21.7
ZINC	121	459	190	121	98.5	132	52.9	59.1

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-14C (7-10)	LMR21-14C (7-10) FD	LMR21-15C (0-1)	LMR21-15C (1-4)
ALUMINUM			42000	25000	6510	7060	13000	6830 J
ANTIMONY			0.84	2	1.1 J	1.3 J	1.5 U	1.5 U
ARSENIC	9.79	33	11	9.8	5.8	6.4	19.5	11.7
BARIUM			210	20	52.6	52.6	338	295
BERYLLIUM			0.8		0.41 U	0.4 U	0.77 U	0.75 U
CADMIUM	0.99	4.98	0.96	1	0.35 J	0.43 J	5.1	6.2
CALCIUM			110000		44600	51500	35400	14500
CHROMIUM, TOTAL	43.4	111	51	43.4	12.3	14.8	332	242
COBALT			12	50	8	8.7	10.7	4.6
COPPER	31.6	149	42	31.6	17.6	17.1	133	143
IRON			44000	20000	14400	15100	42400	24200
LEAD	35.8	128	47	35.8	8.1	8	132	155
MAGNESIUM			29000		14200	15600	10600	4530
MANGANESE			1000	460	348	371	562	240
MERCURY	0.18	1.06	0.12	0.18	0.094 U	0.081 U	0.6	0.71
NICKEL	22.7	48.6	36	22.7	20.7	21.7	146	98.5
POTASSIUM			12000		1010 J	1140 J	1910 J	1120 J
SELENIUM			1.4	0.72	2.1 U	2 U	3.9 U	3.7 U
SILVER			0.43	1	0.21 U	0.2 U	9.3	9.4
SODIUM					82.2	106	225	78600
THALLIUM			4.7		1.2 U	1.2 U	2.3 U	2.2 U
VANADIUM			40		16.4	18.1	29	16.1 J
ZINC	121	459	190	121	48.3	56	635	644

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-15C (1-4) FD	LMR21-15C (4-7)	LMR21-15C (4-7) FD	LMR21-15C (7-10)
ALUMINUM			42000	25000	27400 J	13900	16100	11500
ANTIMONY			0.84	2	1.6 U	1.5 U	1.5 U	0.97 U
ARSENIC	9.79	33	11	9.8	24.6	20.2	21.4	17.2
BARIUM			210	20	551	454	419	158
BERYLLIUM			0.8		1.2 J	0.86 J	0.92 J	0.67 J
CADMIUM	0.99	4.98	0.96	1	11.8	19.9	15.2	9.1
CALCIUM			110000		29600	26400	26400 J	60300
CHROMIUM, TOTAL	43.4	111	51	43.4	493	489	423	189
COBALT			12	50	11.5	10.7	10.1	10
COPPER	31.6	149	42	31.6	263	249	215	114
IRON			44000	20000	57800	47200	45600	26000
LEAD	35.8	128	47	35.8	286	225	208	101
MAGNESIUM			29000		10700	7510	8150 J	14200
MANGANESE			1000	460	548	439	441	483
MERCURY	0.18	1.06	0.12	0.18	0.79	2.1	1.8	0.94
NICKEL	22.7	48.6	36	22.7	209	241	199	63.6
POTASSIUM			12000		5630 J	1730	2030 J	1820 J
SELENIUM			1.4	0.72	3.9 U	3.7 U	3.7 U	2.4 U
SILVER			0.43	1	15.9	14.3	15.2	5.1
SODIUM					294	243	176	163
THALLIUM			4.7		2.3 U	2.2 U	2.2 U	1.4 U
VANADIUM			40		59.9 J	24.3	29.4	25.2
ZINC	121	459	190	121	1160	1160	933	448

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-16C (0-1)	LMR21-16C (1-4)	LMR21-16C (4-7)	LMR21-16C (4-7) FD
ALUMINUM			42000	25000	17600	14600	23500	19900
ANTIMONY			0.84	2	1.2 J	1 U	1 U	1 U
ARSENIC	9.79	33	11	9.8	18.2	28.7	16	16.6
BARIUM			210	20	121	114	131	117
BERYLLIUM			0.8		0.8 J	0.72 J	0.94 J	0.84 J
CADMIUM	0.99	4.98	0.96	1	0.62 J	0.72 J	0.54 J	0.51 J
CALCIUM			110000		40000	30500	32500	31000
CHROMIUM, TOTAL	43.4	111	51	43.4	28.4	23.5	33.1	29.5
COBALT			12	50	12.3	10.2	11.1	10.7
COPPER	31.6	149	42	31.6	40.4	43.3	36.2	35.7
IRON			44000	20000	29100	28800	28600	27100
LEAD	35.8	128	47	35.8	57.5	141	54.3	57.1
MAGNESIUM			29000		13100	9730	11500	10600
MANGANESE			1000	460	605	420	527	487
MERCURY	0.18	1.06	0.12	0.18		0.5	0.17 J	0.31
NICKEL	22.7	48.6	36	22.7	37.1	32.9	34.3	33.2
POTASSIUM			12000		3060	2150	5420	4060
SELENIUM			1.4	0.72	2.7 U	2.5 U	2.5 U	2.5 U
SILVER			0.43	1	0.27 U	0.27 J	0.25 U	0.25 U
SODIUM					247	151	189	158
THALLIUM			4.7		1.6 U	1.5 U	1.5 U	1.5 U
VANADIUM			40		38.4	30	50.4	42.2
ZINC	121	459	190	121	140	238	133	145

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**WWTP A1**	**WWTP A1**	**WWTP A1**	**WWTP A1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-16C (7-11)**	**LMR21-17C (0-1)**	**LMR21-17C (10-13)**	**LMR21-17C (1-4)**
ALUMINUM			42000	25000	7510	12600	8030	28000
ANTIMONY			0.84	2	1.3 J	1.1 U	1.1 J	1 U
ARSENIC	9.79	33	11	9.8	7.9	15.7	7.8	21.9
BARIUM			210	20	58.8	157	62.4	186
BERYLLIUM			0.8		0.42 U	0.62 J	0.5 J	1.2 J
CADMIUM	0.99	4.98	0.96	1	0.36 J	9.3	0.39 J	7.3
CALCIUM			110000		51400 J	41900	39500	36300
CHROMIUM, TOTAL	43.4	111	51	43.4	13.6	175	14.9	92.9
COBALT			12	50	8.7	9.9	8	12.3
COPPER	31.6	149	42	31.6	18.1	114	20.3	108
IRON			44000	20000	15500	28400	16900	49300
LEAD	35.8	128	47	35.8	12.6	114	19.4	145
MAGNESIUM			29000		14100 J	11100	12900	11400
MANGANESE			1000	460	345	517	363	609
MERCURY	0.18	1.06	0.12	0.18	0.078 U	0.68	0.087 J	0.37
NICKEL	22.7	48.6	36	22.7	21.4	60.3	22.7	48
POTASSIUM			12000		1310 J	2520	1160 J	6180
SELENIUM			1.4	0.72	2.1 U	2.8 U	1.9 U	2.6 U
SILVER			0.43	1	0.21 U	4.8	0.19 U	1.6
SODIUM					116	190	111	283
THALLIUM			4.7		1.3 U	1.7 U	1.2 U	1.5 U
VANADIUM			40		19.4	30.3	20	60.9
ZINC	121	459	190	121	60.7	407	66.8	390

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A1	WWTP A1	WWTP A3	WWTP A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-17C (4-7)	LMR21-17C (7-10)	LMR21-18C (0-1)	LMR21-18C (10-12)
ALUMINUM			42000	25000	13100	23000	10900	14100
ANTIMONY			0.84	2	1.6 J	0.99 U	1.1 U	1 U
ARSENIC	9.79	33	11	9.8	26.4	17.5	15	23.5
BARIUM			210	20	124	145	186	128
BERYLLIUM			0.8		0.73 J	0.98 J	0.62 J	0.79 J
CADMIUM	0.99	4.98	0.96	1	5.2	1	5.2	4.4
CALCIUM			110000		36900	33400	39600	40700
CHROMIUM, TOTAL	43.4	111	51	43.4	54.4	37.5	80.7	79
COBALT			12	50	10.5	12.8	9.3	11.1
COPPER	31.6	149	42	31.6	65.5	44.1	103	71.2
IRON			44000	20000	33500	32200	30300	33300
LEAD	35.8	128	47	35.8	121	64.5	102	146
MAGNESIUM			29000		9890	11200	11200	10600
MANGANESE			1000	460	541	609	452	534
MERCURY	0.18	1.06	0.12	0.18	0.57	0.85	0.31 J	0.56
NICKEL	22.7	48.6	36	22.7	39.4	40.9	43.2	43.5
POTASSIUM			12000		1920 J	4390	1600 J	2160 J
SELENIUM			1.4	0.72	2.6 U	2.5 U	2.6 U	2.6 U
SILVER			0.43	1	0.69 J	0.25 U	1.8	0.62 J
SODIUM					138	176	152	133
THALLIUM			4.7		1.6 U	1.5 U	1.6 U	1.6 U
VANADIUM			40		28.2	46.8	24.6	29.8
ZINC	121	459	190	121	302	167	328	319

Units are mg/kg

				Sampling Area >	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-18C (1-4)	LMR21-18C (4-7)	LMR21-18C (7-10)	LMR21-19C (0-1)
ALUMINUM			42000	25000	22800	12900	15300	9650
ANTIMONY			0.84	2	1.6 J	2.4 J	2.4 J	0.91 U
ARSENIC	9.79	33	11	9.8	21.3	19.4	29.6	9.7
BARIUM			210	20	179	138	142	79.7
BERYLLIUM			0.8		1 J	0.77 J	0.92 J	0.53 J
CADMIUM	0.99	4.98	0.96	1	8.1	5.2	5.8	1.2
CALCIUM			110000		38800	34700	34600	32400 J
CHROMIUM, TOTAL	43.4	111	51	43.4	88.9	52.4	65.8	29.5
COBALT			12	50	12.2	11	12.1	8.5
COPPER	31.6	149	42	31.6	121	93	92.8	36.2
IRON			44000	20000	47300	37500	57100	20000
LEAD	35.8	128	47	35.8	228	201	284	41.6
MAGNESIUM			29000		11200	9610	9550	11000 J
MANGANESE			1000	460	625	580	818	342 J
MERCURY	0.18	1.06	0.12	0.18	0.45	0.5	0.63	0.17 J
NICKEL	22.7	48.6	36	22.7	46.1	36.8	50.4	26.6
POTASSIUM			12000		4670	1890 J	2190 J	1430
SELENIUM			1.4	0.72	2.9 U	2.4 U	2.6 U	2.3 U
SILVER			0.43	1	1.7	1.1	1	0.26 J
SODIUM					211	145	148	142
THALLIUM			4.7		1.7 U	1.4 U	1.6 U	1.4 U
VANADIUM			40		52.1	30.2	35.7	21.3
ZINC	121	459	190	121	465	389	493	111

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-19C (1-4)	LMR21-19C (4-7)	LMR21-19C (7-9)	LMR21-20C (0-1)
ALUMINUM			42000	25000	6840	3220	3760	9070
ANTIMONY			0.84	2	1.1 J	1.3 J	2.1	1 U
ARSENIC	9.79	33	11	9.8	6.2	5.2	3	9.4
BARIUM			210	20	57.4	20.1	27.2	94
BERYLLIUM			0.8		0.43 U	0.35 U	0.32 U	0.52 J
CADMIUM	0.99	4.98	0.96	1	0.36 J	0.24 J	0.34 J	3.4
CALCIUM			110000		36600	48200	78000	51100
CHROMIUM, TOTAL	43.4	111	51	43.4	12.9	7.2	9.8	99
COBALT			12	50	8	4.7	6.4	8.7
COPPER	31.6	149	42	31.6	18	9.7	17.8	76.9
IRON			44000	20000	15600	7700	9150	19600
LEAD	35.8	128	47	35.8	11.4	4.6	7	57.2
MAGNESIUM			29000		12700	12600	13500	9810
MANGANESE			1000	460	357	193	357	312
MERCURY	0.18	1.06	0.12	0.18	0.089 U	0.069 U	0.074 U	0.37
NICKEL	22.7	48.6	36	22.7	21.4	11.2	15.8	53
POTASSIUM			12000		956 J	589	733 J	1350 J
SELENIUM			1.4	0.72	2.2 U	1.8 U	1.6 U	2.5 U
SILVER			0.43	1	0.22 U	0.18 U	0.16 U	1.1
SODIUM					126	98.5	119	137
THALLIUM			4.7		1.3 U	1.1 U	0.98 U	1.5 U
VANADIUM			40		16.5	10	14.1	19.4
ZINC	121	459	190	121	56.8	29.1	48.7	219

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP A3	WWTP A3	WWTP A3	WWTP B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-20C (1-4)	LMR21-20C (4-7)	LMR21-20C (7-10)	LMR21-21C (0-1)
ALUMINUM			42000	25000	18300	4210	2710	13000
ANTIMONY			0.84	2	0.84 U	1.4 J	2.2	0.96 U
ARSENIC	9.79	33	11	9.8	8.2	6.4	4.6	13.7
BARIUM			210	20	100	34.6	22.9	129
BERYLLIUM			0.8		0.69 J	0.36 U	0.34 U	0.56 J
CADMIUM	0.99	4.98	0.96	1	0.5 J	0.34 J	0.25 J	2.8
CALCIUM			110000		37500	44100	73200	33500
CHROMIUM, TOTAL	43.4	111	51	43.4	30.2	8.8	6.1	78.4
COBALT			12	50	9.8	6.5	4.5	7.4
COPPER	31.6	149	42	31.6	25.5	12.1	9.7	76.3
IRON			44000	20000	21400	10500	7270	32400
LEAD	35.8	128	47	35.8	26.2	6.1	4.6	70.6
MAGNESIUM			29000		14100	12300	10200	10500
MANGANESE			1000	460	427	224	237	527
MERCURY	0.18	1.06	0.12	0.18	0.095 U	0.084 U	0.075 U	0.34
NICKEL	22.7	48.6	36	22.7	27.9	15.4	10.7	47.2
POTASSIUM			12000		4730	771	504	2890
SELENIUM			1.4	0.72	2.1 U	1.8 U	1.7 U	2.4 U
SILVER			0.43	1	0.21 U	0.18 U	0.17 U	4.3
SODIUM					227	99.4	87	157
THALLIUM			4.7		1.3 U	1.1 U	1 U	1.4 U
VANADIUM			40		42.3	12.2	10.8	31.8
ZINC	121	459	190	121	78.9	38.4	36.7	256

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-21C (1-4)	LMR21-21C (1-4) FD	LMR21-21C (4-7)	LMR21-22C (0-1)
ALUMINUM			42000	25000	6080	5980	3190	21000
ANTIMONY			0.84	2	0.92 J	0.86 U	0.97 J	1.1 U
ARSENIC	9.79	33	11	9.8	4.5	4.6	4.8	13.4
BARIUM			210	20	34	32.9	26	108
BERYLLIUM			0.8		0.41 U	0.43 U	0.36 U	0.87 J
CADMIUM	0.99	4.98	0.96	1	0.96	0.92	0.45 J	0.42 J
CALCIUM			110000		37800	33900	36200	29700
CHROMIUM, TOTAL	43.4	111	51	43.4	25.6	25.1	11.3	28.5
COBALT			12	50	5.2	5	5.4	10
COPPER	31.6	149	42	31.6	18.1	16.6	11.2	29.8
IRON			44000	20000	10000	9520	8170	24100
LEAD	35.8	128	47	35.8	10	10.2	6.6	61.3
MAGNESIUM			29000		11400	10400	10100	10800
MANGANESE			1000	460	206	193	182	437
MERCURY	0.18	1.06	0.12	0.18	0.097 J	0.092 J	0.081 U	0.22 J
NICKEL	22.7	48.6	36	22.7	15.4	14.6	12.9	29.1
POTASSIUM			12000		1310	1400	550 J+	4470
SELENIUM			1.4	0.72	2 U	2.1 U	1.8 U	2.8 U
SILVER			0.43	1	0.38 J	0.33 J	0.18 U	0.28 U
SODIUM					108	100	66.3	186
THALLIUM			4.7		1.2 U	1.3 U	1.1 U	1.7 U
VANADIUM			40		16.7	17.1	8.9	44.4
ZINC	121	459	190	121	56.5	54.3	36.6	105

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-22C (1-4)	LMR21-22C (4-6.5)	LMR21-22C (4-6.5) FD	LMR21-23C (0-1)
ALUMINUM			42000	25000	10000	6530	9020	7450
ANTIMONY			0.84	2	0.97 J	1.1 J	0.9 U	0.95 U
ARSENIC	9.79	33	11	9.8	8.6 J	5.6	5.7	6.6
BARIUM			210	20	77.8 J	41	45	55.8
BERYLLIUM			0.8		0.58 J	0.41 U	0.45 U	0.48 U
CADMIUM	0.99	4.98	0.96	1	0.37 J+	0.29 J	0.26 J	0.3 J
CALCIUM			110000		37400	40200	39100	36100 J
CHROMIUM, TOTAL	43.4	111	51	43.4	17.5 J	10.7	14.6	18.2
COBALT			12	50	9.6	5.4	5.9	7.4
COPPER	31.6	149	42	31.6	22.7	9.5	12.1	17.2
IRON			44000	20000	21300	10600	12800	14400
LEAD	35.8	128	47	35.8	18.8 J	5	5.9	13.4
MAGNESIUM			29000		13300	10400	12500	11300 J
MANGANESE			1000	460	522	222	269	286 J
MERCURY	0.18	1.06	0.12	0.18	0.094 U	0.076 U	0.086 U	0.096 U
NICKEL	22.7	48.6	36	22.7	26.8	12.6	15.2	22
POTASSIUM			12000		1270 J	1470	2160	1180
SELENIUM			1.4	0.72	2.3 U	2 U	2.2 U	2.4 U
SILVER			0.43	1	0.23 U	0.2 U	0.22 U	0.24 U
SODIUM					158	221	213	136
THALLIUM			4.7		1.4 U	1.2 U	1.3 U	1.4 U
VANADIUM			40		22.1 J	18.1	23.6	16.4
ZINC	121	459	190	121	73.5	31.8	35.2	55.6

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP B1	WWTP B1	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-23C (1-4)	LMR21-23C (4-6)	LMR21-24C (0-1)	LMR21-24C (1-4)
ALUMINUM			42000	25000	5890	2150	40600	29800
ANTIMONY			0.84	2	1 J	1.3 J	1.2 U	1.1 U
ARSENIC	9.79	33	11	9.8	4.7	3.3	14.2	16.1
BARIUM			210	20	31.2	13	192	182
BERYLLIUM			0.8		0.44 U	0.4 U	1.3 J	1.1 J
CADMIUM	0.99	4.98	0.96	1	0.3 J	0.21 J	0.57 J	5
CALCIUM			110000		38400	48000 J	23200	33900
CHROMIUM, TOTAL	43.4	111	51	43.4	10.3	5.3	47	107
COBALT			12	50	5.7	4.1	10.4	10
COPPER	31.6	149	42	31.6	10.2	4.6	40.5	76.8
IRON			44000	20000	10000	6020	34300	31400
LEAD	35.8	128	47	35.8	4.8	2.6	20.3	65.4
MAGNESIUM			29000		13200	11500 J	10100	10400
MANGANESE			1000	460	210	201 J	448	460
MERCURY	0.18	1.06	0.12	0.18	0.081 U	0.082 U	0.13 U	0.38
NICKEL	22.7	48.6	36	22.7	13.1	8	38.4	51.6
POTASSIUM			12000		1280	364	9530	6480
SELENIUM			1.4	0.72	2.2 U	2 U	2.9 U	2.8 U
SILVER			0.43	1	0.22 U	0.2 U	0.29 U	1.7
SODIUM					110	78.8	404	271
THALLIUM			4.7		1.3 U	1.2 U	1.8 U	1.7 U
VANADIUM			40		17.1	7.1	79	56
ZINC	121	459	190	121	36.3	19.4	142	257

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-24C (4-8)	LMR21-25C (0-1)	LMR21-25C (1-4)	LMR21-25C (4-7)
ALUMINUM			42000	25000	31100	19200	27200	30700
ANTIMONY			0.84	2	0.94 U	1.4 U	1.2 U	1.1 U
ARSENIC	9.79	33	11	9.8	15	12.3	15.1	16.3
BARIUM			210	20	176	129	150	186
BERYLLIUM			0.8		1.1 J	0.88 J	1 J	1.2 J
CADMIUM	0.99	4.98	0.96	1	4.2	0.8 J	1.9	4.2
CALCIUM			110000		39300	27500	29400	31500
CHROMIUM, TOTAL	43.4	111	51	43.4	90.4	32.3	54.7	81.5
COBALT			12	50	9.9	10.8	9.8	11.3
COPPER	31.6	149	42	31.6	64.3	37.8	48	64.7
IRON			44000	20000	29500	28500	30100	33900
LEAD	35.8	128	47	35.8	56.9	24.1	34.5	56.6
MAGNESIUM			29000		11300	9440	10100	10700
MANGANESE			1000	460	452	415	440	480
MERCURY	0.18	1.06	0.12	0.18	0.26 J	0.13 U	0.13 J	0.24 J
NICKEL	22.7	48.6	36	22.7	47.6	38	43.8	53.7
POTASSIUM			12000		7630	2950	5410	5790
SELENIUM			1.4	0.72	2.3 U	3.4 U	3 U	2.6 U
SILVER			0.43	1	1.1	0.34 U	0.74 J	1.2
SODIUM					494	152	181	193
THALLIUM			4.7		1.4 U	2 U	1.8 U	1.6 U
VANADIUM			40		59.7	38.3	52.8	56.3
ZINC	121	459	190	121	213	158	202	238

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-26C (0-1)	LMR21-26C (1-4)	LMR21-26C (4-8)	LMR21-27C (0-1)
ALUMINUM			42000	25000	19800	19400	17200	20200
ANTIMONY			0.84	2	1.3 U	1.2 U	1.2 U	1.5 U
ARSENIC	9.79	33	11	9.8	13.2	13.8	15.1	12.8
BARIUM			210	20	145	144	141	137
BERYLLIUM			0.8		0.96 J	0.95 J	0.83 J	0.94 J
CADMIUM	0.99	4.98	0.96	1	0.7 J	0.97	2.7	0.78 J
CALCIUM			110000		31300 J	33300	32900 J	34200
CHROMIUM, TOTAL	43.4	111	51	43.4	30.7	33.3	52	32
COBALT			12	50	11.6	11.7	10.4	11.5
COPPER	31.6	149	42	31.6	39.7	43.4	52.1	41.2
IRON			44000	20000	31600	31600	29300	30600
LEAD	35.8	128	47	35.8	20.4	25.6	44.4	21.6
MAGNESIUM			29000		10400 J	10600	9600 J	10900
MANGANESE			1000	460	480 J	488	481 J	499
MERCURY	0.18	1.06	0.12	0.18	0.15 U	0.12 U	0.13 J	0.16 U
NICKEL	22.7	48.6	36	22.7	38.2	40.5	47.5	38.2
POTASSIUM			12000		3400	3020	2470	3420
SELENIUM			1.4	0.72	3.2 U	2.9 U	2.9 U	3.8 U
SILVER			0.43	1	0.32 U	0.33 J	0.78 J	0.38 U
SODIUM					172	153	133	197
THALLIUM			4.7		2 U	1.8 U	1.7 U	2.3 U
VANADIUM			40		38	36.3	32.1	38.4
ZINC	121	459	190	121	144	161	199	147

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-27C (1-3)	LMR21-28C (0-1)	LMR21-28C (1-4)	LMR21-29C (0-1)
ALUMINUM			42000	25000	13400	23200	12700	7600
ANTIMONY			0.84	2	1 U	1.7 U	1.3 J	1.4 J
ARSENIC	9.79	33	11	9.8	9.7	13.7	11.8	15
BARIUM			210	20	94	143	104	70.1
BERYLLIUM			0.8		0.66 J	1.1 J	0.63 J	0.57 U
CADMIUM	0.99	4.98	0.96	1	0.7 J	0.85 J	2.3	0.57 J
CALCIUM			110000		37600 J	37800	58700 J	54300
CHROMIUM, TOTAL	43.4	111	51	43.4	24	36.7	44.2	14.7
COBALT			12	50	8.3	11.8	8.5	7.4
COPPER	31.6	149	42	31.6	29.8	43	40.9	21.5
IRON			44000	20000	20700	31700	22800	19700
LEAD	35.8	128	47	35.8	30.1	23.1	33.9	64.8
MAGNESIUM			29000		9960 J	11200	11100 J	11600
MANGANESE			1000	460	395 J	526	446 J	340
MERCURY	0.18	1.06	0.12	0.18	0.1 U	0.14 U	0.11 J	0.16 J
NICKEL	22.7	48.6	36	22.7	26.3	41.6	34.6	20.9
POTASSIUM			12000		2400	4050	2010	1210
SELENIUM			1.4	0.72	2.5 U	4.1 U	2.4 U	2.9 U
SILVER			0.43	1	0.25 U	0.41 U	0.64 J	0.29 U
SODIUM					144	297	144	226
THALLIUM			4.7		1.5 U	2.5 U	1.5 U	1.7 U
VANADIUM			40		27.2	46	25.4	17.7
ZINC	121	459	190	121	99.9	155	150	169

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-29C (1-4)	LMR21-29C (1-4) FD	LMR21-29C (4-6.5)
ALUMINUM			42000	25000	4370	3730	3610
ANTIMONY			0.84	2	1 J	1.2 J	1.2 J
ARSENIC	9.79	33	11	9.8	4.4	4.9	4.5
BARIUM			210	20	37.5	32.4	35.9
BERYLLIUM			0.8		0.42 U	0.39 U	0.43 U
CADMIUM	0.99	4.98	0.96	1	0.32 J	0.32 J	0.29 J
CALCIUM			110000		42300	42900	43500
CHROMIUM, TOTAL	43.4	111	51	43.4	8.8	7.9	7.7
COBALT			12	50	5.3	5.4	6
COPPER	31.6	149	42	31.6	11.9	10.9	11.1
IRON			44000	20000	10900	10300	9840
LEAD	35.8	128	47	35.8	6.7	6	5.5
MAGNESIUM			29000		12100	12500	11500
MANGANESE			1000	460	279	268	266
MERCURY	0.18	1.06	0.12	0.18	0.084 U	0.08 U	0.081 U
NICKEL	22.7	48.6	36	22.7	13.9	12.9	13.8
POTASSIUM			12000		769	627 J+	481 J+
SELENIUM			1.4	0.72	2.1 U	2 U	2.2 U
SILVER			0.43	1	0.21 U	0.2 U	0.22 U
SODIUM					88.2	77	72.8
THALLIUM			4.7		1.3 U	1.2 U	1.3 U
VANADIUM			40		12.1	11	10.3
ZINC	121	459	190	121	39.1	39.3	35.2

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-29C (4-6.5) FD**	**LMR21-30C (0-1)**	**LMR21-30C (1-3)**	**LMR21-31C (0-1)**
ALUMINUM			42000	25000	3730	2380	1950	4090
ANTIMONY			0.84	2	1.2 J	0.75 U	1.4 J	0.83 U
ARSENIC	9.79	33	11	9.8	4.7	3.4	3.6	4.9
BARIUM			210	20	34.2	17.4	7.2	30.5
BERYLLIUM			0.8		0.43 U	0.37 U	0.36 U	0.42 U
CADMIUM	0.99	4.98	0.96	1	0.32 J	0.19 J	0.18 U	0.22 J
CALCIUM			110000		47800	30300	54300	27300
CHROMIUM, TOTAL	43.4	111	51	43.4	7.8	5.7	7.1	8.6
COBALT			12	50	5.6	3.9	3.8	5.3
COPPER	31.6	149	42	31.6	11.7	5.9	3.6	9.7
IRON			44000	20000	10300	6540	6530	10600
LEAD	35.8	128	47	35.8	5.4	3.6	2.8	9.8
MAGNESIUM			29000		12400	8880	11100	9240
MANGANESE			1000	460	288	162	170	240
MERCURY	0.18	1.06	0.12	0.18	0.087 U	0.076 U	0.071 U	0.074 U
NICKEL	22.7	48.6	36	22.7	13.3	8.7	8.6	12.8
POTASSIUM			12000		583	407	264	602
SELENIUM			1.4	0.72	2.1 U	1.9 U	1.8 U	2.1 U
SILVER			0.43	1	0.21 U	0.19 U	0.18 U	0.21 U
SODIUM					79.7	66.1	92.5	90.9
THALLIUM			4.7		1.3 U	1.1 U	1.1 U	1.2 U
VANADIUM			40		10.3	7.5	5.9	10.1
ZINC	121	459	190	121	38.4	24.8	18.4	35.8

Units are mg/kg

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-31C (1-4)**	**LMR21-32C (0-1)**	**LMR21-32C (1-5)**	**LMR21-33C (0-1)**
ALUMINUM			42000	25000	2140	16100	3120	2300
ANTIMONY			0.84	2	0.84 J	1.6 U	1.4 J	0.78 J
ARSENIC	9.79	33	11	9.8	2.6	12.6	4.3	3.2
BARIUM			210	20	14.9	118	22.4	14.6
BERYLLIUM			0.8		0.41 U	0.8 J	0.37 U	0.38 U
CADMIUM	0.99	4.98	0.96	1	0.21 U	0.77 J	0.33 J	0.19 U
CALCIUM			110000		27800	27300	46400	26000
CHROMIUM, TOTAL	43.4	111	51	43.4	5.4	28.1	8.1	6
COBALT			12	50	3.5	10.2	4.4	4
COPPER	31.6	149	42	31.6	4.7	37.4	22.7	5.9
IRON			44000	20000	5540	28800	8380	6300
LEAD	35.8	128	47	35.8	3.9	23.7	8.7	4
MAGNESIUM			29000		8420	9480	15900	8840
MANGANESE			1000	460	145	491	203	144
MERCURY	0.18	1.06	0.12	0.18	0.082 U	0.14 U	0.077 U	0.068 U
NICKEL	22.7	48.6	36	22.7	7.6	33.9	11.2	8.7
POTASSIUM			12000		412	2810	504 J+	364
SELENIUM			1.4	0.72	2.1 U	3.9 U	1.8 U	1.9 U
SILVER			0.43	1	0.21 U	0.39 U	0.18 U	0.19 U
SODIUM					54 J	173	76.4	54.4 J
THALLIUM			4.7		1.2 U	2.3 U	1.1 U	1.1 U
VANADIUM			40		5.9	31.7	8	6.8
ZINC	121	459	190	121	18.6	131	33.8	21.5

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-33C (1-5)	LMR21-34C (0-1)	LMR21-34C (1-4)	LMR21-34C (4-7)
ALUMINUM			42000	25000	2090	14300	16400	16300
ANTIMONY			0.84	2	0.91 J	1.2 U	1.6 J	2.6 J
ARSENIC	9.79	33	11	9.8	3.5	18	40.8	38.4
BARIUM			210	20	13.8	121	145	135
BERYLLIUM			0.8		0.39 U	0.78 J	1.1 J	0.93 J
CADMIUM	0.99	4.98	0.96	1	0.22 J	2	4.2	1.2
CALCIUM			110000		35800	30100	30500	32900
CHROMIUM, TOTAL	43.4	111	51	43.4	5	34.6	69.8	33.6
COBALT			12	50	32.8	11.8	11.8	11.2
COPPER	31.6	149	42	31.6	5.1	54.6	70.4	51.6
IRON			44000	20000	6020	38600	85900	56400
LEAD	35.8	128	47	35.8	3.5	64	158	171
MAGNESIUM			29000		9770	9240	9160	9880
MANGANESE			1000	460	183	580	1200	716
MERCURY	0.18	1.06	0.12	0.18	0.074 U	0.2 J	0.55	0.53
NICKEL	22.7	48.6	36	22.7	119	43.8	45	39.6
POTASSIUM			12000		370 J+	2160 J+	2320	2330
SELENIUM			1.4	0.72	1.9 U	2.9 U	3 U	2.7 U
SILVER			0.43	1	0.19 U	0.42 J	0.82 J	0.48 J
SODIUM					53 J	137	136	135
THALLIUM			4.7		1.2 U	1.7 U	1.8 U	1.6 U
VANADIUM			40		6.1	30.3	44.2	38.1
ZINC	121	459	190	121	28.8	253	668	573

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-37C (0-1)	LMR21-37C (1-3)	LMR21-38C (0-1)	LMR21-38C (1-2.5)
ALUMINUM			42000	25000	14700	4360	4480	6150
ANTIMONY			0.84	2	1.6 U	2.5	2 J	2.4
ARSENIC	9.79	33	11	9.8	12.2	6.8	10.9	8.8
BARIUM			210	20	118	29.1	37.6	40.1
BERYLLIUM			0.8		0.79 U	0.4 U	0.44 U	0.36 U
CADMIUM	0.99	4.98	0.96	1	0.71 J	0.39 J	1.1	0.25 J
CALCIUM			110000		36100	91300	61400	77400
CHROMIUM, TOTAL	43.4	111	51	43.4	25.4	10.8	13.1	18.4
COBALT			12	50	9.6	4.3	5.9	7.3
COPPER	31.6	149	42	31.6	32.8	26.4	16.2	15.8
IRON			44000	20000	29000	11500	16400	17100
LEAD	35.8	128	47	35.8	21.9	12.8	101	16.3
MAGNESIUM			29000		14100	10700	12600	15000
MANGANESE			1000	460	518	368	365	392
MERCURY	0.18	1.06	0.12	0.18	0.17 U	0.093 U	0.093 U	0.074 U
NICKEL	22.7	48.6	36	22.7	31.8	12.9	17	24.7
POTASSIUM			12000		2740	831 J+	775 J+	1390 J+
SELENIUM			1.4	0.72	3.9 U	2 U	2.2 U	1.8 U
SILVER			0.43	1	0.39 U	0.2 U	0.22 U	0.18 U
SODIUM					294	302	119	143
THALLIUM			4.7		2.4 U	1.2 U	1.3 U	1.1 U
VANADIUM			40		29.4	9.9	11.6	15.1
ZINC	121	459	190	121	127	47.3	108	50.4

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**Sway Bridge B2**	**Sway Bridge B2**	**Sway Bridge A2**	**Sway Bridge A2**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-39C (0-1)**	**LMR21-39C (1-3)**	**LMR21-40C (0-1)**	**LMR21-41C (0-1)**
ALUMINUM			42000	25000	8130	10200	10500	7980
ANTIMONY			0.84	2	1.9 J	2.1 J	4.4 J	3.9 U
ARSENIC	9.79	33	11	9.8	9.2	9.1	7.6 J	7.6 J
BARIUM			210	20	61.5	92	90.4	64.2
BERYLLIUM			0.8		0.41 U	0.51 J	1.8 U	2 U
CADMIUM	0.99	4.98	0.96	1	0.21 J	0.3 J	0.9 U	0.98 U
CALCIUM			110000		67700	69000	72600	74900
CHROMIUM, TOTAL	43.4	111	51	43.4	16.1	19.7	19.2	15
COBALT			12	50	9.3	10.5	10.3	8.7
COPPER	31.6	149	42	31.6	20.7	24	20.6	16.2
IRON			44000	20000	18300	22000	20600	18600
LEAD	35.8	128	47	35.8	8.6	8.8	8.7 J	7.7 J
MAGNESIUM			29000		13600	15300	15500	16400
MANGANESE			1000	460	389	410	378	385
MERCURY	0.18	1.06	0.12	0.18	0.081 U	0.07 U	0.071 U	0.072 UJ
NICKEL	22.7	48.6	36	22.7	27.7	33.1	30.4	24.2
POTASSIUM			12000		1770 J+	2420	2470	1970 J
SELENIUM			1.4	0.72	2.1 U	2 U	9 U	9.8 U
SILVER			0.43	1	0.21 U	0.2 U	0.9 U	0.98 U
SODIUM					164	207	220 J	195 J
THALLIUM			4.7		1.2 U	1.2 U	5.4 U	5.9 U
VANADIUM			40		19	23.1	24.8 J	19.4
ZINC	121	459	190	121	52.7	61.2	54.7	77.8 J+

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-41C (1-3)	LMR21-41C (1-3) FD	LMR21-42C (0-1)	LMR21-43C (0-1)
ALUMINUM			42000	25000	10600	10300	11200	11300
ANTIMONY			0.84	2	4 J	6.4 J	4 U	3.7 U
ARSENIC	9.79	33	11	9.8	7.7 J	9.6 J	8.2 J	8.5 J
BARIUM			210	20	92.6	105	75	92.5
BERYLLIUM			0.8		1.8 U	3 J	2 U	1.9 U
CADMIUM	0.99	4.98	0.96	1	0.92 U	3.3	0.99 U	0.92 U
CALCIUM			110000		76900	74800	71600	81200
CHROMIUM, TOTAL	43.4	111	51	43.4	19.9	22.8	26.1	21
COBALT			12	50	11.2	24.2	10.9	11.4
COPPER	31.6	149	42	31.6	24.3	38.4	23.7	26.6
IRON			44000	20000	22500	22300	22200	22900
LEAD	35.8	128	47	35.8	10.2 J	12	10.9 J	9.8 J
MAGNESIUM			29000		18900	18100	17400	19300
MANGANESE			1000	460	415	412	452	430
MERCURY	0.18	1.06	0.12	0.18	0.072 UJ	0.068 UJ	0.081 UJ	0.076 UJ
NICKEL	22.7	48.6	36	22.7	33.5	46.4	34.7	34.3
POTASSIUM			12000		2650	2780	2870	3020
SELENIUM			1.4	0.72	9.2 U	14.8 J	9.9 U	9.2 U
SILVER			0.43	1	0.92 U	2.4 J	0.99 U	0.92 U
SODIUM					255 J	528	197 J	251 J
THALLIUM			4.7		5.5 U	4.9 U	6 U	5.6 U
VANADIUM			40		24.8 J	27.3 J	26.8 J	27.5 J
ZINC	121	459	190	121	58.7	64	60.9	60.3

Units are mg/kg

				Sampling Area >	Sway Bridge A2	Sway Bridge A2	Sway Bridge A1	Sway Bridge A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-43C (1-3)	LMR21-44C (0-1)	LMR21-45C (0-1)	LMR21-45C (1-2)
ALUMINUM			42000	25000	10700	7270	8820	8710
ANTIMONY			0.84	2	3.6 U	1.9 J	4.1 J	4.3 J
ARSENIC	9.79	33	11	9.8	10 J	8.9	9.6 J	8.3 J
BARIUM			210	20	102	55.7	74.5	81.5
BERYLLIUM			0.8		1.8 U	0.39 J	1.8 U	1.7 U
CADMIUM	0.99	4.98	0.96	1	0.89 U	0.18 J	0.9 U	0.84 U
CALCIUM			110000		75400	66100	79700	79100
CHROMIUM, TOTAL	43.4	111	51	43.4	19.6	15.9	18.2	18.4
COBALT			12	50	11	8.4	11.1	10.5
COPPER	31.6	149	42	31.6	24.7	18.4	28.6	24
IRON			44000	20000	22700	16000	22800	21300
LEAD	35.8	128	47	35.8	10.3 J	7.3	11.9	9.4 J
MAGNESIUM			29000		16800	15400	17100	17100
MANGANESE			1000	460	424	312	479	419
MERCURY	0.18	1.06	0.12	0.18	0.074 UJ	0.075 UJ	0.075 UJ	0.073 UJ
NICKEL	22.7	48.6	36	22.7	32	26.7	31.8	30.8
POTASSIUM			12000		2760	1750 J+	2060	2120
SELENIUM			1.4	0.72	8.9 U	1.8 U	9 U	8.4 U
SILVER			0.43	1	0.89 U	0.18 U	0.9 U	0.84 U
SODIUM					267 J	209	172 J	183 J
THALLIUM			4.7		5.4 U	1.1 U	5.4 U	5.1 U
VANADIUM			40		24.2 J	18.4	20.5 J	20.2 J
ZINC	121	459	190	121	55.6	46.1	79.3	59.4

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**	**Sway Bridge A1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-46C (0-1)**	**LMR21-46C (1-4)**	**LMR21-46C (1-4) FD**	**LMR21-46C (4-7)**
ALUMINUM			42000	25000	13700	13200	13400	11400
ANTIMONY			0.84	2	1.3 J	1.2 J	1.5 J	1.2 J
ARSENIC	9.79	33	11	9.8	19.9	26.6	23.8	28.1
BARIUM			210	20	131	136	131	111
BERYLLIUM			0.8		0.86 J	0.86 J	0.88 J	0.72 J
CADMIUM	0.99	4.98	0.96	1	2.7	5.3	3.6	2.4
CALCIUM			110000		37400	28900	27500	35500
CHROMIUM, TOTAL	43.4	111	51	43.4	46.9	47.7	43.1	46.4
COBALT			12	50	10	10.9	10.6	9
COPPER	31.6	149	42	31.6	73.3	47.3	49.1	47.3
IRON			44000	20000	45800	61800	61500	50800
LEAD	35.8	128	47	35.8	79.4	340	143	117
MAGNESIUM			29000		10400	8400	8410	9240
MANGANESE			1000	460	719	958	898	872
MERCURY	0.18	1.06	0.12	0.18	0.25 J-	0.33 J-	0.28 J-	0.66 J-
NICKEL	22.7	48.6	36	22.7	37.9	38.5	37.5	32.1
POTASSIUM			12000		2090 J	1840 J	1890 J	1690 J
SELENIUM			1.4	0.72	3 U	2.6 U	2.8 U	2.8 U
SILVER			0.43	1	0.3 U	0.39 J	0.46 J	0.28 U
SODIUM					145	117	121	133
THALLIUM			4.7		1.8 U	1.6 U	1.7 U	1.7 U
VANADIUM			40		33.2	34.2	33.8	28.3
ZINC	121	459	190	121	254 J	690 J	505 J	337 J

Units are mg/kg

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-46C (7-8.5)	LMR21-47C (0-1)	LMR21-47C (1-4)	LMR21-47C (4-8)
ALUMINUM			42000	25000	6400	31800	9690	6590
ANTIMONY			0.84	2	1.8 J	1.3 U	2.4	1.7 J
ARSENIC	9.79	33	11	9.8	8.8	14.7	10.9	9.1
BARIUM			210	20	51.7	277	83.5	49.5
BERYLLIUM			0.8		0.37 U	1.6 J	0.77 J	0.39 U
CADMIUM	0.99	4.98	0.96	1	0.32 J	3.2	0.31 J	0.21 J
CALCIUM			110000		58600	39700	46000	66600
CHROMIUM, TOTAL	43.4	111	51	43.4	14.5	47.4	15.4	12.4
COBALT			12	50	7.8	12	7.6	8
COPPER	31.6	149	42	31.6	18.5	58	21.8	18.1
IRON			44000	20000	16600	35200	24300	15700
LEAD	35.8	128	47	35.8	12.7	104	35.9	8.5
MAGNESIUM			29000		13400	11800	10600	12400
MANGANESE			1000	460	349	1010	501	360
MERCURY	0.18	1.06	0.12	0.18	0.075 UJ	0.26 J-	0.085 UJ	0.079 UJ
NICKEL	22.7	48.6	36	22.7	23.6	57.5	22.3	22.9
POTASSIUM			12000		1290 J	2940 J	1370 J	1620 J
SELENIUM			1.4	0.72	1.8 U	3.2 U	1.9 U	2 U
SILVER			0.43	1	0.18 U	0.32 U	0.19 U	0.2 U
SODIUM					123	309	128	134
THALLIUM			4.7		1.1 U	1.9 U	1.1 U	1.2 U
VANADIUM			40		15.4	52.4	19.7	15
ZINC	121	459	190	121	65.8 J	212 J	104 J	48 J

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-49C (0-1)**	**LMR21-49C (1-4)**	**LMR21-49C (4-7.5)**	**LMR21-50C (0-1)**
ALUMINUM			42000	25000	22500	15300	13000	21500
ANTIMONY			0.84	2	1.3 J	5.5 J	1 J	1.6 U
ARSENIC	9.79	33	11	9.8	12	33.7	24	15.1
BARIUM			210	20	153	146	116	163
BERYLLIUM			0.8		1.1 J	2.7 U	0.84 J	1.1 J
CADMIUM	0.99	4.98	0.96	1	1.1	3.1 J	0.53 J	0.92 J
CALCIUM			110000		32100	34500	38100	31200
CHROMIUM, TOTAL	43.4	111	51	43.4	38.9	45.4	23.7	35.5
COBALT			12	50	11.3	14.8	9	12.4
COPPER	31.6	149	42	31.6	40.9	57.7	27.3	46.8
IRON			44000	20000	42800	90000	69200	37900
LEAD	35.8	128	47	35.8	32.5	205	76.7	27
MAGNESIUM			29000		9650	9080	9680	11000
MANGANESE			1000	460	733	1380	841	569
MERCURY	0.18	1.06	0.12	0.18	0.12 UJ	0.57 J-	0.079 UJ	0.15 UJ
NICKEL	22.7	48.6	36	22.7	37	40.7	23.7	42.6
POTASSIUM			12000		3860	2070	2520	3420 J
SELENIUM			1.4	0.72	2.7 U	13.7 U	1.9 U	3.9 U
SILVER			0.43	1	0.27 U	1.4 U	0.29 J	0.39 U
SODIUM					184	203 J	162	203
THALLIUM			4.7		1.6 U	8.2 U	1.1 U	2.4 U
VANADIUM			40		44.3 J	41.1 J	33.6	38.6
ZINC	121	459	190	121	192	727	297	170 J

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-50C (1-4)	LMR21-50C (4-7.5)	LMR21-51C (0-1)	LMR21-51C (1-4)
ALUMINUM			42000	25000	17300	15900	15100	18300
ANTIMONY			0.84	2	1.2 U	1.1 U	1.5 U	1.5 J
ARSENIC	9.79	33	11	9.8	16.5	29.9	7.3	10.4
BARIUM			210	20	154	154	112	133
BERYLLIUM			0.8		0.95 J	1 J	0.81 J	0.93 J
CADMIUM	0.99	4.98	0.96	1	4.1	4.1	0.7 J	1.3
CALCIUM			110000		33200	36300	23700	34900
CHROMIUM, TOTAL	43.4	111	51	43.4	54.8	81.2	22.9	31.7
COBALT			12	50	11.3	11.2	9	11.3
COPPER	31.6	149	42	31.6	60.1	74.1	30.8	39.2
IRON			44000	20000	33700	67500	25500	30900
LEAD	35.8	128	47	35.8	71.8	98.5	18.3	27.1
MAGNESIUM			29000		9810	9550	7550	10400
MANGANESE			1000	460	605	1300	395	595
MERCURY	0.18	1.06	0.12	0.18	0.27 J-	0.42 J-	0.14 UJ	0.12 UJ
NICKEL	22.7	48.6	36	22.7	49.1	49.1	28.1	35.9
POTASSIUM			12000		2340 J	2340 J	2320 J	2720 J
SELENIUM			1.4	0.72	3 U	2.8 U	3.7 U	3.1 U
SILVER			0.43	1	0.77 J	1.2	0.37 U	0.31 U
SODIUM					159	214	121	169
THALLIUM			4.7		1.8 U	1.7 U	2.3 U	1.9 U
VANADIUM			40		31	36	27.9	33.7
ZINC	121	459	190	121	218 J	378 J	112 J+	147 J+

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-51C (4-7.5)**	**LMR21-52C (0-1)**	**LMR21-52C (1-4)**	**LMR21-52C (1-4) FD**
ALUMINUM			42000	25000	11900	23500	17800	19400
ANTIMONY			0.84	2	1 U	1.7 J	1.1 U	1.5 J
ARSENIC	9.79	33	11	9.8	13.2	11.6	11.9	15.9
BARIUM			210	20	109	156	123	163
BERYLLIUM			0.8		0.75 J	1.1 J	0.9 J	1.1 J
CADMIUM	0.99	4.98	0.96	1	2.5	0.99 J	2.1	2.8
CALCIUM			110000		23300	42000	30700	39700
CHROMIUM, TOTAL	43.4	111	51	43.4	39.2	35.4	39.1	49.6
COBALT			12	50	7.5	12.7	9.7	11.8
COPPER	31.6	149	42	31.6	37.8	43.5	41.9	51.5
IRON			44000	20000	35200	35800	31200	43200
LEAD	35.8	128	47	35.8	49.2	22.9	51.6	72
MAGNESIUM			29000		6940	10900	9500	11700
MANGANESE			1000	460	711	558	658	1130
MERCURY	0.18	1.06	0.12	0.18	0.19 J-	0.14 UJ	0.13 J-	0.15 J-
NICKEL	22.7	48.6	36	22.7	30.5	40.1	35.5	45.2
POTASSIUM			12000		1680 J	3840 J	2830 J	2710 J
SELENIUM			1.4	0.72	2.6 U	3.7 U	2.8 U	3.4 U
SILVER			0.43	1	0.58 J	0.37 U	0.41 J	0.55 J
SODIUM					136	245	160	219
THALLIUM			4.7		1.6 U	2.3 U	1.7 U	2.1 U
VANADIUM			40		24.7	43.5	34.7	37.8
ZINC	121	459	190	121	174 J+	157 J+	157 J+	207 J+

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-52C (4-7)	LMR21-52C (7-10)	LMR21-53C (0-1)	LMR21-53C (1-4)
ALUMINUM			42000	25000	23400	11000	18000	22300
ANTIMONY			0.84	2	1.3 J	4.4 U	1.6 U	1.1 U
ARSENIC	9.79	33	11	9.8	16	21.4	11.2	14.8
BARIUM			210	20	166	107	133	156
BERYLLIUM			0.8		1.2 J	2.2 U	0.96 J	1.1 J
CADMIUM	0.99	4.98	0.96	1	3.9	2.4 J	1 J	2.1
CALCIUM			110000		34500	26200	35600	34800
CHROMIUM, TOTAL	43.4	111	51	43.4	62.7	43.1	29	45
COBALT			12	50	12.3	8	11.1	13.3
COPPER	31.6	149	42	31.6	57.2	41.7	40	51.4
IRON			44000	20000	50100	88600	32300	35600
LEAD	35.8	128	47	35.8	76.8	60.7	24.4	44.6
MAGNESIUM			29000		11900	7000	9980	10500
MANGANESE			1000	460	1220	1860	469	754
MERCURY	0.18	1.06	0.12	0.18	0.19 J-	0.27 J-	0.15 UJ	0.19 J-
NICKEL	22.7	48.6	36	22.7	49.3	26.8	35.4	45.6
POTASSIUM			12000		3440 J	1580	2620	3200 J
SELENIUM			1.4	0.72	2.5 U	10.9 U	4.1 U	2.7 U
SILVER			0.43	1	0.86	1.1 U	0.41 U	0.57 J
SODIUM					259	170 J	174	250
THALLIUM			4.7		1.5 U	6.5 U	2.5 U	1.6 U
VANADIUM			40		45	31.1	33	41.3
ZINC	121	459	190	121	248 J+	333 J+	150	229 J+

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-53C (4-6)**	**LMR21-54C (0-1)**	**LMR21-54C (1-4)**	**LMR21-54C (1-4) FD**
ALUMINUM			42000	25000	8400	23500	20600	21100
ANTIMONY			0.84	2	9.2 J	1.5 U	1.2 U	1.3 U
ARSENIC	9.79	33	11	9.8	13.3	14.3	16.5	16.5
BARIUM			210	20	106	167	154	162
BERYLLIUM			0.8		5.3 J	1.1 J	1 J	1 J
CADMIUM	0.99	4.98	0.96	1	5.9	0.75 J	2.1	2.1
CALCIUM			110000		105000	28500	30200	31600
CHROMIUM, TOTAL	43.4	111	51	43.4	23	33.7	42.6	42.9
COBALT			12	50	33.3	12.2	11.8	12.2
COPPER	31.6	149	42	31.6	46.4	42.5	49.6	54.4
IRON			44000	20000	21300	36300	34400	36000
LEAD	35.8	128	47	35.8	22.4	21.9	40.4	42.1
MAGNESIUM			29000		15800	10900	10200	10600
MANGANESE			1000	460	748	549	544	557
MERCURY	0.18	1.06	0.12	0.18	0.068 UJ	0.15 UJ	0.14 J-	0.14 J-
NICKEL	22.7	48.6	36	22.7	50.3	40.6	46.7	47.9
POTASSIUM			12000		2570	3870 J	2910 J	2920 J
SELENIUM			1.4	0.72	23.3 J	3.7 U	2.9 U	3.2 U
SILVER			0.43	1	5.2	0.37 U	0.39 J	0.51 J
SODIUM					728	217	183	183
THALLIUM			4.7		5.5 U	2.2 U	1.8 U	1.9 U
VANADIUM			40		25.4	42.1	37	37.7
ZINC	121	459	190	121	96.1	156 J	181 J	186 J

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-54C (4-6)**	**LMR21-55C (0-1)**	**LMR21-55C (1-4)**	**LMR21-55C (4-7.5)**
ALUMINUM			42000	25000	6120	20400	21200	8690
ANTIMONY			0.84	2	1.6 J	1.3 U	1.2 J	4.8 U
ARSENIC	9.79	33	11	9.8	6.8	10.7	16.1	21.1
BARIUM			210	20	54.5	132	154	109
BERYLLIUM			0.8		0.41 U	0.97 J	1.1 J	2.4 U
CADMIUM	0.99	4.98	0.96	1	0.36 J	0.91 J	3	1.8 J
CALCIUM			110000		47900	27900	37500	41500
CHROMIUM, TOTAL	43.4	111	51	43.4	11.9	35	46.7	35.4
COBALT			12	50	6.8	10.6	11.9	8.7
COPPER	31.6	149	42	31.6	15.7	41.5	53.6	36.2
IRON			44000	20000	14200	32600	42200	109000
LEAD	35.8	128	47	35.8	8	21.9	49.4	69.3
MAGNESIUM			29000		9980	9630	10600	9480
MANGANESE			1000	460	280	511	857	2230
MERCURY	0.18	1.06	0.12	0.18	0.076 UJ	0.14 UJ	0.14 J-	0.092 UJ
NICKEL	22.7	48.6	36	22.7	19.9	36.8	44.5	23.6
POTASSIUM			12000		1360	3110	3130 J	1410 J
SELENIUM			1.4	0.72	2.1 U	3.2 U	2.5 U	12 U
SILVER			0.43	1	0.21 U	0.32 U	0.6 J	1.2 U
SODIUM					126	189	257	199 J
THALLIUM			4.7		1.2 U	1.9 U	1.5 U	7.2 U
VANADIUM			40		14.2	36.5	40.9	32.2
ZINC	121	459	190	121	41.8	162	204	419 J+

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-56C (0-1)	LMR21-56C (1-4)	LMR21-56C (1-4) FD	LMR21-56C (4-7)
ALUMINUM			42000	25000	22900	15800	15100	7530
ANTIMONY			0.84	2	1.3 U	1.2 U	1.1 U	2 J
ARSENIC	9.79	33	11	9.8	14.8	19.5	20	9.4
BARIUM			210	20	157	137	132	52.4
BERYLLIUM			0.8		1 J	0.85 J	0.88 J	0.37 J
CADMIUM	0.99	4.98	0.96	1	1	2.9	2.1	0.24 J
CALCIUM			110000		39000	41800	29600	75000
CHROMIUM, TOTAL	43.4	111	51	43.4	37.4	48.6	42.1	14.9
COBALT			12	50	12.4	11.4	10.4	8.4
COPPER	31.6	149	42	31.6	45.6	57.9	43.3	20.8
IRON			44000	20000	34500	37600	49700	20100
LEAD	35.8	128	47	35.8	34.8	62.9	54.6	9.6
MAGNESIUM			29000		11000	10900	8970	15200
MANGANESE			1000	460	500	841	923	431
MERCURY	0.18	1.06	0.12	0.18	0.14 U	0.28 J	0.17 J	0.075 U
NICKEL	22.7	48.6	36	22.7	43.7	51.1	43.1	24.9
POTASSIUM			12000		4220	2500	2030 J+	1760
SELENIUM			1.4	0.72	3.2 U	3 U	2.9 U	1.8 U
SILVER			0.43	1	0.32 U	0.51 J	0.45 J	0.18 U
SODIUM					403	198	190	179
THALLIUM			4.7		1.9 U	1.8 U	1.7 U	1.1 U
VANADIUM			40		44.2	35.2	33.7	18.1
ZINC	121	459	190	121	174	217	245	63.4

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-56C (4-7) FD**	**LMR21-57C (0-1)**	**LMR21-57C (1-4)**	**LMR21-57C (4-6)**
ALUMINUM			42000	25000	6900	14300	12900	8430
ANTIMONY			0.84	2	2.2 J	1.3 U	1.7 J	2 J
ARSENIC	9.79	33	11	9.8	10.2	12.5	16.9	9.3
BARIUM			210	20	47.9	130	114	73.4
BERYLLIUM			0.8		0.38 U	0.73 J	0.75 J	0.43 J
CADMIUM	0.99	4.98	0.96	1	0.23 J	0.77 J	1.1	0.27 J
CALCIUM			110000		74800	35900	61100	66500
CHROMIUM, TOTAL	43.4	111	51	43.4	13.1	24	34.1	17
COBALT			12	50	8.3	9.6	12	9.7
COPPER	31.6	149	42	31.6	25.7	171	39.8	22.7
IRON			44000	20000	18200	26000	41700	21000
LEAD	35.8	128	47	35.8	7.7	21.8	40.4	10.1
MAGNESIUM			29000		14400	8860	14500	14800
MANGANESE			1000	460	388	453	818	404
MERCURY	0.18	1.06	0.12	0.18	0.069 U	0.14 U	0.11 U	0.079 U
NICKEL	22.7	48.6	36	22.7	24.5	30.9	40.2	30.4
POTASSIUM			12000		1650	2530	2180 J+	1850
SELENIUM			1.4	0.72	1.9 U	3.4 U	2.8 U	1.9 U
SILVER			0.43	1	0.19 U	0.34 U	0.28 U	0.19 U
SODIUM					168	202	188	180
THALLIUM			4.7		1.2 U	2 U	1.7 U	1.2 U
VANADIUM			40		16.7	28	29.6	19.8
ZINC	121	459	190	121	58.2	124	186	65.3

Units are mg/kg

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-58C (0-1)	LMR21-58C (1-4)	LMR21-58C (4-7)	LMR21-58C (4-7) FD
ALUMINUM			42000	25000	16300	16700	16400	17200
ANTIMONY			0.84	2	1.6 U	1.2 U	1.1 U	1.1 U
ARSENIC	9.79	33	11	9.8	11.6	15	14.3	16.6
BARIUM			210	20	121	133	132	142
BERYLLIUM			0.8		0.79 U	0.85 J	0.86 J	0.86 J
CADMIUM	0.99	4.98	0.96	1	0.66 J	1.8	1.7	2.5
CALCIUM			110000		27900	28900	29400	33400
CHROMIUM, TOTAL	43.4	111	51	43.4	26.1	35.4	35.4	44.1
COBALT			12	50	13.8	10.9	10.6	11.2
COPPER	31.6	149	42	31.6	47.7	44.2	47.7	51.2
IRON			44000	20000	28000	32100	28400	32600
LEAD	35.8	128	47	35.8	20.4	45	41.1	50.1
MAGNESIUM			29000		9340	9200	8990	9780
MANGANESE			1000	460	448	575	465	522
MERCURY	0.18	1.06	0.12	0.18	0.15 U	0.14 J	0.13 J	0.2 J
NICKEL	22.7	48.6	36	22.7	45.1	40	39.8	46.5
POTASSIUM			12000		2920	2600	2240 J+	2460
SELENIUM			1.4	0.72	3.9 U	3 U	2.8 U	2.6 U
SILVER			0.43	1	0.39 U	0.3 U	0.51 J	0.52 J
SODIUM					173	136	147	162
THALLIUM			4.7		2.4 U	1.8 U	1.7 U	1.6 U
VANADIUM			40		31.5	32.6	30.4	31.9
ZINC	121	459	190	121	122	190	168	194

Units are mg/kg

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-59C (0-1)	LMR21-59C (1-4)	LMR21-59C (1-4) FD	LMR21-59C (4-7)
ALUMINUM			42000	25000	14500	17100	16100	7650
ANTIMONY			0.84	2	1.2 U	1.2 U	1.2 U	2 J
ARSENIC	9.79	33	11	9.8	13.2	28.8	23.1	13.8
BARIUM			210	20	124	141	133	69.3
BERYLLIUM			0.8		0.74 J	0.94 J	0.83 J	0.43 J
CADMIUM	0.99	4.98	0.96	1	1.4	3.8	3.3	1.1
CALCIUM			110000		28600	39700	37000	60800
CHROMIUM, TOTAL	43.4	111	51	43.4	30.1	59.5	51	21.9
COBALT			12	50	9.8	12.6	11.4	8
COPPER	31.6	149	42	31.6	40.2	67.9	58.1	27.8
IRON			44000	20000	28400	40600	35600	24600
LEAD	35.8	128	47	35.8	41.6	102	77.6	29.9
MAGNESIUM			29000		9070	10300	9910	12300
MANGANESE			1000	460	421	711	665	457
MERCURY	0.18	1.06	0.12	0.18	0.11 U	0.26 J	0.28 J	0.074 U
NICKEL	22.7	48.6	36	22.7	35.9	45.7	45.1	24.6
POTASSIUM			12000		2180	2490	2550 J+	1490
SELENIUM			1.4	0.72	2.9 U	3 U	2.9 U	1.9 U
SILVER			0.43	1	0.29 U	0.88 J	0.67 J	0.19 U
SODIUM					135	173	172	151
THALLIUM			4.7		1.8 U	1.8 U	1.8 U	1.2 U
VANADIUM			40		28.4	33.1	32.1	19.1
ZINC	121	459	190	121	142	322	255	118

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge B1**	**Sway Bridge D**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-60C (0-1)**	**LMR21-60C (1-4)**	**LMR21-60C (4-5)**	**LMR21-63C (0-1)**
ALUMINUM			42000	25000	10800	12500	7190	10400
ANTIMONY			0.84	2	1.1 U	1 U	2.2 J	3.6 U
ARSENIC	9.79	33	11	9.8	15.4	13.9	10.6	10.4 J
BARIUM			210	20	109	114	55.4	82
BERYLLIUM			0.8		0.63 J	0.66 J	0.4 U	1.8 U
CADMIUM	0.99	4.98	0.96	1	2.2	1.9	0.36 J	0.9 U
CALCIUM			110000		35800	44000	71000	77300
CHROMIUM, TOTAL	43.4	111	51	43.4	35.6	51.6	15.1	19.4
COBALT			12	50	8.9	10.1	8	11.1
COPPER	31.6	149	42	31.6	49.5	41.1	20.1	25.7
IRON			44000	20000	26900	26400	16700	23000
LEAD	35.8	128	47	35.8	111	92.6	13	9.5 J
MAGNESIUM			29000		9550	10700	17200	17100
MANGANESE			1000	460	514	479	367	428
MERCURY	0.18	1.06	0.12	0.18	0.57	0.13 J	0.079 U	0.076 U
NICKEL	22.7	48.6	36	22.7	35	34.2	24.5	33.1
POTASSIUM			12000		1580	2080 J+	1560 J+	2640
SELENIUM			1.4	0.72	2.6 U	2.5 U	2 U	9 U
SILVER			0.43	1	0.26 U	0.25 U	0.2 U	0.9 U
SODIUM					155	173	167	192 J
THALLIUM			4.7		1.6 U	1.5 U	1.2 U	5.4 U
VANADIUM			40		23.6	25.6	16.7	25 J
ZINC	121	459	190	121	181	184	54.9	62.7

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-63C (1-2.75)**	**LMR21-64C (0-1.75)**	**LMR21-64C (0-1.75) FD**
ALUMINUM			42000	25000	8630	7490	8190
ANTIMONY			0.84	2	1.9 J	2 J	2 J
ARSENIC	9.79	33	11	9.8	8.9	8.6	8.3
BARIUM			210	20	61.5	70.1	64.6
BERYLLIUM			0.8		0.49 J	0.39 U	0.42 J
CADMIUM	0.99	4.98	0.96	1	0.36 J	0.22 J	0.24 J
CALCIUM			110000		55300	64400	71500
CHROMIUM, TOTAL	43.4	111	51	43.4	16	16.7	16
COBALT			12	50	8.6	8.7	8.8
COPPER	31.6	149	42	31.6	19.2	18.9	18.9
IRON			44000	20000	16700	17600	18100
LEAD	35.8	128	47	35.8	7.4	8.9	8.2
MAGNESIUM			29000		12500	14900	17900
MANGANESE			1000	460	277	344	391
MERCURY	0.18	1.06	0.12	0.18	0.072 U	0.08 U	0.069 U
NICKEL	22.7	48.6	36	22.7	26.4	27.6	27.5
POTASSIUM			12000		2300	1640 J+	1930 J+
SELENIUM			1.4	0.72	1.9 U	1.9 U	1.8 U
SILVER			0.43	1	0.19 U	0.19 U	0.18 U
SODIUM					174	154	178
THALLIUM			4.7		1.2 U	1.2 U	1.1 U
VANADIUM			40		22.4	18	19.8
ZINC	121	459	190	121	45	59.6	51.7

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**	**Sway Bridge D**
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-65C (0-1)**	**LMR21-65C (1-2)**	**LMR21-66C (0-1)**	**LMR21-66C (1-2)**
ALUMINUM			42000	25000	11800	9010	14200	11400
ANTIMONY			0.84	2	4.8 J	2 J	1.7 U	4 U
ARSENIC	9.79	33	11	9.8	9.8 J	9.8	10.8	9.3 J
BARIUM			210	20	96.1	78.9	120	84.3
BERYLLIUM			0.8		1.8 U	0.45 J	0.86 U	2 U
CADMIUM	0.99	4.98	0.96	1	0.89 U	0.2 U	0.7 J	1 U
CALCIUM			110000		79700	62400	27600	81000
CHROMIUM, TOTAL	43.4	111	51	43.4	21.8	17	26.1	21.7
COBALT			12	50	12.4	9.8	9.4	11.8
COPPER	31.6	149	42	31.6	26.7	22.2	33.1	25.1
IRON			44000	20000	25200	19700	25800	23500
LEAD	35.8	128	47	35.8	12.5	9.1	20.3	10.5 J
MAGNESIUM			29000		17100	12300	8410	20300
MANGANESE			1000	460	460	382	431	447
MERCURY	0.18	1.06	0.12	0.18	0.081 U	0.000073 U	0.17 U	0.074 U
NICKEL	22.7	48.6	36	22.7	35.9	28.9	32.7	34.4
POTASSIUM			12000		2980	2170 J+	2480 J+	3000
SELENIUM			1.4	0.72	8.9 U	2 U	4.3 U	10 U
SILVER			0.43	1	0.89 U	0.2 U	0.43 U	1 U
SODIUM					243 J	198	163	219 J
THALLIUM			4.7		5.4 U	1.2 U	2.6 U	6 U
VANADIUM			40		26.3 J	20.5	27.4	27.3 J
ZINC	121	459	190	121	89	60.2	120	64.6

Units are mg/kg

Table A1.3b Discrete Sediment Core Sample Results for Metallic Species

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-67C (0-1)**	**LMR21-67C (0-1) FD**	**LMR21-67C (1-3)**	**LMR21-68C (0-1)**
ALUMINUM			42000	25000	18100	18600	16000	17700
ANTIMONY			0.84	2	1.7 U	1.6 U	1.2 U	1.5 U
ARSENIC	9.79	33	11	9.8	12.9	12.5	11.6	12.9
BARIUM			210	20	140	133	124	136
BERYLLIUM			0.8		0.9 J	0.89 J	0.81 J	0.85 J
CADMIUM	0.99	4.98	0.96	1	0.67 J	0.65 J	0.68 J	1.1 J
CALCIUM			110000		29700	29000	22000	27000
CHROMIUM, TOTAL	43.4	111	51	43.4	28.9	29.3	27.2	35.7
COBALT			12	50	10.9	11	10.1	10.7
COPPER	31.6	149	42	31.6	36.6	36.8	33.1	40.9
IRON			44000	20000	29700	29500	26700	28700
LEAD	35.8	128	47	35.8	41	20.6	21.2	33.5
MAGNESIUM			29000		9500	9210	7270	8660
MANGANESE			1000	460	443	470	438	463
MERCURY	0.18	1.06	0.12	0.18	0.15 U	0.16 U	0.12 U	0.14 U
NICKEL	22.7	48.6	36	22.7	36.7	36.4	34.7	39
POTASSIUM			12000		2930 J+	3080 J+	2340 J+	2670 J+
SELENIUM			1.4	0.72	4.1 U	4 U	2.9 U	3.6 U
SILVER			0.43	1	0.41 U	0.4 U	0.29 U	0.36 U
SODIUM					173	162	134	150
THALLIUM			4.7		2.5 U	2.4 U	1.7 U	2.2 U
VANADIUM			40		34.8	35.1	29.4	32.7
ZINC	121	459	190	121	137	140	130	184

Units are mg/kg

				Sampling Area >	Sway Bridge D
NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	LMR21-68C (1-3.5)
ALUMINUM			42000	25000	8250
ANTIMONY			0.84	2	2 J
ARSENIC	9.79	33	11	9.8	9
BARIUM			210	20	76
BERYLLIUM			0.8		0.44 J
CADMIUM	0.99	4.98	0.96	1	0.36 J
CALCIUM			110000		64900
CHROMIUM, TOTAL	43.4	111	51	43.4	17.3
COBALT			12	50	9.3
COPPER	31.6	149	42	31.6	27.7
IRON			44000	20000	18800
LEAD	35.8	128	47	35.8	12.2
MAGNESIUM			29000		14000
MANGANESE			1000	460	369
MERCURY	0.18	1.06	0.12	0.18	0.079 U
NICKEL	22.7	48.6	36	22.7	28.8
POTASSIUM			12000		1640 J+
SELENIUM			1.4	0.72	1.9 U
SILVER			0.43	1	0.19 U
SODIUM					158
THALLIUM			4.7		1.1 U
VANADIUM			40		18.8
ZINC	121	459	190	121	72.2

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBA1**	**LMR21-SBA1 FD1**	**LMR21-SBA1 FD2**	**LMR21-SBA2**
ALUMINUM			42000	25000	14100	14600	9360	8600
ANTIMONY			0.84	2	1.3 J	1.1 J	2 J	2 J
ARSENIC	9.79	33	11	9.8	16.6	17	10.8	8.7
BARIUM			210	20	130	126	84.3	58.8
BERYLLIUM			0.8		0.92 J	0.87 J	0.56 J	0.46 J
CADMIUM	0.99	4.98	0.96	1	2.3	2.3	1.2	0.37 J
CALCIUM			110000		34500	33200	48300	64300
CHROMIUM, TOTAL	43.4	111	51	43.4	42	41.4	24.6	19.4
COBALT			12	50	9.4	9.5	8.1	8.6
COPPER	31.6	149	42	31.6	40.2	44	26.9	20.2
IRON			44000	20000	46000	48700	25300	17000
LEAD	35.8	128	47	35.8	83.4	73.2	34.2	9.2
MAGNESIUM			29000		8680	8730	10500	13300
MANGANESE			1000	460	775	736	451	322
MERCURY	0.18	1.06	0.12	0.18	0.36 J-	0.14 J-	0.15 J-	0.075 UJ
NICKEL	22.7	48.6	36	22.7	32.7	32.7	26.5	27.4
POTASSIUM			12000		2250 J	2410	1700	2310
SELENIUM			1.4	0.72	2.5 U	2.3 U	2.2 U	1.9 U
SILVER			0.43	1	0.55 J	0.66 J	0.29 J	0.19 U
SODIUM					163	159	145	184
THALLIUM			4.7		1.5 U	1.4 U	1.3 U	1.1 U
VANADIUM			40		31.2	32.2	19.9	21.3
ZINC	121	459	190	121	269	274	129	51.5

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBA2 FD1**	**LMR21-SBA2 FD2**	**LMR21-SBA3**	**LMR21-SBA3 FD1**
ALUMINUM			42000	25000	9540	10100	16200	13900
ANTIMONY			0.84	2	2.7	3.4 U	1 U	4.9 U
ARSENIC	9.79	33	11	9.8	7.9	10.1	27.6	21.3
BARIUM			210	20	85.9	85.1	149	149
BERYLLIUM			0.8		0.53 J	1.7 U	1.1 J	2.4 U
CADMIUM	0.99	4.98	0.96	1	0.4 J	0.84 U	2.2	2.6 J
CALCIUM			110000		77600	76100	36500	34300
CHROMIUM, TOTAL	43.4	111	51	43.4	18.8	21.2	151	47.1
COBALT			12	50	10.6	11	12.3	10.9
COPPER	31.6	149	42	31.6	23.2	23.7	66.4	48.9
IRON			44000	20000	20700	21600	81400	94500
LEAD	35.8	128	47	35.8	9.4	10.8	65.1	111
MAGNESIUM			29000		13900	18600	10900	9160
MANGANESE			1000	460	394	399	1690	1930
MERCURY	0.18	1.06	0.12	0.18	0.073 UJ	0.07 UJ	0.19 J-	0.19 J-
NICKEL	22.7	48.6	36	22.7	31.1	33.2	57.8	35.2
POTASSIUM			12000		2180 J	2560 J	2440 J	1920
SELENIUM			1.4	0.72	1.8 U	8.4 U	2.5 U	12.1 U
SILVER			0.43	1	0.18 U	0.84 U	0.5 J	1.2 U
SODIUM					216	216 J	213	1570
THALLIUM			4.7		1.1 U	5 U	1.5 U	7.3 U
VANADIUM			40		21.2	25	37.3	36.1
ZINC	121	459	190	121	86.2	65.3 J+	348 J	402

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBA3 FD2**	**LMR21-SBB1**	**LMR21-SBB1 FD1**	**LMR21-SBB1 FD2**
ALUMINUM			42000	25000	14000	18900	16200	15200
ANTIMONY			0.84	2	1.6 J	1.5 J	1.3 J	1.1 U
ARSENIC	9.79	33	11	9.8	20.4	16.4	14.6	15.5
BARIUM			210	20	141	150	157	137
BERYLLIUM			0.8		1.1 J	0.98 J	0.91 J	0.85 J
CADMIUM	0.99	4.98	0.96	1	2.2	2	2.1	2.1
CALCIUM			110000		29200	37500	37400	35900
CHROMIUM, TOTAL	43.4	111	51	43.4	45.3	46.2	39.8	36.2
COBALT			12	50	10.4	12.2	11.5	11
COPPER	31.6	149	42	31.6	48.8	56.7	50	46
IRON			44000	20000	88800	46000	34800	30700
LEAD	35.8	128	47	35.8	62.3	54.8	66.3	62.5
MAGNESIUM			29000		8010	10400	10300	10100
MANGANESE			1000	460	1820	736	583	551
MERCURY	0.18	1.06	0.12	0.18	0.16 J-	0.17 J	0.15 J	0.14 J
NICKEL	22.7	48.6	36	22.7	37.1	42	41.5	41.6
POTASSIUM			12000		2020 J	3040	2350 J	2390 J+
SELENIUM			1.4	0.72	2.5 U	3.1 J	2.9 U	2.8 U
SILVER			0.43	1	0.45 J	0.3 U	0.57 J	0.28 U
SODIUM					189	194	178	174
THALLIUM			4.7		1.5 U	1.8 U	1.7 U	1.7 U
VANADIUM			40		34.2	38.4	31.2	29.9
ZINC	121	459	190	121	416	258	196	181

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBB2**	**LMR21-SBB2 FD1**	**LMR21-SBB2 FD2**	**LMR21-SBC**
ALUMINUM			42000	25000	14100	10300	10100	5790
ANTIMONY			0.84	2	1.4 U	1.7 J	1.2 U	1.2 J
ARSENIC	9.79	33	11	9.8	11.1	7.3	8.1	9.1
BARIUM			210	20	104	80.9	75.7	52.3
BERYLLIUM			0.8		0.7 U	0.59 U	0.59 U	0.43 U
CADMIUM	0.99	4.98	0.96	1	0.51 J	0.57 J	0.44 J	0.91
CALCIUM			110000		46100	36700	32500	37600
CHROMIUM, TOTAL	43.4	111	51	43.4	24.8	19.7	18	16.4
COBALT			12	50	9.2	7.6	6.5	7.1
COPPER	31.6	149	42	31.6	28.7	23.8	22	18.5
IRON			44000	20000	25100	20500	18900	20200
LEAD	35.8	128	47	35.8	23.2	18.1	35.1	30.8
MAGNESIUM			29000		11000	8980	8090	10300
MANGANESE			1000	460	456	422	336	365
MERCURY	0.18	1.06	0.12	0.18	0.12 U	0.12 U	0.11 U	0.11 J
NICKEL	22.7	48.6	36	22.7	30.3	24.1	21.6	17.9
POTASSIUM			12000		2470	1770 J	1760 J+	830
SELENIUM			1.4	0.72	3.5 U	3 U	2.9 U	2.2 U
SILVER			0.43	1	0.35 U	0.3 U	0.29 U	0.22 U
SODIUM					247	196	208	93.7
THALLIUM			4.7		2.1 U	1.8 U	1.8 U	1.3 U
VANADIUM			40		28.4	20.3	20.5	15.4
ZINC	121	459	190	121	108	91.2	84.6	131

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBC FD1**	**LMR21-SBC FD2**	**LMR21-SBD**	**LMR21-SBD FD1**
ALUMINUM			42000	25000	5230	5820	9680	10200
ANTIMONY			0.84	2	1.5 J	1.6 J	2.5	1.6 J
ARSENIC	9.79	33	11	9.8	9.3	11.5	8.3	7.7
BARIUM			210	20	49.1	49	80.4	96
BERYLLIUM			0.8		0.45 U	0.47 U	0.52 J	0.54 J
CADMIUM	0.99	4.98	0.96	1	0.9	0.73	0.42 J	0.57 J
CALCIUM			110000		37100	31100	70800	48800
CHROMIUM, TOTAL	43.4	111	51	43.4	15.7	16	19.8	19.6
COBALT			12	50	6.3	5.8	10.6	8.4
COPPER	31.6	149	42	31.6	18.9	19.2	24.7	23.4
IRON			44000	20000	19100	21800	21400	19400
LEAD	35.8	128	47	35.8	33	40.5	10.7	15.4
MAGNESIUM			29000		9700	9400	15300	13400
MANGANESE			1000	460	334	371	401	355
MERCURY	0.18	1.06	0.12	0.18	0.085 U	0.079 U	0.071 U	0.078 U
NICKEL	22.7	48.6	36	22.7	16.1	17.8	32.9	26.5
POTASSIUM			12000		728 J	924	1950	2000 J
SELENIUM			1.4	0.72	2.2 U	2.3 U	2 U	2 U
SILVER			0.43	1	0.22 U	0.23 U	0.2 U	0.2 U
SODIUM					99.1	88.5	186	156
THALLIUM			4.7		1.3 U	1.4 U	1.2 U	1.2 U
VANADIUM			40		13.5	15.7	21.5	21
ZINC	121	459	190	121	137	172	71.7	84.1

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-SBD FD2**	**LMR21-WA1**	**LMR21-WA1 FD1**	**LMR21-WA1 FD2**
ALUMINUM			42000	25000	9900	10200	10700	12300
ANTIMONY			0.84	2	4 J	1.3 J	1.1 U	1.5 J
ARSENIC	9.79	33	11	9.8	7.8 J	14.1	17.1	12.6
BARIUM			210	20	81.1	113	113	124
BERYLLIUM			0.8		1.9 U	0.63 J	0.58 J	0.66 J
CADMIUM	0.99	4.98	0.96	1	0.95 U	3.5	2.5	3.2
CALCIUM			110000		68800	39400	37000	39600
CHROMIUM, TOTAL	43.4	111	51	43.4	20.1	64.5	58.7	75.4
COBALT			12	50	10.2	9.6	9.1	9.1
COPPER	31.6	149	42	31.6	25.5	53.1	53.2	53.9
IRON			44000	20000	21600	24500	25200	24700
LEAD	35.8	128	47	35.8	12.5	73.2	77.7	69.3
MAGNESIUM			29000		16400	11300	10900	11100
MANGANESE			1000	460	401	463	451	450
MERCURY	0.18	1.06	0.12	0.18	0.075 U	0.42	0.35	0.27 J
NICKEL	22.7	48.6	36	22.7	32.1	40.8	40	40.5
POTASSIUM			12000		2270	1610	1680	2210 J
SELENIUM			1.4	0.72	9.5 U	2.5 U	2.7 U	2.7 J
SILVER			0.43	1	0.95 U	1.6	1.2	2.3
SODIUM					169 J	134	130	154
THALLIUM			4.7		5.7 U	1.5 U	1.6 U	1.6 U
VANADIUM			40		22.7 J	22	23.9	28.4
ZINC	121	459	190	121	65.9	227	223	221

Units are mg/kg

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WA2**	**LMR21-WA2 FD1**	**LMR21-WA2 FD2**	**LMR21-WA3**
ALUMINUM			42000	25000	9540	12300	12500	8950
ANTIMONY			0.84	2	1.7 J	2.2 J	1.3 J	1.9 J
ARSENIC	9.79	33	11	9.8	7.8	8.6	10.1	8.4
BARIUM			210	20	80.3	92.7	86.8	77.2
BERYLLIUM			0.8		0.53 J	0.61 J	0.57 J	0.52 J
CADMIUM	0.99	4.98	0.96	1	1.3	1.2	1.2	1.7
CALCIUM			110000		45200	59600	50200	47100
CHROMIUM, TOTAL	43.4	111	51	43.4	30.7	29.1	34.7	26
COBALT			12	50	8.4	7.6	8.9	8.5
COPPER	31.6	149	42	31.6	31.3	29.1	32.5	32.9
IRON			44000	20000	18600	20000	20800	19500
LEAD	35.8	128	47	35.8	29.8	21.4	32.3	55.7
MAGNESIUM			29000		12900	7020	14600	11800
MANGANESE			1000	460	391	344	432	368
MERCURY	0.18	1.06	0.12	0.18	0.13 J	0.099 U	0.1 J	0.091 J
NICKEL	22.7	48.6	36	22.7	27.4	27.2	29.9	25.5
POTASSIUM			12000		1620	2120 J	2630	1420
SELENIUM			1.4	0.72	2.5 U	2.3 U	2.1 U	2.4 U
SILVER			0.43	1	0.38 J	0.33 J	0.21 U	0.32 J
SODIUM					119	130	318	138
THALLIUM			4.7		1.5 U	1.4 U	1.3 U	1.4 U
VANADIUM			40		21.6	23.5	29.5	20.5
ZINC	121	459	190	121	111	126	114	138

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WA3 FD1**	**LMR21-WA3 FD2**	**LMR21-WB1**	**LMR21-WB1 FD1**
ALUMINUM			42000	25000	6690	10800	7020	11600
ANTIMONY			0.84	2	1.8 J	1.1 J	1.1 J	0.95 U
ARSENIC	9.79	33	11	9.8	6.7	7.9	8.4	6.9
BARIUM			210	20	52.1	72.2	98.2	66.6
BERYLLIUM			0.8		0.46 U	0.5 J	0.46 U	0.47 U
CADMIUM	0.99	4.98	0.96	1	1.5	0.9	4.8	1.4
CALCIUM			110000		42000	41700	38100	38900
CHROMIUM, TOTAL	43.4	111	51	43.4	23.4	24.7	122	41.6
COBALT			12	50	7.2	8.3	7.5	6.2
COPPER	31.6	149	42	31.6	22.5	26.3	69.7	26.2
IRON			44000	20000	15400	18000	18100	14100
LEAD	35.8	128	47	35.8	30.2	25.6	56.6	20
MAGNESIUM			29000		11700	12400	10400	11800
MANGANESE			1000	460	294	366	338	274
MERCURY	0.18	1.06	0.12	0.18	0.12 J	0.16 J	0.52	0.49
NICKEL	22.7	48.6	36	22.7	19.1	23.9	44.4	22.5
POTASSIUM			12000		1220 J	2270	1100	2940
SELENIUM			1.4	0.72	2.3 U	2.2 U	2.3 U	2.4 U
SILVER			0.43	1	0.23 U	0.66 J	3.4	0.7 J
SODIUM					130	160	110	176
THALLIUM			4.7		1.4 U	1.3 U	1.4 U	1.4 U
VANADIUM			40		17.5	27.5	16.1	28.2
ZINC	121	459	190	121	98.8	89.2	246	94.6

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WB1 FD2**	**LMR21-WB2**	**LMR21-WB2 FD1**	**LMR21-WB2 FD2**
ALUMINUM			42000	25000	6900	9800	9050	5070
ANTIMONY			0.84	2	1.2 J	1.1 J	1.5 J	0.93 U
ARSENIC	9.79	33	11	9.8	6.5	10.7	12.6	5.8
BARIUM			210	20	83.3	82.5	84.2	100
BERYLLIUM			0.8		0.44 U	0.54 U	0.53 U	0.46 U
CADMIUM	0.99	4.98	0.96	1	3.9	1	0.91	0.61 J
CALCIUM			110000		38800	27500	28400	16700
CHROMIUM, TOTAL	43.4	111	51	43.4	93.7	21.3	19.1	11.2
COBALT			12	50	7.3	7.7	7.7	4.7
COPPER	31.6	149	42	31.6	54.7	28.1	30.4	17.2
IRON			44000	20000	16200	19100	19800	10200
LEAD	35.8	128	47	35.8	45.1	45.3	57	63.9
MAGNESIUM			29000		11000	8270	8350	5150
MANGANESE			1000	460	303	362	345	213
MERCURY	0.18	1.06	0.12	0.18	0.12 J	0.23 J	0.23 J	0.27 J
NICKEL	22.7	48.6	36	22.7	35	24.5	24.4	15.2
POTASSIUM			12000		1220 J	1470	1260 J	768
SELENIUM			1.4	0.72	2.2 U	2.7 U	2.6 U	2.3 U
SILVER			0.43	1	2.6	0.34 J	0.43 J	0.23 U
SODIUM					111	107	94.4	72.8
THALLIUM			4.7		1.3 U	1.6 U	1.6 U	1.4 U
VANADIUM			40		17.1	20.5	19	7.5
ZINC	121	459	190	121	193	120	147	71.5

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WC1**	**LMR21-WC1 FD1**	**LMR21-WC1 FD2**	**LMR21-WC1-FD FD**
ALUMINUM			42000	25000	14300	13500	12900	26500
ANTIMONY			0.84	2	1.6 J	1.9 J	2 J	1.1 U
ARSENIC	9.79	33	11	9.8	22.8	19.3	19	18
BARIUM			210	20	114	120	116	141
BERYLLIUM			0.8		0.79 J	0.78 J	0.73 J	0.98 J
CADMIUM	0.99	4.98	0.96	1	2.7	1.4	1.7	1.8
CALCIUM			110000		37000	39200	36000	34100
CHROMIUM, TOTAL	43.4	111	51	43.4	37.8	29.3	30	44.7
COBALT			12	50	10.5	11.8	10.8	9.8
COPPER	31.6	149	42	31.6	55.2	43.9	48	48.7
IRON			44000	20000	33900	30300	29800	31000
LEAD	35.8	128	47	35.8	101	92.6	101	66.2
MAGNESIUM			29000		10600	11600	10100	11200
MANGANESE			1000	460	565	571	517	482
MERCURY	0.18	1.06	0.12	0.18	0.46	0.37	0.21 J	0.31
NICKEL	22.7	48.6	36	22.7	37	36.2	35.6	35.7
POTASSIUM			12000		2010 J	1970	1780 J	6100 J
SELENIUM			1.4	0.72	2.7 U	2.8 U	2.6 U	2.7 U
SILVER			0.43	1	0.29 J	0.32 J	0.47 J	0.36 J
SODIUM					131	184	122	207
THALLIUM			4.7		1.6 U	1.7 U	1.6 U	1.6 U
VANADIUM			40		29.3	28.9	27	55.6
ZINC	121	459	190	121	251	216	229	201

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WC1-FD FD1**	**LMR21-WC1-FD FD2**	**LMR21-WC2**	**LMR21-WC2 FD1**
ALUMINUM			42000	25000	13700	14000	17400	14500
ANTIMONY			0.84	2	1.8 J	1.7 J	1.3 U	1.2 U
ARSENIC	9.79	33	11	9.8	17	16	12.2	9
BARIUM			210	20	123	112	120	109
BERYLLIUM			0.8		0.79 J	0.76 J	0.8 J	0.73 J
CADMIUM	0.99	4.98	0.96	1	2.2	2.2	1.3	1.3
CALCIUM			110000		38000	33500	30900	34800
CHROMIUM, TOTAL	43.4	111	51	43.4	35.2	34.3	37.8	32.7
COBALT			12	50	10.9	10.1	9.7	8.9
COPPER	31.6	149	42	31.6	49.2	45.8	40.6	33.9
IRON			44000	20000	29700	29600	26200	23400
LEAD	35.8	128	47	35.8	75.1	76.6	27.9	25.3
MAGNESIUM			29000		10800	9850	9310	8610
MANGANESE			1000	460	498	486	411	390
MERCURY	0.18	1.06	0.12	0.18	0.26 J	0.37	0.12 U	0.13 J
NICKEL	22.7	48.6	36	22.7	36.2	33.5	36.2	30.4
POTASSIUM			12000		2060	2270 J	2740	2460
SELENIUM			1.4	0.72	2.6 U	2.7 U	3.2 U	3 U
SILVER			0.43	1	0.58 J	0.47 J	0.32 U	0.33 J
SODIUM					139	130	146	140
THALLIUM			4.7		1.6 U	1.6 U	1.9 U	1.8 U
VANADIUM			40		28.3	29.2	33.7	28.7
ZINC	121	459	190	121	218	205	149	130

Units are mg/kg

Table A1.3c Composite Sediment Sample Results for Metallic Species

NAME	TEC	PEC	OHIO_SRV	REGION4_ESV	**LMR21-WC2 FD2**
ALUMINUM			42000	25000	17700
ANTIMONY			0.84	2	1.7 J
ARSENIC	9.79	33	11	9.8	12.1
BARIUM			210	20	158
BERYLLIUM			0.8		0.96 J
CADMIUM	0.99	4.98	0.96	1	1.6
CALCIUM			110000		54100
CHROMIUM, TOTAL	43.4	111	51	43.4	41.4
COBALT			12	50	13.4
COPPER	31.6	149	42	31.6	48.7
IRON			44000	20000	31900
LEAD	35.8	128	47	35.8	34.2
MAGNESIUM			29000		14800
MANGANESE			1000	460	645
MERCURY	0.18	1.06	0.12	0.18	0.12 U
NICKEL	22.7	48.6	36	22.7	43
POTASSIUM			12000		3210 J
SELENIUM			1.4	0.72	3 U
SILVER			0.43	1	0.3 U
SODIUM					189
THALLIUM			4.7		1.8 U
VANADIUM			40		34.8
ZINC	121	459	190	121	180

Units are mg/kg

		Sampling Area >		WWTP A2	WWTP A2	WWTP A1
NAME	TEC	PEC	REGION4_ESV	LMR21-10S (0-0.5)	LMR21-12S (0-0.5)	LMR21-14S (0-0.5)
ACENAPHTHENE			6.7	13.14 J	7.3 J	13.4 J
ACENAPHTHYLENE			5.9	15.78 J	6.16 J	10.38 J
ANTHRACENE	57.2	845	57	69.88 J	24.97 J	43.64 J
BENZO(A)ANTHRACENE	108	1050	108	233.99 J	103.14 J	154.03 J
BENZO(A)PYRENE	150	1450	150	274.6 J	123.69 J	182.98 J
BENZO(B)FLUORANTHENE			190	292.46 J	153.73 J	236.81 J
BENZO(E)PYRENE				231.42 J	121.26 J	168.29 J
BENZO(G,H,I)PERYLENE			170	228.21 J	109.1 J	160.23 J
BENZO(K)FLUORANTHENE			240	332.11 J	170.37 J	228.15 J
BIPHENYL (DIPHENYL)				4.35 J	2.34 J	3.67 J
C1 - CHRYSENE				125.41 J	54.1 J	80.16 J
C1 - FLUORANTHENE/PYRENE				243.87 J	110.23 J	168.84 J
C1 - FLUORENE				14.73 J	8.48 J	12.13 J
C1 - NAPHTHALENE				20.97 J	11.19 J	15.66 J
C1 - PHENANTHRENE/ANTHRACENE				155.34 J	76.86 J	109 J
C2 - CHRYSENE				74.48 J	36.33 J	50.97 J
C2 - FLUORENE				34.15 J	16.02 J	24.34 J
C2 - NAPHTHALENE				29.37 J	18.25 J	23.47 J
C2 - PHENANTHRENE/ANTHRACENE				168.4 J	81.82 J	115.06 J
C2-FLUORANTHENES/PYRENES				184.09 J	90.32 J	137.66 J
C3 - CHRYSENE				51.49 J	23.53 J	32.33 J
C3 - FLUORENE				53.88 J	29.01 J	46.63 J
C3 - NAPHTHALENE				43.89 J	28.37 J	37.92 J
C3 - PHENANTHRENE/ANTHRACENE				173.84 J	82.75 J	125.1 J
C3- FLUORANTHENES/PYRENES				125.3 J	52.2 J	85.93 J
C4 - CHRYSENE				32.23 J	14.82 J	24.09 J
C4 - NAPHTHALENE				46.34 J	32.17 J	43.04 J
C4 - PHENANTHRENE/ANTHRACENE				74.03 J	36.06 J	71.59 J
CHRYSENE	166	1290	166	288.51 J	160.85 J	216.67 J
DIBENZ(A,H)ANTHRACENE	33		33	45.83 J	20.66 J	33.63 J
FLUORANTHENE	423	2230	423	505.11 J	290.18 J	416.05 J
FLUORENE	77.4	536	77	23.69 J	15.61 J	24.93 J
INDENO(1,2,3-C,D)PYRENE			200	269.8 J	122.6 J	178.3 J
NAPHTHALENE	176	561	176	44.49 J	25.54 J	39.48 J
PERYLENE				298.14 J	215.6 J	313.15 J
PHENANTHRENE	204	1170	204	203.21 J	123.38 J	178.39 J
PYRENE	195	1520	195	437.02 J	235.05 J	344.01 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		3277.83	1692.33	2461.08
TOTAL PAH 34 (LAB REPORTED)	1610	22800		5459.2	2831.7	4146.44

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		WWTP A1	WWTP A1	WWTP A3
NAME	TEC	PEC	REGION4_ESV	LMR21-15S (0-0.5)	LMR21-17S (0-0.5)	LMR21-19S (0-0.5)
ACENAPHTHENE			6.7	57.23 J	61.22 J	125.66 J
ACENAPHTHYLENE			5.9	52.2 J	34.37 J	92.12 J
ANTHRACENE	57.2	845	57	203.92 J	209.9 J	334.01 J
BENZO(A)ANTHRACENE	108	1050	108	587.88 J	493.1 J	690.6 J
BENZO(A)PYRENE	150	1450	150	633.83 J	501.84 J	667.3 J
BENZO(B)FLUORANTHENE			190	658.27 J	530.14 J	685.81 J
BENZO(E)PYRENE				467.53 J	366.79 J	478.27 J
BENZO(G,H,I)PERYLENE			170	417.88 J	338.48 J	519.64 J
BENZO(K)FLUORANTHENE			240	657.85 J	516.44 J	666.1 J
BIPHENYL (DIPHENYL)				11.85 J	9.25 J	22.24 J
C1 - CHRYSENE				329 J	230.16 J	335.52 J
C1 - FLUORANTHENE/PYRENE				652.09 J	500.63 J	777.95 J
C1 - FLUORENE				58.08 J	60.8 J	123.84 J
C1 - NAPHTHALENE				51.3 J	42.63 J	111.38 J
C1 - PHENANTHRENE/ANTHRACENE				435.93 J	399.45 J	503.32 J
C2 - CHRYSENE				212.22 J	149 J	202.81 J
C2 - FLUORENE				143.31 J	115.67 J	242.22 J
C2 - NAPHTHALENE				85.81 J	82.48 J	157.06 J
C2 - PHENANTHRENE/ANTHRACENE				561.16 J	451.73 J	725.4 J
C2-FLUORANTHENES/PYRENES				539.97 J	383.8 J	563.79 J
C3 - CHRYSENE				155.23 J	94.43 J	146.44 J
C3 - FLUORENE				218.37 J	170.88 J	330.47 J
C3 - NAPHTHALENE				150.4 J	175.21 J	323.77 J
C3 - PHENANTHRENE/ANTHRACENE				722.95 J	506.95 J	986.51 J
C3- FLUORANTHENES/PYRENES				368.16 J	247.31 J	357.78 J
C4 - CHRYSENE				91.54 J	57.29 J	76.79 J
C4 - NAPHTHALENE				189.73 J	188.91 J	358.79 J
C4 - PHENANTHRENE/ANTHRACENE				345.27 J	248.5 J	428.68 J
CHRYSENE	166	1290	166	615.12 J	494.06 J	676.36 J
DIBENZ(A,H)ANTHRACENE	33		33	103.97 J	81.46 J	117.14 J
FLUORANTHENE	423	2230	423	1026.95 J	1016.34 J	1334.22 J
FLUORENE	77.4	536	77	107.52 J	124.6 J	268.67 J
INDENO(1,2,3-C,D)PYRENE			200	505.41 J	415.1 J	594.49 J
NAPHTHALENE	176	561	176	142.16 J	102.88 J	481.67 J
PERYLENE				389.7 J	315.46 J	274.74 J
PHENANTHRENE	204	1170	204	599.99 J	617.12 J	658.84 J
PYRENE	195	1520	195	959.13 J	852.38 J	1189.95 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		7329.31	6389.43	9102.58
TOTAL PAH 34 (LAB REPORTED)	1610	22800		13497.06	11177.51	16608.11

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		WWTP C2	WWTP C2	Sway Bridge C
NAME	TEC	PEC	REGION4_ESV	LMR21-25S (0-0.5)	LMR21-27S (0-0.5)	LMR21-30S (0-0.5)
ACENAPHTHENE			6.7	8.9 J	26.14 J	7.34 J
ACENAPHTHYLENE			5.9	6.28 J	10.08 J	3.68 J
ANTHRACENE	57.2	845	57	34.21 J	58.41 J	23.37 J
BENZO(A)ANTHRACENE	108	1050	108	97.47 J	152.45 J	57.96 J
BENZO(A)PYRENE	150	1450	150	118.44 J	140.39 J	72.89 J
BENZO(B)FLUORANTHENE			190	141.14 J	167.46 J	90.21 J
BENZO(E)PYRENE				110.56 J	134.11 J	69.41 J
BENZO(G,H,I)PERYLENE			170	113.24 J	121.72 J	63.95 J
BENZO(K)FLUORANTHENE			240	132.41 J	179.53 J	93.17 J
BIPHENYL (DIPHENYL)				3.05 J	4.7 J	1.78 J
C1 - CHRYSENE				75.7 J	83.75 J	28.63 J
C1 - FLUORANTHENE/PYRENE				114.85 J	159.97 J	66.06 J
C1 - FLUORENE				10.41 J	13.74 J	6.46 J
C1 - NAPHTHALENE				19.9 J	26.7 J	7.39 J
C1 - PHENANTHRENE/ANTHRACENE				99.36 J	124.96 J	50.83 J
C2 - CHRYSENE				56.39 J	54.46 J	21.44 J
C2 - FLUORENE				20.58 J	23.92 J	9.85 J
C2 - NAPHTHALENE				27.52 J	28.47 J	11.15 J
C2 - PHENANTHRENE/ANTHRACENE				105.94 J	119.17 J	58.03 J
C2-FLUORANTHENES/PYRENES				99.15 J	115.4 J	57.44 J
C3 - CHRYSENE				35.25 J	35.34 J	13.73 J
C3 - FLUORENE				30.76 J	37.26 J	17.89 J
C3 - NAPHTHALENE				36.6 J	38.83 J	21.7 J
C3 - PHENANTHRENE/ANTHRACENE				101.98 J	103.78 J	61.89 J
C3- FLUORANTHENES/PYRENES				70.19 J	71.37 J	33.69 J
C4 - CHRYSENE				21.14 J	21.07 J	10.87 J
C4 - NAPHTHALENE				39.58 J	39.38 J	27.54 J
C4 - PHENANTHRENE/ANTHRACENE				41.96 J	49.41 J	25.54 J
CHRYSENE	166	1290	166	136.93 J	193.13 J	93.45 J
DIBENZ(A,H)ANTHRACENE	33		33	23.62 J	26.14 J	10.15 J
FLUORANTHENE	423	2230	423	252.52 J	351.28 J	199.72 J
FLUORENE	77.4	536	77	17.38 J	38.91 J	13.21 J
INDENO(1,2,3-C,D)PYRENE			200	116.37 J	120.99 J	63.95 J
NAPHTHALENE	176	561	176	43.55 J	139.99 J	13.64 J
PERYLENE				210.43 J	232.08 J	240.45 J
PHENANTHRENE	204	1170	204	106.3 J	198.34 J	78.49 J
PYRENE	195	1520	195	212.28 J	284.77 J	152.5 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		1561.04	2209.73	1037.68
TOTAL PAH 34 (LAB REPORTED)	1610	22800		2889.29	3722.9	1877.67

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	TEC	PEC	REGION4_ESV	LMR21-35S (0-0.5)	LMR21-37S (0-0.5)	LMR21-39S (0-0.5)
ACENAPHTHENE			6.7	27.3 J	40.77 J	188.9 J
ACENAPHTHYLENE			5.9	19.18 J	19.31 J	20.14 J
ANTHRACENE	57.2	845	57	93.9 J	119.99 J	234.71 J
BENZO(A)ANTHRACENE	108	1050	108	219.03 J	233.36 J	180.62 J
BENZO(A)PYRENE	150	1450	150	234.32 J	241.29 J	156.44 J
BENZO(B)FLUORANTHENE			190	222.74 J	236.84 J	137.5 J
BENZO(E)PYRENE				180.88 J	186.1 J	108.49 J
BENZO(G,H,I)PERYLENE			170	177.48 J	182.53 J	94.01 J
BENZO(K)FLUORANTHENE			240	235.84 J	261.18 J	171.87 J
BIPHENYL (DIPHENYL)				4.96 J	8.1 J	15.34 J
C1 - CHRYSENE				138.14 J	125.71 J	80.98 J
C1 - FLUORANTHENE/PYRENE				232.71 J	233.22 J	232.12 J
C1 - FLUORENE				21.98 J	23.93 J	66.38 J
C1 - NAPHTHALENE				34.5 J	38.29 J	66.12 J
C1 - PHENANTHRENE/ANTHRACENE				202.94 J	191.32 J	302.27 J
C2 - CHRYSENE				94.94 J	86.54 J	59.84 J
C2 - FLUORENE				40 J	37.8 J	72.21 J
C2 - NAPHTHALENE				38.35 J	38.8 J	112.17 J
C2 - PHENANTHRENE/ANTHRACENE				217.53 J	192.77 J	250.07 J
C2-FLUORANTHENES/PYRENES				175.52 J	170.35 J	139.85 J
C3 - CHRYSENE				60.7 J	54.59 J	35.71 J
C3 - FLUORENE				53.5 J	52.25 J	74.94 J
C3 - NAPHTHALENE				54.53 J	57.57 J	187.36 J
C3 - PHENANTHRENE/ANTHRACENE				185.48 J	182.66 J	231.5 J
C3- FLUORANTHENES/PYRENES				111.86 J	111.05 J	96.17 J
C4 - CHRYSENE				36.16 J	30.42 J	25.83 J
C4 - NAPHTHALENE				53.46 J	59.72 J	178.26 J
C4 - PHENANTHRENE/ANTHRACENE				69.36 J	76.01 J	87.92 J
CHRYSENE	166	1290	166	256.55 J	262.26 J	176 J
DIBENZ(A,H)ANTHRACENE	33		33	42.38 J	41.3 J	20.24 J
FLUORANTHENE	423	2230	423	459.89 J	501.79 J	583.79 J
FLUORENE	77.4	536	77	56.3 J	74.17 J	292.57 J
INDENO(1,2,3-C,D)PYRENE			200	180.4 J	167.86 J	105.25 J
NAPHTHALENE	176	561	176	139.23 J	221.63 J	184.32 J
PERYLENE				217.89 J	194.03 J	224.79 J
PHENANTHRENE	204	1170	204	250.92 J	279.58 J	756.69 J
PYRENE	195	1520	195	383.33 J	408.44 J	441.92 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		2998.79	3292.3	3744.97
TOTAL PAH 34 (LAB REPORTED)	1610	22800		5219.22	5435.43	6377.95

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		Sway Bridge A2	Sway Bridge A2	Sway Bridge A1
NAME	TEC	PEC	REGION4_ESV	LMR21-41S (0-0.5)	LMR21-43S (0-0.5)	LMR21-45S (0-0.5)
ACENAPHTHENE			6.7	72.24 J	456.79 J	2452.38 J
ACENAPHTHYLENE			5.9	96.31 J	72.21 J	347.74 J
ANTHRACENE	57.2	845	57	232.88 J	438.32 J	3944.68 J
BENZO(A)ANTHRACENE	108	1050	108	733.61 J	630.82 J	3604.99 J
BENZO(A)PYRENE	150	1450	150	759.86 J	464.44 J	2300.67 J
BENZO(B)FLUORANTHENE			190	650.98 J	450.91 J	2299.45 J
BENZO(E)PYRENE				470.48 J	333.88 J	1625.65 J
BENZO(G,H,I)PERYLENE			170	448.25 J	272.72 J	1073.22 J
BENZO(K)FLUORANTHENE			240	776.65 J	452.39 J	2490.24 J
BIPHENYL (DIPHENYL)				11.48 J	21.58 J	41.87 J
C1 - CHRYSENE				239.9 J	284.21 J	1925.63 J
C1 - FLUORANTHENE/PYRENE				587.25 J	788.37 J	5482.7 J
C1 - FLUORENE				43.35 J	165.89 J	1218.63 J
C1 - NAPHTHALENE				65.43 J	106.03 J	330.52 J
C1 - PHENANTHRENE/ANTHRACENE				366.15 J	784.62 J	6488.9 J
C2 - CHRYSENE				116.91 J	185.36 J	1188.82 J
C2 - FLUORENE				65.85 J	178.76 J	1697.17 J
C2 - NAPHTHALENE				57.12 J	169.83 J	1418.26 J
C2 - PHENANTHRENE/ANTHRACENE				314.62 J	638.48 J	5343.52 J
C2-FLUORANTHENES/PYRENES				318.54 J	444.81 J	3151.3 J
C3 - CHRYSENE				74.72 J	115.06 J	833.05 J
C3 - FLUORENE				78.6 J	179.85 J	1616.09 J
C3 - NAPHTHALENE				91.55 J	319.72 J	3546.49 J
C3 - PHENANTHRENE/ANTHRACENE				257.69 J	581.41 J	3607.48 J
C3- FLUORANTHENES/PYRENES				157.09 J	273.68 J	1821.64 J
C4 - CHRYSENE				42.06 J	64.97 J	512.51 J
C4 - NAPHTHALENE				90.87 J	281.2 J	2472.96 J
C4 - PHENANTHRENE/ANTHRACENE				95.64 J	269.51 J	2347.6 J
CHRYSENE	166	1290	166	601.35 J	547.29 J	3143.97 J
DIBENZ(A,H)ANTHRACENE	33		33	104.67 J	75.36 J	551.17 J
FLUORANTHENE	423	2230	423	1100.51 J	1604.3 J	8645.26 J
FLUORENE	77.4	536	77	129.65 J	708.8 J	3359.16 J
INDENO(1,2,3-C,D)PYRENE			200	503.2 J	324.42 J	1370.37 J
NAPHTHALENE	176	561	176	424.76 J	697.6 J	1032.67 J
PERYLENE				337.11 J	583.31 J	864.32 J
PHENANTHRENE	204	1170	204	487.75 J	1463.7 J	8658.79 J
PYRENE	195	1520	195	886.3 J	1319.71 J	6921.65 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		8008.97	9979.78	52196.41
TOTAL PAH 34 (LAB REPORTED)	1610	22800		11879.9	16728.73	99689.65

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
NAME	TEC	PEC	REGION4_ESV	LMR21-47S (0-0.5)	LMR21-49S (0-0.5)	LMR21-52S (0-0.5)
ACENAPHTHENE			6.7	7172.71 J	48052.75 J	11.07 J
ACENAPHTHYLENE			5.9	15725.52 J	3943.53 J	6.96 J
ANTHRACENE	57.2	845	57	25521.91 J	50946.07 J	35.38 J
BENZO(A)ANTHRACENE	108	1050	108	20027.01 J	34734.2 J	84.96 J
BENZO(A)PYRENE	150	1450	150	16123.79 J	26286.91 J	94.52 J
BENZO(B)FLUORANTHENE			190	13651.64 J	18606.93 J	118.29 J
BENZO(E)PYRENE				8842.5 J	16665.63 J	87.93 J
BENZO(G,H,I)PERYLENE			170	7687.07 J	15026.93 J	80.53 J
BENZO(K)FLUORANTHENE			240	15623.29 J	27344.03 J	124.8 J
BIPHENYL (DIPHENYL)				4005.13 J	6458.79 J	2.68 J
C1 - CHRYSENE				3951.46 J	6016.53 J	35.58 J
C1 - FLUORANTHENE/PYRENE				20209.24 J	33672.56 J	83.57 J
C1 - FLUORENE				11753.9 J	4883.01 J	7.95 J
C1 - NAPHTHALENE				31459.68 J	28112.77 J	13.13 J
C1 - PHENANTHRENE/ANTHRACENE				17237.68 J	29938.88 J	63.8 J
C2 - CHRYSENE				1113.16 J	1996.57 J	23.99 J
C2 - FLUORENE				4019.87 J	1867.68 J	12.92 J
C2 - NAPHTHALENE				6500.71 J	9891.15 J	17.26 J
C2 - PHENANTHRENE/ANTHRACENE				9370.95 J	8812.74 J	64.57 J
C2-FLUORANTHENES/PYRENES				6530.92 J	9094.82 J	65.37 J
C3 - CHRYSENE				1007.1 J	868.18 J	16.1 J
C3 - FLUORENE				2204.63 J	1631.5 J	22.18 J
C3 - NAPHTHALENE				3651.82 J	3880.36 J	27.82 J
C3 - PHENANTHRENE/ANTHRACENE				7532.87 J	4439.69 J	67.37 J
C3- FLUORANTHENES/PYRENES				2170.42 J	2281.72 J	37.42 J
C4 - CHRYSENE				379.32 J	401.01 J	10.57 J
C4 - NAPHTHALENE				5794.26 J	1565.03 J	29.93 J
C4 - PHENANTHRENE/ANTHRACENE				2442.87 J	1026.57 J	24.8 J
CHRYSENE	166	1290	166	14472.91 J	27057.82 J	120.95 J
DIBENZ(A,H)ANTHRACENE	33		33	1956.48 J	3466.7 J	14.34 J
FLUORANTHENE	423	2230	423	54164.5 J	116158.93 J	240.51 J
FLUORENE	77.4	536	77	79201.4 J	46308.71 J	21.59 J
INDENO(1,2,3-C,D)PYRENE			200	10412.49 J	13920.36 J	84.75 J
NAPHTHALENE	176	561	176	1125275.32 J	476305.02 J	47.1 J
PERYLENE				5128.64 J	10033.11 J	278.24 J
PHENANTHRENE	204	1170	204	76604.39 J	185505.6 J	121.86 J
PYRENE	195	1520	195	38630.61 J	83549.23 J	187.55 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		1522251.04	1177213.72	1395.16
TOTAL PAH 34 (LAB REPORTED)	1610	22800		1673553.04	1354293.23	2385.66

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge B1
NAME	TEC	PEC	REGION4_ESV	LMR21-53S (0-0.5)	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)
ACENAPHTHENE			6.7	526.53 J	18.15 J	100.27 J
ACENAPHTHYLENE			5.9	583.84 J	12.2 J	14.46 J
ANTHRACENE	57.2	845	57	1607.7 J	48.64 J	99.71 J
BENZO(A)ANTHRACENE	108	1050	108	2957.41 J	149.3 J	283.74 J
BENZO(A)PYRENE	150	1450	150	2891.59 J	182.86 J	275.65 J
BENZO(B)FLUORANTHENE			190	2099.65 J	189.16 J	315.65 J
BENZO(E)PYRENE				2108.01 J	163.56 J	241.06 J
BENZO(G,H,I)PERYLENE			170	1975.33 J	223.9 J	289.49 J
BENZO(K)FLUORANTHENE			240	3155.9 J	235.91 J	303.27 J
BIPHENYL (DIPHENYL)				8.19 J	4.94 J	6.97 J
C1 - CHRYSENE				657.55 J	56.5 J	123.29 J
C1 - FLUORANTHENE/PYRENE				3038.22 J	142.34 J	333.03 J
C1 - FLUORENE				235.48 J	9.94 J	51.65 J
C1 - NAPHTHALENE				179.81 J	27.39 J	37.34 J
C1 - PHENANTHRENE/ANTHRACENE				1572.55 J	98.73 J	253.44 J
C2 - CHRYSENE				170.98 J	40.79 J	87.01 J
C2 - FLUORENE				142.55 J	16.18 J	66.9 J
C2 - NAPHTHALENE				292.3 J	31.06 J	70.88 J
C2 - PHENANTHRENE/ANTHRACENE				861.5 J	94.51 J	288.52 J
C2-FLUORANTHENES/PYRENES				615.2 J	83.05 J	167.97 J
C3 - CHRYSENE				163.02 J	35.6 J	69.28 J
C3 - FLUORENE				147.93 J	25.74 J	83.44 J
C3 - NAPHTHALENE				298.72 J	45.04 J	160.47 J
C3 - PHENANTHRENE/ANTHRACENE				502.94 J	78.09 J	238.88 J
C3- FLUORANTHENES/PYRENES				191.72 J	48.67 J	113.16 J
C4 - CHRYSENE				281.83 J	40.17 J	64.47 J
C4 - NAPHTHALENE				250.04 J	50.88 J	172.59 J
C4 - PHENANTHRENE/ANTHRACENE				194.36 J	41.32 J	130.69 J
CHRYSENE	166	1290	166	2539.45 J	170.88 J	275.24 J
DIBENZ(A,H)ANTHRACENE	33		33	1948.16 J	38.49 J	49.24 J
FLUORANTHENE	423	2230	423	6687.19 J	355.02 J	643.21 J
FLUORENE	77.4	536	77	679.79 J	29.38 J	88.49 J
INDENO(1,2,3-C,D)PYRENE			200	2415 J	218.99 J	306.89 J
NAPHTHALENE	176	561	176	1453.65 J	112.66 J	132.06 J
PERYLENE				1911.08 J	387.22 J	1123.97 J
PHENANTHRENE	204	1170	204	4885.09 J	183.35 J	409.45 J
PYRENE	195	1520	195	4938.95 J	274.18 J	552.78 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		41345.23	2443.07	4139.6
TOTAL PAH 34 (LAB REPORTED)	1610	22800		55161.02	3959.85	8017.64

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		Sway Bridge B1	Biological Survey	Biological Survey
NAME	TEC	PEC	REGION4_ESV	LMR21-59S (0-0.5)	LMR21-61S (0-0.5)	LMR21-62S (0-0.5)
ACENAPHTHENE			6.7	27 J	25.1 J	24.07 J
ACENAPHTHYLENE			5.9	8.05 J	32.09 J	11.49 J
ANTHRACENE	57.2	845	57	55.9 J	82.31 J	44.74 J
BENZO(A)ANTHRACENE	108	1050	108	148.15 J	453.23 J	171.38 J
BENZO(A)PYRENE	150	1450	150	170.79 J	512.09 J	211.74 J
BENZO(B)FLUORANTHENE			190	182.79 J	577.29 J	232.84 J
BENZO(E)PYRENE				154.85 J	425.97 J	195.83 J
BENZO(G,H,I)PERYLENE			170	203.93 J	548.59 J	260.84 J
BENZO(K)FLUORANTHENE			240	222.74 J	553.51 J	266.86 J
BIPHENYL (DIPHENYL)				6.08 J	6.07 J	3.64 J
C1 - CHRYSENE				58.77 J	198.66 J	84.81 J
C1 - FLUORANTHENE/PYRENE				156.27 J	434.65 J	188.01 J
C1 - FLUORENE				14.43 J	24.07 J	16.81 J
C1 - NAPHTHALENE				29.36 J	47.16 J	21.06 J
C1 - PHENANTHRENE/ANTHRACENE				122.9 J	235.17 J	120.03 J
C2 - CHRYSENE				39.84 J	122.2 J	57.1 J
C2 - FLUORENE				28.12 J	46.14 J	33.66 J
C2 - NAPHTHALENE				40.97 J	70.13 J	35.46 J
C2 - PHENANTHRENE/ANTHRACENE				136.83 J	250.98 J	142.55 J
C2-FLUORANTHENES/PYRENES				80.82 J	236.56 J	102.86 J
C3 - CHRYSENE				33.23 J	94.62 J	46.76 J
C3 - FLUORENE				39.64 J	67.47 J	43.41 J
C3 - NAPHTHALENE				69.04 J	91.65 J	66.83 J
C3 - PHENANTHRENE/ANTHRACENE				110.46 J	183.73 J	116.03 J
C3- FLUORANTHENES/PYRENES				50.46 J	133.25 J	64.7 J
C4 - CHRYSENE				37.47 J	134.86 J	59.58 J
C4 - NAPHTHALENE				80.94 J	92.2 J	75.06 J
C4 - PHENANTHRENE/ANTHRACENE				53.52 J	106.93 J	58.9 J
CHRYSENE	166	1290	166	171.53 J	447.54 J	201.94 J
DIBENZ(A,H)ANTHRACENE	33		33	34.28 J	102.53 J	46 J
FLUORANTHENE	423	2230	423	354.74 J	849.86 J	409.72 J
FLUORENE	77.4	536	77	40.28 J	41.49 J	30.86 J
INDENO(1,2,3-C,D)PYRENE			200	204.88 J	496.2 J	254.88 J
NAPHTHALENE	176	561	176	104.34 J	87.7 J	55.73 J
PERYLENE				353.37 J	632.17 J	601.86 J
PHENANTHRENE	204	1170	204	202.62 J	316.32 J	172.47 J
PYRENE	195	1520	195	292.64 J	704.7 J	337.04 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		2424.66	5830.55	2732.6
TOTAL PAH 34 (LAB REPORTED)	1610	22800		4115.95	9459.12	4863.91

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	REGION4_ESV	LMR21-64S (0-0.5)	LMR21-66S (0-0.5)	LMR21-68S (0-0.5)
ACENAPHTHENE			6.7	199.18 J	69.23 J	90.46 J
ACENAPHTHYLENE			5.9	32.02 J	20.58 J	43.28 J
ANTHRACENE	57.2	845	57	142.43 J	117.98 J	637.41 J
BENZO(A)ANTHRACENE	108	1050	108	251.51 J	237.9 J	1750.48 J
BENZO(A)PYRENE	150	1450	150	245.78 J	258.96 J	1508.11 J
BENZO(B)FLUORANTHENE			190	230.45 J	222.53 J	1351.06 J
BENZO(E)PYRENE				184.73 J	209.65 J	944.34 J
BENZO(G,H,I)PERYLENE			170	226.76 J	273.71 J	1160.15 J
BENZO(K)FLUORANTHENE			240	281.26 J	340.07 J	1417.72 J
BIPHENYL (DIPHENYL)				26.35 J	8.61 J	47.45 J
C1 - CHRYSENE				92.03 J	78.47 J	475.3 J
C1 - FLUORANTHENE/PYRENE				263.49 J	231.25 J	1492.3 J
C1 - FLUORENE				27.71 J	20.19 J	109.47 J
C1 - NAPHTHALENE				232.45 J	48.58 J	36.57 J
C1 - PHENANTHRENE/ANTHRACENE				215.17 J	152.59 J	1200.96 J
C2 - CHRYSENE				68.18 J	48.08 J	208.76 J
C2 - FLUORENE				37.5 J	25.49 J	116.34 J
C2 - NAPHTHALENE				87.64 J	45.04 J	92.76 J
C2 - PHENANTHRENE/ANTHRACENE				204.51 J	136.11 J	777.54 J
C2-FLUORANTHENES/PYRENES				111.27 J	91.09 J	605.42 J
C3 - CHRYSENE				63.54 J	39.94 J	166.61 J
C3 - FLUORENE				61.36 J	38.16 J	119.27 J
C3 - NAPHTHALENE				91.41 J	65.31 J	175.28 J
C3 - PHENANTHRENE/ANTHRACENE				172.09 J	102.08 J	363.19 J
C3- FLUORANTHENES/PYRENES				83 J	57.73 J	263.45 J
C4 - CHRYSENE				66.89 J	47.68 J	202.33 J
C4 - NAPHTHALENE				89.73 J	66.4 J	151.88 J
C4 - PHENANTHRENE/ANTHRACENE				87.51 J	53.62 J	142.79 J
CHRYSENE	166	1290	166	226.13 J	244.6 J	1144.17 J
DIBENZ(A,H)ANTHRACENE	33		33	40.86 J	47 J	275.36 J
FLUORANTHENE	423	2230	423	584.44 J	568.71 J	3219.46 J
FLUORENE	77.4	536	77	172.5 J	83.18 J	185.28 J
INDENO(1,2,3-C,D)PYRENE			200	228.51 J	269.23 J	1212.82 J
NAPHTHALENE	176	561	176	941.46 J	309.83 J	135.05 J
PERYLENE				385.47 J	569.2 J	780.98 J
PHENANTHRENE	204	1170	204	512.23 J	397.88 J	2020.63 J
PYRENE	195	1520	195	437.08 J	439.24 J	2554.16 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		4752.6	3900.63	18705.6
TOTAL PAH 34 (LAB REPORTED)	1610	22800		7378.28	6027.29	27131.14

Units are µg/kg
Sampling depth interval is indicated in feet

		Sampling Area >		Reference
NAME	TEC	PEC	REGION4_ESV	LMR21-69S (0-0.5)
ACENAPHTHENE			6.7	4.3 J
ACENAPHTHYLENE			5.9	3.58 J
ANTHRACENE	57.2	845	57	11.94 J
BENZO(A)ANTHRACENE	108	1050	108	71.82 J
BENZO(A)PYRENE	150	1450	150	108.34 J
BENZO(B)FLUORANTHENE			190	132.4 J
BENZO(E)PYRENE				114.27 J
BENZO(G,H,I)PERYLENE			170	158.6 J
BENZO(K)FLUORANTHENE			240	157.31 J
BIPHENYL (DIPHENYL)				2.33 J
C1 - CHRYSENE				36.34 J
C1 - FLUORANTHENE/PYRENE				85.59 J
C1 - FLUORENE				7.16 J
C1 - NAPHTHALENE				18.97 J
C1 - PHENANTHRENE/ANTHRACENE				62.6 J
C2 - CHRYSENE				28.62 J
C2 - FLUORENE				11.45 J
C2 - NAPHTHALENE				25.43 J
C2 - PHENANTHRENE/ANTHRACENE				71.41 J
C2-FLUORANTHENES/PYRENES				53.68 J
C3 - CHRYSENE				24.06 J
C3 - FLUORENE				20.23 J
C3 - NAPHTHALENE				37.61 J
C3 - PHENANTHRENE/ANTHRACENE				63.33 J
C3- FLUORANTHENES/PYRENES				36.17 J
C4 - CHRYSENE				32.31 J
C4 - NAPHTHALENE				46.56 J
C4 - PHENANTHRENE/ANTHRACENE				32.82 J
CHRYSENE	166	1290	166	110.59 J
DIBENZ(A,H)ANTHRACENE	33		33	24.7 J
FLUORANTHENE	423	2230	423	213.16 J
FLUORENE	77.4	536	77	10.43 J
INDENO(1,2,3-C,D)PYRENE			200	140.19 J
NAPHTHALENE	176	561	176	9.98 J
PERYLENE				490.96 J
PHENANTHRENE	204	1170	204	83.96 J
PYRENE	195	1520	195	169.7 J
TOTAL 17 PAH (LAB REPORTED - ND SET TO 1/2 RL OR DL)	1610	22800		1411
TOTAL PAH 34 (LAB REPORTED)	1610	22800		2710.57

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-01C (0-1)	LMR21-01C (1-4)	LMR21-01C (4-7)	LMR21-01C (7-8)	LMR21-02C (0-1)
2-METHYLNAPHTHALENE				20.2	340.5 UJ	224 U	192 U	186.5 U	57.5 J-
ACENAPHTHENE				6.7	126 UJ	32.4 J	27.6 J	69 U	104.5 UJ
ACENAPHTHYLENE				5.9	126 UJ	72.6 J	28.4 J	69 U	59.6 J-
ANTHRACENE		57.2	845	57	126 UJ	82.8 J	89.2 J	69 U	71.1 J-
BENZO(A)ANTHRACENE		108	1050	108	126 UJ	210	242	69 U	215 J-
BENZO(A)PYRENE		150	1450	150	126 UJ	246	249	69 U	270 J-
BENZO(B)FLUORANTHENE				190	126 UJ	180	172	69 U	230 J-
BENZO(G,H,I)PERYLENE				170	126 UJ	143 J	113 J	69 U	196 J-
BENZO(K)FLUORANTHENE				240	126 UJ	174	168	69 U	211 J-
CHRYSENE		166	1290	166	126 UJ	237	228	69 U	364 J-
DIBENZ(A,H)ANTHRACENE		33		33	126 UJ	38.4 J	42.1 J	69 U	61 J-
FLUORANTHENE		423	2230	423	126 UJ	330	381	69 U	331 J-
FLUORENE		77.4	536	77	126 UJ	51.6 J	29.2 J	69 U	64.2 J-
INDENO(1,2,3-C,D)PYRENE				200	126 UJ	143 J	117 J	69 U	162 J-
NAPHTHALENE		176	561	176	126 UJ	73.8 J	63.5 J	50.9 J	158 J-
PHENANTHRENE		204	1170	204	126 UJ	172	230	69 U	209 J-
PYRENE		195	1520	195	126 UJ	305	393	69 U	376 J-
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2356.5	2715.6	2765	1272.4	3139.9
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

			Sampling Area >		WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-02C (1-4)	LMR21-02C (4-7)	LMR21-02C (7-8)	LMR21-03C (0-1)	LMR21-03C (1-4)
2-METHYLNAPHTHALENE				20.2	44.5 J	50.2 J	30.9 J	277.5 U	111 J
ACENAPHTHENE				6.7	55.4 J	222	76 J	103 U	158 J
ACENAPHTHYLENE				5.9	86.9 J	147 J	136 J	103 U	265
ANTHRACENE		57.2	845	57	121 J	330	231	80.5 J	400
BENZO(A)ANTHRACENE		108	1050	108	296	420	433	173 J	769
BENZO(A)PYRENE		150	1450	150	319	440	531	171 J	675
BENZO(B)FLUORANTHENE				190	239	306	352	174 J	517
BENZO(G,H,I)PERYLENE				170	186	238	262	95 J	342
BENZO(K)FLUORANTHENE				240	197	332	368	133 J	464
CHRYSENE		166	1290	166	390	446	485	176 J	958
DIBENZ(A,H)ANTHRACENE		33		33	61.6 J	61.5 J	66.6 J	103 U	101 J
FLUORANTHENE		423	2230	423	501	1040	868	282	1300
FLUORENE		77.4	536	77	77.4 J	303	138 J	35.1 J	283
INDENO(1,2,3-C,D)PYRENE				200	171	240	263	106 J	331
NAPHTHALENE		176	561	176	164 J	153 J	136 J	103 U	233
PHENANTHRENE		204	1170	204	400	1110	582	171 J	1280
PYRENE		195	1520	195	521	893	732	223	1440
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		3830.8	6731.7	5690.5	2509.1	9627
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	WWTP C1	WWTP C1	WWTP B2	WWTP B2	WWTP B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-03C (1-4) FD	LMR21-03C (4-7)	LMR21-04C (0-1)	LMR21-04C (1-4)	LMR21-04C (4-7)
2-METHYLNAPHTHALENE				20.2	52.9 J	29.8 J	705 U	93.4 J	38.3 J
ACENAPHTHENE				6.7	75 J	60 J	261 U	299 J	126 J
ACENAPHTHYLENE				5.9	124 J	52 J	261 U	373 J	64.3 J
ANTHRACENE		57.2	845	57	183	127 J	103 J	401 J	282
BENZO(A)ANTHRACENE		108	1050	108	392	228	243 J	1110	453
BENZO(A)PYRENE		150	1450	150	388	249	323 J	1070	444
BENZO(B)FLUORANTHENE				190	280	191	283 J	944	314
BENZO(G,H,I)PERYLENE				170	215	135 J	218 J	594	184
BENZO(K)FLUORANTHENE				240	287	194	232 J	812	299
CHRYSENE		166	1290	166	429	247	310 J	1450	431
DIBENZ(A,H)ANTHRACENE		33		33	59.4 J	31.3 J	261 U	187 J	57.4 J
FLUORANTHENE		423	2230	423	676	491	473 J	2090	888
FLUORENE		77.4	536	77	92.6 J	104 J	261 U	369 J	129 J
INDENO(1,2,3-C,D)PYRENE				200	190	118 J	205 J	637	205
NAPHTHALENE		176	561	176	99.1 J	112 J	142 J	286 J	99.1 J
PHENANTHRENE		204	1170	204	568	420	226 J	2120	712
PYRENE		195	1520	195	707	509	485 J	2160	852
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		4818	3298.1	4992	14995.4	5578.1
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-05C (0-1)	LMR21-05C (1-4)	LMR21-05C (4-7)	LMR21-05C (7-8)	LMR21-06C (0-1)
2-METHYLNAPHTHALENE				20.2	316 UJ	245.5 UJ	243.5 UJ	239 U	835 U
ACENAPHTHENE				6.7	117 UJ	91 UJ	90 UJ	88.5 U	309 U
ACENAPHTHYLENE				5.9	117 UJ	91 UJ	90 UJ	88.5 U	309 U
ANTHRACENE		57.2	845	57	117 UJ	91 UJ	90 UJ	33.2 J	309 U
BENZO(A)ANTHRACENE		108	1050	108	117 UJ	91 UJ	90 UJ	89.9 J	309 U
BENZO(A)PYRENE		150	1450	150	117 UJ	91 UJ	90 UJ	127 J	128 J
BENZO(B)FLUORANTHENE				190	117 UJ	37 J-	90 UJ	107 J	136 J
BENZO(G,H,I)PERYLENE				170	117 UJ	91 UJ	90 UJ	92 J	309 U
BENZO(K)FLUORANTHENE				240	117 UJ	91 UJ	90 UJ	112 J	309 U
CHRYSENE		166	1290	166	117 UJ	91 UJ	90 UJ	149 J	309 U
DIBENZ(A,H)ANTHRACENE		33		33	117 UJ	91 UJ	90 UJ	88.5 U	309 U
FLUORANTHENE		423	2230	423	51.1 J-	61.6 J-	38.8 J-	264	213 J
FLUORENE		77.4	536	77	117 UJ	91 UJ	90 UJ	88.5 U	309 U
INDENO(1,2,3-C,D)PYRENE				200	117 UJ	33.4 J-	90 UJ	96.2 J	309 U
NAPHTHALENE		176	561	176	117 UJ	91 UJ	90 UJ	47.4 J	309 U
PHENANTHRENE		204	1170	204	117 UJ	91 UJ	90 UJ	138 J	109 J
PYRENE		195	1520	195	117 UJ	55.7 J-	33.7 J-	220	200 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2122.1	1525.2	1576	2068.7	5020
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-06C (1-4)	LMR21-06C (4-6.3)	LMR21-07C (0-1)	LMR21-07C (1-4)	LMR21-07C (4-7)
2-METHYLNAPHTHALENE				20.2	665 U	600 U	700 U	81.5 J	620 U
ACENAPHTHENE				6.7	246.5 U	80.2 J	360 J	187 J	217 J
ACENAPHTHYLENE				5.9	246.5 U	98 J	210 J	246 J	108 J
ANTHRACENE		57.2	845	57	246.5 U	138 J	207 J	340 J	370 J
BENZO(A)ANTHRACENE		108	1050	108	246.5 U	364 J	795	1100	602
BENZO(A)PYRENE		150	1450	150	166 J	455	695	1120	721
BENZO(B)FLUORANTHENE				190	148 J	459	612	862	398 J
BENZO(G,H,I)PERYLENE				170	246.5 U	277 J	379 J	575	394 J
BENZO(K)FLUORANTHENE				240	86 J	316 J	517 J	696	431 J
CHRYSENE		166	1290	166	125 J	486	944	1170	582
DIBENZ(A,H)ANTHRACENE		33		33	246.5 U	221.5 U	115 J	118 J	229.5 U
FLUORANTHENE		423	2230	423	273 J	770	1460	2040	1140
FLUORENE		77.4	536	77	246.5 U	132 J	462 J	214 J	184 J
INDENO(1,2,3-C,D)PYRENE				200	92 J	267 J	387 J	552	345 J
NAPHTHALENE		176	561	176	96.5 J	180 J	261 J	256 J	298 J
PHENANTHRENE		204	1170	204	138 J	488	1690	1270	1230
PYRENE		195	1520	195	256 J	869	1470	2090	1550
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		3771	6200.7	11264	12917.5	9419.5
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-07C (7-8)	LMR21-08C (0-1)	LMR21-08C (1-4)	LMR21-08C (4-7)	LMR21-08C (7-8.1)
2-METHYLNAPHTHALENE				20.2	510 U	53.8 J	106 J	68.7 J	199.5 U
ACENAPHTHENE				6.7	189.5 U	53.4 J	236	152 J	36.4 J
ACENAPHTHYLENE				5.9	189.5 U	101 J	290	175	74 U
ANTHRACENE		57.2	845	57	89.7 J	184 J	615	447	93.7 J
BENZO(A)ANTHRACENE		108	1050	108	127 J	710	1430	1070	181
BENZO(A)PYRENE		150	1450	150	189.5 U	799	1500	1320	219
BENZO(B)FLUORANTHENE				190	71.1 J	605	1040	674	142 J
BENZO(G,H,I)PERYLENE				170	189.5 U	401	706	616	101 J
BENZO(K)FLUORANTHENE				240	108 J	497	1070	775	148
CHRYSENE		166	1290	166	105 J	1000	1560	1080	187
DIBENZ(A,H)ANTHRACENE		33		33	189.5 U	122 J	192	146 J	74 U
FLUORANTHENE		423	2230	423	288 J	986	2590	1550	376
FLUORENE		77.4	536	77	189.5 U	113 J	338	164	61.8 J
INDENO(1,2,3-C,D)PYRENE				200	189.5 U	383	731	570	110 J
NAPHTHALENE		176	561	176	177 J	168 J	289	179	99.5 J
PHENANTHRENE		204	1170	204	182 J	281	1800	1140	270
PYRENE		195	1520	195	219 J	1100	2720	2060	429
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		3203.3	7557.2	17213	12186.7	2801.9
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-09C (0-1)	LMR21-09C (1-4)	LMR21-09C (4-7)	LMR21-09C (4-7) FD	LMR21-09C (7-7.5)
2-METHYLNAPHTHALENE				20.2	73.4 J	101 J	585 U	28.7 J	575 U
ACENAPHTHENE				6.7	188 J	611	104 J	131 J	214 U
ACENAPHTHYLENE				5.9	307 J	341 J	217 U	120 J	214 U
ANTHRACENE		57.2	845	57	299 J	639	196 J	278	81.9 J
BENZO(A)ANTHRACENE		108	1050	108	967	1170	358 J	686	165 J
BENZO(A)PYRENE		150	1450	150	1030	1300	430 J	875	139 J
BENZO(B)FLUORANTHENE				190	825	943	232 J	418	86 J
BENZO(G,H,I)PERYLENE				170	520	669	195 J	454	77 J
BENZO(K)FLUORANTHENE				240	714	837	263 J	512	214 U
CHRYSENE		166	1290	166	1210	1250	356 J	690	93.6 J
DIBENZ(A,H)ANTHRACENE		33		33	158 J	174 J	217 U	84 J	214 U
FLUORANTHENE		423	2230	423	1470	2420	571	1030	249 J
FLUORENE		77.4	536	77	283 J	721	86.9 J	123 J	214 U
INDENO(1,2,3-C,D)PYRENE				200	519	675	188 J	402	80 J
NAPHTHALENE		176	561	176	268 J	263 J	124 J	90.6 J	142 J
PHENANTHRENE		204	1170	204	1380	2420	582	841	196 J
PYRENE		195	1520	195	1650	2370	839	1370	319 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		11861.4	16904	5543.9	8133.3	3273.5
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-10C (0-1)	LMR21-10C (1-4)	LMR21-10C (4-7)	LMR21-10C (7-8.5)	LMR21-11C (0-1)
2-METHYLNAPHTHALENE				20.2	170 J	138 J	201 U	196 U	120 J
ACENAPHTHENE				6.7	186 J	138 J	74.5 U	72.5 U	411
ACENAPHTHYLENE				5.9	310	134 J	74.5 U	72.5 U	243
ANTHRACENE		57.2	845	57	454	334	74.5 U	72.5 U	679
BENZO(A)ANTHRACENE		108	1050	108	1540	777	26.1 J	72.5 U	1230
BENZO(A)PYRENE		150	1450	150	1740	901	74.5 U	72.5 U	1100
BENZO(B)FLUORANTHENE				190	1380	760	35.5 J	72.5 U	836
BENZO(G,H,I)PERYLENE				170	978	474	74.5 U	72.5 U	556
BENZO(K)FLUORANTHENE				240	1350	746	74.5 U	72.5 U	895
CHRYSENE		166	1290	166	2120	992	46.8 J	72.5 U	1400
DIBENZ(A,H)ANTHRACENE		33		33	279	152	74.5 U	72.5 U	180
FLUORANTHENE		423	2230	423	2790	1420	65.7 J	72.5 U	2830
FLUORENE		77.4	536	77	614	304	74.5 U	72.5 U	537
INDENO(1,2,3-C,D)PYRENE				200	945	462	74.5 U	72.5 U	583
NAPHTHALENE		176	561	176	481	414	169	174	336
PHENANTHRENE		204	1170	204	1300	1070	72.5 J	72.5 U	2450
PYRENE		195	1520	195	2770	1590	78.5 J	72.5 U	2500
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		19407	10806	1365.6	1457.5	16886
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-11C (1-4)	LMR21-11C (4-7)	LMR21-11C (7-9)	LMR21-12C (0-1)	LMR21-12C (10-13)
2-METHYLNAPHTHALENE				20.2	178 J	178.5 U	191 U	310 U	195.5 U
ACENAPHTHENE				6.7	740	52.9 J	71 U	115 U	72.5 U
ACENAPHTHYLENE				5.9	342	38.2 J	71 U	115 U	29.2 J
ANTHRACENE		57.2	845	57	997	72.8 J	71 U	115 U	68.2 J
BENZO(A)ANTHRACENE		108	1050	108	1440	143	71 U	120 J	163
BENZO(A)PYRENE		150	1450	150	1420	127 J	28.3 J	195 J	165
BENZO(B)FLUORANTHENE				190	1030	99.1 J	71 U	207 J	129 J
BENZO(G,H,I)PERYLENE				170	710	66.7 J	24.7 J	163 J	62 J
BENZO(K)FLUORANTHENE				240	1080	97.8 J	71 U	165 J	132 J
CHRYSENE		166	1290	166	1710	158	40.1 J	216 J	172
DIBENZ(A,H)ANTHRACENE		33		33	199	66 U	71 U	115 U	72.5 U
FLUORANTHENE		423	2230	423	3200	270	66.2 J	321	222
FLUORENE		77.4	536	77	911	62.7 J	71 U	115 U	72.5 U
INDENO(1,2,3-C,D)PYRENE				200	692	63.9 J	71 U	147 J	74.2 J
NAPHTHALENE		176	561	176	737	136	160	109 J	27.7 J
PHENANTHRENE		204	1170	204	3230	231	62.1 J	142 J	166
PYRENE		195	1520	195	2820	240	55.2 J	265	199
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		21436	2103.6	1266.6	2935	2022.3
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		WWTP A2	WWTP A2	WWTP A2	WWTP A1	WWTP A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-12C (1-4)	LMR21-12C (4-7)	LMR21-12C (7-10)	LMR21-13C (0-1)	LMR21-13C (1-4)
2-METHYLNAPHTHALENE				20.2	224.5 U	243.5 U	221.5 U	61 J	38.6 J
ACENAPHTHENE				6.7	83 U	90 U	45.6 J+	70.6 J	75.1 J
ACENAPHTHYLENE				5.9	83 U	90 U	65.5 J+	175	89.1 J
ANTHRACENE		57.2	845	57	49.6 J	36.2 J	97.3 J+	195	144 J
BENZO(A)ANTHRACENE		108	1050	108	173	122 J	224 J+	573	265
BENZO(A)PYRENE		150	1450	150	223	162 J	340 J+	717	271
BENZO(B)FLUORANTHENE				190	235	146 J	323 J+	617	228
BENZO(G,H,I)PERYLENE				170	164 J	99.7 J	215 J+	408	139 J
BENZO(K)FLUORANTHENE				240	205	89.8 J	269 J+	574	198
CHRYSENE		166	1290	166	248	158 J	340 J+	665	330 J
DIBENZ(A,H)ANTHRACENE		33		33	28.4 J	90 U	45.1 J+	103 J	40.3 J
FLUORANTHENE		423	2230	423	466	241	564 J+	1070	485
FLUORENE		77.4	536	77	32.3 J	90 U	55.9 J+	117 J	131 J
INDENO(1,2,3-C,D)PYRENE				200	166	103 J	231 J+	416	140 J
NAPHTHALENE		176	561	176	87.5 J	90 U	64.9 J+	152 J	76.2 J
PHENANTHRENE		204	1170	204	180	132 J	289 J+	578	550
PYRENE		195	1520	195	371	228	531 J+	1050	577
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		3019.3	2211.2	3921.8	7541.6	3777.3
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-13C (1-4) FD	LMR21-13C (4-7)	LMR21-13C (7-9)	LMR21-14C (0-1)	LMR21-14C (1-4)
2-METHYLNAPHTHALENE				20.2	63.7 J	26.2 J	212 U	53.5 J	183.5 U
ACENAPHTHENE				6.7	135 J	52.5 J	38.5 J	75.1 J	68 U
ACENAPHTHYLENE				5.9	226	80.1 J	50.8 J	73.9 J	68 U
ANTHRACENE		57.2	845	57	294	111 J	63.5 J	146 J	68 U
BENZO(A)ANTHRACENE		108	1050	108	736	314	148 J	378	68 U
BENZO(A)PYRENE		150	1450	150	657	423	198	405	68 U
BENZO(B)FLUORANTHENE				190	510	230	106 J	356	68 U
BENZO(G,H,I)PERYLENE				170	336	213	95 J	245	68 U
BENZO(K)FLUORANTHENE				240	424	281	119 J	346	68 U
CHRYSENE		166	1290	166	1030 J	354	151 J	507	68 U
DIBENZ(A,H)ANTHRACENE		33		33	113 J	48.5 J	78.5 U	67.5 J	68 U
FLUORANTHENE		423	2230	423	1050	455	241	862	68 U
FLUORENE		77.4	536	77	233	54.5 J	78.5 U	176	68 U
INDENO(1,2,3-C,D)PYRENE				200	283	205	91.2 J	246	68 U
NAPHTHALENE		176	561	176	110 J	66.2 J	40 J	159 J	68 U
PHENANTHRENE		204	1170	204	1170	339	184	565	68 U
PYRENE		195	1520	195	1220	570	315	813	68 U
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		8590.7	3823	2210	5474	1271.5
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-14C (4-7)	LMR21-14C (7-10)	LMR21-14C (7-10) FD	LMR21-15C (0-1)	LMR21-15C (1-4)
2-METHYLNAPHTHALENE				20.2	194 U	190 U	189.5 U	184 J	467 J
ACENAPHTHENE				6.7	72 U	70.5 U	70 U	191 J	291
ACENAPHTHYLENE				5.9	72 U	70.5 U	70 U	192 J	626
ANTHRACENE		57.2	845	57	72 U	70.5 U	70 U	300	548
BENZO(A)ANTHRACENE		108	1050	108	72 U	70.5 U	70 U	667	1550
BENZO(A)PYRENE		150	1450	150	72 U	70.5 U	70 U	947	3710
BENZO(B)FLUORANTHENE				190	72 U	70.5 U	70 U	816	3190 J
BENZO(G,H,I)PERYLENE				170	72 U	70.5 U	70 U	494	1960
BENZO(K)FLUORANTHENE				240	72 U	70.5 U	70 U	712	1950 J
CHRYSENE		166	1290	166	72 U	70.5 U	70 U	965	2350
DIBENZ(A,H)ANTHRACENE		33		33	72 U	70.5 U	70 U	137 J	375 J
FLUORANTHENE		423	2230	423	72 U	70.5 U	70 U	1400	2840
FLUORENE		77.4	536	77	72 U	70.5 U	70 U	257	557
INDENO(1,2,3-C,D)PYRENE				200	72 U	70.5 U	70 U	498	2070
NAPHTHALENE		176	561	176	72 U	70.5 U	70 U	372	1030
PHENANTHRENE		204	1170	204	72 U	70.5 U	70 U	981	1790
PYRENE		195	1520	195	72 U	70.5 U	70 U	1720	4300
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1346	1318	1309.5	10833	29604
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-15C (1-4) FD	LMR21-15C (4-7)	LMR21-15C (4-7) FD	LMR21-15C (7-10)	LMR21-16C (0-1)
2-METHYLNAPHTHALENE				20.2	181 J	587 J	7850 U	332 J	67.7 J
ACENAPHTHENE				6.7	119 J	412	2915 U	302	114 J
ACENAPHTHYLENE				5.9	340	916	2915 U	219	296
ANTHRACENE		57.2	845	57	274	530	2915 U	400	326
BENZO(A)ANTHRACENE		108	1050	108	922	1620	1790 J	1010	745
BENZO(A)PYRENE		150	1450	150	1930	126.5 U	4140 J	1120	608
BENZO(B)FLUORANTHENE				190	117.5 UJ	126.5 U	3550 J	1030	501
BENZO(G,H,I)PERYLENE				170	1180	2260	2610 J	551	321
BENZO(K)FLUORANTHENE				240	117.5 UJ	126.5 U	2410 J	832	421
CHRYSENE		166	1290	166	1290	2820	2890 J	1520	1040
DIBENZ(A,H)ANTHRACENE		33		33	117.5 UJ	152 J	2915 U	161	102 J
FLUORANTHENE		423	2230	423	1610	3160	3320 J	2210	1210
FLUORENE		77.4	536	77	234 J	1030	2915 U	684	233
INDENO(1,2,3-C,D)PYRENE				200	1090	2500	2360 J	511	316
NAPHTHALENE		176	561	176	381	1960	2100 J	638	96.6 J
PHENANTHRENE		204	1170	204	702	1800	2030 J	1460	1600
PYRENE		195	1520	195	2180	3310	4040 J	2400	1510
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		12785.5	23436.5	53665	15380	9507.3
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-16C (1-4)**	**LMR21-16C (4-7)**	**LMR21-16C (4-7) FD**	**LMR21-16C (7-11)**	**LMR21-17C (0-1)**
2-METHYLNAPHTHALENE				20.2	102 J	207.5 U	33 J	185.5 U	161 J
ACENAPHTHENE				6.7	306	75.8 J	107 J	69 U	227
ACENAPHTHYLENE				5.9	322	75.3 J	102 J	69 U	409
ANTHRACENE		57.2	845	57	756	131 J	201	69 U	499
BENZO(A)ANTHRACENE		108	1050	108	1220	310	337	25.7 J	916
BENZO(A)PYRENE		150	1450	150	1200	394	397	28.9 J	1080
BENZO(B)FLUORANTHENE				190	878	198	265	69 U	909
BENZO(G,H,I)PERYLENE				170	644	196	212	69 U	655
BENZO(K)FLUORANTHENE				240	912	240	252	69 U	779
CHRYSENE		166	1290	166	1370	307	368	28.6 J	1170
DIBENZ(A,H)ANTHRACENE		33		33	177	41.8 J	49.7 J	69 U	185
FLUORANTHENE		423	2230	423	2680	435	620	41.8 J	1730
FLUORENE		77.4	536	77	501	68.3 J	121 J	69 U	656
INDENO(1,2,3-C,D)PYRENE				200	635	185	196	69 U	650
NAPHTHALENE		176	561	176	254	41.5 J	50.1 J	69 U	497
PHENANTHRENE		204	1170	204	2150	389	605	26.4 J	1330
PYRENE		195	1520	195	2680	606	734	48.8 J	1710
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		16787	3901.2	4649.8	1075.7	13563
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-17C (10-13)	LMR21-17C (1-4)	LMR21-17C (4-7)	LMR21-17C (7-10)	LMR21-18C (0-1)
2-METHYLNAPHTHALENE				20.2	184.5 U	183 J	121 J	68.1 J	169 J
ACENAPHTHENE				6.7	68.5 U	166 J	170	178	348
ACENAPHTHYLENE				5.9	68.5 U	217	251	224	2060
ANTHRACENE		57.2	845	57	32.9 J	412	583	333	1130
BENZO(A)ANTHRACENE		108	1050	108	74 J	983	914	655	4560
BENZO(A)PYRENE		150	1450	150	79.5 J	996	837	678	4590
BENZO(B)FLUORANTHENE				190	53.1 J	917	683	512	2970
BENZO(G,H,I)PERYLENE				170	52.2 J	534	423	351	2010
BENZO(K)FLUORANTHENE				240	54.3 J	667	581	431	2960
CHRYSENE		166	1290	166	71.5 J	1330	1040	771	4560
DIBENZ(A,H)ANTHRACENE		33		33	68.5 U	166 J	132 J	82.1 J	611
FLUORANTHENE		423	2230	423	171	1910	1840	1110	6280
FLUORENE		77.4	536	77	68.5 U	483	342	232	671
INDENO(1,2,3-C,D)PYRENE				200	46.9 J	527	425	323	2040
NAPHTHALENE		176	561	176	68.5 U	539	261	104 J	431
PHENANTHRENE		204	1170	204	110 J	1420	1610	1110	3030
PYRENE		195	1520	195	182	1960	1710	1240	6570
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1454.4	13410	11923	8402.2	44990
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

			Sampling Area >		WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-18C (10-12)	LMR21-18C (1-4)	LMR21-18C (4-7)	LMR21-18C (7-10)	LMR21-19C (0-1)
2-METHYLNAPHTHALENE				20.2	303 J	117 J	101 J	188 J	69.9 J
ACENAPHTHENE				6.7	373	140 J	129 J	198	147 J
ACENAPHTHYLENE				5.9	441	198	185	308	171
ANTHRACENE		57.2	845	57	1030	360	283	689	268
BENZO(A)ANTHRACENE		108	1050	108	1950	777	584	2110	669
BENZO(A)PYRENE		150	1450	150	1810	817	546	1730	714
BENZO(B)FLUORANTHENE				190	1370	610	458	1350	533
BENZO(G,H,I)PERYLENE				170	910	456	296	860	370
BENZO(K)FLUORANTHENE				240	1380	649	426	1110	496
CHRYSENE		166	1290	166	2240	942	735	2990	790
DIBENZ(A,H)ANTHRACENE		33		33	328	131 J	92.2 J	371	101 J
FLUORANTHENE		423	2230	423	3520	1530	1120	2590	1110
FLUORENE		77.4	536	77	768	231	237	478	143 J
INDENO(1,2,3-C,D)PYRENE				200	872	443	292	769	363
NAPHTHALENE		176	561	176	538	532	213	291	173
PHENANTHRENE		204	1170	204	3070	1110	973	2310	629
PYRENE		195	1520	195	3440	1500	1070	3540	1270
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		24343	10543	7740.2	21882	8016.9
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-19C (1-4)	LMR21-19C (4-7)	LMR21-19C (7-9)	LMR21-20C (0-1)	LMR21-20C (1-4)
2-METHYLNAPHTHALENE				20.2	184 U	152.5 U	158 U	439	40.5 J
ACENAPHTHENE				6.7	35.2 J	56.5 U	58.5 U	1420	73 J
ACENAPHTHYLENE				5.9	68 U	56.5 U	58.5 U	589	38.7 J
ANTHRACENE		57.2	845	57	114 J	56.5 U	58.5 U	2330	208
BENZO(A)ANTHRACENE		108	1050	108	173	56.5 U	58.5 U	3580	319
BENZO(A)PYRENE		150	1450	150	136 J	56.5 U	58.5 U	3310	242
BENZO(B)FLUORANTHENE				190	122 J	56.5 U	58.5 U	2700	191
BENZO(G,H,I)PERYLENE				170	64.3 J	56.5 U	58.5 U	1610	90 J
BENZO(K)FLUORANTHENE				240	84.4 J	56.5 U	58.5 U	2730	190
CHRYSENE		166	1290	166	169	56.5 U	58.5 U	3850	290
DIBENZ(A,H)ANTHRACENE		33		33	68 U	56.5 U	58.5 U	453	27.2 J
FLUORANTHENE		423	2230	423	339	56.5 U	58.5 U	8840	636
FLUORENE		77.4	536	77	31 J	56.5 U	58.5 U	3900	205
INDENO(1,2,3-C,D)PYRENE				200	61.6 J	56.5 U	58.5 U	1800	104 J
NAPHTHALENE		176	561	176	102 J	81.8 J	108 J	865	122 J
PHENANTHRENE		204	1170	204	286	56.5 U	58.5 U	7100	482
PYRENE		195	1520	195	285	56.5 U	58.5 U	7640	573
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2322.5	1081.8	1143.5	53156	3831.4
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	WWTP A3	WWTP A3	WWTP B1	WWTP B1	WWTP B1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-20C (4-7)	LMR21-20C (7-10)	LMR21-21C (0-1)	LMR21-21C (1-4)	LMR21-21C (1-4) FD
2-METHYLNAPHTHALENE				20.2	173.5 U	152.5 U	161 J	103 J	31.8 J
ACENAPHTHENE				6.7	64 U	56.5 U	184	93.9 J	25.3 J
ACENAPHTHYLENE				5.9	64 U	56.5 U	227	82.5 J	65 U
ANTHRACENE		57.2	845	57	64 U	56.5 U	493	123 J	33.4 J
BENZO(A)ANTHRACENE		108	1050	108	64 U	56.5 U	1020	310	84.7 J
BENZO(A)PYRENE		150	1450	150	64 U	56.5 U	1230	353	95.1 J
BENZO(B)FLUORANTHENE				190	64 U	56.5 U	1100	67 U	105 J
BENZO(G,H,I)PERYLENE				170	64 U	56.5 U	649	171	49.1 J
BENZO(K)FLUORANTHENE				240	64 U	56.5 U	933	67 U	58.2 J
CHRYSENE		166	1290	166	64 U	56.5 U	1300	423	110 J
DIBENZ(A,H)ANTHRACENE		33		33	64 U	56.5 U	174	48.8 J	65 U
FLUORANTHENE		423	2230	423	64 U	56.5 U	2090	610	170
FLUORENE		77.4	536	77	64 U	56.5 U	356	231	54.3 J
INDENO(1,2,3-C,D)PYRENE				200	64 U	56.5 U	692	174	46.6 J
NAPHTHALENE		176	561	176	70.1 J	62.8 J	473	236	117 J
PHENANTHRENE		204	1170	204	64 U	56.5 U	1330	386	112 J
PYRENE		195	1520	195	64 U	56.5 U	2050	704	193
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1203.6	1062.8	14462	4183.2	1415.5
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-21C (4-7)	LMR21-22C (0-1)	LMR21-22C (1-4)	LMR21-22C (4-6.5)	LMR21-22C (4-6.5) FD
2-METHYLNAPHTHALENE				20.2	170.5 U	55.1 J	218.5 U	159 U	184.5 U
ACENAPHTHENE				6.7	63 U	93.9 J	34.8 J	59 U	68.5 U
ACENAPHTHYLENE				5.9	63 U	74.8 J	81 U	59 U	68.5 U
ANTHRACENE		57.2	845	57	63 U	225	82.2 J	59 U	68.5 U
BENZO(A)ANTHRACENE		108	1050	108	63 U	487	169	59 U	68.5 U
BENZO(A)PYRENE		150	1450	150	21.9 J	549	170	59 U	68.5 U
BENZO(B)FLUORANTHENE				190	23.2 J	358	139 J	59 U	68.5 U
BENZO(G,H,I)PERYLENE				170	63 U	284	95.4 J	59 U	68.5 U
BENZO(K)FLUORANTHENE				240	63 U	83 U	123 J	59 U	68.5 U
CHRYSENE		166	1290	166	31.7 J	519	175	23.3 J	29.4 J
DIBENZ(A,H)ANTHRACENE		33		33	63 U	66.5 J	81 U	59 U	68.5 U
FLUORANTHENE		423	2230	423	46.7 J	925	319	20.3 J	31.7 J
FLUORENE		77.4	536	77	63 U	62.4 J	30.8 J	59 U	68.5 U
INDENO(1,2,3-C,D)PYRENE				200	63 U	266	88.3 J	59 U	68.5 U
NAPHTHALENE		176	561	176	82.7 J	203	94.9 J	96.5 J	101 J
PHENANTHRENE		204	1170	204	32.8 J	520	196	59 U	30.6 J
PYRENE		195	1520	195	48.2 J	1240	406	25.7 J	33.8 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1024.7	6011.7	2503.9	1032.8	1164.5
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP B1	WWTP B1	WWTP B1	WWTP C2	WWTP C2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-23C (0-1)	LMR21-23C (1-4)	LMR21-23C (4-6)	LMR21-24C (0-1)	LMR21-24C (1-4)
2-METHYLNAPHTHALENE				20.2	27.1 J	28.4 J	168.5 U	38.7 J	179 J
ACENAPHTHENE				6.7	31.9 J	66.5 U	62.5 U	103 U	233
ACENAPHTHYLENE				5.9	78 U	66.5 U	62.5 U	103 U	88 U
ANTHRACENE		57.2	845	57	157	30.4 J	62.5 U	103 U	316
BENZO(A)ANTHRACENE		108	1050	108	267	58.4 J	62.5 U	92.2 J	710
BENZO(A)PYRENE		150	1450	150	206	44.4 J	62.5 U	120 J	708
BENZO(B)FLUORANTHENE				190	136 J	42.5 J	62.5 U	121 J	683
BENZO(G,H,I)PERYLENE				170	70.9 J	27.4 J	62.5 U	95.4 J	404
BENZO(K)FLUORANTHENE				240	180	42.6 J	62.5 U	96.2 J	431
CHRYSENE		166	1290	166	237	73.6 J	62.5 U	141 J	1100
DIBENZ(A,H)ANTHRACENE		33		33	78 U	66.5 U	62.5 U	103 U	155 J
FLUORANTHENE		423	2230	423	513	123 J	62.5 U	195 J	1360
FLUORENE		77.4	536	77	44.2 J	66.5 U	62.5 U	103 U	667
INDENO(1,2,3-C,D)PYRENE				200	77.9 J	66.5 U	62.5 U	72.4 J	358
NAPHTHALENE		176	561	176	99 J	114 J	86 J	137 J	1120
PHENANTHRENE		204	1170	204	287	249	62.5 U	108 J	1300
PYRENE		195	1520	195	452	108 J	62.5 U	191 J	1550
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2942	1274.2	1192	1922.9	11362
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-24C (4-8)	LMR21-25C (0-1)	LMR21-25C (1-4)	LMR21-25C (4-7)	LMR21-26C (0-1)
2-METHYLNAPHTHALENE				20.2	333 J	35.2 J	66 J	85.8 J	313.5 U
ACENAPHTHENE				6.7	144 J	100 U	56 J	65.1 J	116 U
ACENAPHTHYLENE				5.9	82 U	100 U	53.2 J	59.2 J	116 U
ANTHRACENE		57.2	845	57	273	43.1 J	137 J	113 J	116 U
BENZO(A)ANTHRACENE		108	1050	108	814	132 J	302	340	90.1 J
BENZO(A)PYRENE		150	1450	150	836	164 J	325	385	114 J
BENZO(B)FLUORANTHENE				190	715	145 J	348	401	131 J
BENZO(G,H,I)PERYLENE				170	474	108 J	202	255	82.3 J
BENZO(K)FLUORANTHENE				240	452	120 J	250	237	72.8 J
CHRYSENE		166	1290	166	1350	179 J	412	530	127 J
DIBENZ(A,H)ANTHRACENE		33		33	209	100 U	47 J	70 J	116 U
FLUORANTHENE		423	2230	423	1020	256	576	612	184 J
FLUORENE		77.4	536	77	355	36.6 J	107 J	133 J	116 U
INDENO(1,2,3-C,D)PYRENE				200	341	97.2 J	196	212	73.7 J
NAPHTHALENE		176	561	176	916	139 J	261	344	92.3 J
PHENANTHRENE		204	1170	204	1120	147 J	439	468	86.5 J
PYRENE		195	1520	195	1400	271	651	753	168 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		10834	2173.1	4428.2	5063.1	2115.2
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-26C (1-4)	LMR21-26C (4-8)	LMR21-27C (0-1)	LMR21-27C (1-3)	LMR21-28C (0-1)
2-METHYLNAPHTHALENE				20.2	248.5 U	70.9 J	342.5 U	56.3 J	339 U
ACENAPHTHENE				6.7	92 U	53.3 J	127 U	83.5 J	125.5 U
ACENAPHTHYLENE				5.9	92 U	50.8 J	127 U	100 J	125.5 U
ANTHRACENE		57.2	845	57	34.9 J	101 J	51.1 J	126 J	65.3 J
BENZO(A)ANTHRACENE		108	1050	108	111 J	263	128 J	2430	151 J
BENZO(A)PYRENE		150	1450	150	139 J	323	148 J	2130	170 J
BENZO(B)FLUORANTHENE				190	139 J	272	143 J	1870	172 J
BENZO(G,H,I)PERYLENE				170	101 J	206	104 J	710	128 J
BENZO(K)FLUORANTHENE				240	112 J	246	133 J	1880	161 J
CHRYSENE		166	1290	166	162 J	389	168 J	1710	208 J
DIBENZ(A,H)ANTHRACENE		33		33	92 U	50.7 J	127 U	216	125.5 U
FLUORANTHENE		423	2230	423	247	503	296	1570	341
FLUORENE		77.4	536	77	92 U	99.3 J	45.5 J	107 J	68.9 J
INDENO(1,2,3-C,D)PYRENE				200	90.1 J	184	105 J	922	130 J
NAPHTHALENE		176	561	176	98.9 J	326	119 J	376	163 J
PHENANTHRENE		204	1170	204	133 J	374	184 J	325	219 J
PYRENE		195	1520	195	250	574	262	2050	311
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2234.4	4086	2610.1	16661.8	3003.7
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	WWTP C2	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-28C (1-4)	LMR21-29C (0-1)	LMR21-29C (1-4)	LMR21-29C (1-4) FD	LMR21-29C (4-6.5)
2-METHYLNAPHTHALENE				20.2	52.4 J	240.5 U	178.5 U	179.5 U	174 U
ACENAPHTHENE				6.7	171	80.2 J	66 U	66.5 U	64.5 U
ACENAPHTHYLENE				5.9	53.4 J	49.1 J	66 U	66.5 U	64.5 U
ANTHRACENE		57.2	845	57	311	67 J	66 U	66.5 U	64.5 U
BENZO(A)ANTHRACENE		108	1050	108	351	162 J	66 U	66.5 U	64.5 U
BENZO(A)PYRENE		150	1450	150	351	155 J	66 U	66.5 U	64.5 U
BENZO(B)FLUORANTHENE				190	329	146 J	66 U	66.5 U	64.5 U
BENZO(G,H,I)PERYLENE				170	206	103 J	66 U	66.5 U	64.5 U
BENZO(K)FLUORANTHENE				240	282	128 J	66 U	66.5 U	64.5 U
CHRYSENE		166	1290	166	494	194	66 U	66.5 U	64.5 U
DIBENZ(A,H)ANTHRACENE		33		33	51.2 J	89 U	66 U	66.5 U	64.5 U
FLUORANTHENE		423	2230	423	1060	368	66 U	66.5 U	64.5 U
FLUORENE		77.4	536	77	357	66.5 J	66 U	66.5 U	64.5 U
INDENO(1,2,3-C,D)PYRENE				200	204	95.1 J	66 U	66.5 U	64.5 U
NAPHTHALENE		176	561	176	365	103 J	24.9 J	66.5 U	64.5 U
PHENANTHRENE		204	1170	204	1390	213	66 U	66.5 U	64.5 U
PYRENE		195	1520	195	895	367	66 U	66.5 U	64.5 U
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		6923	2626.4	1193.4	1243.5	1206
2-METHYLNAPHTHALENE	SIM			20.2				2.3 J-	
ACENAPHTHENE	SIM			6.7				1.1 J-	
ACENAPHTHYLENE	SIM			5.9				2.2 UJ	
ANTHRACENE	SIM	57.2	845	57				1.2 J-	
BENZO(A)ANTHRACENE	SIM	108	1050	108				1.7 J	
BENZO(A)PYRENE	SIM	150	1450	150				2.2 U	
BENZO(B)FLUORANTHENE	SIM			190				1.5 J	
BENZO(G,H,I)PERYLENE	SIM			170				2.2 U	
BENZO(K)FLUORANTHENE	SIM			240				2.2 U	
CHRYSENE	SIM	166	1290	166				3.5 J	
DIBENZ(A,H)ANTHRACENE	SIM	33		33				2.2 U	
FLUORANTHENE	SIM	423	2230	423				4.7	
FLUORENE	SIM	77.4	536	77				1.7 J-	
INDENO(1,2,3-C,D)PYRENE	SIM			200				2.2 U	
NAPHTHALENE	SIM	176	561	176				12.2 J	
PHENANTHRENE	SIM	204	1170	204				3.6 J-	
PYRENE	SIM	195	1520	195				4.6	
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800					51.3	

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-29C (4-6.5) FD	LMR21-30C (0-1)	LMR21-30C (1-3)	LMR21-31C (0-1)	LMR21-31C (1-4)
2-METHYLNAPHTHALENE				20.2	179.5 U	174.5 U	151 U	177.5 U	174 U
ACENAPHTHENE				6.7	66.5 U	64.5 U	56 U	65.5 U	64.5 U
ACENAPHTHYLENE				5.9	66.5 U	64.5 U	56 U	65.5 U	64.5 U
ANTHRACENE		57.2	845	57	66.5 U	64.5 U	56 U	23.7 J	64.5 U
BENZO(A)ANTHRACENE		108	1050	108	66.5 U	64.5 U	56 U	65.5 U	64.5 U
BENZO(A)PYRENE		150	1450	150	66.5 U	64.5 U	56 U	33.6 J	64.5 U
BENZO(B)FLUORANTHENE				190	66.5 U	64.5 U	56 U	65.5 U	64.5 U
BENZO(G,H,I)PERYLENE				170	66.5 U	64.5 U	56 U	65.5 U	64.5 U
BENZO(K)FLUORANTHENE				240	66.5 U	64.5 U	56 U	32.5 J	64.5 U
CHRYSENE		166	1290	166	66.5 U	64.5 U	56 U	65.5 U	64.5 U
DIBENZ(A,H)ANTHRACENE		33		33	66.5 U	64.5 U	56 U	65.5 U	64.5 U
FLUORANTHENE		423	2230	423	66.5 U	64.5 U	56 U	96.9 J	64.5 U
FLUORENE		77.4	536	77	66.5 U	64.5 U	56 U	65.5 U	64.5 U
INDENO(1,2,3-C,D)PYRENE				200	66.5 U	64.5 U	56 U	65.5 U	64.5 U
NAPHTHALENE		176	561	176	66.5 U	64.5 U	56 U	54.5 J	47.8 J
PHENANTHRENE		204	1170	204	66.5 U	64.5 U	56 U	58.1 J	64.5 U
PYRENE		195	1520	195	66.5 U	64.5 U	56 U	93 J	64.5 U
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1243.5	1206.5	1047	1159.3	1189.3
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-32C (0-1)	LMR21-32C (1-5)	LMR21-33C (0-1)	LMR21-33C (1-5)	LMR21-34C (0-1)
2-METHYLNAPHTHALENE				20.2	315.5 U	163 U	153.5 U	159.5 U	37.6 J
ACENAPHTHENE				6.7	117 U	60.5 U	57 U	59 U	51.3 J
ACENAPHTHYLENE				5.9	117 U	60.5 U	57 U	59 U	106 J
ANTHRACENE		57.2	845	57	45.2 J	60.5 U	57 U	59 U	134 J
BENZO(A)ANTHRACENE		108	1050	108	104 J	60.5 U	30.1 J	59 U	456
BENZO(A)PYRENE		150	1450	150	140 J	25.2 J	29.7 J	59 U	475
BENZO(B)FLUORANTHENE				190	138 J	33.3 J	21.9 J	59 U	422
BENZO(G,H,I)PERYLENE				170	109 J	27.3 J	57 U	59 U	266
BENZO(K)FLUORANTHENE				240	168 J	31.8 J	24.9 J	59 U	386
CHRYSENE		166	1290	166	165 J	38.3 J	27.1 J	59 U	572
DIBENZ(A,H)ANTHRACENE		33		33	117 U	60.5 U	57 U	59 U	56.7 J
FLUORANTHENE		423	2230	423	307	83.1 J	76 J	59 U	1000
FLUORENE		77.4	536	77	117 U	60.5 U	57 U	59 U	125 J
INDENO(1,2,3-C,D)PYRENE				200	98 J	60.5 U	57 U	59 U	254
NAPHTHALENE		176	561	176	49.6 J	42.3 J	33.4 J	33.9 J	114 J
PHENANTHRENE		204	1170	204	129 J	44.1 J	30.9 J	59 U	636
PYRENE		195	1520	195	238	64.5 J	59.4 J	59 U	846
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2474.3	976.4	885.9	1078.4	5937.6
2-METHYLNAPHTHALENE	SIM			20.2		9.9		7.3	26.9 J-
ACENAPHTHENE	SIM			6.7		9.4		0.97 J	36.6 J-
ACENAPHTHYLENE	SIM			5.9		3.8 J		1.95 U	63.3 J-
ANTHRACENE	SIM	57.2	845	57		12.1		1.5 J	102 J-
BENZO(A)ANTHRACENE	SIM	108	1050	108		28.1		1.95 U	354
BENZO(A)PYRENE	SIM	150	1450	150		29.5		1.95 U	363
BENZO(B)FLUORANTHENE	SIM			190		26.9		1.95 U	289
BENZO(G,H,I)PERYLENE	SIM			170		17.2		3.3 J	159
BENZO(K)FLUORANTHENE	SIM			240		26.9		1.95 U	302
CHRYSENE	SIM	166	1290	166		43		9.2	426 J
DIBENZ(A,H)ANTHRACENE	SIM	33		33		4.9		1.95 U	51.2
FLUORANTHENE	SIM	423	2230	423		69		4.3	644 J
FLUORENE	SIM	77.4	536	77		8.4		1.2 J	113 J-
INDENO(1,2,3-C,D)PYRENE	SIM			200		16.3		1.95 U	192
NAPHTHALENE	SIM	176	561	176		40.7		34.2	86.8 J-
PHENANTHRENE	SIM	204	1170	204		44.4		5	479 J
PYRENE	SIM	195	1520	195		63.5		5.2	593 J
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800			454		85.82	4280.8

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	Sway Bridge C	Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-34C (1-4)	LMR21-34C (4-7)	LMR21-37C (0-1)	LMR21-37C (1-3)	LMR21-38C (0-1)
2-METHYLNAPHTHALENE				20.2	126 J	116 J	347.5 UJ	29.1 J	386
ACENAPHTHENE				6.7	124 J	234	128.5 UJ	127 J	9170
ACENAPHTHYLENE				5.9	277	382	56.2 J-	87.7 J	2450
ANTHRACENE		57.2	845	57	466	971	54.5 J-	113 J	8730
BENZO(A)ANTHRACENE		108	1050	108	1340	1900	137 J-	236	7550
BENZO(A)PYRENE		150	1450	150	1340	1710	149 J-	262	7230
BENZO(B)FLUORANTHENE				190	1100	1380	154 J-	209	5520
BENZO(G,H,I)PERYLENE				170	650	795	78.4 J-	131 J	2990
BENZO(K)FLUORANTHENE				240	1050	1390	84.4 J-	187	5250
CHRYSENE		166	1290	166	1600	2060	63.4 J-	274	7580
DIBENZ(A,H)ANTHRACENE		33		33	162 J	173 J	128.5 UJ	39 J	822
FLUORANTHENE		423	2230	423	2460	4620	338 J-	505	19300
FLUORENE		77.4	536	77	400	600	128.5 UJ	176	10200
INDENO(1,2,3-C,D)PYRENE				200	632	876	85.2 J-	134 J	3650
NAPHTHALENE		176	561	176	459	394	70.4 J-	151	1830
PHENANTHRENE		204	1170	204	1520	3150	184 J-	427	31300
PYRENE		195	1520	195	2150	3740	212 J-	386	14800
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		15856	24491	2399.5	3473.8	138758
2-METHYLNAPHTHALENE	SIM			20.2			8.6 J-		327 J
ACENAPHTHENE	SIM			6.7			18.7 J-		6460 J
ACENAPHTHYLENE	SIM			5.9			34.2 J-		1770 J
ANTHRACENE	SIM	57.2	845	57			49.9 J-		2850 J
BENZO(A)ANTHRACENE	SIM	108	1050	108			118 J-		4770 J
BENZO(A)PYRENE	SIM	150	1450	150			133 J-		4450 J
BENZO(B)FLUORANTHENE	SIM			190			96.5 J-		4950 J
BENZO(G,H,I)PERYLENE	SIM			170			48.3 J-		993 J
BENZO(K)FLUORANTHENE	SIM			240			109 J-		2420 J
CHRYSENE	SIM	166	1290	166			93.7 J-		4810 J
DIBENZ(A,H)ANTHRACENE	SIM	33		33			18.8 J-		558 J
FLUORANTHENE	SIM	423	2230	423			267 J-		4930 J
FLUORENE	SIM	77.4	536	77			37.7 J-		7030 J
INDENO(1,2,3-C,D)PYRENE	SIM			200			65.1 J-		1540 J
NAPHTHALENE	SIM	176	561	176			61.1 J-		1280 J
PHENANTHRENE	SIM	204	1170	204			165 J-		7420 J
PYRENE	SIM	195	1520	195			196 J-		5060 J
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800				1520.6		61618

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge A2	Sway Bridge A2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-38C (1-2.5)	LMR21-39C (0-1)	LMR21-39C (1-3)	LMR21-40C (0-1)	LMR21-41C (0-1)
2-METHYLNAPHTHALENE				20.2	61.4 J	48.9 J	37.4 J	27.7 J	56.2 J
ACENAPHTHENE				6.7	918	81.2 J	59.5 U	57 U	80.1 J
ACENAPHTHYLENE				5.9	145	104 J	59.5 U	57 U	62.1 J
ANTHRACENE		57.2	845	57	727	159	59.5 U	57 U	158
BENZO(A)ANTHRACENE		108	1050	108	545	314	59.5 U	57 U	225
BENZO(A)PYRENE		150	1450	150	450	278	59.5 U	57 U	215
BENZO(B)FLUORANTHENE				190	291	221	59.5 U	57 U	187
BENZO(G,H,I)PERYLENE				170	186	110 J	28.6 J	57 U	101 J
BENZO(K)FLUORANTHENE				240	374	213	59.5 U	57 U	176
CHRYSENE		166	1290	166	522	321	24.3 J	57 U	204
DIBENZ(A,H)ANTHRACENE		33		33	40.4 J	34.3 J	59.5 U	57 U	21.2 J
FLUORANTHENE		423	2230	423	2030	800	59.5 U	57 U	587
FLUORENE		77.4	536	77	1070	187	59.5 U	57 U	94.8 J
INDENO(1,2,3-C,D)PYRENE				200	200	115 J	59.5 U	57 U	98 J
NAPHTHALENE		176	561	176	190	230	78.1 J	44.5 J	85.9 J
PHENANTHRENE		204	1170	204	3190	471	76.5 J	46.8 J	487
PYRENE		195	1520	195	1380	564	59.5 U	57 U	381
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		12319.8	4251.4	958.9	917	3219.3
2-METHYLNAPHTHALENE	SIM			20.2	53.7		32.6		
ACENAPHTHENE	SIM			6.7	94.5		5.3		
ACENAPHTHYLENE	SIM			5.9	129		1.95 U		
ANTHRACENE	SIM	57.2	845	57	452 J		8.2		
BENZO(A)ANTHRACENE	SIM	108	1050	108	882 J		5.7		
BENZO(A)PYRENE	SIM	150	1450	150	730 J		7.5		
BENZO(B)FLUORANTHENE	SIM			190	677 J		9.6		
BENZO(G,H,I)PERYLENE	SIM			170	218		12.8		
BENZO(K)FLUORANTHENE	SIM			240	575 J		4.9		
CHRYSENE	SIM	166	1290	166	938 J		26.3		
DIBENZ(A,H)ANTHRACENE	SIM	33		33	95.8		1.95 U		
FLUORANTHENE	SIM	423	2230	423	1400 J		14		
FLUORENE	SIM	77.4	536	77	265 J		17.2		
INDENO(1,2,3-C,D)PYRENE	SIM			200	291 J		4.9		
NAPHTHALENE	SIM	176	561	176	179		75.7		
PHENANTHRENE	SIM	204	1170	204	1290 J		66.6		
PYRENE	SIM	195	1520	195	1350 J		16.7		
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		9620		311.9		

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-41C (1-3)	LMR21-41C (1-3) FD	LMR21-42C (0-1)	LMR21-43C (0-1)	LMR21-43C (1-3)
2-METHYLNAPHTHALENE				20.2	27.4 J	25.1 J	43.2 J	31 J	37.8 J
ACENAPHTHENE				6.7	56.5 U	58 U	43.4 J	58 U	57.5 U
ACENAPHTHYLENE				5.9	56.5 U	58 U	61 U	58 U	57.5 U
ANTHRACENE		57.2	845	57	56.5 U	58 U	24.8 J	28.5 J	57.5 U
BENZO(A)ANTHRACENE		108	1050	108	56.5 U	58 U	61 U	58 U	57.5 U
BENZO(A)PYRENE		150	1450	150	56.5 U	58 U	61 U	31.7 J	57.5 U
BENZO(B)FLUORANTHENE				190	56.5 U	58 U	61 U	27.9 J	57.5 U
BENZO(G,H,I)PERYLENE				170	56.5 U	58 U	61 U	23.9 J	57.5 U
BENZO(K)FLUORANTHENE				240	56.5 U	58 U	61 U	58 U	57.5 U
CHRYSENE		166	1290	166	56.5 U	58 U	61 U	58 U	57.5 U
DIBENZ(A,H)ANTHRACENE		33		33	56.5 U	58 U	61 U	58 U	57.5 U
FLUORANTHENE		423	2230	423	56.5 U	58 U	45.6 J	88 J	57.5 U
FLUORENE		77.4	536	77	56.5 U	58 U	44.2 J	58 U	57.5 U
INDENO(1,2,3-C,D)PYRENE				200	56.5 U	58 U	61 U	58 U	57.5 U
NAPHTHALENE		176	561	176	46 J	33.7 J	407	38.7 J	33.2 J
PHENANTHRENE		204	1170	204	43 J	47.3 J	122	112 J	70.9 J
PYRENE		195	1520	195	56.5 U	58 U	40.8 J	57 J	57.5 U
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		907.4	918.1	1320	902.7	946.9
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-44C (0-1)	LMR21-45C (0-1)	LMR21-45C (1-2)	LMR21-46C (0-1)	LMR21-46C (1-4)
2-METHYLNAPHTHALENE				20.2	25.6 J	154.5 U	158 U	762	7160
ACENAPHTHENE				6.7	58 U	57 U	58.5 U	1880	4890
ACENAPHTHYLENE				5.9	58 U	57 U	58.5 U	986	2100
ANTHRACENE		57.2	845	57	58 U	57 U	58.5 U	3020	7700
BENZO(A)ANTHRACENE		108	1050	108	58 U	20.5 J	58.5 U	4950	9420
BENZO(A)PYRENE		150	1450	150	58 U	26.5 J	58.5 U	5430	8600
BENZO(B)FLUORANTHENE				190	58 U	57 U	58.5 U	4090	7000
BENZO(G,H,I)PERYLENE				170	58 U	57 U	58.5 U	2530	3850
BENZO(K)FLUORANTHENE				240	58 U	20.3 J	58.5 U	3690	6720
CHRYSENE		166	1290	166	58 U	57 U	58.5 U	5190	9620
DIBENZ(A,H)ANTHRACENE		33		33	58 U	57 U	58.5 U	741	1120
FLUORANTHENE		423	2230	423	58 U	38.8 J	58.5 U	10600	22700
FLUORENE		77.4	536	77	58 U	57 U	58.5 U	4070	8730
INDENO(1,2,3-C,D)PYRENE				200	58 U	57 U	58.5 U	3000	4310
NAPHTHALENE		176	561	176	48.1 J	25.8 J	58.5 U	8260	17800
PHENANTHRENE		204	1170	204	65 J	45.7 J	58.5 U	9150	23700
PYRENE		195	1520	195	20.8 J	33.2 J	58.5 U	7950	16800
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		913.5	878.3	1094	76299	162220
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-46C (1-4) FD	LMR21-46C (4-7)	LMR21-46C (7-8.5)	LMR21-47C (0-1)	LMR21-47C (1-4)
2-METHYLNAPHTHALENE				20.2	3820	33600	584	1800	4990
ACENAPHTHENE				6.7	2950	22500	361	2710	2410
ACENAPHTHYLENE				5.9	1360	3850	119	827	2010
ANTHRACENE		57.2	845	57	4460	33900	575	2000	4850
BENZO(A)ANTHRACENE		108	1050	108	5690	27000	526	2220	3890
BENZO(A)PYRENE		150	1450	150	5470	22600	417	2330	3280
BENZO(B)FLUORANTHENE				190	3920	15600 J	353	1770	2390
BENZO(G,H,I)PERYLENE				170	2420	6810	155	1070	1290
BENZO(K)FLUORANTHENE				240	4220	10700 J	295	1900	2740
CHRYSENE		166	1290	166	5800	25200	516	2310	3670
DIBENZ(A,H)ANTHRACENE		33		33	706	2250	53.8 J	276	358
FLUORANTHENE		423	2230	423	13200	76400	1400	5930	10400
FLUORENE		77.4	536	77	5220	36500	568	3030	5470
INDENO(1,2,3-C,D)PYRENE				200	2890	8510	176	1270	1540
NAPHTHALENE		176	561	176	9680	40300	734	17500	52300
PHENANTHRENE		204	1170	204	14200	101000	1790	6690	14200
PYRENE		195	1520	195	9730	53700	954	4340	8240
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		95736	520420	9576.8	57973	124028
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-47C (4-8)	LMR21-49C (0-1)	LMR21-49C (1-4)	LMR21-49C (4-7.5)	LMR21-50C (0-1)
2-METHYLNAPHTHALENE				20.2	134 J	87.8 J	28400	399	66 J
ACENAPHTHENE				6.7	65.7 J	271	13400 J-	224	53.2 J
ACENAPHTHYLENE				5.9	56 J	285	1770 J-	24.5 J	97.8 J
ANTHRACENE		57.2	845	57	126	176 J	10800 J-	169	102 J
BENZO(A)ANTHRACENE		108	1050	108	91.4 J	804	8150 J-	105 J	268
BENZO(A)PYRENE		150	1450	150	74.7 J	1050	7300 J-	85.9 J	308
BENZO(B)FLUORANTHENE				190	59.5 J	689	5440 J-	57.1 J	304
BENZO(G,H,I)PERYLENE				170	37.3 J	547	3010 J-	38.2 J	161 J
BENZO(K)FLUORANTHENE				240	59.4 J	838	5510 J-	46.2 J	176 J
CHRYSENE		166	1290	166	104 J	689	6980 J-	105 J	246
DIBENZ(A,H)ANTHRACENE		33		33	58.5 U	139 J	902 J-	61.5 U	116 U
FLUORANTHENE		423	2230	423	283	1120	30900	327	527
FLUORENE		77.4	536	77	132	358	19900	233	95.6 J
INDENO(1,2,3-C,D)PYRENE				200	33.1 J	598	3600 J-	47.7 J	147 J
NAPHTHALENE		176	561	176	764	1660	324000	4060	502
PHENANTHRENE		204	1170	204	406	763	52400	560	300
PYRENE		195	1520	195	211	778	22000	231	388
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2695.6	10852.8	544462	6774.1	3857.6
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-50C (1-4)**	**LMR21-50C (4-7.5)**	**LMR21-51C (0-1)**	**LMR21-51C (1-4)**	**LMR21-51C (4-7.5)**
2-METHYLNAPHTHALENE				20.2	238.5 UJ	141 J	310.5 UJ	76.2 J	410 J
ACENAPHTHENE				6.7	33.4 J-	412	115 UJ	99.4 J	584
ACENAPHTHYLENE				5.9	88.5 UJ	168	115 UJ	54 J	256
ANTHRACENE		57.2	845	57	47.3 J-	2500	115 UJ	105 J	823
BENZO(A)ANTHRACENE		108	1050	108	90.9 J-	841	115 UJ	400	1520
BENZO(A)PYRENE		150	1450	150	110 J-	883	115 UJ	767	2120
BENZO(B)FLUORANTHENE				190	77.6 J-	619	115 UJ	572	1700
BENZO(G,H,I)PERYLENE				170	57.4 J-	424	115 UJ	509	1250
BENZO(K)FLUORANTHENE				240	54.6 J-	749	115 UJ	546	1430
CHRYSENE		166	1290	166	108 J-	2190	50.9 J-	561	1850
DIBENZ(A,H)ANTHRACENE		33		33	88.5 UJ	127 J	115 UJ	83.9 J	228
FLUORANTHENE		423	2230	423	193 J-	1610	75.6 J-	623	3280
FLUORENE		77.4	536	77	46.2 J-	617	115 UJ	126 J	1010
INDENO(1,2,3-C,D)PYRENE				200	60.7 J-	495	115 UJ	478	1300
NAPHTHALENE		176	561	176	68.1 J-	880	71.9 J-	557	3420
PHENANTHRENE		204	1170	204	182 J-	1930	42.1 J-	450	3040
PYRENE		195	1520	195	172 J-	1250	55.6 J-	529	2550
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1716.7	15836	1871.6	6536.5	26771
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-52C (0-1)	LMR21-52C (1-4)	LMR21-52C (1-4) FD	LMR21-52C (4-7)	LMR21-52C (7-10)
2-METHYLNAPHTHALENE				20.2	335.5 U	166 J	474 J	522	2180 J
ACENAPHTHENE				6.7	124 U	547 J	1670 J	707	551
ACENAPHTHYLENE				5.9	124 U	84.9 J	553 J	226	453
ANTHRACENE		57.2	845	57	124 U	363 J	4080 J	431	1210
BENZO(A)ANTHRACENE		108	1050	108	63.1 J	368 J	4690 J	1320	1060
BENZO(A)PYRENE		150	1450	150	56.8 J	453 J	6760 J	1810	961
BENZO(B)FLUORANTHENE				190	57.9 J	381 J	5500 J	1390	731
BENZO(G,H,I)PERYLENE				170	124 U	283 J	3930 J	950	418
BENZO(K)FLUORANTHENE				240	68.9 J	314 J	4940 J	1380	736
CHRYSENE		166	1290	166	80.2 J	465 J	5520 J	1660	1150
DIBENZ(A,H)ANTHRACENE		33		33	124 U	93 UJ	791 J	201	111 J
FLUORANTHENE		423	2230	423	136 J	1640 J	12600 J	2170	3130 J
FLUORENE		77.4	536	77	124 U	614 J	2550 J	629	1800 J
INDENO(1,2,3-C,D)PYRENE				200	124 U	286 J	4150 J	1100	490
NAPHTHALENE		176	561	176	81.7 J	706 J	1980 J	1210	14500
PHENANTHRENE		204	1170	204	73.3 J	2470 J	13000 J	1680	4290 J
PYRENE		195	1520	195	99.1 J	1080 J	8620 J	1730	2170
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1920.5	10313.9	81808	19116	35941
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-53C (0-1)	LMR21-53C (1-4)	LMR21-53C (4-6)	LMR21-54C (0-1)	LMR21-54C (1-4)
2-METHYLNAPHTHALENE				20.2	341 U	250.5 UJ	39.1 J	334 U	81.6 J
ACENAPHTHENE				6.7	126.5 U	64.2 J-	33.1 J	123.5 U	460
ACENAPHTHYLENE				5.9	126.5 U	123 J-	56 U	123.5 U	124 J
ANTHRACENE		57.2	845	57	126.5 U	101 J-	29.7 J	123.5 U	230
BENZO(A)ANTHRACENE		108	1050	108	54.8 J	273 J-	44.6 J	43.1 J	596
BENZO(A)PYRENE		150	1450	150	76.8 J	310 J-	36.5 J	58.8 J	741
BENZO(B)FLUORANTHENE				190	49 J	254 J-	32.3 J	66 J	630
BENZO(G,H,I)PERYLENE				170	53.2 J	148 J-	31.5 J	49.6 J	457
BENZO(K)FLUORANTHENE				240	58.3 J	233 J-	37.9 J	63.1 J	608
CHRYSENE		166	1290	166	54.5 J	293 J-	67.2 J	69.5 J	727
DIBENZ(A,H)ANTHRACENE		33		33	126.5 U	37.1 J-	56 U	123.5 U	92.6 J
FLUORANTHENE		423	2230	423	176 J	579 J-	123	109 J	1300
FLUORENE		77.4	536	77	126.5 U	87.9 J-	36.6 J	123.5 U	371
INDENO(1,2,3-C,D)PYRENE				200	126.5 U	163 J-	26.7 J	123.5 U	442
NAPHTHALENE		176	561	176	443	184 J-	73.5 J	55.8 J	289
PHENANTHRENE		204	1170	204	116 J	310 J-	197	47.6 J	1210
PYRENE		195	1520	195	122 J	390 J-	95.4 J	82.3 J	1080
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2303.6	3800.7	1016.1	1719.8	9439.2
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-54C (1-4) FD	LMR21-54C (4-6)	LMR21-55C (0-1)	LMR21-55C (1-4)	LMR21-55C (4-7.5)
2-METHYLNAPHTHALENE				20.2	65 J	277 J	286 U	75.3 J	570
ACENAPHTHENE				6.7	361	1680	106 U	149 J	297
ACENAPHTHYLENE				5.9	87.9 J	311	106 U	88.5 U	184
ANTHRACENE		57.2	845	57	274	1410	106 U	76.7 J	547
BENZO(A)ANTHRACENE		108	1050	108	429	1360	91.8 J	118 J	595
BENZO(A)PYRENE		150	1450	150	481	1480	97.9 J	140 J	543
BENZO(B)FLUORANTHENE				190	366	1130	92.8 J	111 J	414
BENZO(G,H,I)PERYLENE				170	280	850	64.3 J	84.2 J	271
BENZO(K)FLUORANTHENE				240	423	994	88.4 J	117 J	334
CHRYSENE		166	1290	166	477	1320	103 J	138 J	646
DIBENZ(A,H)ANTHRACENE		33		33	47.1 J	137	106 U	88.5 U	51.9 J
FLUORANTHENE		423	2230	423	1130	5110	196 J	352 J	1760
FLUORENE		77.4	536	77	333	1390	106 U	178	1160
INDENO(1,2,3-C,D)PYRENE				200	269	864	64.9 J	76 J	296
NAPHTHALENE		176	561	176	216	763	80.4 J	270	7830
PHENANTHRENE		204	1170	204	1240	6070	100 J	622 J	2290
PYRENE		195	1520	195	927	3770	167 J	296 J	1340
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		7406	28916	1962.5	2980.2	19128.9
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-56C (0-1)	LMR21-56C (1-4)	LMR21-56C (1-4) FD	LMR21-56C (4-7)	LMR21-56C (4-7) FD
2-METHYLNAPHTHALENE				20.2	306.5 U	81.9 J	119 J	27.8 J	34.8 J
ACENAPHTHENE				6.7	113.5 U	199	390	58.5 U	58.5 U
ACENAPHTHYLENE				5.9	41.2 J	126 J	137 J	58.5 U	58.5 U
ANTHRACENE		57.2	845	57	40.4 J	308	393	58.5 U	58.5 U
BENZO(A)ANTHRACENE		108	1050	108	142 J	700	1040	58.5 U	58.5 U
BENZO(A)PYRENE		150	1450	150	158 J	954	1920	58.5 U	58.5 U
BENZO(B)FLUORANTHENE				190	158 J	739	1330	58.5 U	58.5 U
BENZO(G,H,I)PERYLENE				170	101 J	571	1420	58.5 U	58.5 U
BENZO(K)FLUORANTHENE				240	152 J	702	1280	58.5 U	58.5 U
CHRYSENE		166	1290	166	171 J	879	1220	58.5 U	30.8 J
DIBENZ(A,H)ANTHRACENE		33		33	113.5 U	117 J	233	58.5 U	58.5 U
FLUORANTHENE		423	2230	423	298	1530	2100	58.5 U	24.6 J
FLUORENE		77.4	536	77	113.5 U	299	415	58.5 U	58.5 U
INDENO(1,2,3-C,D)PYRENE				200	105 J	583	1320	58.5 U	58.5 U
NAPHTHALENE		176	561	176	52.5 J	323	791	64.2 J	80.3 J
PHENANTHRENE		204	1170	204	122 J	1430	1630	75.6 J	73.9 J
PYRENE		195	1520	195	244	1370	1860	20.8 J	22.2 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2432.1	10911.9	17598	948.9	910.1
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

			Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-57C (0-1)	LMR21-57C (1-4)	LMR21-57C (4-6)	LMR21-58C (0-1)	LMR21-58C (1-4)
2-METHYLNAPHTHALENE				20.2	287.5 U	106 J	40.3 J	322 U	241 U
ACENAPHTHENE				6.7	37.2 J	89.7 J	58 U	119 U	89 U
ACENAPHTHYLENE				5.9	106.5 U	70.8 J	58 U	119 U	89 U
ANTHRACENE		57.2	845	57	64.9 J	193	58 U	119 U	34.3 J
BENZO(A)ANTHRACENE		108	1050	108	148 J	298	58 U	96 J	96.4 J
BENZO(A)PYRENE		150	1450	150	179 J	268	58 U	107 J	114 J
BENZO(B)FLUORANTHENE				190	167 J	217	58 U	107 J	104 J
BENZO(G,H,I)PERYLENE				170	119 J	131 J	24.5 J	80.9 J	64.9 J
BENZO(K)FLUORANTHENE				240	152 J	229	58 U	100 J	90.7 J
CHRYSENE		166	1290	166	197 J	372	58 U	111 J	123 J
DIBENZ(A,H)ANTHRACENE		33		33	106.5 U	36.2 J	58 U	119 U	89 U
FLUORANTHENE		423	2230	423	413	775	58 U	191 J	204
FLUORENE		77.4	536	77	56.2 J	284	58 U	119 U	30.5 J
INDENO(1,2,3-C,D)PYRENE				200	107 J	125 J	58 U	83.1 J	67.1 J
NAPHTHALENE		176	561	176	95.4 J	533	65.5 J	84.4 J	73.3 J
PHENANTHRENE		204	1170	204	217	719	79.7 J	71.4 J	120 J
PYRENE		195	1520	195	315	633	58 U	153 J	181
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		2768.2	5079.7	964	2101.8	1811.2
2-METHYLNAPHTHALENE	SIM			20.2	19.9 J-		24.9	12.3	17.2
ACENAPHTHENE	SIM			6.7	21.9 J-		1.9 U	7 J	14.7
ACENAPHTHYLENE	SIM			5.9	15 J-		1.9 U	8.2	13.8
ANTHRACENE	SIM	57.2	845	57	47.4 J-		4.2	15.1	32.5
BENZO(A)ANTHRACENE	SIM	108	1050	108	101		2.3 J	50.9	80.3
BENZO(A)PYRENE	SIM	150	1450	150	121		1.9 U	72.4	94.7
BENZO(B)FLUORANTHENE	SIM			190	121		1.9 U	74.6	81.5
BENZO(G,H,I)PERYLENE	SIM			170	46.4		9	32.6	57.9
BENZO(K)FLUORANTHENE	SIM			240	113		1.9 U	72.3	82.6
CHRYSENE	SIM	166	1290	166	133		19.9	75.1	108
DIBENZ(A,H)ANTHRACENE	SIM	33		33	14.7		1.9 U	10.2	18.2
FLUORANTHENE	SIM	423	2230	423	264		6.8	128	162
FLUORENE	SIM	77.4	536	77	42.7 J-		6.1	14.4	28.5
INDENO(1,2,3-C,D)PYRENE	SIM			200	58.5		1.9 U	41.1	65.8
NAPHTHALENE	SIM	176	561	176	67.8 J-		58	61.6	65.6
PHENANTHRENE	SIM	204	1170	204	164 J-		50.9	52.7	106
PYRENE	SIM	195	1520	195	222		10.5	107	150
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		1573.3		205.9	835.5	1179.3

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-58C (4-7)	LMR21-58C (4-7) FD	LMR21-59C (0-1)	LMR21-59C (1-4)	LMR21-59C (1-4) FD
2-METHYLNAPHTHALENE				20.2	52.3 J	60.4 J	253.5 U	85.5 J	45.1 J
ACENAPHTHENE				6.7	53.7 J	55 J	94 U	98.5 J	54.8 J
ACENAPHTHYLENE				5.9	53.2 J	50.1 J	94 U	121 J	65.5 J
ANTHRACENE		57.2	845	57	117 J	113 J	94 U	230	101 J
BENZO(A)ANTHRACENE		108	1050	108	238	225	85 J	450	221
BENZO(A)PYRENE		150	1450	150	276	254	113 J	478	241
BENZO(B)FLUORANTHENE				190	242	249	90.7 J	393	228
BENZO(G,H,I)PERYLENE				170	142 J	155 J	67.5 J	243	137 J
BENZO(K)FLUORANTHENE				240	220	198	60.7 J	371	190
CHRYSENE		166	1290	166	295	303	92.1 J	530	282
DIBENZ(A,H)ANTHRACENE		33		33	89.5 U	88 U	94 U	52.3 J	48.2 J
FLUORANTHENE		423	2230	423	556	527	187 J	994	448
FLUORENE		77.4	536	77	110 J	110 J	94 U	231	95 J
INDENO(1,2,3-C,D)PYRENE				200	144 J	140 J	59.7 J	256	154 J
NAPHTHALENE		176	561	176	176 J	246	94 U	306	137 J
PHENANTHRENE		204	1170	204	373	353	108 J	725	323
PYRENE		195	1520	195	493	444	166 J	858	403
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		3630.7	3570.5	1847.2	6422.3	3173.6
2-METHYLNAPHTHALENE	SIM			20.2		58.1	11.8	74	36.7
ACENAPHTHENE	SIM			6.7		49.7	12	72.3	39.2
ACENAPHTHYLENE	SIM			5.9		39.8	11	84.5	45
ANTHRACENE	SIM	57.2	845	57		110	25.2	207	90.7
BENZO(A)ANTHRACENE	SIM	108	1050	108		210	69.3	386 J	191
BENZO(A)PYRENE	SIM	150	1450	150		241	85	385 J	221
BENZO(B)FLUORANTHENE	SIM			190		212	75.8	318	187
BENZO(G,H,I)PERYLENE	SIM			170		96.2	39.1	134	64.6
BENZO(K)FLUORANTHENE	SIM			240		205	71.9	326	192
CHRYSENE	SIM	166	1290	166		267	86.2	455 J	235
DIBENZ(A,H)ANTHRACENE	SIM	33		33		35.6	13.7	54.3	27.8
FLUORANTHENE	SIM	423	2230	423		396 J	142	691 J	340
FLUORENE	SIM	77.4	536	77		106	22.6	188	88
INDENO(1,2,3-C,D)PYRENE	SIM			200		117	46.7	164	83.4
NAPHTHALENE	SIM	176	561	176		213	26.4	236	119
PHENANTHRENE	SIM	204	1170	204		321	89.5	591 J	277
PYRENE	SIM	195	1520	195		370 J	131	657 J	324
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800			3047.4	959.2	5023.1	2561.4

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge D
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-59C (4-7)	LMR21-60C (0-1)	LMR21-60C (1-4)	LMR21-60C (4-5)	LMR21-63C (0-1)
2-METHYLNAPHTHALENE				20.2	127 J	103 J	57.6 J	45.8 J	47 J
ACENAPHTHENE				6.7	132	65.5 J	96.4 J	60 U	59 U
ACENAPHTHYLENE				5.9	147	63.5 J	47.7 J	60 U	59 U
ANTHRACENE		57.2	845	57	344	134 J	131 J	60 U	59 U
BENZO(A)ANTHRACENE		108	1050	108	705	355	391	22.5 J	59 U
BENZO(A)PYRENE		150	1450	150	715	401	420	60 U	59 U
BENZO(B)FLUORANTHENE				190	536	356	351	25.5 J	59 U
BENZO(G,H,I)PERYLENE				170	330	226	210	28.6 J	59 U
BENZO(K)FLUORANTHENE				240	581	345	376	60 U	59 U
CHRYSENE		166	1290	166	781	445	474	59.3 J	59 U
DIBENZ(A,H)ANTHRACENE		33		33	74.7 J	52.9 J	43.2 J	60 U	59 U
FLUORANTHENE		423	2230	423	1600	865	1110	59.2 J	59 U
FLUORENE		77.4	536	77	358	104 J	130 J	60 U	59 U
INDENO(1,2,3-C,D)PYRENE				200	338	256	198	60 U	59 U
NAPHTHALENE		176	561	176	585	233	290	72.1 J	218
PHENANTHRENE		204	1170	204	1140	533	654	108 J	74.6 J
PYRENE		195	1520	195	1320	777	803	54.4 J	59 U
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		9813.7	5314.9	5782.9	955.4	1165.6
2-METHYLNAPHTHALENE	SIM			20.2	114	93.1	49.9		
ACENAPHTHENE	SIM			6.7	107	47.1	84.1		
ACENAPHTHYLENE	SIM			5.9	103	45.8	28.1		
ANTHRACENE	SIM	57.2	845	57	347 J	119	120		
BENZO(A)ANTHRACENE	SIM	108	1050	108	671 J	303	352 J		
BENZO(A)PYRENE	SIM	150	1450	150	671 J	352 J	352 J		
BENZO(B)FLUORANTHENE	SIM			190	558 J	325	308		
BENZO(G,H,I)PERYLENE	SIM			170	156	99.1	106		
BENZO(K)FLUORANTHENE	SIM			240	579 J	329	309		
CHRYSENE	SIM	166	1290	166	730 J	377 J	405 J		
DIBENZ(A,H)ANTHRACENE	SIM	33		33	66.5	39.6	45.4		
FLUORANTHENE	SIM	423	2230	423	1210 J	628 J	744 J		
FLUORENE	SIM	77.4	536	77	184	94.6	113		
INDENO(1,2,3-C,D)PYRENE	SIM			200	204	127	141		
NAPHTHALENE	SIM	176	561	176	492 J	196	248		
PHENANTHRENE	SIM	204	1170	204	1040 J	449 J	539 J		
PYRENE	SIM	195	1520	195	1100 J	609 J	643 J		
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		8332.5	4233.3	4587.5		

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-63C (1-2.75)**	**LMR21-64C (0-1.75)**	**LMR21-64C (0-1.75) FD**	**LMR21-65C (0-1)**
2-METHYLNAPHTHALENE				20.2	161.5 U	47.6 J	20.3 J	25.6 J
ACENAPHTHENE				6.7	60 U	220	28 J	70.6 J
ACENAPHTHYLENE				5.9	60 U	61 U	58.5 U	61 U
ANTHRACENE		57.2	845	57	60 U	175	58.5 U	28.2 J
BENZO(A)ANTHRACENE		108	1050	108	60 U	107 J	58.5 U	61 U
BENZO(A)PYRENE		150	1450	150	60 U	74 J	58.5 U	61 U
BENZO(B)FLUORANTHENE				190	60 U	68.6 J	58.5 U	61 U
BENZO(G,H,I)PERYLENE				170	60 U	40.6 J	58.5 U	61 U
BENZO(K)FLUORANTHENE				240	60 U	64.6 J	58.5 U	61 U
CHRYSENE		166	1290	166	60 U	129	58.5 U	61 U
DIBENZ(A,H)ANTHRACENE		33		33	60 U	61 U	58.5 U	61 U
FLUORANTHENE		423	2230	423	60 U	423	39.2 J	65.2 J
FLUORENE		77.4	536	77	60 U	251	27.9 J	75.5 J
INDENO(1,2,3-C,D)PYRENE				200	60 U	38.8 J	58.5 U	61 U
NAPHTHALENE		176	561	176	27 J	75.4 J	41.6 J	41.6 J
PHENANTHRENE		204	1170	204	40.6 J	646	75.4 J	155
PYRENE		195	1520	195	60 U	295	31.6 J	49.1 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1069.1	2777.6	849	1059.8
2-METHYLNAPHTHALENE	SIM			20.2				
ACENAPHTHENE	SIM			6.7				
ACENAPHTHYLENE	SIM			5.9				
ANTHRACENE	SIM	57.2	845	57				
BENZO(A)ANTHRACENE	SIM	108	1050	108				
BENZO(A)PYRENE	SIM	150	1450	150				
BENZO(B)FLUORANTHENE	SIM			190				
BENZO(G,H,I)PERYLENE	SIM			170				
BENZO(K)FLUORANTHENE	SIM			240				
CHRYSENE	SIM	166	1290	166				
DIBENZ(A,H)ANTHRACENE	SIM	33		33				
FLUORANTHENE	SIM	423	2230	423				
FLUORENE	SIM	77.4	536	77				
INDENO(1,2,3-C,D)PYRENE	SIM			200				
NAPHTHALENE	SIM	176	561	176				
PHENANTHRENE	SIM	204	1170	204				
PYRENE	SIM	195	1520	195				
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800					

Units are µg/kg
Sampling depth interval is indicated in feet

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-65C (1-2)	LMR21-66C (0-1)	LMR21-66C (1-2)	LMR21-67C (0-1)	LMR21-67C (0-1) FD
2-METHYLNAPHTHALENE				20.2	35.2 J	47.3 J	478	324 UJ	318.5 U
ACENAPHTHENE				6.7	57 U	81.8 J	401	120 UJ	118 U
ACENAPHTHYLENE				5.9	57 U	128 U	59 U	120 UJ	118 U
ANTHRACENE		57.2	845	57	57 U	76.1 J	70.6 J	120 UJ	118 U
BENZO(A)ANTHRACENE		108	1050	108	57 U	145 J	59 U	42.2 J-	58 J
BENZO(A)PYRENE		150	1450	150	57 U	180 J	59 U	46.2 J-	78 J
BENZO(B)FLUORANTHENE				190	57 U	130 J	59 U	120 UJ	63.9 J
BENZO(G,H,I)PERYLENE				170	57 U	95.4 J	59 U	120 UJ	52.4 J
BENZO(K)FLUORANTHENE				240	57 U	156 J	59 U	120 UJ	78.2 J
CHRYSENE		166	1290	166	57 U	171 J	59 U	56.9 J-	93.3 J
DIBENZ(A,H)ANTHRACENE		33		33	57 U	128 U	59 U	120 UJ	118 U
FLUORANTHENE		423	2230	423	25.1 J	334	91.9 J	75.7 J-	144 J
FLUORENE		77.4	536	77	57 U	100 J	311	120 UJ	118 U
INDENO(1,2,3-C,D)PYRENE				200	57 U	115 J	59 U	120 UJ	56 J
NAPHTHALENE		176	561	176	66.9 J	392	2060	120 UJ	118 U
PHENANTHRENE		204	1170	204	74.8 J	262	458	120 UJ	73.1 J
PYRENE		195	1520	195	20.3 J	250 J	54.7 J	61.2 J-	117 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		906.3	2791.6	4456.2	1926.2	1840.4
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg
Sampling depth interval is indicated in feet

Table A1.4b Discrete Sediment Core Sample Results for Semi-Volatile Organic Analyses

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-67C (1-3)	LMR21-68C (0-1)	LMR21-68C (1-3.5)
2-METHYLNAPHTHALENE				20.2	238 U	302 U	48 J
ACENAPHTHENE				6.7	88 U	112 U	61.5 U
ACENAPHTHYLENE				5.9	88 U	112 U	61.5 U
ANTHRACENE		57.2	845	57	88 U	84.4 J	61.5 U
BENZO(A)ANTHRACENE		108	1050	108	47.6 J	188 J	61.5 U
BENZO(A)PYRENE		150	1450	150	43 J	172 J	61.5 U
BENZO(B)FLUORANTHENE				190	69.6 J	173 J	61.5 U
BENZO(G,H,I)PERYLENE				170	88 U	108 J	61.5 U
BENZO(K)FLUORANTHENE				240	45.7 J	147 J	61.5 U
CHRYSENE		166	1290	166	68.8 J	215 J	37.5 J
DIBENZ(A,H)ANTHRACENE		33		33	88 U	112 U	61.5 U
FLUORANTHENE		423	2230	423	119 J	460	24.8 J
FLUORENE		77.4	536	77	88 U	52.6 J	61.5 U
INDENO(1,2,3-C,D)PYRENE				200	33.7 J	99.2 J	61.5 U
NAPHTHALENE		176	561	176	37.5 J	57.2 J	70.8 J
PHENANTHRENE		204	1170	204	75.5 J	298	81.5 J
PYRENE		195	1520	195	99.9 J	364	30.7 J
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		1406.3	3056.4	969.8
2-METHYLNAPHTHALENE	SIM			20.2			
ACENAPHTHENE	SIM			6.7			
ACENAPHTHYLENE	SIM			5.9			
ANTHRACENE	SIM	57.2	845	57			
BENZO(A)ANTHRACENE	SIM	108	1050	108			
BENZO(A)PYRENE	SIM	150	1450	150			
BENZO(B)FLUORANTHENE	SIM			190			
BENZO(G,H,I)PERYLENE	SIM			170			
BENZO(K)FLUORANTHENE	SIM			240			
CHRYSENE	SIM	166	1290	166			
DIBENZ(A,H)ANTHRACENE	SIM	33		33			
FLUORANTHENE	SIM	423	2230	423			
FLUORENE	SIM	77.4	536	77			
INDENO(1,2,3-C,D)PYRENE	SIM			200			
NAPHTHALENE	SIM	176	561	176			
PHENANTHRENE	SIM	204	1170	204			
PYRENE	SIM	195	1520	195			
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800				

Units are µg/kg
Sampling depth interval is indicated in feet

NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-SBA1**	**LMR21-SBA1 FD2**	**LMR21-SBA2**	**LMR21-SBA2 FD1**	**LMR21-SBA3**
2-METHYLNAPHTHALENE				20.2	532 J-	218 J	158.5 U	23.1 J	347 J
ACENAPHTHENE				6.7	423 J-	165	58.5 U	57 U	561
ACENAPHTHYLENE				5.9	114 J-	51.3 J	58.5 U	57 U	108 J
ANTHRACENE		57.2	845	57	468 J-	184	58.5 U	57 U	557
BENZO(A)ANTHRACENE		108	1050	108	455 J-	185	58.5 U	57 U	508
BENZO(A)PYRENE		150	1450	150	405 J-	165	58.5 U	57 U	462
BENZO(B)FLUORANTHENE				190	297 J-	120 J	58.5 U	57 U	419
BENZO(G,H,I)PERYLENE				170	189 J-	77.4 J	58.5 U	57 U	262
BENZO(K)FLUORANTHENE				240	335 J-	127 J	58.5 U	57 U	339
CHRYSENE		166	1290	166	473 J-	185	58.5 U	31.7 J	550
DIBENZ(A,H)ANTHRACENE		33		33	59.6 J-	25.4 J	58.5 U	57 U	68.4 J
FLUORANTHENE		423	2230	423	1150 J-	499	58.5 U	29.3 J	1580
FLUORENE		77.4	536	77	581 J-	213	58.5 U	57 U	869
INDENO(1,2,3-C,D)PYRENE				200	231 J-	90.6 J	58.5 U	57 U	276
NAPHTHALENE		176	561	176	3680 J-	1540	36.4 J	44.9 J	2360
PHENANTHRENE		204	1170	204	1510 J-	622	47.5 J	53.6 J	2440
PYRENE		195	1520	195	793 J-	357	58.5 U	19.8 J	1290
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		11695.6	4824.7	1061.4	829.4	12996.4
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg

NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-SBA3 FD1**	**LMR21-SBB1**	**LMR21-SBB1 FD1**	**LMR21-SBB2**	**LMR21-SBB2 FD1**
2-METHYLNAPHTHALENE				20.2	963	171 J	37.2 J	37 J	39.9 J
ACENAPHTHENE				6.7	924	211	53.2 J	425	630
ACENAPHTHYLENE				5.9	245	107 J	36.4 J	84 J	243
ANTHRACENE		57.2	845	57	1070	322	60 J	324	643
BENZO(A)ANTHRACENE		108	1050	108	1210	603	121 J	308	650
BENZO(A)PYRENE		150	1450	150	1160	622	117 J	292	701
BENZO(B)FLUORANTHENE				190	928	604	103 J	210	582
BENZO(G,H,I)PERYLENE				170	570	355	77.2 J	160 J	364
BENZO(K)FLUORANTHENE				240	880	619	88.9 J	219	545
CHRYSENE		166	1290	166	1320	690	134 J	326	667
DIBENZ(A,H)ANTHRACENE		33		33	124 J	88.3 J	92.5 U	37.1 J	82.4 J
FLUORANTHENE		423	2230	423	3570	1630	262	879	1720
FLUORENE		77.4	536	77	1860	424	77.7 J	503	824
INDENO(1,2,3-C,D)PYRENE				200	571	409	69 J	127 J	357
NAPHTHALENE		176	561	176	7600	1120	133 J	152 J	203 J
PHENANTHRENE		204	1170	204	4690	1330	250	1260	2600
PYRENE		195	1520	195	2800	1250	201	625	1200
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		30485	10555.3	1913.1	5968.1	12051.3
2-METHYLNAPHTHALENE	SIM			20.2		30.3			
ACENAPHTHENE	SIM			6.7		45.6			
ACENAPHTHYLENE	SIM			5.9		24.8			
ANTHRACENE	SIM	57.2	845	57		62.7			
BENZO(A)ANTHRACENE	SIM	108	1050	108		98.3			
BENZO(A)PYRENE	SIM	150	1450	150		118			
BENZO(B)FLUORANTHENE	SIM			190		93.4			
BENZO(G,H,I)PERYLENE	SIM			170		80.7			
BENZO(K)FLUORANTHENE	SIM			240		94.8			
CHRYSENE	SIM	166	1290	166		121			
DIBENZ(A,H)ANTHRACENE	SIM	33		33		22.1			
FLUORANTHENE	SIM	423	2230	423		218			
FLUORENE	SIM	77.4	536	77		78.1			
INDENO(1,2,3-C,D)PYRENE	SIM			200		85.1			
NAPHTHALENE	SIM	176	561	176		129			
PHENANTHRENE	SIM	204	1170	204		246			
PYRENE	SIM	195	1520	195		193			
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800			1740.9			

Units are µg/kg

Table A1.4c Composite Sediment Sample Results for Semi-Volatile Organic Analyses

NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-SBC**	**LMR21-SBC FD1**	**LMR21-SBD**	**LMR21-SBD FD1**	**LMR21-WA1**
2-METHYLNAPHTHALENE				20.2	25.8 J	25.5 J	46.2 J	45.5 J	89.7 J
ACENAPHTHENE				6.7	52.9 J	36.1 J	59 U	62.5 U	217
ACENAPHTHYLENE				5.9	57.4 J	43.4 J	59 U	62.5 U	242
ANTHRACENE		57.2	845	57	119 J	86 J	59 U	62.5 U	517
BENZO(A)ANTHRACENE		108	1050	108	275	232	59 U	62.5 U	903
BENZO(A)PYRENE		150	1450	150	235	204	59 U	62.5 U	917
BENZO(B)FLUORANTHENE				190	233	192	59 U	62.5 U	675
BENZO(G,H,I)PERYLENE				170	112 J	97.6 J	59 U	62.5 U	495
BENZO(K)FLUORANTHENE				240	185	175	59 U	62.5 U	692
CHRYSENE		166	1290	166	315	274	59 U	23.2 J	1120
DIBENZ(A,H)ANTHRACENE		33		33	27 J	69 U	59 U	62.5 U	132 J
FLUORANTHENE		423	2230	423	601	439	34.7 J	36.4 J	1920
FLUORENE		77.4	536	77	79 J	61.7 J	59 U	62.5 U	415
INDENO(1,2,3-C,D)PYRENE				200	109 J	100 J	59 U	62.5 U	475
NAPHTHALENE		176	561	176	81.8 J	77 J	96.2 J	87.1 J	210
PHENANTHRENE		204	1170	204	404	271	83.5 J	85.6 J	1770
PYRENE		195	1520	195	494	386	30.6 J	30.4 J	1890
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		3405.9	2769.3	999.2	995.7	12679.7
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg

NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-WA1 FD1	LMR21-WA2	LMR21-WA2 FD1	LMR21-WA3	LMR21-WA3 FD1
2-METHYLNAPHTHALENE				20.2	50.3 J	61.5 J	26.2 J	43.5 J	77 J
ACENAPHTHENE				6.7	73.4 J	179	34.9 J	67.8 J	75.6 J
ACENAPHTHYLENE				5.9	111 J	84.6 J	43.8 J	41.9 J	77.6 J
ANTHRACENE		57.2	845	57	161	235	69.5 J	142	194
BENZO(A)ANTHRACENE		108	1050	108	361	419	140 J	209	433
BENZO(A)PYRENE		150	1450	150	414	443	168	182	435
BENZO(B)FLUORANTHENE				190	307	346	124 J	154	331
BENZO(G,H,I)PERYLENE				170	228	242	87.9 J	92.4 J	227
BENZO(K)FLUORANTHENE				240	302	311	110 J	135 J	318
CHRYSENE		166	1290	166	483	524	192	240	530
DIBENZ(A,H)ANTHRACENE		33		33	60.8 J	75.9 J	76.5 U	70 U	66.4 J
FLUORANTHENE		423	2230	423	665	949	311	423	718
FLUORENE		77.4	536	77	146 J	227	58.2 J	115 J	163
INDENO(1,2,3-C,D)PYRENE				200	230	225	91.8 J	91.8 J	214
NAPHTHALENE		176	561	176	145 J	257	78.1 J	185	253
PHENANTHRENE		204	1170	204	531	899	228	350	548
PYRENE		195	1520	195	703	816	307	429	761
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		4971.5	6294	2146.9	2971.4	5421.6
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg

NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-WB1**	**LMR21-WB1 FD1**	**LMR21-WB2**	**LMR21-WB2 FD1**	**LMR21-WC1**
2-METHYLNAPHTHALENE				20.2	98.5 J	61.3 J	70.4 J	53.3 J	71.4 J-
ACENAPHTHENE				6.7	267	57 J	234	218	123 J-
ACENAPHTHYLENE				5.9	235	60.9 J	257	136 J	119 J-
ANTHRACENE		57.2	845	57	597	125 J	423	346	244 J-
BENZO(A)ANTHRACENE		108	1050	108	1070	235	1220	775	448 J-
BENZO(A)PYRENE		150	1450	150	968	278	1290	849	439 J-
BENZO(B)FLUORANTHENE				190	928	196	957	566	326 J-
BENZO(G,H,I)PERYLENE				170	480	141 J	592	397	245 J-
BENZO(K)FLUORANTHENE				240	799	213	930	596	310 J-
CHRYSENE		166	1290	166	1240	303	1320	838	536 J-
DIBENZ(A,H)ANTHRACENE		33		33	136 J	44.8 J	180	108 J	63.8 J-
FLUORANTHENE		423	2230	423	2360	558	2200	1620	888 J-
FLUORENE		77.4	536	77	437	82.9 J	382	291	208 J-
INDENO(1,2,3-C,D)PYRENE				200	487	141 J	613	381	293 J-
NAPHTHALENE		176	561	176	342	190	172	152 J	214 J-
PHENANTHRENE		204	1170	204	1890	358	1680	1340	958 J-
PYRENE		195	1520	195	2360	492	2430	1590	836 J-
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		14694.5	3536.9	14950.4	10256.3	6322.2
2-METHYLNAPHTHALENE	SIM			20.2					
ACENAPHTHENE	SIM			6.7					
ACENAPHTHYLENE	SIM			5.9					
ANTHRACENE	SIM	57.2	845	57					
BENZO(A)ANTHRACENE	SIM	108	1050	108					
BENZO(A)PYRENE	SIM	150	1450	150					
BENZO(B)FLUORANTHENE	SIM			190					
BENZO(G,H,I)PERYLENE	SIM			170					
BENZO(K)FLUORANTHENE	SIM			240					
CHRYSENE	SIM	166	1290	166					
DIBENZ(A,H)ANTHRACENE	SIM	33		33					
FLUORANTHENE	SIM	423	2230	423					
FLUORENE	SIM	77.4	536	77					
INDENO(1,2,3-C,D)PYRENE	SIM			200					
NAPHTHALENE	SIM	176	561	176					
PHENANTHRENE	SIM	204	1170	204					
PYRENE	SIM	195	1520	195					
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800						

Units are µg/kg

NAME	SIM	TEC	PEC	REGION4_ESV	LMR21-WC1 FD1	LMR21-WC1-FD FD	LMR21-WC1-FD FD1	LMR21-WC2
2-METHYLNAPHTHALENE				20.2	96.1 J	107 J	655 U	39 J
ACENAPHTHENE				6.7	378 J	199 J	156 J	73 J
ACENAPHTHYLENE				5.9	224 J	198 J	166 J	42.3 J
ANTHRACENE		57.2	845	57	675	467	304 J	102 J
BENZO(A)ANTHRACENE		108	1050	108	994	828	527	216
BENZO(A)PYRENE		150	1450	150	927	797	520	260
BENZO(B)FLUORANTHENE				190	812	622	502	283
BENZO(G,H,I)PERYLENE				170	460 J	372 J	288 J	183 J
BENZO(K)FLUORANTHENE				240	644	603	294 J	179 J
CHRYSENE		166	1290	166	1110	934	637	309
DIBENZ(A,H)ANTHRACENE		33		33	149 J	133 J	242 U	93 U
FLUORANTHENE		423	2230	423	2210	1590	1120	504
FLUORENE		77.4	536	77	527	350 J	258 J	121 J
INDENO(1,2,3-C,D)PYRENE				200	416 J	403 J	270 J	146 J
NAPHTHALENE		176	561	176	322 J	282 J	180 J	194
PHENANTHRENE		204	1170	204	2430	1610	1140	412
PYRENE		195	1520	195	2280	1670	1040	485
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		14654.1	11165	8299	3641.3
2-METHYLNAPHTHALENE	SIM			20.2				
ACENAPHTHENE	SIM			6.7				
ACENAPHTHYLENE	SIM			5.9				
ANTHRACENE	SIM	57.2	845	57				
BENZO(A)ANTHRACENE	SIM	108	1050	108				
BENZO(A)PYRENE	SIM	150	1450	150				
BENZO(B)FLUORANTHENE	SIM			190				
BENZO(G,H,I)PERYLENE	SIM			170				
BENZO(K)FLUORANTHENE	SIM			240				
CHRYSENE	SIM	166	1290	166				
DIBENZ(A,H)ANTHRACENE	SIM	33		33				
FLUORANTHENE	SIM	423	2230	423				
FLUORENE	SIM	77.4	536	77				
INDENO(1,2,3-C,D)PYRENE	SIM			200				
NAPHTHALENE	SIM	176	561	176				
PHENANTHRENE	SIM	204	1170	204				
PYRENE	SIM	195	1520	195				
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800					

Units are µg/kg

Table A1.4c Composite Sediment Sample Results for Semi-Volatile Organic Analyses

NAME	SIM	TEC	PEC	REGION4_ESV	**LMR21-WC2 FD1**
2-METHYLNAPHTHALENE				20.2	54.9 J
ACENAPHTHENE				6.7	60.9 J
ACENAPHTHYLENE				5.9	33.9 J
ANTHRACENE		57.2	845	57	104 J
BENZO(A)ANTHRACENE		108	1050	108	231
BENZO(A)PYRENE		150	1450	150	266
BENZO(B)FLUORANTHENE				190	233
BENZO(G,H,I)PERYLENE				170	164 J
BENZO(K)FLUORANTHENE				240	190
CHRYSENE		166	1290	166	332
DIBENZ(A,H)ANTHRACENE		33		33	48.4 J
FLUORANTHENE		423	2230	423	510
FLUORENE		77.4	536	77	131 J
INDENO(1,2,3-C,D)PYRENE				200	148 J
NAPHTHALENE		176	561	176	219
PHENANTHRENE		204	1170	204	420
PYRENE		195	1520	195	523
TOTAL 17 PAH (ND SET TO 1/2 RL)		1610	22800		3669.1
2-METHYLNAPHTHALENE	SIM			20.2	
ACENAPHTHENE	SIM			6.7	
ACENAPHTHYLENE	SIM			5.9	
ANTHRACENE	SIM	57.2	845	57	
BENZO(A)ANTHRACENE	SIM	108	1050	108	
BENZO(A)PYRENE	SIM	150	1450	150	
BENZO(B)FLUORANTHENE	SIM			190	
BENZO(G,H,I)PERYLENE	SIM			170	
BENZO(K)FLUORANTHENE	SIM			240	
CHRYSENE	SIM	166	1290	166	
DIBENZ(A,H)ANTHRACENE	SIM	33		33	
FLUORANTHENE	SIM	423	2230	423	
FLUORENE	SIM	77.4	536	77	
INDENO(1,2,3-C,D)PYRENE	SIM			200	
NAPHTHALENE	SIM	176	561	176	
PHENANTHRENE	SIM	204	1170	204	
PYRENE	SIM	195	1520	195	
TOTAL 17 PAH (ND SET TO 1/2 RL)	SIM	1610	22800		

Units are µg/kg

				Sampling Area >	WWTP A2	WWTP A2	WWTP A1
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-10S (0-0.5)	LMR21-12S (0-0.5)	LMR21-14S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.0799	0.0691	0.106
PCB10	2,6-DICHLOROBIPHENYL				0.0131	0.0063	0.0134
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0321 J	0.0163	0.0301
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0022 J	0.000534 J	0.00254 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.807 J	0.689 J-	0.784 J-
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00083 U	0.00092 U	0.00079 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.182 J	0.144	0.174
PCB11	3,3'-DICHLOROBIPHENYL				0.243	0.288	0.361
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.0022 J	0.00096 U	0.00351
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00658	0.00212 J	0.0067 J
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0465 J	0.0357	0.0433
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.99 J	1.62	1.87
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0108	0.00689	0.0079
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.0019 J	0.00096 U	0.0015 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.018 J	0.0209	0.0266
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0291 J	0.0297 J-	0.019 J
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.00604	0.00513	0.00621
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0022 J	0.0024 J	0.0022 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.144 J	0.129	0.13
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0282	0.0238	0.0233
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.716	0.608	0.637
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.036 J	0.0304	0.0386
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.167	0.116	0.143
PCB14	3,5-DICHLOROBIPHENYL				0.00096 U	0.0011 U	0.0016 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.398 J	0.335	0.369
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.0012 U	0.0011 U	0.0013 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0868 J	0.0691	0.0815
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.000761 J	0.00016 U	0.000773 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.391 J	0.317	0.371
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00653	0.00308	0.0068
PCB15	4,4'-DICHLOROBIPHENYL				0.986 J	0.512	0.854
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00567	0.0021 J	0.00479

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.0018 J	0.00135 J	0.0016 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0358	0.0182	0.0306
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.00232 J	0.000784 J	0.00172 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.176 J	0.154	0.175
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0156	0.0113	0.0134
PCB16	2,2',3-TRICHLOROBIPHENYL				0.582	0.244	0.513
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00082 U	0.00075 U	0.00085 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00077 U	0.0007 U	0.0008 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.00712	0.00774	0.0067 J
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0042 J	0.0019 J	0.00414
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0768 J	0.0714	0.069
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0049 J	0.005 J	0.0043 J
PCB17	2,2',4-TRICHLOROBIPHENYL				1.04	0.504	1.15
PCB170	2,2',3,3',4,4',5-				0.371 J	0.206	0.283
PCB172	2,2',3,3',4,5,5'-				0.0913	0.0745	0.0741
PCB174	2,2',3,3',4,5,6'-				0.518 J	0.403	0.44
PCB175	2,2',3,3',4,5',6-				0.0251	0.0181	0.0191
PCB176	2,2',3,3',4,6,6'-				0.0557 J	0.0396	0.0467
PCB177	2,2',3,3',4,5',6'-				0.252	0.198	0.212
PCB178	2,2',3,3',5,5',6-				0.101 J	0.0783	0.101
PCB179	2,2',3,3',5,6,6'-				0.197	0.124	0.159
PCB181	2,2',3,4,4',5,6-				0.00514	0.00455	0.00376
PCB182	2,2',3,4,4',5,6'-				0.0036 J	0.0034 J	0.0028 J
PCB183	2,2',3,4,4',5',6-				0.322 J	0.245	0.277
PCB184	2,2',3,4,4',6,6'-				0.00615	0.0017 J	0.00316
PCB185	2,2',3,4,5,5',6-				0.00068 U	0.00081 U	0.00069 U
PCB186	2,2',3,4,5,6,6'-				0.00049 U	0.00059 U	0.0005 U
PCB187	2,2',3,4',5,5',6-				0.781 J	0.578	0.682
PCB188	2,2',3,4',5,6,6'-				0.00152 J	0.00061 J	0.00088 J
PCB189	2,3,3',4,4',5,5'-				0.0207	0.0173	0.0169
PCB19	2,2',6-TRICHLOROBIPHENYL				0.212	0.141	0.316
PCB190	2,3,3',4,4',5,6-				0.073 J	0.0566	0.0545
PCB191	2,3,3',4,4',5',6-				0.0176 J	0.0265	0.029 J
PCB192	2,3,3',4,5,5',6-				0.00052 U	0.00062 U	0.00053 U

PCB194	2,2',3,3',4,4',5,5'-				0.235 J	0.147	0.202
PCB195	2,2',3,3',4,4',5,6-				0.0276 J	0.0165	0.0244
PCB196	2,2',3,3',4,4',5',6-				0.131 J	0.0811	0.11
PCB197	2,2',3,3',4,4',6,6'-				0.0092 J	0.0053 J	0.0101
PCB2	3-CHLOROBIPHENYL				0.036	0.0276	0.0353
PCB200	2,2',3,3',4,5,6,6'-				0.028 J	0.017 J	0.0281
PCB201	2,2',3,3',4,5',6,6'-				0.0248 J	0.012	0.0242
PCB202	2,2',3,3',5,5',6,6'-				0.0823	0.0422	0.0633
PCB203	2,2',3,4,4',5,5',6-				0.193 J	0.122	0.156
PCB204	2,2',3,4,4',5,6,6'-				0.00034 J	0.0013 U	0.00046 U
PCB205	2,3,3',4,4',5,5',6-				0.0111	0.00854	0.0104
PCB206	2,2',3,3',4,4',5,5',6- NONACHLOROBIPHENYL				0.238	0.125	0.277
PCB207	2,2',3,3',4,4',5,6,6'- NONACHLOROBIPHENYL				0.0216 J	0.0162	0.0278
PCB208	2,2',3,3',4,5,5',6,6'- NONACHLOROBIPHENYL				0.0943 J	0.0407	0.0978
PCB209	2,2',3,3',4,4',5,5',6,6'- DECACHLOROBIPHENYL				0.125 J	0.145	0.179
PCB22	2,3,4'-TRICHLOROBIPHENYL				1.36	0.628	1.22
PCB23	2,3,5-TRICHLOROBIPHENYL				0.0027 J	0.0016 J	0.0029 J
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0191	0.00882	0.0176
PCB25	2,3',4-TRICHLOROBIPHENYL				0.694	0.308	0.713
PCB27	2,3',6-TRICHLOROBIPHENYL				0.132	0.0653	0.142
PCB3	4-CHLOROBIPHENYL				0.0606 J	0.0454	0.0586
PCB31	2,4',5-TRICHLOROBIPHENYL				3.5	1.69	3.48
PCB32	2,4',6-TRICHLOROBIPHENYL				0.654	0.314	0.7
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0303 J	0.0143	0.034
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0647	0.028	0.0541
PCB36	3,3',5-TRICHLOROBIPHENYL				0.0015 U	0.0015 U	0.0016 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.929	0.417	0.794
PCB38	3,4,5-TRICHLOROBIPHENYL				0.00288 J	0.0015 U	0.0027 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.015 J	0.0103	0.0203
PCB4	2,2'-DICHLOROBIPHENYL				0.493	0.359	0.737

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				1.04	0.493	0.922
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.14	0.0638	0.128
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.159	0.0716	0.146
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.677	0.294	0.585
PCB5	2,3-DICHLOROBIPHENYL				0.00773	0.00486	0.0082 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				3.5 J	1.82	3.45
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.011 J	0.00641	0.0153
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.06 J	0.0332	0.0623
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				1.64 J	0.857	1.45
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0208 J	0.0126	0.0251
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.0091 J	0.00612	0.0125
PCB6	2,3'-DICHLOROBIPHENYL				0.299	0.156	0.353
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.691 J	0.385	0.639
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.159 J	0.0873	0.158
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1.53	0.77	1.42
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				3.07 J	1.72	2.86
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.135 J	0.0556	0.117
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0263 J	0.0145	0.0272
PCB7	2,4-DICHLOROBIPHENYL				0.0385	0.0247	0.0476
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0372 J	0.0209	0.0356
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.00035 U	0.00031 U	0.00041 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.291 J	0.158	0.25
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.002 U	0.0013 U	0.0012 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0196 J	0.015 J	0.0191
PCB8	2,4'-DICHLOROBIPHENYL				0.796	0.433	0.893
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.0017 U	0.0011 U	0.0011 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00842	0.0049 J	0.00742
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.405	0.275	0.354
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.633	0.415	0.537
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0386	0.0227	0.0355
PCB9	2,5-DICHLOROBIPHENYL				0.0456	0.0259	0.0505
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.503	0.37	0.475
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0241	0.0106	0.0218
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				1.38	0.9	1.19

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.0158	0.0082	0.0139
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.285 J	0.139	0.27
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				1.48	0.634	1.45
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				4.89	2.36	4.69
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				1.26	0.58	1.16
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.78 J	0.393	0.905
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				1.76	0.83	1.62
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				3.24	1.57	2.98
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.5	0.224	0.465
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				2.47 J	1.22	2.37
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.367	0.157	0.348
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.286	0.137	0.254
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				5.64 J	3.08	5.26
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.58 J	1.19	1.5
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				1.51	1.15	1.38
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.422	0.269	0.379
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				2.38	1.84	2.22
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.152	0.0807	0.14
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0782 J	0.0708	0.0799

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.371	0.35	0.336
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				2.34 J	2.05	2.15
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0877 J	0.0817	0.0963
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.681 J	0.486	0.635
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0393 J	0.0356	0.0401
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.76 J	1.35	1.65
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.91 J	1.55	1.75
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.239 J	0.232	0.207
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.118	0.107	0.101
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				1.11 J	0.843	0.933
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.345	0.208	0.301
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				3.33	2.64	3.07
PCB-CO84	PCB-137; PCB-164				0.264 J	0.248	0.262
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	79.7 J	48.7 J	75.3 J
TDCBP	TOTAL DICHLOROBIPHENYLS				3.21 J	1.95 J	3.59 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.000732	0.00061	0.000738
TEQ_PCB_MP	TEQ PCB Mid Point				0.000879	0.000761	0.000868
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000879	0.000761	0.000868
THCBP	TOTAL HEPTACHLOROBIPHENYL				4.07 J	3.03 J	3.44 J
THXBP	TOTAL HEXACHLOROBIPHENYL				10 J	8.29 J	9.24 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.177 J	0.142 J	0.2 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.354 J	0.182 J	0.403 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				1.09 J	0.66 J	0.93 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				15.6 J	11.8 J	14.4 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				27.5 J	14.1 J	25.6 J
TTRBP	TOTAL TRICHLOROBIPHENYL				17.6 J	8.34 J	17.4 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	79.739401	48.653938	75.341003

Units are µg/kg

				Sampling Area >	WWTP A1	WWTP A1	WWTP A3
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-15S (0-0.5)	LMR21-17S (0-0.5)	LMR21-19S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.3	0.845	1.1
PCB10	2,6-DICHLOROBIPHENYL				0.101	0.334	0.224
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.182	0.191	0.291 J
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.00778	0.0118	0.00443
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				4.37 J-	5.4 J-	10.9 J
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.0037 U	0.0011 U	0 J
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.828	0.953	2.04 J
PCB11	3,3'-DICHLOROBIPHENYL				0.371	0.395	0.256
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.01	0.0054 J	0.0074 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.0255	0.001 U	0.003 UJ
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.285	0.341	0.683
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				11	11.9	25.8
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0497	0.0316	0.0558 J
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.005 J	0.0042 J	0.003 UJ
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.122	0.126	0.271 J
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.142 J-	0.215 J-	0.317 J-
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.0267	0.023 J	0.021 J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0094 J	0.0073 J	0.0266 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.631 J	0.574 J	1.6
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.126 J	0.146 J	0.418
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				3.18 J	2.88 J	8.25
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.154 J	0.124 J	0.325
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.967 J	0.984 J	2.8
PCB14	3,5-DICHLOROBIPHENYL				0.0037 J	0.00609	0.0061 J
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				1.68 J	1.72 J	4.59
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.0028 UJ	0.0026 J	0.00589
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.229 J	0.00043 UJ	0.00091 U
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.00487 J	0.00417 J	0.0121
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				1.41 J	1.23 J	3.36
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.023 J	0.0187 J	0.0288
PCB15	4,4'-DICHLOROBIPHENYL				5.45	9.31	8.14
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.0229 J	0.0179 J	0.034

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.0116 J	0.013 J	0.0247
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.127 J	0.0845 J	0.171
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.0076 J	0.0035 J	0.0024 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.878 J	0.862 J	2.44
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0594 J	0.0507 J	0.122
PCB16	2,2',3-TRICHLOROBIPHENYL				4.83	8.83	8.78
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.0019 UJ	0.0015 UJ	0.0024 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.0017 UJ	0.0014 UJ	0.0023 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.0282 J	0.0264 J	0.0769
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0164 J	0.0137 J	0.0295
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.306	0.324	0.857
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.027 J	0.023 J	0.07 J
PCB17	2,2',4-TRICHLOROBIPHENYL				6.85	13.5	13.5
PCB170	2,2',3,3',4,4',5-				1.88	1.59	3.93
PCB172	2,2',3,3',4,5,5'-				0.357	0.308	0.771
PCB174	2,2',3,3',4,5,6'-				2.37	1.9	4.38
PCB175	2,2',3,3',4,5',6-				0.101	0.087	0.201
PCB176	2,2',3,3',4,6,6'-				0.27	0.233	0.546
PCB177	2,2',3,3',4,5',6'-				1.07	1.03	2.4
PCB178	2,2',3,3',5,5',6-				0.475	0.388	0.942
PCB179	2,2',3,3',5,6,6'-				0.906	0.784	1.91
PCB181	2,2',3,4,4',5,6-				0.024	0.0196	0.049 J
PCB182	2,2',3,4,4',5,6'-				0.0168	0.0104	0.0183
PCB183	2,2',3,4,4',5',6-				1.33	1.14	2.79
PCB184	2,2',3,4,4',6,6'-				0.0145	0.00679	0.0059 J
PCB185	2,2',3,4,5,5',6-				0.0013 U	0.203	0.369
PCB186	2,2',3,4,5,6,6'-				0.00098 J	0.00076 U	0.0015 U
PCB187	2,2',3,4',5,5',6-				3.09	2.46	5.18
PCB188	2,2',3,4',5,6,6'-				0.00355	0.0024 J	0.00719
PCB189	2,3,3',4,4',5,5'-				0.0688	0.0665	0.174
PCB19	2,2',6-TRICHLOROBIPHENYL				1.29	3.66	2.99
PCB190	2,3,3',4,4',5,6-				0.332	0.293	0.79
PCB191	2,3,3',4,4',5',6-				0.0761	0.0631	0.171
PCB192	2,3,3',4,5,5',6-				0.001 U	0.00081 U	0.0016 U

PCB194	2,2',3,3',4,4',5,5'-				0.963	0.755	2.36
PCB195	2,2',3,3',4,4',5,6-				0.249	0.178	0.572
PCB196	2,2',3,3',4,4',5',6-				0.523	0.44	1.1
PCB197	2,2',3,3',4,4',6,6'-				0.043	0.0335	0.0961
PCB2	3-CHLOROBIPHENYL				0.131	0.171	0.205
PCB200	2,2',3,3',4,5,6,6'-				0.12	0.0959	0.338
PCB201	2,2',3,3',4,5',6,6'-				0.142	0.109	0.355
PCB202	2,2',3,3',5,5',6,6'-				0.221	0.179	0.62
PCB203	2,2',3,4,4',5,5',6-				0.683	0.546	1.57
PCB204	2,2',3,4,4',5,6,6'-				0.0021 U	0.00053 U	0.0012 U
PCB205	2,3,3',4,4',5,5',6-				0.0486	0.0444	0.112
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.584	0.423	1.64
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0631	0.0458	0.163
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.155	0.104	0.456
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.303	0.171	1.1
PCB22	2,3,4'-TRICHLOROBIPHENYL				6.46	12.7	11.7
PCB23	2,3,5-TRICHLOROBIPHENYL				0.0213	0.0549	0.0471
PCB24	2,3,6-TRICHLOROBIPHENYL				0.188	0.485	0.348
PCB25	2,3',4-TRICHLOROBIPHENYL				4.41	5.77	7.66
PCB27	2,3',6-TRICHLOROBIPHENYL				0.987	2.23	1.81
PCB3	4-CHLOROBIPHENYL				0.29	0.376	0.693
PCB31	2,4',5-TRICHLOROBIPHENYL				17.9	32.7	31
PCB32	2,4',6-TRICHLOROBIPHENYL				4.8	7.97	7.94
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.231	0.387	0.377
PCB35	3,3',4-TRICHLOROBIPHENYL				0.376	0.571	0.618
PCB36	3,3',5-TRICHLOROBIPHENYL				0.0048 U	0.0059 U	0.0031 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				4.98	7.93	7.85
PCB38	3,4,5-TRICHLOROBIPHENYL				0.014 J	0.0252	0.0262
PCB39	3,4',5-TRICHLOROBIPHENYL				0.13	0.224	0.216
PCB4	2,2'-DICHLOROBIPHENYL				2.23	7.35	4.89

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				6.07	8.29	10
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				1.13	1.96	1.9
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				1.45	2.67	2.63
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				5.06	6.83	8.19
PCB5	2,3-DICHLOROBIPHENYL				0.044 J	0.227	0.084 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				23	28.5	47.2
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.0719	0.131	0.0848
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.43	0.464	0.977
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				8.61	12.8	14.1
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.136	0.211	0.172
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.0883	0.0932	0.115
PCB6	2,3'-DICHLOROBIPHENYL				2.72	4.82	4.92
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				3.69	6.27	6.68
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.973	1.51	1.43
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				9.28	13.1	15.6
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				14.3	22.5	22.1
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				1.14	1.24	2.11
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.134	0.21	0.166
PCB7	2,4-DICHLOROBIPHENYL				0.194	0.589	0.438
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.231	0.319	0.327
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.00068 U	0.00079 U	0.0013 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				1.68	2.26	2.65
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.0036 U	0.0034 U	0.0039 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0978	0.115	0.237
PCB8	2,4'-DICHLOROBIPHENYL				2.23	12	10.6
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.0032 U	0.0029 U	0.0034 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.0427	0.0726	0.0704
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				2.22	2.63	4.53 J
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				3.96	4.11	9.02 J
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.274	0.42	0.539 J
PCB9	2,5-DICHLOROBIPHENYL				0.366	1.14	0.839
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				2.44	2.54	6.11 J
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.15	0.183	0.218 J
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				9.06	8.98	24.6 J

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.15	0.231	0.292
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				2.15	3.56	3.42
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				11.8	23.5	25.6
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				24.4	42.6	39.4
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				7.22	15	14.4
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				5.42	7.64	7.21
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				11.6	16.8	20
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				19.5	28	35
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				4.67	5.71	6.87
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				14.6	18.7	25.1
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				3.48	3.99	5.36
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				2.05	3.28	3.16
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				31.5	45.4	55.6
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				8.07	9.08	18 J
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				8.48	10.5	21.3 J
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				2.43	2.76	4.67 J
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				12	12.8	30.5 J
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.928	1.23	1.62 J
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.364	0.432	1.02 J

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				1.49 J	1.37 J	3.73
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				9.91 J	9.53 J	25.8
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.529 J	0.541 J	1.49
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				3.12 J	2.91 J	7.89
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.178 J	0.177 J	0.513
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				7.1 J	5.97 J	17.9
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				7.14 J	6.4 J	17.5
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				1.05	1.03	3.17
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.602	0.534	1.31
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				4.74	3.97	9.19
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				1.27	0.913	2.98
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				16	19.6	39.6 J
PCB-CO84	PCB-137; PCB-164				1.16 J	1.11 J	3.11
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	432 J	610 J	862 J
TDCBP	TOTAL DICHLOROBIPHENYLS				15.9 J	39.7 J	33.8 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.00337	0.000826	0.00154
TEQ_PCB_MP	TEQ PCB Mid Point				0.00418	0.00382	0.00574
TEQ_PCB_UB	TEQ PCB Upper Bound				0.00418	0.00382	0.00574
THCBP	TOTAL HEPTACHLOROBIPHENYL				17.7 J	15.1 J	35.1 J
THXBP	TOTAL HEXACHLOROBIPHENYL				41.6 J	38.1 J	106 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.721 J	1.39 J	2 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.802 J	0.573 J	2.26 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				4.26 J	3.29 J	10.1 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				83.6 J	94.7 J	202 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				165 J	231 J	288 J
TTRBP	TOTAL TRICHLOROBIPHENYL				102 J	186 J	181 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	432.15318	610.29785	862.46961

Units are µg/kg

Table A1.5a Surface Sediment Grab Sample Results for Polychlorinated Biphenyl Congeners

				Sampling Area >	WWTP C2	WWTP C2	Sway Bridge C
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-25S (0-0.5)	LMR21-27S (0-0.5)	LMR21-30S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.0762	0.325	0.244
PCB10	2,6-DICHLOROBIPHENYL				0.00987	0.0295	0.0289
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0134	0.0204	0.0115
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0005 J	0.0016 J	0.000705 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.515 J-	0.55 J-	0.37 J-
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00055 U	0.00089 U	0.0011 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.116	0.122	0.0775
PCB11	3,3'-DICHLOROBIPHENYL				0.26	0.247	0.182
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.0011 J	0.0016 J	0.00069 U
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.0012 J	0.0015 J	0.00263 J
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0285	0.0331	0.0179
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.21	1.36	0.886
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.00613	0.00595	0.00441
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.00081 U	0.00079 U	0.00069 U
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0169	0.0224	0.007 J
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0228 J-	0.0205 J-	0.0158 J-
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.004 J	0.00584	0.0036 J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0018 J	0.0016 J	0.0015 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.109	0.112	0.0756
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.018 J	0.0221	0.0133
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.471	0.517	0.335
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0243	0.0291	0.0176
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.127	0.133	0.0855
PCB14	3,5-DICHLOROBIPHENYL				0.00099 U	0.0006 U	0.0013 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.278	0.288	0.19
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.00095 U	0.0012 U	0.0015 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0535	0.0577	0.0382
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.00032 J	0.00037 U	0.00045 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.245	0.265	0.187
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00309 J	0.0037 J	0.00194 J
PCB15	4,4'-DICHLOROBIPHENYL				0.681	1.01	1.01
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.0019 J	0.00331	0.0018 J

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.00142 J	0.00203 J	0.0011 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0184	0.0188	0.0132
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.00079 J	0.000713 J	0.00042 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.125	0.137	0.101
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.00998	0.0114	0.0073 J
PCB16	2,2',3-TRICHLOROBIPHENYL				0.241	0.514	0.222
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00063 U	0.00081 U	0.00099 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00059 U	0.00076 U	0.00093 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.00576	0.00601	0.004 J
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0028 J	0.0026 J	0.0017 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0511	0.0525	0.0401
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0052 J	0.0037 J	0.0025 J
PCB17	2,2',4-TRICHLOROBIPHENYL				0.531	1.68	0.94
PCB170	2,2',3,3',4,4',5-				0.218	0.191	0.174
PCB172	2,2',3,3',4,5,5'-				0.0481	0.0528	0.0467
PCB174	2,2',3,3',4,5,6'-				0.294	0.309	0.255
PCB175	2,2',3,3',4,5',6-				0.013	0.011 J	0.0125
PCB176	2,2',3,3',4,6,6'-				0.036	0.035	0.028
PCB177	2,2',3,3',4,5',6'-				0.154	0.162	0.136
PCB178	2,2',3,3',5,5',6-				0.062	0.0679	0.0537
PCB179	2,2',3,3',5,6,6'-				0.129	0.132	0.0935
PCB181	2,2',3,4,4',5,6-				0.00331	0.0024 J	0.00234 J
PCB182	2,2',3,4,4',5,6'-				0.0017 J	0.0022 J	0.00199 J
PCB183	2,2',3,4,4',5',6-				0.182	0.184	0.153
PCB184	2,2',3,4,4',6,6'-				0.0013 J	0.0013 J	0.00075 J
PCB185	2,2',3,4,5,5',6-				0.0306	0.0308	0.019 J
PCB186	2,2',3,4,5,6,6'-				0.00039 U	0.00053 U	0.00083 U
PCB187	2,2',3,4',5,5',6-				0.451	0.456	0.383
PCB188	2,2',3,4',5,6,6'-				0.00077 J	0.00081 J	0.000924 J
PCB189	2,3,3',4,4',5,5'-				0.0129	0.0118	0.00977
PCB19	2,2',6-TRICHLOROBIPHENYL				0.127	0.64	0.693
PCB190	2,3,3',4,4',5,6-				0.0424	0.044	0.0426
PCB191	2,3,3',4,4',5',6-				0.00874	0.0141	0.013 J
PCB192	2,3,3',4,5,5',6-				0.00041 U	0.00057 U	0.00089 U

PCB194	2,2',3,3',4,4',5,5'-				0.139	0.138	0.117
PCB195	2,2',3,3',4,4',5,6-				0.0231	0.0198	0.0199
PCB196	2,2',3,3',4,4',5',6-				0.0758	0.0732	0.0645
PCB197	2,2',3,3',4,4',6,6'-				0.0057 J	0.00609	0.00512
PCB2	3-CHLOROBIPHENYL				0.0431	0.0448	0.0216
PCB200	2,2',3,3',4,5,6,6'-				0.016	0.0207	0.015 J
PCB201	2,2',3,3',4,5',6,6'-				0.0169	0.0155	0.0143
PCB202	2,2',3,3',5,5',6,6'-				0.0405	0.0401	0.0325
PCB203	2,2',3,4,4',5,5',6-				0.109	0.108	0.0942
PCB204	2,2',3,4,4',5,6,6'-				0.00069 U	0.00096 U	0.0012 U
PCB205	2,3,3',4,4',5,5',6-				0.0068 J	0.00788	0.00647
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.118	0.12	0.0994
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0145	0.0158	0.0129
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0375	0.0366	0.0302
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.122	0.111	0.0864
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.583	0.938	0.448
PCB23	2,3,5-TRICHLOROBIPHENYL				0.0013 J	0.0026 J	0.0014 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0085 J	0.0191	0.00725
PCB25	2,3',4-TRICHLOROBIPHENYL				0.35	0.823	0.427
PCB27	2,3',6-TRICHLOROBIPHENYL				0.0789	0.248	0.156
PCB3	4-CHLOROBIPHENYL				0.0581	0.107	0.111
PCB31	2,4',5-TRICHLOROBIPHENYL				1.61	3.06	1.49
PCB32	2,4',6-TRICHLOROBIPHENYL				0.309	0.956	0.77
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0157	0.0329	0.0195
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0301	0.0396	0.0188
PCB36	3,3',5-TRICHLOROBIPHENYL				0.0012 U	0.0018 J	0.0014 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.458	0.634	0.283
PCB38	3,4,5-TRICHLOROBIPHENYL				0.0018 J	0.00253 J	0.0018 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.011	0.0197	0.00882
PCB4	2,2'-DICHLOROBIPHENYL				0.397	1.71	2.3

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.5	0.715	0.385
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0615	0.105	0.0544
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.0748	0.153	0.0722
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.28	0.403	0.195
PCB5	2,3-DICHLOROBIPHENYL				0.00521	0.025 J	0.00514
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				1.78	2.81	1.48
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.00566	0.0255	0.0126
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0276	0.0357	0.0165
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.841	0.916	0.499
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0137	0.0196	0.0114
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.008	0.0071 J	0.0045 J
PCB6	2,3'-DICHLOROBIPHENYL				0.199	0.508	0.419
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.358	0.423	0.228
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0878	0.115	0.0634
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.815	1.07	0.585
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.71	1.84	1.07
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0609	0.073	0.0367
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0155	0.0224	0.0126
PCB7	2,4-DICHLOROBIPHENYL				0.0286	0.0625	0.0563
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0214	0.0318	0.0192
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.00031 U	0.00047 U	0.00036 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.161	0.171	0.102
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.00093 U	0.0012 U	0.0015 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0148	0.0194	0.00912
PCB8	2,4'-DICHLOROBIPHENYL				0.361	0.763	1.15
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.00081 U	0.001 U	0.0013 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00599	0.00554	0.00368
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.212	0.248	0.147
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.344	0.432	0.259
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0195	0.0236	0.0149
PCB9	2,5-DICHLOROBIPHENYL				0.0269	0.0529	0.0307
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.263	0.327	0.209
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0103	0.0189	0.0079 J
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.888	1.08	0.675

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.00839	0.0139	0.0067 J
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.176	0.361	0.263
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				0.649	1.47	0.721
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				2.34	3.64	1.88
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				0.497	0.814	0.332
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.47	1.12	0.647
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				0.875	1.31	0.698
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				1.71	2.74	1.46
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.249	0.581	0.274
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				1.21	1.91	1.03
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.192	0.471	0.223
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.152	0.217	0.108
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				2.89	3.37	1.9
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				0.899	1.02	0.662
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				0.882	1.05	0.679
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.238	0.297	0.184
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				1.29	1.49	0.963
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.0715	0.102	0.0571
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0502	0.0563	0.0361

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.238	0.254	0.189
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				1.67	1.83	1.25
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0786	0.0817	0.0531
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.455	0.5	0.315
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0295	0.0317	0.0212
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.28	1.38	0.874
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.22	1.33	0.901
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.152	0.154	0.118
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0663	0.0645	0.0599
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.617	0.642	0.576
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.19	0.197	0.17
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				1.5	1.96	1.44
PCB-CO84	PCB-137; PCB-164				0.193	0.21	0.138
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	43.5 J	62.5 J	40 J
TDCBP	TOTAL DICHLOROBIPHENYLS				2.14 J	4.77 J	5.45 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.0000777	0.000668	0.000055
TEQ_PCB_MP	TEQ PCB Mid Point				0.000634	0.000779	0.00049
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000634	0.000779	0.00049
THCBP	TOTAL HEPTACHLOROBIPHENYL				2.37 J	2.41 J	2.06 J
THXBP	TOTAL HEXACHLOROBIPHENYL				6.87 J	7.44 J	4.98 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.177 J	0.477 J	0.377 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.17 J	0.172 J	0.143 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				0.623 J	0.626 J	0.539 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				8.61 J	10.3 J	6.74 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				14.1 J	19.6 J	10.6 J
TTRBP	TOTAL TRICHLOROBIPHENYL				8.31 J	16.7 J	9.07 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	43.52273	62.487503	39.985929

Units are µg/kg

				Sampling Area >	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-35S (0-0.5)	LMR21-37S (0-0.5)	LMR21-39S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.06	0.0804	0.0509
PCB10	2,6-DICHLOROBIPHENYL				0.0114	0.00864	0.0113
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0256	0.0211	0.0195
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0023 J	0.001 J	0.000392 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.653 J-	0.66 J-	0.554 J-
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00083 U	0.00074 U	0.00054 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.14	0.148	0.124
PCB11	3,3'-DICHLOROBIPHENYL				0.217	0.213	0.091
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.00054 U	0.0022 J	0.002 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00056 U	0.00059 U	0.00042 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0379	0.037	0.031
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.58	1.57	1.31
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.00674	0.00712	0.00531
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.000997 J	0.00125 J	0.00043 U
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.012 J	0.0201	0.0136
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.02 J	0.0303 J-	0.0216 J-
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.0057 J	0.0092 J	0.00321
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0023 J	0.00202 J	0.0015 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.124	0.126	0.0899
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0242	0.023 J	0.0221
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.663	0.64	0.485
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0335	0.0341	0.018 J
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.179	0.155	0.145
PCB14	3,5-DICHLOROBIPHENYL				0.00089 U	0.00083 U	0.00043 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.368	0.351	0.235
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.0013 U	0.0014 U	0.00092 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0893	0.0855	0.0584
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.00048 U	0.000438 J	0.00057 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.324	0.347	0.194
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.0024 J	0.0037 J	0.00266
PCB15	4,4'-DICHLOROBIPHENYL				0.641	0.809	0.476
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.0037 J	0.00359	0.00269

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.0013 J	0.0014 J	0.0016 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0237	0.0275	0.0188
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000892 J	0.000715 J	0.00016 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.144	0.14	0.0934
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.012	0.0141	0.00639
PCB16	2,2',3-TRICHLOROBIPHENYL				0.386	0.326	0.511
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00076 U	0.00086 U	0.00055 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00083 U	0.00093 U	0.00059 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.0071	0.00753	0.00436
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.00349 J	0.0026 J	0.0017 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0729	0.0673	0.0451
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.00734	0.00722	0.0029 J
PCB17	2,2',4-TRICHLOROBIPHENYL				0.656	0.71	0.869
PCB170	2,2',3,3',4,4',5-				0.298	0.235	0.165
PCB172	2,2',3,3',4,5,5'-				0.0646	0.0683	0.0411
PCB174	2,2',3,3',4,5,6'-				0.363	0.365	0.238
PCB175	2,2',3,3',4,5',6-				0.018	0.021	0.011 J
PCB176	2,2',3,3',4,6,6'-				0.0475	0.0484	0.0363
PCB177	2,2',3,3',4,5',6'-				0.185	0.203	0.128
PCB178	2,2',3,3',5,5',6-				0.0785	0.0939	0.0492
PCB179	2,2',3,3',5,6,6'-				0.157	0.156	0.116
PCB181	2,2',3,4,4',5,6-				0.00358 J	0.0029 J	0.0019 J
PCB182	2,2',3,4,4',5,6'-				0.0027 J	0.00392	0.00163 J
PCB183	2,2',3,4,4',5',6-				0.265	0.284	0.164
PCB184	2,2',3,4,4',6,6'-				0.0012 J	0.0014 J	0.00042 U
PCB185	2,2',3,4,5,5',6-				0.033 J	0.034 J	0.0204
PCB186	2,2',3,4,5,6,6'-				0.00034 U	0.00046 U	0.00044 U
PCB187	2,2',3,4',5,5',6-				0.589	0.628	0.345
PCB188	2,2',3,4',5,6,6'-				0.00061 J	0.00119 J	J
PCB189	2,3,3',4,4',5,5'-				0.0187	0.0165	0.00968
PCB19	2,2',6-TRICHLOROBIPHENYL				0.158	0.171	0.189
PCB190	2,3,3',4,4',5,6-				0.0596	0.0631	0.038
PCB191	2,3,3',4,4',5',6-				0.0128	0.016 J	0.013 J
PCB192	2,3,3',4,5,5',6-				0.00034 U	0.00046 U	0.00044 U

PCB194	2,2',3,3',4,4',5,5'-				0.214	0.193	0.109
PCB195	2,2',3,3',4,4',5,6-				0.022	0.0192	0.012
PCB196	2,2',3,3',4,4',5',6-				0.101	0.0973	0.0496
PCB197	2,2',3,3',4,4',6,6'-				0.00761	0.01	0.00532
PCB2	3-CHLOROBIPHENYL				0.0212	0.0239	0.0228 J
PCB200	2,2',3,3',4,5,6,6'-				0.0237	0.0224	0.0133
PCB201	2,2',3,3',4,5',6,6'-				0.014	0.0152	0.01
PCB202	2,2',3,3',5,5',6,6'-				0.0574	0.057	0.0258
PCB203	2,2',3,4,4',5,5',6-				0.163	0.148	0.077
PCB204	2,2',3,4,4',5,6,6'-				0.00031 U	0.0014 U	0.00058 U
PCB205	2,3,3',4,4',5,5',6-				0.011	0.00951	0.00473
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.185	0.163	0.0803
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0219	0.019	0.0083 J
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0571	0.0508	0.0247
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.161	0.166	0.0573
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.754	0.738	0.752
PCB23	2,3,5-TRICHLOROBIPHENYL				0.00198 J	0.0021 J	0.00226
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0147	0.0123	0.00025 U
PCB25	2,3',4-TRICHLOROBIPHENYL				0.313	0.415	0.292
PCB27	2,3',6-TRICHLOROBIPHENYL				0.0891	0.0917	0.015 J
PCB3	4-CHLOROBIPHENYL				0.0505	0.0714	0.0305 J
PCB31	2,4',5-TRICHLOROBIPHENYL				1.96	2.07	2.2
PCB32	2,4',6-TRICHLOROBIPHENYL				0.411	0.417	0.506
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0142	0.019	0.0212
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0374	0.0359	0.0228
PCB36	3,3',5-TRICHLOROBIPHENYL				0.02 U	0.024 U	J
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.585	0.548	0.551
PCB38	3,4,5-TRICHLOROBIPHENYL				0.001 U	0.00239 J	0.0028 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.011 J	0.0135	0.0161
PCB4	2,2'-DICHLOROBIPHENYL				0.354	0.428	0.4

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.626	0.656	0.751
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0908	0.0985	0.126
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.111	0.0973	0.153
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.422	0.402	0.601
PCB5	2,3-DICHLOROBIPHENYL				0.0045	0.00537	0.004 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				2.31	2.28	2.94
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.0278	0.00759	0.00686
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0304	0.0346	0.0207
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.875	0.969	1.09
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0132	0.0159	0.0138
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.0045 J	0.00893	0.0061 J
PCB6	2,3'-DICHLOROBIPHENYL				0.19	0.222	0.179
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.4	0.432	0.418
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0919	0.107	0.11
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1	1.01	1.18
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.82	2.01	2.1
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0711	0.0727	0.0786
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0144	0.0177	0.0122
PCB7	2,4-DICHLOROBIPHENYL				0.031	0.032	0.0207
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0218	0.0259	0.0224
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.00034 U	0.0003 U	0.0003 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.175	0.187	0.168
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.00095 U	0.00097 J	0.000927 J
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0149	0.0158	0.0153
PCB8	2,4'-DICHLOROBIPHENYL				0.592	0.603	0.267
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.00088 U	0.011 J	0.00959
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00597	0.00597	0.00488
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.281	0.291	0.266
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.46	0.451	0.501
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0255	0.0265	0.0334
PCB9	2,5-DICHLOROBIPHENYL				0.038	0.0328	0.0358
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.372	0.395	0.328
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0157	0.0155	0.014 J
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				1.19	1.08	1.32

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.0137	0.0118	0.016
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.144	0.213	0.129
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				0.969	0.859	1.48
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				2.64	2.87	2.73
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				0.801	0.684	0.744
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.47	0.565	0.511
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				1.13	1.11	1.37
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				2.14	2.08	2.42
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.452	0.314	0.442
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				1.54	1.57	1.82
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.275	0.213	0.353
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.185	0.187	0.224
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				3.23	3.5	4.04
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.19	1.24	1.09
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				1.17	1.18	1.13
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.3	0.305	0.311
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				1.83	1.85	1.66
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.115	0.104	0.0996
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.058 J	0.0587	0.0557

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.321	0.31	0.21
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				2.3	2.17	1.46
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0783	0.0831	0.0768
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.667	0.616	0.443
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0372	0.0373	0.0288
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.65	1.58	1.15
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.79	1.78	1.12
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.217	0.202	0.142
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0733	0.0897	0.0562
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.804	0.82	0.512
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.279	0.258	0.137
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				2.52	2.59	1.9
PCB-CO84	PCB-137; PCB-164				0.249	0.24	0.169
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	55.5 J	56.3 J	53.2 J
TDCBP	TOTAL DICHLOROBIPHENYLS				2.22 J	2.57 J	1.61 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.000317	0.000315	0.000403
TEQ_PCB_MP	TEQ PCB Mid Point				0.000887	0.00123	0.00049
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000887	0.00123	0.00049
THCBP	TOTAL HEPTACHLOROBIPHENYL				3.08 J	3.15 J	1.95 J
THXBP	TOTAL HEXACHLOROBIPHENYL				9.39 J	9.06 J	6.23 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.132 J	0.176 J	0.104 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.264 J	0.233 J	0.113 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				0.893 J	0.83 J	0.444 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				12 J	12.1 J	10.8 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				17.1 J	17.4 J	20.5 J
TTRBP	TOTAL TRICHLOROBIPHENYL				10.3 J	10.5 J	11.4 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	55.517309	56.275863	53.229259

Units are µg/kg

				Sampling Area >	Sway Bridge A2	Sway Bridge A2	Sway Bridge A1
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-41S (0-0.5)**	**LMR21-43S (0-0.5)**	**LMR21-45S (0-0.5)**
PCB1	2-CHLOROBIPHENYL				0.111	0.204	0.025
PCB10	2,6-DICHLOROBIPHENYL				0.0177	0.0579	0.00205 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0286	0.183	0.00385
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0011 J	0.0025 J	0.000241 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.891 J-	3.73 J-	0.176
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00077 U	0.0015 U	0.00018 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.168	1.14	0.0366
PCB11	3,3'-DICHLOROBIPHENYL				0.211	0.107	0.029 J+
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.0014 J	0.009 J	0.001 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00048 U	0.0022 U	0.00014 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0414	0.23	0.0109
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.88	9.67	0.432
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0093	0.0492	0.00194 J
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.00087 J	0.00263 J	0.000172 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0176	0.122	0.00687
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0338 J-	0.0018 UJ	0.00396
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.006 J	0.0283	0.0018 J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0021 J	0.01 J	0.00059 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.166	0.614	0.0285
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0374	0.12	0.00486
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.846	3.33	0.12
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0433	0.149	0.00569
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.26	0.9	0.0268
PCB14	3,5-DICHLOROBIPHENYL				0.00074 U	0.0014 U	0.000969 J
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.464	1.63	0.0653
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.0018 U	0.03 U	0.00028 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.108	0.372	0.0148
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.000638 J	0.00387	0.00016 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.368	1.59	0.0679
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00064 J	0.0187	0.00073 J
PCB15	4,4'-DICHLOROBIPHENYL				1.12	2.62	0.135
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.0018 J	0.0192	0.000586 J

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.0022 J	0.00913	0.000352 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0347	0.147	0.003
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000584 J	0.00142 J	0.00012 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.186	0.715	0.0372
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.019	0.0524	0.00321
PCB16	2,2',3-TRICHLOROBIPHENYL				0.479	3.7	0.0702
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.0011 U	0.018 U	0.00018 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.0012 U	0.02 U	0.00018 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.01	0.027 J	0.0015 J
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0047	0.022 U	0.000754 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0865	0.307	0.0169
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0079 J	0.023 J	0.0023 J
PCB17	2,2',4-TRICHLOROBIPHENYL				0.697	6.04	0.139
PCB170	2,2',3,3',4,4',5-				0.408	1.36	0.0906
PCB172	2,2',3,3',4,5,5'-				0.0924	0.3	0.0185
PCB174	2,2',3,3',4,5,6'-				0.588	1.62	0.094
PCB175	2,2',3,3',4,5',6-				0.0247	0.0894	0.00433
PCB176	2,2',3,3',4,6,6'-				0.075	0.219	0.0105
PCB177	2,2',3,3',4,5',6'-				0.269	0.913	0.0516
PCB178	2,2',3,3',5,5',6-				0.106	0.397	0.0226
PCB179	2,2',3,3',5,6,6'-				0.233	0.731	0.0358
PCB181	2,2',3,4,4',5,6-				0.00564	0.0146	0.000895 J
PCB182	2,2',3,4,4',5,6'-				0.00342	0.00836	0.000911 J
PCB183	2,2',3,4,4',5',6-				0.388	1.05	0.0642
PCB184	2,2',3,4,4',6,6'-				0.00214 J	0.00229 J	0.00027 J
PCB185	2,2',3,4,5,5',6-				0.00083 U	0.138	0.00986
PCB186	2,2',3,4,5,6,6'-				0.0006 U	0.001 U	0.00018 U
PCB187	2,2',3,4',5,5',6-				0.869	2.37	0.165
PCB188	2,2',3,4',5,6,6'-				0.00171 J	0.00342	0.00033 J
PCB189	2,3,3',4,4',5,5'-				0.0205	0.0732	0.00458
PCB19	2,2',6-TRICHLOROBIPHENYL				0.229	1.07	0.0391
PCB190	2,3,3',4,4',5,6-				0.0892	0.267	0.0216
PCB191	2,3,3',4,4',5',6-				0.0213	0.0681	0.0052 J
PCB192	2,3,3',4,5,5',6-				0.0006 U	0.00099 U	0.00021 U

PCB194	2,2',3,3',4,4',5,5'-				0.267	0.827	0.0932
PCB195	2,2',3,3',4,4',5,6-				0.0413	0.117	0.0238
PCB196	2,2',3,3',4,4',5',6-				0.133	0.444	0.0504
PCB197	2,2',3,3',4,4',6,6'-				0.0136	0.0344	0.00332
PCB2	3-CHLOROBIPHENYL				0.0412	0.0532	0.0259
PCB200	2,2',3,3',4,5,6,6'-				0.0244	0.0948	0.0109
PCB201	2,2',3,3',4,5',6,6'-				0.0305	0.083	0.0159
PCB202	2,2',3,3',5,5',6,6'-				0.0747	0.201	0.0443
PCB203	2,2',3,4,4',5,5',6-				0.175	0.559	0.0968
PCB204	2,2',3,4,4',5,6,6'-				0.0005 U	0.0013 U	0.00023 J
PCB205	2,3,3',4,4',5,5',6-				0.013	0.039	0.00403
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.232	0.494	0.271
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.026 J	0.0564	0.0209
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0693	0.144	0.101
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.149	0.324	0.292
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.922	4.97	0.127
PCB23	2,3,5-TRICHLOROBIPHENYL				0.00232 J	0.0143	0.000414 J
PCB24	2,3,6-TRICHLOROBIPHENYL				0.00039 U	0.0987	0.00247
PCB25	2,3',4-TRICHLOROBIPHENYL				0.614	2.05	0.0606
PCB27	2,3',6-TRICHLOROBIPHENYL				0.013 J	0.68	0.0164
PCB3	4-CHLOROBIPHENYL				0.0894	0.176	0.0277
PCB31	2,4',5-TRICHLOROBIPHENYL				2.65	14.7	0.333
PCB32	2,4',6-TRICHLOROBIPHENYL				0.607	3.48	0.0794
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.025	0.177	0.00345
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0405	0.201	0.0074
PCB36	3,3',5-TRICHLOROBIPHENYL				0.027 U	0.059 U	0.00031 J
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.719	3.74	0.12
PCB38	3,4,5-TRICHLOROBIPHENYL				0.0014 U	0.011 J	0.000726 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.016	0.116	0.00242
PCB4	2,2'-DICHLOROBIPHENYL				0.65	1.64	0.0844

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				1.2 J	5.6	0.103
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.161 J	1.02	0.0137
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.21 J	1.21	0.0202
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.688 J	4.62	0.0737
PCB5	2,3-DICHLOROBIPHENYL				0.0066 J	0.021 J	0.00136 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				4.2 J	20.9	0.49
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.00986	0.0452	0.00188 J
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.046 J	0.191	0.0059 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				1.67 J	7.88	0.196
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0306 J	0.104	0.00246
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.0106 J	0.0514	0.00079 J
PCB6	2,3'-DICHLOROBIPHENYL				0.348	0.941	0.0327
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.689 J	3.14	0.0869
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.191 J	0.855	0.0186
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1.91 J	7.74	0.18
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				3.47 J	14.9	0.35
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.128 J	0.607	0.0118
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0331 J	0.124	0.00298
PCB7	2,4-DICHLOROBIPHENYL				0.0415	0.14	0.00473
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0471 J	0.23	0.00468
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.00038 UJ	0.00086 U	0.000071 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.248	1.27	0.0363
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.0015 J	0.0071 J	0.00028 J
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0264 J	0.104	0.00407
PCB8	2,4'-DICHLOROBIPHENYL				0.572	2.81	0.0934
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.013 J	0.0721	0.00015 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.0046 UJ	0.0347	0.0012 J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.349	2.06	0.0774
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.66	3.46	0.0978
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0388	0.264	0.00593
PCB9	2,5-DICHLOROBIPHENYL				0.0477	0.197	0.00546
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.439	2.69	0.0876
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0198	0.113	0.00266
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				1.68	8.06	0.266

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.0211	0.112	0.00203 J
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.3	0.59	0.0329
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				1.29	11	0.168
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				3.72	19.3	0.551
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				0.829	5.37	0.133
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.822	3.62	0.0887
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				2.07 J	10.3	0.214
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				3.95 J	16.3	0.391
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.67 J	3.25	0.0608
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				2.81 J	14	0.294
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.508 J	2.55	0.0436
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.364 J	1.56	0.0292
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				5.98 J	27.4	0.675
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.51	8.5	0.298
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				1.57	7.62	0.312
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.429	2.09	0.0659
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				2.22	12.8	0.453
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.137	0.773	0.016
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.067	0.37	0.0167

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.392	1.4	0.0787
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				2.98	9.58	0.481
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.138	0.478	0.0171
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.803	3.43	0.113
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0512	0.154	0.00713
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				2.2	7.75	0.286
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				2.24	8.08	0.358
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.245	1	0.0512
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.117	0.415	0.0271
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				1.17	3.67	0.249
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.365	1.01	0.172
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				2.22	15	0.653
PCB-CO84	PCB-137; PCB-164				0.312	1.07	0.0507
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	81.1 J	376 J	12.7 J
TDCBP	TOTAL DICHLOROBIPHENYLS				3.31 J	9.12 J	0.422 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.000121	0.00342	0.0000245
TEQ_PCB_MP	TEQ PCB Mid Point				0.000958	0.00411	0.000274
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000959	0.00411	0.000274
THCBP	TOTAL HEPTACHLOROBIPHENYL				4.48 J	13.7 J	0.877 J
THXBP	TOTAL HEXACHLOROBIPHENYL				12 J	43 J	1.84 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.242 J	0.433 J	0.0786 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.327 J	0.694 J	0.393 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				1.14 J	3.41 J	0.515 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				14.4 J	79.1 J	3.03 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				31.3 J	146 J	3.31 J
TTRBP	TOTAL TRICHLOROBIPHENYL				13.7 J	80.3 J	1.94 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	81.114322	376.15692	12.70529

Units are µg/kg

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-47S (0-0.5)**	**LMR21-49S (0-0.5)**	**LMR21-52S (0-0.5)**
PCB1	2-CHLOROBIPHENYL				0.165 J	0.188 J	0.0263 J-
PCB10	2,6-DICHLOROBIPHENYL				0.0192	0.00888	0.0016 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.028	0.0274	0.00231 J
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.0017 J	0.000807 J	0.00021 U
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				2.21	1.21	0.118
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00023 U	0.00024 U	0.00031 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.414	0.236	0.0232
PCB11	3,3'-DICHLOROBIPHENYL				0.16	0.124 J+	0.164
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.00554	0.0041 J	0.00079 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.0003 U	0.00013 U	0.00027 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.147	0.0799	0.00822
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				7.35	3.04	0.267
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.00831	0.0105	0.00182 J
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.00029 U	0.000339 J	0.00027 U
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0866	0.0453 J	0.00714
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0477	0.0317 J	0.00394
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.0165	0.00863	0.0009 J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0117	0.00539	0.00034 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.527	0.209	0.0179
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.116	0.0425	0.0032
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				2.26	0.867	0.0933
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0612	0.0374	0.00465
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.674	0.273	0.0189
PCB14	3,5-DICHLOROBIPHENYL				0.00346	0.00139 J	0.00076 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				1.36	0.555	0.0359
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.0014 J	0.00042 J	0.00035 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.281	0.124	0.00622
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.00381	0.00127 J	0.000092 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.654	0.448	0.0442
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00313	0.00371	0.000417 J
PCB15	4,4'-DICHLOROBIPHENYL				0.853	0.483 J	0.114
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.0077	0.00447	0.000337 J

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.00689	0.00239 J	0.00015 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0165	0.0264	0.0024 J
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.00065 J	0.000528 J	0.00038 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.658	0.286	0.0206
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0698	0.0282	0.00183 J
PCB16	2,2',3-TRICHLOROBIPHENYL				0.52	0.352 J	0.0382
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00024 U	0.00022 U	0.00023 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00024 U	0.00023 U	0.00023 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.0222	0.0104	0.00116 J
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.012	0.0053	0.00033 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.239	0.122	0.0115
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.018 J	0.011 J	0.000825 J
PCB17	2,2',4-TRICHLOROBIPHENYL				0.965	0.645 J	0.0667
PCB170	2,2',3,3',4,4',5-				2.12	0.669	0.0767
PCB172	2,2',3,3',4,5,5'-				0.295	0.12	0.0132
PCB174	2,2',3,3',4,5,6'-				2.4	0.733	0.0586
PCB175	2,2',3,3',4,5',6-				0.0509	0.0299	0.00243 J
PCB176	2,2',3,3',4,6,6'-				0.275	0.0862	0.00525
PCB177	2,2',3,3',4,5',6'-				1.25	0.388	0.0383
PCB178	2,2',3,3',5,5',6-				0.263	0.135	0.0121
PCB179	2,2',3,3',5,6,6'-				0.936	0.28	0.0171
PCB181	2,2',3,4,4',5,6-				0.0207	0.00625	0.00052 J
PCB182	2,2',3,4,4',5,6'-				0.0093	0.00428	0.00091 J
PCB183	2,2',3,4,4',5',6-				0.757	0.434	0.0394
PCB184	2,2',3,4,4',6,6'-				0.00109 J	0.00106 J	0.00046 J
PCB185	2,2',3,4,5,5',6-				0.212	0.0557	0.0034
PCB186	2,2',3,4,5,6,6'-				0.000734 J	0.0002 J	0.00017 U
PCB187	2,2',3,4',5,5',6-				2.24	0.957	0.0898
PCB188	2,2',3,4',5,6,6'-				0.00242 J	0.00152 J	0.00019 J
PCB189	2,3,3',4,4',5,5'-				0.0501	0.0267	0.00301 J
PCB19	2,2',6-TRICHLOROBIPHENYL				0.278	0.159 J	0.0268
PCB190	2,3,3',4,4',5,6-				0.464	0.146	0.013 J
PCB191	2,3,3',4,4',5',6-				0.0869	0.0302	0.00403
PCB192	2,3,3',4,5,5',6-				0.00057 U	0.00025 J	0.0002 U

PCB194	2,2',3,3',4,4',5,5'-				2.08	0.487	0.0488
PCB195	2,2',3,3',4,4',5,6-				0.552	0.14	0.014
PCB196	2,2',3,3',4,4',5',6-				0.769	0.249	0.0221
PCB197	2,2',3,3',4,4',6,6'-				0.0183	0.0145	0.0015 J
PCB2	3-CHLOROBIPHENYL				0.29 J	0.457 J	0.0136 J-
PCB200	2,2',3,3',4,5,6,6'-				0.303	0.0598	0.00427
PCB201	2,2',3,3',4,5',6,6'-				0.0832	0.0711 J	0.0052 J
PCB202	2,2',3,3',5,5',6,6'-				0.352	0.163 J	0.0114
PCB203	2,2',3,4,4',5,5',6-				1.03	0.436 J	0.0405
PCB204	2,2',3,4,4',5,6,6'-				0.0013 U	0.000562 J	0.00024 U
PCB205	2,3,3',4,4',5,5',6-				0.0341	0.0194	0.00186 J
PCB206	2,2',3,3',4,4',5,5',6- NONACHLOROBIPHENYL				1.3	0.727 J	0.0346
PCB207	2,2',3,3',4,4',5,6,6'- NONACHLOROBIPHENYL				0.0829	0.0665 J	0.00487
PCB208	2,2',3,3',4,5,5',6,6'- NONACHLOROBIPHENYL				0.384	0.258 J	0.0114
PCB209	2,2',3,3',4,4',5,5',6,6'- DECACHLOROBIPHENYL				1.2 J-	0.925 J	0.0214
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.766	0.536 J	0.0979
PCB23	2,3,5-TRICHLOROBIPHENYL				0.00279	0.00155 J	0.00059
PCB24	2,3,6-TRICHLOROBIPHENYL				0.000098 U	0.00832	0.00113 J
PCB25	2,3',4-TRICHLOROBIPHENYL				0.305	0.252 J	0.0337
PCB27	2,3',6-TRICHLOROBIPHENYL				0.137	0.0855 J	0.0105
PCB3	4-CHLOROBIPHENYL				0.232	0.255 J	0.0152
PCB31	2,4',5-TRICHLOROBIPHENYL				1.73	1.49 J	0.192
PCB32	2,4',6-TRICHLOROBIPHENYL				0.383	0.224 J	0.042
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.019	0.0184 J	0.0012 J
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0977	0.0338	0.00675
PCB36	3,3',5-TRICHLOROBIPHENYL				0.00468	0.00161 J	0.00058 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.934	0.58 J	0.0862
PCB38	3,4,5-TRICHLOROBIPHENYL				0.0026 J	0.00229 J	0.00063 U
PCB39	3,4',5-TRICHLOROBIPHENYL				0.0189	0.0151 J	0.00152 J
PCB4	2,2'-DICHLOROBIPHENYL				0.583	0.304 J	0.0936

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.705	0.625 J	0.0729
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.086	0.0918 J	0.00756
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.156	0.134 J	0.0139
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.51	0.486 J	0.0332
PCB5	2,3-DICHLOROBIPHENYL				0.0116	0.00581	0.00177 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				4.64	3.34	0.17
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.0111	0.00712	0.00151 J
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0748	0.0404 J	0.0164
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				1.28	1.1 J	0.137
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0189	0.0136 J	0.00094 J
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.00485	0.0047 J	0.00067 J
PCB6	2,3'-DICHLOROBIPHENYL				0.242	0.135	0.023
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.631	0.382 J	0.0845
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.117	0.108 J	0.00986
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1.26	1.13 J	0.113
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				2.39	1.97 J	0.266
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.108	0.0715 J	0.00578
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0189	0.0182	0.00167 J
PCB7	2,4-DICHLOROBIPHENYL				0.0331	0.0216 J	0.00479
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.041	0.0338	0.00212 J
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.00012 U	0.0125	0.00011 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.282	0.212 J	0.0253
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.00295	0.0012 J	0.00048 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0577	0.0309	0.0018 J
PCB8	2,4'-DICHLOROBIPHENYL				0.91	0.386 J	0.078
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.00032 U	0.00033 U	0.0004 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00964	0.00563	0.00073 J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.808	0.432	0.0654
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				1.2	0.628 J	0.0862
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0623	0.037	0.0045 J
PCB9	2,5-DICHLOROBIPHENYL				0.0698	0.029	0.00386
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.992	0.588	0.0435
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0319	0.0185	0.0017 J
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				4.28	2.26	0.156

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.0281	0.0177 J	0.00225 J
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.223	0.103	0.0393
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				1.42	1.03 J	0.0694
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				3.2	2.43 J	0.361
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				1.22	0.673 J	0.107
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.671	0.447 J	0.0393
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				1.5	1.28 J	0.138
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				3.01	2.59 J	0.222
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.446	0.419 J	0.0346
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				1.93	1.82 J	0.134
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.417	0.329 J	0.0217
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.228	0.208 J	0.0193
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				6.15	4.35 J	0.384
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				3.16	1.9	0.184
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				3.91	2.1	0.199
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.784	0.469	0.0508
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				4.95	2.96	0.24
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.162	0.105 J	0.0102
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.228	0.114	0.0108

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				1.36	0.529	0.0561
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				9.09	3.61	0.313
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.39	0.15	0.0118
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				2.04	0.906	0.0484
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.147	0.058	0.00427
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				4.29	2.25	0.152
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				3.62	2.5	0.223
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.764	0.404	0.0334
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.702	0.215	0.0208
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				4.01	1.66	0.168
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				2.78	0.711	0.0657
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				10.3	4.03	0.537
PCB-CO84	PCB-137; PCB-164				1.02	0.397	0.0299
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	141 J	76.8 J	7.69 J
TDCBP	TOTAL DICHLOROBIPHENYLS				3.11 J	1.6 J	0.524 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.00201	0.00103	0.0000406
TEQ_PCB_MP	TEQ PCB Mid Point				0.00255	0.00136	0.000131
TEQ_PCB_UB	TEQ PCB Upper Bound				0.00255	0.00136	0.000131
THCBP	TOTAL HEPTACHLOROBIPHENYL				16.1 J	5.98 J	0.567 J
THXBP	TOTAL HEXACHLOROBIPHENYL				29.7 J	13.9 J	1.14 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.687 J	0.9 J	0.0551 J

TNCBP	TOTAL NONACHLOROBIPHENYL				1.77 J	1.05 J	0.0509 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				8 J	2.35 J	0.215 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				41.2 J	20.4 J	2.02 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				26.1 J	20.8 J	1.92 J
TTRBP	TOTAL TRICHLOROBIPHENYL				12.7 J	8.98 J	1.18 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	140.606944	76.828976	7.694299

Units are µg/kg

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-53S (0-0.5)	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.0727	0.028 J	0.18 J
PCB10	2,6-DICHLOROBIPHENYL				0.00954	0.0066	0.0297
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0187	0.0158	0.0195
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.000978 J	0.00102 J	0.00164 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.616	0.52	0.859
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00019 U	0.00033 U	0.00021 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.133	0.116	0.198
PCB11	3,3'-DICHLOROBIPHENYL				0.237	0.307	0.222
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.00358	0.00229 J	0.00322
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00019 U	0.00013 U	0.00027 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0443	0.0391	0.0514
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.52	1.19	2.21
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0076 J	0.00609	0.0111
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.00054 J	0.00057 J	0.00082 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0309	0.0183	0.0305
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0164	0.014	0.0165
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.00588	0.00622	0.00641
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0034	0.00168 J	0.00323
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.119	0.0902	0.187
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0212	0.0165	0.0362
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.509	0.342	0.768
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0271	0.0208	0.0427
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.123	0.101	0.215
PCB14	3,5-DICHLOROBIPHENYL				0.000637 J	0.00056 J	0.00067 J
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.253	0.209	0.411
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.00027 U	0.00025 U	0.00032 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0525	0.0448	0.0941
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.00042 J	0.000496 J	0.000842 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.274	0.213	0.419
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00326	0.00277 J	0.00535
PCB15	4,4'-DICHLOROBIPHENYL				0.522	0.763	0.898
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00221 J	0.00225 J	0.00401

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.0012 J	0.00145 J	0.0026 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0208	0.00893	0.0241
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000554 J	0.000864 J	0.000673 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.148	0.102	0.211
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0121	0.00887	0.0171
PCB16	2,2',3-TRICHLOROBIPHENYL				0.214	0.128	0.538
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00017 U	0.00016 U	0.00021 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00018 U	0.00016 U	0.00021 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.00642	0.00487	0.00923
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.0022 J	0.00196 J	0.00395
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0753	0.0525	0.1
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0041 J	0.0039 J	0.0057 J
PCB17	2,2',4-TRICHLOROBIPHENYL				0.479	0.551	1.33
PCB170	2,2',3,3',4,4',5-				0.347	0.267	0.439
PCB172	2,2',3,3',4,5,5'-				0.0642	0.0504	0.0832
PCB174	2,2',3,3',4,5,6'-				0.307	0.255	0.439
PCB175	2,2',3,3',4,5',6-				0.0158	0.0121	0.0202
PCB176	2,2',3,3',4,6,6'-				0.0347	0.03	0.0568
PCB177	2,2',3,3',4,5',6'-				0.189	0.142	0.238
PCB178	2,2',3,3',5,5',6-				0.0713	0.054	0.0968
PCB179	2,2',3,3',5,6,6'-				0.108	0.0994	0.184
PCB181	2,2',3,4,4',5,6-				0.00353	0.00256 J	0.00512
PCB182	2,2',3,4,4',5,6'-				0.00401	0.00263 J	0.00394
PCB183	2,2',3,4,4',5',6-				0.211	0.171	0.282
PCB184	2,2',3,4,4',6,6'-				0.00079 J	0.00115 J	0.000949 J
PCB185	2,2',3,4,5,5',6-				0.023 J	0.026	0.0457
PCB186	2,2',3,4,5,6,6'-				0.0001 U	0.00012 U	0.00014 U
PCB187	2,2',3,4',5,5',6-				0.459	0.402	0.619
PCB188	2,2',3,4',5,6,6'-				0.0012 J	0.00086 J	0.00168 J
PCB189	2,3,3',4,4',5,5'-				0.0163	0.0115	0.0208
PCB19	2,2',6-TRICHLOROBIPHENYL				0.143	0.111	0.314
PCB190	2,3,3',4,4',5,6-				0.0666	0.0499	0.0812
PCB191	2,3,3',4,4',5',6-				0.0121	0.00912	0.016
PCB192	2,3,3',4,5,5',6-				0.00012 U	0.00014 U	0.00017 U

PCB194	2,2',3,3',4,4',5,5'-				0.211	0.18	0.294
PCB195	2,2',3,3',4,4',5,6-				0.0641	0.0509	0.0806
PCB196	2,2',3,3',4,4',5',6-				0.107	0.0912	0.149
PCB197	2,2',3,3',4,4',6,6'-				0.00826	0.007	0.0117
PCB2	3-CHLOROBIPHENYL				0.0264	0.0291	0.0479 J
PCB200	2,2',3,3',4,5,6,6'-				0.0208	0.018	0.0358
PCB201	2,2',3,3',4,5',6,6'-				0.0283	0.0218	0.0381
PCB202	2,2',3,3',5,5',6,6'-				0.0519	0.0456	0.0657
PCB203	2,2',3,4,4',5,5',6-				0.169	0.142	0.23
PCB204	2,2',3,4,4',5,6,6'-				0.00018 J	0.00021 J	0.00028 J
PCB205	2,3,3',4,4',5,5',6-				0.00866	0.00734	0.012
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.143	0.127	0.182
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0188	0.017	0.0239
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.043	0.039	0.0536
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.128	0.126	0.114
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.467	0.355	0.889
PCB23	2,3,5-TRICHLOROBIPHENYL				0.00138 J	0.0011 J	0.00307
PCB24	2,3,6-TRICHLOROBIPHENYL				0.00861	0.0051	0.023 J
PCB25	2,3',4-TRICHLOROBIPHENYL				0.269	0.771	0.606
PCB27	2,3',6-TRICHLOROBIPHENYL				0.0692	0.0918	0.213
PCB3	4-CHLOROBIPHENYL				0.0411	0.0387	0.089
PCB31	2,4',5-TRICHLOROBIPHENYL				1.28	1.79	2.87
PCB32	2,4',6-TRICHLOROBIPHENYL				0.289	0.423	0.777
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0133	0.0254	0.0327
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0247	0.0194	0.033
PCB36	3,3',5-TRICHLOROBIPHENYL				0.0007 J	0.00165 J	0.0013 J
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.447	0.294	0.691
PCB38	3,4,5-TRICHLOROBIPHENYL				0.0014 J	0.000931 J	0.00154 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.00869	0.00922	0.0149
PCB4	2,2'-DICHLOROBIPHENYL				0.433	0.31	1.19

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.452	0.465	0.575
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0593	0.0795	0.107
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.0835	0.1	0.145
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.241	0.14	0.393
PCB5	2,3-DICHLOROBIPHENYL				0.0053	0.0041 J	0.01 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				1.56	2.06	2.89
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.00763	0.00949	0.0152
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0563	0.0195	0.0309
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.675	0.406	0.9
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0114	0.0234	0.012
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.00479	0.0055	0.00302 J
PCB6	2,3'-DICHLOROBIPHENYL				0.159	0.214	0.368
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.322	0.226	0.392
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0733	0.0886	0.0677
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.69	0.538	0.787
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.38	0.814	1.46
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0445	0.0341	0.0441
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.014	0.0197	0.0139
PCB7	2,4-DICHLOROBIPHENYL				0.0239	0.0173	0.0708
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0211	0.0278	0.0237
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.000092 U	0.000076 U	0.000099 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.146	0.133	0.217
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.00077 J	0.00063 J	0.00085 J
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0142	0.00936	0.0209
PCB8	2,4'-DICHLOROBIPHENYL				0.362	0.319	0.725
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.00029 U	0.00027 U	0.00024 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00473	0.00464	0.0061
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.242	0.191	0.331
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.42	0.336	0.44
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0213	0.0174	0.0253
PCB9	2,5-DICHLOROBIPHENYL				0.0239	0.0236	0.101
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.308	0.309	0.477
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0115	0.0149	0.0124
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.984	0.703	1.04

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.0112	0.0136	0.0162
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.135	0.352	0.247
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				0.534	0.528	1.62
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				1.93	1.95	3.92
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				0.483	0.266	1.03
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.385	1.07	1.04
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				0.816	0.92	0.997
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				1.52	1.75	2.23
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.246	0.292	0.479
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				1.08	1.54	1.73
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.172	0.3	0.395
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.143	0.126	0.197
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				2.42	1.43	2.51
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.02	0.856	1.53
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				1.01	0.817	1.58
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.277	0.255	0.268
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				1.49	1.13	2.35
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.0602	0.0634	0.0614
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0604	0.0479	0.089

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.295	0.215	0.4
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				1.9	1.5	2.93
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0685	0.0634	0.129
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.399	0.36	0.737
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0291	0.0245	0.0511
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.02	0.878	1.77
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.36	1.04	2.01
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.233	0.152	0.311
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.101	0.0732	0.136
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.793	0.631	0.977
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.269	0.247	0.382
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				1.59	1.41	2.46
PCB-CO84	PCB-137; PCB-164				0.203	0.152	0.318
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	42.5 J	39.5 J	67.5 J
TDCBP	TOTAL DICHLOROBIPHENYLS				1.91 J	2.32 J	3.86 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.00068	0.000696	0.000772
TEQ_PCB_MP	TEQ PCB Mid Point				0.000803	0.000813	0.000943
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000803	0.000813	0.000943
THCBP	TOTAL HEPTACHLOROBIPHENYL				2.83 J	2.29 J	3.75 J
THXBP	TOTAL HEXACHLOROBIPHENYL				7.16 J	5.61 J	11.2 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.14 J	0.0958 J	0.317 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.205 J	0.183 J	0.26 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				0.938 J	0.811 J	1.3 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				9.91 J	8.1 J	14.1 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				12.3 J	11.6 J	16.6 J
TTRBP	TOTAL TRICHLOROBIPHENYL				7.05 J	8.39 J	15.9 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	42.527349	39.485981	67.493294

Units are µg/kg

				Sampling Area >	Sway Bridge B1	Biological Survey	Biological Survey
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-59S (0-0.5)	LMR21-61S (0-0.5)	LMR21-62S (0-0.5)
PCB1	2-CHLOROBIPHENYL				0.208 J	0.121 J	0.0657
PCB10	2,6-DICHLOROBIPHENYL				0.0221	0.0188	0.00775
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0166	0.0376	0.0125
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.00199 J	0.00212 J	0.000684 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.638	1.39	0.48
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00018 U	0.00031 U	0.00036 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.156	0.24	0.0912
PCB11	3,3'-DICHLOROBIPHENYL				0.26	0.298	0.281
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.00312 J	0.00773	0.0029 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00016 U	0.0109	0.00653
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0371	0.0957	0.0342
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.64	3.11	1.12
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0102	0.0167	0.00612
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.00088 J	0.0015 J	0.00077 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0222	0.0655	0.0228
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0157	0.0675	0.0235
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.00663	0.0385	0.0133
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0022 J	0.0055	0.00211 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.134	0.222	0.0822
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0258	0.041	0.0142
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.553	0.97	0.34
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0308	0.0517	0.0183
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.158	0.237	0.0845
PCB14	3,5-DICHLOROBIPHENYL				0.00045 J	0.001 J	0.000546 J
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.298	0.468	0.176
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.00026 J	0.00039 U	0.00024 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0611	0.111	0.0378
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.000616 J	0.00125 J	0.000377 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.303	0.475	0.186
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00462	0.00625	0.0021 J
PCB15	4,4'-DICHLOROBIPHENYL				0.714	1.26	0.527
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00256 J	0.00432	0.00141 J

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.00204 J	0.00267 J	0.000948 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0217	0.0381	0.0108
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000818 J	0.00191 J	0.000551 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.142	0.265	0.0948
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.0117	0.0222	0.00822
PCB16	2,2',3-TRICHLOROBIPHENYL				0.412	0.617	0.206
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00016 U	0.00025 U	0.00015 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00016 U	0.00026 U	0.00016 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.0064	0.0102	0.00376
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.00301 J	0.00506	0.00196 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0687	0.129	0.0476
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0052 J	0.00873	0.00363
PCB17	2,2',4-TRICHLOROBIPHENYL				0.816	1.19	0.45
PCB170	2,2',3,3',4,4',5-				0.325	0.617	0.247
PCB172	2,2',3,3',4,5,5'-				0.0635	0.114	0.0435
PCB174	2,2',3,3',4,5,6'-				0.331	0.572	0.227
PCB175	2,2',3,3',4,5',6-				0.0159	0.0277	0.0105
PCB176	2,2',3,3',4,6,6'-				0.0409	0.0646	0.0247
PCB177	2,2',3,3',4,5',6'-				0.184	0.347	0.137
PCB178	2,2',3,3',5,5',6-				0.0709	0.134	0.0521
PCB179	2,2',3,3',5,6,6'-				0.132	0.207	0.0826
PCB181	2,2',3,4,4',5,6-				0.00359	0.00634	0.0025 J
PCB182	2,2',3,4,4',5,6'-				0.00306 J	0.00579	0.0025 J
PCB183	2,2',3,4,4',5',6-				0.222	0.375	0.146
PCB184	2,2',3,4,4',6,6'-				0.00113 J	0.00344	0.00101 J
PCB185	2,2',3,4,5,5',6-				0.0342	0.059	0.0227
PCB186	2,2',3,4,5,6,6'-				J	0.00012 U	0.000092 U
PCB187	2,2',3,4',5,5',6-				0.512	0.86	0.339
PCB188	2,2',3,4',5,6,6'-				0.00153 J	0.00177 J	0.00078 J
PCB189	2,3,3',4,4',5,5'-				0.0147	0.0279	0.0107
PCB19	2,2',6-TRICHLOROBIPHENYL				0.414	0.295	0.122
PCB190	2,3,3',4,4',5,6-				0.062	0.12	0.0469
PCB191	2,3,3',4,4',5',6-				0.00953	0.0235	0.00736
PCB192	2,3,3',4,5,5',6-				0.00014 U	0.00014 U	0.000198 J

PCB194	2,2',3,3',4,4',5,5'-				0.244	0.384	0.154
PCB195	2,2',3,3',4,4',5,6-				0.0472	0.119	0.0486
PCB196	2,2',3,3',4,4',5',6-				0.129	0.188	0.0773
PCB197	2,2',3,3',4,4',6,6'-				0.0095	0.0138	0.00521
PCB2	3-CHLOROBIPHENYL				0.0328 J	0.0567 J	0.0267
PCB200	2,2',3,3',4,5,6,6'-				0.0256	0.0364	0.0135
PCB201	2,2',3,3',4,5',6,6'-				0.03	0.0492	0.0172
PCB202	2,2',3,3',5,5',6,6'-				0.0597	0.0936	0.0362
PCB203	2,2',3,4,4',5,5',6-				0.206	0.279	0.112
PCB204	2,2',3,4,4',5,6,6'-				0.000329 J	0.000419 J	0.00016 J
PCB205	2,3,3',4,4',5,5',6-				0.0083 J	0.0178	0.00694
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.194	0.24	0.0978
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0244	0.0295	0.0129
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0574	0.0682	0.0315
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.104	0.142	0.0852
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.673	1.31	0.442
PCB23	2,3,5-TRICHLOROBIPHENYL				0.00196 J	0.00286 J	0.00112 J
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0131	0.0226	0.0079
PCB25	2,3',4-TRICHLOROBIPHENYL				0.67	0.677	0.253
PCB27	2,3',6-TRICHLOROBIPHENYL				0.193	0.169	0.0646
PCB3	4-CHLOROBIPHENYL				0.0899	0.07	0.0384
PCB31	2,4',5-TRICHLOROBIPHENYL				2.32	3.49	1.19
PCB32	2,4',6-TRICHLOROBIPHENYL				0.912	0.732	0.263
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0307	0.0332	0.0125
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0275	0.0697	0.0243
PCB36	3,3',5-TRICHLOROBIPHENYL				0.00184 J	0.0019 J	0.00109 J
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.428	1.27	0.405
PCB38	3,4,5-TRICHLOROBIPHENYL				0.00027 U	0.0028 J	0.00115 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.0104	0.0222	0.00746
PCB4	2,2'-DICHLOROBIPHENYL				1.37	0.847	0.395

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.294	1.19	0.39
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0611	0.182	0.0584
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.123	0.229	0.072
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.219	0.711	0.219
PCB5	2,3-DICHLOROBIPHENYL				0.00907	0.0113	0.0035 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				2.12	4.18	1.4
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.0214	0.0153	0.00535
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0142	0.131	0.0368
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.571	2.01	0.642
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.0144	0.0272	0.0094
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.00461	0.0121	0.004
PCB6	2,3'-DICHLOROBIPHENYL				0.476	0.368	0.169
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.266	0.855	0.28
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0495	0.194	0.0653
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.473	1.93	0.631
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				0.953	3.76	1.25
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0349	0.145	0.0445
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0141	0.0293	0.0112
PCB7	2,4-DICHLOROBIPHENYL				0.0553	0.047	0.0218
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0119	0.0441	0.0166
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.000088 U	0.00012 U	0.000073 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.137	0.414	0.132
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.0007 J	0.0015 J	0.00054 J
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0138	0.0297	0.0095 J
PCB8	2,4'-DICHLOROBIPHENYL				0.696	0.799	0.342
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.00015 U	0.018 J	0.0027 J
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00485	0.0128	0.00418
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.258	0.576	0.195
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.371	0.981	0.317
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0185	0.0629	0.0195
PCB9	2,5-DICHLOROBIPHENYL				0.0495	0.0556	0.0243
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.398	0.615	0.224
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.0126	0.0275	0.00914
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.841	2.15	0.719

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.00145 J	0.0289	0.0084
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.267	0.331	0.156
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				1.4	1.54	0.525
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				2.97	5.35	1.84
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				0.623	1.34	0.422
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				1.22	0.939	0.359
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				0.68	2.26	0.73
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				1.63	3.84	1.3
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.386	0.67	0.208
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				1.31	2.71	0.904
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.337	0.467	0.152
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.0255	0.392	0.126
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				1.67	6.76 J	2.18
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				1.13	2.16	0.788
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				1.21	2.16	0.782
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.224	0.622	0.208
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				1.76	3.04	1.1
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.0386	0.16	0.0511
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0684	0.123	0.0448

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.306	0.531	0.196
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				2.14	3.4	1.31
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0987	0.147	0.0528
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.52	0.805	0.3
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0364	0.0577	0.0204
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				1.31	2.03	0.752
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.48	2.34	0.932
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.206	0.375	0.141
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0963	0.186	0.068
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.78	1.44	0.554
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.341	0.469	0.188
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				1.72	4.06	1.27
PCB-CO84	PCB-137; PCB-164				0.224	0.372	0.135
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	52 J	98.9 J	35 J
TDCBP	TOTAL DICHLOROBIPHENYLS				3.92 J	4.04 J	1.93 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.000757	0.00431	0.00151
TEQ_PCB_MP	TEQ PCB Mid Point				0.000913	0.00431	0.00151
TEQ_PCB_UB	TEQ PCB Upper Bound				0.000913	0.00431	0.00151
THCBP	TOTAL HEPTACHLOROBIPHENYL				2.9 J	5.19 J	2.03 J
THXBP	TOTAL HEXACHLOROBIPHENYL				8.15 J	13.1 J	4.95 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.331 J	0.248 J	0.131 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.276 J	0.338 J	0.142 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				1.1 J	1.65 J	0.659 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				10.6 J	21.9 J	7.55 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				11.4 J	33.2 J	10.9 J
TTRBP	TOTAL TRICHLOROBIPHENYL				13.1 J	19.1 J	6.6 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	51.966843	98.884259	34.959754

Units are µg/kg

				Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-64S (0-0.5)**	**LMR21-66S (0-0.5)**	**LMR21-68S (0-0.5)**
PCB1	2-CHLOROBIPHENYL				0.0522	0.0845	0.334
PCB10	2,6-DICHLOROBIPHENYL				0.0068 J	0.00839	0.0322
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0133	0.0147	0.0224
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.000832 J	0.00113 J	0.00155 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.517	0.689	0.626
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00023 U	0.00027 U	0.00022 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.108	0.149	0.127
PCB11	3,3'-DICHLOROBIPHENYL				0.177	0.25	0.302
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.00238 J	0.00293 J	0.00355
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00378	0.00496	0.00619
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0327	0.0414	0.039
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.25	1.75	1.54
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.00712	0.0111	0.0079
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.000618 J	0.000833 J	0.000878 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0175	0.0268	0.0244
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0217	0.0335	0.028
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.0146	0.0188	0.0172
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.00186 J	0.00264 J	0.00191 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.0886	0.127	0.111
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0155	0.0216	0.0203
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.377	0.552	0.448
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.02	0.0265	0.0253
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.0883	0.132	0.123
PCB14	3,5-DICHLOROBIPHENYL				0.00059 J	0.000683 J	0.000782 J
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.186	0.223	0.249
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.00027 U	0.00035 U	0.00034 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.0391	0.0458	0.0571
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.000361 J	0.00047 J	0.000531 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.216	0.283	0.26
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00278 J	0.00414	0.00357
PCB15	4,4'-DICHLOROBIPHENYL				0.507	0.653	0.923
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00178 J	0.00272 J	0.00232 J

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.000894 J	0.0014 J	0.00151 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0162	0.0224	0.0161
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000567 J	0.000713 J	0.000589 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.1	0.136	0.126
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.00856	0.0113	0.0103
PCB16	2,2',3-TRICHLOROBIPHENYL				0.225	0.308	0.283
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00018 U	0.00023 U	0.00022 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00018 U	0.00023 U	0.00023 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.00398	0.00559	0.0052
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.00198 J	0.00259 J	0.00279 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0529	0.0713	0.0605
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.00393	0.00426	0.0041 J
PCB17	2,2',4-TRICHLOROBIPHENYL				0.475	0.657	1.05
PCB170	2,2',3,3',4,4',5-				0.29	0.407	0.298
PCB172	2,2',3,3',4,5,5'-				0.0549	0.0668	0.0562
PCB174	2,2',3,3',4,5,6'-				0.262	0.346	0.289
PCB175	2,2',3,3',4,5',6-				0.0133	0.0148	0.0141
PCB176	2,2',3,3',4,6,6'-				0.0292	0.0363	0.0353
PCB177	2,2',3,3',4,5',6'-				0.157	0.218	0.163
PCB178	2,2',3,3',5,5',6-				0.0621	0.0751	0.0672
PCB179	2,2',3,3',5,6,6'-				0.091	0.119	0.115
PCB181	2,2',3,4,4',5,6-				0.00244 J	0.00315 J	0.00348
PCB182	2,2',3,4,4',5,6'-				0.00247 J	0.00349	0.0036
PCB183	2,2',3,4,4',5',6-				0.184	0.214	0.193
PCB184	2,2',3,4,4',6,6'-				0.00108 J	0.00103 J	0.000795 J
PCB185	2,2',3,4,5,5',6-				0.02	0.0296	0.0223
PCB186	2,2',3,4,5,6,6'-				0.00012 U	0.00013 U	0.000071 U
PCB187	2,2',3,4',5,5',6-				0.42	0.503	0.456
PCB188	2,2',3,4',5,6,6'-				0.00111 J	0.00163 J	0.00121 J
PCB189	2,3,3',4,4',5,5'-				0.0119	0.0168	0.013
PCB19	2,2',6-TRICHLOROBIPHENYL				0.122	0.182	0.402
PCB190	2,3,3',4,4',5,6-				0.0566	0.0733	0.0598
PCB191	2,3,3',4,4',5',6-				0.0108	0.0129	0.00886
PCB192	2,3,3',4,5,5',6-				0.00015 U	0.00015 U	0.000085 U

PCB194	2,2',3,3',4,4',5,5'-				0.191	0.275	0.209
PCB195	2,2',3,3',4,4',5,6-				0.052	0.0879	0.0558
PCB196	2,2',3,3',4,4',5',6-				0.0916	0.128	0.107
PCB197	2,2',3,3',4,4',6,6'-				0.00659	0.00785	0.00717
PCB2	3-CHLOROBIPHENYL				0.027	0.0359	0.0325
PCB200	2,2',3,3',4,5,6,6'-				0.0172	0.0245	0.0198
PCB201	2,2',3,3',4,5',6,6'-				0.0249	0.0298	0.0242
PCB202	2,2',3,3',5,5',6,6'-				0.0459	0.0656	0.0498
PCB203	2,2',3,4,4',5,5',6-				0.144	0.199	0.152
PCB204	2,2',3,4,4',5,6,6'-				0.00019 J	0.000339 J	0.00022 J
PCB205	2,3,3',4,4',5,5',6-				0.00727	0.0104	0.00779
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.147	0.185	0.141
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0198	0.0225	0.0175
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0501	0.0555	0.0425
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.209	0.112	0.0895
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.472	0.666	0.553
PCB23	2,3,5-TRICHLOROBIPHENYL				0.00115 J	0.00123 J	0.00165 J
PCB24	2,3,6-TRICHLOROBIPHENYL				0.0082	0.00873	0.00952
PCB25	2,3',4-TRICHLOROBIPHENYL				0.253	0.366	0.611
PCB27	2,3',6-TRICHLOROBIPHENYL				0.0658	0.0954	0.16
PCB3	4-CHLOROBIPHENYL				0.0344	0.0541	0.109
PCB31	2,4',5-TRICHLOROBIPHENYL				1.27	1.65	1.98
PCB32	2,4',6-TRICHLOROBIPHENYL				0.268	0.376	0.642
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.0137	0.0184	0.0279
PCB35	3,3',4-TRICHLOROBIPHENYL				0.0235	0.0327	0.0261
PCB36	3,3',5-TRICHLOROBIPHENYL				0.00067 J	0.00131 J	0.00124 J
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.423	0.577	0.464
PCB38	3,4,5-TRICHLOROBIPHENYL				0.00074 J	0.00064 J	0.00108 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.00813	0.00956	0.0104
PCB4	2,2'-DICHLOROBIPHENYL				0.333	0.51	1.61

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.363	0.434	0.502
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0528	0.0528	0.0853
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.0724	0.099	0.111
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.214	0.217	0.253
PCB5	2,3-DICHLOROBIPHENYL				0.00362	0.00443	0.00944
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				1.3	1.37	2.43
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.00626	0.00889	0.0159
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.0213	0.017	0.0238
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.657	0.811	0.682
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.00827	0.00803	0.0216
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.0029 J	0.0039	0.0041 J
PCB6	2,3'-DICHLOROBIPHENYL				0.135	0.175	0.447
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.265	0.334	0.293
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0597	0.0598	0.0912
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.556	0.611	0.739
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.21	1.38	1.42
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0386	0.0357	0.0562
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0104	0.0109	0.0221
PCB7	2,4-DICHLOROBIPHENYL				0.0175	0.0246	0.0533
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.0152	0.0146	0.0304
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.000059 U	0.000083 U	0.000069 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.141	0.187	0.147
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.00048 J	0.00065 J	0.00051 J
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.0118	0.0142	0.0151
PCB8	2,4'-DICHLOROBIPHENYL				0.281	0.392	0.632
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.0019 J	0.0017 J	0.00351
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00458	0.00572	0.00494
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.219	0.327	0.239
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.327	0.44	0.445
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.0197	0.0247	0.0226
PCB9	2,5-DICHLOROBIPHENYL				0.0204	0.0223	0.0573
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.245	0.299	0.374
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.00831	0.00976	0.016
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.651	0.767	1.08

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.00794	0.00916	0.0111
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.14	0.173	0.357
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				0.543	0.693	0.955
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				2.04	2.92	2.61
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				0.447	0.572	0.467
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.36	0.481	0.968
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				0.652	0.775	0.963
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				1.23	1.47	1.92
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.201	0.253	0.359
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				0.871	0.987	1.49
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.143	0.185	0.3
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.11	0.113	0.155
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				2.04	2.07	2.55
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				0.876	1.24	1.08
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				0.86	1.24	1.06
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.21	0.271	0.29
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				1.21	1.56	1.65
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.044	0.0508	0.0682
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0512	0.0689	0.0598

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.22	0.321	0.255
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				1.44	1.97	1.74
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0558	0.075	0.0759
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.312	0.393	0.451
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0218	0.0295	0.0294
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				0.797	1.07	1.07
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				1.08	1.39	1.26
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.156	0.207	0.184
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0817	0.117	0.084
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.687	0.838	0.716
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.242	0.32	0.273
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				1.34	2.3	1.49
PCB-CO84	PCB-137; PCB-164				0.149	0.202	0.18
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	36.2 J	46.8 J	51.7 J
TDCBP	TOTAL DICHLOROBIPHENYLS				1.62 J	2.21 J	4.42 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.00165	0.00211	0.00181
TEQ_PCB_MP	TEQ PCB Mid Point				0.00165	0.00211	0.00193
TEQ_PCB_UB	TEQ PCB Upper Bound				0.00165	0.00211	0.00193
THCBP	TOTAL HEPTACHLOROBIPHENYL				2.44 J	3.1 J	2.6 J
THXBP	TOTAL HEXACHLOROBIPHENYL				5.46 J	7.33 J	6.77 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.114 J	0.175 J	0.476 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.217 J	0.263 J	0.201 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				0.823 J	1.15 J	0.906 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				8.06 J	11.4 J	10.3 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				10.3 J	11.5 J	14.7 J
TTRBP	TOTAL TRICHLOROBIPHENYL				7.02 J	9.62 J	11.2 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	36.218712	46.839448	51.711385

Units are µg/kg

			Sampling Area >		Reference
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-69S (0-0.5)**
PCB1	2-CHLOROBIPHENYL				0.0257
PCB10	2,6-DICHLOROBIPHENYL				0.00325 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL				0.0101
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL				0.00105 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.315
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL				0.00033 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL				0.06
PCB11	3,3'-DICHLOROBIPHENYL				0.204
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL				0.00184 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL				0.00312 J
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.0186
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				0.725
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL				0.0044
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL				0.000698 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL				0.0138
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.0142
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.011
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.0013 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.07
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL				0.0111
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL				0.266
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL				0.0176
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.067
PCB14	3,5-DICHLOROBIPHENYL				0.00034 J
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.168
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL				0.00028 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.034
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL				0.000294 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.185
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL				0.00235 J
PCB15	4,4'-DICHLOROBIPHENYL				0.191
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL				0.00145 J

PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL				0.000979 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL				0.0148
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL				0.000482 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.0808
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL				0.00856
PCB16	2,2',3-TRICHLOROBIPHENYL				0.0718
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL				0.00018 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL				0.00018 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL				0.00366
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL				0.00212 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0395
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.0033 J
PCB17	2,2',4-TRICHLOROBIPHENYL				0.155
PCB170	2,2',3,3',4,4',5-				0.226
PCB172	2,2',3,3',4,5,5'-				0.0433
PCB174	2,2',3,3',4,5,6'-				0.22
PCB175	2,2',3,3',4,5',6-				0.01
PCB176	2,2',3,3',4,6,6'-				0.0251
PCB177	2,2',3,3',4,5',6'-				0.12
PCB178	2,2',3,3',5,5',6-				0.0529
PCB179	2,2',3,3',5,6,6'-				0.0844
PCB181	2,2',3,4,4',5,6-				0.00223 J
PCB182	2,2',3,4,4',5,6'-				0.00265 J
PCB183	2,2',3,4,4',5',6-				0.149
PCB184	2,2',3,4,4',6,6'-				0.000816 J
PCB185	2,2',3,4,5,5',6-				0.0177
PCB186	2,2',3,4,5,6,6'-				0.000086 U
PCB187	2,2',3,4',5,5',6-				0.348
PCB188	2,2',3,4',5,6,6'-				0.00102 J
PCB189	2,3,3',4,4',5,5'-				0.0103
PCB19	2,2',6-TRICHLOROBIPHENYL				0.0449
PCB190	2,3,3',4,4',5,6-				0.044
PCB191	2,3,3',4,4',5',6-				0.00785
PCB192	2,3,3',4,5,5',6-				0.0001 U

PCB194	2,2',3,3',4,4',5,5'-				0.157
PCB195	2,2',3,3',4,4',5,6-				0.0476
PCB196	2,2',3,3',4,4',5',6-				0.078
PCB197	2,2',3,3',4,4',6,6'-				0.00571
PCB2	3-CHLOROBIPHENYL				0.0209
PCB200	2,2',3,3',4,5,6,6'-				0.0149
PCB201	2,2',3,3',4,5',6,6'-				0.0182
PCB202	2,2',3,3',5,5',6,6'-				0.035
PCB203	2,2',3,4,4',5,5',6-				0.116
PCB204	2,2',3,4,4',5,6,6'-				0.00013 J
PCB205	2,3,3',4,4',5,5',6-				0.00661
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.0869
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.0124
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.0289
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.077
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.172
PCB23	2,3,5-TRICHLOROBIPHENYL				0.000433 J
PCB24	2,3,6-TRICHLOROBIPHENYL				0.00316 J
PCB25	2,3',4-TRICHLOROBIPHENYL				0.0775
PCB27	2,3',6-TRICHLOROBIPHENYL				0.025
PCB3	4-CHLOROBIPHENYL				0.0163
PCB31	2,4',5-TRICHLOROBIPHENYL				0.456
PCB32	2,4',6-TRICHLOROBIPHENYL				0.0851
PCB34	2,3',5'-TRICHLOROBIPHENYL				0.00394
PCB35	3,3',4-TRICHLOROBIPHENYL				0.00965
PCB36	3,3',5-TRICHLOROBIPHENYL				0.000902 J
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.17
PCB38	3,4,5-TRICHLOROBIPHENYL				0.00026 J
PCB39	3,4',5-TRICHLOROBIPHENYL				0.00288 J
PCB4	2,2'-DICHLOROBIPHENYL				0.147

PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.154
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.0239
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.0263
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.0816
PCB5	2,3-DICHLOROBIPHENYL				0.00237 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				0.698
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.0045
PCB55	2,3,3',4-TETRACHLOROBIPHENYL				0.011 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.263
PCB57	2,3,3',5-TETRACHLOROBIPHENYL				0.00353 J
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL				0.00131 J
PCB6	2,3'-DICHLOROBIPHENYL				0.0547
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.129
PCB63	2,3,4',5-TETRACHLOROBIPHENYL				0.0269
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.273
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				0.574
PCB67	2,3',4,5-TETRACHLOROBIPHENYL				0.0167
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL				0.0056
PCB7	2,4-DICHLOROBIPHENYL				0.00904
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL				0.00763
PCB73	2,3',5',6-TETRACHLOROBIPHENYL				0.000066 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.0652
PCB78	3,3',4,5-TETRACHLOROBIPHENYL				0.000515 J
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL				0.00621
PCB8	2,4'-DICHLOROBIPHENYL				0.127
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL				0.00063 J
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.00247 J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.0987
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.157
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL				0.00727
PCB9	2,5-DICHLOROBIPHENYL				0.00997
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.147
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL				0.00618
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.432

PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL				0.00424
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)				0.0456
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB				0.195
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1				0.702
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB				0.155
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB				0.126
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)				0.279
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)				0.595
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)				0.0926
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)				0.417
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)				0.0687
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)				0.0539
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)				0.969
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)				0.493
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125				0.449
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)				0.124
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB				0.703
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)				0.0231
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)				0.0312

PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)				0.163
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)				1.17
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)				0.0401
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)				0.28
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)				0.0173
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)				0.686
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)				0.893
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)				0.107
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)				0.0638
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)				0.529
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB				0.192
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117				0.642
PCB-CO84	PCB-137; PCB-164				0.117
PCCTOT	TOTAL PCB CONGENERS (LAB	59.8	676	59.8	19.9 J
TDCBP	TOTAL DICHLOROBIPHENYLS				0.794 J
TEQ_PCB_LB	TEQ PCB Lower Bound				0.00114
TEQ_PCB_MP	TEQ PCB Mid Point				0.00124
TEQ_PCB_UB	TEQ PCB Upper Bound				0.00124
THCBP	TOTAL HEPTACHLOROBIPHENYL				1.96 J
THXBP	TOTAL HEXACHLOROBIPHENYL				4.45 J
TMCBP	TOTAL MONOCHLOROBIPHENYL				0.0424 J

TNCBP	TOTAL NONACHLOROBIPHENYL				0.128 J
TOCBP	TOTAL OCTACHLOROBIPHENYL				0.671 J
TPCBP	TOTAL PENTACHLOROBIPHENYL				4.5 J
TTCBP	TOTAL TETRACHLOROBIPHENYL				4.85 J
TTRBP	TOTAL TRICHLOROBIPHENYL				2.46 J
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	19.946499

Units are µg/kg

			Sampling Area >		WWTP A2	WWTP A2	WWTP A1
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-10S (0-0.5) LR**	**LMR21-12S (0-0.5) LR**	**LMR21-14S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				0.81	0.54 J	0.76
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.2 U	0.18 U	0.18 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				2.65	1.22	1.97
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.3 U	0.27 U	0.26 U
PCB11	3,3'-DICHLOROBIPHENYL				0.31 U	0.28 U	0.27 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				2.52	1.27	1.91
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.2 U	0.18 U	0.18 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.33 U	0.3 U	0.28 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				2.77	1.09	1.87
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.25 U	0.23 U	0.22 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.16 U	0.15 U	0.14 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.26 U	0.23 U	0.23 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.52 U	0.47 U	0.45 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.25 U	0.22 U	0.21 U
PCB13	3,4'-DICHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.23 U	0.21 U	0.2 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.23 U	0.21 U	0.2 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.34 J	0.11 U	0.24 J
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.34 U	0.31 U	0.3 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				1.4	0.68	0.75
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.18 U	0.17 U	0.16 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.38 U	0.35 U	0.33 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				1.3	0.82	0.95
PCB15	4,4'-DICHLOROBIPHENYL				0.7	0.28 U	0.74
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				1.72	0.86	0.99
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.31 U	0.28 U	0.27 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.31 U	0.28 U	0.27 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.4 U	0.36 U	1.17
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				1.08	0.63	0.2 U
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.14 U	0.12 U	0.12 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.12 U	0.11 U	0.1 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.02 U	0.93 U	0.89 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U

PCB17	2,2',4-TRICHLOROBIPHENYL				1.36	0.74	1.02
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				1.03	0.21 U	0.2 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.19 U	0.17 U	0.17 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.61 J	0.26 U	0.25 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.12 U	0.12 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.18 U	0.17 U	0.16 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.27 U	0.25 U	0.24 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.17 J	0.17 U	0.16 U
PCB18	2,2',5-TRICHLOROBIPHENYL				1.86	0.71	1.79
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				1.45	0.3 U	0.29 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.66	0.15 U	0.14 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.13 U	0.12 U	0.11 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.2 U	0.18 U	0.18 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.9	0.08 U	0.57
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.29 U	0.26 U	0.25 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.21 U	0.19 U	0.18 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.13 U	0.12 U	0.11 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.39 U	0.36 U	0.34 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.17 U	0.15 U	0.15 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.77	0.27 U	0.26 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.2 U	0.18 U	0.18 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.14 U	0.12 U	0.12 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.2 U	0.18 U	0.17 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.2 U	0.18 U	0.18 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.32 U	0.29 U	0.28 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.15 U	0.13 U	0.13 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.16 U	0.15 U	0.14 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.15 U	0.13 U	0.13 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				2.02	0.27 U	1.67
PCB24	2,3,6-TRICHLOROBIPHENYL				0.83	0.46 J	0.7
PCB25	2,3',4-TRICHLOROBIPHENYL				0.42 U	0.38 U	0.67
PCB26	2,3',5-TRICHLOROBIPHENYL				0.14 U	0.66	0.63

PCB27	2,3',6-TRICHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				3.17	1.68	2.6
PCB3	4-CHLOROBIPHENYL				0.32 U	0.29 U	0.28 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.25 U	0.23 U	0.22 U
PCB31	2,4',5-TRICHLOROBIPHENYL				2.95	1.47	2.26
PCB32	2,4',6-TRICHLOROBIPHENYL				0.98	0.23 U	0.73
PCB33	2',3,4-TRICHLOROBIPHENYL				1.42	0.87	1.25
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.4 U	0.36 U	0.35 U
PCB4	2,2'-DICHLOROBIPHENYL				0.14 U	0.12 U	0.53 J
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.45 U	0.41 U	0.4 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.39 U	0.35 U	0.34 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				1.16	0.27 U	0.73
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.35 U	0.32 U	0.31 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				5.49	1.8	3.13
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.2 U	0.18 U	0.17 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.28 U	0.25 U	0.24 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				1.16	0.18 U	0.95
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.53 J	0.09 J	0.22 J
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				3.1	1.22	2.03
PCB5	2,3-DICHLOROBIPHENYL				0.21 U	0.19 U	0.18 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.15 U	0.13 U	0.13 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				2.97	1.3	1.93
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.49 J	0.26 J	0.25 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				1.81	0.74	1.32
PCB6	2,3'-DICHLOROBIPHENYL				0.67	0.07 U	0.07 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.7	0.21 U	0.58
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1.32	0.32 J	0.8
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				3.68	1.62	2.45
PCB7	2,4-DICHLOROBIPHENYL				0.33 U	0.3 U	0.29 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				3.53	1.45	2.1
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				1.2	0.15 U	0.74
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				1.73	1.09	0.99
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.31 U	0.28 U	0.27 U
PCB8	2,4'-DICHLOROBIPHENYL				0.94	0.39 J	0.63
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.19 U	0.17 U	0.17 U
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.19 U	0.17 U	0.17 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.2 U	0.18 U	0.18 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				1.11	0.45 J	0.27 U

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.53 U	0.48 U	0.46 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.18 U	0.4 J	0.16 U
PCB9	2,5-DICHLOROBIPHENYL				0.38 U	0.35 U	0.33 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.58 J	0.25 U	0.24 U
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.38 J	0.15 J	0.2 U
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				1.65	0.7	1.32
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				0.25 U	0.64	0.76
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				1.47	0.15 U	0.79
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				71.14	26.32	47.49
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				0.81	0.54	0.76
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				2.31	0.39	1.9
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				14.59	6.59	14.49
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				28.87	9.89	18.22
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				13.13	5.92	8.62
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				5.84	2.99	2.93
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				4.82	U	0.57
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				0.77	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				0.77	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	71.14	26.32	47.49

Units are µg/kg

				Sampling Area >	WWTP A1	WWTP A1	WWTP A3
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-15S (0-0.5) LR**	**LMR21-17S (0-0.5) LR**	**LMR21-19S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				2.88	3.12	3.24
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.17 U	0.14 U	0.13 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				12.66	11.37	16.08
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				3.94	4.4	7.2
PCB11	3,3'-DICHLOROBIPHENYL				0.26 U	0.21 U	0.19 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				11.41	10.29	15.65
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.17 U	0.14 U	0.13 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.27 U	1.05	1.15
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				9.08	8.72	12.73
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.21 U	0.18 U	0.16 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.14 U	0.11 U	0.1 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.22 U	0.18 U	0.16 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.44 U	0.36 U	0.32 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				2.23	1.44	2.18
PCB13	3,4'-DICHLOROBIPHENYL				0.14 U	1.77	0.78
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.19 U	0.16 U	0.14 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.2 U	0.16 U	0.81
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				1.14	0.92	1.24
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				1.07	0.69	1.24
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.29 U	0.24 U	0.21 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				6.63	4.81	9.75
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				1.94	1.27	2.11
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.15 U	0.13 U	0.71
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				1.27	0.86	1.52
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				5.26	3.6	7.47
PCB15	4,4'-DICHLOROBIPHENYL				0.26 U	4.45	1.8
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				1.2	1.12	1.78
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				6.04	4.87	9.11
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.26 U	1.52	2.34
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.26 U	0.21 U	0.19 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				1.29	0.97	1.37
PCB16	2,2',3-TRICHLOROBIPHENYL				6.8	10.71	5.93
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				2.02	1.71	2.48
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.11 U	0.09 U	0.08 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.1 U	0.08 U	0.07 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.86 U	0.71 U	0.91
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.18 U	0.15 U	0.13 U

PCB17	2,2',4-TRICHLOROBIPHENYL				7.37	12.2	6.28
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				2.36	1.74	2.94
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.68	0.55	0.87
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.13 U	0.11 U	0.1 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				2.1	1.55	3.08
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.11 U	0.24 J	0.32 J
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				1.18	0.99	1.76
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.74	0.19 U	0.67
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.6	0.46	0.78
PCB18	2,2',5-TRICHLOROBIPHENYL				16.16	29.27	16.62
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				3.83	2.98	5.29
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				1.2	0.77	1.42
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.11 U	0.09 U	0.08 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.17 U	0.14 U	0.62
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				2.02	1.3	2.71
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.18 U	0.15 U	0.13 U
PCB19	2,2',6-TRICHLOROBIPHENYL				1.71	3	1.74
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.18 U	0.14 U	0.78
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.11 U	0.09 U	0.08 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.33 U	1.15	2.06
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.14 U	0.12 U	1.04
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				1.12	0.9	0.98
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.17 U	0.14 U	0.61
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.13 U	0.11 U	0.1 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.11 U	0.09 U	0.55
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				1.29	0.76	1.78
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.17 U	0.14 U	0.13 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.97	0.57	0.91
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.12 U	0.1 U	0.09 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.14 U	0.11 U	0.34 J
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.12 U	0.1 U	0.72
PCB22	2,3,4'-TRICHLOROBIPHENYL				12.03	12.18	11.98
PCB24	2,3,6-TRICHLOROBIPHENYL				2.83	1.35	1.54
PCB25	2,3',4-TRICHLOROBIPHENYL				8.37	5.35	4.41
PCB26	2,3',5-TRICHLOROBIPHENYL				3.61	6.55	3.83

PCB27	2,3',6-TRICHLOROBIPHENYL				0.14 U	1.72	1.41
PCB28	2,4,4'-TRICHLOROBIPHENYL				18.65	29.67	17.82
PCB3	4-CHLOROBIPHENYL				0.27 U	0.22 U	0.2 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.21 U	0.18 U	0.16 U
PCB31	2,4',5-TRICHLOROBIPHENYL				17.81	30.09	18.21
PCB32	2,4',6-TRICHLOROBIPHENYL				3.81	7.14	3.82
PCB33	2',3,4-TRICHLOROBIPHENYL				8.32	14.43	8.89
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.34 U	6.53	4.5
PCB4	2,2'-DICHLOROBIPHENYL				0.11 U	5.65	2.49
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.38 U	2.81	0.28 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.33 U	1.59	0.24 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				6.8	9.68	7.24
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				4.68	0.24 U	0.22 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				43.42	27.16	27.29
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.17 U	3.51	3.18
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.23 U	2.5	1.51
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				8.73	7.6	4.88
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				5.36	6.65	3.07
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				14.51	16.27	13.67
PCB5	2,3-DICHLOROBIPHENYL				0.18 U	0.14 U	0.13 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.12 U	1.65	0.81
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				18.92	23.07	19.54
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				2.72	3.91	2.14
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.2 U	0.3 J	0.15 U
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				11.38	10.7	7.73
PCB6	2,3'-DICHLOROBIPHENYL				2.56	3.99	2.52
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				2.62	5.14	3.31
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				8.88	11	8.99
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				15.13	18.78	13.56
PCB7	2,4-DICHLOROBIPHENYL				0.28 U	0.93	0.21 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				21.49	23.7	21.01
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				4.56	6.16	4.27
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				9.69	12.9	9.21
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.26 U	2.9	2.43
PCB8	2,4'-DICHLOROBIPHENYL				4.17	9.62	5.36
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.16 U	0.13 U	4.13
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.16 U	2.67	3.21
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.17 U	1.58	0.13 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				3.79	3.52	3.98

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.45 U	2.03	1.55
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.15 U	3.88	6.52
PCB9	2,5-DICHLOROBIPHENYL				0.32 U	0.54	0.24 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				2.25	2.36	2.4
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				2.87	2.92	4.26
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				9.86	8.54	12.78
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				4	3.64	4.92
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				5.47	4.84	6.34
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				409.48	507.79	455.16
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	0.72
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				2.88	3.12	3.24
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				6.73	26.95	12.95
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				107.47	170.19	106.98
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				178.89	197.98	157.97
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				65.33	71.81	98.77
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				30.09	23.78	45.02
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				14.71	10.58	21.24
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				2.41	2.81	7.02
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				0.97	0.57	1.25
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				2.41	2.81	7.02
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				0.97	0.57	1.25
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	409.48	507.79	455.16

Units are µg/kg

				Sampling Area >	WWTP C2	WWTP C2	Sway Bridge C
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-25S (0-0.5) LR	LMR21-27S (0-0.5) LR	LMR21-30S (0-0.5) LR
PCB1	2-CHLOROBIPHENYL				0.21 U	0.66	0.57
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				1.17	1.39	0.88
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.31 U	0.3 U	0.27 U
PCB11	3,3'-DICHLOROBIPHENYL				0.32 U	0.31 U	0.28 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				1.3	1.49	0.95
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.34 U	0.33 U	0.3 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.2	1.15	0.24 U
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.26 U	0.25 U	0.23 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.27 U	0.26 U	0.24 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.54 U	0.52 U	0.48 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.25 U	0.25 U	0.23 U
PCB13	3,4'-DICHLOROBIPHENYL				0.18 U	0.17 U	0.16 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.24 U	0.23 U	0.21 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.24 U	0.23 U	0.22 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.16 U	0.15 U	0.14 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.13 U	0.12 U	0.11 U
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.36 U	0.34 U	0.32 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				0.62 J	0.83	0.28 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.18 U	0.17 U	0.16 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.4 U	0.38 U	0.35 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				0.88	0.85	0.17 U
PCB15	4,4'-DICHLOROBIPHENYL				0.65	0.57 J	0.28 U
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				0.77	0.88	0.51 J
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.32 U	0.31 U	0.28 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.32 U	0.31 U	0.28 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.18 U	0.17 U	0.16 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.41 U	0.4 U	0.37 U
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				0.24 U	0.52 J	0.21 U
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.14 U	0.14 U	0.13 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.12 U	0.12 U	0.11 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.06 U	1.03 U	0.95 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U

PCB17	2,2',4-TRICHLOROBIPHENYL				0.65	0.9	0.63
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.24 U	0.23 U	0.21 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.2 U	0.19 U	0.18 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.16 U	0.15 U	0.14 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.29 U	0.28 U	0.26 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.14 U	0.13 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.28 U	0.27 U	0.25 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB18	2,2',5-TRICHLOROBIPHENYL				0.84	1.01	0.41 J
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				1.15	1.11	0.31 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.13 U	0.13 U	0.12 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.4 J	0.62	0.09 U
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.3 U	0.29 U	0.27 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.22 U	0.21 U	0.19 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.13 U	0.13 U	0.12 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.41 U	0.39 U	0.36 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.17 U	0.17 U	0.15 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.31 U	0.3 U	0.28 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.16 U	0.15 U	0.14 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.14 U	0.14 U	0.13 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.2 U	0.2 U	0.18 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.33 U	0.32 U	0.29 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.15 U	0.15 U	0.14 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.15 U	0.15 U	0.14 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.31 U	0.3 U	0.28 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.62 J	0.15 U	0.5 J
PCB25	2,3',4-TRICHLOROBIPHENYL				0.43 U	0.42 U	0.39 U
PCB26	2,3',5-TRICHLOROBIPHENYL				0.62 J	0.75	0.13 U

PCB27	2,3',6-TRICHLOROBIPHENYL				0.18 U	0.17 U	0.16 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				1.65	1.78	1.15
PCB3	4-CHLOROBIPHENYL				0.33 U	0.32 U	0.29 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.26 U	0.25 U	0.23 U
PCB31	2,4',5-TRICHLOROBIPHENYL				1.46	1.64	1.01
PCB32	2,4',6-TRICHLOROBIPHENYL				0.34 J	0.62	0.28 J
PCB33	2',3,4-TRICHLOROBIPHENYL				0.33 U	0.99	0.29 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.41 U	0.4 U	0.37 U
PCB4	2,2'-DICHLOROBIPHENYL				0.48 J	0.66	0.74
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.47 U	0.45 U	0.42 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.4 U	0.39 U	0.36 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.86	0.63	0.28 U
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.36 U	0.35 U	0.32 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				2.22	2.1	1.04
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.2 U	0.2 U	0.18 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.29 U	0.28 U	0.26 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				0.48 J	0.59 J	0.19 U
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.09 J	0.22 J	0.24 U
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				1.15	1.4	0.82
PCB5	2,3-DICHLOROBIPHENYL				0.22 U	0.21 U	0.19 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.15 U	0.15 U	0.14 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				1.21	1.36	0.75
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.18 U	0.17 U	0.33 J
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.33 J	0.33 J	0.29 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.48 J	0.59 J	0.51 J
PCB6	2,3'-DICHLOROBIPHENYL				0.08 U	0.68	0.07 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.58 J	0.23 U	0.22 U
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.39 J	0.51 J	0.22 U
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.69	1.93	1.01
PCB7	2,4-DICHLOROBIPHENYL				0.34 U	0.33 U	0.31 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				1.59	1.45	0.81
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				0.62 J	0.74	0.15 U
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				0.68	0.97	0.49 J
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.32 U	0.31 U	0.28 U
PCB8	2,4'-DICHLOROBIPHENYL				0.45 J	0.68	0.37 J
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.2 U	0.19 U	0.18 U
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.2 U	0.19 U	0.18 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.57 J	0.56 J	0.29 U

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.55 U	0.53 U	0.49 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.59 J	0.18 U	0.17 U
PCB9	2,5-DICHLOROBIPHENYL				0.4 U	0.38 U	0.35 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.29 U	0.37 J	0.26 U
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.03 J	0.2 J	0.22 U
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.85	0.84	0.72
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				0.59 J	0.25 U	0.23 U
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				0.65	0.59 J	0.15 U
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				30.9	35.16	14.77
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				U	0.66	0.57
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				1.58	2.59	1.11
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				6.18	7.69	3.98
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				12.37	12.82	6.05
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				6.95	6.59	2.55
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				2.27	3.08	0.51
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				1.55	1.73	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	30.9	35.16	14.77

Units are µg/kg

				Sampling Area >	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-35S (0-0.5) LR**	**LMR21-37S (0-0.5) LR**	**LMR21-39S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				0.93	0.22 U	0.13 U
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.22 U	0.22 U	0.13 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				1.22	1.8	1.72
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.7	0.33 U	0.62
PCB11	3,3'-DICHLOROBIPHENYL				0.33 U	0.34 U	0.2 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				1.3	1.78	1.47
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.22 U	0.22 U	0.13 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.35 U	0.36 U	0.21 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.46	1.61	1.3
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.27 U	0.28 U	0.16 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.17 U	0.18 U	0.1 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.28 U	0.28 U	0.17 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.55 U	0.57 U	0.33 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.26 U	0.27 U	0.16 U
PCB13	3,4'-DICHLOROBIPHENYL				0.18 U	0.19 U	0.11 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.24 U	0.25 U	0.15 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.25 U	0.26 U	0.15 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.16 U	0.17 U	0.1 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.13 U	0.14 U	0.2 J
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.37 U	0.38 U	0.22 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				0.77	0.87	0.79
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.18 U	0.19 U	0.11 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.2 U	0.2 U	0.12 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.41 U	0.42 U	0.25 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				0.92	1	0.72
PCB15	4,4'-DICHLOROBIPHENYL				0.33 U	0.34 U	0.2 U
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.23 U	0.24 U	0.14 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				0.87	1.28	0.75
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.33 U	0.34 U	0.2 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.33 U	0.34 U	0.2 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.18 U	0.58 J	0.11 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.84	0.44 U	1.18
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				0.24 U	0.25 U	0.42
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.14 U	0.15 U	0.09 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.12 U	0.13 U	0.08 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.09 U	1.13 U	0.66 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.23 U	0.24 U	0.14 U

PCB17	2,2',4-TRICHLOROBIPHENYL				0.69	0.94	0.85
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.24 U	0.25 U	0.15 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.2 U	0.21 U	0.12 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.16 U	0.17 U	0.1 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.3 U	0.31 U	0.18 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.15 U	0.09 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.2 U	0.2 U	0.12 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.29 U	0.3 U	0.17 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.2 U	0.2 U	0.12 U
PCB18	2,2',5-TRICHLOROBIPHENYL				0.97	1	1.48
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				0.35 U	1.5	0.76
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.17 U	0.18 U	0.1 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.14 U	0.08 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.22 U	0.22 U	0.13 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.59 J	0.66 J	0.06 U
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.23 U	0.24 U	0.14 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.31 U	0.32 U	0.19 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.22 U	0.23 U	0.13 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.14 U	0.14 U	0.08 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.42 U	0.43 U	0.25 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.18 U	0.18 U	0.11 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.32 U	0.33 U	0.19 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.22 U	0.22 U	0.13 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.16 U	0.17 U	0.1 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.14 U	0.15 U	0.09 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.21 U	0.22 U	0.13 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.22 U	0.22 U	0.13 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.34 U	0.35 U	0.21 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.16 U	0.16 U	0.1 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.17 U	0.18 U	0.1 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.16 U	0.16 U	0.1 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.32 U	0.33 U	1.4
PCB24	2,3,6-TRICHLOROBIPHENYL				0.46 J	0.47 J	1.14
PCB25	2,3',4-TRICHLOROBIPHENYL				0.44 U	0.46 U	0.27 U
PCB26	2,3',5-TRICHLOROBIPHENYL				0.15 U	0.16 U	0.69

PCB27	2,3',6-TRICHLOROBIPHENYL				0.18 U	0.19 U	0.11 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				1.81	2.23	1.81
PCB3	4-CHLOROBIPHENYL				0.34 U	0.35 U	0.21 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.27 U	0.28 U	0.16 U
PCB31	2,4',5-TRICHLOROBIPHENYL				1.44	1.86	1.89
PCB32	2,4',6-TRICHLOROBIPHENYL				0.53 J	0.66 J	0.58
PCB33	2',3,4-TRICHLOROBIPHENYL				0.92	1.09	0.86
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.43 U	0.44 U	0.26 U
PCB4	2,2'-DICHLOROBIPHENYL				0.14 U	0.15 U	0.09 U
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.48 U	1	0.29 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.41 U	0.43 U	0.25 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.63 J	0.79	0.93
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.37 U	0.39 U	0.23 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				1.89	2.79	2.74
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.21 U	0.22 U	0.42
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.29 U	0.31 U	0.18 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				0.51 J	0.83	0.54
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.16 J	0.25 J	0.42
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				1.06	1.62	1.49
PCB5	2,3-DICHLOROBIPHENYL				0.22 U	0.23 U	0.13 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.16 U	0.16 U	0.1 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				1.1	1.52	2.02
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.18 U	0.19 U	0.33 J
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.33 J	0.29 J	0.16 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.79	1.13	0.99
PCB6	2,3'-DICHLOROBIPHENYL				0.09 U	0.09 U	0.05 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.25 U	0.56 J	0.43
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.46 J	0.64 J	0.72
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.6	2.12	2.23
PCB7	2,4-DICHLOROBIPHENYL				0.35 U	0.37 U	0.21 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				1.38	1.84	2.36
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				0.65 J	0.63 J	0.79
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				0.74	1.02	1.22
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.33 U	0.34 U	0.2 U
PCB8	2,4'-DICHLOROBIPHENYL				0.61 J	0.55 J	0.47
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.2 U	0.21 U	0.12 U
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.2 U	0.21 U	0.12 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.22 U	0.22 U	0.13 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.65 J	0.34 U	0.49

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.56 U	0.58 U	0.34 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.59 J	0.2 U	0.58
PCB9	2,5-DICHLOROBIPHENYL				0.41 U	0.42 U	0.25 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.29 U	0.31 U	0.36 J
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.1 J	0.26 U	0.22 J
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.68	0.94	1.03
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				0.66	0.28 U	0.64
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				0.65 J	0.85	0.69
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				31.66	38.7	42.9
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				0.93	U	U
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				0.61	0.55	0.47
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				7.66	8.25	11.88
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				11.3	17.03	17.79
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				8.01	6.98	9.12
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				2.56	3.73	2.88
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				0.59	2.16	0.76
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	31.66	38.7	42.9

Units are µg/kg

				Sampling Area >	Sway Bridge A2	Sway Bridge A2	Sway Bridge A1
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-41S (0-0.5) LR**	**LMR21-43S (0-0.5) LR**	**LMR21-45S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				1.05	24.26	8.5
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				1.86	6.42	0.12 U
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.33 U	2.21	0.17 U
PCB11	3,3'-DICHLOROBIPHENYL				0.34 U	0.29 U	0.18 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				1.72	5.64	0.13 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.36 U	0.78	0.19 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.62	4.73	0.15 U
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.28 U	0.23 U	0.15 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.18 U	0.15 U	0.09 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.29 U	0.24 U	0.15 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.58 U	0.48 U	0.3 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.27 U	0.8	0.15 U
PCB13	3,4'-DICHLOROBIPHENYL				0.19 U	0.16 U	0.1 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.25 U	0.21 U	0.13 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.26 U	0.22 U	0.14 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.17 U	0.91	0.09 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.34 J	0.49 J	0.07 U
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.38 U	0.32 U	0.2 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				1.37	3.06	0.18 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.19 U	0.84	0.1 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.2 U	0.17 U	0.11 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.43 U	0.35 U	0.22 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				1.04	2.78	0.36 J
PCB15	4,4'-DICHLOROBIPHENYL				0.34 U	0.29 U	0.18 U
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.24 U	0.83	0.13 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				1.35	3.34	0.28 J
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.34 U	0.29 U	0.18 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.34 U	0.29 U	0.18 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.19 U	0.7	0.1 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.45 U	4.66	0.24 U
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				0.25 U	1.27	0.13 U
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.15 U	0.13 U	0.08 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.13 U	0.11 U	0.07 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.14 U	0.95 U	0.61 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.24 U	0.2 U	0.13 U

PCB17	2,2',4-TRICHLOROBIPHENYL				0.82	3.07	0.16 U
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.25 U	1.53	0.13 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.21 U	0.18 U	0.11 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.17 U	0.14 U	0.09 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.32 U	0.73	0.17 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.15 U	0.13 U	0.08 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.2 U	0.63	0.11 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.3 U	0.25 U	0.16 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.2 U	0.3 J	0.11 U
PCB18	2,2',5-TRICHLOROBIPHENYL				0.9	7.75	0.1 U
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				1.51	2.1	0.2 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.18 U	0.15 U	0.09 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.12 U	0.08 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.86	1.19	0.05 U
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.24 U	0.2 U	0.13 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.32 U	0.27 U	0.17 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.14 U	0.47 J	0.08 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.44 U	0.37 U	0.23 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.19 U	0.15 U	0.1 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.34 U	0.28 U	0.18 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.17 U	0.14 U	0.09 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.15 U	0.13 U	0.08 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.22 U	0.18 U	0.12 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.36 U	0.3 U	0.53
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.16 U	0.14 U	0.09 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.18 U	0.15 U	0.09 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.16 U	0.14 U	0.44
PCB22	2,3,4'-TRICHLOROBIPHENYL				1.44	3.62	0.18 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.17 U	1.96	0.09 U
PCB25	2,3',4-TRICHLOROBIPHENYL				0.47 U	0.39 U	0.25 U
PCB26	2,3',5-TRICHLOROBIPHENYL				0.16 U	0.13 U	0.08 U

PCB27	2,3',6-TRICHLOROBIPHENYL				0.34 J	0.66	0.1 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				2.29	6.46	0.19 U
PCB3	4-CHLOROBIPHENYL				0.36 U	0.3 U	0.19 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.28 U	0.23 U	0.15 U
PCB31	2,4',5-TRICHLOROBIPHENYL				1.99	6	0.11 U
PCB32	2,4',6-TRICHLOROBIPHENYL				0.28 U	1.46	0.15 U
PCB33	2',3,4-TRICHLOROBIPHENYL				0.98	2.87	0.19 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.45 U	0.37 U	0.24 U
PCB4	2,2'-DICHLOROBIPHENYL				0.15 U	0.13 U	0.08 U
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.51 U	0.42 U	0.27 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.43 U	0.36 U	0.23 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.61 J	2.36	0.18 U
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.39 U	0.33 U	0.21 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				2.98	12.01	4.91
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.22 U	0.95	0.12 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.31 U	0.26 U	0.16 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				0.87	2.81	1.95
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.33 J	1.03	0.9
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				1.83	6.42	1.39
PCB5	2,3-DICHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.16 U	0.14 U	0.09 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				1.52	7.45	0.33 J
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.19 U	1.46	0.1 U
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.34 J	0.23 J	0.14 U
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.74	3.64	2.29
PCB6	2,3'-DICHLOROBIPHENYL				0.09 U	0.07 U	0.05 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.26 U	1.69	0.14 U
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.71	3.21	0.14 U
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				2.32	7.07	0.18 U
PCB7	2,4-DICHLOROBIPHENYL				0.37 U	0.31 U	0.2 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				1.95	8	0.19 U
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				0.8	1.78	0.1 U
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				1.12	4.03	0.15 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.34 U	0.29 U	0.18 U
PCB8	2,4'-DICHLOROBIPHENYL				0.66 J	0.46 U	0.29 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.21 U	3.64	3.04
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.21 U	1.28	0.11 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.23 U	0.19 U	0.12 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.68 J	1.33	0.18 U

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.59 U	0.86	0.31 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.72	1.96	0.11 U
PCB9	2,5-DICHLOROBIPHENYL				0.43 U	0.35 U	0.22 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.38 J	1	0.16 U
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.31 J	1.53	0.14 U
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.97	4.14	0.09 U
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				0.79	1.63	0.15 U
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				0.88	2.54	0.1 U
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				42.99	188.57	24.92
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	0.44
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				1.05	24.26	8.5
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				0.66	U	U
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				8.76	38.51	U
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				16.12	67.78	14.81
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				9.93	36.05	U
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				4.1	15.02	0.64
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				2.37	6.95	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	0.53
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	0.53
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	42.99	188.57	24.92

Units are µg/kg

				Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3
PARLABEL	NAME	TEC	PEC	REGION4_ESV	LMR21-47S (0-0.5) LR	LMR21-49S (0-0.5) LR	LMR21-52S (0-0.5) LR
PCB1	2-CHLOROBIPHENYL				0.17 U	0.15 U	0.55 J
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.17 U	0.15 U	0.19 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				0.17 U	0.15 U	1.07
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.25 U	0.22 U	0.28 U
PCB11	3,3'-DICHLOROBIPHENYL				0.26 U	0.23 U	0.29 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				0.19 U	0.17 U	1.03
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.17 U	0.15 U	0.19 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.27 U	0.25 U	0.31 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				0.22 U	0.2 U	0.88
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.21 U	0.19 U	0.24 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.13 U	0.12 U	0.15 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.22 U	0.2 U	0.25 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.43 U	0.39 U	0.49 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.21 U	0.19 U	0.23 U
PCB13	3,4'-DICHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.19 U	0.17 U	0.22 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.2 U	0.18 U	0.22 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.13 U	0.12 U	0.15 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.1 U	0.09 U	0.12 U
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.29 U	0.26 U	0.33 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				0.26 U	0.23 U	0.75
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.15 U	0.14 U	0.17 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.32 U	0.29 U	0.36 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				0.15 U	1.15	0.87
PCB15	4,4'-DICHLOROBIPHENYL				0.26 U	0.23 U	0.29 U
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.18 U	0.16 U	0.2 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				3.16	1.57	0.84
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.26 U	0.23 U	0.29 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.26 U	0.23 U	0.29 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.34 U	0.3 U	0.38 U
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				0.19 U	0.17 U	0.55 J
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.11 U	0.1 U	0.13 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.1 U	0.09 U	0.11 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.86 U	0.78 U	0.98 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.18 U	0.16 U	0.2 U

PCB17	2,2',4-TRICHLOROBIPHENYL				0.22 U	0.2 U	0.25 U
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.19 U	0.17 U	0.22 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.16 U	0.14 U	0.18 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.13 U	0.12 U	0.15 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.91	0.21 U	0.27 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.11 U	0.1 U	0.13 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.15 U	0.14 U	0.17 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.23 U	0.2 U	0.26 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.15 U	0.14 U	0.17 U
PCB18	2,2',5-TRICHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				0.28 U	0.25 U	1.22
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.13 U	0.12 U	0.15 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.11 U	0.1 U	0.12 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.17 U	0.15 U	0.19 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				1.17	0.67	0.7
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.18 U	0.16 U	0.2 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.24 U	0.22 U	0.27 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.18 U	0.16 U	0.2 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.11 U	0.1 U	0.12 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.33 U	0.3 U	0.37 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.25 U	0.23 U	0.29 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.17 U	0.15 U	0.19 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.13 U	0.12 U	0.15 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.11 U	0.1 U	0.13 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.16 U	0.15 U	0.19 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.17 U	0.15 U	0.19 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				1.59	1.58	0.3 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.12 U	0.11 U	0.14 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.57	0.48	0.15 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				2.04	1.73	0.14 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.25 U	7.37	0.29 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.13 U	0.12 U	0.15 U
PCB25	2,3',4-TRICHLOROBIPHENYL				0.35 U	8.94	0.4 U
PCB26	2,3',5-TRICHLOROBIPHENYL				0.12 U	6.04	0.13 U

PCB27	2,3',6-TRICHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				0.27 U	0.25 U	0.95
PCB3	4-CHLOROBIPHENYL				0.27 U	0.24 U	0.3 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.21 U	0.19 U	0.24 U
PCB31	2,4',5-TRICHLOROBIPHENYL				0.15 U	8.21	0.84
PCB32	2,4',6-TRICHLOROBIPHENYL				0.21 U	0.19 U	0.24 U
PCB33	2',3,4-TRICHLOROBIPHENYL				0.27 U	0.24 U	0.3 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.34 U	0.3 U	0.38 U
PCB4	2,2'-DICHLOROBIPHENYL				0.11 U	0.1 U	0.13 U
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.38 U	0.34 U	0.43 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.33 U	0.29 U	0.37 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.25 U	3.91	0.29 U
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.29 U	0.27 U	0.33 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				0.19 U	4.64	0.85
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.16 U	0.15 U	0.19 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.23 U	0.21 U	0.26 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				0.17 U	0.15 U	0.34 J
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.22 U	2.77	0.25 U
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				0.28 U	5.32	0.71
PCB5	2,3-DICHLOROBIPHENYL				0.18 U	0.16 U	0.2 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.12 U	0.11 U	0.14 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				0.26 U	0.23 U	0.65
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.2 U	0.18 U	0.31 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.16 U	0.15 U	0.46 J
PCB6	2,3'-DICHLOROBIPHENYL				0.07 U	0.06 U	0.08 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.2 U	0.18 U	0.22 U
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.2 U	0.18 U	0.22 U
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				0.25 U	0.23 U	1.01
PCB7	2,4-DICHLOROBIPHENYL				0.28 U	0.25 U	0.32 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				0.27 U	0.24 U	0.67
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				0.14 U	0.13 U	0.16 U
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				0.22 U	0.2 U	0.25 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.26 U	0.23 U	0.29 U
PCB8	2,4'-DICHLOROBIPHENYL				0.41 U	0.37 U	0.29 J
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.16 U	0.14 U	0.18 U
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.16 U	0.14 U	0.18 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.17 U	0.15 U	0.19 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				1.76	0.24 U	0.3 U

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.44 U	0.4 U	0.5 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.15 U	0.14 U	0.17 U
PCB9	2,5-DICHLOROBIPHENYL				0.32 U	0.29 U	0.36 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.23 U	0.21 U	0.26 U
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				1.4	0.18 U	0.22 U
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.12 U	0.11 U	0.45 J
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				0.21 U	0.19 U	0.24 U
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				4.74	0.13 U	0.16 U
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				17.34	54.38	15.99
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				2.04	1.73	U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				U	U	0.55
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				U	U	0.29
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				U	30.56	1.79
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				U	16.64	5
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				7.9	U	3.43
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				3.16	2.72	3.01
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				2.08	0.67	1.92
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				2.16	2.06	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				2.16	2.06	U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	17.34	54.38	15.99

Units are µg/kg

				Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge B1
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-53S (0-0.5) LR**	**LMR21-55S (0-0.5) LR**	**LMR21-57S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				1.37	0.68	1.14
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.21 U	0.19 U	0.17 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				6.05	1.21	4.38
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				2.18	0.28 U	1.91
PCB11	3,3'-DICHLOROBIPHENYL				0.32 U	0.29 U	0.26 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				5.99	1.43	4.45
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.21 U	0.19 U	0.17 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.33 U	0.31 U	0.28 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				6.15	0.92	4.21
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.26 U	0.24 U	0.22 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.16 U	0.15 U	0.14 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.27 U	0.24 U	0.22 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.53 U	0.49 U	0.44 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				2.07	0.23 U	0.21 U
PCB13	3,4'-DICHLOROBIPHENYL				0.59 J	0.16 U	0.15 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.23 U	0.21 U	0.19 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.24 U	0.22 U	0.2 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				1.24	0.15 U	0.89
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.82	0.12 U	0.52 J
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.35 U	0.32 U	0.29 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				7.24	0.74	2.82
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				1.71	0.16 U	0.87
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.19 U	0.17 U	0.16 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				1.3	0.36 U	0.33 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				4.61	0.95	2.39
PCB15	4,4'-DICHLOROBIPHENYL				1.16	0.29 U	0.26 U
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.99	0.2 U	0.67
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				5.89	0.75	2.74
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				2.03	0.29 U	0.26 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.32 U	0.29 U	0.26 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				1.09	0.16 U	0.56
PCB16	2,2',3-TRICHLOROBIPHENYL				0.41 U	0.38 U	1.57
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				2.17	0.57 J	1.17
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.14 U	0.13 U	0.12 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.12 U	0.11 U	0.1 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.05 U	0.97 U	0.88 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.22 U	0.2 U	0.18 U

PCB17	2,2',4-TRICHLOROBIPHENYL				2.08	0.48 J	2.45
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				1.96	0.21 U	1.33
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.47 J	0.18 U	0.16 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.16 U	0.15 U	0.13 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				1.52	0.27 U	1.11
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.13 U	0.12 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.92	0.17 U	0.16 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.28 U	0.26 U	0.23 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.37 J	0.17 U	0.16 U
PCB18	2,2',5-TRICHLOROBIPHENYL				2.69	0.28 J	3.13
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				2.98	0.31 U	1.87
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				1.05	0.15 U	0.57
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.13 U	0.12 U	0.11 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.21 U	0.19 U	0.17 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				1.54	0.52 J	0.87
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.22 U	0.2 U	0.18 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.67	0.27 U	0.34 J
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.83	0.2 U	0.18 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.25 J	0.12 U	0.11 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				1.27	0.37 U	0.34 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.17 U	0.16 U	0.14 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.97	0.28 U	0.26 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.21 U	0.19 U	0.17 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.16 U	0.15 U	0.13 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.14 U	0.13 U	0.12 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				1.33	0.19 U	0.17 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.21 U	0.19 U	0.17 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.33 U	0.3 U	0.27 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.16 U	0.15 U	0.14 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				2.33	0.28 U	0.26 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.16 U	0.53 J	1.22
PCB25	2,3',4-TRICHLOROBIPHENYL				1.78	0.39 U	1.1
PCB26	2,3',5-TRICHLOROBIPHENYL				2.12	0.13 U	1.4

PCB27	2,3',6-TRICHLOROBIPHENYL				0.18 U	0.16 U	0.65
PCB28	2,4,4'-TRICHLOROBIPHENYL				3.47	1.15	4.48
PCB3	4-CHLOROBIPHENYL				0.33 U	0.3 U	0.27 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.26 U	0.24 U	0.22 U
PCB31	2,4',5-TRICHLOROBIPHENYL				3.62	1.14	4.4
PCB32	2,4',6-TRICHLOROBIPHENYL				1.26	0.24 U	1.31
PCB33	2',3,4-TRICHLOROBIPHENYL				1.65	0.3 U	2.13
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.41 U	0.38 U	0.34 U
PCB4	2,2'-DICHLOROBIPHENYL				1.8	0.41 J	1.1
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.47 U	0.43 U	0.39 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.55 J	0.37 U	0.33 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				1.64	0.28 U	1.5
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.36 U	0.33 U	0.3 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				4.25	1.06	6.51
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.2 U	0.19 U	0.17 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.28 U	0.26 U	0.24 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				1.25	0.38 J	2.05
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.25 J	0.25 U	0.6
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				3.38	0.94	4
PCB5	2,3-DICHLOROBIPHENYL				0.21 U	0.2 U	0.18 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.37 J	0.14 U	0.13 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				3.72	0.89	4.16
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.79	0.16 U	0.59
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.33 J	0.3 J	0.2 U
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				1.22	0.19 U	2.15
PCB6	2,3'-DICHLOROBIPHENYL				1.33	0.48 J	0.82
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.82	0.22 U	1.08
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				1.45	0.39 J	1.6
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				2.97	1.26	4.43
PCB7	2,4-DICHLOROBIPHENYL				0.34 U	0.31 U	0.28 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				3.24	1.14	4.69
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				1.29	0.16 U	1.34
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				1.5	0.45 J	2.33
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.32 U	0.29 U	0.26 U
PCB8	2,4'-DICHLOROBIPHENYL				1.43	0.35 J	1.27
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.2 U	0.18 U	1.79
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.2 U	0.18 U	1.12
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.21 U	0.19 U	0.17 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				1.21	0.3 U	1.45

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.54 U	0.5 U	0.45 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				2.35	0.17 U	1.55
PCB9	2,5-DICHLOROBIPHENYL				0.39 U	0.36 U	0.33 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.79	0.26 U	0.99
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				1.4	0.22 U	1.1
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				3.48	0.56 J	3.3
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				1.85	0.24 U	1.47
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				2.34	0.49 J	2.17
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				138.78	20.45	113.81
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				1.37	0.68	1.14
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				6.31	1.24	3.19
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				21.67	3.58	24.18
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				29.02	6.81	38.82
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				33.79	4.61	28.1
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				31.16	3.01	12.63
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				11.89	0.52	5.75
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				3.57	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				3.57	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	138.78	20.45	113.81

Units are µg/kg

				Sampling Area >	Sway Bridge B1	Biological Survey	Biological Survey
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-59S (0-0.5) LR**	**LMR21-61S (0-0.5) LR**	**LMR21-62S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				1.37	0.9	0.77
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.2 U	0.2 U	0.19 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				2.93	3.4	1.39
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.88	1.01	1
PCB11	3,3'-DICHLOROBIPHENYL				0.31 U	0.31 U	0.29 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				3.02	3.94	1.61
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.2 U	0.2 U	0.19 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.33 U	0.32 U	0.31 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				2.52	3	1.35
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.25 U	1.25	0.24 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.16 U	0.7	0.15 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.26 U	0.26 U	0.25 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.52 U	0.51 U	0.49 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.25 U	0.24 U	0.23 U
PCB13	3,4'-DICHLOROBIPHENYL				0.39 J	0.17 U	0.38 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.23 U	0.23 U	0.22 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.23 U	0.23 U	0.22 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.15 U	0.15 U	0.15 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.44 J	0.4 J	0.12 U
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.34 U	0.34 U	0.33 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				2.17	2.07	0.78
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.17 U	0.17 U	0.16 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.18 U	0.18 U	0.18 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.38 U	0.74	0.36 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				1.59	2.15	0.96
PCB15	4,4'-DICHLOROBIPHENYL				0.66	0.31 U	0.51 J
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.22 U	0.21 U	0.21 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				1.9	2.38	0.81
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.31 U	0.31 U	0.29 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.31 U	0.31 U	0.29 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.17 U	0.17 U	0.16 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.91	0.4 U	0.53 J
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				0.95	1.04	0.8
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.14 U	0.13 U	0.13 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.12 U	0.12 U	0.11 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.03 U	1.02 U	0.98 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.22 U	0.21 U	0.21 U

PCB17	2,2',4-TRICHLOROBIPHENYL				2.04	2.05	0.96
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.23 U	0.23 U	0.22 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.19 U	0.19 U	0.18 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.15 U	0.15 U	0.15 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.28 U	0.61 J	0.27 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.13 U	0.13 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.18 U	0.18 U	0.18 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.27 U	0.27 U	0.26 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.18 U	0.18 J	0.18 U
PCB18	2,2',5-TRICHLOROBIPHENYL				1.55	2.57	0.93
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				1.43	1.83	1.28
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.16 U	0.78	0.15 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.13 U	0.13 U	0.12 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.2 U	0.2 U	0.19 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.09 U	1.03	0.56 J
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.22 U	0.21 U	0.21 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.33 J	0.28 J	0.28 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.21 U	0.21 U	0.2 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.13 U	0.13 U	0.12 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.39 U	0.39 U	0.38 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.17 U	0.17 U	0.16 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.3 U	0.3 U	0.29 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.2 U	0.2 U	0.19 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.15 U	0.15 U	0.15 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.14 U	0.13 U	0.13 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.2 U	0.2 U	0.19 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.2 U	0.2 U	0.19 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.32 U	0.32 U	0.3 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.15 U	0.15 U	0.14 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.16 U	0.16 U	0.15 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.15 U	0.15 U	0.14 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.3 U	3.26	0.29 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.68	0.15 U	0.83
PCB25	2,3',4-TRICHLOROBIPHENYL				1.63	0.83	0.4 U
PCB26	2,3',5-TRICHLOROBIPHENYL				1.56	1.32	0.14 U

PCB27	2,3',6-TRICHLOROBIPHENYL				0.17 U	0.17 U	0.16 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				3.01	4.3	1.94
PCB3	4-CHLOROBIPHENYL				0.32 U	0.32 U	0.3 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.25 U	0.25 U	0.24 U
PCB31	2,4',5-TRICHLOROBIPHENYL				2.74	4.51	1.76
PCB32	2,4',6-TRICHLOROBIPHENYL				1.29	0.73	0.44 J
PCB33	2',3,4-TRICHLOROBIPHENYL				0.32 U	2.18	0.88
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.4 U	0.4 U	0.38 U
PCB4	2,2'-DICHLOROBIPHENYL				1.66	0.73	0.43 J
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.46 U	0.45 U	0.43 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.39 U	0.39 U	0.37 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				1.16	1.87	0.6
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.35 U	0.35 U	0.33 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				2.49	6.32	2.32
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.2 U	0.49 J	0.19 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.28 U	0.28 U	0.26 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				0.97	2.31	0.78
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.26 U	1.11	0.25 U
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				2.43	3.31	1.56
PCB5	2,3-DICHLOROBIPHENYL				0.21 U	0.21 U	0.2 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.15 U	0.15 U	0.14 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				2.98	3.79	1.61
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.52 J	0.7	0.16 U
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.31 J	0.47 J	0.28 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.2 U	2.62	1.06
PCB6	2,3'-DICHLOROBIPHENYL				1.13	0.08 U	0.08 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.23 U	1.5	0.22 U
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.87	1.96	0.66
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				2.27	4.63	2.01
PCB7	2,4-DICHLOROBIPHENYL				0.98	0.33 U	0.32 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				2.34	4.47	1.62
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				0.9	1.27	0.72
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				0.76	2.12	0.95
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.31 U	0.31 U	0.29 U
PCB8	2,4'-DICHLOROBIPHENYL				1.05	1.01	0.42 J
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.19 U	0.19 U	0.18 U
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.19 U	0.19 U	0.18 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.2 U	0.2 U	0.19 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.92	1.11	0.3 U

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.53 U	0.53 U	0.5 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				1.14	1.44	0.17 U
PCB9	2,5-DICHLOROBIPHENYL				0.38 U	0.38 U	0.36 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.63	0.62	0.43 J
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.73	1.02	0.22 U
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				2.24	2.83	0.97
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				1.18	1.07	0.24 U
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				1.18	1.77	0.81
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				66.83	99.98	37.7
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				1.37	0.9	0.77
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				5.87	1.74	1.74
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				15.74	22.03	8.27
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				18	38.94	14.17
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				17.37	23.16	7.56
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				7.05	8.78	3.35
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				1.43	4.43	1.84
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	66.83	99.98	37.7

Units are µg/kg

			Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-64S (0-0.5) LR**	**LMR21-66S (0-0.5) LR**	**LMR21-68S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				0.22 U	0.33 J	0.2 U
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				1.26	1.6	1.89
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.32 U	0.74	0.29 U
PCB11	3,3'-DICHLOROBIPHENYL				0.33 U	0.31 U	0.3 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				1.08	1.98	2.05
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.35 U	0.33 U	0.32 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.2	1.65	1.66
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.27 U	0.26 U	0.25 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.17 U	0.16 U	0.16 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.28 U	0.26 U	0.26 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.56 U	0.53 U	0.51 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.27 U	0.25 U	0.24 U
PCB13	3,4'-DICHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.25 U	0.23 U	0.22 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.25 U	0.24 U	0.23 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.13 U	0.13 U	0.36 J
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.37 U	0.35 U	0.34 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				0.68	0.87	1.34
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.2 U	0.19 U	0.18 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.42 U	0.39 U	0.38 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				0.86	0.91	1.25
PCB15	4,4'-DICHLOROBIPHENYL				0.33 U	0.31 U	0.3 U
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.23 U	0.22 U	0.21 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				0.81	1.19	1.42
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.33 U	0.31 U	0.3 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.33 U	0.31 U	0.3 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.44 U	0.41 U	0.4 U
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				0.25 U	0.23 U	0.67
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.13 U	0.12 U	0.12 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.12 U	1.05 U	1.01 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.23 U	0.22 U	0.21 U

PCB17	2,2',4-TRICHLOROBIPHENYL				0.6 J	1.11	1.33
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.25 U	0.23 U	0.22 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.21 U	0.19 U	0.19 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.31 U	0.29 U	0.28 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.2 U	0.19 U	0.18 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.29 U	0.28 U	0.27 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.2 U	0.19 U	0.18 U
PCB18	2,2',5-TRICHLOROBIPHENYL				0.58 J	0.89	1.77
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				0.36 U	1.23	1.42
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.17 U	0.16 U	0.16 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.14 U	0.13 U	0.13 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.6 J	0.09 U	0.76
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.23 U	0.22 U	0.21 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.31 U	0.29 U	0.28 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.23 U	0.21 U	0.21 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.14 U	0.13 U	0.13 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.43 U	0.4 U	0.39 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.18 U	0.17 U	0.16 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.33 U	0.31 U	0.3 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.17 U	0.16 U	0.15 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.15 U	0.14 U	0.13 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.21 U	0.2 U	0.19 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.35 U	0.33 U	0.32 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.16 U	0.15 U	0.15 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.17 U	0.16 U	0.16 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.16 U	0.15 U	0.15 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.33 U	1.42	0.3 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.47 J	0.54 J	0.15 U
PCB25	2,3',4-TRICHLOROBIPHENYL				0.45 U	0.43 U	0.41 U
PCB26	2,3',5-TRICHLOROBIPHENYL				0.15 U	0.14 U	0.14 U

PCB27	2,3',6-TRICHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				1.5	1.97	2.5
PCB3	4-CHLOROBIPHENYL				0.35 U	0.33 U	0.32 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.27 U	0.26 U	0.25 U
PCB31	2,4',5-TRICHLOROBIPHENYL				1.29	1.62	2.53
PCB32	2,4',6-TRICHLOROBIPHENYL				0.27 U	0.26 U	0.25 U
PCB33	2',3,4-TRICHLOROBIPHENYL				1.07	0.94	1.4
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.44 U	0.41 U	0.4 U
PCB4	2,2'-DICHLOROBIPHENYL				0.15 U	0.36 J	0.66
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.5 U	0.46 U	0.45 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.42 U	0.4 U	0.38 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.33 U	0.42 J	0.3 U
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.38 U	0.36 U	0.35 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				1.78	2.1	4.09
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.21 U	0.4 J	0.19 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.3 U	0.28 U	0.27 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				0.55 J	0.51 J	0.91
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.29 U	0.37 J	0.74
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				1.39	1.46	2.16
PCB5	2,3-DICHLOROBIPHENYL				0.23 U	0.21 U	0.21 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.16 U	0.15 U	0.15 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				0.58 J	1.5	2.06
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.19 U	0.18 U	0.17 U
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.33 J	0.27 J	0.23 U
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.21 U	0.91	1.43
PCB6	2,3'-DICHLOROBIPHENYL				0.09 U	0.08 U	0.08 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.25 U	0.24 U	0.23 U
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.27 J	0.59 J	0.94
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.43	2.07	2.5
PCB7	2,4-DICHLOROBIPHENYL				0.36 U	0.34 U	0.33 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				1.17	1.69	2.36
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				0.18 U	0.8	0.97
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				0.48 J	0.73	1.64
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.33 U	0.31 U	0.3 U
PCB8	2,4'-DICHLOROBIPHENYL				0.41 J	0.58 J	0.7
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.21 U	1.11	3.4
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.21 U	0.19 U	0.19 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.22 U	0.21 U	0.2 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.34 U	0.58 J	0.61

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.58 U	0.54 U	0.52 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.19 U	0.56 J	0.18 U
PCB9	2,5-DICHLOROBIPHENYL				0.42 U	0.39 U	0.38 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.37 J	0.28 U	0.27 U
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.25 U	0.27 J	0.46 J
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.67 J	0.98	1.52
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				0.27 U	0.74	0.72
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				0.5 J	0.74	1.4
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				21.93	38.73	51.62
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U	U	U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				U	0.33	U
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				0.41	0.94	1.36
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				5.51	8.49	9.53
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				7.98	14.93	23.2
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				5.08	9.84	10.31
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				2.35	2.97	5.04
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				0.6	1.23	2.18
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U	U	U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U	U	U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	21.93	38.73	51.62

Units are µg/kg

			Sampling Area >		Reference
PARLABEL	NAME	TEC	PEC	REGION4_ESV	**LMR21-69S (0-0.5) LR**
PCB1	2-CHLOROBIPHENYL				0.81
PCB100	2,2',4,4',6-PENTACHLOROBIPHENYL				0.22 U
PCB101	2,2',4,5,5'-PENTACHLOROBIPHENYL				1.18
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL				0.32 U
PCB11	3,3'-DICHLOROBIPHENYL				0.33 U
PCB110	2,3,3',4',6-PENTACHLOROBIPHENYL				1.1
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL				0.22 U
PCB115	2,3,4,4',6-PENTACHLOROBIPHENYL				0.35 U
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL				1.11
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL				0.27 U
PCB124	2',3,4,5,5'-PENTACHLOROBIPHENYL				0.17 U
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL				0.28 U
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL				0.55 U
PCB128	2,2',3,3',4,4'-HEXACHLOROBIPHENYL				0.26 U
PCB13	3,4'-DICHLOROBIPHENYL				0.18 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL				0.24 U
PCB134	2,2',3,3',5,6-HEXACHLOROBIPHENYL				0.25 U
PCB135	2,2',3,3',5,6'-HEXACHLOROBIPHENYL				0.17 U
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL				0.13 U
PCB137	2,2',3,4,4',5-HEXACHLOROBIPHENYL				0.37 U
PCB138	2,2',3,4,4',5'-HEXACHLOROBIPHENYL				0.82
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL				0.18 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL				0.2 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL				0.41 U
PCB149	2,2',3,4',5',6-HEXACHLOROBIPHENYL				0.77
PCB15	4,4'-DICHLOROBIPHENYL				0.33 U
PCB151	2,2',3,5,5',6-HEXACHLOROBIPHENYL				0.23 U
PCB153	2,2',4,4',5,5'-HEXACHLOROBIPHENYL				0.96
PCB156	2,3,3',4,4',5-HEXACHLOROBIPHENYL				0.33 U
PCB157	2,3,3',4,4',5'-HEXACHLOROBIPHENYL				0.33 U
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL				0.18 U
PCB16	2,2',3-TRICHLOROBIPHENYL				0.43 U
PCB163	2,3,3',4',5,6-HEXACHLOROBIPHENYL				0.7
PCB164	2,3,3',4',5',6-HEXACHLOROBIPHENYL				0.15 U
PCB166	2,3,4,4',5,6-HEXACHLOROBIPHENYL				0.13 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL				1.1 U
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL				0.23 U

PCB17	2,2',4-TRICHLOROBIPHENYL				0.28 U
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL				0.24 U
PCB171	2,2,3,3,4,4,6-HEPTACHLOROBIPHENYL				0.2 U
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL				0.17 U
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL				0.3 U
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL				0.15 U
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL				0.2 U
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL				0.29 U
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL				0.2 U
PCB18	2,2',5-TRICHLOROBIPHENYL				0.18 U
PCB180	2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL				1.2
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL				0.17 U
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL				0.14 U
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL				0.22 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL				0.1 U
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL				0.23 U
PCB19	2,2',6-TRICHLOROBIPHENYL				0.31 U
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL				0.22 U
PCB193	2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL				0.14 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL				0.42 U
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL				0.18 U
PCB199	2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL				0.32 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL				0.22 U
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL				0.17 U
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL				0.15 U
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL				0.21 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL				0.22 U
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL				0.34 U
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL				0.16 U
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL				0.17 U
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL				0.16 U
PCB22	2,3,4'-TRICHLOROBIPHENYL				0.32 U
PCB24	2,3,6-TRICHLOROBIPHENYL				0.17 U
PCB25	2,3',4-TRICHLOROBIPHENYL				0.45 U
PCB26	2,3',5-TRICHLOROBIPHENYL				0.15 U

PCB27	2,3',6-TRICHLOROBIPHENYL				0.18 U
PCB28	2,4,4'-TRICHLOROBIPHENYL				0.96
PCB3	4-CHLOROBIPHENYL				0.34 U
PCB30	2,4,6-TRICHLOROBIPHENYL				0.27 U
PCB31	2,4',5-TRICHLOROBIPHENYL				0.76
PCB32	2,4',6-TRICHLOROBIPHENYL				0.27 U
PCB33	2',3,4-TRICHLOROBIPHENYL				0.34 U
PCB37	3,4,4'-TRICHLOROBIPHENYL				0.43 U
PCB4	2,2'-DICHLOROBIPHENYL				0.15 U
PCB40	2,2',3,3'-TETRACHLOROBIPHENYL				0.49 U
PCB41	2,2',3,4-TETRACHLOROBIPHENYL				0.42 U
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL				0.32 U
PCB43	2,2',3,5-TETRACHLOROBIPHENYL				0.38 U
PCB44	2,2',3,5'-TETRACHLOROBIPHENYL				0.95
PCB45	2,2',3,6-TETRACHLOROBIPHENYL				0.21 U
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL				0.3 U
PCB47	2,2,4,4-TETRACHLOROBIPHENYL				0.22 U
PCB48	2,2',4,5-TETRACHLOROBIPHENYL				0.09 J
PCB49	2,2',4,5'-TETRACHLOROBIPHENYL				0.76
PCB5	2,3-DICHLOROBIPHENYL				0.22 U
PCB51	2,2',4,6'-TETRACHLOROBIPHENYL				0.16 U
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL				0.92
PCB53	2,2',5,6'-TETRACHLOROBIPHENYL				0.18 U
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL				0.25 U
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL				0.47 J
PCB6	2,3'-DICHLOROBIPHENYL				0.09 U
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL				0.25 U
PCB64	2,3,4',6-TETRACHLOROBIPHENYL				0.29 J
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL				1.24
PCB7	2,4-DICHLOROBIPHENYL				0.36 U
PCB70	2,3',4',5-TETRACHLOROBIPHENYL				0.83
PCB71	2,3',4',6-TETRACHLOROBIPHENYL				0.18 U
PCB74	2,4,4',5-TETRACHLOROBIPHENYL				0.28 U
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL				0.33 U
PCB8	2,4'-DICHLOROBIPHENYL				0.53 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL				0.2 U
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL				0.2 U
PCB83	2,2',3,3',5-PENTACHLOROBIPHENYL				0.22 U
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL				0.34 U

PCB85	2,2',3,4,4'-PENTACHLOROBIPHENYL				0.57 U
PCB87	2,2',3,4,5'-PENTACHLOROBIPHENYL				0.19 U
PCB9	2,5-DICHLOROBIPHENYL				0.41 U
PCB91	2,2',3,4',6-PENTACHLOROBIPHENYL				0.3 U
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL				0.25 U
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL				0.53 J
PCB97	2,2',3',4,5-PENTACHLOROBIPHENYL				0.27 U
PCB99	2,2',4,4',5-PENTACHLOROBIPHENYL				0.51 J
PCCTOT_CLSUM	TOTAL PCB CONGENERS SUM OF ALL				16.96
PCCTOT-10CL	TOTAL PCB CONGENERS 10 CHLORINE				U
PCCTOT-1CL	TOTAL PCB CONGENERS 1 CHLORINE ATOM				0.81
PCCTOT-2CL	TOTAL PCB CONGENERS 2 CHLORINE				U
PCCTOT-3CL	TOTAL PCB CONGENERS 3 CHLORINE				1.72
PCCTOT-4CL	TOTAL PCB CONGENERS 4 CHLORINE				5.55
PCCTOT-5CL	TOTAL PCB CONGENERS 5 CHLORINE				4.43
PCCTOT-6CL	TOTAL PCB CONGENERS 6 CHLORINE				3.25
PCCTOT-7CL	TOTAL PCB CONGENERS 7 CHLORINE				1.2
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U
PCCTOT-8CL	TOTAL PCB CONGENERS 8 CHLORINE				U
PCCTOT-9CL	TOTAL PCB CONGENERS 9 CHLORINE				U
	TOTAL PCB CONGENERS (ND SET TO 0)	59.8	676	59.8	16.96

Units are µg/kg

		Sampling Area >		WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1
NAME	TEC	PEC	REGION4_ ESV	**LMR21-01C (0-1)**	**LMR21-01C (1-4)**	**LMR21-01C (4-7)**	**LMR21-01C (7-8)**	**LMR21-02C (0-1)**	**LMR21-02C (1-4)**	**LMR21-02C (4-7)**
PCB-1016 (AROCHLOR 1016)				25.2 U	17.2 U	14.7 U	14 U	21 U	17.2 U	16 U
PCB-1221 (AROCHLOR 1221)				25.2 U	17.2 U	14.7 U	14 U	21 U	17.2 U	16 U
PCB-1232 (AROCHLOR 1232)				25.2 U	17.2 U	14.7 U	14 U	21 U	17.2 U	16 U
PCB-1242 (AROCHLOR 1242)				25.2 U	17.2 U	14.7 U	14 U	21 U	17.2 U	16 U
PCB-1248 (AROCHLOR 1248)				25.2 U	112	14.7 U	14 U	719	17.2 U	16 U
PCB-1254 (AROCHLOR 1254)				25.2 U	86.7	14.7 U	14 U	404	24 J	16 U
PCB-1260 (AROCHLOR 1260)				25.2 U	22.6 J	14.7 U	14 U	21 U	17.9 J	16 U
PCB, TOTAL	59.8	676	59.8	54.7 J	221	14.7 U	14 U	1120	41.8 J	16 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	221.3	0	0	1123	41.9	0

Units are µg/kg

		Sampling Area >		WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP B2	WWTP B2
NAME	TEC	PEC	REGION4_ ESV	LMR21-02C (7-8)	LMR21-03C (0-1)	LMR21-03C (1-4)	LMR21-03C (1-4) FD	LMR21-03C (4-7)	LMR21-04C (0-1)	LMR21-04C (1-4)
PCB-1016 (AROCHLOR 1016)				16.2 U	20.3 U	17.3 U	17.7 U	14.9 U	19.5 U	16.1 U
PCB-1221 (AROCHLOR 1221)				16.2 U	20.3 U	17.3 U	17.7 U	14.9 U	19.5 U	16.1 U
PCB-1232 (AROCHLOR 1232)				16.2 U	20.3 U	17.3 U	17.7 U	14.9 U	19.5 U	16.1 U
PCB-1242 (AROCHLOR 1242)				16.2 U	20.3 U	17.3 U	17.7 U	14.9 U	19.5 U	16.1 U
PCB-1248 (AROCHLOR 1248)				16.2 U	61.3 J	17.3 U	17.7 U	14.9 U	64.1 J	16.1 U
PCB-1254 (AROCHLOR 1254)				16.2 U	50.1 J	17.3 U	17.7 U	14.9 U	63.9 J	16.1 U
PCB-1260 (AROCHLOR 1260)				16.2 U	21.8 J	17.3 U	17.7 U	14.9 U	25.6 J	16.1 U
PCB, TOTAL	59.8	676	59.8	16.2 U	133	17.3 U	20.7 J	14.9 U	153	16.1 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	133.2	0	0	0	153.6	0

Units are µg/kg

Table A1.5c Discrete Sediment Core Sample Results for Polychlorinated Biphenyls

			Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	REGION4_ ESV	LMR21-04C (4-7)	LMR21-05C (0-1)	LMR21-05C (1-4)	LMR21-05C (4-7)	LMR21-05C (7-8)	LMR21-06C (0-1)	LMR21-06C (1-4)
PCB-1016 (AROCHLOR 1016)				13.7 UJ	24.5 U	18.3 U	18 U	17.6 U	22.7 U	18.5 U
PCB-1221 (AROCHLOR 1221)				13.7 UJ	24.5 U	18.3 U	18 U	17.6 U	22.7 U	18.5 U
PCB-1232 (AROCHLOR 1232)				13.7 UJ	24.5 U	18.3 U	18 U	17.6 U	22.7 U	18.5 U
PCB-1242 (AROCHLOR 1242)				13.7 UJ	24.5 U	18.3 U	18 U	17.6 U	22.7 U	18.5 U
PCB-1248 (AROCHLOR 1248)				13.7 UJ	24.5 U	21 J	37.2 J	38.6 J	22.7 U	91.5
PCB-1254 (AROCHLOR 1254)				13.7 UJ	24.5 U	18.3 U	25.4 J	29.1 J	22.7 U	60.1 J
PCB-1260 (AROCHLOR 1260)				13.7 UJ	24.5 U	18.3 U	18 U	17.6 U	22.7 U	19.6 J
PCB, TOTAL	59.8	676	59.8	13.7 UJ	32.8 J	44.8 J	70.6	74.2	28.2 J	171
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	21	62.6	67.7	0	171.2

Units are µg/kg

		Sampling Area >		WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	REGION4_ ESV	LMR21-06C (4-6.3)	LMR21-07C (0-1)	LMR21-07C (1-4)	LMR21-07C (4-7)	LMR21-07C (7-8)	LMR21-08C (0-1)	LMR21-08C (1-4)
PCB-1016 (AROCHLOR 1016)				16.2 U	17.1 U	15.7 U	15.7 U	13.3 U	22.7 U	15.2 U
PCB-1221 (AROCHLOR 1221)				16.2 U	17.1 U	15.7 U	15.7 U	13.3 U	22.7 U	15.2 U
PCB-1232 (AROCHLOR 1232)				16.2 U	17.1 U	15.7 U	15.7 U	13.3 U	22.7 U	15.2 U
PCB-1242 (AROCHLOR 1242)				16.2 U	17.1 U	15.7 U	15.7 U	13.3 U	22.7 U	15.2 U
PCB-1248 (AROCHLOR 1248)				239	17.1 U	15.7 U	15.7 U	13.3 U	22.7 U	15.2 U
PCB-1254 (AROCHLOR 1254)				145	17.1 U	15.7 U	15.7 U	13.3 U	22.7 U	15.2 U
PCB-1260 (AROCHLOR 1260)				29 J	17.1 U	15.7 U	15.7 U	13.3 U	22.7 U	15.2 U
PCB, TOTAL	59.8	676	59.8	413	21.6 J	15.7 U	15.7 U	13.3 U	48.3 J	15.2 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	413	0	0	0	0	0	0

Units are µg/kg

		Sampling Area >		WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	TEC	PEC	REGION4_ ESV	**LMR21-08C (4-7)**	**LMR21-08C (7-8.1)**	**LMR21-09C (0-1)**	**LMR21-09C (1-4)**	**LMR21-09C (4-7)**	**LMR21-09C (4-7) FD**	**LMR21-09C (7-7.5)**
PCB-1016 (AROCHLOR 1016)				15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
PCB-1221 (AROCHLOR 1221)				15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
PCB-1232 (AROCHLOR 1232)				15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
PCB-1242 (AROCHLOR 1242)				15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
PCB-1248 (AROCHLOR 1248)				15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
PCB-1254 (AROCHLOR 1254)				15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
PCB-1260 (AROCHLOR 1260)				15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
PCB, TOTAL	59.8	676	59.8	15.3 UJ	14.3 U	16.1 UJ	15.3 U	15.7 U	15.5 U	15.3 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	0	0	0	0

Units are µg/kg

		Sampling Area >		WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	TEC	PEC	REGION4_ ESV	LMR21-10C (0-1)	LMR21-10C (1-4)	LMR21-10C (4-7)	LMR21-10C (7-8.5)	LMR21-11C (0-1)	LMR21-11C (1-4)	LMR21-11C (4-7)
PCB-1016 (AROCHLOR 1016)				20.9 UJ	15 U	14.6 U	14.8 UJ	14.7 UJ	14.4 U	13.7 UJ
PCB-1221 (AROCHLOR 1221)				20.9 UJ	15 U	14.6 U	14.8 UJ	14.7 UJ	14.4 U	13.7 UJ
PCB-1232 (AROCHLOR 1232)				20.9 UJ	15 U	14.6 U	14.8 UJ	14.7 UJ	14.4 U	13.7 UJ
PCB-1242 (AROCHLOR 1242)				20.9 UJ	15 U	14.6 U	14.8 UJ	14.7 UJ	14.4 U	13.7 UJ
PCB-1248 (AROCHLOR 1248)				382 J-	929	40.9 J	14.8 UJ	28.2 J-	146	13.7 UJ
PCB-1254 (AROCHLOR 1254)				317 J-	15 U	19.6 J	14.8 UJ	15.1 J-	51.3 J	13.7 UJ
PCB-1260 (AROCHLOR 1260)				64.8 J-	15 U	14.6 U	14.8 UJ	14.7 UJ	18.1 J	13.7 UJ
PCB, TOTAL	59.8	676	59.8	764	929	65.4	14.8 UJ	50.8	216	13.7 UJ
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	763.8	929	60.5	0	43.3	215.4	0

Units are µg/kg

		Sampling Area >		WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A1
NAME	TEC	PEC	REGION4_ ESV	**LMR21-11C (7-9)**	**LMR21-12C (0-1)**	**LMR21-12C (10-13)**	**LMR21-12C (1-4)**	**LMR21-12C (4-7)**	**LMR21-12C (7-10)**	**LMR21-13C (0-1)**
PCB-1016 (AROCHLOR 1016)				14.2 U	22.8 U	14.3 UJ	16.9 U	17.5 UJ	16.5 U	16.4 U
PCB-1221 (AROCHLOR 1221)				14.2 U	22.8 U	14.3 UJ	16.9 U	17.5 UJ	16.5 U	16.4 U
PCB-1232 (AROCHLOR 1232)				14.2 U	22.8 U	14.3 UJ	16.9 U	17.5 UJ	16.5 U	16.4 U
PCB-1242 (AROCHLOR 1242)				14.2 U	22.8 U	14.3 UJ	16.9 U	17.5 UJ	16.5 U	16.4 U
PCB-1248 (AROCHLOR 1248)				14.2 U	22.8 U	49.5 J-	24.1 J	41.8 J-	62.2	190
PCB-1254 (AROCHLOR 1254)				14.2 U	22.8 U	37.2 J-	16.9 U	29 J-	38 J	99.3
PCB-1260 (AROCHLOR 1260)				14.2 U	22.8 U	14.3 UJ	16.9 UJ	17.5 UJ	16.5 U	32 J
PCB, TOTAL	59.8	676	59.8	14.2 U	30.9 J	96	44.5 J	70.7	100	322
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	86.7	24.1	70.8	100.2	321.3

Units are µg/kg

		Sampling Area >		WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	REGION4_ ESV	**LMR21-13C (1-4)**	**LMR21-13C (1-4) FD**	**LMR21-13C (4-7)**	**LMR21-13C (7-9)**	**LMR21-14C (0-1)**	**LMR21-14C (1-4)**	**LMR21-14C (4-7)**
PCB-1016 (AROCHLOR 1016)				15.3 UJ	15.5 U	14.5 UJ	15.6 UJ	17.4 U	13.7 U	14 U
PCB-1221 (AROCHLOR 1221)				15.3 UJ	15.5 U	14.5 UJ	15.6 UJ	17.4 U	13.7 U	14 U
PCB-1232 (AROCHLOR 1232)				15.3 UJ	15.5 U	14.5 UJ	15.6 UJ	17.4 U	13.7 U	14 U
PCB-1242 (AROCHLOR 1242)				15.3 UJ	15.5 U	14.5 UJ	15.6 UJ	17.4 U	13.7 U	14 U
PCB-1248 (AROCHLOR 1248)				145 J-	136	14.5 UJ	15.6 UJ	205	20.7 J	14 U
PCB-1254 (AROCHLOR 1254)				76.9 J-	71.3	14.5 UJ	15.6 UJ	161	16.2 J	14 U
PCB-1260 (AROCHLOR 1260)				15.3 UJ	17 J	14.5 UJ	15.6 UJ	32.3 J	13.7 UJ	14 U
PCB, TOTAL	59.8	676	59.8	232	224	14.5 UJ	15.6 UJ	398	42.9 J	14 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	221.9	224.3	0	0	398.3	36.9	0

Units are µg/kg

		Sampling Area >		WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	REGION4_ ESV	**LMR21-14C (7-10)**	**LMR21-14C (7-10) FD**	**LMR21-15C (0-1)**	**LMR21-15C (1-4)**	**LMR21-15C (1-4) FD**	**LMR21-15C (4-7)**	**LMR21-15C (4-7) FD**
PCB-1016 (AROCHLOR 1016)				14.4 U	13.9 U	24.6 U	24 UJ	23.5 U	24.7 UJ	23 UJ
PCB-1221 (AROCHLOR 1221)				14.4 U	13.9 U	24.6 U	24 UJ	23.5 U	24.7 UJ	23 UJ
PCB-1232 (AROCHLOR 1232)				14.4 U	13.9 U	24.6 U	24 UJ	23.5 U	24.7 UJ	23 UJ
PCB-1242 (AROCHLOR 1242)				14.4 U	13.9 U	24.6 U	24 UJ	23.5 U	24.7 UJ	23 UJ
PCB-1248 (AROCHLOR 1248)				14.4 U	13.9 U	522	716 J-	1370	5520	2990
PCB-1254 (AROCHLOR 1254)				14.4 U	13.9 U	297	526 J-	971	3110	2040 J-
PCB-1260 (AROCHLOR 1260)				14.4 U	13.9 U	97.6	119 J-	226	1150 J-	639 J-
PCB, TOTAL	59.8	676	59.8	14.4 U	13.9 U	917	1360	2560	9710	5830
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	916.6	1361	2567	9780	5669

Units are µg/kg

		Sampling Area >		WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	TEC	PEC	REGION4_ ESV	LMR21-15C (7-10)	LMR21-16C (0-1)	LMR21-16C (1-4)	LMR21-16C (4-7)	LMR21-16C (4-7) FD	LMR21-16C (7-11)	LMR21-17C (0-1)
PCB-1016 (AROCHLOR 1016)				15.4 U	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	16.2 UJ
PCB-1221 (AROCHLOR 1221)				15.4 U	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	16.2 UJ
PCB-1232 (AROCHLOR 1232)				15.4 U	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	16.2 UJ
PCB-1242 (AROCHLOR 1242)				15.4 U	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	16.2 UJ
PCB-1248 (AROCHLOR 1248)				5740	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	902 J-
PCB-1254 (AROCHLOR 1254)				2770	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	693 J-
PCB-1260 (AROCHLOR 1260)				15.4 U	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	141 J-
PCB, TOTAL	59.8	676	59.8	8510	16.9 UJ	16.3 UJ	14.6 U	15.6 U	13.7 UJ	1740
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	8510	0	0	0	0	0	1736

Units are µg/kg

Table A1.5c Discrete Sediment Core Sample Results for Polychlorinated Biphenyls

		Sampling Area >		WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A3	WWTP A3	WWTP A3
NAME	TEC	PEC	REGION4_ ESV	LMR21-17C (10-13)	LMR21-17C (1-4)	LMR21-17C (4-7)	LMR21-17C (7-10)	LMR21-18C (0-1)	LMR21-18C (10-12)	LMR21-18C (1-4)
PCB-1016 (AROCHLOR 1016)				13.5 U	17.1 U	17 U	16.3 U	17 U	16 UJ	17.8 U
PCB-1221 (AROCHLOR 1221)				13.5 U	17.1 U	17 U	16.3 U	17 U	16 UJ	17.8 U
PCB-1232 (AROCHLOR 1232)				13.5 U	17.1 U	17 U	16.3 U	17 U	16 UJ	17.8 U
PCB-1242 (AROCHLOR 1242)				13.5 U	17.1 U	17 U	16.3 U	17 U	16 UJ	17.8 U
PCB-1248 (AROCHLOR 1248)				13.5 U	70.4	17 U	16.3 U	1020	16 UJ	115
PCB-1254 (AROCHLOR 1254)				13.5 U	130	17 U	16.3 U	518	16 UJ	91 J
PCB-1260 (AROCHLOR 1260)				13.5 U	82.4	19.3 J	16.3 U	152	16 UJ	57.3 J
PCB, TOTAL	59.8	676	59.8	13.5 U	283	42.3 J	16.3 U	1690	19.1 J	263
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	282.8	19.3	0	1690	0	263.3

Units are µg/kg

		Sampling Area >		WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	TEC	PEC	REGION4_ ESV	LMR21-18C (4-7)	LMR21-18C (7-10)	LMR21-19C (0-1)	LMR21-19C (1-4)	LMR21-19C (4-7)	LMR21-19C (7-9)	LMR21-20C (0-1)
PCB-1016 (AROCHLOR 1016)				16.5 U	17.3 UJ	15.7 UJ	14.1 U	11.4 U	11.5 U	15 UJ
PCB-1221 (AROCHLOR 1221)				16.5 U	17.3 UJ	15.7 UJ	14.1 U	11.4 U	11.5 U	15 UJ
PCB-1232 (AROCHLOR 1232)				16.5 U	17.3 UJ	15.7 UJ	14.1 U	11.4 U	11.5 U	15 UJ
PCB-1242 (AROCHLOR 1242)				16.5 U	17.3 UJ	15.7 UJ	14.1 U	11.4 U	11.5 U	15 UJ
PCB-1248 (AROCHLOR 1248)				16.5 U	17.3 UJ	36.3 J-	14.1 U	11.4 U	11.5 U	441 J-
PCB-1254 (AROCHLOR 1254)				16.5 U	17.3 UJ	25.2 J-	14.1 U	11.4 U	11.5 U	363 J-
PCB-1260 (AROCHLOR 1260)				26.8 J	19.6 J-	15.7 UJ	14.1 U	11.4 U	11.5 U	76.5 J-
PCB, TOTAL	59.8	676	59.8	36 J	30.9 J	72.1	14.1 U	11.4 U	11.5 U	880
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	26.8	19.6	61.5	0	0	0	880.5

Units are µg/kg

		Sampling Area >		WWTP A3	WWTP A3	WWTP A3	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	TEC	PEC	REGION4_ ESV	**LMR21-20C (1-4)**	**LMR21-20C (4-7)**	**LMR21-20C (7-10)**	**LMR21-21C (0-1)**	**LMR21-21C (1-4)**	**LMR21-21C (1-4) FD**	**LMR21-21C (4-7)**
PCB-1016 (AROCHLOR 1016)				14.5 UJ	12.4 U	11.3 U	15.4 U	13.4 U	12.8 U	12.5 U
PCB-1221 (AROCHLOR 1221)				14.5 UJ	12.4 U	11.3 U	15.4 U	13.4 U	12.8 U	12.5 U
PCB-1232 (AROCHLOR 1232)				14.5 UJ	12.4 U	11.3 U	15.4 U	13.4 U	12.8 U	12.5 U
PCB-1242 (AROCHLOR 1242)				14.5 UJ	12.4 U	11.3 U	15.4 U	13.4 U	12.8 U	12.5 U
PCB-1248 (AROCHLOR 1248)				14.5 UJ	12.4 U	11.3 U	454	2570 J	483 J	92.5
PCB-1254 (AROCHLOR 1254)				14.5 UJ	12.4 U	11.3 U	222	1050 J	236 J	46.9
PCB-1260 (AROCHLOR 1260)				14.5 UJ	12.4 U	11.3 U	40.2 J	100	26.4 J	12.5 UJ
PCB, TOTAL	59.8	676	59.8	14.5 U	12.4 U	11.3 U	716	3910	746	147
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	716.2	3720	745.4	139.4

Units are µg/kg

		Sampling Area >		WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	TEC	PEC	REGION4_ ESV	LMR21-22C (0-1)	LMR21-22C (1-4)	LMR21-22C (4-6.5)	LMR21-22C (4-6.5) FD	LMR21-23C (0-1)	LMR21-23C (1-4)	LMR21-23C (4-6)
PCB-1016 (AROCHLOR 1016)				16.8 U	15.6 UJ	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
PCB-1221 (AROCHLOR 1221)				16.8 U	15.6 U	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
PCB-1232 (AROCHLOR 1232)				16.8 U	15.6 U	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
PCB-1242 (AROCHLOR 1242)				16.8 U	15.6 U	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
PCB-1248 (AROCHLOR 1248)				16.8 U	15.6 U	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
PCB-1254 (AROCHLOR 1254)				16.8 U	15.6 U	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
PCB-1260 (AROCHLOR 1260)				16.8 U	15.6 UJ	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
PCB, TOTAL	59.8	676	59.8	16.8 U	15.6 U	12.5 U	13.5 U	15.6 U	13.4 U	12.5 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	0	0	0	0

Units are µg/kg

		Sampling Area >		WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	TEC	PEC	REGION4_ ESV	LMR21-24C (0-1)	LMR21-24C (1-4)	LMR21-24C (4-8)	LMR21-25C (0-1)	LMR21-25C (1-4)	LMR21-25C (4-7)	LMR21-26C (0-1)
PCB-1016 (AROCHLOR 1016)				20.3 U	16.9 UJ	16.4 UJ	20 U	17.9 UJ	16.6 U	22.6 UJ
PCB-1221 (AROCHLOR 1221)				20.3 U	16.9 UJ	16.4 UJ	20 U	17.9 UJ	16.6 U	22.6 UJ
PCB-1232 (AROCHLOR 1232)				20.3 U	16.9 UJ	16.4 UJ	20 U	17.9 UJ	16.6 U	22.6 UJ
PCB-1242 (AROCHLOR 1242)				20.3 U	16.9 UJ	16.4 UJ	20 U	17.9 UJ	16.6 U	22.6 UJ
PCB-1248 (AROCHLOR 1248)				20.3 U	886 J-	603 J-	43.8 J	51.2 J-	346	22.6 UJ
PCB-1254 (AROCHLOR 1254)				20.3 U	542 J-	439 J-	33.4 J	37.3 J-	180	22.6 UJ
PCB-1260 (AROCHLOR 1260)				20.3 U	81 J-	69.9 J-	20 U	17.9 UJ	54.3 J	22.6 UJ
PCB, TOTAL	59.8	676	59.8	32.1 J	1510	1110	84.8	98.4	580	22.6 UJ
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	1509	1111.9	77.2	88.5	580.3	0

Units are µg/kg

		Sampling Area >		WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	Sway Bridge C
NAME	TEC	PEC	REGION4_ ESV	LMR21-26C (1-4)	LMR21-26C (4-8)	LMR21-27C (0-1)	LMR21-27C (1-3)	LMR21-28C (0-1)	LMR21-28C (1-4)	LMR21-29C (0-1)
PCB-1016 (AROCHLOR 1016)				17.8 UJ	16.8 UJ	25.4 U	17.6 UJ	24.6 UJ	16.8 U	17.6 U
PCB-1221 (AROCHLOR 1221)				17.8 UJ	16.8 UJ	25.4 U	17.6 UJ	24.6 UJ	16.8 U	17.6 U
PCB-1232 (AROCHLOR 1232)				17.8 UJ	16.8 UJ	25.4 U	17.6 UJ	24.6 UJ	16.8 U	17.6 U
PCB-1242 (AROCHLOR 1242)				17.8 UJ	16.8 UJ	25.4 U	17.6 UJ	24.6 UJ	16.8 U	17.6 U
PCB-1248 (AROCHLOR 1248)				25.2 J-	113 J-	25.4 U	36.9 J-	24.6 UJ	625	17.6 U
PCB-1254 (AROCHLOR 1254)				18.3 J-	76 J-	25.4 U	19.7 J-	24.6 UJ	334	17.6 U
PCB-1260 (AROCHLOR 1260)				17.8 UJ	16.8 UJ	25.4 U	17.6 UJ	24.6 UJ	54.2 J	17.6 U
PCB, TOTAL	59.8	676	59.8	43.5 J	204	34.5 J	62.8	31.4 J	1010	17.6 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	43.5	189	0	56.6	0	1013.2	0

Units are µg/kg

		Sampling Area >		Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	REGION4_ ESV	**LMR21-29C (1-4)**	**LMR21-29C (1-4) FD**	**LMR21-29C (4-6.5)**	**LMR21-29C (4-6.5) FD**	**LMR21-30C (0-1)**	**LMR21-30C (1-3)**	**LMR21-31C (0-1)**
PCB-1016 (AROCHLOR 1016)				13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
PCB-1221 (AROCHLOR 1221)				13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
PCB-1232 (AROCHLOR 1232)				13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
PCB-1242 (AROCHLOR 1242)				13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
PCB-1248 (AROCHLOR 1248)				13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
PCB-1254 (AROCHLOR 1254)				13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
PCB-1260 (AROCHLOR 1260)				13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
PCB, TOTAL	59.8	676	59.8	13.6 U	13 U	13 U	13.5 U	13.1 U	11.3 U	12.8 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	0	0	0	0

Units are µg/kg

Table A1.5c Discrete Sediment Core Sample Results for Polychlorinated Biphenyls

		Sampling Area >		Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	TEC	PEC	REGION4_ ESV	**LMR21-31C (1-4)**	**LMR21-32C (0-1)**	**LMR21-32C (1-5)**	**LMR21-33C (0-1)**	**LMR21-33C (1-5)**	**LMR21-34C (0-1)**	**LMR21-34C (1-4)**
PCB-1016 (AROCHLOR 1016)				12.9 U	23.4 UJ	12.6 U	11.8 U	11.3 U	19.4 UJ	18.2 UJ
PCB-1221 (AROCHLOR 1221)				12.9 U	23.4 UJ	12.6 U	11.8 U	11.3 U	19.4 UJ	18.2 UJ
PCB-1232 (AROCHLOR 1232)				12.9 U	23.4 UJ	12.6 U	11.8 U	11.3 U	19.4 UJ	18.2 UJ
PCB-1242 (AROCHLOR 1242)				12.9 U	23.4 UJ	12.6 U	11.8 U	11.3 U	19.4 UJ	18.2 UJ
PCB-1248 (AROCHLOR 1248)				12.9 U	30.4 J-	24.3 J	11.8 U	11.3 U	85 J-	18.2 UJ
PCB-1254 (AROCHLOR 1254)				12.9 U	23.4 UJ	12.6 U	11.8 U	11.3 U	55.5 J-	18.2 UJ
PCB-1260 (AROCHLOR 1260)				12.9 U	23.4 UJ	12.6 U	11.8 U	11.3 U	19.4 UJ	18.2 UJ
PCB, TOTAL	59.8	676	59.8	12.9 U	48.6 J	40.1 J	11.8 U	11.3 U	150	25.4 J
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	30.4	24.3	0	0	140.5	0

Units are µg/kg

		Sampling Area >		Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	TEC	PEC	REGION4_ ESV	LMR21-34C (4-7)	LMR21-37C (0-1)	LMR21-37C (1-3)	LMR21-38C (0-1)	LMR21-38C (1-2.5)	LMR21-39C (0-1)	LMR21-39C (1-3)
PCB-1016 (AROCHLOR 1016)				17.6 U	25.9 UJ	14 U	14.3 U	11.6 U	12.7 U	12.4 U
PCB-1221 (AROCHLOR 1221)				17.6 U	25.9 UJ	14 U	14.3 U	11.6 U	12.7 U	12.4 U
PCB-1232 (AROCHLOR 1232)				17.6 U	25.9 UJ	14 U	14.3 U	11.6 U	12.7 U	12.4 U
PCB-1242 (AROCHLOR 1242)				17.6 U	25.9 UJ	14 U	14.3 U	11.6 U	12.7 U	12.4 U
PCB-1248 (AROCHLOR 1248)				17.6 U	25.9 UJ	26.6 J	14.3 U	11.6 U	12.7 U	12.4 U
PCB-1254 (AROCHLOR 1254)				17.6 U	25.9 UJ	18.5 J	14.3 U	11.6 U	12.7 U	12.4 U
PCB-1260 (AROCHLOR 1260)				17.6 U	25.9 UJ	14 U	14.3 U	11.6 U	12.7 U	12.4 U
PCB, TOTAL	59.8	676	59.8	17.6 U	25.9 UJ	45 J	14.3 U	11.6 U	12.7 U	12.4 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	45.1	0	0	0	0

Units are µg/kg

		Sampling Area >		Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	TEC	PEC	REGION4_ ESV	LMR21-40C (0-1)	LMR21-41C (0-1)	LMR21-41C (1-3)	LMR21-41C (1-3) FD	LMR21-42C (0-1)	LMR21-43C (0-1)	LMR21-43C (1-3)
PCB-1016 (AROCHLOR 1016)				11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
PCB-1221 (AROCHLOR 1221)				11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
PCB-1232 (AROCHLOR 1232)				11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
PCB-1242 (AROCHLOR 1242)				11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
PCB-1248 (AROCHLOR 1248)				11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
PCB-1254 (AROCHLOR 1254)				11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
PCB-1260 (AROCHLOR 1260)				11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
PCB, TOTAL	59.8	676	59.8	11.1 U	11.3 U	11.8 U	11.8 U	12.3 U	11.3 U	11.6 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	0	0	0	0

Units are µg/kg

Table A1.5c Discrete Sediment Core Sample Results for Polychlorinated Biphenyls

		Sampling Area >		Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	TEC	PEC	REGION4_ ESV	**LMR21-44C (0-1)**	**LMR21-45C (0-1)**	**LMR21-45C (1-2)**	**LMR21-46C (0-1)**	**LMR21-46C (1-4)**	**LMR21-46C (1-4) FD**	**LMR21-46C (4-7)**
PCB-1016 (AROCHLOR 1016)				12 U	11.4 U	11.3 U	18.5 UJ	17.8 UJ	17.6 UJ	17.6 UJ
PCB-1221 (AROCHLOR 1221)				12 U	11.4 U	11.3 U	18.5 UJ	17.8 UJ	17.6 UJ	17.6 U
PCB-1232 (AROCHLOR 1232)				12 U	11.4 U	11.3 U	18.5 UJ	17.8 UJ	17.6 UJ	17.6 U
PCB-1242 (AROCHLOR 1242)				12 U	11.4 U	11.3 U	18.5 UJ	17.8 UJ	17.6 UJ	17.6 U
PCB-1248 (AROCHLOR 1248)				12 U	11.4 U	11.3 U	61 J-	17.8 UJ	17.6 UJ	17.6 U
PCB-1254 (AROCHLOR 1254)				12 U	11.4 U	11.3 U	79.8 J-	17.8 UJ	17.6 UJ	17.6 U
PCB-1260 (AROCHLOR 1260)				12 U	11.4 U	11.3 U	20.6 J-	17.8 UJ	17.6 UJ	17.6 UJ
PCB, TOTAL	59.8	676	59.8	12 U	11.4 U	11.3 U	161	17.8 UJ	17.6 UJ	17.6 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	161.4	0	0	0

Units are µg/kg

		Sampling Area >		Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	TEC	PEC	REGION4_ ESV	LMR21-46C (7-8.5)	LMR21-47C (0-1)	LMR21-47C (1-4)	LMR21-47C (4-8)	LMR21-49C (0-1)	LMR21-49C (1-4)	LMR21-49C (4-7.5)
PCB-1016 (AROCHLOR 1016)				11.3 U	18.8 UJ	13.3 U	12 U	18.4 U	17.1 UJ	12.4 U
PCB-1221 (AROCHLOR 1221)				11.3 U	18.8 UJ	13.3 U	12 U	18.4 U	17.1 UJ	12.4 U
PCB-1232 (AROCHLOR 1232)				11.3 U	18.8 UJ	13.3 U	12 U	18.4 U	17.1 UJ	12.4 U
PCB-1242 (AROCHLOR 1242)				11.3 U	18.8 UJ	13.3 U	12 U	18.4 U	17.1 UJ	12.4 U
PCB-1248 (AROCHLOR 1248)				11.3 U	296 J-	13.3 U	12 U	21.7 J	17.1 UJ	12.4 U
PCB-1254 (AROCHLOR 1254)				11.3 U	194 J-	13.3 U	12 U	18.4 U	28.4 J-	12.4 U
PCB-1260 (AROCHLOR 1260)				11.3 U	46.8 J-	13.3 U	12 U	18.4 U	17.1 UJ	12.4 U
PCB, TOTAL	59.8	676	59.8	11.3 U	537	13.3 U	12 U	38.8 J	28.3 J	12.4 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	536.8	0	0	21.7	28.4	0

Units are µg/kg

Table A1.5c Discrete Sediment Core Sample Results for Polychlorinated Biphenyls

		Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	REGION4_ ESV	**LMR21-50C (0-1)**	**LMR21-50C (1-4)**	**LMR21-50C (4-7.5)**	**LMR21-51C (0-1)**	**LMR21-51C (1-4)**	**LMR21-51C (4-7.5)**	**LMR21-52C (0-1)**
PCB-1016 (AROCHLOR 1016)				23 UJ	18.2 UJ	17 U	23.6 UJ	18.2 UJ	16 U	23.6 U
PCB-1221 (AROCHLOR 1221)				23 UJ	18.2 UJ	17 U	23.6 UJ	18.2 UJ	16 U	23.6 U
PCB-1232 (AROCHLOR 1232)				23 UJ	18.2 UJ	17 U	23.6 UJ	18.2 UJ	16 U	23.6 U
PCB-1242 (AROCHLOR 1242)				23 UJ	18.2 UJ	17 U	23.6 UJ	18.2 UJ	16 U	23.6 U
PCB-1248 (AROCHLOR 1248)				23 UJ	954 J-	423	23.6 UJ	46.2 J-	249	23.6 U
PCB-1254 (AROCHLOR 1254)				23 UJ	530 J-	282	23.6 UJ	32 J-	207	23.6 U
PCB-1260 (AROCHLOR 1260)				23 UJ	87.9 J-	59.6	23.6 UJ	18.2 UJ	46.9 J	23.6 U
PCB, TOTAL	59.8	676	59.8	23 UJ	1570	765	23.6 UJ	78.1	503	23.6 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	1571.9	764.6	0	78.2	502.9	0

Units are µg/kg

		Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	TEC	PEC	REGION4_ ESV	**LMR21-52C (1-4)**	**LMR21-52C (1-4) FD**	**LMR21-52C (4-7)**	**LMR21-52C (7-10)**	**LMR21-53C (0-1)**	**LMR21-53C (1-4)**	**LMR21-53C (4-6)**
PCB-1016 (AROCHLOR 1016)				19 UJ	20.3 UJ	17.5 U	14.5 U	26.1 UJ	18.9 UJ	11.2 U
PCB-1221 (AROCHLOR 1221)				19 UJ	20.3 UJ	17.5 U	14.5 U	26.1 UJ	18.9 UJ	11.2 U
PCB-1232 (AROCHLOR 1232)				19 UJ	20.3 UJ	17.5 U	14.5 U	26.1 UJ	18.9 UJ	11.2 U
PCB-1242 (AROCHLOR 1242)				19 UJ	20.3 UJ	17.5 U	14.5 U	26.1 UJ	18.9 UJ	11.2 U
PCB-1248 (AROCHLOR 1248)				154 J-	217 J-	426	196	26.1 UJ	105 J-	11.2 U
PCB-1254 (AROCHLOR 1254)				96.5 J-	133 J-	274	149	26.1 UJ	69.3 J-	11.2 U
PCB-1260 (AROCHLOR 1260)				22 J-	26.7 J-	51.1 J	43.2 J	26.1 UJ	18.9 UJ	11.2 U
PCB, TOTAL	59.8	676	59.8	273	376	751	388	26.1 UJ	175	11.2 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	272.5	376.7	751.1	388.2	0	174.3	0

Units are µg/kg

Table A1.5c Discrete Sediment Core Sample Results for Polychlorinated Biphenyls

		Sampling Area >		**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**	**Sway Bridge A3**
NAME	TEC	PEC	REGION4_ ESV	**LMR21-54C (0-1)**	**LMR21-54C (1-4)**	**LMR21-54C (1-4) FD**	**LMR21-54C (4-6)**	**LMR21-55C (0-1)**	**LMR21-55C (1-4)**	**LMR21-55C (4-7.5)**
PCB-1016 (AROCHLOR 1016)				24.1 UJ	18.9 UJ	19.4 UJ	11.6 U	22 UJ	17.4 U	14.2 U
PCB-1221 (AROCHLOR 1221)				24.1 UJ	18.9 UJ	19.4 UJ	11.6 U	22 UJ	17.4 U	14.2 U
PCB-1232 (AROCHLOR 1232)				24.1 UJ	18.9 UJ	19.4 UJ	11.6 U	22 UJ	17.4 U	14.2 U
PCB-1242 (AROCHLOR 1242)				24.1 UJ	18.9 UJ	19.4 UJ	11.6 U	22 UJ	17.4 U	14.2 U
PCB-1248 (AROCHLOR 1248)				24.1 UJ	97.7 J-	98.8 J-	11.6 U	22 UJ	153	104
PCB-1254 (AROCHLOR 1254)				24.1 UJ	62.7 J-	66.4 J-	11.6 U	22 UJ	106	66.3
PCB-1260 (AROCHLOR 1260)				24.1 UJ	18.9 UJ	19.4 UJ	11.6 U	22 UJ	26.9 J	14.2 U
PCB, TOTAL	59.8	676	59.8	24.1 UJ	160	165	19.8 J	22 UJ	286	170
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	160.4	165.2	0	0	285.9	170.3

Units are µg/kg

		Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	REGION4_ESV	**LMR21-56C (0-1)**	**LMR21-56C (1-4)**	**LMR21-56C (1-4) FD**	**LMR21-56C (4-7)**	**LMR21-56C (4-7) FD**	**LMR21-57C (0-1)**	**LMR21-57C (1-4)**
PCB-1016 (AROCHLOR 1016)				21.4 U	17.9 U	16.5 UJ	11.2 U	11.6 U	21 UJ	17.8 UJ
PCB-1221 (AROCHLOR 1221)				21.4 U	17.9 U	16.5 UJ	11.2 U	11.6 U	21 UJ	17.8 UJ
PCB-1232 (AROCHLOR 1232)				21.4 U	17.9 U	16.5 UJ	11.2 U	11.6 U	21 UJ	17.8 UJ
PCB-1242 (AROCHLOR 1242)				21.4 U	17.9 U	16.5 UJ	11.2 U	11.6 U	21 UJ	17.8 UJ
PCB-1248 (AROCHLOR 1248)				32.1 J	304	170 J-	11.2 U	11.6 U	26 J-	20.8 J-
PCB-1254 (AROCHLOR 1254)				25.2 J	186	119 J-	11.2 U	11.6 U	29.7 J-	17.8 UJ
PCB-1260 (AROCHLOR 1260)				21.4 U	33.9 J	25.4 J-	11.2 U	11.6 U	21 UJ	17.8 UJ
PCB, TOTAL	59.8	676	59.8	66.1 J	524	313	11.2 U	11.6 U	63.3 J	44.7 J
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	57.3	523.9	314.4	0	0	55.7	20.8

Units are µg/kg

		Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	TEC	PEC	REGION4_ ESV	**LMR21-57C (4-6)**	**LMR21-58C (0-1)**	**LMR21-58C (1-4)**	**LMR21-58C (4-7)**	**LMR21-58C (4-7) FD**	**LMR21-59C (0-1)**	**LMR21-59C (1-4)**
PCB-1016 (AROCHLOR 1016)				11.6 U	24.5 UJ	17.8 U	17.9 U	17.4 U	19 U	18.4 U
PCB-1221 (AROCHLOR 1221)				11.6 U	24.5 UJ	17.8 U	17.9 U	17.4 U	19 U	18.4 U
PCB-1232 (AROCHLOR 1232)				11.6 U	24.5 UJ	17.8 U	17.9 U	17.4 U	19 U	18.4 U
PCB-1242 (AROCHLOR 1242)				11.6 U	24.5 UJ	17.8 U	17.9 U	17.4 U	19 U	18.4 U
PCB-1248 (AROCHLOR 1248)				11.6 U	24.5 UJ	70.2	73.5	261	46.6 J	235
PCB-1254 (AROCHLOR 1254)				11.6 U	24.5 UJ	53 J	62	206	37 J	182
PCB-1260 (AROCHLOR 1260)				11.6 U	24.5 UJ	17.8 U	17.9 U	45.1 J	19 U	48.7 J
PCB, TOTAL	59.8	676	59.8	11.6 U	25.5 J	136	153	511	94.9	466
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	123.2	135.5	512.1	83.6	465.7

Units are µg/kg

		Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	REGION4_ ESV	LMR21-59C (1-4) FD	LMR21-59C (4-7)	LMR21-60C (0-1)	LMR21-60C (1-4)	LMR21-60C (4-5)	LMR21-63C (0-1)	LMR21-63C (1-2.75)
PCB-1016 (AROCHLOR 1016)				18.5 UJ	12.7 U	16.9 UJ	15.3 UJ	11.9 U	11.7 U	11.7 U
PCB-1221 (AROCHLOR 1221)				18.5 UJ	12.7 U	16.9 UJ	15.3 UJ	11.9 U	11.7 U	11.7 U
PCB-1232 (AROCHLOR 1232)				18.5 UJ	12.7 U	16.9 UJ	15.3 UJ	11.9 U	11.7 U	11.7 U
PCB-1242 (AROCHLOR 1242)				18.5 UJ	12.7 U	16.9 UJ	15.3 UJ	11.9 U	11.7 U	11.7 U
PCB-1248 (AROCHLOR 1248)				230 J-	41.5 J	138 J-	75.4 J-	13.7 J	11.7 U	11.7 U
PCB-1254 (AROCHLOR 1254)				184 J-	34.8 J	116 J-	61.9 J-	12.4 J	11.7 U	11.7 U
PCB-1260 (AROCHLOR 1260)				51.6 J-	12.7 U	33.8 J-	15.3 UJ	11.9 U	11.7 U	11.7 U
PCB, TOTAL	59.8	676	59.8	466	76.2	287	152	26.1 J	11.7 U	11.7 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	465.6	76.3	287.8	137.3	26.1	0	0

Units are µg/kg

		Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	REGION4_ ESV	**LMR21-64C (0-1.75)**	**LMR21-64C (0-1.75) FD**	**LMR21-65C (0-1)**	**LMR21-65C (1-2)**	**LMR21-66C (0-1)**	**LMR21-66C (1-2)**	**LMR21-67C (0-1)**
PCB-1016 (AROCHLOR 1016)				12.2 U	11.9 U	12 U	12 U	25.4 UJ	12.2 U	25.1 U
PCB-1221 (AROCHLOR 1221)				12.2 U	11.9 U	12 U	12 U	25.4 UJ	12.2 U	25.1 U
PCB-1232 (AROCHLOR 1232)				12.2 U	11.9 U	12 U	12 U	25.4 UJ	12.2 U	25.1 U
PCB-1242 (AROCHLOR 1242)				12.2 U	11.9 U	12 U	12 U	25.4 UJ	12.2 U	25.1 U
PCB-1248 (AROCHLOR 1248)				12.2 U	11.9 U	12 U	12 U	25.4 UJ	12.2 U	25.1 U
PCB-1254 (AROCHLOR 1254)				12.2 U	11.9 U	12 U	12 U	25.4 UJ	12.2 U	25.1 U
PCB-1260 (AROCHLOR 1260)				12.2 U	11.9 U	12 U	12 U	25.4 UJ	12.2 U	25.1 U
PCB, TOTAL	59.8	676	59.8	12.2 U	11.9 U	12 U	12 U	46.2 J	12.2 U	25.1 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	0	0	0	0

Units are µg/kg

Table A1.5c Discrete Sediment Core Sample Results for Polychlorinated Biphenyls

		Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	TEC	PEC	REGION4_ ESV	LMR21-67C (0-1) FD	LMR21-67C (1-3)	LMR21-68C (0-1)	LMR21-68C (1-3.5)
PCB-1016 (AROCHLOR 1016)				24.5 UJ	18.2 UJ	23.3 U	12.4 U
PCB-1221 (AROCHLOR 1221)				24.5 UJ	18.2 U	23.3 U	12.4 U
PCB-1232 (AROCHLOR 1232)				24.5 UJ	18.2 U	23.3 U	12.4 U
PCB-1242 (AROCHLOR 1242)				24.5 UJ	18.2 U	23.3 U	12.4 U
PCB-1248 (AROCHLOR 1248)				24.5 UJ	18.2 U	39.8 J	12.4 U
PCB-1254 (AROCHLOR 1254)				24.5 UJ	18.2 U	37.8 J	12.4 U
PCB-1260 (AROCHLOR 1260)				24.5 UJ	18.2 UJ	23.3 U	12.4 U
PCB, TOTAL	59.8	676	59.8	24.5 UJ	31.5 J	77.5	12.4 U
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	77.6	0

Units are µg/kg

Table A1.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ ESV	**LMR21-SBA1**	**LMR21-SBA1 FD2**	**LMR21-SBA2**	**LMR21-SBA2 FD1**	**LMR21-SBA3**
PCB-1016 (AROCHLOR 1016)				13.7 U	13.1 U	11.6 U	11.7 U	16 U
PCB-1221 (AROCHLOR 1221)				13.7 U	13.1 U	11.6 U	11.7 U	16 U
PCB-1232 (AROCHLOR 1232)				13.7 U	13.1 U	11.6 U	11.7 U	16 U
PCB-1242 (AROCHLOR 1242)				13.7 U	13.1 U	11.6 U	11.7 U	16 U
PCB-1248 (AROCHLOR 1248)				160	120	11.6 U	11.7 U	213
PCB-1254 (AROCHLOR 1254)				99.7	72.4	11.6 U	11.7 U	153
PCB-1260 (AROCHLOR 1260)				15.9 J	13.1 U	11.6 U	11.7 U	16 U
PCB, TOTAL	59.8	676	59.8	275	205	11.6 U	11.7 U	366
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	275.6	192.4	0	0	366

Units are µg/kg

NAME	TEC	PEC	REGION4_ ESV	**LMR21-SBA3 FD1**	**LMR21-SBB1**	**LMR21-SBB1 FD1**	**LMR21-SBB2**	**LMR21-SBB2 FD1**
PCB-1016 (AROCHLOR 1016)				16.4 UJ	18.3 UJ	18.1 UJ	18.8 UJ	20.7 UJ
PCB-1221 (AROCHLOR 1221)				16.4 UJ	18.3 UJ	18.1 UJ	18.8 UJ	20.7 UJ
PCB-1232 (AROCHLOR 1232)				16.4 UJ	18.3 UJ	18.1 UJ	18.8 UJ	20.7 UJ
PCB-1242 (AROCHLOR 1242)				16.4 UJ	18.3 UJ	18.1 UJ	18.8 UJ	20.7 UJ
PCB-1248 (AROCHLOR 1248)				89.6 J-	85.1 J-	63.9 J-	18.8 UJ	20.7 UJ
PCB-1254 (AROCHLOR 1254)				62.7 J-	65.6 J-	46.4 J-	18.8 UJ	20.7 UJ
PCB-1260 (AROCHLOR 1260)				16.4 UJ	18.3 UJ	18.1 UJ	18.8 UJ	20.7 UJ
PCB, TOTAL	59.8	676	59.8	152	151	110	18.8 UJ	20.7 UJ
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	152.3	150.7	110.3	0	0

Units are µg/kg

Table A1.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ ESV	**LMR21-SBC**	**LMR21-SBC FD1**	**LMR21-SBD**	**LMR21-SBD FD1**	**LMR21-WA1**	**LMR21-WA1 FD1**
PCB-1016 (AROCHLOR 1016)				14.2 U	14.1 UJ	11.9 U	12.3 U	16.1 UJ	15.8 U
PCB-1221 (AROCHLOR 1221)				14.2 U	14.1 UJ	11.9 U	12.3 U	16.1 UJ	15.8 U
PCB-1232 (AROCHLOR 1232)				14.2 U	14.1 UJ	11.9 U	12.3 U	16.1 UJ	15.8 U
PCB-1242 (AROCHLOR 1242)				14.2 U	14.1 UJ	11.9 U	12.3 U	16.1 UJ	15.8 U
PCB-1248 (AROCHLOR 1248)				14.2 U	14.1 UJ	11.9 U	12.3 U	157 J-	1570
PCB-1254 (AROCHLOR 1254)				14.2 U	14.1 UJ	11.9 U	12.3 U	89.6 J-	779
PCB-1260 (AROCHLOR 1260)				14.2 U	14.1 UJ	11.9 U	12.3 U	35.5 J	94.9
PCB, TOTAL	59.8	676	59.8	14.2 U	14.1 UJ	11.9 U	12.3 U	282	2450
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	0	0	0	0	282.1	2443.9

Units are µg/kg

NAME	TEC	PEC	REGION4_ ESV	**LMR21-WA2**	**LMR21-WA2 FD1**	**LMR21-WA3**	**LMR21-WA3 FD1**	**LMR21-WB1**
PCB-1016 (AROCHLOR 1016)				14.8 UJ	15.5 U	13.5 U	14.2 U	13.8 U
PCB-1221 (AROCHLOR 1221)				14.8 UJ	15.5 U	13.5 U	14.2 U	13.8 U
PCB-1232 (AROCHLOR 1232)				14.8 UJ	15.5 U	13.5 U	14.2 U	13.8 U
PCB-1242 (AROCHLOR 1242)				14.8 UJ	15.5 U	13.5 U	14.2 U	13.8 U
PCB-1248 (AROCHLOR 1248)				117 J-	251	23.2 J	35.6 J	1020
PCB-1254 (AROCHLOR 1254)				69.2 J-	145	15 J	26.9 J	13.8 U
PCB-1260 (AROCHLOR 1260)				14.8 UJ	30.5 J	13.5 U	15.2 J	13.8 U
PCB, TOTAL	59.8	676	59.8	200	426	38.1 J	77.6	1020
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	186.2	426.5	38.2	77.7	1020

Units are µg/kg

Table A1.5d Composite Sediment Sample Results for Polychlorinated Biphenyls

NAME	TEC	PEC	REGION4_ ESV	**LMR21-WB1 FD1**	**LMR21-WB2**	**LMR21-WB2 FD1**	**LMR21-WC1**	**LMR21-WC1 FD1**
PCB-1016 (AROCHLOR 1016)				14.9 UJ	16 UJ	16.3 UJ	17.3 UJ	16.7 U
PCB-1221 (AROCHLOR 1221)				14.9 UJ	16 UJ	16.3 UJ	17.3 UJ	16.7 U
PCB-1232 (AROCHLOR 1232)				14.9 UJ	16 UJ	16.3 UJ	17.3 UJ	16.7 U
PCB-1242 (AROCHLOR 1242)				14.9 UJ	16 UJ	16.3 UJ	17.3 UJ	16.7 U
PCB-1248 (AROCHLOR 1248)				602 J-	26.2 J-	39.6 J-	17.3 UJ	21.3 J
PCB-1254 (AROCHLOR 1254)				306 J-	16 UJ	23.8 J-	17.3 UJ	19.7 J
PCB-1260 (AROCHLOR 1260)				41.3 J-	16 UJ	16.3 UJ	17.3 UJ	16.7 UJ
PCB, TOTAL	59.8	676	59.8	949	40.9 J	69.1	32 J	53.8 J
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	949.3	26.2	63.4	0	41

Units are µg/kg

NAME	TEC	PEC	REGION4_ ESV	**LMR21-WC1-FD FD**	**LMR21-WC1-FD FD1**	**LMR21-WC2**	**LMR21-WC2 FD1**
PCB-1016 (AROCHLOR 1016)				16.6 U	16.6 U	18.6 U	17.9 UJ
PCB-1221 (AROCHLOR 1221)				16.6 U	16.6 U	18.6 U	17.9 UJ
PCB-1232 (AROCHLOR 1232)				16.6 U	16.6 U	18.6 U	17.9 UJ
PCB-1242 (AROCHLOR 1242)				16.6 U	16.6 U	18.6 U	17.9 UJ
PCB-1248 (AROCHLOR 1248)				39.3 J	39.1 J	130	95.5 J-
PCB-1254 (AROCHLOR 1254)				34.8 J	29.2 J	80	57.2 J-
PCB-1260 (AROCHLOR 1260)				16.6 U	16.6 U	18.6 U	17.9 UJ
PCB, TOTAL	59.8	676	59.8	87.6	81.1	224	161
TOTAL PCB AROCLORS (ND SET TO 0)	59.8	676	59.8	74.1	68.3	210	152.7

Units are µg/kg

Table A1.6a Surface Sediment Grab Sample Results for Miscellaneous Assays

Sampling Area >		WWTP A2	WWTP A2	WWTP A1	WWTP A1	WWTP A1	WWTP A3	WWTP C2
NAME	UNITS	LMR21-10S (0-0.5)	LMR21-12S (0-0.5)	LMR21-14S (0-0.5)	LMR21-15S (0-0.5)	LMR21-17S (0-0.5)	LMR21-19S (0-0.5)	LMR21-25S (0-0.5)
CORROSIVITY (PH)	PH UNITS							
CYANIDE	MG/KG							
IGNITABILITY								
NITROGEN, AMMONIA	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG							
PERCENT MOISTURE	PERCENT	61.8	58.3	55.5	53.7	44.8	42.2	62.1
PHOSPHORUS, TOTAL (AS P)	MG/KG							
TOTAL ORGANIC CARBON	MG/KG	40300	34000	36100	44700	37500	29700	29700
TOTAL SOLIDS	PERCENT	38.2	41.7	44.5	46.3	55.2	57.8	37.9

Sampling depth interval is indicated in feet

Sampling Area >		WWTP C2	Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge A2
NAME	UNITS	LMR21-27S (0-0.5)	LMR21-30S (0-0.5)	LMR21-35S (0-0.5)	LMR21-36S (0-0.5)	LMR21-37S (0-0.5)	LMR21-39S (0-0.5)	LMR21-41S (0-0.5)
CORROSIVITY (PH)	PH UNITS							
CYANIDE	MG/KG							
IGNITABILITY								
NITROGEN, AMMONIA	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG							
PERCENT MOISTURE	PERCENT	60.7	60.5	67.1	63.9	66.1	40.1	62.9
PHOSPHORUS, TOTAL (AS P)	MG/KG							
TOTAL ORGANIC CARBON	MG/KG	31300 J-	47900 J-	34800 J-	33300 J-	33400 J-	34000 J-	38000 J-
TOTAL SOLIDS	PERCENT	39.3	39.5	32.9	36.1	33.9	59.9	37.1

Sampling depth interval is indicated in feet

	Sampling Area >	Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	LMR21-43S (0-0.5)	LMR21-45S (0-0.5)	LMR21-47S (0-0.5)	LMR21-48S (0-0.5)	LMR21-49S (0-0.5)	LMR21-52S (0-0.5)	LMR21-53S (0-0.5)
CORROSIVITY (PH)	PH UNITS							
CYANIDE	MG/KG							
IGNITABILITY								
NITROGEN, AMMONIA	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG							
PERCENT MOISTURE	PERCENT	57.4	47	46.9	53.8	47.6	60.6	59.8
PHOSPHORUS, TOTAL (AS P)	MG/KG							
TOTAL ORGANIC CARBON	MG/KG	46300 J-	35800 J-	89600 J-	43200 J-	62100 J-	28000 J-	25900 J-
TOTAL SOLIDS	PERCENT	42.6	53	53.1	46.2	52.4	39.4	40.2

Sampling depth interval is indicated in feet

Table A1.6a Surface Sediment Grab Sample Results for Miscellaneous Assays

Sampling Area >		Sway Bridge A3	Sway Bridge B1	Sway Bridge B1	Biological Survey	Biological Survey	Sway Bridge D	Sway Bridge D
NAME	UNITS	LMR21-55S (0-0.5)	LMR21-57S (0-0.5)	LMR21-59S (0-0.5)	LMR21-61S (0-0.5)	LMR21-62S (0-0.5)	LMR21-64S (0-0.5)	LMR21-66S (0-0.5)
CORROSIVITY (PH)	PH UNITS							
CYANIDE	MG/KG							
IGNITABILITY								
NITROGEN, AMMONIA	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG							
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG							
PERCENT MOISTURE	PERCENT	58.9	59.8	59.7	61.9	60.2	66.7	64.1
PHOSPHORUS, TOTAL (AS P)	MG/KG							
TOTAL ORGANIC CARBON	MG/KG	31200 J-	25200 J-	27800 J-	34200 J-	26800 J-	23800 J-	29000 J-
TOTAL SOLIDS	PERCENT	41.1	40.2	40.3	38.1	39.8	33.3	35.9

Sampling depth interval is indicated in feet

	Sampling Area >	Sway Bridge D	Reference
NAME	UNITS	LMR21-68S (0-0.5)	LMR21-69S (0-0.5)
CORROSIVITY (PH)	PH UNITS		
CYANIDE	MG/KG		
IGNITABILITY			
NITROGEN, AMMONIA	MG/KG		
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG		
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG		
PERCENT MOISTURE	PERCENT	62	66.4
PHOSPHORUS, TOTAL (AS P)	MG/KG		
TOTAL ORGANIC CARBON	MG/KG	34300 J-	28800 J-
TOTAL SOLIDS	PERCENT	38	33.6

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**	**WWTP C1**
NAME	UNITS	**LMR21-01C (0-1)**	**LMR21-01C (1-4)**	**LMR21-01C (4-7)**	**LMR21-01C (7-8)**	**LMR21-02C (0-1)**	**LMR21-02C (1-4)**	**LMR21-02C (4-7)**
PERCENT MOISTURE	PERCENT	62.3	42.8	33.3	31.7	53.4	42.6	40.3
TOTAL ORGANIC CARBON	MG/KG	30600	35300	23900	34200	33400	33200	27400
TOTAL SOLIDS	PERCENT	37.7	57.2	66.7	68.3	46.6	57.4	59.7

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP C1	WWTP B2	WWTP B2
NAME	UNITS	LMR21-02C (7-8)	LMR21-03C (0-1)	LMR21-03C (1-4)	LMR21-03C (1-4) FD	LMR21-03C (4-7)	LMR21-04C (0-1)	LMR21-04C (1-4)
PERCENT MOISTURE	PERCENT	39.7	53.6	42.9	43.5	33.9	48.7	40.4
TOTAL ORGANIC CARBON	MG/KG	26500	22800	32400	33400	37500	34500 J-	33300 J-
TOTAL SOLIDS	PERCENT	60.3	46.4	57.1	56.5	66.1	51.3	59.6

Sampling depth interval is indicated in feet

	Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	UNITS	LMR21-04C (4-7)	LMR21-05C (0-1)	LMR21-05C (1-4)	LMR21-05C (4-7)	LMR21-05C (7-8)	LMR21-06C (0-1)	LMR21-06C (1-4)
PERCENT MOISTURE	PERCENT	30.8	59.7	47.5	47.3	45	57.4	46.7
TOTAL ORGANIC CARBON	MG/KG	24500 J-	32400	27900	29400	30400	28600 J-	25800 J-
TOTAL SOLIDS	PERCENT	69.2	40.3	52.5	52.7	55	42.6	53.3

Sampling depth interval is indicated in feet

	Sampling Area >	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	UNITS	**LMR21-06C (4-6.3)**	**LMR21-07C (0-1)**	**LMR21-07C (1-4)**	**LMR21-07C (4-7)**	**LMR21-07C (7-8)**	**LMR21-08C (0-1)**	**LMR21-08C (1-4)**
PERCENT MOISTURE	PERCENT	41.6	42.2	38.2	37.2	25.3	57.1	38.1
TOTAL ORGANIC CARBON	MG/KG	38100 J-	29400 J-	29700 J-	24100 J-	23100 J-	29200 J-	32800 J-
TOTAL SOLIDS	PERCENT	58.4	57.8	61.8	62.8	74.7	42.9	61.9

Sampling depth interval is indicated in feet

Sampling Area >		WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2	WWTP B2
NAME	UNITS	LMR21-08C (4-7)	LMR21-08C (7-8.1)	LMR21-09C (0-1)	LMR21-09C (1-4)	LMR21-09C (4-7)	LMR21-09C (4-7) FD	LMR21-09C (7-7.5)
PERCENT MOISTURE	PERCENT	37	32.7	39.3	37.4	38.3	37.6	36.2
TOTAL ORGANIC CARBON	MG/KG	30200 J-	22300 J-	37500 J-	31400 J-	23400 J-	26600 J-	19900 J-
TOTAL SOLIDS	PERCENT	63	67.3	60.7	62.6	61.7	62.4	63.8

Sampling depth interval is indicated in feet

Sampling Area >		WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2
NAME	UNITS	LMR21-10C (0-1)	LMR21-10C (1-4)	LMR21-10C (4-7)	LMR21-10C (7-8.5)	LMR21-11C (0-1)	LMR21-11C (1-4)	LMR21-11C (4-7)
PERCENT MOISTURE	PERCENT	52.8	35.1	32.9	34.6	33	30.3	28.2
TOTAL ORGANIC CARBON	MG/KG	49300 J-	41100 J-	35900 J-	32600 J-	39600 J-	36100 J-	36800 J-
TOTAL SOLIDS	PERCENT	47.2	64.9	67.1	65.4	67	69.7	71.8

Sampling depth interval is indicated in feet

	Sampling Area >	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A2	WWTP A1
NAME	UNITS	**LMR21-11C (7-9)**	**LMR21-12C (0-1)**	**LMR21-12C (10-13)**	**LMR21-12C (1-4)**	**LMR21-12C (4-7)**	**LMR21-12C (7-10)**	**LMR21-13C (0-1)**
PERCENT MOISTURE	PERCENT	30.8	57	31.5	42.9	45.3	40.7	40.3
TOTAL ORGANIC CARBON	MG/KG	35500 J-	31900 J-	29200 J-	26600 J-	30800 J-	30500 J-	39100 J-
TOTAL SOLIDS	PERCENT	69.2	43	68.5	57.1	54.7	59.3	59.7

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

	Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	UNITS	**LMR21-13C (1-4)**	**LMR21-13C (1-4) FD**	**LMR21-13C (4-7)**	**LMR21-13C (7-9)**	**LMR21-14C (0-1)**	**LMR21-14C (1-4)**	**LMR21-14C (4-7)**
PERCENT MOISTURE	PERCENT	34.6	36.2	32.9	36.2	43.3	27.4	31.4
TOTAL ORGANIC CARBON	MG/KG	28700 J-	29800 J-	20900 J-	21200 J-	31500 J-	28000 J-	31600 J-
TOTAL SOLIDS	PERCENT	65.4	63.8	67.1	63.8	56.7	72.6	68.6

Sampling depth interval is indicated in feet

Sampling Area >		WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	UNITS	**LMR21-14C (7-10)**	**LMR21-14C (7-10) FD**	**LMR21-15C (0-1)**	**LMR21-15C (1-4)**	**LMR21-15C (1-4) FD**	**LMR21-15C (4-7)**	**LMR21-15C (4-7) FD**
PERCENT MOISTURE	PERCENT	31.2	30.2	60.5	58.9	58.5	60.7	57.1
TOTAL ORGANIC CARBON	MG/KG	30200 J-	27600 J-	60800 J-	88400 J-	65400 J-	66000 J-	80800 J-
TOTAL SOLIDS	PERCENT	68.8	69.8	39.5	41.1	41.5	39.3	42.9

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

	Sampling Area >	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A1
NAME	UNITS	**LMR21-15C (7-10)**	**LMR21-16C (0-1)**	**LMR21-16C (1-4)**	**LMR21-16C (4-7)**	**LMR21-16C (4-7) FD**	**LMR21-16C (7-11)**	**LMR21-17C (0-1)**
PERCENT MOISTURE	PERCENT	36.4	40.7	41	34.9	38	28.7	40.4
TOTAL ORGANIC CARBON	MG/KG	46700 J-		29600 J-	21700 J-	23600 J-	29600 J-	43600 J-
TOTAL SOLIDS	PERCENT	63.6	59.3	59	65.1	62	71.3	59.6

Sampling depth interval is indicated in feet

Sampling Area >		WWTP A1	WWTP A1	WWTP A1	WWTP A1	WWTP A3	WWTP A3	WWTP A3
NAME	UNITS	LMR21-17C (10-13)	LMR21-17C (1-4)	LMR21-17C (4-7)	LMR21-17C (7-10)	LMR21-18C (0-1)	LMR21-18C (10-12)	LMR21-18C (1-4)
PERCENT MOISTURE	PERCENT	28.7	42.9	41.6	39.3	42.4	39.9	44.4
TOTAL ORGANIC CARBON	MG/KG	30400 J-	35300 J-	36600 J-	29100 J-	40700 J-	37700 J-	37500 J-
TOTAL SOLIDS	PERCENT	71.3	57.1	58.4	60.7	57.6	60.1	55.6

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3	WWTP A3
NAME	UNITS	**LMR21-18C (4-7)**	**LMR21-18C (7-10)**	**LMR21-19C (0-1)**	**LMR21-19C (1-4)**	**LMR21-19C (4-7)**	**LMR21-19C (7-9)**	**LMR21-20C (0-1)**
PERCENT MOISTURE	PERCENT	41.1	43.6	36.5	29	15.9	14.6	35.7
TOTAL ORGANIC CARBON	MG/KG	45400 J-	37700 J-	29400 J-	29700 J-	32700 J-	32700 J-	32500 J-
TOTAL SOLIDS	PERCENT	58.9	56.4	63.5	71	84.1	85.4	64.3

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		WWTP A3	WWTP A3	WWTP A3	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	UNITS	LMR21-20C (1-4)	LMR21-20C (4-7)	LMR21-20C (7-10)	LMR21-21C (0-1)	LMR21-21C (1-4)	LMR21-21C (1-4) FD	LMR21-21C (4-7)
PERCENT MOISTURE	PERCENT	32.5	23.2	13.7	36.9	28.9	23.4	21.3
TOTAL ORGANIC CARBON	MG/KG	27300 J-	29800 J-	26300 J-	41800 J-	22200 J-	22100 J-	24800 J-
TOTAL SOLIDS	PERCENT	67.5	76.8	86.3	63.1	71.1	76.6	78.7

Sampling depth interval is indicated in feet

Sampling Area >		WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1	WWTP B1
NAME	UNITS	LMR21-22C (0-1)	LMR21-22C (1-4)	LMR21-22C (4-6.5)	LMR21-22C (4-6.5) FD	LMR21-23C (0-1)	LMR21-23C (1-4)	LMR21-23C (4-6)
PERCENT MOISTURE	PERCENT	42.4	38.6	20.4	26.9	36.9	27.4	21.5
TOTAL ORGANIC CARBON	MG/KG	24100 J-	21600 J-	24300 J-	24700 J-	48400 J-	29500 J-	23100 J-
TOTAL SOLIDS	PERCENT	57.6	61.4	79.6	73.1	63.1	72.6	78.5

Sampling depth interval is indicated in feet

	Sampling Area >	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2
NAME	UNITS	LMR21-24C (0-1)	LMR21-24C (1-4)	LMR21-24C (4-8)	LMR21-25C (0-1)	LMR21-25C (1-4)	LMR21-25C (4-7)	LMR21-26C (0-1)
PERCENT MOISTURE	PERCENT	52.3	43.4	39.6	52.5	47	43.7	57
TOTAL ORGANIC CARBON	MG/KG	25500 J-	33500 J-	37400 J-	27800 J-	25800 J-	27700 J-	32700 J-
TOTAL SOLIDS	PERCENT	47.7	56.6	60.4	47.5	53	56.3	43

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	WWTP C2	Sway Bridge C
NAME	UNITS	LMR21-26C (1-4)	LMR21-26C (4-8)	LMR21-27C (0-1)	LMR21-27C (1-3)	LMR21-28C (0-1)	LMR21-28C (1-4)	LMR21-29C (0-1)
PERCENT MOISTURE	PERCENT	47.1	43.2	60.8	44	60.2	40.8	45
TOTAL ORGANIC CARBON	MG/KG	22300 J-	31000 J-	49700 J-	31700 J-	37000 J-	37800 J-	29500 J-
TOTAL SOLIDS	PERCENT	52.9	56.8	39.2	56	39.8	59.2	55

Sampling depth interval is indicated in feet

Sampling Area >		Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C	Sway Bridge C
NAME	UNITS	**LMR21-29C (1-4)**	**LMR21-29C (1-4) FD**	**LMR21-29C (4-6.5)**	**LMR21-29C (4-6.5) FD**	**LMR21-30C (0-1)**	**LMR21-30C (1-3)**	**LMR21-31C (0-1)**
PERCENT MOISTURE	PERCENT	26.8	25.7	23.9	26.2	24.6	11.7	24
TOTAL ORGANIC CARBON	MG/KG	27100 J-	36300 J-	34900 J-	33400 J-	20600 J-	20600 J-	22900 J-
TOTAL SOLIDS	PERCENT	73.2	74.3	76.1	73.8	75.4	88.3	76

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**	**Sway Bridge C**
NAME	UNITS	**LMR21-31C (1-4)**	**LMR21-32C (0-1)**	**LMR21-32C (1-5)**	**LMR21-33C (0-1)**	**LMR21-33C (1-5)**	**LMR21-34C (0-1)**	**LMR21-34C (1-4)**
PERCENT MOISTURE	PERCENT	22.4	58.9	21.4	16.6	15.3	49.6	46.4
TOTAL ORGANIC CARBON	MG/KG	19100 J-	26000 J-	29700 J-	18200 J-	21200 J-	29500 J-	42200 J-
TOTAL SOLIDS	PERCENT	77.6	41.1	78.6	83.4	84.7	50.4	53.6

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		Sway Bridge C	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2	Sway Bridge B2
NAME	UNITS	LMR21-34C (4-7)	LMR21-37C (0-1)	LMR21-37C (1-3)	LMR21-38C (0-1)	LMR21-38C (1-2.5)	LMR21-39C (0-1)	LMR21-39C (1-3)
PERCENT MOISTURE	PERCENT	45.1	62.4	31.3	31.1	15.1	22.2	19.9
TOTAL ORGANIC CARBON	MG/KG	31500 J-	25600 J-	40000 J-	51900 J-	36200 J-	48900 J-	36800 J-
TOTAL SOLIDS	PERCENT	54.9	37.6	68.7	68.9	84.9	77.8	80.1

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2	Sway Bridge A2
NAME	UNITS	LMR21-40C (0-1)	LMR21-41C (0-1)	LMR21-41C (1-3)	LMR21-41C (1-3) FD	LMR21-42C (0-1)	LMR21-43C (0-1)	LMR21-43C (1-3)
PERCENT MOISTURE	PERCENT	13.6	15.3	15.7	15.6	20.4	15.2	14.6
TOTAL ORGANIC CARBON	MG/KG	36200 J-	39000 J	43400 J-	55400 J-	37800 J-	38700 J-	40600 J-
TOTAL SOLIDS	PERCENT	86.4	84.7	84.3	84.4	79.6	84.8	85.4

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

	Sampling Area >	Sway Bridge A2	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	UNITS	LMR21-44C (0-1)	LMR21-45C (0-1)	LMR21-45C (1-2)	LMR21-46C (0-1)	LMR21-46C (1-4)	LMR21-46C (1-4) FD	LMR21-46C (4-7)
PERCENT MOISTURE	PERCENT	17	14.3	15.8	47.9	45.6	45.8	44.7
TOTAL ORGANIC CARBON	MG/KG	38200 J-	39000 J-	24900 J-	46200 J	51400 J	48500 J	68400 J
TOTAL SOLIDS	PERCENT	83	85.7	84.2	52.1	54.4	54.2	55.3

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

	Sampling Area >	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1	Sway Bridge A1
NAME	UNITS	LMR21-46C (7-8.5)	LMR21-47C (0-1)	LMR21-47C (1-4)	LMR21-47C (4-8)	LMR21-49C (0-1)	LMR21-49C (1-4)	LMR21-49C (4-7.5)
PERCENT MOISTURE	PERCENT	16.7	50.2	25.3	17.9	47.1	43.6	21.3
TOTAL ORGANIC CARBON	MG/KG	40800 J	38800 J	33900 J	33700 J	67000 J-	75600 J-	39300 J-
TOTAL SOLIDS	PERCENT	83.3	49.8	74.7	82.1	52.9	56.4	78.7

Sampling depth interval is indicated in feet

	Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	LMR21-50C (0-1)	LMR21-50C (1-4)	LMR21-50C (4-7.5)	LMR21-51C (0-1)	LMR21-51C (1-4)	LMR21-51C (4-7.5)	LMR21-52C (0-1)
PERCENT MOISTURE	PERCENT	58.5	45.6	41.1	58.7	47.9	40.6	60.3
TOTAL ORGANIC CARBON	MG/KG	21200 J	38000 J	73900 J	31700 J-	32700 J	67700 J	27300 J-
TOTAL SOLIDS	PERCENT	41.5	54.4	58.9	41.3	52.1	59.4	39.7

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	LMR21-52C (1-4)	LMR21-52C (1-4) FD	LMR21-52C (4-7)	LMR21-52C (7-10)	LMR21-53C (0-1)	LMR21-53C (1-4)	LMR21-53C (4-6)
PERCENT MOISTURE	PERCENT	49	52	44.1	32.6	61.9	48.6	12.7
TOTAL ORGANIC CARBON	MG/KG	38500 J	70700 J	66900 J-	144000 J	20400 J	25400 J	34800 J
TOTAL SOLIDS	PERCENT	51	48	55.9	67.4	38.1	51.4	87.3

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

	Sampling Area >	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3	Sway Bridge A3
NAME	UNITS	LMR21-54C (0-1)	LMR21-54C (1-4)	LMR21-54C (1-4) FD	LMR21-54C (4-6)	LMR21-55C (0-1)	LMR21-55C (1-4)	LMR21-55C (4-7.5)
PERCENT MOISTURE	PERCENT	59.9	47.8	50.7	19.2	54.6	45.6	30.9
TOTAL ORGANIC CARBON	MG/KG	22000 J	20900 J	21900 J	38700 J	21300 J	33500 J	64600 J
TOTAL SOLIDS	PERCENT	40.1	52.2	49.3	80.8	45.4	54.4	69.1

Sampling depth interval is indicated in feet

Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	UNITS	**LMR21-56C (0-1)**	**LMR21-56C (1-4)**	**LMR21-56C (1-4) FD**	**LMR21-56C (4-7)**	**LMR21-56C (4-7) FD**	**LMR21-57C (0-1)**	**LMR21-57C (1-4)**
PERCENT MOISTURE	PERCENT	56.3	45.8	42.7	15.4	14.3	54.8	44.8
TOTAL ORGANIC CARBON	MG/KG	28900 J-	48700 J-	45300 J-	39500 J-	37100 J-	30600 J-	37900 J-
TOTAL SOLIDS	PERCENT	43.7	54.2	57.3	84.6	85.7	45.2	55.2

Sampling depth interval is indicated in feet

	Sampling Area >	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1
NAME	UNITS	**LMR21-57C (4-6)**	**LMR21-58C (0-1)**	**LMR21-58C (1-4)**	**LMR21-58C (4-7)**	**LMR21-58C (4-7) FD**	**LMR21-59C (0-1)**	**LMR21-59C (1-4)**
PERCENT MOISTURE	PERCENT	17.3	59.2	47.1	44.9	44	48.1	45.9
TOTAL ORGANIC CARBON	MG/KG	36700 J-	26900 J-	26000 J-	26200 J-	25500 J-	26700 J-	33000 J-
TOTAL SOLIDS	PERCENT	82.7	40.8	52.9	55.1	56	51.9	54.1

Sampling depth interval is indicated in feet

Sampling Area >		Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge B1	Sway Bridge D	Sway Bridge D
NAME	UNITS	**LMR21-59C (1-4) FD**	**LMR21-59C (4-7)**	**LMR21-60C (0-1)**	**LMR21-60C (1-4)**	**LMR21-60C (4-5)**	**LMR21-63C (0-1)**	**LMR21-63C (1-2.75)**
PERCENT MOISTURE	PERCENT	46.6	22.5	41.7	37.2	18.4	15.9	17
TOTAL ORGANIC CARBON	MG/KG	28100 J-	37300 J-	36100 J-	32400 J-	37100 J-	39900 J-	37500 J-
TOTAL SOLIDS	PERCENT	53.4	77.5	58.3	62.8	81.6	84.1	83

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

Sampling Area >		Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	UNITS	**LMR21-64C (0-1.75)**	**LMR21-64C (0-1.75) FD**	**LMR21-65C (0-1)**	**LMR21-65C (1-2)**	**LMR21-66C (0-1)**	**LMR21-66C (1-2)**	**LMR21-67C (0-1)**
PERCENT MOISTURE	PERCENT	19.2	17.7	20	16.5	61.7	20	60.7
TOTAL ORGANIC CARBON	MG/KG	47700 J-	40000 J-	35400 J-	35200 J-	31200 J-	35500 J-	28600 J-
TOTAL SOLIDS	PERCENT	80.8	82.3	80	83.5	38.3	80	39.3

Sampling depth interval is indicated in feet

Table A1.6b Discrete Sediment Core Sample Results for Miscellaneous Assays

	Sampling Area >	Sway Bridge D	Sway Bridge D	Sway Bridge D	Sway Bridge D
NAME	UNITS	**LMR21-67C (0-1) FD**	**LMR21-67C (1-3)**	**LMR21-68C (0-1)**	**LMR21-68C (1-3.5)**
PERCENT MOISTURE	PERCENT	59.2	46.1	57.3	20.6
TOTAL ORGANIC CARBON	MG/KG	29800 J-	23900 J-	29000 J-	39700 J-
TOTAL SOLIDS	PERCENT	40.8	53.9	42.7	79.4

Sampling depth interval is indicated in feet

NAME	UNITS	**LMR21-SBA1**	**LMR21-SBA1 FD1**	**LMR21-SBA1 FD2**	**LMR21-SBA1 FD3**	**LMR21-SBA2**
CORROSIVITY (PH)	PH UNITS	8.38 J				8.64 J
CYANIDE	MG/KG	2.8 J	0.011 UJ			0.2 J
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG	189				9.8 J
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG	1810				602
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG	1110				504
PERCENT MOISTURE	PERCENT	38.4	42.7	26.4	29.6	16.1
PHOSPHORUS, TOTAL (AS P)	MG/KG	1410 J+				653 J+
TOTAL ORGANIC CARBON	MG/KG	51800 J-	44900 J-			38300 J
TOTAL SOLIDS	PERCENT	61.6	57.3	73.6	70.4	83.9

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-SBA2 FD1**	**LMR21-SBA2 FD2**	**LMR21-SBA2 FD3**	**LMR21-SBA3**
CORROSIVITY (PH)	PH UNITS				8.04 J
CYANIDE	MG/KG	0.011 UJ			2.5 J
IGNITABILITY					
NITROGEN, AMMONIA	MG/KG				272
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG				1720
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG				1060
PERCENT MOISTURE	PERCENT	16.2	15.6	17.6	40
PHOSPHORUS, TOTAL (AS P)	MG/KG				1260 J+
TOTAL ORGANIC CARBON	MG/KG	38100 J-			55800 J
TOTAL SOLIDS	PERCENT	83.8	84.4	82.4	60

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	LMR21-SBA3 FD1	LMR21-SBA3 FD2	LMR21-SBA3 FD3	LMR21-SBB1
CORROSIVITY (PH)	PH UNITS				7.36 J
CYANIDE	MG/KG	0.011 UJ			0.5 J
IGNITABILITY					
NITROGEN, AMMONIA	MG/KG				314
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG				1880
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG				1070
PERCENT MOISTURE	PERCENT	38.2	39.8	42	45.3
PHOSPHORUS, TOTAL (AS P)	MG/KG				1460
TOTAL ORGANIC CARBON	MG/KG	64000 J-			29000 J-
TOTAL SOLIDS	PERCENT	61.8	60.2	58	56.8

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-SBB1 FD1**	**LMR21-SBB1 FD2**	**LMR21-SBB1 FD3**	**LMR21-SBB2**	**LMR21-SBB2 FD1**
CORROSIVITY (PH)	PH UNITS				7.34 J	
CYANIDE	MG/KG	0.011 UJ			0.54 J	0.011 UJ
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG				129	
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG				1510	
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG				842	
PERCENT MOISTURE	PERCENT	43.2	46.9	45	44.2	51.9
PHOSPHORUS, TOTAL (AS P)	MG/KG				848 J+	
TOTAL ORGANIC CARBON	MG/KG	33600 J-			39200 J-	36300 J-
TOTAL SOLIDS	PERCENT	54.7	53.1	55	48.1	55.8

NAME	UNITS	LMR21-SBB2 FD2	LMR21-SBB2 FD3	LMR21-SBC	LMR21-SBC FD1	LMR21-SBC FD2
CORROSIVITY (PH)	PH UNITS			7.49 J		
CYANIDE	MG/KG			0.75 J	0.011 UJ	
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG			100		
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG			908		
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG			653		
PERCENT MOISTURE	PERCENT	47.2	53.2	31.4	28.1	37.1
PHOSPHORUS, TOTAL (AS P)	MG/KG			58.6 J-		
TOTAL ORGANIC CARBON	MG/KG			25300 J-	31000 J-	
TOTAL SOLIDS	PERCENT	46.8	52.8	68.6	62.9	71.9

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-SBC FD3**	**LMR21-SBD**	**LMR21-SBD FD1**	**LMR21-SBD FD2**	**LMR21-SBD FD3**
CORROSIVITY (PH)	PH UNITS		8.34 J			
CYANIDE	MG/KG		0.011 UJ	0.18 UJ		
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG		71.6			
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG		835			
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG		626			
PERCENT MOISTURE	PERCENT	29.5	25	17.3	17.2	22.4
PHOSPHORUS, TOTAL (AS P)	MG/KG		726 J+			
TOTAL ORGANIC CARBON	MG/KG		41400 J-	39200 J-		
TOTAL SOLIDS	PERCENT	70.5	82.7	75	77.6	82.8

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-WA1**	**LMR21-WA1 FD1**	**LMR21-WA1 FD2**	**LMR21-WA1 FD3**	**LMR21-WA2**
CORROSIVITY (PH)	PH UNITS	7.36 J-				7.37 J-
CYANIDE	MG/KG	0.25 UJ	0.015 J			0.96 J
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG	632				433
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG	2920				2250
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG	1750				1380
PERCENT MOISTURE	PERCENT	40	37.9	38.8	33	38.7
PHOSPHORUS, TOTAL (AS P)	MG/KG	340 J-				128 J-
TOTAL ORGANIC CARBON	MG/KG	37400 J-	33900 J-			28800 J-
TOTAL SOLIDS	PERCENT	60	62.1	61.2	67	61.3

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-WA2 FD1**	**LMR21-WA2 FD2**	**LMR21-WA2 FD3**	**LMR21-WA3**	**LMR21-WA3 FD1**
CORROSIVITY (PH)	PH UNITS				7.87 J-	
CYANIDE	MG/KG	0.011 UJ			0.71 J	0.011 UJ
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG				204	
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG				1050	
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG				765	
PERCENT MOISTURE	PERCENT	35.2	35.3	35.5	27.1	32.1
PHOSPHORUS, TOTAL (AS P)	MG/KG				69.7 J-	
TOTAL ORGANIC CARBON	MG/KG	39000 J-			37700 J-	29000 J-
TOTAL SOLIDS	PERCENT	64.8	64.7	64.5	72.9	67.9

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-WA3 FD2**	**LMR21-WA3 FD3**	**LMR21-WB1**	**LMR21-WB1 FD1**	**LMR21-WB1 FD2**
CORROSIVITY (PH)	PH UNITS			7.39 J		
CYANIDE	MG/KG			11.1 J	0.011 UJ	
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG			323		
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG			1870		
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG			1280		
PERCENT MOISTURE	PERCENT	28.9	26.7	31.6	27	31.5
PHOSPHORUS, TOTAL (AS P)	MG/KG			248 J-		
TOTAL ORGANIC CARBON	MG/KG			42000 J-	39700 J-	
TOTAL SOLIDS	PERCENT	71.1	73.3	68.4	73	68.5

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-WB1 FD3**	**LMR21-WB2**	**LMR21-WB2 FD1**	**LMR21-WB2 FD2**	**LMR21-WB2 FD3**
CORROSIVITY (PH)	PH UNITS		7.4 J-			
CYANIDE	MG/KG		0.46 J	0.011 UJ		
IGNITABILITY						
NITROGEN, AMMONIA	MG/KG		262			
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG		1230			
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG		744			
PERCENT MOISTURE	PERCENT	32.9	39.7	40.7	40.1	40.4
PHOSPHORUS, TOTAL (AS P)	MG/KG		109 J-			
TOTAL ORGANIC CARBON	MG/KG		30300 J-	32500 J-		
TOTAL SOLIDS	PERCENT	67.1	60.3	59.3	59.9	59.6

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	LMR21-WC1	LMR21-WC1 FD1	LMR21-WC1 FD2	LMR21-WC1 FD3
CORROSIVITY (PH)	PH UNITS	7.34 J-			
CYANIDE	MG/KG	0.49 J	0.011 UJ		
IGNITABILITY					
NITROGEN, AMMONIA	MG/KG	320			
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG	1830			
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG	1070			
PERCENT MOISTURE	PERCENT	41.6	42.7	42	41.7
PHOSPHORUS, TOTAL (AS P)	MG/KG	115			
TOTAL ORGANIC CARBON	MG/KG	31600 J-	27900		
TOTAL SOLIDS	PERCENT	58.4	57.3	58	58.3

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	LMR21-WC1-FD FD	LMR21-WC1-FD FD1	LMR21-WC1-FD FD2	LMR21-WC1-FD FD3
CORROSIVITY (PH)	PH UNITS	7.3 J			
CYANIDE	MG/KG		0.62 J	0.011 UJ	
IGNITABILITY					
NITROGEN, AMMONIA	MG/KG	299			
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG	1760			
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG	1050			
PERCENT MOISTURE	PERCENT	42.1	40.3	44.4	41.6
PHOSPHORUS, TOTAL (AS P)	MG/KG	105 J-			
TOTAL ORGANIC CARBON	MG/KG	28800	30100 J-		
TOTAL SOLIDS	PERCENT	57.9	59.7	55.6	58.4

Table A1.6c Composite Sediment Sample Results for Miscellaneous Assays

NAME	UNITS	**LMR21-WC2**	**LMR21-WC2 FD1**	**LMR21-WC2 FD2**	**LMR21-WC2 FD3**
CORROSIVITY (PH)	PH UNITS	7.4 J			
CYANIDE	MG/KG	0.5 J	0.011 UJ		
IGNITABILITY					
NITROGEN, AMMONIA	MG/KG	403			
NITROGEN, TOTAL KJELDAHL (TKN)	MG/KG	2250			
NITROGEN, TOTAL KJELDAHL (TKN) MOIST	MG/KG	1190			
PERCENT MOISTURE	PERCENT	49.4	47	46.9	47.7
PHOSPHORUS, TOTAL (AS P)	MG/KG	159 J-			
TOTAL ORGANIC CARBON	MG/KG	32600 J-	31600 J-		
TOTAL SOLIDS	PERCENT	53	50.6	53.1	52.3

Table A1.7 Composite Sediment Sample Results for Anions

NAME	PRCNAME	UNITS	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**	**LMR21-SBD**	**LMR21-WA1**
SULFIDE	ANIONS	MG/KG	5.6 J	6.21	3.2 J	6.21	4.4 J	4.8 J	2.8 J	4.8 J

Table A1.7 Composite Sediment Sample Results for Anions

NAME	PRCNAME	UNITS	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC1-FD FD**	**LMR21-WC2**
SULFIDE	ANIONS	MG/KG	5.6 J	12.8	2.4 J	8	3.2 J	6.4	12.7

Table A1.8 Composite Sediment Sample Results for TCLP

NAME	PRCNAME	Regulatory Level (mg/L)	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**
ARSENIC	TCLP METALLIC SPECIES	5	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
BARIUM	TCLP METALLIC SPECIES	100	1.1	1.4	0.86	0.87	0.55
CADMIUM	TCLP METALLIC SPECIES	1	0.006 J	0.0033 U	0.0033 U	0.0045 J	0.0033 U
CHROMIUM, TOTAL	TCLP METALLIC SPECIES	5	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
COPPER	TCLP METALLIC SPECIES		0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
LEAD	TCLP METALLIC SPECIES	5	0.0099 U	0.0099 U	0.0099 U	0.0099 U	0.0099 U
MERCURY	TCLP METALLIC SPECIES	0.2	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
NICKEL	TCLP METALLIC SPECIES		0.06 J	0.033 J	0.044 J	0.044 J	0.033 U
SELENIUM	TCLP METALLIC SPECIES	1	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
SILVER	TCLP METALLIC SPECIES	5	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U
ZINC	TCLP METALLIC SPECIES		0.37	0.036 J	0.1	0.11	0.059 J
2,4-D (DICHLOROPHENOXYACETIC ACID)	TCLP PESTICIDES	10	0.0132 U	0.0132 U	0.0132 U	0.0132 U	0.0132 U
CHLORDANE	TCLP PESTICIDES	0.03	0.0014 U	0.0014 UJ	0.0014 U	0.0014 UJ	0.0014 UJ
ENDRIN	TCLP PESTICIDES	0.02	0.0004 U	0.0004 UJ	0.0004 U	0.0004 UJ	0.0004 UJ
GAMMA BHC (LINDANE)	TCLP PESTICIDES	0.4	0.0004 U	0.0004 UJ	0.0004 U	0.0004 UJ	0.0004 UJ
HEPTACHLOR	TCLP PESTICIDES		0.0004 U	0.0004 UJ	0.0004 U	0.0004 UJ	0.0004 UJ
HEPTACHLOR EPOXIDE	TCLP PESTICIDES	0.008	0.0004 U	0.0004 UJ	0.0004 U	0.0004 UJ	0.0004 UJ
METHOXYCHLOR	TCLP PESTICIDES	10	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
SILVEX (2,4,5-TP)	TCLP PESTICIDES	1	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
TOXAPHENE	TCLP PESTICIDES	0.5	0.01 U	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ
2,4,5-TRICHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	400	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U
2,4,6-TRICHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	2	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U
2,4-DINITROTOLUENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	30.13	0.0052 U	0.0052 U	0.0052 U	0.0052 UJ	0.0052 U
2-METHYLPHENOL (O-CRESOL)	TCLP SEMI-VOLATILE ORGANIC ANALYSES	4200	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U
4-METHYLPHENOL (P-CRESOL)	TCLP SEMI-VOLATILE ORGANIC ANALYSES	4200	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U

HEXACHLOROBENZENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	30.13	0.005 U	0.005 U	0.005 U	0.005 UJ	0.005 U
HEXACHLOROETHANE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	3	0.006 U	0.006 U	0.006 U	0.006 UJ	0.006 U
NITROBENZENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	2	0.005 U	0.005 U	0.005 U	0.005 UJ	0.005 U
PENTACHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	100	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U
PYRIDINE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	35	0.0092 U	0.0092 U	0.0092 U	0.0092 UJ	0.0092 U
1,1-DICHLOROETHENE	TCLP VOLATILE ORGANIC ANALYSES		0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
1,2-DICHLOROETHANE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
1,4-DICHLOROBENZENE	TCLP VOLATILE ORGANIC ANALYSES	7.5	0.005 U	0.005 U	0.005 U	0.005 UJ	0.005 U
BENZENE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
CARBON TETRACHLORIDE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
CHLOROBENZENE	TCLP VOLATILE ORGANIC ANALYSES	100	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
CHLOROFORM	TCLP VOLATILE ORGANIC ANALYSES	6	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
HEXACHLOROBUTADIENE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0082 U	0.0082 U	0.0082 U	0.0082 UJ	0.0082 U
METHYL ETHYL KETONE (2-BUTANONE)	TCLP VOLATILE ORGANIC ANALYSES	200	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U
TETRACHLOROETHYLENE (PCE)	TCLP VOLATILE ORGANIC ANALYSES	0.7	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
TRICHLOROETHYLENE (TCE)	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
VINYL CHLORIDE	TCLP VOLATILE ORGANIC ANALYSES	0.2	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U

Units are mg/L

NAME	PRCNAME	Regulatory Level (mg/L)	LMR21-SBC	LMR21-SBD	LMR21-WA1	LMR21-WA2	LMR21-WA3	LMR21-WB1
ARSENIC	TCLP METALLIC SPECIES	5	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
BARIUM	TCLP METALLIC SPECIES	100	0.81	1.4	0.47	0.49	0.6	0.58
CADMIUM	TCLP METALLIC SPECIES	1	0.0033 U	0.0033 U	0.004 J	0.0033 U	0.0055 J	0.004 J
CHROMIUM, TOTAL	TCLP METALLIC SPECIES	5	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
COPPER	TCLP METALLIC SPECIES		0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
LEAD	TCLP METALLIC SPECIES	5	0.0099 U	0.0099 U	0.0099 U	0.0099 U	0.0099 U	0.0099 U
MERCURY	TCLP METALLIC SPECIES	0.2	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
NICKEL	TCLP METALLIC SPECIES		0.042 J	0.033 U	0.12	0.033 U	0.046 J	0.037 J
SELENIUM	TCLP METALLIC SPECIES	1	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
SILVER	TCLP METALLIC SPECIES	5	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U
ZINC	TCLP METALLIC SPECIES		0.59	0.033 U	0.42	0.1	0.2	0.1
2,4-D (DICHLOROPHENOXYACETIC ACID)	TCLP PESTICIDES	10	0.0132 UJ	0.0132 U	0.0132 UJ	0.0132 UJ	0.0132 UJ	0.0132 UJ
CHLORDANE	TCLP PESTICIDES	0.03	0.0014 UJ	0.0014 UJ	0.0014 UJ	0.0014 UJ	0.0014 UJ	0.0014 UJ
ENDRIN	TCLP PESTICIDES	0.02	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
GAMMA BHC (LINDANE)	TCLP PESTICIDES	0.4	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
HEPTACHLOR	TCLP PESTICIDES		0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
HEPTACHLOR EPOXIDE	TCLP PESTICIDES	0.008	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
METHOXYCHLOR	TCLP PESTICIDES	10	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
SILVEX (2,4,5-TP)	TCLP PESTICIDES	1	0.004 UJ	0.004 U	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ
TOXAPHENE	TCLP PESTICIDES	0.5	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
2,4,5-TRICHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	400	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
2,4,6-TRICHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	2	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
2,4-DINITROTOLUENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	30.13	0.0052 UJ	0.0052 U	0.0052 UJ	0.0052 UJ	0.0052 UJ	0.0052 UJ
2-METHYLPHENOL (O-CRESOL)	TCLP SEMI-VOLATILE ORGANIC ANALYSES	4200	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
4-METHYLPHENOL (P-CRESOL)	TCLP SEMI-VOLATILE ORGANIC ANALYSES	4200	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ

HEXACHLOROBENZENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	30.13	0.005 UJ	0.005 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
HEXACHLOROETHANE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	3	0.006 UJ	0.006 U	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ
NITROBENZENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	2	0.005 UJ	0.005 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
PENTACHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	100	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
PYRIDINE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	35	0.0092 UJ	0.0092 U	0.0092 UJ	0.0092 UJ	0.0092 UJ	0.0092 UJ
1,1-DICHLOROETHENE	TCLP VOLATILE ORGANIC ANALYSES		0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
1,2-DICHLOROETHANE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
1,4-DICHLOROBENZENE	TCLP VOLATILE ORGANIC ANALYSES	7.5	0.005 UJ	0.005 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
BENZENE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
CARBON TETRACHLORIDE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
CHLOROBENZENE	TCLP VOLATILE ORGANIC ANALYSES	100	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
CHLOROFORM	TCLP VOLATILE ORGANIC ANALYSES	6	0.0066 U	0.0066 U	0.0094 J	0.0081 J	0.0088 J	0.0066 U
HEXACHLOROBUTADIENE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0082 UJ	0.0082 U	0.0082 UJ	0.0082 UJ	0.0082 UJ	0.0082 UJ
METHYL ETHYL KETONE (2-BUTANONE)	TCLP VOLATILE ORGANIC ANALYSES	200	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U
TETRACHLOROETHYLENE (PCE)	TCLP VOLATILE ORGANIC ANALYSES	0.7	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
TRICHLOROETHYLENE (TCE)	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U
VINYL CHLORIDE	TCLP VOLATILE ORGANIC ANALYSES	0.2	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U	0.0066 U

Units are mg/L

NAME	PRCNAME	Regulatory Level (mg/L)	LMR21-WB2	LMR21-WC1	LMR21-WC1-FD FD	LMR21-WC2
ARSENIC	TCLP METALLIC SPECIES	5	0.042 U	0.042 U	0.042 U	0.042 U
BARIUM	TCLP METALLIC SPECIES	100	0.64	0.72	0.64	0.64
CADMIUM	TCLP METALLIC SPECIES	1	0.0033 U	0.0033 U	0.0035 J	0.005 J
CHROMIUM, TOTAL	TCLP METALLIC SPECIES	5	0.009 U	0.009 U	0.009 U	0.009 U
COPPER	TCLP METALLIC SPECIES		0.016 U	0.016 U	0.016 U	0.016 U
LEAD	TCLP METALLIC SPECIES	5	0.0099 U	0.0099 U	0.0099 U	0.0099 U
MERCURY	TCLP METALLIC SPECIES	0.2	0.00016 U	0.00016 U	0.00016 U	0.00016 U
NICKEL	TCLP METALLIC SPECIES		0.033 U	0.037 J	0.036 J	0.05 J
SELENIUM	TCLP METALLIC SPECIES	1	0.033 U	0.033 U	0.033 U	0.033 U
SILVER	TCLP METALLIC SPECIES	5	0.0063 U	0.0063 U	0.0063 U	0.0063 U
ZINC	TCLP METALLIC SPECIES		0.11	0.32	0.19	0.16
2,4-D (DICHLOROPHENOXYACETIC ACID)	TCLP PESTICIDES	10	0.0132 UJ	0.0132 UJ	0.0132 UJ	0.0132 UJ
CHLORDANE	TCLP PESTICIDES	0.03	0.0014 UJ	0.0014 UJ	0.0014 UJ	0.0014 UJ
ENDRIN	TCLP PESTICIDES	0.02	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
GAMMA BHC (LINDANE)	TCLP PESTICIDES	0.4	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
HEPTACHLOR	TCLP PESTICIDES		0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
HEPTACHLOR EPOXIDE	TCLP PESTICIDES	0.008	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
METHOXYCHLOR	TCLP PESTICIDES	10	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ
SILVEX (2,4,5-TP)	TCLP PESTICIDES	1	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ
TOXAPHENE	TCLP PESTICIDES	0.5	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
2,4,5-TRICHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	400	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
2,4,6-TRICHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	2	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
2,4-DINITROTOLUENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	30.13	0.0052 UJ	0.0052 UJ	0.0052 UJ	0.0052 UJ
2-METHYLPHENOL (O-CRESOL)	TCLP SEMI-VOLATILE ORGANIC ANALYSES	4200	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
4-METHYLPHENOL (P-CRESOL)	TCLP SEMI-VOLATILE ORGANIC ANALYSES	4200	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ

HEXACHLOROBENZENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	30.13	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
HEXACHLOROETHANE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	3	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ
NITROBENZENE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	2	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
PENTACHLOROPHENOL	TCLP SEMI-VOLATILE ORGANIC ANALYSES	100	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
PYRIDINE	TCLP SEMI-VOLATILE ORGANIC ANALYSES	35	0.0092 UJ	0.0092 UJ	0.0092 UJ	0.0092 UJ
1,1-DICHLOROETHENE	TCLP VOLATILE ORGANIC ANALYSES		0.0066 U	0.0066 U	0.0066 UJ	0.0066 U
1,2-DICHLOROETHANE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 UJ	0.0066 U
1,4-DICHLOROBENZENE	TCLP VOLATILE ORGANIC ANALYSES	7.5	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
BENZENE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 UJ	0.0066 U
CARBON TETRACHLORIDE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 UJ	0.0066 U
CHLOROBENZENE	TCLP VOLATILE ORGANIC ANALYSES	100	0.0066 U	0.0066 U	0.0066 UJ	0.0066 U
CHLOROFORM	TCLP VOLATILE ORGANIC ANALYSES	6	0.0092 J	0.0085 J	0.0066 UJ	0.0066 U
HEXACHLOROBUTADIENE	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0082 UJ	0.0082 UJ	0.0082 UJ	0.0082 UJ
METHYL ETHYL KETONE (2-BUTANONE)	TCLP VOLATILE ORGANIC ANALYSES	200	0.032 U	0.032 U	0.032 UJ	0.032 U
TETRACHLOROETHYLENE (PCE)	TCLP VOLATILE ORGANIC ANALYSES	0.7	0.0066 U	0.0066 U	0.0066 UJ	0.0066 U
TRICHLOROETHYLENE (TCE)	TCLP VOLATILE ORGANIC ANALYSES	0.5	0.0066 U	0.0066 U	0.0066 UJ	0.0066 U
VINYL CHLORIDE	TCLP VOLATILE ORGANIC ANALYSES	0.2	0.0066 U	0.0066 U	0.0066 UJ	0.0066 U

Units are mg/L

Table A1.9 Composite Elutriate Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**
DIESEL RANGE ORGANICS (DRO)	MG/L						
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/L	7.8	0.029 U	1.5	0.042 J	0.3	2.7
GASOLINE RANGE ORGANICS (GRO)	UG/L	157 J	29 UJ	35.7 J	29 UJ	29 UJ	29 UJ
OIL RANGE ORGANICS (C20-C44)	MG/L	6.4	0.095 U	2	0.095 U	0.31	2.9
TOTAL OIL & GREASE	MG/L	3.1 J	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
TOTAL PETROLEUM HYDROCARBONS	MG/L						

Table A1.9 Composite Elutriate Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	**LMR21-SBD**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**
DIESEL RANGE ORGANICS (DRO)	MG/L						
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/L	0.029 UJ	0.55 J	0.35 J	0.31 J	1.2 J	0.055 J
GASOLINE RANGE ORGANICS (GRO)	UG/L	29 UJ	29 UJ	29 UJ	29 UJ	29 UJ	29 UJ
OIL RANGE ORGANICS (C20-C44)	MG/L	0.096 UJ	0.53 J	0.4 J	0.29 J	1.5 J	0.096 UJ
TOTAL OIL & GREASE	MG/L	1.2 U	1 UJ	1.2 U	1.2 U	1.2 U	1 UJ
TOTAL PETROLEUM HYDROCARBONS	MG/L						

Table A1.9 Composite Elutriate Sample Results for Petroleum Hydrocarbon Mixtures

NAME	UNITS	**LMR21-WC1**	**LMR21-WC2**	**SC21-CDF-WAT**	**SC21-MR-WAT**
DIESEL RANGE ORGANICS (DRO)	MG/L			0.13 U	0.13 U
DIESEL RANGE ORGANICS (DRO) C10-C28	MG/L	0.13 J	0.96 J		
GASOLINE RANGE ORGANICS (GRO)	UG/L	29 UJ	29 UJ		
OIL RANGE ORGANICS (C20-C44)	MG/L	0.15 J	1.2 J		
TOTAL OIL & GREASE	MG/L	1.2 U	1.2 U	4.1 J	3.6 J
TOTAL PETROLEUM HYDROCARBONS	MG/L			0.27 J	0.2 U

Table A1.10 Composite Elutriate Sample Results for Metallic Species

NAME	Aquatic_Life_ OZMAa	Human_Health_ NonDrink_ Values	Table1a_freshwater_chronic_value	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**
ALUMINUM		4500	87	1200	650	1500	170	410
ANTIMONY	190			10 U	10 U	10 U	10 U	10 U
ARSENIC	150			12 J	9.3 U	9.3 U	9.3 U	9.3 J
BARIUM	640			89	110	84	44	75
BERYLLIUM	11			1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
CADMIUM	2.5			0.89 J	0.73 U	0.89 J	0.73 U	0.73 U
CALCIUM				26900	20300	20200	25600	34600
CHROMIUM, TOTAL	86			3.8 J	2 U	3.9 J	2 U	2 U
COBALT	24			2 U	2 U	2 U	2 U	2 U
COPPER	9.3			9 J	3.6 U	9.6 J	3.6 U	3.6 U
IRON				2400	810	2400	250	1300
LEAD	6.4			20	2.2 U	12	2.2 U	2.2 U
MAGNESIUM				12000	11700	14500	11400	11500
MANGANESE				150	21	200	46	490
MERCURY	0.91			0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
NICKEL	52			7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
POTASSIUM				6500	3200	8300	3900	6200
SELENIUM	5			7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
SILVER	0.06			1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
SODIUM				28100	31400	31000	29100	33800
THALLIUM	17			7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
VANADIUM	44			2.9 J	2 U	3.6 J	2 U	2 U
ZINC	120			30	7.3 U	24	7.3 U	7.3 U

Units are µg/L

Table A1.10 Composite Elutriate Sample Results for Metallic Species

NAME	Aquatic_Life_ OZMAa	Human_Health_ NonDrink_ Values	Table1a_freshwater_chronic_value	**LMR21-SBC**	**LMR21-SBD**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**
ALUMINUM		4500	87	2400	2400 J	7700	10300 J	10700 J
ANTIMONY	190			10 U	10 U	10 U	10 U	10 U
ARSENIC	150			23 J	9.3 UJ	17 J	14 J	12 J
BARIUM	640			92	94	110	150	100
BERYLLIUM	11			1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
CADMIUM	2.5			1.8 J	0.73 UJ	2.9	2.1 J	3.1 J
CALCIUM				27200	22800	23700	30700	26900
CHROMIUM, TOTAL	86			6.3	2.7 J	35	33 J	16 J
COBALT	24			2 U	2 U	3.4 J	4.7 J	3.2 J
COPPER	9.3			24	3.8 J	44	47	46
IRON				5900	2000 J	7600	14000 J	7400 J
LEAD	6.4			62	2.2 UJ	52	40 J	75 J
MAGNESIUM				9700	11800	9300	11000	9500
MANGANESE				230	43 J	89	190 J	100 J
MERCURY	0.91			0.31 J	0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ
NICKEL	52			7.3 U	7.3 U	20 J	19 J	11 J
POTASSIUM				6000	4200	7100	6700	6300
SELENIUM	5			7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
SILVER	0.06			1.4 U	1.4 UJ	1.4 U	1.4 UJ	1.4 UJ
SODIUM				26900	28800	28300	27000	28800
THALLIUM	17			7.3 U	7.3 UJ	7.3 U	7.3 UJ	7.3 UJ
VANADIUM	44			5.1 J	5.6 J	16	16 J	10 J
ZINC	120			160	11 J	130	120	130

Units are µg/L

Table A1.10 Composite Elutriate Sample Results for Metallic Species

NAME	Aquatic_Life_ OZMAa	Human_Health_ NonDrink_ Values	Table1a_freshwater_chronic_value	**LMR21-WB1**	**LMR21-WB2**	**LMR21-WC1**	**LMR21-WC2**	**SC21-CDF-WAT**
ALUMINUM		4500	87	1900 J	1900	2900 J	2000 J	1610
ANTIMONY	190			10 U	10 U	10 U	10 U	6.8 U
ARSENIC	150			9.3 UJ	9.3 U	12 J	11 J	4.2 U
BARIUM	640			110	62	74	92	45.8 J
BERYLLIUM	11			1.4 U	1.4 U	1.4 U	1.4 U	0.32 U
CADMIUM	2.5			2 J	0.73 U	0.73 UJ	1.2 J	0.67 U
CALCIUM				31200	27900	28800	36500	63900
CHROMIUM, TOTAL	86			20 J	2 U	5.3 J	7.1 J	2.9 J
COBALT	24			2 U	2 U	2 U	2 U	11 U
COPPER	9.3			29	6.8 J	16	21	7.2 U
IRON				4800 J	2200	3800 J	5200 J	1720 B
LEAD	6.4			20 J	9.4	27 J	17 J	4.3 U
MAGNESIUM				11400	10000	10100	12600	16400
MANGANESE				200 J	67	96 J	310 J	36.1
MERCURY	0.91			0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.086 U
NICKEL	52			16 J	7.3 U	7.3 U	7.8 J	7.6 U
POTASSIUM				6800	3700	4100	6400	6500
SELENIUM	5			7.3 U	7.3 U	7.3 U	7.3 U	15 U
SILVER	0.06			1.4 UJ	1.4 U	1.4 UJ	1.4 UJ	1.5 U
SODIUM				26500	27100	26400	28700	17500
THALLIUM	17			7.3 UJ	7.3 U	7.3 UJ	7.3 UJ	7 U
VANADIUM	44			3.9 J	3.1 J	5.4 J	4.4 J	3.5 J
ZINC	120			75	17 J	49	42	9.9 J

Units are µg/L

Table A1.10 Composite Elutriate Sample Results for Metallic Species

NAME	Aquatic_Life_OZMAa	Human_Health_NonDrink_Values	Table1a_freshwater_chronic_value	**SC21-MR-WAT**
ALUMINUM		4500	87	1560
ANTIMONY	190			6.8 U
ARSENIC	150			4.2 U
BARIUM	640			47 J
BERYLLIUM	11			0.32 U
CADMIUM	2.5			0.67 U
CALCIUM				67200
CHROMIUM, TOTAL	86			2.9 U
COBALT	24			11 U
COPPER	9.3			7.2 U
IRON				1640 B
LEAD	6.4			4.3 U
MAGNESIUM				17000
MANGANESE				33.2
MERCURY	0.91			0.086 U
NICKEL	52			7.6 U
POTASSIUM				6270
SELENIUM	5			15 U
SILVER	0.06			1.5 U
SODIUM				14600
THALLIUM	17			7 U
VANADIUM	44			3.2 U
ZINC	120			8.3 U

Units are µg/L

Table A1.11 Composite Elutriate Sample Results for Semi-Volatile Organic Analyses by SIM

NAME	Aquatic_ Life_OZMAa	Human_Health_ NonDrink_ Values	Table1a_ freshwater_ chronic_value	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**
2-METHYLNAPHTHALENE			4.7	39.4	0.0099 J	0.061	0.014 J
ACENAPHTHENE	15			45.4	0.012 J	3.7	0.085
ACENAPHTHYLENE	13			1.7 J-	0.0235 U	0.097	0.017 J
ANTHRACENE	0.02			16.9	0.0235 U	0.44	0.017 J
BENZO(A)ANTHRACENE	4.7			9	0.0235 U	0.26	0.0235 U
BENZO(A)PYRENE	0.06			5.8 J-	0.0235 U	0.18	0.0235 U
BENZO(B)FLUORANTHENE	2.6			4.2 J-	0.0235 U	0.0235 U	0.0235 U
BENZO(G,H,I)PERYLENE			0.012	1.5	0.0235 U	0.096	0.0235 U
BENZO(K)FLUORANTHENE		0.13	0.06	4.7 J-	0.0235 U	0.16	0.0235 U
CHRYSENE	4.7			7.4	0.0235 U	0.27	0.013 J
DIBENZ(A,H)ANTHRACENE		0.0013	0.012	0.63	0.0235 U	0.0235 U	0.0235 U
FLUORANTHENE	0.8			37	0.015 J	1.6	0.078
FLUORENE	19			47	0.011 J	2.3	0.068
INDENO(1,2,3-C,D)PYRENE		0.013	0.012	1.9	0.0235 U	0.0235 U	0.0235 U
NAPHTHALENE	21			312	0.062	0.066	0.23
PHENANTHRENE	2.3			75	0.023 J	2.8	0.09
PYRENE	4.6			25.1	0.012 J	1.3	0.07
TOTAL 17 PAH (ND SET TO 1/2 RL)				634.63	0.3799	13.4005	0.8465

Units are µg/L

Table A1.11 Composite Elutriate Sample Results for Semi-Volatile Organic Analyses by SIM

NAME	Aquatic_ Life_OZMAa	Human_Health_ NonDrink_ Values	Table1a_ freshwater_ chronic_value	**LMR21-SBB2**	**LMR21-SBC**	**LMR21-SBD**	**LMR21-WA1**
2-METHYLNAPHTHALENE			4.7	0.0235 U	0.017 J	0.0235 U	0.01 J-
ACENAPHTHENE	15			0.75	0.21	0.029 J	0.25 J-
ACENAPHTHYLENE	13			0.033 J	0.15	0.0235 U	0.0235 UJ
ANTHRACENE	0.02			0.082	0.29	0.0235 U	0.097 J-
BENZO(A)ANTHRACENE	4.7			0.12	0.91	0.0235 U	0.22
BENZO(A)PYRENE	0.06			0.12 J-	0.73	0.0235 U	0.19
BENZO(B)FLUORANTHENE	2.6			0.086 J-	0.69	0.0235 U	0.18
BENZO(G,H,I)PERYLENE			0.012	0.063 J-	0.31	0.0235 U	0.098
BENZO(K)FLUORANTHENE		0.13	0.06	0.093 J-	0.67	0.0235 U	0.15
CHRYSENE	4.7			0.11	1.1	0.0235 U	0.3
DIBENZ(A,H)ANTHRACENE		0.0013	0.012	0.023 J-	0.11	0.0235 U	0.029 J
FLUORANTHENE	0.8			0.36	1.9	0.031 J	0.54
FLUORENE	19			0.31	0.48	0.029 J	0.27 J-
INDENO(1,2,3-C,D)PYRENE		0.013	0.012	0.065 J-	0.32	0.0235 U	0.092
NAPHTHALENE	21			0.0235 U	0.075	0.055	0.0235 UJ
PHENANTHRENE	2.3			0.16	1.6	0.044 J	0.18 J-
PYRENE	4.6			0.31	1.9	0.028 J	0.61
TOTAL 17 PAH (ND SET TO 1/2 RL)				2.732	11.462	0.4745	3.263

Units are µg/L

Table A1.11 Composite Elutriate Sample Results for Semi-Volatile Organic Analyses by SIM

NAME	Aquatic_ Life_OZMAa	Human_Health_ NonDrink_ Values	Table1a_ freshwater_ chronic_value	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**
2-METHYLNAPHTHALENE			4.7	0.0235 U	0.023 J	0.18	0.0235 U
ACENAPHTHENE	15			0.29	0.24	0.36	0.27
ACENAPHTHYLENE	13			0.019 J	0.0235 U	0.0235 U	0.0235 U
ANTHRACENE	0.02			0.097	0.12	0.1	0.058
BENZO(A)ANTHRACENE	4.7			0.16	0.31	0.23	0.049
BENZO(A)PYRENE	0.06			0.13	0.21	0.2	0.032 J
BENZO(B)FLUORANTHENE	2.6			0.13	0.2	0.19	0.029 J
BENZO(G,H,I)PERYLENE			0.012	0.071	0.096	0.093	0.016 J
BENZO(K)FLUORANTHENE		0.13	0.06	0.12	0.18	0.16	0.03 J
CHRYSENE	4.7			0.23	0.39	0.3	0.058
DIBENZ(A,H)ANTHRACENE		0.0013	0.012	0.023 J	0.041 J	0.0235 U	0.0235 U
FLUORANTHENE	0.8			0.43	0.66	0.6	0.25
FLUORENE	19			0.22	0.3	0.53	0.23
INDENO(1,2,3-C,D)PYRENE		0.013	0.012	0.059	0.092	0.081	0.016 J
NAPHTHALENE	21			0.0235 U	0.0235 U	0.064	0.0235 U
PHENANTHRENE	2.3			0.41	0.61	0.33	0.44
PYRENE	4.6			0.46	0.72	0.63	0.25
TOTAL 17 PAH (ND SET TO 1/2 RL)				2.896	4.239	4.095	1.822

Units are µg/L

Table A1.11 Composite Elutriate Sample Results for Semi-Volatile Organic Analyses by SIM

NAME	Aquatic_ Life_OZMAa	Human_Health_ NonDrink_ Values	Table1a_ freshwater_ chronic_value	**LMR21-WC1**	**LMR21-WC2**	**SC21-CDF-WAT**	**SC21-MR-WAT**
2-METHYLNAPHTHALENE			4.7	0.0235 U	0.012 J	0.05 U	0.05 U
ACENAPHTHENE	15			0.34	0.12	0.05 U	0.05 U
ACENAPHTHYLENE	13			0.016 J	0.016 J	0.05 U	0.05 U
ANTHRACENE	0.02			0.14	0.036 J	0.05 U	0.05 U
BENZO(A)ANTHRACENE	4.7			0.14	0.089	0.05 U	0.05 U
BENZO(A)PYRENE	0.06			0.092	0.0235 U	0.05 U	0.05 U
BENZO(B)FLUORANTHENE	2.6			0.088	0.096	0.05 U	0.05 U
BENZO(G,H,I)PERYLENE			0.012	0.045 J	0.055	0.05 U	0.05 U
BENZO(K)FLUORANTHENE		0.13	0.06	0.08	0.059	0.05 U	0.05 U
CHRYSENE	4.7			0.16	0.15	0.05 U	0.05 U
DIBENZ(A,H)ANTHRACENE		0.0013	0.012	0.016 J	0.018 J	0.05 U	0.05 U
FLUORANTHENE	0.8			0.46	0.21	0.05 U	0.05 U
FLUORENE	19			0.35	0.18	0.05 U	0.05 U
INDENO(1,2,3-C,D)PYRENE		0.013	0.012	0.044 J	0.0235 U	0.05 U	0.05 U
NAPHTHALENE	21			0.0235 U	0.0235 U	0.05 U	0.05 U
PHENANTHRENE	2.3			0.56	0.2	0.05 U	0.05 U
PYRENE	4.6			0.47	0.25	0.05 U	0.05 U
TOTAL 17 PAH (ND SET TO 1/2 RL)				3.048	1.5615	0.85	0.85

Units are µg/L

NAME	Aquatic_Life_ OZMAa	Human_Health _NonDrink_ Values	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**
PCB, TOTAL	0.00012	0.000026	0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1016 (AROCHLOR 1016)			0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1221 (AROCHLOR 1221)			0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1232 (AROCHLOR 1232)			0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1242 (AROCHLOR 1242)			0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1248 (AROCHLOR 1248)			0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1254 (AROCHLOR 1254)			0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1260 (AROCHLOR 1260)			0.2 U	0.2 U	0.19 U	0.19 U	0.19 U	0.2 U
PCB-1268 (AROCHLOR 1268)								

Units are µg/L

Table A1.12 Composite Elutriate Sample Results for Polychlorinated Biphenyls

NAME	Aquatic_Life_OZMAa	Human_Health_NonDrink_Values	**LMR21-SBD**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**
PCB, TOTAL	0.00012	0.000026	0.2 U	0.19 UJ	0.4 U	0.2 U	1.4	0.18 UJ
PCB-1016 (AROCHLOR 1016)			0.2 U	0.19 UJ	0.4 U	0.2 U	0.19 UJ	0.18 UJ
PCB-1221 (AROCHLOR 1221)			0.2 U	0.19 UJ	0.4 U	0.2 U	0.19 UJ	0.18 UJ
PCB-1232 (AROCHLOR 1232)			0.2 U	0.19 UJ	0.4 U	0.2 U	0.19 UJ	0.18 UJ
PCB-1242 (AROCHLOR 1242)			0.2 U	0.19 UJ	0.4 U	0.2 U	0.19 UJ	0.18 UJ
PCB-1248 (AROCHLOR 1248)			0.2 U	0.19 UJ	0.4 U	0.2 U	1.4 J-	0.18 UJ
PCB-1254 (AROCHLOR 1254)			0.2 U	0.19 UJ	0.4 U	0.2 U	0.19 UJ	0.18 UJ
PCB-1260 (AROCHLOR 1260)			0.2 U	0.19 UJ	0.4 U	0.2 U	0.19 UJ	0.18 UJ
PCB-1268 (AROCHLOR 1268)								

Units are µg/L

Table A1.12 Composite Elutriate Sample Results for Polychlorinated Biphenyls

NAME	Aquatic_Life_OZMAa	Human_Health_NonDrink_Values	**LMR21-WC1**	**SC21-CDF-WAT**	**SC21-MR-WAT**
PCB, TOTAL	0.00012	0.000026	0.2 U		
PCB-1016 (AROCHLOR 1016)			0.2 U	0.13 U	0.13 U
PCB-1221 (AROCHLOR 1221)			0.2 U	0.22 U	0.22 U
PCB-1232 (AROCHLOR 1232)			0.2 U	0.25 U	0.25 U
PCB-1242 (AROCHLOR 1242)			0.2 U	0.29 U	0.29 U
PCB-1248 (AROCHLOR 1248)			0.2 U	0.18 U	0.18 U
PCB-1254 (AROCHLOR 1254)			0.2 U	0.18 U	0.18 U
PCB-1260 (AROCHLOR 1260)			0.2 U	0.14 U	0.14 U
PCB-1268 (AROCHLOR 1268)				0.35 U	0.35 U

Units are µg/L

Table A1.13 Composite Elutriate Sample Results for Miscellaneous Assays

NAME	Aquatic_Life_OZMAa	**LMR21-SBA1**	**LMR21-SBA2**	**LMR21-SBA3**	**LMR21-SBB1**	**LMR21-SBB2**	**LMR21-SBC**
CYANIDE	5.2	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
HARDNESS (AS CACO3)							
NITROGEN, AMMONIA	0.5	12.4	0.782	11.9	5.27	6.27	13.3
NITROGEN, TOTAL KJELDAHL (TKN)		12	0.4 U	10.4	3.8	5.1	12.8
PHOSPHORUS, TOTAL (AS P)		0.27	0.022 J	0.25	0.025 J	0.13	0.3
TOTAL ORGANIC CARBON		6.4	1.4	5.6	2.3	3.2	6.5

Units are mg/L

Table A1.13 Composite Elutriate Sample Results for Miscellaneous Assays

NAME	Aquatic_Life_OZMAa	**LMR21-SBD**	**LMR21-WA1**	**LMR21-WA2**	**LMR21-WA3**	**LMR21-WB1**	**LMR21-WB2**
CYANIDE	5.2	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.001 UJ
HARDNESS (AS CACO3)							
NITROGEN, AMMONIA	0.5	2.44	30.1 J	19.9	17.5	24.9	6.9 J
NITROGEN, TOTAL KJELDAHL (TKN)		2.5	28.8 J	20.2	17.7	26.5	6.7 J
PHOSPHORUS, TOTAL (AS P)		0.017 U	0.31 J	0.26	0.22	0.38	0.017 UJ
TOTAL ORGANIC CARBON		1.4 J+	6.1 J	6.7 J+	3.9 J+	7.6 J+	2.2 J

Units are mg/L

Table A1.13 Composite Elutriate Sample Results for Miscellaneous Assays

NAME	Aquatic_Life_OZMAa	**LMR21-WC1**	**LMR21-WC2**	**SC21-CDF-WAT**	**SC21-MR-WAT**
CYANIDE	5.2	0.001 U	0.001 U	0.004 U	0.004 U
HARDNESS (AS CACO3)				227	238
NITROGEN, AMMONIA	0.5	8.59	16.4	0.13	0.1
NITROGEN, TOTAL KJELDAHL (TKN)		9.1	17.3	1.2	1.1
PHOSPHORUS, TOTAL (AS P)		0.058 J	0.32	0.19	0.17
TOTAL ORGANIC CARBON		2.5 J+	6.1 J+		

Units are mg/L

PARLABEL	NAME	LMR21-10S REP A	LMR21-10S REP B	LMR21-10S REP C	LMR21-10S REP D	LMR21-10S REP E	LMR21-12S REP A	LMR21-12S REP B	LMR21-12S REP C	LMR21-12S REP D	LMR21-12S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.057 J	0.0706 J	0.0673 J	0.0651 J	0.0609 J	0.0607 J	0.0957 J	0.0671 J	0.0704 J	0.0718 J
PCB1	2-CHLOROBIPHENYL	0.0371 J-	0.0159 J+	0.01 J	0.0144 J+	0.0059 J	0.016 U	0.04 J	0.0051 J	0.0076 J	0.00897 J+
PCB10	2,6-DICHLOROBIPHENYL	0.0043 J	0.0022 U	0.001 J	0.00254 J	0.00038 U	0.0022 U	0.0014 U	0.00035 U	0.00062 U	0.0013 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0522	0.0406	0.043	0.0452	0.0356	0.0124	0.0202	0.015	0.0125	0.0143
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00288 J	0.00265 J	0.0024 J	0.00257 J	0.00215 J	0.00063 J	0.000931 M,J	0.000767 J	0.000685 J	0.00063 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.387	0.374	0.338	0.348	0.29	0.129	0.189	0.143	0.136	0.129
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0.00057 U	0.0012 U	0.00023 U	0.00025 U	0 J	0.00055 U	0.00063 U	0.00019 U	0.00025 U	0.00013 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.128 M	0.132	0.125	0.131 M	0.101 M	0.0388	0.0628 M	0.0485	0.0438	0.0435
PCB11	3,3'-DICHLOROBIPHENYL	0.192 J+	0.12 J+	0.322 J+	0.347 J+	0.312 J+	0.233 J+	0.242 J+	0.145 J+	0.141 J+	0.128 J+
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00254 J	0.00228 J	0.0021 J	0.00243 M,J	0.0018 J	0.00111 M,J	0.0014 M,J	0.000683 J	0.000702 J	0.00082 M,J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL	0.00031 U	0.00061 U	0.00011 U	0.00015 U	0.00015 U	0.00032 U	0.00035 U	0.000077 U	0.0001 U	0.00008 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0307	0.0263	0.0279	0.0272	0.0219	0.00999 J	0.0145	0.0115	0.00998	0.0105
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	1.13	1.08	0.973	1.01	0.823	0.348	0.514	0.388	0.355	0.341
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.0125	0.0129	0.0117	0.0111	0.00836	0.00341 J	0.0051 J	0.00395	0.00352	0.00382
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.0022 J	0.00185 J	0.0019 J	0.00207 J	0.00155 J	0.000733 M,J	0.00117 J	0.000471 J	0.000555 J	0.000542 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0206	0.0206	0.0199	0.0206	0.015	0.00815 J	0.0126	0.00882	0.00832	0.00799
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.0217 M	0.0156 M	0.0186	0.0148 M	0.012 J	0.00656 J	0.00775 M,J	0.00786	0.00615	0.00718
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00256 M,J	0.00248 M,J	0.00154 J	0.00165 J	0.00157 M,J	0.0007 J	0.00103 M,J	0.000882 J	0.000594 M,J	0.00071 J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.00188 M,J	0.0012 J	0.0012 J	0.001 J	0.00068 J	0.00052 U	0.00064 J	0.000544 J	0.000566 J	0.000455 M,J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.133	0.117	0.112	0.122	0.158	0.0511	0.0718	0.0592	0.0522	0.0525
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0174	0.0122 J	0.0125	0.0148	0.0217	0.0075 J	0.0086 M,J	0.00743	0.00632	0.00617
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.615	0.445	0.448	0.491	0.696	0.225	0.307	0.245	0.21	0.218
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0635	0.0531	0.0532	0.0505	0.0769	0.0215	0.0317	0.0259	0.0221	0.024
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.215	0.138	0.147	0.169	0.231	0.0738	0.0936	0.0894	0.0655	0.0708
PCB14	3,5-DICHLOROBIPHENYL	0.0013 U	0.0029 U	0.00041 U	0.00058 J	0.00053 J	0.0031 U	0.0018 U	0.00047 U	0.00063 U	0.0002 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.142	0.109	0.106	0.112	0.134	0.0364	0.0479	0.0372	0.0435	0.0339
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.00076 U	0.00095 U	0.0002 U	0.00027 U	0.00038 U	0.00052 U	0.00051 U	0.00012 U	0.00024 U	0.00014 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0913	0.0679	0.0709	0.082	0.112	0.0278	0.0414	0.0326	0.0295	0.0309
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00114 M,J	0.000698 M,J	0.000795 M,J	0.00106 J	0.00091 J	0.00021 U	0.000557 M,J	0.000436 J	0.000415 M,J	0.00037 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.519	0.424	0.414	0.434	0.635	0.168	0.251	0.19	0.169	0.182
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.012 J	0.00812 J	0.00835	0.00863	0.0121	0.00256 J	0.00401 M,J	0.0029	0.0024 J	0.00292
PCB15	4,4'-DICHLOROBIPHENYL	0.528	0.243	0.134	0.204	0.0898	0.205	0.739	0.059	0.0669	0.0702
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00738 J	0.0042 J	0.00484 J	0.00597	0.00872	0.00191 J	0.00248 J	0.00206 J	0.00159 J	0.00197 J
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.0027 J	0.0016 J	0.00177 J	0.00221 J	0.00331 J	0.000796 J	0.0011 J	0.00102 J	0.000755 J	0.000818 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0616	0.0466	0.0493	0.0543	0.0703	0.0168	0.0261	0.0207	0.0162	0.0195
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.0048 J	0.0042 J	0.00454 J	0.00535	0.00396 J	0.00228 J	0.00214 J	0.00164 J	0.00148 J	0.00143 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.149	0.121	0.117	0.127	0.179	0.0496	0.0664	0.0541	0.051	0.0487
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.0105 J	0.0106 J	0.00932	0.0116	0.0144 M	0.0045 J	0.0069 J	0.00592	0.00543	0.00491
PCB16	2,2',3-TRICHLOROBIPHENYL	0.154	0.113	0.108	0.118	0.1	0.0508	0.0978	0.0531	0.0492	0.0494
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL	0.00045 U	0.00059 U	0.00012 U	0.00016 U	0.00024 U	0.00032 U	0.00031 U	0.000074 U	0.00015 U	0.000086 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL	0.00046 U	0.0006 U	0.00012 U	0.00017 U	0.00024 U	0.00033 U	0.00032 U	0.000076 U	0.00015 U	0.000088 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00808 J	0.00751 J	0.00755	0.00738	0.0106	0.00375 J	0.005 J	0.00395	0.00403	0.00365
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00292 M,J	0.0025 J	0.00248 M,J	0.00311 M,J	0.00382 M,J	0.00066 J	0.001 J	0.00066 M,J	0.000758 M,J	0.000686 M,J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0686	0.0629	0.0642	0.064	0.0683	0.0248	0.0358	0.0284	0.0264	0.0265
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0043 U	0.00412 M,J	0.00353 M,J	0.00479 M,J	0.0041 J	0.0029 U	0.0041 U	0.00273 M,J	0.00324 M,J	0.00198 M,J
PCB17	2,2',4-TRICHLOROBIPHENYL	0.289	0.219	0.205	0.235	0.2	0.0855	0.175	0.0981	0.0927	0.0906
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.243	0.305	0.274	0.29	0.247	0.127	0.186	0.153	0.158	0.134
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.068 J	0.0732	0.0711	0.0716	0.0613	0.0312	0.0465	0.0374	0.0374	0.0347
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.267	0.248	0.226	0.262	0.234	0.108 M	0.155	0.123 M	0.128	0.11
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0179	0.016	0.0155	0.0158	0.0128	0.00704 J	0.00997 J	0.00814	0.00798	0.00756
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0624	0.0476	0.0483	0.0582	0.0513	0.0247	0.0345	0.0288	0.0267	0.0268
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.244	0.243	0.227	0.25	0.213	0.121	0.166	0.141	0.13	0.124
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.166	0.141	0.139	0.15	0.132	0.0643	0.0976	0.0767	0.0701	0.0746
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.22	0.161	0.164	0.204	0.179	0.09	0.125	0.104	0.0936	0.0937
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.00425 J	0.00406 J	0.00323 J	0.00387 M,J	0.00282 J	0.0022 J	0.00247 J	0.00242 J	0.00201 J	0.0019 J
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL	0.00057 U	0.00045 U	0.000061 U	0.000094 U	0.00022 U	0.00034 U	0.00026 U	0.000085 U	0.000098 U	0.000066 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.307	0.275 M	0.259 M	0.264 M	0.24 M	0.108 M	0.171 M	0.127 M	0.128 M	0.117 M
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0102 J	0.0068 J	0.00884	0.0101	0.0084	0.00393 J	0.00439 J	0.00311	0.00297	0.00304
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.00071 U	0.0391 M	0.0556 M	0.0632 M	0.038 M	0.0235 M	0.0226 M	0.0267 M	0.0174 M	0.0257 M
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL	0.00048 U	0.00038 U	0.000125 M,J	0.00017 J	0.00018 U	0.00029 U	0.00022 U	0.000071 U	0.000082 U	0.000101 M,J
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	2.46	2.27	2.08	2.24	1.98	0.884	1.28	0.948	0.886	0.921
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00279 J	0.00258 J	0.00218 J	0.00221 J	0.00182 J	0.00128 J	0.00177 J	0.00158 J	0.00125 J	0.00118 J
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0121 J-	0.0129 J-	0.0108 J-	0.0112 J-	0.00987 J	0.00627 J	0.00808 J	0.00594 J-	0.00551 J-	0.00552 J-
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0674	0.0535	0.0484	0.0527	0.0435	0.0323	0.0508	0.0304	0.0305	0.03
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0693	0.0931	0.085	0.0885	0.0481	0.0399	0.0598	0.0479	0.0494	0.0453
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00934 J	0.0117 J	0.00964	0.00911	0.00708	0.00378 J	0.00531 J	0.00408	0.00464	0.00368
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL	0.00052 U	0.00044 U	0.000139 J	0.00011 J	0.00021 U	0.00033 U	0.00025 U	0.000082 U	0.000094 U	0.000084 J
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.127	0.131	0.118	0.121	0.109	0.0577	0.0859	0.0647	0.0715	0.0619
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0595	0.0593	0.0579	0.0637	0.0608	0.033	0.0453	0.0378	0.036	0.0369
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0515	0.0539	0.0515	0.0537	0.0488	0.0258	0.0358	0.0277	0.0294	0.0277
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.0133 M,J	0.00902 J	0.0095	0.00974	0.00888	0.00552 J	0.0062 J	0.00596	0.00609 M	0.00618
PCB2	3-CHLOROBIPHENYL	0.0133 J-	0.00585 M,J	0.0058 J	0.00682	0.00429 J	0.0118 J-	0.0176 J-	0.0042 J	0.00483	0.00472
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0296 J	0.0264	0.0235	0.029	0.0291	0.0144	0.0191 M	0.0159	0.0144 M	0.0159
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0467	0.0401	0.0403	0.0446	0.0354	0.0231	0.0323	0.0264	0.0232	0.0266
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0798	0.0744	0.0744	0.075	0.0501	0.0424	0.0652	0.0528	0.0485	0.0489
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.2	0.235	0.217	0.233	0.236	0.12	0.178	0.133	0.134	0.136
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.0024 U	0.00053 J	0.000498 J	0.000537 M,J	0.00047 J	0.00036 J	0.00031 U	0.00028 J	0.00028 J	0.000382 M,J
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.0103 J	0.0106 J	0.0101	0.0104	0.00849	0.00571 J	0.0081 J	0.00598	0.00586	0.00604
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.109	0.114	0.1	0.104	0.0882	0.0753	0.108	0.0815	0.0783	0.0771
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0173	0.0169	0.0171	0.0179	0.0144	0.0139	0.0188	0.0144	0.0131	0.0133
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0489	0.054	0.0481	0.0504	0.04	0.0385	0.0562	0.0449	0.0408	0.042
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.057 J	0.0706	0.0673	0.0651	0.0609	0.0607	0.0957	0.0671 M	0.0704 M	0.0718
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.313	0.235	0.219	0.237	0.18	0.121	0.229	0.0864	0.0849	0.0813
PCB23	2,3,5-TRICHLOROBIPHENYL	0.0016 J	0.0016 U	0.000909 J	0.00079 J	0.000897 M,J	0.001 U	0.00147 M,J	0.00037 J	0.00028 U	0.00035 J
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00548 J	0.00361 J	0.00318 J	0.00473 J	0.00386 J	0.00238 J	0.0044 M,J	0.00164 J	0.00156 J	0.0014 M,J
PCB25	2,3',4-TRICHLOROBIPHENYL	0.148	0.12	0.106	0.114	0.0934	0.0398	0.0795	0.0366	0.0318	0.0319
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0389	0.025 J	0.0261	0.0307	0.0247	0.013	0.0232	0.0132	0.0117	0.0117
PCB3	4-CHLOROBIPHENYL	0.0514	0.0209	0.0132	0.0199	0.00792	0.022	0.0666	0.0101	0.0167	0.016
PCB31	2,4',5-TRICHLOROBIPHENYL	0.853	0.638	0.56	0.618	0.491	0.301	0.581	0.223	0.211	0.195
PCB32	2,4',6-TRICHLOROBIPHENYL	0.203	0.156	0.14	0.157	0.13	0.0627	0.12	0.0657	0.061	0.0603
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.00923 J	0.0063 J	0.00701	0.0077	0.0059 J	0.00248 M,J	0.00423 J	0.00251	0.00228 J	0.00219 J
PCB35	3,3',4-TRICHLOROBIPHENYL	0.00929 J+	0.0017 U	0.0116 J+	0.0146 J+	0.0114 J+	0.00654 M,J	0.00768 J	0.00361 J+	0.00388 J+	0.00362 J+
PCB36	3,3',5-TRICHLOROBIPHENYL	0.00093 U	0.0014 U	0.00019 U	0.00025 U	0.00032 U	0.00095 U	0.00084 U	0.00019 U	0.00025 U	0.00013 U
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0942	0.073	0.0731	0.087	0.071	0.0395	0.0727	0.0285	0.0315	0.0262
PCB38	3,4,5-TRICHLOROBIPHENYL	0.0011 U	0.0016 U	0.0011 J	0.00105 J	0.0011 J	0 J	0.0009 U	0.000643 J	0.00027 U	0.000487 M,J
PCB39	3,4',5-TRICHLOROBIPHENYL	0.00896 J	0.00841 J	0.00743	0.00784	0.00683	0.0032 J	0.00438 J	0.00316	0.00273	0.00256
PCB4	2,2'-DICHLOROBIPHENYL	0.18	0.104	0.0785	0.0956	0.0648	0.079 J	0.183	0.0496	0.056	0.0621
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.505 M	0.416	0.396	0.433	0.357	0.139	0.203	0.16	0.146	0.141
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.079 M	0.0659	0.0649	0.0794	0.0663 M	0.0245	0.0367 M	0.0299	0.0253	0.0278
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0714	0.0564	0.0597	0.0631	0.0507	0.0208	0.0314	0.0283	0.0231	0.0252
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.341 M	0.265	0.256	0.302	0.26	0.0965	0.138	0.112	0.101	0.0979
PCB5	2,3-DICHLOROBIPHENYL	0.012 J	0.0057 J	0.00266 M,J	0.00415 M,J	0.0023 J	0.0033 J	0.0125	0.0015 J	0.0017 J	0.00198 M,J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	2.13 M	1.61 M	1.52 M	1.8 M	1.53 M	0.585 M	0.799 M	0.681 M	0.607 M	0.57 M
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00861 M,J	0.00919 J	0.00756	0.00799	0.00645	0.00279 J	0.0044 J	0.00319	0.0031 J	0.00315
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.0129	0.0113 J	0.0114	0.0128	0.00945	0.0044 J	0.00547 J	0.00409	0.00333 M	0.00344 M
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.471	0.414	0.373	0.404	0.325	0.131	0.186	0.136	0.135	0.121
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00952 J	0.00882 J	0.00781	0.00917	0.00718	0.00296 J	0.0038 J	0.00301	0.00302	0.00252
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.00092 U	0.0039 J	0.00639 M	0.0034 J	0.00485 M	0.00093 J	0.00226 M,J	0.00168 M,J	0.00226 M,J	0.0012 J
PCB6	2,3'-DICHLOROBIPHENYL	0.139	0.0696	0.0424	0.0654	0.0346	0.043 J	0.14	0.0215	0.0255	0.0274
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.17	0.144	0.139	0.154	0.123	0.0593	0.0763	0.0581	0.0596	0.0531

PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.0801	0.0665	0.0677	0.0733	0.0595	0.0203	0.0327	0.0256	0.0233	0.0213
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.725 M	0.606	0.567	0.634	0.517	0.218	0.304	0.25	0.224	0.204
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.958	0.844	0.744	0.809	0.659	0.279 M	0.392	0.289	0.279	0.247
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0467	0.0381	0.0383	0.0432	0.0351	0.0112 J	0.0142	0.0113	0.0108	0.00963
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.015 J	0.011 J	0.0143	0.0164	0.0115	0.00464 M,J	0.00617 J	0.00518	0.00467	0.00416
PCB7	2,4-DICHLOROBIPHENYL	0.0331	0.0153	0.00852	0.0147	0.00644	0.0102 J	0.0365	0.00425	0.0055	0.00605
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0255	0.0204	0.0217	0.0228	0.0181	0.00623 J	0.00862 J	0.00706	0.00598	0.00592
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00517 M,J	0.00652 M,J	0.00592 M	0.00798 M	0.00502 M	0.00223 M,J	0.004 J	0.00259 M	0.00182 M,J	0.00231 M,J
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0425	0.0398	0.0374	0.0419	0.0333	0.0143	0.0189	0.0134	0.0141	0.0119
PCB78	3,3',4,5-TETRACHLOROBIPHENYL	0.001 U	0.0013 U	0.00025 U	0.00014 U	0.00031 U	0.00077 U	0.00093 U	0.00016 U	0.00023 U	0.00016 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.017	0.0141	0.0132	0.0162	0.0117	0.00575 J	0.00653 M,J	0.00593	0.00538 M	0.00499
PCB8	2,4'-DICHLOROBIPHENYL	0.84 M	0.383 M	0.222 M	0.354 M	0.15	0.303 J-	0.982	0.106 M	0.124 M	0.155 M
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL	0.00075 U	0.00095 U	0.00018 U	0.00011 U	0.00023 U	0.00057 U	0.00069 U	0.00012 U	0.00017 U	0.00012 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00195 M,J	0.0015 J	0.00142 M,J	0.00142 J	0.00158 M,J	0.00053 J	0.00077 J	0.000704 M,J	0.00063 J	0.000565 M,J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.264	0.249	0.246	0.241	0.192	0.0888	0.141	0.106	0.0916	0.098
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.452	0.359	0.362	0.375	0.293	0.145	0.215	0.179	0.148	0.153
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0378	0.0335	0.0323	0.0329	0.025	0.0138	0.0211	0.0173	0.0136	0.0147
PCB9	2,5-DICHLOROBIPHENYL	0.0388	0.0175	0.0102	0.0171	0.00835	0.0126 J-	0.0407	0.00523	0.0061	0.00674
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.754	0.642	0.608	0.637	0.517	0.217	0.34	0.256	0.234	0.239
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.0244	0.018 J	0.0201	0.0241	0.0185	0.00684 J	0.011 J	0.00867	0.00715	0.00751
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	1.59	1.33	1.27	1.45	1.15	0.558	0.741	0.67	0.545	0.533
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0165	0.0134	0.0147	0.015	0.0115	0.00565 J	0.00877 J	0.0083	0.00566	0.00655
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.108	0.0467	0.0347	0.045	0.0221	0.041 J-	0.136	0.0143	0.0154	0.0163
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.38	0.307	0.277	0.337	0.296	0.128	0.233	0.138	0.132	0.122
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	1.11	0.812	0.699	0.767	0.582	0.399	0.805	0.271	0.257	0.249
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.341	0.24	0.209	0.237	0.179	0.139	0.285	0.0859	0.085	0.0802
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.169	0.126	0.117	0.133	0.105	0.0568	0.111	0.0528	0.0451	0.0426
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.834 M	0.686	0.653	0.71	0.585	0.251	0.348	0.28	0.257	0.243
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	1.49 M	1.23	1.15	1.29	1.06	0.434	0.599	0.492	0.439	0.405
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.264	0.203	0.205	0.234	0.195	0.0746	0.108	0.101	0.0825	0.0828
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	1.23 M	1.03	0.948	1.07	0.907	0.327	0.473	0.381	0.339	0.322
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.198	0.155	0.151	0.176	0.151	0.0577	0.0804	0.0785	0.0633	0.0624
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.145 M	0.12	0.112	0.125	0.103	0.0387	0.0552	0.0479	0.0415	0.0394
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	2	1.74	1.54	1.71	1.4	0.549	0.748 M	0.578	0.563	0.478
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.76	1.55	1.45	1.51	1.22	0.531	0.817	0.626	0.546	0.55
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	1.19 M	1.06 M	0.997 M	1.06 M	0.845 M	0.399 M	0.572 M	0.461 M	0.404 M	0.391 M
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.466	0.376	0.37	0.394	0.309	0.14	0.207	0.175	0.144	0.149
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	2.88	2.5	2.32	2.41	1.96	0.846	1.3	0.951	0.855	0.875
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.168 M	0.128 M	0.135 M	0.152 M	0.12 M	0.0479 M	0.0713 M	0.0613 M	0.0488 M	0.0514 M
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0687	0.062	0.0619	0.0631	0.0491	0.0213	0.033	0.0256	0.0242	0.0237
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.364	0.353	0.312	0.325	0.477	0.138	0.204	0.152	0.142	0.142
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	2.38	2.19	1.95	2.16	3.1	0.906	1.23	0.985	0.883	0.87
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0789	0.0339	0.036 M	0.0414	0.0568 M	0.017 J	0.0236	0.0214 M	0.0179 M	0.0166 M
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	1.3	0.942	0.931	1.09	1.55	0.398	0.541	0.431	0.37	0.403
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0395	0.0273	0.0296	0.0343	0.0478	0.0148	0.0189	0.0157	0.0134	0.0144
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	2.6	1.76 M	1.68 M	1.97 M	2.82 M	0.793 M	1.03 M	0.841 M	0.715 M	0.761 M
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	2.48	2.11	1.95	2.01	2.96	0.841	1.24	0.93	0.839	0.871
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.197	0.182	0.175	0.183	0.151	0.0699	0.0979	0.0778	0.0741	0.0726
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0857	0.0907	0.0844	0.093	0.00868	0.0431	0.0612	0.0505	0.0486	0.0449
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.224	0.32	0.26	0.266	0.22	0.104	0.15	0.108	0.155	0.101
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.424	0.435	0.405	0.441	0.0268	0.226	0.325	0.252	0.248	0.251
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	2.88 M	2.73 M	2.48 M	2.56 M	1.99 M	0.983 M	1.4 M	1.1 M	0.977 M	0.952 M
PCB-CO84	PCB-137; PCB-164	0.219	0.187	0.177	0.194	0.264	0.0792	0.107	0.0886	0.079	0.0778
PCCTOT	TOTAL PCB CONGENERS (LAB REPORTED)	50.1 J	41.9 J	38.9 J	42.6 J	40.1 J	16.9 J	26.1 J	17.9 J	16.3 J	16 J
TDCBP	TOTAL DICHLOROBIPHENYLS	2.08 J	1 J	0.856 J	1.15 J	0.691 J	0.93 J	2.51 J	0.406 J	0.442 J	0.475 J
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000316	0.000428	0.000312	0.000363	0.000202	0.0000193	0.000131	0.000192	0.000176	0.00015
TEQ_PCB_MP	TEQ PCB Mid Point	0.000381	0.000429	0.000312	0.000363	0.000325	0.000133	0.000193	0.000192	0.000177	0.00015
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000445	0.000429	0.000312	0.000363	0.000325	0.000176	0.000254	0.000192	0.000177	0.00015
THCBP	TOTAL HEPTACHLOROBIPHENYL	4.47 J	4.36 J	4.02 J	4.35 J	3.7 J	1.79 J	2.59 J	2 J	1.95 J	1.88 J
THXBP	TOTAL HEXACHLOROBIPHENYL	11.8 J	9.43 J	8.88 J	9.78 J	13.9 J	3.98 J	5.5 J	4.35 J	3.85 J	3.96 J
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.102 J	0.0427 J	0.029 J	0.0411 J	0.0181 J	0.0338 J	0.124 J	0.0194 J	0.0291 J	0.0297 J
TNCBP	TOTAL NONACHLOROBIPHENYL	0.175 J	0.185 J	0.165 J	0.172 J	0.143 J	0.128 J	0.183 J	0.141 J	0.132 J	0.132 J
TOCBP	TOTAL OCTACHLOROBIPHENYL	1.04 J	1.08 J	1.01 J	1.08 J	0.614 J	0.554 J	0.801 J	0.623 J	0.617 J	0.618 J
TPCBP	TOTAL PENTACHLOROBIPHENYL	14.3 J	12.8 J	11.9 J	12.5 J	10 J	4.56 J	6.71 J	5.28 J	4.62 J	4.6 J
TTCBP	TOTAL TETRACHLOROBIPHENYL	11.9 J	9.82 J	9.11 J	10.3 J	8.49 J	3.36 J	4.69 J	3.79 J	3.46 J	3.19 J
TTRBP	TOTAL TRICHLOROBIPHENYL	4.2 J	3.14 J	2.82 J	3.16 J	2.53 J	1.48 J	2.89 J	1.2 J	1.13 J	1.08 J
	TOTAL PCB CONGENERS (ND SET TO 0)	50.18177	41.950598	38.957976	42.658727	40.186187	16.942979	26.175548	17.93053	16.37916	16.10993

Units are µg/kg

PARLABEL	NAME	LMR21-14S REP A	LMR21-14S REP B	LMR21-14S REP C	LMR21-14S REP D	LMR21-14S REP E	LMR21-15S REP A	LMR21-15S REP B	LMR21-15S REP C	LMR21-15S REP D	LMR21-15S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.061 J	0.0728 J	0.0688 J	0.0711 J	0.0718 J	0.0816 J	0.0705 J	0.0659 J	0.0797 J	0.0658 J
PCB1	2-CHLOROBIPHENYL	0.025 J	0.0065 J	0.00474 J+	0.00552 J+	0.00778 J+	0.0622 J-	0.022 J	0.0173	0.0164	0.0234
PCB10	2,6-DICHLOROBIPHENYL	0.0036 U	0.0015 J	0.00098 J	0.00148 J	0.00242 J	0.012 J	0.0109	0.011	0.0107	0.00911
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0329	0.0336	0.029	0.0333	0.0345	0.261	0.238	0.232	0.242	0.248
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00244 J	0.00213 J	0.0016 J	0.00215 J	0.00215 J	0.0066 J	0.00758	0.00675	0.00706	0.00568
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.291	0.349	0.291	0.26	0.268	3.64	3.11	2.67	2.65	2.53
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0.001 U	0.00023 U	0.00024 U	0.00016 U	0.00021 U	0.0013 U	0.00049 U	0.00028 U	0.00057 U	0.00049 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0931 M	0.112	0.0913 M	0.0873	0.0788	1.11 M	0.952 M	0.882	0.852 M	0.847 M
PCB11	3,3'-DICHLOROBIPHENYL	0.166 J+	0.294 J+	0.177 J+	0.0739 J+	0.156 J+	0.26 J+	0.341 J+	0.229 J+	0.196 J+	0.196 J+
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.0019 J	0.0019 J	0.00137 J	0.00156 J	0.0017 J	0.014 M,J	0.0103 M	0.00856	0.00944	0.00941
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL	0.00059 U	0.00021 U	0.00012 U	0.000096 U	0.00012 U	0.0014 U	0.00017 U	0.00021 U	0.00014 U	0.00044 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0227 M	0.0288	0.0242	0.0223	0.0223	0.287	0.254	0.224 J-	0.202 J-	0.203 J-
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.802	0.935	0.798	0.717	0.734	10.3	8.55	7.41	8.11	7.05
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00719 M,J	0.00746	0.0063	0.007	0.00616	0.0713	0.0616	0.0633	0.0647	0.0682
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.00186 M,J	0.0012 J	0.00109 J	0.00134 J	0.00132 J	0.00527 J	0.0054	0.00557	0.00619	0.00582
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0176 M,J	0.0223	0.0175	0.0159	0.0159	0.199	0.172	0.173 M	0.154	0.16
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.011 M,J	0.0179	0.0142 M	0.0129	0.015	0.156 M	0.11 M	0.112 M	0.114 M	0.117 M
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00112 M,J	0.00148 J	0.00129 J	0.00124 J	0.00146 M,J	0.0144 J	0.015 M	0.0112	0.0104	0.0095
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.00097 U	0.000716 M,J	0.000626 M,J	0.00055 J	0.00021 U	0.0012 U	0.00047 U	0.00027 U	0.00055 U	0.00047 U
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0852	0.11	0.0875	0.086	0.0916	0.783	0.643	0.532	0.53	0.457
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0109 J	0.0151	0.0118	0.0106	0.0119	0.139	0.118	0.0929	0.0963	0.0708
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.00069 U	0.458	0.385	0.356	0.388	4.04	3.43	2.94	3.03	2.7
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0423	0.0421	0.0376	0.0429	0.0399	0.222	0.196	0.168	0.129	0.135
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.113	0.171	0.136 M	0.122	0.147	1.3 M	1.08 M	0.778 M	0.797 M	0.56 M
PCB14	3,5-DICHLOROBIPHENYL	0.0037 U	0.00047 U	0.00038 U	0.0002 U	0.00023 U	0.002 J	0.00058 U	0.000804 J	0.000651 J	0.00032 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0635	0.0774	0.0711	0.0629	0.0648	0.593	0.484	0.344	0.397	0.316
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.00075 U	0.00022 U	0.0002 U	0.0002 U	0.000225 J	0.0012 U	0.00056 U	0.00036 U	0.00043 U	0.00043 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0514	0.0674	0.0575	0.0555	0.059	0.584	0.479	0.37	0.344	0.329
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.000867 J	0.00079 J	0.000848 M,J	0.000672 J	0.00104 J	0.00793 M,J	0.00647 M	0.00531 M	0.00501 M	0.00406 M
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.317	0.345	0.296	0.304	0.318	2.11	1.81	1.66	1.57	1.63
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00721 M,J	0.00701	0.0057	0.00718	0.00712	0.0271	0.027	0.0268	0.028	0.0269
PCB15	4,4'-DICHLOROBIPHENYL	0.33	0.0739	0.0438	0.0521	0.0881	1.44	0.624	0.436	0.458	0.527
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00419 J	0.00484 J	0.00403	0.0047	0.00514	0.0192 M	0.0193	0.016	0.0174	0.0139
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00176 J	0.00217 J	0.00175 J	0.00191 J	0.00222 J	0.00846 M,J	0.00801	0.00647	0.00606	0.00423
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0367	0.0393	0.0327	0.0386	0.0367	0.177	0.172	0.166	0.156	0.159
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.00308 J	0.00314 J	0.00237 J	0.00243 J	0.00263	0.00495 J	0.00657	0.00614	0.00646	0.00458
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0854	0.111	0.0924	0.0869	0.0916	0.83	0.698	0.564	0.553	0.461
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00758 M,J	0.0098	0.00751	0.00677	0.00716 M	0.0462 M	0.04 M	0.0328 M	0.0309 M	0.0244
PCB16	2,2',3-TRICHLOROBIPHENYL	0.108	0.141	0.118	0.103	0.137	1.83 M	1.85	1.48	1.36	1.15
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL	0.00046 U	0.00013 U	0.00012 U	0.00012 U	0.00012 U	0.00078 U	0.00037 U	0.00024 U	0.00028 U	0.00028 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL	0.00047 U	0.00014 U	0.00013 U	0.00013 U	0.00012 U	0.00073 U	0.00034 U	0.00022 U	0.00026 U	0.00026 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00579 J	0.00682	0.00553	0.00526	0.00552	0.0324	0.0286	0.0268	0.0246	0.0221
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00257 M,J	0.00191 M,J	0.00187 J	0.00213 J	0.00231 M,J	0.00822 M,J	0.00686	0.00865	0.00714	0.00678 M
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0457	0.0538	0.0465	0.0438	0.0443	0.341	0.291	0.267	0.259	0.242
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00367 J	0.00315 M,J	0.00294 M	0.00302 M	0.00314 M	0.0126 M,J	0.0104 M	0.00843 M	0.00919 M	0.00769 M
PCB17	2,2',4-TRICHLOROBIPHENYL	0.207	0.259	0.212	0.206	0.263	3.16	3.26	2.6	2.4	2.04
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.207	0.262	0.214	0.206	0.201	1.21	0.975	0.828	0.94	0.691
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0468	0.0583	0.0509	0.0503	0.0481	0.195	0.17	0.142	0.161	0.124
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.163	0.236	0.184	0.174 M	0.205	1.31 M	1.12	0.84 M	0.947 M	0.698
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0111 J	0.0138	0.0111	0.0116	0.0116	0.0648	0.0599	0.0546	0.0619	0.0546
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0365	0.0555	0.0425	0.0438	0.0487	0.287	0.244	0.195	0.209	0.156
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.187	0.243	0.187	0.191	0.202	1.14	0.953	0.782	0.856	0.652
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.11	0.134	0.107	0.116	0.119	0.55	0.491	0.452	0.474	0.439
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.132	0.198	0.156	0.154	0.178	0.96	0.837	0.638	0.684	0.496
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0041 J	0.00344 J	0.00266 M	0.00294	0.00331	0.0161 M,J	0.0151	0.0104 M	0.0117 M	0.00704
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL	0.00054 U	0.0001 U	0.000096 U	0.000073 U	0.0001 U	0.00056 U	0.0002 U	0 J	0.00012 U	0.00012 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.176 M	0.221 M	0.182 M	0.187 M	0.193 M	1.01 M	0.934 M	0.808 M	0.926 M	0.811 M
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0044 J	0.00623	0.00494	0.00514	0.00571	0.01 J	0.0136	0.0135	0.0142	0.0101
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0404 M	0.0348 M	0.0424 M	0.0433 M	0.0389 M	0.372 M	0.233 M	0.263 M	0.178 M	0.169 M
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL	0.00045 U	0.000087 U	0.000099 J	0.000061 U	0.000089 U	0.00048 U	0.000478 M,J	0.00023 J	0.0004 J	0.0001 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	1.59	1.75	1.5	1.56	1.53	7.48	6.68	6.53	5.69	6.14
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00215 J	0.00214 J	0.00163 J	0.00199 J	0.00182 J	0.00454 J	0.00378 J	0.00357 J	0.00399	0.00316 J
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.00958 J	0.00915 J-	0.00887 J-	0.00837 J-	0.00819 J-	0.0426 J-	0.0365 J-	0.0331	0.0327	0.0295
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0603	0.0672	0.0589	0.0566	0.0715	0.794	0.693	0.605	0.511	0.556
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0646	0.0835	0.0661	0.0681	0.066	0.339	0.292	0.236	0.259	0.19
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.0061 J	0.00709	0.00643	0.00629	0.00577	0.036	0.0304	0.024	0.0288	0.0217
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL	0.00052 U	0.0001 U	0.000093 U	0.00007 U	0.000093 U	0.0005 U	0.00022 J	0.0001 U	0.00022 J	0.0001 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0857	0.101	0.0921	0.0896	0.0824	0.347	0.265	0.208	0.303	0.183
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0477	0.0622	0.0508	0.0487	0.051	0.204	0.178	0.164	0.177	0.125
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0393	0.0424	0.038	0.0392	0.0355	0.186	0.143	0.111	0.161	0.111
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00807 J	0.0095	0.00801	0.00853	0.00841	0.0223	0.0232	0.0275 M	0.027	0.0254
PCB2	3-CHLOROBIPHENYL	0.0085 J	0.00411 J	0.00274 J+	0.00011 U	0.00298 J+	0.024 J	0.0107 J-	0.00566 J+	0.00559 J+	0.0063 J+
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0209	0.0261	0.0224	0.0213	0.0235	0.0909	0.076	0.0634 M	0.0672	0.049
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.034 J	0.0381	0.0341	0.0341	0.0362	0.124	0.103	0.108	0.111	0.12 J
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0678	0.072	0.0606	0.0645	0.0673	0.197	0.178	0.161	0.185	0.155
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.185	0.205	0.179	0.181	0.171	0.579	0.506	0.474	0.49	0.438
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.0005 J	0.00031 J	0.00042 J	0.00036 J	0.000078 U	0.00052 U	0.0004 J	0.00057 J	0.00053 J	0.0014 J
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00857 J	0.00899	0.0078	0.00781	0.00834	0.0273	0.0246	0.0231	0.0242	0.0212
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.0879	0.101	0.0906	0.0955	0.0932	0.206	0.175	0.157	0.227	0.152
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0165 J	0.0167	0.0147	0.0156	0.0154	0.0287	0.0259	0.024	0.0316	0.0233
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0466	0.0501	0.0457	0.0471	0.0469	0.0752	0.0677	0.0671	0.0829	0.0618
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.061	0.0728	0.0688	0.0711	0.0718	0.0816	0.0705	0.0659	0.0797	0.0658
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.227	0.222	0.18	0.159	0.18	3.8	3.39	2.83	2.45	2.44
PCB23	2,3,5-TRICHLOROBIPHENYL	0.0023 U	0.000949 J	0.000781 J	0.00065 J	0.000898 J	0.0101 J	0.0111	0.00828	0.00735	0.00641
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00409 J	0.00478 J	0.00375	0.00297	0.00374	0.0762 M	0.0718	0.0475	0.0415	0.0295
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0878	0.098	0.0699	0.0775	0.0852	4.53	4.05	2.71	2.66	2.64
PCB27	2,3',6-TRICHLOROBIPHENYL	0.026	0.0346	0.0272	0.0255	0.0325	0.499	0.438	0.307	0.275	0.229
PCB3	4-CHLOROBIPHENYL	0.0291	0.00678	0.00307 J+	0.00393 J+	0.00791	0.0867	0.0259	0.0152 J+	0.0195	0.0237
PCB31	2,4',5-TRICHLOROBIPHENYL	0.617	0.621	0.484	0.442	0.522	11.9	13.8	7.95	9.04	6.5
PCB32	2,4',6-TRICHLOROBIPHENYL	0.147	0.183	0.147	0.14	0.169	2.91	2.36	1.82	1.58	1.48
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.0058 J	0.00675	0.00538	0.00586	0.0066	0.129	0.138	0.105	0.0947	0.0844
PCB35	3,3',4-TRICHLOROBIPHENYL	0.0025 U	0.0106 J+	0.00718 J+	0.00417 J+	0.00595 J+	0.229	0.195	0.159	0.138	0.145
PCB36	3,3',5-TRICHLOROBIPHENYL	0.0021 U	0.00025 U	0.00018 U	0.00016 U	0.00013 U	0.002 U	0.00055 U	0.00028 U	0.00034 U	0.00029 U
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0739	0.0819	0.0622	0.0506	0.063	0.981	0.791	0.644	0.664	0.615
PCB38	3,4,5-TRICHLOROBIPHENYL	0.0023 U	0.0011 J	0.00107 J	0.000852 J	0.00107 J	0.0151 J	0.0134	0.00979	0.00826	0.00659
PCB39	3,4',5-TRICHLOROBIPHENYL	0.00736 J	0.00891	0.00744	0.00679	0.00649	0.135	0.124	0.0925	0.0801	0.0742
PCB4	2,2'-DICHLOROBIPHENYL	0.123 M	0.0837	0.0733	0.0707	0.0958	0.59	0.459	0.384	0.346	0.41
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.349	0.431	0.379	0.337	0.365	6.14	5.26	4.62	4.4	4.23
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.0595	0.0848 M	0.0749 M	0.0666 M	0.0762 M	0.965 M	0.907	0.677	0.637 M	0.564
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0535	0.0745	0.0656	0.0563	0.0714	1.04	0.927	0.742	0.689	0.619
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.242	0.332	0.298	0.255	0.297	4.08	3.75	2.86	2.71	2.35
PCB5	2,3-DICHLOROBIPHENYL	0.0038 U	0.00207 J	0.0013 J	0.00163 M,J	0.00283	0.0142 J	0.0118	0.00625 M	0.00598	0.00748 M
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	1.38 M	1.89 M	1.61 M	1.46 M	1.76 M	26.7 M	26.9	19.8	18.7	17.2
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00812 J	0.00877	0.00756	0.00841	0.00904	0.0478	0.0528	0.0477	0.0456	0.0419
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.00738 J	0.0114	0.00959	0.00831	0.00918	0.549	0.482	0.424	0.368	0.384
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.332	0.399	0.36	0.303	0.316	6.36	5.5	4.82	4.71	4.59
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00631 J	0.00921	0.0069	0.0072	0.00747	0.133	0.119	0.0956	0.0882	0.0797
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.0034 J	0.00533 M	0.00264 M	0.00407 M	0.00023 U	0.0018 U	0.0005 U	0.00051 U	0.00054 U	0.00075 U
PCB6	2,3'-DICHLOROBIPHENYL	0.0676	0.0398	0.0229	0.0273	0.0413	0.762	0.644	0.484	0.427	0.407
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.132	0.17	0.15	0.125	0.13	2.34	2.1	1.86	1.76	1.72

PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.0521	0.072	0.0597	0.0565	0.0571	1	0.89	0.744	0.711	0.67
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.497	0.66	0.576	0.5	0.546	9.65	7.81	6.4	6	5.36
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.679	0.835	0.721	0.62	0.656	8.9	7.9	6.8	8.55	6.21
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0257	0.0384	0.0307	0.0278	0.0302	1.33	1.12	0.85	0.765	0.725
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00785 J	0.0117	0.00895	0.0089	0.00935	0.15	0.132	0.115	0.111	0.111
PCB7	2,4-DICHLOROBIPHENYL	0.016 J	0.0069 J	0.00427	0.00527	0.00821	0.0623	0.0438	0.0298	0.031	0.0309
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0135 J	0.0179	0.0137	0.0153	0.0153	0.288	0.259	0.215	0.202	0.201
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00367 M,J	0.00588 M	0.00488 M	0.0055 M	0.0068 M	0.0725 M	0.105 M	0.0507 M	0.0452 M	0.0434 M
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.03	0.0445	0.0328	0.0287	0.0315	0.835	0.644	0.541	0.557	0.536
PCB78	3,3',4,5-TETRACHLOROBIPHENYL	0.0013 U	0.00029 U	0.00022 U	0.00018 U	0.00025 U	0.0019 U	0.00054 U	0.00056 U	0.00059 U	0.00082 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.00996 J	0.0148	0.0118	0.0106	0.0111	0.167	0.134	0.114	0.104	0.0895
PCB8	2,4'-DICHLOROBIPHENYL	0.431	0.157	0.0923	0.113 M	0.177	1.64	0.994	0.656 M	0.645	0.654 M
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL	0.00097 U	0.00022 U	0.00017 U	0.00013 U	0.00019 U	0.0014 U	0.0004 U	0.00041 U	0.00044 U	0.00061 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.0014 J	0.00161 M,J	0.00138 J	0.00116 J	0.00116 J	0.0165 M,J	0.014	0.0128	0.0141	0.0122
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.21	0.234	0.211	0.182	0.187	2.75	2.37 M	2.3	2.39	2.56
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.309	0.382	0.328	0.285	0.316	4.42	3.67	3.21	3.34	2.92
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0283	0.0366	0.0337	0.0286	0.031	0.4	0.369	0.347	0.356	0.337
PCB9	2,5-DICHLOROBIPHENYL	0.0176 J	0.00947	0.005	0.00587	0.00976	0.0849	0.0595	0.0388	0.0387	0.0363
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.499	0.545	0.476	0.47	0.486	4.95	4.13	3.83	3.81	3.92
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.018 J	0.0229	0.0197	0.0203	0.0217	0.154	0.145	0.128	0.136	0.111
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	1.03	1.48	1.24	1.08	1.27	15.8 M	15.5	11.6	11.3	9.4
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0133 J	0.0188	0.015	0.014	0.016	0.116	0.119	0.0945	0.0976	0.07
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0638	0.0215	0.0125	0.0147	0.0196	0.782	0.561	0.421	0.367	0.432
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.277	0.415	0.331	0.291	0.396	5.66	5.82	4.06	3.66	2.97
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.78	0.679	0.533	0.503	0.592	14.2	16	9.6	11.2	10.9
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.263	0.236	0.188	0.158	0.193	2.41	2.32	1.79	1.67	1.41
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.119	0.138	0.101	0.104	0.122	2.55	2.3	1.54	1.36	1.15
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.596	0.758	0.679	0.584	0.652	10.9	11.2	7.89	8.92	7.02
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	1.01	1.33	1.12	1.01	1.14	18	18.5	14.1	13.7	12.1
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.187	0.275	0.234	0.211	0.268	3.39	3	2.31	2.21	1.75
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.821	1.05	0.886	0.831	0.925 M	14.4 M	14.6	9.39	10.9	10.4
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.138	0.218	0.181	0.166	0.216	2.6	2.35	1.67	1.59	1.25
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.089	0.127	0.107	0.0977	0.109	1.85	1.54	1.31	1.26	0.931
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	1.37 M	1.74 M	1.48	1.28	1.36 M	27.3	29.4	22.7	22.3	20.4
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.19	1.35	1.14	1.08	1.11	11.6	11.9	8.82	9.98	9.85
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.83 M	1.03 M	0.875 M	0.776 M	0.835 M	10.8 M	8.9 M	7.83 M	8.66 M	7.24 M
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.298	0.377	0.319	0.3	0.329	3.53	2.9	2.6	2.66	2.41
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.91	2.08	1.81	1.74	1.8	20.4	20.2	17.3	17	18
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.111 M	0.145 M	0.122 M	0.121 M	0.131 M	1.18 M	1.04 M	0.927 M	0.917 M	0.803 M
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0464	0.06	0.0516	0.0453	0.0461	0.512	0.455	0.414	0.393	0.406
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.256	0.283	0.241	0.231	0.233	1.97	1.68	1.46	1.43	1.44
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.6	1.89	1.56	1.48	1.53	13.4	12.7	9.15	10.6	8.74
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0276	0.0439 M	0.032 M	0.0311 M	0.0609 M	0.585 M	0.498 M	0.412	0.422	0.325
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.71	0.881	0.767	0.756	0.795	6.8	5.69	4.85	4.23	4.11
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0237	0.0314	0.0243	0.0241	0.0265	0.198	0.179	0.146	0.147	0.119
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	1.32 M	1.6 M	1.36 M	1.34 M	1.54 M	12.8 M	11.8 M	9	9.29 M	7.56
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.58	1.66	1.4	1.41	1.41	9.73	8.16	7.33	8.66	7.2
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.132	0.159	0.132	0.126	0.128	1.27	1.05	0.921	0.905	0.866
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0691	0.0896	0.0683	0.0676	0.0714	0.462	0.389	0.317	0.369	0.266
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.188	0.213	0.173	0.172	0.165	1.27	0.922	0.673	0.991	0.637
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.336	0.378	0.334	0.336	0.33	1.03	0.906	0.859	0.885	0.767
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	2.03 M	2.37 M	2.02 M	1.83 M	1.86 M	25.5 M	25.4 M	22.3 M	21.9 M	21.1 M
PCB-CO84	PCB-137; PCB-164	0.132	0.169	0.142	0.134	0.141	1.15	0.996	0.825	0.788	0.683
PCCTOT	TOTAL PCB CONGENERS (LAB REPORTED)	33.3 J	39.2 J	33 J	30.8 J	33.5 J	408 J	387 J	303 J	309 J	279 J
TDCBP	TOTAL DICHLOROBIPHENYLS	1.22 J	0.69 J	0.433 J	0.366 J	0.601 J	5.65 J	3.75 J	2.7 J	2.53 J	2.71 J
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000265	0.000294	0.00026	0.000254	0.00028	0.00239	0.00228	0.00178	0.00174	0.00157
TEQ_PCB_MP	TEQ PCB Mid Point	0.000265	0.000294	0.00026	0.000254	0.00028	0.00239	0.00228	0.00178	0.00174	0.00157
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000265	0.000294	0.00026	0.000254	0.00028	0.00239	0.00228	0.00178	0.00174	0.00157
THCBP	TOTAL HEPTACHLOROBIPHENYL	3.05 J	3.62 J	3.01 J	3.07 J	3.1 J	16.8 J	14.4 J	12.8 J	12.8 J	11.6 J
THXBP	TOTAL HEXACHLOROBIPHENYL	7.04 J	8.25 J	6.94 J	6.78 J	7.19 J	59.2 J	52.3 J	42.1 J	44.5 J	38.2 J
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0626 J	0.0174 J	0.0106 J	0.0114 J	0.0187 J	0.173 J	0.0586 J	0.0382 J	0.0415 J	0.0534 J
TNCBP	TOTAL NONACHLOROBIPHENYL	0.151 J	0.168 J	0.151 J	0.158 J	0.156 J	0.31 J	0.269 J	0.248 J	0.342 J	0.237 J
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.834 J	0.944 J	0.827 J	0.831 J	0.814 J	2.81 J	2.4 J	2.2 J	2.43 J	2 J
TPCBP	TOTAL PENTACHLOROBIPHENYL	9.81 J	11.6 J	9.94 J	9.13 J	9.62 J	118 J	111 J	93.5 J	95.4 J	90.4 J
TTCBP	TOTAL TETRACHLOROBIPHENYL	8.1 J	10.6 J	9.11 J	8.09 J	9.08 J	149 J	146 J	111 J	112 J	99.6 J
TTRBP	TOTAL TRICHLOROBIPHENYL	3.02 J	3.21 J	2.54 J	2.34 J	2.85 J	55.8 J	57.6 J	38.4 J	39.2 J	34.4 J
	TOTAL PCB CONGENERS (ND SET TO 0)	33.023537	39.301185	33.101984	30.909084	33.575483	408.24977	387.132568	303.286734	309.413721	279.33484

Units are µg/kg

PARLABEL	NAME	LMR21-17S REP A	LMR21-17S REP B	LMR21-17S REP C	LMR21-17S REP D	LMR21-17S REP E	LMR21-19S REP A	LMR21-19S REP B	LMR21-19S REP C	LMR21-19S REP D	LMR21-19S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0968 J	0.0895 J	0.0899 J	0.0875 J	0.08 J	0.306 J	0.0518 J	0.438 J	0.246 J	0.203 J
PCB1	2-CHLOROBIPHENYL	0.0633	0.07	0.0306	0.0216	0.0258	0.084 J	0.022	0.0417	0.0444	0.035
PCB10	2,6-DICHLOROBIPHENYL	0.0271	0.034	0.0223	0.0175	0.0241	0.029	0.00512 M,J	0.0201	0.027 U	0.0171 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.381	0.369	0.427	0.308	0.313	0.501	0.0639	0.453	0.449 J	0.427 J
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00877	0.00854 J	0.00764	0.00713	0.0065	0.00845 J	0.000965 J	0.00433	0.0048 U	0.00524 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	7.81	7.85	8.19	7.17	6.98	15.4	1.83	8.75	10.4 J	9.75 J
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0.0012 U	0.0017 U	0.00043 U	0.00053 U	0.00026 U	0.0044 U	0.00073 U	0.00067 U	0.027 U	0.008 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	1.94	1.93	2.29	1.63	1.69 M	4.32	0.439	2.63 M	3.51 J	2.52 J
PCB11	3,3'-DICHLOROBIPHENYL	0.447	0.78	0.207 J+	0.189 J+	0.151 J+	0.638	0.574	0.19 J+	0.173 J	0.132 J+
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.0105	0.0102 J	0.0124	0.00955	0.0105 M	0.0193	0.00339 M,J	0.0212 M	0.031 J	0.0369 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL	0.00051 U	0.001 U	0.000078 U	0.00046 U	0.00062 U	0.0029 U	0.00054 U	0.000025 U	0.017 U	0.004 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.688 J-	0.67 J-	0.677 J-	0.613 J-	0.54 J-	1.22 J-	0.129 J-	0.675 J-	0.803 J	0.725 J-
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	20.1	18.4	19.5	15.7	15.9	43.9	4.67	24.2	30.8	27.3
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.0777	0.0729	0.0952	0.0663	0.0605	0.179 M	0.0207	0.115	0.156 J	0.111 J
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.0065 M,J	0.00586 J	0.0054	0.00489	0.00432	0.00707 J	0.00125 J	0.00525	0.017 U	0.005 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.529	0.519	0.654	0.472	0.478	0.939	0.0986	0.593 M	0.73 J	0.634 J
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.365	0.36	0.397	0.372	0.279 M	0.685	0.0758	0.332 M	0.019 U	0.385 J
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.0279	0.0286	0.037 M	0.0354 M	0.0285 M	0.0546 M	0.00602 M,J	0.0397 M	0.0463 M	0.037 J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.0011 U	0.006 J	0.0121 M	0.00652 M	0.0056 J	0.0378	0.00572 M,J	0.0197 M	0.0343 J	0.021 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.911	0.936	0.882	0.813	0.743	2.64	0.29	1.6	1.86 J	1.72
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.157	0.164	0.172 M	0.136 M	0.155 M	0.394 M	0.0469 M	0.348 M	0.293 J	0.263
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	4.76	5.1	4.99	4.2	4.46	12.8	1.7	9.29	10.4 J	9.64
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.238	0.246	0.235	0.249	0.206	0.666	0.0654	0.388	0.491 J	0.486
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	1.26	1.31 M	1.13	1.08	1.25	2.88 M	0.367	2.27	2.58 J	2.73
PCB14	3,5-DICHLOROBIPHENYL	0.00146 J	0.0014 U	0.00121 M,J	0.00084 M,J	0.000983 J	0.0043 U	0.00061 U	0.00115 J	0.035 U	0.0072 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.776	0.719	0.782	0.627	0.591	3.18	0.468	1.71	1.73 J	1.75
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.0017 J	0.0016 J	0.00324 M	0.0019 J	0.00314 M	0.00504 M,J	0.0009 U	0.00464 M	0.022 U	0.0084 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.656	0.642	0.702	0.605	0.637	1.73	0.196	0.845	1.38 J	1.38
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00965	0.00801 M,J	0.0121	0.00878	0.0116	0.0162 M	0.00231 M,J	0.0222	0.0094 J	0.0009 U
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	2.71	2.76	2.23	2.17	1.97	6.75 M	0.724	3.47	5 J	4.65
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.0286	0.0277	0.0325	0.0255	0.0249	0.0463	0.00786 J	0.0467	0.0361 J	0.039
PCB15	4,4'-DICHLOROBIPHENYL	1.38	1.6	0.991 M	0.754	0.753	1.71	0.379	0.714	0.776 M	0.625
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.0203	0.0191	0.0231	0.0174	0.02	0.0357	0.00549 J	0.0443	0.0318 J	0.0338
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.0114	0.0125 J	0.00838	0.00954	0.0104	0.0185	0.00246 J	0.0112	0.0225 J	0.0181 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.229	0.217	0.223	0.187	0.183	0.458	0.062	0.366	0.349 J	0.344
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.00832	0.00839 J	0.00696	0.00564	0.00561	0.0049 J	0.00276 J	0.00466	0.00591 J	0.0035 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	1.1	1.08	1.16	0.967	0.952	3.65	0.393	2.22	2.53 J	2.23
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.0527 M	0.0471 M	0.0477	0.0418 M	0.0372	0.139 M	0.0178	0.0866 M	0.136 J	0.105
PCB16	2,2',3-TRICHLOROBIPHENYL	4.06	4.81	3.78	2.95	3.41	3.55	0.616	2.53	2.18 J	2.13 J
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL	0.00061 U	0.00081 U	0.00018 U	0.00069 U	0.00027 U	0.0018 U	0.00058 U	0.00019 U	0.013 U	0.0052 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL	0.00057 U	0.00075 U	0.00019 U	0.00072 U	0.00028 U	0.0018 U	0.00061 U	0.0002 U	0.013 U	0.0054 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.0503	0.0519	0.0523	0.0422	0.0435	0.146	0.014	0.101	0.088 J	0.0731
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00693 M,J	0.0062 J	0.00638 M	0.00492 M	0.00531 M	0.01 M,J	0.0012 J	0.0129	0.015 U	0.0055 U
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.554	0.534	0.561	0.486	0.442	1.65	0.185	0.967	1.08 J	1.03
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0147 M	0.0129 M,J	0.0139 M	0.0122 M	0.0117 M	0.0404 M	0.00429 M,J	0.0225 M	0.046 J	0.0418
PCB17	2,2',4-TRICHLOROBIPHENYL	6.96	7.77	6.94	5.27	7.23	5.96	0.897	4.02	3.62 J	3.63 J
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	1.67	1.69	1.55	1.28	1.17	5.16	0.627	2.52	3.05 J	2.58
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.301	0.287	0.293	0.249	0.213	0.877	0.103	0.456	0.477 J	0.424
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	1.51 M	1.5 M	1.41	1.23	1.09 M	4.17	0.504	2.65	2.31 J	2.55
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0976	0.0955	0.115	0.0849	0.0817	0.26	0.0312	0.175	0.13 J	0.149
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.318	0.322	0.327	0.275	0.27	0.788	0.0803	0.554	0.489 J	0.518
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	1.37	1.41	1.17	1.07	0.933	3.31	0.391	1.9	2.2 J	2.14
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.716	0.728	0.751	0.615	0.574	1.68	0.192	1.11	0.982 J	1.02
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	1.01	1	1.07	0.866	0.874	2.43	0.25	1.86	1.56 J	1.71
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0194	0.017 J	0.0198	0.019 U	0.0176 M	0.0532	0.00543 M,J	0.0384	0.044 J	0.0415
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL	0.00036 U	0.00068 U	0.000087 U	0.016 U	0.00014 U	0.0016 U	0.00031 U	0.00011 U	0.0075 U	0.0036 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	1.61 M	1.59 M	1.67 M	1.29 M	1.21 M	4.44 M	0.525 M	2.45 M	2.36 J	2.5 M
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0162	0.0162 J	0.0167	0.013 U	0.0133 M	0.0186	0.00391 J	0.0164 M	0.0074 J	0.015 J
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.319 M	0.31 M	0.282 M	0.268 M	0.224 M	0.823 M	0.0743 M	0.543 M	0.813 J	0.526 M
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL	0.0003 U	0.00058 U	0.0011 J	0.014 U	0.00072 J	0.002 J	0.00026 U	0.00236 M,J	0.0063 U	0.003 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	11	10.5	11.2	10.2	9.44	25.2	2.15	17.4	17.9 J	16.6
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.0036 J	0.00432 J	0.004	0.01 U	0.00304	0.00827 J	0.00359 J	0.00517	0.0063 J	0.0062 J
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0647	0.0635	0.071	0.0582	0.0567	0.178	0.0234	0.111	0.129	0.129
PCB19	2,2',6-TRICHLOROBIPHENYL	1.5	1.8	1.49	1.1	1.32	1.52	0.236	0.878	0.448 J	0.701 J
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.454	0.432	0.439	0.372	0.326	1.25	0.116	0.581	0.767 J	0.648
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.0529	0.0502	0.0475	0.0424	0.0336	0.186	0.0218	0.0848	0.111 J	0.0878
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL	0.00032 U	0.00061 U	0.000079 U	0.015 U	0.00013 U	0.0015 U	0.00028 U	0.0001 U	0.0071 U	0.0033 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.448	0.462	0.399	0.357	0.331	1.5	0.277	0.718	0.754 J	0.539
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.285	0.286	0.324	0.26	0.271	0.74	0.109	0.489	0.467 J	0.374
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.228	0.248	0.204	0.208	0.177	0.739	0.154	0.401	0.406 J	0.343 M
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.0459	0.0452	0.0437	0.0383	0.0372	0.0905	0.0171 M	0.0573	0.0629 J	0.0753
PCB2	3-CHLOROBIPHENYL	0.0144	0.0208	0.00681 J+	0.00509 J+	0.00573 J+	0.022 J	0.00031 U	0.00774 J+	0.0062 U	0.0011 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.103	0.105	0.129	0.117	0.115	0.312	0.0362 M	0.25	0.204 J	0.191
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.183	0.188	0.19	0.183	0.148	0.454	0.0746	0.287	0.333 J	0.332
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.272	0.245	0.279	0.248	0.223	0.667	0.089	0.407	0.498	0.454
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.824	0.873	0.801	0.808	0.726	2.42	0.306	1.39	1.71 J	1.54 M
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00106 M,J	0.0013 J	0.000622 J	0.002 J	0.000857 M,J	0.0028 J	0.00025 U	0.001 J	0.004 U	0.0015 U
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.0451	0.0456	0.0479	0.0408	0.0392	0.0979	0.0134	0.0667	0.066 J	0.0697
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.293	0.289	0.284	0.268	0.24	0.911	0.151	0.559	0.566	0.6
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0452	0.0443	0.0419	0.0425	0.0351	0.116	0.0216	0.0785	0.092 J	0.0981
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.108	0.104	0.109	0.0985	0.0922	0.301	0.0512	0.208	0.234	0.21
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0968	0.0895	0.0899	0.0875	0.08	0.306	0.0518	0.438	0.246	0.203
PCB22	2,3,4'-TRICHLOROBIPHENYL	7.91	8.8	8.32	6.44	7.87	9.54	1.47	5.41	5.02 J	4.87 J
PCB23	2,3,5-TRICHLOROBIPHENYL	0.0288	0.0303	0.0369	0.0229	0.0255	0.021	0.00318 J	0.0197	0.029 U	0.0128 M,J
PCB24	2,3,6-TRICHLOROBIPHENYL	0.105	0.115	0.12	0.0936	0.13	0.105	0.0106	0.0855	0.011 U	0.0563 J
PCB25	2,3',4-TRICHLOROBIPHENYL	3.64	4.01	3.78	2.95	2.95	6.95	0.993	3.88	3.88 J	3.87 J
PCB27	2,3',6-TRICHLOROBIPHENYL	0.726	0.857	0.773	0.58	0.688	0.726	0.0955	0.559	0.487 J	0.503 J
PCB3	4-CHLOROBIPHENYL	0.058	0.0818	0.0202	0.0157	0.0151 J+	0.0759	0.0217	0.0264	0.029 J	0.0216 M,J
PCB31	2,4',5-TRICHLOROBIPHENYL	27.6	24.2	23.5	18	23	25.6	3.4	16.1	13.7 J	13.7 J
PCB32	2,4',6-TRICHLOROBIPHENYL	4.94	5.67	4.17	3.96	4.1	5.14	0.692	2.74	3.23 J	3.32 J
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.216	0.227	0.248	0.169	0.18	0.193	0.0242	0.152	0.0914 J	0.099 J
PCB35	3,3',4-TRICHLOROBIPHENYL	0.283	0.319	0.358	0.239	0.228	0.378	0.0674	0.223	0.161 J	0.173 J
PCB36	3,3',5-TRICHLOROBIPHENYL	0.00077 U	0.0019 U	0.0004 U	0.00041 U	0.00035 U	0.0035 U	0.00049 U	0.0003 U	0.027 U	0.0052 U
PCB37	3,4,4'-TRICHLOROBIPHENYL	2.69	2.99	2.44	2.09	1.96	3.11	0.487	1.54	1.75	1.47
PCB38	3,4,5-TRICHLOROBIPHENYL	0.0217	0.0237	0.026	0.019	0.0228	0.0257	0.0024 J	0.0184	0.029 U	0.016 J
PCB39	3,4',5-TRICHLOROBIPHENYL	0.237	0.251	0.247	0.206	0.215	0.259	0.0239	0.148	0.125 J	0.119 J
PCB4	2,2'-DICHLOROBIPHENYL	1.16	1.47	1.02	0.746	0.937	0.975	0.205	0.523	0.427 J	0.463
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	11.6	11.8	13.9	11.8	10.9	11.4	1.6	8.49	10.6 J	9.03
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	1.81	1.85 M	2.1 M	1.68 M	1.81 M	1.54	0.193	1.45 M	1.44 J	1.19 M
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	1.76	1.93	1.85	1.49	1.6	1.5	0.243	1.25	1.45 J	1.34
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	8.86	8.86	10.4	8.66	8.91	7.35	0.914	6.13	6.09 J	5.4
PCB5	2,3-DICHLOROBIPHENYL	0.0264 M	0.0311	0.0236	0.016 M	0.0212	0.0237 M	0.00618 J	0.0151	0.029 U	0.012 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	47.1 M	46.1 M	48.3	40.1	43	73.2	5.8 M	45.2	48 J	43.3 M
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.099	0.101	0.111	0.0776	0.0875	0.0916	0.0117	0.0605	0.064 J	0.0495
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.572	0.58	0.651	0.53	0.517	1.5	0.207	1.01	1.24 J	1.14
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	15.6	16	18.1	15.2	15	18.1	2.36	10.7	13.9 J	11.5
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.241	0.233	0.267	0.201	0.212	0.211	0.023	0.186	0.132 J	0.12
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.0014 U	0.0018 U	0.102 M	0.0769 M	0.0839 M	0.112 M	0.0156 M	0.0759 M	0.0706 J	0.0873 M
PCB6	2,3'-DICHLOROBIPHENYL	0.784	0.874	0.665	0.494	0.576	1.26	0.237	0.57	0.751 J	0.576
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	7.37	7.38	8.2	6.84	6.9	8.84	1.2	5.05	6.35 J	5.35

PCB63	2,3,4',5-TETRACHLOROBIPHENYL	2.03	1.99	2.28	1.8	1.76	2.19	0.247	1.57	1.46 J	1.35
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	20.2	16.9	19.5	16.6	16.4	17.6	2.16	13.7	16.2 J	13.6
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	35.2	29.6	33.8	28	27.7	28.9	3.53	17.5	22.4 J	18.3
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	1.23	1.25	1.38	1.06	1.08	2.39	0.261	1.72	1.58 J	1.5
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.173	0.17	0.198	0.149	0.15	0.238	0.029	0.185	0.13 J	0.159
PCB7	2,4-DICHLOROBIPHENYL	0.115	0.127	0.0943	0.0692	0.0788	0.0944	0.0214	0.0576	0.055 J	0.0472
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.338	0.323	0.383	0.288	0.295	0.47	0.0499	0.375	0.326 J	0.293
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.0609 M	0.0646 M	0.0685 M	0.0467 M	0.0521 M	0.0831 M	0.00808 M,J	0.0667 M	0.155 J	0.0953 M
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	1.65	1.74	1.69	1.41	1.3	2.12	0.286	1.16	1.31 J	1.2
PCB78	3,3',4,5-TETRACHLOROBIPHENYL	0.0015 U	0.002 U	0.0009 U	0.00089 U	0.00074 U	0.0056 U	0.00095 U	0.00079 U	0.029 U	0.0086 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.206	0.22	0.193	0.202	0.182	0.44	0.0394	0.235	0.311 J	0.261
PCB8	2,4'-DICHLOROBIPHENYL	2.58 M	2.98	1.82	1.44 M	1.65	2.92 M	0.657	1.32	1.69 J	1.34 M
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL	0.0011 U	0.0015 U	0.00069 U	0.00067 U	0.00056 U	0.0043 U	0.00072 U	0.0006 U	0.022 U	0.0065 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.0708	0.0675	0.071	0.0618	0.0578	0.0694	0.00803 J	0.0432	0.021 U	0.0363
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	5.68	5.81	6.84	5.26	4.9 M	9.43	1.31	5.88	7.88 J	6.88 J
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	6.53	6.99	7.53	5.71	6.07	11.4	1.7	8.66	10.5 J	9.1 J
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.937	0.946	1.11	0.827	0.846	0.887	0.129	0.689	0.789 J	0.691 J
PCB9	2,5-DICHLOROBIPHENYL	0.151	0.167	0.122	0.0888	0.11	0.142	0.0277	0.0953	0.08 J	0.0655
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	7.61	7.38	8.26	6.68	6.47	15.5	1.74	10.8	12.9 J	11.6 J
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.259	0.247	0.302	0.218	0.241	0.24	0.0308	0.252	0.234 J	0.211 J
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	22	20.3	23.5	18.8	20.6	56.5	4.73 M	37.3	39.9 J	36.6 J
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.239	0.234	0.264	0.205	0.245	0.19	0.0315	0.215	0.17 J	0.172 J
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.606	0.699	0.678 M	0.434	0.452	1.03	0.213	0.549	0.499 J	0.372
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	10.8	11.8	11.3	9.03	12.6	10.6	1.35	8.86	6.37 J	6.47 J
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	31.8	28.5	27.4	21	25.2	28.7	4.15	17.5	16.1 J	15.8 J
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	7.63	8.36	8.28	6.48	8.12	8.36	1.31	5.35	4.55 J	4.49 J
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	3.44	3.75	3.77	2.73	3.08	4.04	0.494	2.77	2.05 J	2.11 J
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	24.8	22.2	25.5	21.6	21.1	20.7	2.87	15.9	18.8 J	15.9
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	35.4	31.1	35.3	29.6	30.9	42.2	4.07	25.9	28.8 J	24.5
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	5.36	5.66	5.28	4.51	5.7	4.44	0.606	4.11	4.48 J	4.17
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	28.1	24.6 M	28	23.4	23.1	25.3	3.15	20.3	23.3 J	20.3
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	3.97	4.06	3.94	3.39	3.86	3.47	0.429	3.31	3.61 J	3.3
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	2.86	2.9	2.96	2.47	2.66	2.66	0.322	2.25	2.42 J	2.27
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	74	71.3	65.8 E	54.4	57.5 E	89	8.52	47.7 E	57.1 J	46.6
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	23.2	21.4	23.3 M	19.4 M	19.3	44.6	4.45	24.9 M	30.9 J	27.8 J
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	20 M	18.8 M	21 M	17.3 M	17.1 M	40.9 M	4.43 M	24.6 M	29.8 J	25.9 J
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	5.67	5.95	3.91	4.62	4.12	8.73	1.15	4.42	8.08 J	7.27 J
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	36.9	33.4	38.5	31.4	29.8	85.2	8.24	49.1 E	60.3 J	53.2 J
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	2.06 M	1.99 M	2.31 M	1.77 M	1.86 M	2.26 M	0.275 M	2.01 M	2.04 J	1.91 J
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	1.15	1.09	1.35	1.02	0.991	2.71	0.267	1.66	1.59 J	1.48 J
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	2.61	2.74	2.4	2.38	2.03	8.06	0.958	3.56	6.22 J	5.32
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	17.9	16.7	18.2	15.5	15.8	52.8	5.04	31.9	38.3 J	32.7
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.654	0.682	0.715	0.601	0.622	1.72	0.204	1.34	1.25 J	1.25
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	7.52	7.11	8.54	6.88	6.82	18.5	1.74	16.2	14.9 J	15
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.25	0.252	0.28	0.223	0.25	0.63	0.0664	0.54	0.417 J	0.439
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	14.5	14	15.3 M	11.7 M	13 M	43.3 M	3.65	26.9 M	30.6 J	30.7
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	13.3	13.8	15.3	12.9	12.1	42.4	4.26	24.7	29.6 J	26.3
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	1.93	1.91	1.96	1.69	1.54	6.14	0.677	3.47	3.91	3.77
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.568	0.575	0.562	0.469	0.45	1.55	0.183	0.927	0.91 J	0.858
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	1.43	1.64	1.15	0.981	0.793	5.13	1.02	1.93	2.11 J	1.86
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	1.53	1.51	1.63	1.49	1.44	4.21	0.507	2.66	2.75 J	2.51
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	47.5 M	46.1 M	48.7 M	40.4 M	39.3 M	103 M	10.7 M	58.8 M,E	76.7 J	65.8 J
PCB-CO84	PCB-137; PCB-164	1.49	1.44	1.63	1.31	1.36	4.52	0.479	3.02	3.03 J	2.84
PCCTOT	TOTAL PCB CONGENERS (LAB REPORTED)	765 J	732 J	767 J	632 J	655 J	1220 J	134 J	758 J	870 J	0 U
TDCBP	TOTAL DICHLOROBIPHENYLS	7.28 J	8.76 J	5.64 J	4.25 J	4.75 J	8.82 J	2.33 J	4.06 J	4.45 J	0.0039 U
TEQ_PCB_LB	TEQ PCB Lower Bound	0.00436	0.00433	0.00525	0.00485	0.00412	0.00898	0.000989	0.00593	0.00617	0.00268
TEQ_PCB_MP	TEQ PCB Mid Point	0.00436	0.00433	0.00525	0.00485	0.00412	0.00898	0.000989	0.00593	0.00756	0.00638
TEQ_PCB_UB	TEQ PCB Upper Bound	0.00436	0.00433	0.00525	0.00485	0.00412	0.00898	0.000989	0.00593	0.00756	0.00638
THCBP	TOTAL HEPTACHLOROBIPHENYL	22.5 J	22.2 J	22.1 J	19.4 J	17.8 J	57.5 J	6.3 J	35.3 J	36.4 J	0.0021 U
THXBP	TOTAL HEXACHLOROBIPHENYL	73.7 J	72.5 J	77.6 J	64.9 J	65.3 J	215 J	21.6 J	135 J	156 J	0.0005 U
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.136 J	0.173 J	0.0576 J	0.0424 J	0.0466 J	0.182 J	0.0496 J	0.0758 J	0.0734 J	0.00084 U
TNCBP	TOTAL NONACHLOROBIPHENYL	0.446 J	0.437 J	0.435 J	0.409 J	0.367 J	1.33 J	0.224 J	0.846 J	0.892 J	0.0029 U
TOCBP	TOTAL OCTACHLOROBIPHENYL	3.97 J	4.01 J	4.05 J	3.75 J	3.51 J	11.2 J	1.58 J	6.73 J	7.25 J	0.00099 U
TPCBP	TOTAL PENTACHLOROBIPHENYL	212 J	201 J	219 J	180 J	178 J	449 J	46.5 J	267 J	329 J	0.001 U
TTCBP	TOTAL TETRACHLOROBIPHENYL	331 J	309 J	330 J	276 J	283 J	366 J	39.2 J	236 J	272 J	0.0016 U
TTRBP	TOTAL TRICHLOROBIPHENYL	115 J	114 J	107 J	83.3 J	102 J	115 J	16.3 J	72.8 J	63.8 J	0.0016 U
	TOTAL PCB CONGENERS (ND SET TO 0)	765.18609	732.45742	766.596742	631.8295	655.17981	1224.73233	134.217135	758.8895	870.03431	777.11994

Units are µg/kg

PARLABEL	NAME	LMR21-25S REP A	LMR21-25S REP B	LMR21-25S REP C	LMR21-25S REP D	LMR21-25S REP E	LMR21-27S REP A	LMR21-27S REP B	LMR21-27S REP C	LMR21-27S REP D	LMR21-27S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0824 J	0.0813 J	0.0729 J	0.0714 J	0.0693 J	0.0878 J	0.0796 J	0.0721 J	0.0616 J	0.0636 J
PCB1	2-CHLOROBIPHENYL	0.00059 U	0.0147 J-	0.00474 J+	0.00367 J+	0.00581	0.0151 M,J	0.012 J	0.00434	0.00564	0.006
PCB10	2,6-DICHLOROBIPHENYL	0.00059 U	0.00079 U	0.001 U	0.000641	0.0013 J	0.0017 U	0.0044 U	0.0015 J	0.00143 J	0.00167 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0162	0.0152	0.0108	0.0131	0.012	0.02 J	0.0202 M,J	0.0126	0.017	0.0156
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00041 U	0.00052 J	0.00057 J	0.00046 J	0.000527	0.00243 J	0.001 U	0.000979 J	0.00138 J	0.00105 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.221	0.139	0.13	0.109	0.113	0.152	0.229	0.12	0.125	0.113
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0.00075 U	0.00057 U	0.00053 U	0.00018 U	0.0001 U	0.001 U	0.0021 U	0.00017 U	0.00011 U	0.0001 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0627 M	0.0461 M	0.0415 M	0.0381 M	0.0399	0.0475 M	0.068	0.0435 M	0.0441 M	0.0401 M
PCB11	3,3'-DICHLOROBIPHENYL	0.35 J+	0.272 J+	0.124 J+	0.156 J+	0.0452	0.118	0.286 M	0.0606	0.0535	0.0552
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00132 J	0.00138 J	0.00076 J	0.000658 J	0.000609 J	0.0016 M,J	0.00168 J	0.000764 J	0.00081 M,J	0.00088 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL	0.00037 U	0.00034 U	0.00025 U	0.00011 U	0.000086 U	0.00062 U	0.0015 U	0.00014 U	0.000067 U	0.00012 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0157 J-	0.0108 J-	0.0103 J-	0.00683 J-	0.00857	0.0118 M,J	0.018 J	0.00927 J	0.00835	0.00812 M
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.558	0.379	0.345	0.28 M	0.3	0.428	0.645	0.323	0.323	0.303 M
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00554 M,J	0.0045 J	0.00424	0.00343	0.00327	0.0039 J	0.0064 J	0.00349 M	0.0035	0.00333
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.00056 J	0.00064 J	0.000575 J	0.000542 J	0.000363 J	0.00119 M,J	0.0015 U	0.000602 J	0.000712 J	0.000609 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0141	0.0105	0.0101	0.00836 M	0.00746	0.00888 M,J	0.0171 J	0.00729	0.00791	0.00711 M
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.00866 M,J	0.00647 M,J	0.00589 M	0.00462 M	0.00602	0.00757 M,J	0.0112 J	0.00605 M	0.00546 M	0.00548 M
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.0015 J	0.00151 M,J	0.00158 M,J	0.00087 M,J	0.000874 M,J	0.0012 J	0.0025 M,J	0.00084 J	0.0008 J	0.000878 M,J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.00072 U	0.00055 U	0.00051 U	0.00034 J	0.000385 J	0.00095 U	0.002 U	0.00043 J	0.000542 M,J	0.00025 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0628	0.0506	0.0466	0.0333	0.045	0.0648	0.0763	0.057	0.0503	0.0474
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.00786 J	0.00507 J	0.00429	0.00529	0.00612	0.0086 J	0.0096 J	0.0066 J	0.00726	0.00687
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.323	0.235	0.198	0.24	0.203	0.268	0.279	0.227	0.226	0.217
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0267	0.0263	0.0221	0.0123	0.0174	0.033 J	0.0351	0.0261	0.0173	0.0247
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.0654	0.0464 M	0.0386	0.0642	0.0719 M	0.0997	0.0982	0.0797 M	0.089 M	0.0858 M
PCB14	3,5-DICHLOROBIPHENYL	0.0008 U	0.00091 U	0.0012 U	0.00019 J	0.00012 U	0.0024 U	0.0056 U	0.0004 U	0.00012 U	0.00012 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0516	0.0319	0.0293	0.0275	0.0384	0.0472	0.0595	0.0507	0.0517	0.0437
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.00073 U	0.00036 U	0.00038 U	0.00013 U	0.00014 U	0.00087 U	0.0014 U	0.00017 U	0 J	0.0001 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0293	0.0231	0.0207	0.0236	0.0293	0.0377 J	0.0439	0.0343	0.0353	0.0325
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00031 U	0.00019 J	0.00013 U	0.000358 J	0.00035 J	0.0003 U	0.0006 U	0.000511 M,J	0.00039 J	0.000475 M,J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.217	0.193	0.165	0.162	0.174	0.243	0.255	0.211	0.192	0.184
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00344 J	0.00333 J	0.0026	0.00279	0.00237 J	0.00497 J	0.0045 J	0.00365	0.00427	0.00403
PCB15	4,4'-DICHLOROBIPHENYL	0.0677	0.0577	0.0276	0.0296	0.0671	0.0448	0.0647	0.0289	0.0363	0.0382
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.002 M,J	0.00152 M,J	0.00124 J	0.00175 J	0.00178 J	0.00322 J	0.00397 M,J	0.00223 M,J	0.00302	0.00284
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00094 J	0.000562 J	0.000472 M,J	0.00061 J	0.000829 J	0.00184 J	0.000938 M,J	0.00101 J	0.00118 J	0.00124 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0231	0.0224	0.016	0.0186	0.0173	0.0284 J	0.0276	0.0212	0.0233	0.0229
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.0014 J	0.00142 J	0.00012 U	0.00144 J	0.000874 J	0.00221 J	0.0018 J	0.00141 J	0.00135 J	0.00123 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0619	0.0432	0.0441	0.0417	0.0483	0.0625	0.0773	0.0621	0.0553	0.0512
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00466 J	0.00365 J	0.00374 M	0.00314	0.00425	0.00508 J	0.00772 J	0.00574	0.00456	0.0044
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0734 M	0.0405	0.0277 M	0.0335	0.0507	0.0636 M	0.106 M	0.0542 M	0.054	0.0498
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL	0.00048 U	0.00023 U	0.00025 U	0.000086 U	0.000092 U	0.00059 U	0.00097 U	0.00011 U	0.00014 U	0.000068 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL	0.0005 U	0.00024 U	0.00026 U	0.00009 U	0.000085 U	0.00054 U	0.00089 U	0.00011 U	0.00013 U	0.000063 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00482 J	0.00459 J	0.004	0.00346	0.00343	0.00431 J	0.00542 J	0.00422	0.00367	0.0033
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.001 J	0.000895 J	0.00077 M,J	0.000666 M,J	0.0008 J	0.0016 J	0.00218 M,J	0.000794 M,J	0.00107 M,J	0.00113 M,J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0352	0.0283	0.0245	0.0221	0.0234	0.0308 J	0.0376	0.0244	0.0256	0.0232
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00229 M,J	0.0017 J	0.00146 M,J	0.00149 M,J	0.00184 J	0.00276 J	0.00254 M,J	0.0031 M,J	0.0017 J	0.00188 J
PCB17	2,2',4-TRICHLOROBIPHENYL	0.124	0.0711	0.0571	0.0609	0.0957	0.127	0.205	0.12	0.131	0.117
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.169	0.141	0.144	0.125	0.128	0.165	0.201	0.168	0.137	0.134
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0394	0.0374	0.0356	0.0317	0.0352	0.0417	0.0519	0.0439	0.0386	0.0351
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.125	0.1	0.0932 M	0.0994	0.118 M	0.155 M	0.176 M	0.151 M	0.142 M	0.137
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.00919	0.00801	0.00767	0.00734	0.00783	0.00952 J	0.0118 J	0.0089	0.00886	0.0084
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0243	0.0191	0.0177	0.0211	0.0265	0.0354 J	0.0359	0.0305	0.0309	0.0301
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.137	0.12	0.107	0.0825	0.111	0.154	0.17	0.129	0.116	0.121
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.0789	0.0725	0.0624	0.067	0.0701	0.0913	0.0954	0.0792	0.081	0.0752
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.0814	0.0634	0.0559	0.0715	0.0957	0.127	0.122	0.109	0.116	0.112
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.00198 J	0.00178 J	0.00151 M,J	0.00131 J	0.00201 J	0.00266 J	0.0034 J	0.00198 J	0.00226 J	0.0015 J
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL	0.00032 U	0.00021 U	0.00022 U	0.000096 U	0.000063 U	0.0005 U	0.00091 U	0.00011 U	0.000064 U	0.000074 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.16 M	0.138 M	0.122 M	0.129	0.118 M	0.143 M	0.172 M	0.147 M	0.139 M	0.126 M
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.00251 M,J	0.00264 J	0.00226 M	0.00257 J	0.00191 J	0.0031 J	0.0036 J	0.00282	0.003	0.00296
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0124 M	0.011 M	0.0167 M	0.0001 U	0.0173 M	0.027 M,J	0.0304 M	0.0233 M	0.0118 M	0.0128 M
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL	0.00026 U	0.00017 U	0.00018 U	0.00008 U	0.000054 U	0.00042 U	0.00077 U	0.000092 U	0.000054 U	0.000074 J
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	0.934	0.87	0.769	0.755	0.809	1.18	1.29	0.965	0.964	0.877
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.0015 J	0.0014 J	0.0012 J	0.00101 J	0.00105 J	0.0021 J	0.0028 J	0.00144 J	0.00122 J	0.00133 J
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.00826 J	0.00679 M	0.00601	0.00515	0.0052 J-	0.0063 J	0.00861 M,J	0.00626 J	0.00542 J-	0.00505 J-
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0376	0.0307	0.025	0.0196	0.0251	0.0448	0.0556	0.0426	0.0425	0.0436
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.037	0.0377	0.03	0.0213	0.0412	0.0522	0.0661	0.0433	0.0426	0.0369
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00466 J	0.00404 J	0.00397	0.00295	0.00354	0.00498 J	0.0064 J	0.00475 M	0.00411	0.00392
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL	0.00029 U	0.00019 U	0.0002 U	0.000095 J	0.000058 U	0.00046 U	0.00083 U	0.000099 U	0.000059	0.0000712 M,J
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0827	0.0673	0.0676	0.0585	0.0538	0.0721	0.093	0.0802	0.0562	0.0659
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0415	0.0325	0.0362	0.0354	0.0329	0.0427	0.046	0.0424	0.0339	0.0362
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0418	0.0289	0.0297	0.0284	0.0254	0.0324 J	0.0383	0.0353	0.029	0.0282
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00925	0.0075 J	0.0061 J	0.0071 J	0.00634	0.00815 J	0.008 J	0.00693 M	0.00658 M	0.00671
PCB2	3-CHLOROBIPHENYL	0.00039 U	0.00065 UJ	0.00066 U	0.000083 U	0.00187 J	0.00388 J	0.0048 J	0.00128 J	0.00144 J	0.0013 J
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0172	0.0125	0.0123	0.0164	0.0151	0.0194 J	0.0197 J	0.0184	0.0188	0.0166
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.04 J	0.0326	0.0299	0.0294	0.0251	0.034 J	0.0372	0.0296	0.0308	0.0294
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0508	0.0554	0.0434	0.0396	0.0437	0.0557	0.0603	0.0422	0.0458	0.0392
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.155	0.132	0.139	0.132	0.119	0.15	0.179	0.155	0.126	0.122
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00068 J	0.00053 J	0.0004 J	0.000471 J	0.00024 J	0.00048 U	0.00084 U	0.000354 J	0.00034 J	0.00033 J
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00739 J	0.00631 J	0.00598	0.0053	0.00548	0.00804 J	0.00804 J	0.00591	0.00521	0.00514
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.0948	0.0946	0.083	0.0752	0.0741	0.0951	0.099	0.0841	0.0767	0.0749
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0167	0.0167	0.0142	0.012	0.0123	0.018 M,J	0.017 J	0.0134	0.0122	0.0129
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0477	0.05	0.0428	0.0396	0.0395	0.0474	0.0503	0.0411	0.0384	0.0385
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0824	0.0813	0.0729	0.0714	0.0693	0.0878	0.0796	0.0721	0.0616	0.0636
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.181	0.102	0.0701	0.07	0.0848	0.0975	0.177	0.0744	0.0851	0.0696
PCB23	2,3,5-TRICHLOROBIPHENYL	0.00078 U	0.0005 U	0.00086 U	0.000247 J	0.00029 J	0.0012 U	0.0032 U	0.000324 J	0.000303 J	0.000301 M,J
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00156 M,J	0.00073 J	0.00039 U	0.00074 J	0.00151 J	0.00165 M,J	0.00487 M,J	0.0023 M,J	0.00193 J	0.00176 J
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0909	0.0351	0.0292	0.0269	0.0412	0.0591	0.0974	0.0383	0.0587	0.0426
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0154 M	0.00844	0.00702	0.00788	0.0132	0.0178 J	0.0291	0.0155	0.0169	0.0162
PCB3	4-CHLOROBIPHENYL	0.00022 U	0.0003 U	0.0026 J	0.0029 J+	0.00567	0.0076 J	0.0132 J	0.00291 J+	0.00359 J+	0.00336 J+
PCB31	2,4',5-TRICHLOROBIPHENYL	0.361	0.188	0.148	0.133	0.216	0.284	0.541	0.204	0.242	0.203
PCB32	2,4',6-TRICHLOROBIPHENYL	0.0841	0.048	0.0378	0.0378	0.0591	0.0932	0.144	0.0774	0.0911	0.0771
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.00362 M,J	0.00158 J	0.00161 J	0.00151 J	0.00225 J	0.0024 J	0.0033 U	0.00244	0.00297	0.00244 J
PCB35	3,3',4-TRICHLOROBIPHENYL	0.013 J	0.0078 J	0.00564 J+	0.00589 J+	0.00205 M,J	0.0036 J	0.0058 J	0.00201 M,J	0.00234 J	0.0018 J
PCB36	3,3',5-TRICHLOROBIPHENYL	0.00071 U	0.00045 U	0.00077 U	0.0001 U	0.00011 U	0.0011 U	0.0029 U	0.00026 U	0.00011 U	0.00015 U
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0775	0.0411	0.0282 J+	0.0301 J+	0.0271	0.0305 J	0.0584	0.021	0.0287	0.022
PCB38	3,4,5-TRICHLOROBIPHENYL	0.00078 U	0.0005 U	0.00086 U	0.000296 J	0.00039 J	0.0012 U	0.0031 U	0.00045 J	0.000452 J	0.00047 J
PCB39	3,4',5-TRICHLOROBIPHENYL	0.0028 J	0.00183 J	0.00149 J	0.0013 J	0.00195 J	0.00362 M,J	0.0032 U	0.0023 J	0.00237 J	0.0021 J
PCB4	2,2'-DICHLOROBIPHENYL	0.0628	0.0611	0.0428 M	0.039	0.0508	0.0796	0.09 J	0.0676	0.0656	0.0781
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.233	0.154	0.116	0.132	0.127	0.168	0.261	0.128	0.144	0.136
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.0257 M	0.0179 M	0.0146 M	0.0186	0.0216	0.0266 J	0.0449	0.0226	0.0249	0.025
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0315	0.0188	0.0138	0.018	0.0212	0.0308 J	0.0425	0.0224	0.0274	0.0253
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.0996	0.0598	0.0503	0.0583	0.0816	0.107	0.189	0.0861	0.0948	0.0925
PCB5	2,3-DICHLOROBIPHENYL	0.0015 J	0.0009 J	0.0011 U	0.000735 J	0.00195 J	0.0019 U	0.0049 U	0.0013 J	0.00164 M,J	0.0015 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	0.647 M	0.41 M	0.347 M	0.385 M	0.55 M	0.814 M	1.17 M	0.558 M	0.672 M	0.611 M
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00304 M,J	0.0025 J	0.0022 J	0.0019 J	0.00216 J	0.0065 J	0.0065 J	0.00448	0.00571	0.00503
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.0127	0.00442 J	0.00485	0.0036 M	0.0029 J	0.00348 M,J	0.0099 J	0.00304	0.00411	0.0033 M
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.258	0.148	0.125	0.12	0.109	0.136	0.273	0.105	0.119	0.109
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00468 J	0.00269 J	0.00214 J	0.00203 J	0.00262	0.00379 J	0.00525 J	0.00247	0.0031	0.00272 M
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.0018 J	0.00075 J	0.0014 J	0.000988 M,J	0.0013 M,J	0.0021 J	0.0031 U	0.0013 J	0.00128 M,J	0.0015 M,J
PCB6	2,3'-DICHLOROBIPHENYL	0.027	0.0142	0.012 J	0.0124	0.0282	0.028 J	0.0452	0.022	0.0237	0.0231
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.115	0.0629	0.0557	0.0541	0.0456	0.0543	0.122	0.0439	0.0528	0.0466

PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.029	0.02	0.0179	0.0178	0.0186	0.0276 J	0.0418	0.0186	0.0237	0.0209
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.279	0.177	0.148	0.163	0.191	0.245	0.423	0.186	0.208	0.197
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.462	0.293	0.245	0.226	0.224 M	0.3 M	0.584 M	0.223	0.245	0.236
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0179	0.00756	0.00712	0.00727	0.00942	0.0125 J	0.0265	0.00889	0.0114	0.0105
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00642 M,J	0.00524 J	0.00308	0.00478	0.00339 M	0.0069 M,J	0.0112 J	0.00438 M	0.00547	0.0046
PCB7	2,4-DICHLOROBIPHENYL	0.00517 J	0.0029 J	0.001 U	0.0023 J	0.00561	0.0086 J	0.0045 U	0.00366	0.00391	0.00401
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.00881 J	0.00605 J	0.00469	0.00501	0.00554	0.00949 J	0.0133 J	0.00552	0.00733	0.00648
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00208 M,J	0.0014 J	0.00163 M,J	0.000961 M,J	0.00142 M,J	0.00422 M,J	0.00423 M,J	0.00196 M,J	0.00218 M,J	0.00201 M,J
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0339	0.0152	0.0141	0.0119	0.0116	0.0143 J	0.0274	0.0102	0.0131	0.012
PCB78	3,3',4,5-TETRACHLOROBIPHENYL	0.0009 U	0 J	0.00052 U	0.00013 U	0.000091 U	0.0012 U	0.0034 U	0.00022 U	0.00013 U	0.00011 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.0053 J	0.0035 J	0.00377	0.00393	0.00414	0.00645 J	0.0062 J	0.00447	0.00423	0.00424
PCB8	2,4'-DICHLOROBIPHENYL	0.117 M	0.0876 M	0.0551	0.053	0.13	0.106	0.162	0.0797 M	0.0781 M	0.0811
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL	0.00068 U	0.00033 U	0.00039 U	0.000095 U	0.000068 U	0.00087 U	0.0026 U	0.00016 U	0.000099 U	0.000086 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.000958 J	0.00047 J	0.000585 M,J	0.000447 M,J	0.000496 J	0.00076 U	0.0023 U	0.00043 J	0.000539 J	0.000591 M,J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.18	0.135	0.111 M	0.106	0.0834 M	0.0959	0.141	0.0803	0.085 M	0.0818
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.225	0.155	0.12	0.153	0.136	0.166	0.207	0.127	0.145	0.14
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0214	0.015	0.012	0.0134	0.0114	0.0143 J	0.0199 J	0.0103	0.0122	0.0121
PCB9	2,5-DICHLOROBIPHENYL	0.0006 U	0.00081 U	0.001 U	0.00013 U	0.00711	0.0018 U	0.0046 U	0.0045 J	0.00449	0.0048
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.285	0.241	0.196	0.204	0.206	0.27	0.316	0.208	0.227	0.212
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.00757 J	0.00599 J	0.00494	0.006	0.00596	0.0122 J	0.011 J	0.00777	0.0101	0.00965
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	0.583	0.416	0.351	0.45	0.515	0.681	0.844	0.518	0.592	0.567
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.00666 J	0.00455 J	0.00297	0.00515	0.00525	0.00914 J	0.00905 J	0.00599	0.00727	0.00719
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0251	0.0169	0.0106	0.00935	0.0143	0.0136 J	0.005 U	0.00806	0.0109	0.00939
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.138	0.0684	0.0589	0.0684	0.141	0.176	0.313	0.161	0.165	0.153
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.523	0.301	0.214	0.195	0.268	0.326	0.584	0.228	0.273	0.228
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.144	0.0825	0.0561	0.0593	0.0839	0.106	0.186	0.0758	0.0825	0.0683
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.0764	0.0339	0.0272	0.0285	0.0533	0.0744	0.125	0.0547	0.071	0.0589
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.377	0.24	0.191	0.208	0.221	0.3	0.483	0.228	0.259	0.237
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.537	0.357	0.279	0.334	0.383	0.608	0.89	0.406	0.487	0.438
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.0816	0.0517	0.039	0.0569	0.072	0.132	0.157	0.087	0.117	0.102
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.426	0.272	0.219	0.244	0.296	0.481	0.664	0.311	0.39	0.344
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.0554	0.035	0.0275	0.0402	0.0593	0.104	0.122	0.0725	0.0961	0.0876
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0476	0.0301	0.0244	0.0289	0.0375	0.0515	0.0797	0.0369	0.0436	0.0414
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	0.786	0.437 M	0.397	0.378	0.44	0.626	1.23	0.443	0.502	0.475
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	0.714	0.576	0.485	0.482	0.468	0.621	0.838	0.485	0.508	0.48
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.575 M	0.4 M	0.361 M	0.355 M	0.363 M	0.467 M	0.639 M	0.372 M	0.393 M	0.372 M
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.193	0.147	0.112	0.141	0.131	0.169	0.21	0.132	0.151	0.147
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.15	0.923	0.766	0.732	0.767	1.01	1.32	0.774	0.812	0.76
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0514 M	0.0436 M	0.0327 M	0.0414 M	0.0305	0.0407	0.053	0.03	0.0368	0.0363
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0334	0.0245	0.0237	0.019	0.0212	0.0245 J	0.0386	0.0227	0.0237	0.0209
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.21	0.17	0.151	0.139	0.132	0.177	0.198	0.159	0.136	0.13
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.05	0.824	0.781	0.761	0.794	1.19	1.35	1.01	0.891	0.856
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0319	0.0216	0.0203	0.0272	0.0283	0.0377 J	0.0416	0.0324	0.0322	0.0318
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.362	0.288	0.254	0.3	0.374	0.547	0.568	0.446	0.467	0.434
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0161	0.0117	0.0106	0.0128	0.0131	0.017 J	0.019 J	0.0154	0.0158	0.0151
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	0.8	0.632	0.549	0.663	0.737	1.07	1.12	0.868	0.885	0.836
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.14	0.966	0.845	0.766	0.781	1.13	1.25	0.964	0.837	0.813
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.102	0.0746	0.0689	0.0597	0.0633	0.083	0.104	0.07	0.0683	0.0555
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0469	0.0424	0.036	0.031	0.0449	0.0562	0.0652	0.0512	0.049	0.0449
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.155	0.106	0.0976	0.0848	0.0987	0.13	0.172	0.143	0.124	0.11
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.28	0.242	0.238	0.24	0.231	0.291	0.326	0.255	0.267	0.239
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	1.53 M	1.13 M	1.01 M	0.947 M	0.875 M	1.15 M	1.61 M	0.908 M	0.925 M	0.869 M
PCB-CO84	PCB-137; PCB-164	0.0897	0.0685	0.066	0.0662	0.0747	0.101	0.118	0.0929	0.0869	0.082
PCCTOT	TOTAL PCB CONGENERS (LAB REPORTED)	21.4 J	15.7 J	13.4 J	13.5 J	14.8 J	20.3 J	27 J	16.2 J	16.7 J	15.6 J
TDCBP	TOTAL DICHLOROBIPHENYLS	0.66 J	0.518 J	0.272 J	0.306 J	0.352 J	0.399 J	0.648 J	0.278 J	0.28 J	0.297 J
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000101	0.000172	0.000221	0.000148	0.000159	0.000106	0.000361	0.000111	0.0000983	0.000161
TEQ_PCB_MP	TEQ PCB Mid Point	0.000251	0.000223	0.000221	0.000148	0.000159	0.000226	0.000361	0.000195	0.000149	0.000161
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000251	0.000223	0.000221	0.000148	0.000159	0.000226	0.000361	0.000195	0.000149	0.000161
THCBP	TOTAL HEPTACHLOROBIPHENYL	2.03 J	1.78 J	1.61 J	1.54 J	1.74 J	2.39 J	2.68 J	2.11 J	2.02 J	1.88 J
THXBP	TOTAL HEXACHLOROBIPHENYL	4.73 J	3.78 J	3.37 J	3.46 J	3.69 J	5.3 J	5.8 J	4.48 J	4.21 J	4.01 J
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0187 J	0.0249 J	0.00927 J	0.00849 J	0.0134 J	0.0266 J	0.03 J	0.00853 J	0.0107 J	0.0107 J
TNCBP	TOTAL NONACHLOROBIPHENYL	0.159 J	0.161 J	0.14 J	0.127 J	0.126 J	0.161 J	0.166 J	0.139 J	0.127 J	0.126 J
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.726 J	0.618 J	0.609 J	0.593 J	0.558 J	0.713 J	0.816 J	0.671 J	0.62 J	0.589 J
TPCBP	TOTAL PENTACHLOROBIPHENYL	6.46 J	4.83 J	4.15 J	4.12 J	4.11 J	5.42 J	7.28 J	4.21 J	4.47 J	4.21 J
TTCBP	TOTAL TETRACHLOROBIPHENYL	4.59 J	2.83 J	2.36 J	2.53 J	2.94 J	4.28 J	6.89 J	3.03 J	3.56 J	3.28 J
TTRBP	TOTAL TRICHLOROBIPHENYL	1.95 J	1.06 J	0.795 J	0.782 J	1.17 J	1.51 J	2.63 J	1.18 J	1.35 J	1.16 J
	TOTAL PCB CONGENERS (ND SET TO 0)	21.457078	15.761047	13.453262	13.600615	14.833277	20.37313	27.095398	16.242198	16.773858	15.6879992

Units are µg/kg

PARLABEL	NAME	LMR21-45S REP A	LMR21-45S REP B	LMR21-45S REP C	LMR21-45S REP D	LMR21-45S REP E	LMR21-64S REP A	LMR21-64S REP B	LMR21-64S REP C	LMR21-64S REP D	LMR21-64S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0884 J	0.094 J	0.0848 J	0.084 J	0.0814 J	0.082 J	0.0893 J	0.0738 J	0.0741 J	0.0719 J
PCB1	2-CHLOROBIPHENYL	0.00731 J	0.00707	0.00417 J+	0.00383 J+	0.00403 J+	0.00653 J	0.00518	0.00328 J+	0.00298 J+	0.00542
PCB10	2,6-DICHLOROBIPHENYL	0.00164 J	0.0021 J	0.00121 M,J	0.00144 J	0.0017 J	0.00167 J	0.00164 J	0.00114 J	0.00129 J	0.00217 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0254	0.0158	0.0249	0.0297	0.0219	0.0192	0.0253	0.0191	0.0178	0.0249
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00141 J	0.00094 J	0.00107 J	0.00134 J	0.00115 J	0.00116 J	0.00159 J	0.00108 J	0.001 J	0.00139 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.306	0.215	0.23	0.268	0.276	0.164	0.19	0.136	0.133	0.195
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0.00055 U	0.0007 U	0.00015 U	0.00021 U	0.00035 U	0.00044 U	0.00022 U	0.00012 U	0.000097 U	0.00018 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0952 M	0.0731 M	0.0844 M	0.0915 M	0.0927 M	0.048 M	0.0631	0.0463 M	0.0449 M	0.064 M
PCB11	3,3'-DICHLOROBIPHENYL	0.16	0.23	0.145	0.0711	0.0637	0.163	0.105	0.0665	0.05	0.0772
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00136 J	0.0016 J	0.00132 J	0.00135 J	0.00174 M,J	0.00112 J	0.00132 M,J	0.00104 M,J	0.000916 J	0.00132 M,J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL	0.00031 U	0.00046 U	0.000078 U	0.000094 U	0.00014 U	0.00026 U	0.00017 U	0.00006 U	0.000046 U	0.00011 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.0199	0.014	0.0146 M	0.0169	0.0185	0.0129	0.0142	0.0105	0.00946	0.0138
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.825	0.599	0.626 M	0.757	0.767	0.457	0.542	0.378	0.364	0.54
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00727 J	0.00607	0.00671	0.008	0.00765	0.00453 J	0.0061	0.0045	0.00395	0.00609
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.000949 M,J	0.0005 J	0.000754 J	0.000907 J	0.000816 M,J	0.000715 M,J	0.00066 J	0.000634 J	0.000516 J	0.000739 M,J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0157	0.011	0.0142 M	0.0162 M	0.0171	0.011 J	0.0111	0.00862	0.00881	0.0123 M
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.0131 M	0.00853 M	0.009 J	0.0116 M	0.0111 M	0.00825 M,J	0.00945	0.00816 M	0.00722 M	0.0104 M
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00261 J	0.00223 M,J	0.00177 J	0.00239 M,J	0.0028 J	0.0014 J	0.00161 M,J	0.00138 M,J	0.00122 M,J	0.00192 M,J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.00052 U	0.00066 U	0.00025 J	0.00074 M,J	0.00082 J	0.00048 J	0.000524 J	0.000495 M,J	0.000577 J	0.0007 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0913	0.0759	0.0875	0.0969	0.0923	0.0799	0.0947	0.0666	0.0687	0.0858
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0136	0.00979	0.014	0.0123	0.0111	0.0114 J	0.0124	0.01	0.00972	0.0114
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.408	0.3	0.386	0.372	0.351	0.359	0.427	0.318	0.317	0.363
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0356	0.0275	0.0246	0.027	0.029	0.0344	0.0432	0.0292	0.0284	0.0384
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.138	0.0915 M	0.149	0.139	0.118	0.159	0.188	0.135	0.146	0.152
PCB14	3,5-DICHLOROBIPHENYL	0.00089 U	0.0014 U	0.00027 J	0.00015 U	0.00061 U	0.00069 U	0.0003 U	0.00012 U	0.00011 J	0.00017 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0597	0.0357	0.0565	0.0629	0.0617	0.0806	0.0859	0.0727	0.0771	0.0969
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.00068 U	0.00064 U	0.00016 U	0.00029 U	0.00021 U	0.0005 U	0.00033 U	0.00021 U	0.00012 U	0.00021 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0691	0.0477	0.0685	0.0724	0.0614	0.0524	0.0646	0.0521	0.0496	0.0573
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00048 J	0.00019 U	0.000854 J	0.000844 J	0.000695 J	0.000799 M,J	0.000835 M,J	0.000711 J	0.000727 J	0.000683 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.366	0.282	0.34	0.341	0.311	0.271	0.349	0.268	0.244	0.284
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00583 J	0.0033 J	0.00522	0.00522	0.00461	0.00521 J	0.0065	0.00502	0.00442	0.00535
PCB15	4,4'-DICHLOROBIPHENYL	0.0683	0.085	0.0443	0.0406	0.0464	0.0387	0.0441	0.0284	0.0293	0.0547
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.0042 J	0.00278 J	0.00416	0.00411	0.00308	0.00403 J	0.0052	0.00398	0.0039	0.00439
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00137 J	0.000854 J	0.0014 J	0.00142 J	0.00126 J	0.0017 J	0.00233 J	0.00164 J	0.00168	0.00191 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0357	0.027	0.0345	0.0383	0.0316	0.031	0.0451	0.0337	0.0313	0.038
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.00171 J	0.00129 M,J	0.0012 J	0.0014 J	0.00128 J	0.0014 J	0.00158 J	0.00111 J	0.000867 J	0.00144 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0931	0.0708	0.0902	0.0943	0.0919	0.082	0.101	0.0763	0.0759	0.0869
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00627 J	0.00564 M	0.00621 M	0.00771	0.00733	0.00843 J	0.00871	0.00712	0.00604	0.00754
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0623	0.047 M	0.0464	0.0589	0.0648	0.0528	0.0676	0.053	0.0504	0.0806
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL	0.00046 U	0.00043 U	0.0001 U	0.00019 U	0.00014 U	0.00032 U	0.00021 U	0.00013 U	0.000079 U	0.00013 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL	0.00042 U	0.0004 U	0.000097 U	0.00019 U	0.00014 U	0.00032 U	0.00022 U	0.00014 U	0.000081 U	0.00013 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00599 J	0.00544	0.00579	0.00637	0.00555	0.00528 J	0.00691	0.00532	0.00502	0.00516
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.0018 M,J	0.0012 J	0.00217 J	0.0015 J	0.0016 J	0.00094 J	0.00199 M,J	0.0013 M,J	0.00137 J	0.0011 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0447	0.0348	0.0411	0.0473	0.045	0.036	0.0429	0.0323	0.0304	0.0381
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00334 M,J	0.00338 M,J	0.00291 M	0.00369	0.0032 M	0.0044 M,J	0.00501 M,J	0.00399 M,J	0.00365 J	0.00425 M,J
PCB17	2,2',4-TRICHLOROBIPHENYL	0.135	0.0931	0.101	0.136	0.146	0.106	0.145	0.108	0.0996	0.166
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.186	0.172	0.191	0.22	0.227	0.217	0.242	0.18	0.17	0.224
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0366	0.033	0.0436	0.0509	0.0478	0.052	0.0593	0.0489	0.0458 M	0.0564
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.185	0.165 M	0.215	0.223	0.211	0.213 M	0.223 M	0.167 M	0.172	0.219
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0138	0.00929	0.0138	0.0139	0.012	0.0122 J	0.0138	0.0109	0.0106	0.0133
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0444	0.0348	0.0514	0.0493	0.0433 M	0.0445	0.0519	0.0399	0.0399	0.0492
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.178	0.159	0.167	0.192	0.181	0.169	0.194	0.14	0.119	0.175
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.118	0.0953	0.13	0.13	0.118	0.1	0.118	0.0946	0.0906	0.115
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.154	0.116	0.178	0.168	0.152	0.161	0.184	0.143	0.146	0.172
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0029 J	0.0024 J	0.00329 M	0.00311	0.00346 M	0.00265 M,J	0.00319 J	0.00245 J	0.00207	0.00283
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL	0.0003 U	0.00038 U	0.0001 U	0.00006 U	0.00014 U	0.00028 U	0.00017 U	0.000063 U	0.000057 U	0.000081 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.2 M	0.156 M	0.206 M	0.197 M	0.184 M	0.175 M	0.197 M	0.164 M	0.15 M	0.187 M
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.00267 J	0.0018 J	0.00238 J	0.00239 J	0.00206 J	0.00206 J	0.0024 J	0.00212 M,J	0.00213	0.00266
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0424 M	0.0413 M	0.0454 M	0.0605 M	0.0568 M	0.0385 M	0.0415 M	0.0312 M	0.0291 M	0.0359 M
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL	0.00025 U	0.00032 U	0.000087 U	0.00012 J	0.00012 U	0.00023 U	0.000164 M,J	0.00011 J	0.000142 J	0.000122 J
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	1.53	1.3	1.78	1.95	1.75	1.29	1.49	1.23	1.16	1.26
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00295 J	0.00271 J	0.00217 J	0.00235 J	0.00234 J	0.00234 J	0.00282 J	0.00187 J	0.00141 J	0.0027
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0075 J	0.00646 J-	0.00746 J-	0.00798 J-	0.00761 J-	0.00746 J	0.00862 J-	0.00649 J-	0.00636 J-	0.00759 J-
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0354	0.0271	0.0295	0.0356	0.0421	0.0284	0.0373	0.0278	0.0261	0.0442
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0657	0.0615	0.0665	0.0802	0.0792	0.066	0.0687	0.0515	0.0432	0.0624
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.0046 J	0.00442 J	0.0053	0.00636	0.00549	0.0066 J	0.00683	0.00486	0.00502	0.00637
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL	0.00027 U	0.00035 U	0.000095 U	0.000056 U	0.00013 U	0.00026 U	0.00015 U	0.000058 U	0.0000798 M,J	0.000117 M,J
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0624	0.0577	0.0515	0.0784	0.073	0.116	0.109	0.0882	0.0804	0.0987
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.044	0.0407	0.0447	0.0501	0.0496	0.06	0.0609	0.048	0.049	0.0544
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0352	0.0333	0.037	0.038	0.0397	0.0528	0.0554	0.0444	0.047	0.0493
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00979 J	0.00762	0.00965 M	0.00816	0.0103 M	0.0122 J	0.0127	0.00944	0.0114	0.011 M
PCB2	3-CHLOROBIPHENYL	0.00379 J	0.0039 J	0.00313	0.00194	0.00304	0.0028 J	0.0021 J	0.00167 J	0.00144 J	0.00243
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0231	0.0186	0.0287	0.0257	0.0228 M	0.0294	0.034	0.0268	0.0329	0.026 M
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0473	0.0339	0.0471	0.0406	0.0406	0.052	0.0512	0.0424	0.0463	0.0475
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.079	0.0728	0.0741	0.0782	0.0746	0.064	0.0663	0.0538	0.0537	0.0647
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.205	0.185	0.207	0.206	0.215	0.224	0.245	0.193	0.207	0.194
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00027 J	0.00024 J	0.000452 M,J	0.00027 J	0.000479 J	0.00063 J	0.00049 J	0.00041 J	0.0004 J	0.000605 J
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00688 J	0.00583	0.00697	0.00771	0.0075	0.00753 J	0.00842	0.00639	0.00651	0.00678
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.129	0.132	0.119	0.125	0.119	0.121	0.128	0.107	0.103	0.106
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0189	0.0181	0.0166	0.0194	0.0175	0.0205	0.0199	0.0167	0.0146	0.0171
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0671	0.0705	0.0615	0.0642	0.0594	0.0598	0.0647	0.0506	0.0491	0.0536
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0884	0.094	0.0848	0.084	0.0814	0.082	0.0893	0.0738	0.0741	0.0719
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.134	0.0957	0.0971	0.115	0.131	0.0713	0.0944	0.071	0.069	0.125
PCB23	2,3,5-TRICHLOROBIPHENYL	0.00069 J	0.001 U	0.000355 J	0.000482 J	0.00056 U	0.00051 U	0.000366 J	0.00024 J	0.000232 J	0.000498 J
PCB24	2,3,6-TRICHLOROBIPHENYL	0.0027 J	0.0025 J	0.00194 M,J	0.00264	0.00291	0.00239 J	0.00247 J	0.00214 J	0.00178	0.00333
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0647	0.0432	0.0498	0.0626	0.0662	0.0352	0.0524	0.0358	0.0356	0.0679
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0215	0.0163	0.0183	0.0226	0.0238	0.0158	0.0214	0.0155	0.0151	0.0246
PCB3	4-CHLOROBIPHENYL	0.00602 J	0.00743	0.00385 J+	0.00272 J+	0.00299 J+	0.00501 J	0.00011 U	0.000034 U	0.00216 J+	0.00359 J+
PCB31	2,4',5-TRICHLOROBIPHENYL	0.42	0.293	0.285	0.357	0.41	0.225	0.293	0.205	0.192	0.371
PCB32	2,4',6-TRICHLOROBIPHENYL	0.102	0.0756	0.0758	0.0937	0.106	0.0623	0.0853	0.0627	0.0579	0.102
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.0042 J	0.00283 J	0.00326	0.0035 J	0.00392	0.00262 J	0.00342 J	0.00255	0.00224	0.00408
PCB35	3,3',4-TRICHLOROBIPHENYL	0.00597 J	0.00591 M	0.00502	0.00424	0.0041 M	0.00359 J	0.00267 J	0.00194 J	0.00197	0.00294
PCB36	3,3',5-TRICHLOROBIPHENYL	0.00029 U	0.00095 U	0.000516 J	0.00023 J	0.0005 U	0.00046 U	0.00024 U	0.000077 U	0.000099 U	0.00026 J
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0653	0.0516	0.0501	0.0547	0.0628	0.0274	0.0373	0.0241	0.0268	0.0472
PCB38	3,4,5-TRICHLOROBIPHENYL	0.00031 U	0.001 U	0.000828 J	0.000925 M,J	0.000989 J	0.00049 U	0.00072 J	0.000592 J	0.00056 J	0.000768 J
PCB39	3,4',5-TRICHLOROBIPHENYL	0.0047 J	0.00252 J	0.0032	0.00416	0.00467	0.0023 J	0.00316 J	0.00245 J	0.00231	0.00388
PCB4	2,2'-DICHLOROBIPHENYL	0.0441	0.0414	0.0327	0.0354	0.0452	0.0448	0.0548	0.0434	0.0406	0.0673
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.233	0.153	0.202	0.253	0.243	0.157	0.213	0.153	0.146	0.225
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.0329	0.0236	0.0329	0.0418	0.0392	0.0267 M	0.0376	0.0282 M	0.0278	0.039 M
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0399	0.0278	0.0378	0.044	0.0388	0.0303	0.0383	0.0288	0.0281	0.0405
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.159	0.0956	0.129	0.17	0.164	0.11	0.14	0.108	0.0994	0.156
PCB5	2,3-DICHLOROBIPHENYL	0.0018 J	0.0025 J	0.0013 M,J	0.00106 M,J	0.001 J	0.00186 M,J	0.0013 J	0.00128 J	0.00101 M,J	0.0018 J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	1.2 M	0.755 M	0.973 M	1.2 M	1.13 M	0.832 M	1.02 M	0.726 M	0.673 M	1.06 M
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.0036 J	0.00268 J	0.00318	0.0041	0.00453	0.00405 J	0.00498 J	0.0037	0.00315	0.00499
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.00576 J	0.00375 J	0.00482	0.00674	0.00683 M	0.0027 J	0.00362 M,J	0.00313	0.00294	0.00577
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.268	0.179	0.206	0.259	0.278	0.134	0.168	0.123	0.121	0.202
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.0043 J	0.00369 M,J	0.00445	0.00561	0.00549	0.00306 J	0.00458 J	0.00296	0.00279	0.00416
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.00395 M,J	0.0013 J	0.00183 M,J	0.00389 M	0.00435 M	0.0026 J	0.0029 J	0.00202 M,J	0.00224 M	0.00367 M
PCB6	2,3'-DICHLOROBIPHENYL	0.0272	0.0309	0.018	0.0206	0.0237	0.0211	0.0268	0.0176	0.0178	0.0348
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.101	0.065	0.0761	0.0963	0.102	0.0535	0.0646	0.0488	0.0486	0.0795

PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.0407	0.0255	0.0364	0.0464	0.0443	0.0232	0.031	0.0233	0.0215	0.0343
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.415	0.301	0.371	0.43	0.422	0.246	0.32	0.234	0.225	0.344
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.602	0.405	0.471	0.58	0.612	0.29	0.37	0.26	0.249	0.42
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0213	0.0135	0.0188	0.0229	0.0223	0.0111 J	0.0144	0.0106	0.0106	0.0186
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.01 J	0.00788 M	0.00813	0.00985	0.00848	0.0063 J	0.00684	0.0054	0.00444	0.00755
PCB7	2,4-DICHLOROBIPHENYL	0.0051 J	0.0057 J	0.00335	0.00372	0.00396 M	0.00412 J	0.0048 J	0.00311	0.00281	0.00509
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0131	0.0087	0.0117	0.0141	0.0131	0.00724 J	0.00971	0.00703	0.00685	0.0099
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00256 M,J	0.00253 M,J	0.00254 M	0.00286 M	0.00287 M	0.00169 M,J	0.00252 M,J	0.0017 M,J	0.00165 M	0.00244 M
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0362	0.0246	0.0289	0.0325	0.0343	0.0153	0.0182	0.0129	0.0134	0.0229
PCB78	3,3',4,5-TETRACHLOROBIPHENYL	0.00052 U	0.00099 U	0.00016 U	0.000818 M,J	0.00068 M,J	0.000537 M,J	0.00036 U	0.00014 U	0.00027 J	0.00022 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.00952 J	0.007 J	0.00974	0.0102	0.0108	0.00553 J	0.00663	0.0043 J	0.00479	0.00796
PCB8	2,4'-DICHLOROBIPHENYL	0.106 M	0.141 M	0.0642 M	0.0681 M	0.0764 M	0.0776 M	0.0911	0.0618	0.0573 M	0.111
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL	0.00039 U	0.00074 U	0.00012 U	0.00014 U	0.00034 U	0.00026 U	0.00027 U	0.0001 U	0.000057 U	0.00017 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00146 J	0.00094 J	0.0012 J	0.0012 J	0.0015 J	0.000872 J	0.000859 M,J	0.00054 J	0.000456 J	0.000804 J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.17 M	0.119 M	0.143	0.16 M	0.159	0.106	0.119 M	0.0934 M	0.0902	0.128
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.287	0.189	0.258	0.273	0.245	0.214	0.237	0.173	0.175	0.234
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0192	0.0142	0.0191	0.0208	0.0178	0.0153	0.0176	0.0136	0.0136	0.019
PCB9	2,5-DICHLOROBIPHENYL	0.0059 J	0.00851	0.00412	0.00443	0.00471 M	0.0052 J	0.00523	0.00393	0.00336	0.00673
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.423	0.292	0.373	0.436	0.394	0.292	0.354	0.268	0.251	0.354
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.0109 J	0.00788	0.0117	0.0129	0.0107	0.0102 J	0.0127	0.00928	0.0095	0.0123
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	1.1	0.801	1.12	1.17	1.05	0.899	1.01	0.734	0.738	1.01
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.00764 J	0.00508	0.00852	0.00991	0.008	0.00998 M,J	0.0122	0.00834	0.00905	0.0111
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0178	0.0176	0.0114	0.0107	0.0122	0.0101 M,J	0.0103	0.00712	0.0077	0.0151
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.203	0.15	0.154	0.203	0.228	0.174	0.222	0.165	0.154	0.254
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.495	0.364	0.344	0.424	0.483	0.245	0.325	0.224	0.216	0.417
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.13	0.1	0.0916	0.107	0.123	0.0752	0.0948	0.0696	0.0663	0.124
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.092	0.0627	0.071	0.0885	0.096	0.0597	0.0795	0.0552	0.0513	0.0911
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.403	0.268	0.343	0.416	0.407	0.279	0.356	0.265	0.253	0.385
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.786	0.521	0.657	0.818	0.789	0.572	0.716	0.515	0.483	0.751
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.143	0.0989	0.138	0.16	0.144	0.114	0.143	0.105	0.102	0.148
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.637	0.404	0.52	0.671	0.628	0.412	0.551	0.394	0.363	0.574
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.111	0.082	0.116	0.134	0.117	0.101	0.127	0.0898	0.0895	0.126
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0793	0.0592	0.0782	0.0869	0.0844	0.0474	0.0662	0.0484	0.0454	0.0718
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	1.22	0.79	0.901	1.12	1.17	0.614	0.737	0.531	0.507	0.85
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.02	0.717	0.873	1.08	1.01	0.705	0.848	0.635	0.599	0.864
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.815 M	0.573 M	0.692 M	0.778 M	0.77 M	0.536 M	0.618 M	0.455 M	0.438 M	0.638 M
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.269	0.196	0.268	0.286	0.257	0.203	0.244	0.181	0.176	0.241
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.73	1.19	1.4	1.65	1.54	1.08	1.28	0.962	0.888	1.31
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0573	0.0394	0.0607	0.0959 M	0.0804 M	0.0687 M	0.0825 M	0.0637 M	0.0606 M	0.0827 M
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0446	0.0325	0.0388	0.046	0.0445	0.0277	0.0342	0.0267	0.0247	0.0339
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.261	0.21	0.238	0.26	0.25	0.208	0.254	0.193	0.18	0.207
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.75	1.45	1.68	1.79	1.74	1.42	1.78	1.31	1.24	1.44
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0619	0.0409	0.0626	0.0374	0.0357	0.0452	0.0478	0.0407	0.0396	0.028
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.789	0.585	0.847	0.864	0.729	0.66	0.819	0.643	0.609	0.674
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0262	0.0205	0.0281	0.0269	0.0241	0.0233	0.0298	0.0226	0.0224	0.0256
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	1.66	1.26	1.71	1.69	1.49	1.36	1.64	1.28	1.21	1.28
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.59	1.22	1.4	1.56	1.45	1.34	1.68	1.26	1.11	1.37
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.138	0.104	0.118	0.136	0.132	0.0928	0.112	0.0822	0.0801	0.104
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.074	0.0619	0.0804	0.0797	0.0764	0.0468	0.0358	0.0238	0.0305	0.0691
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.155	0.126	0.156	0.182	0.184	0.223	0.192	0.154	0.154	0.215
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.375	0.332	0.414	0.4	0.404	0.396	0.418	0.327	0.372	0.368
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	1.96 M	1.54 M	1.75 M	1.95 M	1.95 M	1.27 M	1.5 M	1.09 M	1.05 M	1.51 M
PCB-CO84	PCB-137; PCB-164	0.147	0.116	0.15	0.152	0.144	0.129	0.16	0.121	0.122	0.137
PCCTOT	TOTAL PCB CONGENERS (LAB REPORTED)	30.2 J	22.7 J	27.3 J	30.6 J	29.4 J	22.5 J	26.8 J	20.1 J	19.2 J	25.8 J
TDCBP	TOTAL DICHLOROBIPHENYLS	0.438 J	0.565 J	0.326 J	0.257 J	0.279 J	0.368 J	0.345 J	0.234 J	0.211 J	0.376 J
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000406	0.000356	0.000299	0.000391	0.000138	0.000157	0.000341	0.000279	0.000252	0.000349
TEQ_PCB_MP	TEQ PCB Mid Point	0.000406	0.000357	0.000299	0.000391	0.000418	0.000297	0.000341	0.000279	0.000252	0.000349
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000406	0.000357	0.000299	0.000391	0.000418	0.000297	0.000341	0.000279	0.000252	0.000349
THCBP	TOTAL HEPTACHLOROBIPHENYL	3 J	2.55 J	3.34 J	3.62 J	3.34 J	2.83 J	3.14 J	2.5 J	2.38 J	2.88 J
THXBP	TOTAL HEXACHLOROBIPHENYL	7.81 J	6.03 J	7.56 J	7.85 J	7.23 J	6.51 J	8.02 J	6.08 J	5.72 J	6.55 J
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0171 J	0.0184 J	0.0112 J	0.00849 J	0.0101 J	0.0143 J	0.0111 J	0.00717 J	0.00658 J	0.0114 J
TNCBP	TOTAL NONACHLOROBIPHENYL	0.215 J	0.221 J	0.197 J	0.209 J	0.196 J	0.201 J	0.213 J	0.174 J	0.167 J	0.177 J
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.888 J	0.788 J	0.921 J	0.933 J	0.938 J	1.01 J	1.06 J	0.84 J	0.907 J	0.921 J
TPCBP	TOTAL PENTACHLOROBIPHENYL	9.23 J	6.66 J	8.03 J	9.17 J	8.76 J	6.17 J	7.24 J	5.33 J	5.12 J	7.32 J
TTCBP	TOTAL TETRACHLOROBIPHENYL	6.58 J	4.33 J	5.38 J	6.64 J	6.53 J	4.1 J	5.17 J	3.74 J	3.54 J	5.59 J
TTRBP	TOTAL TRICHLOROBIPHENYL	1.98 J	1.43 J	1.43 J	1.77 J	2 J	1.19 J	1.57 J	1.13 J	1.07 J	1.93 J
	TOTAL PCB CONGENERS (ND SET TO 0)	30.335659	22.788314	27.368289	30.636236	29.439069	22.557363	26.933348	20.165282	19.2572628	25.899486

Units are µg/kg

PARLABEL	NAME	LMR21-66S REP A	LMR21-66S REP B	LMR21-66S REP C	LMR21-66S REP D	LMR21-66S REP E	LMR21-68S REP A	LMR21-68S REP B	LMR21-68S REP C	LMR21-68S REP D	LMR21-68S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0931 J	0.0932 J	0.082 J	0.0827 J	0.0832 J	0.089 J	0.0834 J	0.0756 J	0.0737 J	0.0737 J
PCB1	2-CHLOROBIPHENYL	0.0051 J	0.00681 J+	0.00482 J+	0.00623 J+	0.00718 J+	0.0131 J+	0.0163 J+	0.557	0.0165 J+	0.0637
PCB10	2,6-DICHLOROBIPHENYL	0.0027 J	0.00099 U	0.00178 J	0.00295	0.00247 J	0.00316 J	0.00399 J	0.125	0.00595	0.0152
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.0264	0.0318	0.0252	0.0391	0.0334	0.0388	0.0322	0.03	0.0245	0.0241
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.0013 J	0.00138 J	0.00113 J	0.00121 J	0.00131 J	0.0032 J	0.00249 J	0.0019 J	0.00162 J	0.00175 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.245	0.27	0.161	0.382	0.243	0.199	0.213	0.144	0.152	0.132
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0.00056 U	0.00056 U	0.00011 U	0.00028	0.000087 U	0.00021 U	0.00043 U	0.00013 U	0.00014 U	0.00049 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0867 M	0.0992 M	0.0607 M	0.139 M	0.0826 M	0.0685 M	0.0689 M	0.0527 M	0.0494 M	0.0464 M
PCB11	3,3'-DICHLOROBIPHENYL	0.0684	0.0935 J+	0.049 J+	0.0535 J+	0.0585 J+	0.0795 J+	0.139	0.153	0.0533 J+	0.0557 J+
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.00182 M,J	0.0019 J	0.000932 J	0.0023 J	0.00161 J	0.00239 J	0.00211 J	0.00156 J	0.00158 J	0.00162 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL	0.00033 U	0.0056 M	0.0026 M	0.00024 U	0.0001 U	0.00011 U	0.00023 U	0.000064 U	0.000081 U	0.00018 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.019	0.0223	0.0124	0.0341	0.0208	0.0152	0.0153 M,J	0.0108	0.0122	0.00996
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.752	0.824	0.473	1.23	0.758	0.591	0.619 M	0.415	0.436	0.383
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00862	0.00846	0.00524	0.0117	0.00797	0.0075	0.00773 J	0.00553	0.00553	0.0052
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.000997 M,J	0.00024 U	0.000623 J	0.00056 J	0.000603 J	0.00142 J	0.00125 J	0.000869 J	0.00069 J	0.00064 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.0193	0.0205	0.0119	0.0322	0.0182	0.0128	0.012 M,J	0.00991	0.00899	0.00813
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.0127 M	0.0151 M	0.00735 M	0.0178 M	0.0136 M	0.0107 M	0.00814 M,J	0.00622 M	0.00831 M	0.00561 M
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00183 M,J	0.00039 U	0.00075 J	0.00134 M,J	0.00119 M,J	0.00107 M,J	0.00103 M,J	0.000768 M,J	0.000846 M,J	0.000944 M,J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.000755 M,J	0.00054 U	0.00063 J	0.0016 J	0.000826 M,J	0.00064 J	0.000669 J	0.000521 M,J	0.000512 M,J	0.00046 J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.11	0.132	0.0895 M	0.18	0.132	0.11	0.11	0.0775	0.0848	0.077
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.0152	0.017	0.0137	0.0271	0.0204	0.0151	0.0148 J	0.0112	0.0112	0.0102
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.436	0.492	0.38	0.69	0.52	0.431	0.438	0.321	0.323	0.319
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.0431	0.0451	0.0271	0.059	0.0458	0.0456	0.0453	0.0261	0.0381	0.0344
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.173	0.221	0.189 M	0.298	0.251	0.209	0.204	0.153	0.151	0.167
PCB14	3,5-DICHLOROBIPHENYL	0.0018 U	0.0014 U	0.000095 U	0.00041 U	0.00012 U	0.00029 U	0.00071 U	0.0002 U	0.00014 U	0.00046 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0851	0.11	0.0659	0.132	0.0747	0.0855	0.0857	0.0756	0.0798	0.0731
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.0006 U	0.00048 U	0.00022 U	0.00031 U	0.00011 U	0.00018 U	0.00035 U	0.000097 U	0.00014 U	0.00044 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0615	0.0728	0.0583	0.0985	0.0735	0.0615	0.0578	0.0445	0.0466	0.0443
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00086 J	0.00128	0.00112 M,J	0.00178 M,J	0.00157 J	0.000898 M,J	0.00104 J	0.000983 J	0.000882 J	0.00058 J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.345	0.389 M	0.277	0.47 M	0.372	0.336	0.335	0.243	0.263	0.227
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.00576	0.00566	0.00498	0.00583	0.00599	0.00782	0.00688 J	0.00552	0.00598	0.00499
PCB15	4,4'-DICHLOROBIPHENYL	0.0444	0.0546	0.0337 M	0.0526	0.0535	0.0511	0.0919	1.07	0.0577	0.109
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00493	0.00497 J	0.00472 M	0.00486	0.00547	0.00725	0.00556 J	0.00423	0.00392	0.00429
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00204 J	0.00242 J	0.00232 M,J	0.00307	0.00281	0.00416 J	0.00318 J	0.00222 J	0.00203 M,J	0.00214 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.0403	0.0446	0.0361	0.0485	0.0422	0.0415	0.0404	0.0302	0.0312	0.029
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.0015 J	0.00134 J	0.000972 M,J	0.000792 J	0.00106 J	0.00143 J	0.00146 J	0.000947 J	0.000938 J	0.000949 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.109	0.126	0.0808 M	0.155	0.105	0.0989	0.0986	0.0724	0.0788	0.0698
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00937	0.0104 M	0.00747 M	0.014	0.0104	0.00869 M	0.00986 J	0.00718 M	0.00808	0.00712
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0788	0.109	0.0751	0.148	0.106	0.0571	0.063	0.0649 M	0.0548 M	0.0537
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL	0.00038 U	0.00028 U	0.00013 U	0.00018 U	0.000063 U	0.0001 U	0.0002 U	0.000057 U	0.000079 U	0.00027 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL	0.00039 U	0.0003 U	0.00014 U	0.00019 U	0.000067 U	0.00011 U	0.00022 U	0.00006 U	0.000083 U	0.00028 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00783	0.00793	0.00483	0.00999	0.00744	0.00665	0.00629 J	0.00451	0.00516	0.00425
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.0017 J	0.00032 U	0.00014 U	0.00145 M,J	0.00178 M,J	0.00252 M,J	0.0021 J	0.00129 J	0.00152 J	0.0012 J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0508	0.0571	0.0359	0.0785	0.0512	0.0456	0.0473	0.0333	0.0369	0.0297
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.00388 M,J	0.003 J	0.00344	0.00474 M	0.00365 M	0.00356 M,J	0.00386 M,J	0.00281 M	0.00288 M,J	0.00353 M
PCB17	2,2',4-TRICHLOROBIPHENYL	0.171	0.205	0.151	0.253	0.199	0.231	0.226	2.53 M	0.262	0.407
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.292	0.319	0.204	0.356	0.248	0.259	0.263	0.202	0.227	0.173
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0678	0.0774	0.0468	0.0789	0.0581	0.0641	0.0633	0.0542	0.0577	0.0449
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.249 M	0.274 M	0.199	0.292	0.221 M	0.233 M	0.223	0.183 M	0.189 M	0.196
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.0148	0.0166 M	0.0133	0.0172	0.0147	0.0143	0.0143 J	0.0115	0.0124	0.0108
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0538	0.0616	0.0548 M	0.0706	0.0644	0.0581	0.0554 M	0.0445 M	0.0448	0.0421
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.229	0.274 M	0.193	0.292	0.237	0.231	0.234	0.174	0.187	0.168
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.126	0.143	0.111	0.133	0.128	0.125	0.122	0.096	0.102	0.0881
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.192	0.222 M	0.194	0.229	0.219	0.204	0.196 M	0.153 M	0.154	0.154
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.00405 J	0.0052 J	0.00319	0.00713	0.00505	0.00381 J	0.0041 J	0.00303	0.00334 M	0.0032
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL	0.00029 U	0.00021 U	0.000089 U	0.00012 U	0.000036 U	0.00016 U	0.00017 U	0.000047 U	0.000054 U	0.00018 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.22 M	0.276 M	0.189 M	0.316	0.217 M	0.223 M	0.215 M	0.171 M	0.193 M	0.155 M
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.0018 J	0.00251 M,J	0.00221 J	0.001 J	0.00251 J	0.00221 J	0.00237 M,J	0.0018 M,J	0.00148 J	0.00182 J
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0464 M	0.0567 M	0.0392 M	0.00015 U	0.0492 M	0.0296 M	0.0449 M	0.0332 M	0.0371 M	0.0284 M
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL	0.00024 U	0.00019 U	0.000192 M,J	0.00013 J	0.000273 J	0.000222 M,J	0.00015 U	0.000079 J	0.000046 U	0.00015 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	1.65	1.83 M	1.23	1.85	1.5	1.5	1.51	1.16	1.18	1.09
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00301 J	0.00314 J	0.00204 J	0.00195 J	0.00242 J	0.00292 J	0.00293 J	0.00178 J	0.00191 J	0.00191 J
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.0105 J-	0.011	0.00732	0.0127	0.0095	0.00977	0.00979 J	0.00697	0.00787	0.00684
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0468	0.0526	0.0439	0.0602	0.0571	0.0943	0.0919	1.35	0.115	0.186
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0883	0.0921	0.0602	0.11	0.0805	0.0801	0.0792	0.0616	0.0668	0.0509
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00785 M	0.00908	0.00542	0.00954	0.00618	0.00731	0.0075 J	0.00616	0.00662	0.00503
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL	0.00027 U	0.00021 U	0.000086 U	0 J	0.0000954 J	0.00015 U	0.00016 U	0.000097 J	0.000075 J	0.00017 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.131	0.137	0.0874	0.135	0.0944	0.117	0.113	0.0988	0.106	0.0757
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0694	0.0691	0.0517	0.0711	0.0658	0.0632	0.059	0.0502	0.0525	0.0427
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0612	0.0628 M	0.0421 M	0.0571	0.044	0.0501	0.0484	0.0407	0.0461	0.0364
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.0122	0.0125	0.011 J	0.0102	0.0115	0.0114	0.0101 J	0.0078	0.00917 M	0.00919
PCB2	3-CHLOROBIPHENYL	0.00167 J	0.00046 U	0.000037 U	0.00016 U	0.000039 U	0.000091 U	0.0037 J	0.0066	0.000044 U	0.000088 U
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.0335	0.0339	0.0273 M	0.0351	0.0329	0.0316	0.0296	0.0251	0.0248	0.0239
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0543	0.0562 M	0.056 J	0.0475	0.0493	0.0482	0.0463	0.037	0.0384	0.0384
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.092	0.0953	0.0707	0.0886	0.085	0.0829	0.0836	0.0621	0.0661	0.0598
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.269	0.259 M	0.19 M	0.252	0.226	0.222	0.215	0.168	0.179	0.164
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00055 J	0.00044 J	0.0018 J	0.00026 J	0.000455 J	0.00047 J	0.000522 J	0.00031 M,J	0.00034 J	0.00037 J
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00995	0.0105	0.0075	0.00958	0.00881	0.00888	0.00874 J	0.00697	0.00746	0.00688
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.164	0.168	0.133	0.157	0.139	0.147	0.133	0.118	0.12	0.116
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0262	0.026	0.0212	0.0238	0.0238	0.0239	0.0231	0.0189	0.0193	0.0191
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0732	0.0759	0.0608	0.0695	0.0686	0.0692	0.0665	0.0557	0.0557	0.0544
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0931	0.0932	0.082	0.0827	0.0832	0.089	0.0834	0.0756	0.0737	0.0737
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.111	0.152	0.0915 M	0.175	0.119	0.0781	0.0924	0.0759	0.0666	0.0673
PCB23	2,3,5-TRICHLOROBIPHENYL	0.0011 U	0.0011 U	0.00031 J	0.000789 J	0.000472 J	0.00026 J	0.000449 J	0.00031 J	0.00023 J	0.00043 M,J
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00357 J	0.0035 J	0.00284	0.00517	0.00373	0.00195 J	0.00215 J	0.00285 M	0.00206 M,J	0.00202 J
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0568	0.0661	0.0465 M	0.0658	0.0566	0.0801	0.0819	0.807	0.0797	0.11
PCB27	2,3',6-TRICHLOROBIPHENYL	0.0251	0.031	0.0232	0.0363	0.0308	0.0386	0.0381	0.528 M	0.0473	0.0767
PCB3	4-CHLOROBIPHENYL	0.0004 U	0.0048 J+	0.0026 J+	0.00404 J+	0.00428 J+	0.000073 U	0.0105 J	0.135	0.00479 J+	0.0154
PCB31	2,4',5-TRICHLOROBIPHENYL	0.359	0.441	0.253 M	0.519	0.361	0.281	0.316	1.05	0.239	0.281
PCB32	2,4',6-TRICHLOROBIPHENYL	0.108	0.135	0.0933	0.167	0.127	0.147	0.152	1.36	0.156	0.231
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.00499	0.00528	0.0034	0.00742	0.00514	0.00449 J	0.00446 J	0.0278	0.00415	0.0052 M
PCB35	3,3',4-TRICHLOROBIPHENYL	0.0021 J	0.00299 J	0.00207 J	0.00358	0.00298	0.00229 J	0.00317 J	0.00225 J	0.00166 J	0.00169 J
PCB36	3,3',5-TRICHLOROBIPHENYL	0.00099 U	0.00096 U	0.000092 U	0.00031 U	0.0001 U	0.00016 U	0.00031 U	0.00103 J	0.000098 U	0.00028 U
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0428	0.0504	0.0306	0.0646	0.044	0.0313	0.0362	0.029	0.0264	0.0223
PCB38	3,4,5-TRICHLOROBIPHENYL	0.0011 U	0.00165 M,J	0.000638 J	0.00168 M,J	0.000955 J	0.000675 J	0.000821 J	0.00072 J	0.000664 M,J	0.00058 J
PCB39	3,4',5-TRICHLOROBIPHENYL	0.0039 J	0.00606	0.00345	0.0093 M	0.00581	0.00333 J	0.00332 J	0.00688	0.00265 J	0.00248 J
PCB4	2,2'-DICHLOROBIPHENYL	0.066	0.0749	0.0638	0.0769	0.0829	0.145	0.14	3.25	0.184	0.403
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.248	0.303	0.198	0.385	0.271	0.221	0.207	0.209	0.163	0.166
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.045 M	0.0587	0.0364 M	0.0829 M	0.0551 M	0.0391 M	0.0361	0.0358	0.0316	0.03
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.0439	0.0539	0.04	0.0749	0.0559	0.0472	0.0433	0.0541	0.0391	0.0386
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.172	0.221	0.139	0.317	0.205	0.127	0.116	0.0917	0.0936	0.0894
PCB5	2,3-DICHLOROBIPHENYL	0.0022 J	0.002 J	0.00109 J	0.00207 J	0.00143 J	0.0014 J	0.00214 M,J	0.00139 M,J	0.000896 M,J	0.00181 M,J
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	1.22 M	1.5 M	0.969 M	2.06 M	1.44 M	1.27 M	1.22 M	1.18	0.914 M	0.97 M
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00619 M	0.00594	0.00457	0.00592	0.00577	0.0135	0.0111 J	0.0376	0.0098	0.0116
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.005 J	0.00962 M	0.00385	0.00739 M	0.00541	0.00389 M,J	0.00425 J	0.00349 M	0.00298 J	0.00307 M,J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.233	0.264	0.146	0.38	0.227	0.159	0.15	0.113	0.111	0.105
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.00527	0.00581	0.00414	0.00643	0.00504	0.00937	0.00837 J	0.00959	0.0062	0.00672
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.0041 M,J	0.00362 M,J	0.00186 M,J	0.00033 U	0.00012 U	0.00017 U	0.00035 U	0.000082 U	0.000084 U	0.00199 M,J
PCB6	2,3'-DICHLOROBIPHENYL	0.0323	0.034	0.0223	0.0308	0.03	0.0329	0.0405	0.251	0.0306	0.0511
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.0816	0.0943	0.0574	0.129	0.081	0.0627	0.0586	0.0451	0.047	0.0418

PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.041	0.0447	0.0289	0.0633	0.0426	0.037	0.0319	0.0348	0.025	0.0231
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.389	0.464	0.293	0.623	0.419	0.308	0.299	0.227	0.228	0.225
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.507	0.591 M	0.326	0.8	0.491	0.361 M	0.351	0.253 M	0.259	0.239
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.0169	0.0211	0.0133 M	0.0301	0.0204	0.0163	0.0153 J	0.0129	0.0114	0.00997
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00813	0.0083 M	0.00634 M	0.0109	0.00851	0.0123	0.0117 J	0.0206	0.00812	0.00784
PCB7	2,4-DICHLOROBIPHENYL	0.0051 J	0.0066	0.00357	0.00575	0.00533	0.00618 J	0.00832 M,J	0.176	0.00847	0.0179
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.0137	0.0145 M	0.00996	0.0225	0.0157	0.0172	0.0155 J	0.0263	0.012	0.0119
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00408 M,J	0.00465 M,J	0.00125 M,J	0.00465 M	0.00452 M	0.00637 M	0.00599 M,J	0.0112	0.0047 M	0.00408 M
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.0202	0.0244 M	0.0151	0.0319	0.0222	0.0167	0.0156 J	0.0133	0.0127	0.0102
PCB78	3,3',4,5-TETRACHLOROBIPHENYL	0.00074 U	0.00082 U	0.000093 U	0.00123 M,J	0.000815 M,J	0.00049 J	0.000847 M,J	0.000427 M,J	0.00039 J	0.0003 U
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.01 J	0.0123	0.00766	0.0206 M	0.0137	0.00887	0.00874 M,J	0.00672	0.00652	0.00536
PCB8	2,4'-DICHLOROBIPHENYL	0.104 M	0.132 M	0.0741	0.119	0.111	0.09 M	0.146 M	0.608 M	0.0841 M	0.161 M
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL	0.00055 U	0.00059 U	0.000067 U	0.00027 U	0.000097 U	0.00014 U	0.00029 U	0.000068 U	0.00007 U	0.00022 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00056 J	0.0011 J	0.000703 J	0.00159 M,J	0.000937 M,J	0.00079 M,J	0.00068 J	0.000482 M,J	0.000511 M,J	0.00056 J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.152 M	0.169	0.108	0.265	0.165	0.13	0.131	0.101	0.0969	0.0933
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.294	0.353	0.251	0.53	0.361	0.295	0.295	0.244	0.214	0.217
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.0215	0.0248	0.0181	0.0406	0.0283	0.02	0.0179	0.0157	0.0148	0.0142
PCB9	2,5-DICHLOROBIPHENYL	0.00688	0.0073 J	0.00417	0.00719	0.00675	0.00634	0.00931 J	0.136	0.00769	0.0173
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.448	0.499	0.335	0.739	0.496	0.485	0.46	0.366	0.336	0.333
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.0139	0.0161	0.0132	0.0204	0.0174	0.031	0.0222	0.023	0.0167	0.017
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	1.24	1.59	1.1	2.5	1.72	1.41	1.38	1.07	1.01	0.997
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0123	0.0172	0.0142	0.0243	0.0196	0.0187	0.016 J	0.0189	0.0134	0.0142
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.0106 M	0.013 J	0.00825	0.0113	0.0118	0.0161	0.023	0.531	0.0201	0.04
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.267	0.342	0.232	0.452	0.329	0.209	0.207	0.268	0.183	0.195
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.389	0.492	0.277 M	0.557	0.39	0.287	0.325	0.254	0.227	0.236
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.127	0.179	0.0994 M	0.224	0.142	0.0795	0.1	0.0805	0.0662	0.068
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.0868	0.11	0.0751	0.117	0.0967	0.123	0.126	0.63	0.103	0.129
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.435	0.512	0.333	0.7	0.48	0.403	0.383	0.576	0.306	0.327
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.839	1.03	0.657	1.3	0.918	0.911	0.846	1.16	0.631	0.686
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.161	0.208	0.152	0.269	0.207	0.233	0.201	0.473	0.177	0.207
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.649	0.747	0.484	0.958	0.68	0.679	0.623	0.807	0.487	0.516
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.141	0.181	0.137	0.236	0.184	0.202	0.175	0.346	0.16	0.18
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0761	0.0951	0.0619	0.126	0.086	0.0697	0.0662	0.0653	0.0524	0.0505
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	1.03	1.21	0.653	1.72	1.04	0.724	0.714	0.495	0.499	0.479
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	1.1	1.22 M	0.777 M	1.76	1.16	0.959	0.96	0.693	0.688	0.641
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.829 M	0.952 M	0.609 M	1.46 M	0.917 M	0.741 M	0.749 M	0.556 M	0.531 M	0.52 M
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.289	0.348	0.248	0.464	0.341	0.328	0.302	0.247	0.227	0.228
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	1.68	1.88	1.19	2.84	1.82	1.54	1.52	1.09	1.05	1.04
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0933 M	0.116 M	0.0863 M	0.156 M	0.119 M	0.135 M	0.112 M	0.102 M	0.0835 M	0.0821 M
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0475	0.0506	0.0303	0.077	0.0476	0.036	0.0373	0.0272	0.0251	0.0221
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.277	0.298	0.184	0.387	0.267	0.233	0.243	0.175	0.182	0.173
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	1.88	2.17	1.4 M	2.79	1.98	1.73	1.77	1.25	1.34	1.21
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0583	0.0791 M	0.0684 M	0.0713	0.0552 M	0.0441 M	0.0392	0.0336 M	0.033 M	0.052
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.777	0.915	0.702	1.12	0.893	0.801	0.778	0.574	0.578	0.606
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0299	0.0335	0.0267	0.05	0.0385	0.0306	0.0291	0.0221	0.0234	0.0204
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	1.66	1.8 M	1.37 M	2.24 M	1.73 M	1.54 M	1.53 M	1.12 M	1.17 M	1.27
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	1.73	1.81	1.21	2.17	1.64	1.48	1.52	1.06	1.17	1.06
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.143	0.159	0.0973	0.23	0.146	0.123	0.125	0.0892	0.095	0.0787
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0936	0.112	0.0798	0.12	0.0985	0.0931	0.0906 M	0.071	0.0781 M	0.0624
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.217	0.253	0.147	0.23	0.166	0.205	0.205	0.165	0.221	0.145
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.509	0.499 M	0.369 M	0.469	0.417	0.425	0.416	0.335	0.345	0.327
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	2.01 M	2.25 M	1.4 M	3.28 M	2.04 M	1.76 M	1.83 M	1.33 M	1.27 M	1.27 M
PCB-CO84	PCB-137; PCB-164	0.171	0.2	0.133 M	0.252	0.178	0.158	0.158	0.118	0.125	0.113
PCCTOT	TOTAL PCB CONGENERS (LAB REPORTED)	31.4 J	36.1 J	24	46.9 J	33.2 J	29.4 J	29.3 J	38.2 J	22.5 J	22.8 J
TDCBP	TOTAL DICHLOROBIPHENYLS	0.343 J	0.418 J	0.262 J	0.362 J	0.364 J	0.432 J	0.604 J	6.3 J	0.453 J	0.872 J
TEQ_PCB_LB	TEQ PCB Lower Bound	0.000338	0.0000432	0.000129	0.000339	0.000268	0.000246	0.000251	0.000184	0.000195	0.000221
TEQ_PCB_MP	TEQ PCB Mid Point	0.000339	0.000153	0.000204	0.000339	0.000268	0.000246	0.000252	0.000184	0.000195	0.000221
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000339	0.000173	0.000204	0.000339	0.000268	0.000246	0.000252	0.000184	0.000195	0.000221
THCBP	TOTAL HEPTACHLOROBIPHENYL	3.57 J	4.04 J	2.78 J	4.13 J	3.33 J	3.35 J	3.34 J	2.6 J	2.77 J	2.43 J
THXBP	TOTAL HEXACHLOROBIPHENYL	8.23 J	9.21 J	6.47 J	11.6 J	8.66 J	7.66 J	7.71 J	5.56 J	5.89 J	5.69 J
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.0107 J	0.0137 J	0.00882 J	0.0119 J	0.0135 J	0.0205 J	0.0305 J	0.699 J	0.0228 J	0.081 J
TNCBP	TOTAL NONACHLOROBIPHENYL	0.263 J	0.27 J	0.215 J	0.25 J	0.231 J	0.24 J	0.223 J	0.193 J	0.195 J	0.19 J
TOCBP	TOTAL OCTACHLOROBIPHENYL	1.24 J	1.24 J	0.915 J	1.18 J	1.04 J	1.06 J	1.03 J	0.832 J	0.875 J	0.784 J
TPCBP	TOTAL PENTACHLOROBIPHENYL	9.41 J	10.8 J	6.94 J	16 J	10.4 J	8.84 J	8.82 J	6.56 J	6.28 J	6.11 J
TTCBP	TOTAL TETRACHLOROBIPHENYL	6.41 J	7.69 J	4.78 J	10.4 J	6.99 J	5.96 J	5.62 J	6.31 J	4.3 J	4.45 J
TTRBP	TOTAL TRICHLOROBIPHENYL	1.88 J	2.38 J	1.5 J	2.87 J	2.08 J	1.75 J	1.87 J	9.07 J	1.64 J	2.08 J
	TOTAL PCB CONGENERS (ND SET TO 0)	31.537342	36.22764	24.0469	46.967391	33.2891014	29.481945	29.411408	38.276203	22.569764	22.823203

Units are µg/kg

PARLABEL	NAME	LMR21-69S REP A	LMR21-69S REP B	LMR21-69S REP C	LMR21-69S REP D	LMR21-69S REP E
CL10BZ2	DECACHLOROBIPHENYL	0.0682 J	0.0628 J	0.0558 J	0.0574 J	0.0618 J
PCB1	2-CHLOROBIPHENYL	0.000086 U	0.00028 U	0.0114 J+	0.00294 J+	0.0471
PCB10	2,6-DICHLOROBIPHENYL	0.0012 J	0.001 U	0.00293	0.000731 J	0.00235 J
PCB103	2,2',4,5',6-PENTACHLOROBIPHENYL	0.011	0.0106	0.00945	0.00939	0.0103
PCB104	2,2',4,6,6'-PENTACHLOROBIPHENYL	0.00084 J	0.00104 J	0.000809 J	0.000791 J	0.000823 J
PCB105	2,3,3',4,4'-PENTACHLOROBIPHENYL	0.0627	0.062	0.0594	0.0643	0.0578
PCB106	2,3,3',4,5-PENTACHLOROBIPHENYL	0 J	0.00074 U	0.000071 U	0.000099 U	0.000074 U
PCB107	2,3,3',4',5-PENTACHLOROBIPHENYL	0.0185 M	0.0207 M	0.017 M	0.0185	0.0177 M
PCB11	3,3'-DICHLOROBIPHENYL	0.0677 J+	0.067 J+	0.0707 J+	0.0477 J+	0.0763 J+
PCB111	2,3,3',5,5'-PENTACHLOROBIPHENYL	0.000696 J	0.000867 M,J	0.000463 J	0.000636 J	0.000577 J
PCB112	2,3,3',5,6-PENTACHLOROBIPHENYL	0.00012 U	0.00037 U	0.000038 U	0.00005 U	0.000038 U
PCB114	2,3,4,4',5-PENTACHLOROBIPHENYL	0.00454	0.00458 J	0.00409	0.004	0.00356
PCB118	2,3',4,4',5-PENTACHLOROBIPHENYL	0.175	0.18	0.154	0.167	0.153
PCB120	2,3',4,5,5'-PENTACHLOROBIPHENYL	0.00249 J	0.00259 J	0.00229 J	0.00232	0.0024 J
PCB121	2,3',4,5',6-PENTACHLOROBIPHENYL	0.000476 J	0.00052 J	0.00038 J	0.000391 J	0.000389 J
PCB122	2',3,3',4,5-PENTACHLOROBIPHENYL	0.00423 J	0.00404 J	0.00343	0.00392	0.00346
PCB123	2,3',4,4',5'-PENTACHLOROBIPHENYL	0.00301 M,J	0.00296 M,J	0.0033 M	0.00303	0.00254 M
PCB126	3,3',4,4',5-PENTACHLOROBIPHENYL	0.00065 J	0.00095 J	0.00044 J	0.000504 M,J	0.000446 J
PCB127	3,3',4,5,5'-PENTACHLOROBIPHENYL	0.00032 J	0.00068 U	0.00019 J	0.000279 M,J	0.000161 M,J
PCB130	2,2',3,3',4,5'-HEXACHLOROBIPHENYL	0.0468	0.0472	0.0421	0.0426	0.0382
PCB131	2,2',3,3',4,6-HEXACHLOROBIPHENYL	0.00539	0.0049 J	0.00501	0.00572	0.005
PCB132	2,2',3,3',4,6'-HEXACHLOROBIPHENYL	0.177	0.179	0.157	0.169	0.152
PCB133	2,2',3,3',5,5'-HEXACHL0ROBIPHENYL	0.023	0.0248	0.0184	0.0146	0.0144
PCB136	2,2',3,3',6,6'-HEXACHLOROBIPHENYL	0.0899 M	0.0885	0.0776	0.0789 M	0.0766
PCB14	3,5-DICHLOROBIPHENYL	0.00035 U	0.0011 U	0.00029 J	0.00014 J	0.00011 U
PCB141	2,2',3,4,5,5'-HEXACHLOROBIPHENYL	0.0307	0.0356	0.0321	0.0339	0.0273
PCB142	2,2',3,4,5,6-HEXACHLOROBIPHENYL	0.00037 U	0.00071 U	0.000091 U	0.000098 U	0.00014 U
PCB144	2,2',3,4,5',6-HEXACHLOROBIPHENYL	0.0251	0.0261	0.0226	0.0231	0.0222
PCB145	2,2',3,4,6,6'-HEXACHLOROBIPHENYL	0.00038 J	0.000424 J	0.000351 J	0.00031 J	0.000305 M,J
PCB146	2,2',3,4',5,5'-HEXACHLOROBIPHENYL	0.152	0.158	0.141	0.143	0.144
PCB148	2,2',3,4',5,6'-HEXACHLOROBIPHENYL	0.0033 J	0.0036 J	0.00291	0.00269	0.0031
PCB15	4,4'-DICHLOROBIPHENYL	0.0348	0.0173	0.147	0.016	0.126
PCB150	2,2',3,4',6,6'-HEXACHLOROBIPHENYL	0.00311 J	0.0031 J	0.00257 J	0.00251	0.00277
PCB152	2,2',3,5,6,6'-HEXACHLOROBIPHENYL	0.00117 J	0.00116 M,J	0.001 J	0.00105 J	0.00111 J
PCB154	2,2',4,4',5,6'-HEXACHLOROBIPHENYL	0.022	0.0227	0.0188	0.0191	0.0204
PCB155	2,2',4,4',6,6'-HEXACHLOROBIPHENYL	0.000912 J	0.00112 J	0.000796 J	0.000773 J	0.000873 J
PCB158	2,3,3',4,4',6-HEXACHLOROBIPHENYL	0.0387	0.0414	0.036	0.0394	0.0345
PCB159	2,3,3',4,5,5'-HEXACHLOROBIPHENYL	0.00484 M	0.00586	0.00437 M	0.00419	0.00404
PCB16	2,2',3-TRICHLOROBIPHENYL	0.0262 M	0.0285	0.0438	0.0231	0.039
PCB160	2,3,3',4,5,6-HEXACHLOROBIPHENYL	0.00023 U	0.00044 U	0.000053 U	0.000057 U	0.000084 U
PCB161	2,3,3',4,5',6-HEXACHLOROBIPHENYL	0.00024 U	0.00046 U	0.000056 U	0.000061 U	0.000089 U
PCB162	2,3,3',4',5,5'-HEXACHLOROBIPHENYL	0.00294 J	0.00335 J	0.00265 J	0.00239 M	0.00247 J
PCB165	2,3,3',5,5',6-HEXACHLOROBIPHENYL	0.00127 M,J	0.00084 J	0.000889 M,J	0.0007 J	0.000864 M,J
PCB167	2,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0171	0.0188	0.0167	0.0176	0.0162
PCB169	3,3',4,4',5,5'-HEXACHLOROBIPHENYL	0.0023 J	0.00276 M,J	0.0017 J	0.00184 J	0.00189 J
PCB17	2,2',4-TRICHLOROBIPHENYL	0.0463	0.0464	0.0631	0.0393	0.0593
PCB170	2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL	0.129	0.136	0.128	0.131	0.128
PCB172	2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL	0.0322	0.0336	0.0342	0.033	0.0341
PCB174	2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL	0.135 M	0.142	0.114 M	0.109 M	0.112
PCB175	2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL	0.00835	0.00885	0.00738	0.00716	0.00777
PCB176	2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL	0.0323	0.0313	0.03	0.0303	0.0309
PCB177	2,2',3,3',4,5',6'-HEPTACHLOROBIPHENYL	0.136	0.134	0.119	0.117	0.112
PCB178	2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL	0.0731	0.0764	0.068	0.0678	0.0715
PCB179	2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL	0.122	0.116	0.107 M	0.108	0.112
PCB181	2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL	0.0019 J	0.0013 J	0.00183 J	0.00209 J	0.00156 J
PCB182	2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL	0.00013 U	0.00039 U	0.000042 U	0.00005 U	0.000053 U
PCB183	2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL	0.124 M	0.12 M	0.113 M	0.112 M	0.111 M
PCB184	2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL	0.00178 J	0.0019 J	0.00145 M,J	0.00151 J	0.00158 J
PCB185	2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL	0.0212 M	0.0225 M	0.0224 M	0.0206 M	0.0207 M
PCB186	2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL	0.00011 U	0.00033 U	0.000083 J	0.0000731 J	0.000045 U
PCB187	2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL	0.779	0.834	0.739	0.726	0.773
PCB188	2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL	0.00194 J	0.002 J	0.00153 J	0.0015 J	0.00153 J
PCB189	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL	0.00493	0.0052 J	0.00414	0.00421	0.00433
PCB19	2,2',6-TRICHLOROBIPHENYL	0.0126	0.0138	0.0168	0.0129	0.017
PCB190	2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL	0.0407	0.0434	0.0403	0.041	0.0407
PCB191	2,3,3',4,4',5',6-HEPTACHLOROBIPHENYL	0.00367 M,J	0.00382 J	0.00345	0.00314	0.00313
PCB192	2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL	0.00012 U	0.00036 U	0.0000744 J	0.000063 J	0.00005 U
PCB194	2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL	0.0493	0.0543	0.0526	0.0518	0.0584
PCB195	2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL	0.0339	0.0364	0.0367	0.0347	0.0388
PCB196	2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL	0.0272	0.0291	0.0271	0.0233	0.0264
PCB197	2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL	0.00732	0.00911	0.00629	0.00651	0.00777
PCB2	3-CHLOROBIPHENYL	0.0001 U	0.00033 U	0.00315	0.000041 U	0.003
PCB200	2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL	0.018	0.018	0.0179	0.016	0.0176
PCB201	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL	0.0297	0.033	0.0279	0.0255	0.0285
PCB202	2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL	0.0487	0.0496	0.0449	0.0425	0.045
PCB203	2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL	0.119	0.127	0.114	0.105	0.12
PCB204	2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL	0.00028 J	0.00059 J	0.00029 J	0.000311 M,J	0.000315 M,J
PCB205	2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL	0.00568	0.00566	0.00511	0.00476	0.00516
PCB206	2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL	0.0767	0.0803	0.071	0.0674	0.0737
PCB207	2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL	0.0145	0.0148	0.0127	0.0121	0.0136
PCB208	2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL	0.0417	0.0418	0.0384	0.0374	0.0417
PCB209	2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL	0.0682	0.0628	0.0558	0.0574	0.0618
PCB22	2,3,4'-TRICHLOROBIPHENYL	0.0318	0.0333	0.0574	0.0252	0.0521
PCB23	2,3,5-TRICHLOROBIPHENYL	0.00024 U	0.00058 U	0.000225 J	0.0001 J	0.00018 J
PCB24	2,3,6-TRICHLOROBIPHENYL	0.00125 M,J	0.00119 J	0.0016 J	0.000834 J	0.00167 J
PCB25	2,3',4-TRICHLOROBIPHENYL	0.0125	0.0114	0.0184	0.00948	0.0166
PCB27	2,3',6-TRICHLOROBIPHENYL	0.00725 M	0.00738	0.0104	0.00631	0.00958
PCB3	4-CHLOROBIPHENYL	0.000083 U	0.00027 U	0.0145	0.000033 U	0.0192
PCB31	2,4',5-TRICHLOROBIPHENYL	0.0858	0.0833	0.145	0.0643	0.133
PCB32	2,4',6-TRICHLOROBIPHENYL	0.0253	0.0268	0.0374	0.0223	0.0347
PCB34	2,3',5'-TRICHLOROBIPHENYL	0.000775 M,J	0.00059 U	0.000894 J	0.000587 J	0.000817 J
PCB35	3,3',4-TRICHLOROBIPHENYL	0.00124 J	0.0011 J	0.00147 J	0.00074 J	0.00133 J
PCB36	3,3',5-TRICHLOROBIPHENYL	0.00022 U	0.00053 U	0.000074 U	0.000091 U	0.000064 U
PCB37	3,4,4'-TRICHLOROBIPHENYL	0.0103	0.0112	0.0173	0.0085	0.0153
PCB38	3,4,5-TRICHLOROBIPHENYL	0.00024 U	0.00057 U	0.000268 M,J	0.000232 M,J	0.000294 J
PCB39	3,4',5-TRICHLOROBIPHENYL	0.000692 J	0.0011 J	0.000777 J	0.00083 J	0.000916 J
PCB4	2,2'-DICHLOROBIPHENYL	0.0321	0.028 M	0.0585	0.0257	0.057
PCB42	2,2',3,4'-TETRACHLOROBIPHENYL	0.0494	0.0524	0.0476	0.044	0.0489
PCB43	2,2',3,5-TETRACHLOROBIPHENYL	0.00812 M	0.0082 M	0.00837	0.00752	0.0086
PCB46	2,2',3,6'-TETRACHLOROBIPHENYL	0.00954	0.0112 M	0.00951	0.00894	0.00977
PCB48	2,2',4,5-TETRACHLOROBIPHENYL	0.0303	0.0331	0.0302	0.0266	0.0315
PCB5	2,3-DICHLOROBIPHENYL	0.0014 J	0.0011 U	0.00325 M	0.000627 M,J	0.00336
PCB52	2,2',5,5'-TETRACHLOROBIPHENYL	0.29 M	0.314 M	0.246 M	0.24 M	0.26 M
PCB54	2,2',6,6'-TETRACHLOROBIPHENYL	0.00205 J	0.00242 J	0.00205 J	0.00202 J	0.00204 J
PCB55	2,3,3',4-TETRACHLOROBIPHENYL	0.000888 M,J	0.00178 M,J	0.000947 M,J	0.000859 M,J	0.000792 J
PCB56	2,3,3',4'-TETRACHLOROBIPHENYL	0.0379	0.0364	0.0337	0.0317	0.0322
PCB57	2,3,3',5-TETRACHLOROBIPHENYL	0.000959 M,J	0.0008 J	0.000849 J	0.000691 J	0.000827 J
PCB58	2,3,3',5'-TETRACHLOROBIPHENYL	0.000681 M,J	0.00077 U	0.000056 U	0.0002 U	0.000055 U
PCB6	2,3'-DICHLOROBIPHENYL	0.0168	0.014	0.049	0.0103	0.0387
PCB60	2,3,4,4'-TETRACHLOROBIPHENYL	0.0159	0.0175	0.0157	0.0146	0.0154

PCB63	2,3,4',5-TETRACHLOROBIPHENYL	0.00658	0.0069	0.00597	0.00555	0.00616
PCB64	2,3,4',6-TETRACHLOROBIPHENYL	0.084	0.0887	0.0757	0.0703	0.0775
PCB66	2,3',4,4'-TETRACHLOROBIPHENYL	0.0901	0.0899 M	0.0773 M	0.0745	0.0791
PCB67	2,3',4,5-TETRACHLOROBIPHENYL	0.00281 J	0.00327 J	0.00284	0.00256	0.00287
PCB68	2,3',4,5'-TETRACHLOROBIPHENYL	0.00226 J	0.00309 J	0.00222 J	0.00019 U	0.00278
PCB7	2,4-DICHLOROBIPHENYL	0.00361 J	0.003 J	0.0115	0.00195 J	0.00867
PCB72	2,3',5,5'-TETRACHLOROBIPHENYL	0.00242 J	0.0022 J	0.00203 J	0.00183 J	0.00209 J
PCB73	2,3',5',6-TETRACHLOROBIPHENYL	0.00078 J	0.0014 J	0.000685 M,J	0.000672 M,J	0.000978 M,J
PCB77	3,3',4,4'-TETRACHLOROBIPHENYL	0.00445 J	0.0041 J	0.00433	0.00385	0.00414
PCB78	3,3',4,5-TETRACHLOROBIPHENYL	0.00026 U	0.00087 U	0.00011 J	0.00023 U	0.000084 J
PCB79	3,3',4,5'-TETRACHLOROBIPHENYL	0.0021 J	0.00269 M,J	0.00213 J	0.00246	0.00188 M,J
PCB8	2,4'-DICHLOROBIPHENYL	0.0765	0.0592 M	0.273 M	0.0421 M	0.212
PCB80	3,3',5,5'-TETRACHLOROBIPHENYL	0.0002 U	0.00065 U	0.000047 U	0.00017 U	0.000046 U
PCB81	3,4,4',5-TETRACHLOROBIPHENYL	0.00025 J	0.00061 U	0.000221 M,J	0.00021 J	0.0002 J
PCB82	2,2',3,3',4-PENTACHLOROBIPHENYL	0.0353	0.0389	0.0334 M	0.0359	0.0334
PCB84	2,2',3,3',6-PENTACHLOROBIPHENYL	0.0773	0.082	0.0719	0.0788	0.0731
PCB89	2,2',3,4,6'-PENTACHLOROBIPHENYL	0.00443 J	0.00449 J	0.00418	0.00428	0.00429
PCB9	2,5-DICHLOROBIPHENYL	0.0045 J	0.00386 J	0.0146	0.00246	0.0114
PCB92	2,2',3,5,5'-PENTACHLOROBIPHENYL	0.124	0.129	0.112	0.116	0.118
PCB94	2,2',3,5,6'-PENTACHLOROBIPHENYL	0.00574	0.00624	0.00498	0.00488	0.00505
PCB95	2,3',3,5',6-PENTACHLOROBIPHENYL	0.393	0.424	0.357	0.387	0.378
PCB96	2,2',3,6,6'-PENTACHLOROBIPHENYL	0.0041 J	0.00436 J	0.004	0.00398	0.004
PCB-CO01	3,4-DiCB & 3,4-DiCB (PCB12&PCB13)	0.00678	0.0032 J	0.0225	0.00376	0.0193
PCB-CO02	2,2',5-TrCB1 & 2,4,6-TrCB (PCB18&PCB30)	0.076	0.0817	0.106	0.0638	0.103
PCB-CO03	2,3,3'-TrCB & 2,4,4'-TrCB1 (PCB20&PCB28)	0.102	0.0934	0.178	0.0725	0.16
PCB-CO04	2,3,4-TrCB & 2',3,4-TrCB (PCB21&PCB33)	0.0359	0.0362	0.0762	0.0267	0.0677
PCB-CO05	2,3',5-TrCB & 2,4,5-TrCB (PCB26&PCB29)	0.0202	0.0198	0.0332	0.0166	0.0299
PCB-CO06	2,2',3,3'-TeCB & 2,2',3,4-TeCB & 2,3',4',6-TeCB (PCB40&PCB41&PCB71)	0.086	0.0917	0.0819	0.0745	0.0835
PCB-CO07	2,2',3,5'-TeCB1 & 2,2',3,4'-TeCB & 2,3,5,6-TeCB (PCB44&PCB47&PCB65)	0.205	0.222	0.18	0.171	0.19
PCB-CO08	2,2',3,6-TeCB & 2,2',4,6'-TeCB (PCB45&PCB51)	0.0431	0.047	0.0403	0.0385	0.0436
PCB-CO09	2,2',4,5'-TeCB & 2',3,3',4,5-PeCB (PCB49&PCB69)	0.137	0.145	0.119	0.112	0.124
PCB-CO10	2,2',4,6-TeCB & 2,2',5,6'-TeCB (PCB50&PCB53)	0.0372	0.0392	0.0336	0.0328	0.0361
PCB-CO11	2,3,3',6-TeCB & 2,3,4,6-TeCB & 2,4,4',6-TeCB (PCB59&PCB62&PCB75)	0.0163	0.0176	0.0155	0.0141	0.0158
PCB-CO12	2,3,4,5-TeCB & 2,3',4',5-TeCB & 2,4,4',5-TeCB & 2',3,4',5-TeCB (PCB61&PCB70&PCB74&PCB76)	0.175	0.178	0.151	0.144	0.154
PCB-CO13	2,2',3,3',5-PeCB & 2,2',4,4',5-PeCB (PCB83&PCB99)	0.292	0.311	0.257	0.271	0.272
PCB-CO15	PentaCB-PCB86 & PCB87 & PCB97 & PCB109 & PCB119 & PCB125	0.209 M	0.215 M	0.189 M	0.205 M	0.194 M
PCB-CO16	2,2',3,4,6-PeCB & 2,2',3,4',6-PeCB (PCB88&PCB91)	0.0931	0.094	0.0815	0.0846	0.0854
PCB-CO17	2,2',3,4',5-PeCB & 2,2',4,5,5'-PeCB1 & 2,3,3',5',6-PeCB (PCB90&PCB101&PCB113)	0.444	0.48	0.38	0.409	0.403
PCB-CO18	2,2',3,5,6-PeCB & 2,2',3',4,6-PeCB & 2,2',4,4',6-PeCB & 2,2',4,5,6'-PeCB (PCB93&PCB98&PCB100&PCB102)	0.0301 M	0.0325 M	0.0286 M	0.0289 M	0.0302 M
PCB-CO19	2,3,3',4,5'-PeCB & 2',3,4,5,5'-PeCB (PCB108&PCB124)	0.0107	0.0119	0.00994	0.0109	0.00996
PCB-CO21	2,2',3,3',4,4'-HxCB1 & 2,3,4,4',5,6-HxCB (PCB128&PCB166)	0.104	0.11	0.095	0.0997	0.0932
PCB-CO22	2,2',3,3',4,5-HxCB & 2,2',3,4,4',5'-HxCB1 & 2,3,3',4',5,6-HxCB (PCB129&PCB138&PCB163)	0.739	0.8	0.658	0.692	0.659
PCB-CO23	2,2',3,3',5,6-HxCB & 2,2',3,4,5,6'-HxCB (PCB134&PCB143)	0.0247	0.0245	0.0134 M	0.0153 M	0.0131
PCB-CO24	2,2',3,3',5,6'-HxCB & 2,2',3,5,5',6-HxCB (PCB135&PCB151)	0.358	0.366	0.308	0.301	0.313
PCB-CO25	2,2',3,4,4',6-HxCB & 2,2',3,4,4',6'-HxCB (PCB139&PCB140)	0.0127	0.0132	0.0113	0.0118	0.0113
PCB-CO26	2,2',3,4',5,6-HxCB & 2,2',3,4',5',6-HxCB (PCB147&PCB149)	0.775	0.805	0.601 M	0.589 M	0.624 M
PCB-CO27	2,2',4,4',5,5'-HxCB1 & 2,3',4,4',5',6-HxCB (PCB153&PCB168)	0.729	0.79	0.623	0.631	0.634
PCB-CO28	2,3,3',4,4',5-HxCB2 & 2,3,3',4,4',5'-HxCB2 (PCB156&PCB157)	0.0417	0.0432	0.0407	0.0465	0.0397
PCB-CO29	2,2',3,3',4,4',6-HpCB & 2,2',3,3',4,5,6-HpCB (PCB171&PCB173)	0.0479	0.0519	0.0476	0.0494	0.0473
PCB-CO30	2,2',3,4,4',5,5'-HpCB1 & 2,3,3',4',5,5',6-HpCB (PCB180&PCB193)	0.0956	0.104	0.0972	0.0954	0.0948
PCB-CO31	2,2',3,3',4,5,5',6-OcCB & 2,2',3,3',4,5,5',6'-OcCB (PCB198&PCB199)	0.236	0.253	0.226	0.205	0.234
PCB-CO83	PCB-85; PCB-110; PCB-115; PCB-116; PCB-117	0.527 M	0.582 M	0.471 M	0.502 M	0.477 M
PCB-CO84	PCB-137; PCB-164	0.0665	0.0707	0.0621	0.0643	0.0588
PCCTOT	TOTAL PCB CONGENERS (LAB REPORTED)	10.7 J	11.2 J	10.4 J	9.5 J	10.4 J
TDCBP	TOTAL DICHLOROBIPHENYLS	0.245 J	0.196 J	0.653 J	0.151 J	0.555 J
TEQ_PCB_LB	TEQ PCB Lower Bound	0.00000971	0.0000926	0.000104	0.000115	0.00011
TEQ_PCB_MP	TEQ PCB Mid Point	0.000144	0.000188	0.000104	0.000115	0.00011
TEQ_PCB_UB	TEQ PCB Upper Bound	0.000144	0.000188	0.000104	0.000115	0.00011
THCBP	TOTAL HEPTACHLOROBIPHENYL	1.79 J	1.87 J	1.68 J	1.66 J	1.71 J
THXBP	TOTAL HEXACHLOROBIPHENYL	3.5 J	3.69 J	3 J	3.05 J	3.01 J
TMCBP	TOTAL MONOCHLOROBIPHENYL	0.00951 J	0.00835 J	0.0291 J	0.00574 J	0.0693 J
TNCBP	TOTAL NONACHLOROBIPHENYL	0.133 J	0.137 J	0.122 J	0.117 J	0.129 J
TOCBP	TOTAL OCTACHLOROBIPHENYL	0.575 J	0.616 J	0.559 J	0.515 J	0.582 J
TPCBP	TOTAL PENTACHLOROBIPHENYL	2.53 J	2.71 J	2.26 J	2.42 J	2.34 J
TTCBP	TOTAL TETRACHLOROBIPHENYL	1.34 J	1.42 J	1.19 J	1.13 J	1.23 J
TTRBP	TOTAL TRICHLOROBIPHENYL	0.496 J	0.497 J	0.808 J	0.394 J	0.742 J
	TOTAL PCB CONGENERS (ND SET TO 0)	10.750269	11.257161	10.4092314	9.5530841	10.498901

Units are μg/kg

Appendix 2

BIOLOGICAL TESTING AND EVALUATION OF MAUMEE RIVER AREA OF CONCERN (AOC) SEDIMENTS (2021)

Prepared for:

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26 July 2022

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EXECUTIVE SUMMARY

This report summarizes the results of biological testing of sediment samples collected from the Maumee River Area of Concern (AOC). The testing was conducted in basic accordance with the Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.—Testing Manual (U.S. Environmental Protection Agency [USEPA] / U.S. Army Corps of Engineers [USACE] 1998a) and Great Lakes Dredged Material Testing and Evaluation Manual (USEPA / USACE 1998b). Biological testing was performed to simulate the potential for toxicological effects of dredged material released into the water column (elutriate toxicity tests), after placement at the disposal site (whole sediment toxicity tests) and to determine the potential for contaminants to bioaccumulate from sediments at the disposal site (bioaccumulation bioassay). The bioaccumulation testing was performed to quantify the laboratory benthic bioaccumulation and bioavailability of PCBs in lower Maumee River (LMR) background sediments. The elutriate toxicity assessment on harbor channel sediment samples involved 48-h water column bioassays using a water flea (*Ceriodaphnia dubia*) and 96-h elutriate bioassays using a minnow (*Pimephales promelas*). The whole sediment toxicity assessment utilized 10-d bioassays using an amphipod (*Hyalella azteca*) and midge fly larvae (*Chironomus dilutus*). The bioaccumulation assessment was conducted according to a 28-d sediment exposure method using an oligochaete worm (*Lumbriculus variegatus*).

- Sediment elutriate bioassay results:
    - Both the *Ceriodaphnia dubia* and *Pimephales promelas* tests indicated significant reductions in survival for 8 of the sediment elutriates evaluated (SBA1, SBA3, SBC, WA1, WA2, WA3, WB1, WC2). A toxicity reduction evaluation, conducted on WC2 using both species, provided strong evidence for ammonia dominated toxicity.
- Whole sediment toxicity results:
    - Utilizing dredge material evaluation statistical guidance, impacts on *Hyalella azteca* survival were observed in two sediments. Mean survival in the *Hyalella azteca* 10-d test was within 10% of the mean survival of the reference sediment (94%) except for sediments LMR21-47 and LMR21-49. Statistical analysis found statistically lower survival in sediments LMR21-47 and LMR21-49 relative to the reference sediment indicating acute toxicity for those two sediments.
    - When performing statistical comparison of survival to reference and controls without consideration of level of survival observed, significantly lower *Hyalella azteca* survival was observed for sediments LMR21-47S and LMR21-49S compared to the reference (LMR21-69S) and LMR21-15S,

LMR21-35S, LMR39S, LMR21-43S, LMR21-47S, LMR21-49S, and LMR21-68S when compared to the control.

- Utilizing dredge material statistical evaluation guidance, impacts on *Chironomus dilutus* survival were observed in four sediments. Mean survival in the *Chironomus dilutus* 10-d test was within 20% of the mean survival of the reference sediment (96%) except for sediments LMR21-30, LMR21-47, LMR21-49 and LMR21-59. Statistical analysis found statistically lower survival in sediments LMR21-30, LMR21-47, LMR21-49 and LMR21-59 relative to the reference sediment indicating acute toxicity for those four sediments.

- Mean weights in the *Chironomus dilutus* 10-d test were within 10% of the reference sediment weight and/or exceeded the 0.6 mg weight criterion for all sediments as described in dredged material statistical evaluation guidance. Therefore, no statistical comparisons for final weight were required.

- When performing statistical comparison of survival to reference and control without consideration of level of survival observed, significantly lower *Chironomus dilutus* survival was observed for sediments LMR21-11S, LMR21-27S, LMR21-30S, LMR21-39S, LMR21-47S, LMR21-49S, LMR21-53S, LMR21-59S, LMR21-64S, and LMR21-66S compared to the reference (LMR21-69S) and LMR21-30S, LMR21-47S, LMR21-49S, LM21-53S and LMR21-59S when compared to the control.

- When performing statistical comparison of growth to reference and control without consideration of level of growth observed, significantly lower *Chironomus dilutus* growth was observed for sediments LMR21-47S and LMR21-49S compared to the reference (LMR21-69S) and LMR21-45S, LMR21-47S, LMR21-49S, LM21-52S, LMR21-53S, LMR21-55S and LMR21-57S when compared to the control.

- Based on results of the *Hyalella azteca* and *Chironomus dilutus* bioassays, all sediments except for LMR21-30S, LMR21-47S, LMR21-49S and LMR21-59S meet CWA Section 404(b)(1) “contaminant determination" guidelines for open-water placement. Acute toxicity was observed for sediments LMR21-30S, LMR21-47S, LMR21-49S and LMR21-59S and they fail to meet CWA Section 404(b)(1) guidelines for open-water placement.

- Sediment bioaccumulation bioassay results:

  - *Lumbriculus variegatus* tissue from sediment exposures was provided to the chemistry analytical laboratory ALS-Environmental for the determination of PCB concentrations and to the ERDC Environmental Laboratory (EL), Environmental Chemistry Branch (ECB) for determination of lipid content. These data will be utilized by the USACE Buffalo District for the determination of total PCBs to quantify the bioaccumulation and bioavailability of PCBs from the Maumee River AOC sediments.

INTRODUCTION

The Buffalo District of the US Army Corps of Engineers (USACE) requested assistance from the US Army Engineer Research and Development Center (ERDC, Vicksburg, MS) to perform testing and evaluation of sediment samples collected from the Maumee River Area of Concern (AOC). The data generated will be used by the Buffalo District (USACE-LRB), the USEPA Great Lakes National Program Office (GLNPO) (project client), and the Ohio EPA (project partner) to evaluate and characterize sediment samples from the Lower Maumee River (LMR), evaluate potential sediment contaminant exposure to ecological receptors and to delineate areas that may require management actions with respect to addressing beneficial use impairments (BUIs) within the Maumee River (AOC).

The 130-mile-long Maumee River originates near Fort Wayne, Indiana, but only the lower approximately 23 miles is included within the Maumee AOC. It is the largest waterbody in the Maumee AOC and includes 7 miles of federally maintained navigation channels in Toledo Harbor. The lower Maumee River (LMR) is an industrialized port with historical contamination due to industrial and commercial land use. These contamination sources included various coal industries, chemical plants, petroleum production, and wastewater outfalls.

The previous GLNPO sediment sampling events for the Maumee River AOC characterized two reaches of the LMR: The 1st phase (“Phase 1”) was conducted in 2011 and entailed sampling of the uppermost 5 miles of the LMR, starting at River Mile 8.5 at Clarke Island and ending at River Mile 3.5, at the U.S. Route 280 bridge (Weston 2012). The 2nd phase (“Phase 2”) was conducted in 2013 and entailed characterization of the lower portion (approximately 4.6 miles) of the LMR. The lower portion extends from River Mile 3.5 at the U.S. Route 280 bridge downstream to the southwest corner of Grassy Island, a USACE confined disposal facility (CDF) for dredged material located just northeast of the river mouth in Maumee Bay. It was determined that no further management action regarding sediment is warranted under the Great Lakes Legacy Act (GLLA) for the upstream Phase 1 portion of the LMR.

The Maumee AOC has several beneficial use impairments (BUI) which may be a result of sediment contamination, habitat loss, or other causes. There are 5 BUIs for the portion of the Lower Maumee Large River Assessment Unit that is within the Maumee AOC. These include:

- Degradation of fish populations – BUI 3a
- Degradation of benthos – BUI 6
- Restrictions on dredging activities – BUI 7
- Eutrophication or undesirable algae – BUI 8
- Loss of fish and wildlife habitat – BUI 14

The sediment evaluations were conducted on two distinct areas within the downstream portion of the LMR from approximately River Mile 3.5 to the mouth of river where it enters Lake Erie. Evaluation of previous sampling results conducted by GLNPO in Phase 2 revealed 2 areas of elevated sediment contamination: one area near the mouth of the river adjacent to the waste water treatment plant (WWTP) in which elevated polychlorinated biphenyl (PCB) concentrations were noted, and another area at approximately River Mile 2 on the southeast bank near the Sway Bridge, in which polyaromatic hydrocarbons (PAHs) were elevated. Other portions of the LMR outside of these 2 areas do not warrant further investigation or action under the GLLA.

This report presents the results of the biological testing of sediment samples from the Maumee River AOC following dredging testing guidance (USEPA 1998a, 1998b).

The bioassays were performed to simulate the potential for sediment-associated contaminants to cause toxicity (elutriate and whole sediment toxicity bioassay) and to assess the potential for PCBs to bioaccumulate from site sediments (bioaccumulation bioassay). Elutriate toxicity tests were conducted using the larval fathead minnow *Pimephales promelas* (96-h) and the water flea (cladoceran) *Ceriodaphnia dubia* (48-h); both tests used survival as the measurement endpoint. Sediment toxicity tests were conducted using the amphipod *Hyalella azteca* (10-d) and midge *Chironomus dilutus* (10-d) with survival, and survival and growth, respectively as the measurement endpoints. Bioaccumulation bioassays were conducted using the oligochaete *Lumbriculus variegatus* (28-d) with tissue residues of PCBs as the measurement endpoint.

Table 1 summarizes the sediment samples that were subjected to biological testing. A total of forty-three (43) sediment samples were evaluated. Sediments were collected and composited by the USACE Buffalo District and shipped via refrigerated truck (target temperature 4°C) to the ERDC. Chain of custody information is located in Appendix R. Chain of Custody Records. Fourteen (14) sediments were evaluated for elutriate toxicity. Whole sediment toxicity evaluations were performed on twenty-nine (29) sediments. Bioaccumulation evaluations were performed on a subset of fifteen (15) sediments from the 29 sediments tested for whole sediment toxicity. Testing was conducted in August-October 2021.

METHODS

Elutriate Bioassays

Standard Elutriate Tests (SETs) were prepared according to national and regional testing guidance (USEPA / USACE 1998a, b). Each sediment sample was separately mixed with Moderately Hard Reconstituted Water (MHRW), formulated according to USEPA (2002) at a 1:4 ratio and agitated for 30 minutes, followed by an hour settling period. The remaining suspended material was centrifuged (2700 X g for 30 minutes; Thermo Scientific Sorvall RC-6 Plus, Sorvall Evolution RC Series centrifuge Type Fixed-Angle Material Carbon Fiber Composite) as directed by guidance (USEPA / USACE 1998b).

This resulting yellowish-brown supernatant was defined as the 100% (undiluted) elutriate in bioassay testing.

Bioassays were conducted using the standard 96-h fish (*P. promelas*) and 48-h zooplankton (*C. dubia*) toxicity test methods, to assess potential toxicity of the sediment elutriate water. The bioassays were performed in basic accordance with national and regional testing guidance (USEPA / USACE 1998a, b). MHRW was used as the diluent and the control. All concentrations, including the control, were replicated five times. Tests were conducted at 25 ± 1°C, and survival was the test endpoint.

Standard elutriates were prepared on 23 August, 1 September, 20 September, and 25 October 2021 for the toxicity tests. The *P. promelas* elutriate testing was conducted from 23 to 27 August, 20 to 24 September, and 25 to 29 October 2021. The *C. dubia* testing was conducted from 1 to 3 September, 20 to 22 September, and 25 to 27 October 2021. The third round of testing included an ammonia toxicity reduction evaluation for select elutriates, conducted using the zeolite column treatment and pH modification to 6.5, as described in Melby et al (2018). Volumes of sediment collected from field sites were lower than planned. Therefore, to accommodate lower volumes of test material some sites were tested with 3 dilutions (considering need for analytical chemistry volumes, archiving material for additional testing or analysis), while other sites with sufficient volume received 5 dilutions. Elutriates that were expected to have greater contamination based on best professional judgement were prioritized to receive 5 dilutions and potentially toxicity reduction evaluations. The number of dilutions used for each elutriate is disseminated in the results (see Table 2 and Table 3).

Pimephales promelas elutriate bioassay

Pimephales promelas was exposed to the sediment elutriates at 4 - 6 days old. Larval fish were shipped overnight from Aquatic BioSystems (Fort Collins, CO, USA), observed for potential shipment impacts and fed brine shrimp (*Artemia*) immediately upon receipt. Fish were held over the weekend and the 96-h bioassay testing was performed the following Monday so that the entirety of the test could be continuously monitored during the work week. Each test treatment was conducted using five replicate 300 mL beakers containing 200 mL test media. Ten (10) *P. promelas* were added per replicate and fed *Artemia* during the test exposure at 24 and 72 hours. At 48 hours, the elutriate waters were renewed using a separate aliquot of the previously prepared elutriate water. The measured endpoint was survival following the 96-h exposure.

Ceriodaphnia dubia elutriate bioassay

Ceriodaphnia dubia was exposed to the sediment elutriate water at ≤24-h old. Organisms for the initial round of testing were shipped overnight from Aquatic BioSystems (Fort Collins, CO, USA) and immediately observed for potential shipment impacts and provided a 1:1 algae (*Pseudokirchneriella subcapitata*, formerly *Selenastrum capricornutum*) and yeast-cereal leaves-trout chow mix (YCT) feeding ration at least two hours prior to testing. The *C. dubia* were tested on the day of receipt. After a test failure, the organisms for the following rounds of testing (all three rounds) were taken from in-house cultures. These organisms were ≤24-h old and were provided the same feeding ration at least two hours prior to testing. Each test treatment was conducted using five replicate 20 mL glass scintillation vials containing 20 mL of test media. Five (5) *C. dubia* were added per replicate and were not fed during the 48-h exposure, as directed by national (USEPA / USACE 1998a, USEPA 2002) and regional (USEPA / USACE 1998b) test guidance.

Whole Sediment Toxicity Bioassays

Sediment toxicity tests (10-d) were conducted using the amphipod *H. azteca* and the midge *C. dilutus* with survival, and survival and growth as endpoints, respectively. Sediments were thoroughly homogenized prior to placement in exposure vessels using a standard laboratory mixer with stainless steel impeller. Porewater ammonia measurements were conducted prior to bioassay setup to ensure concentrations did not exceed the action level of 20 mg/L (USEPA / USACE 1998a).

The *H. azteca* bioassay was conducted from 3 to 13 September 2021 and the *C. dilutus* was conducted from 5 to 15 October 2021.

Hyalella azteca whole sediment toxicity bioassay

Hyalella azteca 10-d sediment exposures were conducted in basic accordance with national and regional testing guidance (USEPA / USACE 1998a, b; USEPA 2000).

Porewater ammonia concentrations for sediment LMR21-15S exceeded the 20 mg/L guidance level at day 0 (Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays; Table B4). Twice daily water exchanges were conducted prior to test initiation (4 total) but had minimum impact on reducing the porewater ammonia concentration in sediment LMR21-15S. Since the ability to reduce porewater ammonia was minimal, testing was conducted with the higher porewater ammonia concentration present.

Organisms were obtained from ERDC in-house cultures. Overlying water quality (e.g., temperature, pH, dissolved oxygen, hardness, alkalinity, and conductivity) was recorded for each replicate beaker at bioassay initiation and breakdown. Overlying water ammonia concentration was measured in one replicate per treatment at bioassay initiation and breakdown. Temperature and dissolved oxygen were measured daily throughout the exposure period. Ten amphipods (approximately 7-8 days old, determined by sieve size class) were added to each replicate. Organisms were fed 1 mL of a yeast, cerophyll, and trout pellet (YCT) food mixture (1800 mg/L stock) daily. Two full water renewals were conducted daily. On day 10, overlying water quality was measured and each replicate beaker was terminated by passing the sediment through a 425-µm screen. Surviving amphipods retained on the sieve were recovered and enumerated.

***Chironomus dilutus* whole sediment toxicity bioassay**

Chironomus dilutus 10-d sediment exposures were conducted as described in national and regional testing guidance (USEPA / USACE 1998a, b; USEPA 2000).

Porewater ammonia concentrations for sediment LMR21-15S exceeded the 20 mg/L guidance level at day 0 (Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays; Table B5). Twice daily water exchanges were conducted prior test initiation (4 total) but had minimum impact on reducing the porewater ammonia concentration in sediment LMR21-15S. Since the ability to reduce porewater ammonia was minimal, testing was conducted with the higher porewater ammonia concentration present.

Chironomus dilutus egg masses were obtained from Aquatic BioSystems (Fort Collins, CO) and maintained in culture until the correct age organisms (~10 days old) were obtained. Ten organisms were added to each replicate. Animals were fed 1 mL of a 6 mg/mL ground Tetrafin® food slurry daily, and two full water renewals were conducted daily. On day 10, overlying water quality was measured and each replicate beaker was terminated by passing the sediment through a 425-µm screen. Surviving organisms retained on the sieve were recovered and enumerated. Following enumeration, organisms from each replicate were placed on pre-weighed pans and placed in a drying oven for 24 hours at 60°C. Following the drying period, pans were removed from the oven and total mass for each replicate was recorded.

Sediment Bioaccumulation Bioassay

***Lumbriculus variegatus* whole sediment bioaccumulation bioassay**

Lumbriculus variegatus 28-d bioaccumulation experiments were conducted as described in national and regional testing guidance (USEPA / USACE 1998a, b). Five replicates were conducted for each sediment sample evaluated. Due to logistics involved in bioassay termination, the bioassay was initiated by replicate (i.e., A-E) over three different days. Two replicates (replicates A and B) of each sediment treatment were setup the first day followed by two replicates (replicates B and C) on the second day and the final replicate (replicate E) on the third day. The time span between first and final replicate initiation was 6 days. Initiating testing in this manner assures that all sediments are treated equally during testing for the purpose of statistical interpretation while also making the testing process manageable. Approximately 6 kg of each sediment were added to five replicate 5-gallon aquaria. Aquaria were placed in a temperature controlled chamber (23 ± 1°C) with aeration. Overlying water quality (temperature, pH, dissolved oxygen, conductivity and ammonia) was recorded for each replicate aquarium at bioassay initiation. Approximately 28 grams of *L. variegatus* were added to each aquarium at bioassay initiation. A 50% water exchange was conducted three times weekly (M, W, F). Temperature, dissolved oxygen, pH, conductivity were measured three times weekly prior to water exchange. Animals were not fed during the exposure.

The test was terminated over three days as described for test initiation. On day 28 for each replicate series, overlying water quality was measured and each replicate aquarium was terminated by passing the sediment through a 250 µm screen. Surviving organisms (10 mg target mass) from each replicate were recovered using the extraction/purging method described in Lotufo et al (2021). This method allows for easy separation of worms from the detritus material obtained after sieving. Briefly, detritus and worms collected from each replicate by sieving were placed in 1-liter beakers. A 420 µm screen was placed on top of the detritus followed by clean pea gravel. Clean water was added and the system was allowed to sit for up to 24 hours to allow the worms to self-extract from the detritus into the gravel and to purge their gut contents. After the extraction/purge period, the gravel was removed and placed in a 2-gallon plastic bucket and swirled with clean water. This action separated the worms from the gravel and brought them into the overlying water. The water containing the worms was then poured through a 250 µm sieve. Worms collected were placed on blotting paper and blotted dry. Approximately 300 mg of worm tissue from each replicate were then placed in a pre-tared jar for lipid determination. The remaining worms were placed in a pre-tared jar for PCB concentration analysis. The total mass recovered was recorded. Tissues were frozen and subsequently sent to ALS-Environmental for PCB congener analysis and to the EL ECB of the ERDC for lipid analysis.

Reference Toxicity Tests

Reference toxicant tests were conducted on each batch of bioassay organisms used in toxicity testing to assess organism sensitivity relative to historic information recorded within in-house laboratory control charts.

The selected reference toxicant for *P. promelas* and *C. dubia* was potassium chloride (KCl). Reagent grade KCl was weighed and completely dissolved into the appropriate water. Five (5) concentrations (3 replicates each) were prepared (100, 50, 25, 12.5, and 6.25%) with the number of organisms in each replicate as previously described in the elutriate bioassays section. The 100% concentration was 2.7 g/L for *P. promelas* and 1.0 g/L for *C. dubia*. The endpoint measured was survival after a 96-h and 48-h exposure, respectively.

The selected reference toxicants for *H. azteca* and *C. dilutus* were potassium chloride (KCl) and sodium chloride (NaCl), respectively. Reagent grade KCl and NaCl were weighed and completely dissolved into de-chlorinated tap water for each bioassay species. Six KCl concentrations (0, 0.0625, 0.125, 0.25, 0.5, and 1.0 g KCl/L) were prepared and placed in 250 mL beakers (three replicates per concentration). Ten *H. azteca* (7-8 day old) were placed in each replicate. Six NaCl treatments (0, 1.25, 2.5, 5, 10 and 20 g NaCl/L) were prepared and placed in 250 mL beakers (three replicates per concentration). Ten *C. dilutus* (~10-day old) were placed in each replicate. The endpoint measured was survival after a 96-h exposure.

Water Quality Parameters

Water quality during bioassay testing was measured using Thermo Scientific Orion 4Star meters (Thermo Scientific, Beverly, MA) equipped with a model 013005MD conductivity cell, a model 9107WMMD automatic temperature compensating pH Triode, and an optical luminescence Rugged Dissolved Oxygen (RDO) probe (Thermo Scientific, Beverly, MA) for electrical conductivity, pH, and dissolved oxygen, respectively. Overlying water total ammonia, hardness and alkalinity were measured using LeMotte titration kits (Chestertown, MD, USA). Porewater total ammonia was measured using a 720A ion-selective electrode (ISE) meter (Thermo Orion Electron Corp., Beverly, MA) equipped with a 95-12 ammonia-sensitive electrode (Thermo Orion Electron Corp., Beverly, MA).

Statistical Analysis

Statistical analyses for elutriate toxicity tests on the harbor channel samples were conducted using ToxCalc® statistical software (Version 5.0, Tidepool Scientific Software, McKinleyville, CA). If survival was reduced by at least 10% relative to the dilution water, data were statistically compared to data from the dilution water control. Survival data were arcsine square root transformed prior to analysis. Data normality (Shapiro-Wilks test) and homogeneity (Bartlett's Test) were determined. For normal distributions with equal variances, the Dunnett's Test was used to determine statistical significance. Otherwise, Steel's Many-one Rank test was used to determine No Observable Effects Concentrations (NOECs) and Lowest Observable Effects Concentrations (LOECs). The lethal median concentration producing 50% mortality (LC50) in elutriate or reference toxicity test dilutions was determined by the Spearman–Karber method.

For whole sediment toxicity bioassays utilized for evaluating dredged material, two criteria are required to designate a sediment as potentially toxic based on survival: 1) mean mortality that was more than 10% greater (*H. azteca*) or 20% greater (*C. dilutus*) than mean mortality for the reference sediment (USEPA / USACE 1998 a, b), **and** 2) a statistically significant reduction in mean survival compared to mean survival for the reference sediment.

In addition, for the *C. dilutus* sublethal growth endpoint, the following criteria are required for a sediment to be designated as potentially toxic: 1) mean individual dry weight for a given sediment treatment must be below 0.6 mg, **and** 2) be more than 10% less than, and statistically significant from, the reference sediment individual dry weight mean.

In addition to the above statistical guidance used for dredged material assessments, additional statistical analyses were conducted comparing survival for both species and growth for *C. dilutus* to the reference and control without consideration of the level of survival or growth observed.

Statistical analyses were conducted in general accordance with the guidance provided in the inland dredged material testing manual (USEPA / USACE 1998 a). Statistical analyses on the survival and growth endpoints were conducted using SAS statistical software (SAS Institute, Cary, NC). Data normality (Shapiro-Wilks test) and homogeneity

(Levene's, Brown and Forsythe's or Bartlett's Test) were evaluated prior to performing means comparison procedures. For normal distributions with equal variances, the one-tailed Fisher's LSD Test was used to determine statistical differences relative to the reference sediment. If data were not normally distributed, data were transformed to Rankits prior to conducting the Fisher's LSD Test to determine statistical differences from the reference. All comparisons were conducted at the α=0.05 significance level.

Data Quality Assurance

Although the ERDC is not National Environmental Laboratory Accreditation Program (NELAP) certified, the data quality assurance management process generally follows NELAP guidance. Experimental work plans were reviewed initially by the Quality Assurance (QA) Officer to ensure testing and experimentation were following the appropriate Standard Operating Procedures (SOPs) and testing methods. The Project Manager provided oversight of all testing and data collection to ensure proper methods and procedures were being followed and reviewed data input daily during testing. Technicians or the Project Manager signed benchsheets as they were generated to indicate that the data was accurate as presented. Data recorded from benchsheets to Excel spreadsheets went through a validation process to ensure all data was correctly entered and formulae were accurate. Prior to report development, the QA Officer provided a final review of the procedures and data and signed benchsheets (where required) following review.

RESULTS

Elutriate Toxicity Bioassays

The testing of SETs and laboratory performance controls were conducted in three rounds from 23 August to 29 October 2021. The first two rounds (Pimephales: 23 August and 20 September 2021; *Ceriodaphnia*: 1 and 20 September 2021) tested all the standard elutriates for this project. The Buffalo District requested an ammonia toxicity reduction evaluation (TRE) for selected elutriates, which was performed during the week of 25 October 2021.

Pimephales promelas elutriate bioassays

Survival in the laboratory performance controls met the ≥90% requirement in all three rounds of testing (Table 2). The fish zeolite control showed low survival, but since survival in all of the zeolite treated elutriates was ≥ 90%, this does not impact data interpretation. The LC50 values from the KCl reference toxicity tests conducted for the standard elutriate testing rounds on 23 August 2021 (0.87 g KCl/L) and 20 September 2021 (0.90 KCl/L) were within two standard deviations around the mean LC50 values from ERDC control charts (95% CL: 0.75 – 0.97 g KCl/L) (Appendix C. Reference toxicity test statistics for *Pimephales promelas*). This confirms test organisms were within the historic tolerance range to the reference toxicant. The reference toxicity test conducted on 25 October 2021 for the ammonia TRE was 0.64 g KCl/L, which was on the sensitive side of control charts;

this does not impact interpretation of the TRE data since this was a direct comparison between fish survival in the 100% untreated elutriate relative to survival in the toxicity reduction evaluation treatments. Water quality parameters (Appendix A. Water quality parameters for elutriate bioassays) were within the acceptability ranges specified by testing guidance (USEPA / USACE 1998a, b). Ammonia is an important measurement to consider in elutriate toxicity tests and is summarized in Appendix A. Water quality parameters for elutriate bioassays (Table A5).

Fish survival in the undiluted (100%) elutriate waters ranged from 0 to 100%. Statistically reduced survival was determined for SBA1, SBA3, SBC, WA1, WA2, WA3, WB1 and WC2 (Table 2). No significant toxicity was observed for the other elutriates. Mortality was sufficiently high to calculate LC50 values for SBA1, WA1, WA2, WA3, WB1 and WC2, with values provided in Table 4. The ammonia TRE provided strong evidence for ammonia dominated toxicity for WC2.

<u>Ceriodaphnia dubia elutriate bioassays</u>

Survival in the laboratory performance controls met the ≥90% requirement in all three rounds of testing (Table 3). The LC50 values from the KCl reference toxicity tests conducted on the ERDC in-house culture for the months of September (0.23 g KCl/L) and October 2021 (0.64 g KCl/L) were within two standard deviations around the mean LC50 values from ERDC control charts (95% CL: 0.18 – 0.57 g KCl/L) (Appendix D. Reference toxicity test statistics for *Ceriodaphnia dubia*). This confirms test organisms were within the historic tolerance range to the reference toxicant. Water quality parameters (Appendix A) were within the acceptability ranges specified by testing guidance (US EPA / US ACE 1991, 1998). Ammonia is an important measurement to consider in elutriate toxicity tests and is summarized in Appendix A. Water quality parameters for elutriate bioassays (Table A5).

Water flea survival in the undiluted (100%) elutriate waters ranged from 0 to 100%. Statistically reduced survival was determined for SBA1, SBA3, SBC, WA1, WA2, WA3, WB1 and WC2. No significant toxicity was observed for the other elutriates. Mortality was sufficiently high to calculate LC50 values for SBA1, WA1, WA2, WA3 and WB1, with values provided in Table 4. The ammonia TRE provided strong evidence for ammonia dominated toxicity for WC2.

<u>Elutriate bioassay summary</u>

Acute toxicity was observed for both test organisms in the same eight elutriates (SBA1, SBA3, SBC, WA1, WA2, WA3, WB1, and WC2) for both test species, indicating good agreement. A toxicity reduction evaluation provided strong evidence for ammonia dominated toxicity in elutriate WC2 using both species. A summary of toxicity reference values for all tested elutriates is provided in Table 4. This table also indicates which elutriates had ammonia concentrations greater than toxicity reference values, suggesting potential for ammonia toxicity.

Whole Sediment Toxicity Bioassays

Whole sediment bioassays were conducted from 3 September to 15 October 2021.

Hyalella azteca toxicity bioassay

The *H. azteca* bioassay was conducted from 3 to 13 September 2021. Water quality parameters (Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays; Table B1) were within the acceptability ranges specified by testing guidance (USEPA / USACE 1998a, b).

Porewater ammonia values exceeded the testing guidance concentration value of 20 mg/L at bioassay initiation (Day 0) for sediment LMR21-15S as discussed in the methods section above but were below the guidance concentration at test termination (Day 10) (Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays; Table B4). Survival (90%) was high for sediment LMR21-15S indicating that porewater ammonia concentration had little to no effect on the organisms exposed.

Survival in the laboratory performance control (100%) exceeded the 80% guidance requirement (Table 5). The LC50 value from the KCl reference toxicity test conducted on 3 September 2021 was 0.268 g KCl/L (95% CL: 0.181 – 0.397 g KCl/L) (Appendix G. Reference toxicity test statistics for *Hyalella azteca*). This value was compared to two standard deviations around the mean LC50 value from an established laboratory control chart (95% CL: 0.231 – 0.316 g KCl/L). This comparison indicates that bioassay organisms were within the historic tolerance range to the reference toxicant.

Survival in sediments ranged from 14% to 98% (Table 5). Utilizing dredge material statistical evaluation guidance (USEPA/USACE 1998a, b), mean mortality was within 10% of the mean mortality for the reference sediment (LMR21-69S), except for sediments LMR21-47S and LMR21-49S. Statistical comparisons were performed to the reference sediment for these two sediments. Survival in sediments LMR21-47S and LMR21-49S was statistically lower than the reference (Appendix I. Whole sediment toxicity test statistics for *Hyalella*).

When performing statistical comparison of survival to reference and control without consideration of level of survival observed, significantly lower survival was observed for sediments LMR21-47S and LMR21-49S compared to the reference (LMR21-69S) and LMR21-15S, LMR21-35S, LMR39S, LMR21-43S, LMR21-47S, LMR21-49S, and LMR21-68S when compared to the control.

Chironomus dilutus toxicity bioassay

The *C. dilutus* bioassay was conducted from 5 to 10 October 2021. Water quality parameters (Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays; Table B2) were within the acceptability ranges specified by testing guidance (USEPA / USACE 1998a, b).

Porewater ammonia values exceeded the testing guidance concentration value of 20 mg/L at bioassay initiation (Day 0) for sediment LMR21-15S as discussed in the methods section above but were below the guidance concentration at test termination (Day 10) (Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays; Table B5). Survival (88%) was high for sediment LMR21-15S indicating that porewater ammonia concentration had little to no effect on the organisms exposed.

Survival in the laboratory performance control (90%) exceeded the 70% performance criteria (Table 5) The LC50 value from the NaCl reference toxicity test conducted on 5 October 2021 was 7.99 g NaCl/L (95% CL: 5.89 – 10.86 g NaCl/L) (Appendix H. Reference toxicity test statistics for *Chironomus dilutus*). This value was compared to two standard deviations around the mean LC50 value from an established laboratory control chart (95% CL: 5.19 – 10.34 g NaCl/L). This comparison indicates bioassay organisms were within the historic tolerance range to the reference toxicant.

Survival in the sediments ranged from 52% to 94%). Utilizing dredge material statistical evaluation guidance (USEPA/USACE 1998a, b), mean mortality was within 20% of the mean mortality for the reference sediments (LRM21-69S except for sediments LMR30S, LMR21-47, LMR21-49S and LRM21-59S. Statistical comparisons were performed to the reference sediment for these four sediments. Survival in sediments LMR30S, LMR21-47S, LMR21-49S and LRM21-59S was statistically lower than the reference (Appendix J. Whole sediment toxicity test statistics for *Chironomus dilutus*).

Mean weight for the *C. dilutus* exposed to the test sediments evaluated ranged from 0.697 mg to 3.36 mg. Although organism individual dry weight for sediments LMR21-47S, LMR21-49S and LRM21-52S was equal to or more than 10% less than the reference sediment weight, the weights of *C. dilutus* exposed to all sediments exceeded the 0.6 mg individual dry weight criterion requiring statistical analysis as described in dredging guidance (USEPA/USACE 1998a, b). Therefore, no statistical comparisons for final weight were required.

When performing statistical comparison of survival to reference and control without consideration of level of survival observed, significantly lower survival was observed for sediments LMR21-11S, LMR21-27S, LMR21-30S, LMR21-39S, LMR21-47S, LMR21-49S, LMR21-53S, LMR21-59S, LMR21-64S and LMR21-66S compared to the reference (LMR21-69S) and LMR21-30S, LMR21-47S, LMR21-49S, LM21-53S and LMR21-59S when compared to the control.

When performing statistical comparison of growth to reference and control without consideration of level of growth observed, significantly lower growth was observed for sediments LMR21-47S and LMR21-49S compared to the reference (LMR21-69S) and LMR21-45S, LMR21-47S, LMR21-49S, LM21-52S, LMR21-53S, LMR21-55S and LMR21-57S when compared to the control. Interpretation of growth data results for sediments where significant survival effects occurred should be performed cautiously since mortality can impact the level of growth observed.

Whole sediment bioassay summary

Based on results of the *H. azteca* and *C. dilutus* bioassays, acute toxicity was observed for sediments LMR30S, LMR21-47S, LMR21-49S and LRM21-59S. No effects were observed in the growth endpoint for *C. dilutus.* No toxicity was observed for either organism exposed to the remaining sediments.

Lumbriculus variegatus Bioaccumulation Bioassay

The 28-d bioaccumulation bioassay employing *L. variegatus* was initiated on 14 September to 18 October 2021. All water quality parameters (Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays; Table B3) were within the acceptability ranges specified by testing guidance (US EPA / USACE 1998a, b).

All organisms burrowed into test materials and remained burrowed during the exposure except for organisms in sediments LRM21-47 and LMR21-49. The organisms did not burrow and the majority died in those two sediments. These two sediments were removed from the test system and no bioaccumulation data was collected due to low exposure and excessive mortality.

The mean tissue mass for analytical chemistry recovered from the site sediments ranged from 11.3 g to 15.2 g (Table 6). Mass recovery was lower than the 10 mg target in replicates A and B for most sediments due to high mortality in the worms during the extraction/purging phase. It is believed that stratified low dissolved oxygen (DO) (low DO in the bottom of the purging vessel where the detritus material was located) may have caused the mortality observed. Aeration was provided for the remaining replicates and no additional mortality was observed.

Lumbriculus variegatus replicate tissue samples were collected and sent to ALS-Environmental for PCB concentration determination and to the ERDC EL ECB for determination of lipid content. These data will be utilized by the USACE Buffalo District for the determination of total PCBs, and to quantify the benthic bioaccumulation and bioavailability of PCBs in LMR background sediments.

Lipid Analysis

Tissue lipid analysis was conducted by the ERDC's EL ECB in January of 2022. The percent lipids in tissue samples were determined using UV-Vis spectroscopy (Handel, 1985). Homogenized tissue samples are vortexed in 1.5 mL of a 1:1 (by volume) solution of methanol and chloroform to form a sample extract. 0.25 mL aliquot of this extract is dried, then digested on a heating block using sulfuric acid. Once digested and cooled to room temperature, the extract is mixed with a colorimetric assay which absorbs light at 490 nm in the presence of lipids. The colorimetric assay is a solution of vanillin in phosphoric acid. Once the extracts have developed for 5 minutes, their absorbance is measured using a UV-Vis spectrophotometer and lipid concentration is calculated using the Beer-Lambert Law. Calibration standards, blanks, and blank spikes are made from a solution of soybean oil in acetone and undergo the same digestion procedure.

Mean percent lipid data ranged from 1.34% to 2.60% (Table 7). Raw lipid data can be found in Appendix N. Tissue Lipid Raw Data.

TABLES

Table 1. Summary of sediment nomenclature, location and bioassay type

Sample Name	Sample Location	Sample Type	Bioassay Type
LMR21-11S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-12S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-14S	Surface	Discrete Grab	Tox/Bioaccumulation
LRM21-15S	Surface	Discrete Grab	Tox/Bioaccumulation
LRM21-17S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-19S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-25S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-27S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-30S	Surface	Discrete Grab	Tox
LMR21-35S	Surface	Discrete Grab	Tox
LMR21-37S	Surface	Discrete Grab	Tox
LMR21-39S	Surface	Discrete Grab	Tox
LMR21-41S	Surface	Discrete Grab	Tox
LMR21-43S	Surface	Discrete Grab	Tox
LMR21-45S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-47S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-48S	Surface	Discrete Grab	Tox
LMR21-49S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-52S	Surface	Discrete Grab	Tox
LMR21-53S	Surface	Discrete Grab	Tox
LMR21-55S	Surface	Discrete Grab	Tox
LMR21-57S	Surface	Discrete Grab	Tox
LMR21-59S	Surface	Discrete Grab	Tox
LMR21-61S	Surface	Discrete Grab	Tox

Sample Name	Sample Location	Sample Type	Bioassay Type
LMR21-62S	Surface	Discrete Grab	Tox
LMR21-64S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-66S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-68S	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-69S (Reference)	Surface	Discrete Grab	Tox/Bioaccumulation
LMR21-SBA1	Sway Bridge Area A1	Composite	Elutriate
LMR21-SBA2	Sway Bridge Area A2	Composite	Elutriate
LMR21-SBA3	Sway Bridge Area A3	Composite	Elutriate
LMR21-SBB1	Sway Bridge Area B1	Composite	Elutriate
LMR21-SBB2	Sway Bridge Area B2	Composite	Elutriate
LMR21-SBC	Sway Bridge Area C	Composite	Elutriate
LMR21-SBD	Sway Bridge Area D	Composite	Elutriate
LMR21-WA-1	Water Waste Treatment Area A1	Composite	Elutriate
LRM21-WA-2	Water Waste Treatment Area A2	Composite	Elutriate
LRM21-WA-3	Water Waste Treatment Area A3	Composite	Elutriate
LRM21-WB-1	Water Waste Treatment Area B1	Composite	Elutriate
LRM21-WB-2	Water Waste Treatment Area B2	Composite	Elutriate
LRM21-WC-1	Water Waste Treatment Area C1	Composite	Elutriate
LRM21-WC-2	Water Waste Treatment Area C2	Composite	Elutriate

Table 2. Average survival (±1 standard deviation (S.D.) for the *Pimephales promelas* exposed to Maumee River Elutriates.

Date (initiation)	Sediment	Treatment	Concentration	96h Survival (mean)	96h Survival (S.D.)	≥10% Reduced (Y/N)?	Stat Sig (t-test)
8/23/2021	Control	Unmodified	0	96	5	--	--
9/20/2021	Control	Unmodified	0	96	9	--	--
10/25/2021	Control	Unmodified	0	100	0	--	--
10/25/2021	Control	pH 6.5	0	98	4	--	--
10/25/2021	Control	Zeolite	0	56	24	--	--
8/23/2021	LMR21-SBA1	Unmodified	6.25	100	0	No	--
8/23/2021	LMR21-SBA1	Unmodified	12.5	100	0	No	--
8/23/2021	LMR21-SBA1	Unmodified	25	98	4	No	--
8/23/2021	LMR21-SBA1	Unmodified	50	92	8	No	--
8/23/2021	LMR21-SBA1	Unmodified	100	2	4	Yes	Yes
8/23/2021	LMR21-SBA2	Unmodified	6.25	98	4	No	--
8/23/2021	LMR21-SBA2	Unmodified	12.5	100	0	No	--
8/23/2021	LMR21-SBA2	Unmodified	25	100	0	No	--
8/23/2021	LMR21-SBA2	Unmodified	50	100	0	No	--
8/23/2021	LMR21-SBA2	Unmodified	100	96	5	No	--
8/23/2021	LMR21-SBA3	Unmodified	6.25	96	5	No	--
8/23/2021	LMR21-SBA3	Unmodified	12.5	100	0	No	--
8/23/2021	LMR21-SBA3	Unmodified	25	100	0	No	--
8/23/2021	LMR21-SBA3	Unmodified	50	100	0	No	--
8/23/2021	LMR21-SBA3	Unmodified	100	86	5	Yes	Yes
8/23/2021	LMR21-SBB1	Unmodified	10	96	5	No	--
8/23/2021	LMR21-SBB1	Unmodified	50	98	4	No	--
8/23/2021	LMR21-SBB1	Unmodified	100	98	4	No	--
8/23/2021	LMR21-SBB2	Unmodified	10	96	5	No	--
8/23/2021	LMR21-SBB2	Unmodified	50	100	0	No	--
8/23/2021	LMR21-SBB2	Unmodified	100	98	4	No	--
8/23/2021	LMR21-SBC	Unmodified	10	100	0	No	--
8/23/2021	LMR21-SBC	Unmodified	50	96	5	No	--
8/23/2021	LMR21-SBC	Unmodified	100	84	9	Yes	Yes
10/25/2021	LMR21-SBC	Unmodified	100	98	4	No	--
10/25/2021	LMR21-SBC	pH 6.5	100	98	4	No	--
10/25/2021	LMR21-SBC	Zeolite	100	96	5	No	--
9/20/2021	LMR21-SBD	Unmodified	10	98	4	No	--
9/20/2021	LMR21-SBD	Unmodified	50	100	0	No	--
9/20/2021	LMR21-SBD	Unmodified	100	98	4	No	--
9/20/2021	LMR21-WA1	Unmodified	6.25	100	0	No	--
9/20/2021	LMR21-WA1	Unmodified	12.5	98	4	No	--

Date (initiation)	Sediment	Treatment	Concentration	96h Survival (mean)	96h Survival (S.D.)	≥10% Reduced (Y/N)?	Stat Sig (t-test)
9/20/2021	LMR21-WA1	Unmodified	25	86	15	No	--
9/20/2021	LMR21-WA1	Unmodified	50	34	38	No	--
9/20/2021	LMR21-WA1	Unmodified	100	0	0	Yes	Yes
9/20/2021	LMR21-WA2	Unmodified	6.25	98	4	No	--
9/20/2021	LMR21-WA2	Unmodified	12.5	98	4	No	--
9/20/2021	LMR21-WA2	Unmodified	25	100	0	No	--
9/20/2021	LMR21-WA2	Unmodified	50	88	4	No	--
9/20/2021	LMR21-WA2	Unmodified	100	0	0	Yes	Yes
9/20/2021	LMR21-WA3	Unmodified	10	98	4	No	--
9/20/2021	LMR21-WA3	Unmodified	50	94	9	No	--
9/20/2021	LMR21-WA3	Unmodified	100	14	17	Yes	Yes
9/20/2021	LMR21-WB1	Unmodified	10	94	5	No	--
9/20/2021	LMR21-WB1	Unmodified	50	18	29	No	--
9/20/2021	LMR21-WB1	Unmodified	100	0	0	Yes	Yes
9/20/2021	LMR21-WB2	Unmodified	10	98	4	No	
9/20/2021	LMR21-WB2	Unmodified	50	98	4	No	--
9/20/2021	LMR21-WB2	Unmodified	100	96	5	No	--
10/25/2021	LMR21-WB2	Unmodified	100	92	8	No	--
10/25/2021	LMR21-WB2	pH 6.5	100	96	9	No	--
10/25/2021	LMR21-WB2	Zeolite	100	94	5	No	--
9/20/2021	LMR21-WC1	Unmodified	10	98	4	No	--
9/20/2021	LMR21-WC1	Unmodified	50	100	0	No	--
9/20/2021	LMR21-WC1	Unmodified	100	100	0	No	--
9/20/2021	LMR21-WC2	Unmodified	10	98	4	No	--
9/20/2021	LMR21-WC2	Unmodified	50	78	18	No	--
9/20/2021	LMR21-WC2	Unmodified	100	0	0	No	Yes
10/25/2021	LMR21-WC2	Unmodified	100	0	0	Yes	Yes
10/25/2021	LMR21-WC2	pH 6.5	100	98	5	No	--
10/25/2021	LMR21-WC2	Zeolite	100	90	NA	No	--

Table 3. Average survival (±1 standard deviation (S.D.) for the *Ceriodaphnia dubia* exposed to Maumee River Elutriates.

Date (initiation)	Sediment	Treatment	Concentration	48h Survival (mean)	48h Survival (S.D.)	≥10% Reduced (Y/N)?	Stat Sig (t-test)
9/1/2021	Control	Unmodified	0	96	9	--	--
9/20/2021	Control	Unmodified	0	100	0	--	--
10/25/2021	Control	Unmodified	0	100	0	--	--
10/25/2021	Control	pH 6.5	0	100	0	--	--
10/25/2021	Control	Zeolite	0	92	11	--	--
9/1/2021	LMR21-SBA1	Unmodified	6.25	100	0	No	--
9/1/2021	LMR21-SBA1	Unmodified	12.5	96	9	No	--
9/1/2021	LMR21-SBA1	Unmodified	25	100	0	No	--
9/1/2021	LMR21-SBA1	Unmodified	50	92	18	No	--
9/1/2021	LMR21-SBA1	Unmodified	100	0	0	Yes	Yes
9/1/2021	LMR21-SBA2	Unmodified	6.25	88	11	No	--
9/1/2021	LMR21-SBA2	Unmodified	12.5	92	11	No	--
9/1/2021	LMR21-SBA2	Unmodified	25	96	9	No	--
9/1/2021	LMR21-SBA2	Unmodified	50	96	9	No	--
9/1/2021	LMR21-SBA2	Unmodified	100	96	9	No	--
9/1/2021	LMR21-SBA3	Unmodified	6.25	100	0	No	--
9/1/2021	LMR21-SBA3	Unmodified	12.5	100	0	No	--
9/1/2021	LMR21-SBA3	Unmodified	25	96	9	No	--
9/1/2021	LMR21-SBA3	Unmodified	50	100	0	No	--
9/1/2021	LMR21-SBA3	Unmodified	100	56	17	Yes	Yes
9/1/2021	LMR21-SBB1	Unmodified	10	96	9	No	--
9/1/2021	LMR21-SBB1	Unmodified	50	92	18	No	--
9/1/2021	LMR21-SBB1	Unmodified	100	96	9	No	--
9/1/2021	LMR21-SBB2	Unmodified	10	96	9	No	--
9/1/2021	LMR21-SBB2	Unmodified	50	100	0	No	--
9/1/2021	LMR21-SBB2	Unmodified	100	100	0	No	--
9/1/2021	LMR21-SBC	Unmodified	10	100	0	No	--
9/1/2021	LMR21-SBC	Unmodified	50	96	9	No	--
9/1/2021	LMR21-SBC	Unmodified	100	60	14	Yes	--
10/25/2021	LMR21-SBC	Unmodified	100	72	23	Yes	Yes
10/25/2021	LMR21-SBC	pH 6.5	100	80	14	Yes	Yes
10/25/2021	LMR21-SBC	Zeolite	100	96	9	No	--
9/20/2021	LMR21-SBD	Unmodified	10	100	0	No	--
9/20/2021	LMR21-SBD	Unmodified	50	100	0	No	--
9/20/2021	LMR21-SBD	Unmodified	100	100	0	No	--
9/20/2021	LMR21-WA1	Unmodified	6.25	100	0	No	--

Date (initiation)	Sediment	Treatment	Concentration	48h Survival (mean)	48h Survival (S.D.)	≥10% Reduced (Y/N)?	Stat Sig (t-test)
9/20/2021	LMR21-WA1	Unmodified	12.5	100	0	No	--
9/20/2021	LMR21-WA1	Unmodified	25	100	0	No	--
9/20/2021	LMR21-WA1	Unmodified	50	76	22	Yes	--
9/20/2021	LMR21-WA1	Unmodified	100	0	0	Yes	Yes
9/20/2021	LMR21-WA2	Unmodified	6.25	100	0	No	--
9/20/2021	LMR21-WA2	Unmodified	12.5	100	0	No	--
9/20/2021	LMR21-WA2	Unmodified	25	100	0	No	--
9/20/2021	LMR21-WA2	Unmodified	50	68	11	Yes	--
9/20/2021	LMR21-WA2	Unmodified	100	8	18	Yes	Yes
9/20/2021	LMR21-WA3	Unmodified	10	100	0	No	--
9/20/2021	LMR21-WA3	Unmodified	50	100	0	No	--
9/20/2021	LMR21-WA3	Unmodified	100	0	0	Yes	Yes
9/20/2021	LMR21-WB1	Unmodified	10	100	0	No	--
9/20/2021	LMR21-WB1	Unmodified	50	76	17	Yes	--
9/20/2021	LMR21-WB1	Unmodified	100	16	26	Yes	Yes
9/20/2021	LMR21-WB2	Unmodified	10	100	0	No	--
9/20/2021	LMR21-WB2	Unmodified	50	100	0	No	--
9/20/2021	LMR21-WB2	Unmodified	100	96	9	No	--
10/25/2021	LMR21-WB2	Unmodified	100	100	0	No	--
10/25/2021	LMR21-WB2	pH 6.5	100	96	9	No	--
10/25/2021	LMR21-WB2	Zeolite	100	100	0	No	--
9/20/2021	LMR21-WC1	Unmodified	10	100	0	No	--
9/20/2021	LMR21-WC1	Unmodified	50	96	9	No	--
9/20/2021	LMR21-WC1	Unmodified	100	92	18	No	--
9/20/2021	LMR21-WC2	Unmodified	10	100	0	No	--
9/20/2021	LMR21-WC2	Unmodified	50	88	11	Yes	--
9/20/2021	LMR21-WC2	Unmodified	100	64	26	Yes	Yes
10/25/2021	LMR21-WC2	Unmodified	100	0	0	Yes	Yes
10/25/2021	LMR21-WC2	pH 6.5	100	100	0	No	--
10/25/2021	LMR21-WC2	Zeolite	100	100	0	No	--

Table 4. Elutriate toxicity reference values.

Sediment	Test species	NOEC	LOEC	LC50	Toxicity reduction evaluation conclusion	TAN	UIA	> UIA TRV (Y/N)
LMR21-SBA1	*Ceriodaphnia dubia*	50	100	68	Not tested	12.00	0.80	No
LMR21-SBA2	*Ceriodaphnia dubia*	100	>100	>100	Not toxic	0.93	0.06	No
LMR21-SBA3	*Ceriodaphnia dubia*	50	100	>100	Not tested	17.80	1.35	Yes
LMR21-SBB1	*Ceriodaphnia dubia*	100	>100	>100	Not toxic	16.30	1.07	No
LMR21-SBB2	*Ceriodaphnia dubia*	100	>100	>100	Not toxic	5.24	0.34	No
LMR21-SBC	*Ceriodaphnia dubia*	50	100	>100	Ammonia toxicity unlikely	13.90	0.77	No
LMR21-SBD	*Ceriodaphnia dubia*	100	>100	>100	Not toxic	2.28	0.29	No
LMR21-WA1	*Ceriodaphnia dubia*	50	100	60	Not tested	29.90	3.26	Yes
LMR21-WA2	*Ceriodaphnia dubia*	25	50	59	Not tested	19.00	1.81	Yes
LMR21-WA3	*Ceriodaphnia dubia*	50	100	71	Not tested	17.30	2.00	Yes
LMR21-WB1	*Ceriodaphnia dubia*	50	100	66	Not tested	26.80	1.55	Yes
LMR21-WB2	*Ceriodaphnia dubia*	100	>100	>100	Not toxic	6.62	0.96	No
LMR21-WC1	*Ceriodaphnia dubia*	100	>100	>100	Not toxic	8.23	1.00	No
LMR21-WC2	*Ceriodaphnia dubia*	50	100	>100	Ammonia toxicity likely	17.30	1.66	Yes
LMR21-SBA1	*Pimephales promelas*	50	100	69	Not tested	12.00	0.74	Maybe
LMR21-SBA2	*Pimephales promelas*	100	>100	>100	Not toxic	0.60	0.03	No
LMR21-SBA3	*Pimephales promelas*	100	>100	>100	Not toxic	11.30	0.72	Maybe
LMR21-SBB1	*Pimephales promelas*	100	>100	>100	Not toxic	4.01	0.19	No
LMR21-SBB2	*Pimephales promelas*	100	>100	>100	Not toxic	5.15	0.27	No
LMR21-SBC	*Pimephales promelas*	100	>100	>100	Not toxic	12.00	0.66	Maybe
LMR21-SBD	*Pimephales promelas*	100	>100	>100	Not toxic	2.28	0.15	No
LMR21-WA1	*Pimephales promelas*	25	50	41	Not tested	29.90	2.66	Yes
LMR21-WA2	*Pimephales promelas*	50	100	66	Not tested	19.00	1.81	Yes
LMR21-WA3	*Pimephales promelas*	50	100	74	Not tested	17.30	1.40	Yes
LMR21-WB1	*Pimephales promelas*	10	50	27	Not tested	26.80	1.50	Yes
LMR21-WB2	*Pimephales promelas*	100	>100	>100	Not toxic	6.62	0.58	No
LMR21-WC1	*Pimephales promelas*	100	>100	>100	Not toxic	8.23	0.61	Yes
LMR21-WC2	*Pimephales promelas*	10	50	56	Ammonia toxicity likely	17.30	1.57	Yes

LC50 = Lethal median concentration
NOEC = no observable effect concentration
LOEC = lowest observable effect concentration
TAN = total ammonia-Nitrogen
UIA = un-ionized ammonia
>UIA TRV = greater than un-ionized ammonia toxicity reference value (Ceriodaphnia LC50 = 1.2 mg/L (Anderson and Buckely 1998); Pimephales = 0.6 – 1.0 mg/L (Nimmo et al. 1989; Buhl et al 2002)

Table 5. Percent survival and mass (and one standard deviation from the mean) in 10-d whole sediment toxicity bioassays.

Sediment	*Hyalella azteca* (% Survival)	*Chironomus dilutus* (% Survival)	*Chironomus dilutus* (Individual dry weight, mg)
Control	100 ± 0	90 ± 12	2.66 ± 0.59
LMR21-11S	98 ± 4	§80 ± 16	2.79 ± 0.58
LMR21-12S	96 ± 5	94 ± 13	2.45 ± 0.27
LMR21-14S	94 ± 9	86 ± 9	2.91 ± 0.24
LMR21-15S	#90 ± 7	88 ± 11	2.52 ± 0.24
LMR21-17S	94 ± 9	90 ± 7	2.74 ± 0.09
LMR21-19S	90 ± 14	82 ± 22	2.75 ± 0.46
LMR21-25S	98 ± 4	84 ± 15	2.49 ± 0.48
LMR21-27S	96 ± 9	§76 ± 15	2.66 ± 0.30
LMR21-30S	96 ± 5	*§#62 ± 31	3.36 ± 0.64
LMR21-35S	#86 ± 21	88 ± 13	2.41 ± 0.22
LMR21-37S	96 ± 5	90 ± 7	2.38 ± 0.32
LMR21-39S	#88 ± 4	§80 ± 16	2.61 ± 0.46
LMR21-41S	98 ± 4	88 ± 8	2.59 ± 0.16
LMR21-43S	#92 ± 8	84 ± 15	2.42 ± 0.34
LMR21-45S	96 ± 5	92 ± 4	#2.15 ± 0.17
LMR21-47S	*§#14 ± 21	*§#52 ± 13	§#0.70 ± 0.34
LMR21-48S	90 ± 22	84 ± 15	2.43 ± 0.30
LMR21-49S	*§#70 ± 31	*§#62 ± 15	§#1.25 ± 0.38
LMR21-52S	96 ± 5	94 ± 9	#2.01 ± 0.26
LMR21-53S	98 ± 4	§#76 ± 5	#2.22 ± 0.13
LMR21-55S	94 ± 13	86 ± 15	#2.13 ± 0.13
LMR21-57S	98 ± 4	92 ± 4	#2.17 ± 0.29
LMR21-59S	94 ± 5	*§#68 ± 19	2.45 ± 0.60
LMR21-61S	98 ± 4	84 ± 19	2.37 ± 0.71

Sediment	*Hyalella azteca* (% Survival)	*Chironomus dilutus* (% Survival)	*Chironomus dilutus* (Individual dry weight, mg)
LMR21-62S	96 ± 5	86 ± 11	2.29 ± 0.39
LMR21-64S	98 ± 4	§82 ± 13	2.31 ± 0.26
LMR21-66S	92 ± 11	§76 ± 23	2.66 ± 0.59
LMR21-68S	#88 ± 18	84 ± 17	2.79 ± 0.58
LMR21-69S (Reference)	94 ± 9	96 ± 5	2.45 ± 0.27

* Survival ≥10% different (*H. azteca*) or 20% different (*C. dilutus*) and significantly different from LMR-69S (Reference) sediment. One-tailed Fisher's LSD procedure (α=0.05).

§ Survival or growth significantly different from reference (One-tailed Fisher's LSD; α =0.05)

Survival or growth significantly different from control (One-tailed Fisher's LSD; α =0.05)

Table 6. Mean recovered mass (± one standard deviation from the mean) at the end of the 28-d *L. variegatus* bioaccumulation bioassay. The minimum and maximum range of the data is provided in parentheses.

Sediment	*Recovered Mass (g)
LMR21-11S	11.8 ± 7.2 (2.3 - 17.9)
LMR21-12S	11.9 ± 6.0 (4.7 - 16.9)
LMR21-14S	14.2 ± 5.8 (7.7 - 19.6)
LRM21-15S	13.0 ± 6.8 (3.1 - 18.3)
LRM21-17S	11.3 ± 5.2 (3.4 - 15.8)
LMR21-19S	12.0 ± 7.2 (2.7 - 18.4)
LMR21-25S	12.9 ± 7.6 (3.1 - 19.8)
LMR21-27S	15.2 ± 7.6 (6.3 - 21.6)
LMR21-45S	13.5 ± 6.3 (5.5 - 18.4)
LMR21-64S	14.1 ± 7.9 (3.7 - 21.4)
LMR21-66S	15.1 ± 5.1 (9.5 - 19.5)
LMR21-68S	12.9 ± 6.6 (3.4 - 18.2)
LMR21-69S (Reference)	14.1 ± 4.7 (8.3 – 19.0)

*Average mass recovered was impacted by low recovery in replicates A and B (see page 15 for discussion).

Table 7. Mean % Lipid concentration. (± one standard deviation from the mean). The minimum and maximum range of the data is provided in parentheses.

Sediment	% Lipid
LMR21-11S	1.91 ± 0.11 (2.01 - 0.06)
LMR21-12S	1.70 ± 0.28 (2.09 - 0.16)
LMR21-14S	1.96 ± 0.26 (2.42 - 0.13)
LRM21-15S	2.60 ± 0.19 (2.86 - 0.07)
LRM21-17S	2.22 ± 0.40 (2.65 - 0.18)
LMR21-19S	2.06 ± 0.15 (2.23 - 0.07)
LMR21-25S	1.65 ± 0.27 (2.07 - 0.16)
LMR21-27S	1.53 ± 0.21 (1.74 - 0.14)
LMR21-45S	1.69 ± 0.14 (1.90 - 0.08)
LMR21-64S	1.57 ± 0.20 (1.80 - 0.13)
LMR21-66S	1.42 ± 0.09 (1.55 - 0.06)
LMR21-68S	1.42 ± 0.20 (1.72 - 0.14)
LMR21-69S (Reference)	1.34 ± 0.09 (1.49 - 0.07)

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Appendix A. Water quality parameters for elutriate bioassays

Table A1. Water quality parameters for the first round of 96-h *Pimephales promelas* bioassays. Means and one standard deviation from the mean are indicated.

Treatment	Concentration (%)	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
Control	NA	24.6 ± 0.4 (23.9 - 24.9)	308 ± 8 (295 - 318)	7.51 ± 0.20 (7.22 - 7.72)	5.8 ± 0.9 (4.4 - 6.6)
LMR21-SBA1	6.25%	24.6 ± 0.2 (24.5 – 25.0)	318 ± 11 (301 - 329)	7.55 ± 0.25 (7.33 - 7.97)	5.7 ± 0.8 (4.2 - 6.3)
	12.5%	24.6 ± 0.2 (24.4 - 24.9)	325 ± 9 (311 - 335)	7.54 ± 0.26 (7.29 - 7.97)	5.6 ± 1.2 (3.8 - 7.3)
	25%	24.5 ± 0.2 (24.3 - 24.9)	340 ± 9 (324 - 348)	7.55 ± 0.26 (7.27 - 7.98)	5.7 ± 1.2 (4.0 - 7.2)
	50%	24.5 ± 0.2 (24.3 - 24.9)	367 ± 10 (351 - 376)	7.63 ± 0.24 (7.28 - 7.97)	5.6 ± 1.5 (3.4 - 7.4)
	100%	24.5 ± 0.2 (24.4 - 24.9)	421 ± 12 (402 - 433)	7.72 ± 0.24 (7.32 - 7.98)	5.3 ± 1.6 (3.0 - 7.7)
LMR21-SBA2	6.25%	24.4 ± 0.4 (24.0 - 24.8)	314 ± 10 (297 - 324)	7.65 ± 0.25 (7.41 - 8.08)	6.0 ± 0.8 (5.0 - 7.3)
	12.5%	24.5 ± 0.4 (24.0 - 24.9)	315 ± 9 (301 - 325)	7.60 ± 0.27 (7.32 - 8.06)	5.8 ± 1.4 (3.6 - 7.4)
	25%	24.4 ± 0.4 (24.0 - 24.8)	319 ± 9 (307 - 331)	7.59 ± 0.28 (7.28 - 8.05)	5.9 ± 1.2 (3.9 - 7.3)
	50%	24.5 ± 0.4 (24.0 - 24.8)	323 ± 10 (308 - 334)	7.55 ± 0.30 (7.24 - 8.04)	5.6 ± 1.3 (3.7 - 7.3)
	100%	24.5 ± 0.4 (24.0 - 24.8)	337 ± 10 (323 - 351)	7.55 ± 0.30 (7.23 - 8.04)	5.9 ± 1.2 (4.1 - 7.5)
LMR21-SBA3	6.25%	24.6 ± 0.2 (24.4 - 24.8)	319 ± 11 (301 - 331)	7.65 ± 0.24 (7.40 - 8.04)	5.8 ± 1.1 (4.3 - 7.2)
	12.5%	24.6 ± 0.2 (24.3 - 24.8)	324 ± 10 (308 - 335)	7.61 ± 0.24 (7.35 – 8.00)	5.7 ± 1.1 (4.3 - 7.3)

Treatment	Concentration (%)	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
	25%	24.5 ± 0.2 (24.2 - 24.7)	338 ± 10 (323 - 349)	7.62 ± 0.22 (7.35 - 7.97)	5.9 ± 1.0 (4.6 - 7.4)
	50%	24.5 ± 0.2 (24.2 - 24.7)	367 ± 10 (350 - 376)	7.68 ± 0.22 (7.34 - 7.97)	5.8 ± 1.2 (3.8 – 7.0)
	100%	24.5 ± 0.2 (24.3 - 24.8)	419 ± 13 (399 - 430)	7.74 ± 0.22 (7.39 - 7.97)	5.4 ± 1.3 (3.6 - 7.1)
LMR21-SBB1	10%	24.6 ± 0.3 (24.2 - 24.9)	315 ± 9 (302 - 324)	7.58 ± 0.28 (7.22 – 8.00)	5.4 ± 0.7 (4.3 – 6.0)
	50%	24.5 ± 0.3 (24.0 - 24.8)	340 ± 10 (325 - 350)	7.58 ± 0.28 (7.21 - 7.99)	5.9 ± 1.0 (4.5 - 7.4)
	100%	24.4 ± 0.3 (23.9 - 24.7)	371 ± 10 (356 - 381)	7.64 ± 0.28 (7.23 - 8.03)	5.8 ± 0.9 (4.4 – 7.0)
LMR21-SBB2	10%	24.7 ± 0.4 (24.1 – 25.0)	324 ± 10 (307 - 333)	7.56 ± 0.27 (7.25 - 7.98)	5.7 ± 0.9 (4.4 – 7.0)
	50%	24.6 ± 0.4 (24.2 – 25.0)	378 ± 11 (361 - 389)	7.59 ± 0.26 (7.24 - 7.96)	5.7 ± 1.2 (3.8 - 7.1)
	100%	24.6 ± 0.4 (24.0 – 25.0)	445 ± 12 (425 - 455)	7.72 ± 0.23 (7.33 - 7.96)	5.7 ± 1.2 (4.0 - 7.3)
LMR21-SBC	10%	24.6 ± 0.1 (24.4 - 24.8)	320 ± 11 (303 - 330)	7.60 ± 0.32 (7.22 - 8.10)	5.8 ± 1.4 (3.8 - 7.6)
	50%	24.5 ± 0.2 (24.2 - 24.8)	359 ± 10 (341 - 367)	7.65 ± 0.25 (7.33 - 8.02)	5.8 ± 1.3 (4.1 - 7.6)
	100%	24.5 ± 0.3 (24.0 - 24.8)	404 ± 12 (386 - 416)	7.76 ± 0.19 (7.46 - 7.99)	5.7 ± 1.2 (4.3 - 7.6)
Reference Toxicity (KCl)	0.17 g/L	24.1 ± 0.1 (24.0 - 24.2)	652 ± 31 (630 - 674)	7.67 ± 0.19 (7.53 - 7.80)	6.6 ± 0.6 (6.2 – 7.0)
	0.34 g/L	24.2 ± 0.2 (24.0 - 24.3)	977 ± 46 (944 - 1010)	7.73 ± 0.21 (7.58 - 7.88)	6.7 ± 0.5 (6.3 - 7.1)
	0.68 g/L	24.0 ± 0 (24.0 – 24.0)	1556 ± 46 (1524 - 1589)	7.76 ± 0.20 (7.62 - 7.90)	6.5 ± 0.4 (6.1 - 6.8)

Treatment	Concentration (%)	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
	1.35 g/L	24.2 ± 0.1 (24.1 - 24.2)	2693 ± 25 (2676 - 2711)	7.86 ± 0.11 (7.78 - 7.94)	6.4 ± 0.6 (6.0 - 6.8)
	2.7 g/L	24.3 ± 0 (24.3 - 24.3)	4867 ± 38 (4840 - 4894)	7.83 ± 0.17 (7.71 - 7.95)	6.2 ± 0.7 (5.7 - 6.7)

Table A2. Water quality parameters for the second round of 96-h *Pimephales promelas* bioassays. Means and one standard deviation from the mean are indicated.

Treatment	Concentration (%)	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
Control	NA	24.4 ± 0.3 (24.1 - 24.9)	289 ± 8 (276 - 296)	7.71 ± 0.46 (7.40 - 8.51)	5.8 ± 0.5 (5.3 - 6.4)
LMR21-SBD	10%	24.4 ± 0.2 (24.0 - 24.6)	307 ± 9 (291 - 314)	7.77 ± 0.38 (7.55 - 8.44)	6.3 ± 1.0 (5.4 - 7.9)
	50%	24.3 ± 0.2 (24.0 - 24.6)	377 ± 43 (327 - 419)	7.77 ± 0.45 (7.46 - 8.56)	6.5 ± 1.1 (5.4 - 8.4)
	100%	24.4 ± 0.3 (24.1 - 24.7)	443 ± 73 (354 - 501)	7.82 ± 0.39 (7.48 - 8.48)	6.3 ± 1.2 (5.3 - 8.4)
LMR21-WA1	6.25%	24.4 ± 0.3 (24.2 - 24.8)	305 ± 8 (292 - 312)	7.73 ± 0.51 (7.30 - 8.60)	6.2 ± 0.8 (5.4 - 7.4)
	12.5%	24.4 ± 0.2 (24.1 - 24.7)	320 ± 8 (308 - 329)	7.72 ± 0.42 (7.43 - 8.44)	6.4 ± 0.7 (5.6 - 7.5)
	25%	24.4 ± 0.3 (24.1 - 24.7)	348 ± 10 (337 - 363)	7.78 ± 0.38 (7.54 - 8.43)	6.3 ± 0.9 (5.5 - 7.6)
	50%	24.5 ± 0.3 (24.2 - 24.8)	388 ± 24 (348 - 407)	7.81 ± 0.31 (7.58 - 8.34)	5.9 ± 1.2 (4.4 - 7.6)
	100%	24.4 ± 0.3 (24.2 - 24.6)	466 ± 53 (428 - 503)	8.09 ± 0.36 (7.83 - 8.34)	6.9 ± 1.5 (5.9 – 8.0)
LMR21-WA2	6.25%	24.2 ± 0.2 (24.0 - 24.5)	303 ± 5 (295 - 309)	7.82 ± 0.40 (7.49 - 8.45)	6.5 ± 0.7 (5.7 - 7.5)
	12.5%	24.3 ± 0.2 (24.0 - 24.5)	317 ± 8 (305 - 325)	7.82 ± 0.39 (7.51 - 8.46)	6.5 ± 0.7 (5.5 - 7.4)
	25%	24.3 ± 0.3 (24.0 - 24.8)	335 ± 11 (324 - 351)	7.82 ± 0.37 (7.53 - 8.43)	6.3 ± 0.7 (5.6 - 7.5)
	50%	24.2 ± 0.3 (24.0 - 24.6)	379 ± 16 (362 - 396)	7.84 ± 0.29 (7.59 - 8.32)	6.4 ± 0.9 (5.4 - 7.8)
	100%	24.3 ± 0.3 (24.1 - 24.6)	446 ± 15 (430 - 460)	7.95 ± 0.22 (7.78 - 8.25)	6.4 ± 0.9 (5.7 - 7.8)

Treatment	Concentration (%)	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
LMR21-WA3	10%	24.1 ± 0.2 (24.0 - 24.4)	308 ± 6 (302 - 313)	7.76 ± 0.45 (7.35 - 8.52)	6.5 ± 0.9 (5.4 - 7.8)
	50%	24.1 ± 0.2 (24.0 - 24.4)	357 ± 7 (352 - 368)	7.82 ± 0.33 (7.59 - 8.37)	6.4 ± 1.0 (5.1 - 7.8)
	100%	24.2 ± 0.2 (24.0 - 24.6)	431 ± 9 (419 - 441)	7.93 ± 0.28 (7.69 - 8.38)	6.1 ± 1.2 (4.9 - 7.9)
LMR21-WB1	10%	24.2 ± 0.2 (24.0 - 24.6)	320 ± 9 (309 - 331)	7.80 ± 0.31 (7.51 - 8.3)	6.4 ± 0.7 (5.3 – 7.0)
	50%	24.4 ± 0.4 (23.9 – 25.0)	412 ± 19 (392 - 438)	7.79 ± 0.13 (7.67 - 7.94)	5.6 ± 0.3 (5.2 - 5.9)
	100%	24.4 ± 0.2 (24.2 - 24.5)	534 ± 2 (532 - 535)	7.88 ± 0.16 (7.77 - 7.99)	6.6 ± 1.8 (5.3 - 7.9)
LMR21-WB2	10%	24.2 ± 0.2 (24.0 - 24.5)	302 ± 5 (297 - 309)	7.80 ± 0.42 (7.42 - 8.49)	6.5 ± 0.8 (5.6 - 7.8)
	50%	24.2 ± 0.2 (24.0 - 24.5)	329 ± 7 (321 - 339)	7.81 ± 0.41 (7.49 - 8.51)	6.6 ± 0.9 (5.6 - 8.1)
	100%	24.3 ± 0.3 (24.0 - 24.7)	368 ± 8 (360 - 378)	7.88 ± 0.40 (7.62 - 8.57)	6.6 ± 1.1 (5.4 - 8.4)
LMR21-WC1	10%	24.3 ± 0.4 (24.0 - 24.8)	306 ± 8 (296 - 318)	7.86 ± 0.38 (7.50 - 8.51)	6.5 ± 0.8 (5.6 - 7.7)
	50%	24.3 ± 0.3 (24.0 - 24.7)	335 ± 7 (327 - 344)	7.83 ± 0.36 (7.51 - 8.43)	6.5 ± 0.9 (5.6 - 7.9)
	100%	24.3 ± 0.2 (24.1 - 24.7)	380 ± 8 (371 - 388)	7.89 ± 0.30 (7.67 - 8.41)	6.3 ± 1.2 (5.1 - 8.3)
LMR21-WC2	10%	24.3 ± 0.3 (24.1 - 24.8)	313 ± 10 (302 - 323)	7.71 ± 0.38 (7.44 - 8.36)	6.2 ± 0.8 (5.4 - 7.4)
	50%	24.3 ± 0.3 (24.0 - 24.8)	394 ± 15 (376 - 408)	7.77 ± 0.29 (7.46 - 8.24)	6.0 ± 1.1 (4.7 - 7.4)
	100%	24.5 ± 0.3 (24.2 - 24.8)	486 ± 17 (465 - 502)	7.83 ± 0.33 (7.43 - 8.13)	5.4 ± 1.4 (4.1 - 7.3)

Treatment	Concentration (%)	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
Reference Toxicity (KCl)	0.17 g/L	24.1 ± 0.3 (23.9 - 24.3)	613 ± 21 (598 - 628)	7.38 ± 0.19 (7.25 - 7.51)	6.7 ± 1.3 (5.8 - 7.6)
	0.34 g/L	24.1 ± 0.2 (23.9 - 24.2)	927 ± 27 (908 - 946)	7.49 ± 0.03 (7.47 - 7.51)	6.6 ± 1.5 (5.6 - 7.6)
	0.68 g/L	24.1 ± 0.1 (24.0 - 24.2)	1515 ± 15 (1504 - 1525)	7.58 ± 0.09 (7.52 - 7.65)	6.6 ± 1.5 (5.6 - 7.7)
	1.35 g/L	24.4 ± 0.4 (24.1 - 24.6)	2644 ± 17 (2632 - 2657)	7.81 ± 0.06 (7.77 - 7.85)	6.7 ± 1.1 (5.9 - 7.6)
	2.7 g/L	24.5 ± 0.2 (24.3 - 24.6)	4903 ± 13 (4893 - 4912)	8.12 ± 0.45 (7.80 - 8.44)	6.6 ± 1.3 (5.7 - 7.6)

Table A3. Water quality parameters for the third round of 96-h *Pimephales promelas* bioassays. Means and one standard deviation from the mean are indicated.

Treatment	Modification	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
Control	pH 6.5	25.0 ± 0.8 (24.4 - 25.5)	411 ± 33 (388 - 435)	6.74 ± 0.08 (6.68 - 6.80)	6.6 ± 1.7 (5.4 - 7.9)
	Unmodified	24.8 ± 0.5 (24.0 - 25.3)	297 ± 16 (284 - 325)	7.45 ± 0.30 (7.15 - 7.83)	6.4 ± 0.8 (5.7 - 7.6)
	Zeolite	24.9 ± 0.5 (24.1 - 25.4)	293 ± 19 (283 - 326)	7.85 ± 0.22 (7.49 - 8.02)	6.7 ± 0.7 (6.1 - 7.8)
LMR21-SBC	pH 6.5	25.1 ± 0.8 (24.5 - 25.6)	437 ± 37 (411 - 463)	6.65 ± 0.20 (6.51 - 6.80)	6.1 ± 2.9 (4.1 - 8.2)
	Unmodified	24.7 ± 0.5 (24.1 - 25.3)	386 ± 28 (372 - 435)	7.64 ± 0.40 (7.08 - 8.04)	5.9 ± 0.9 (4.3 - 6.8)
	Zeolite	24.9 ± 0.6 (24.0 - 25.5)	403 ± 23 (390 - 444)	7.87 ± 0.34 (7.49 - 8.19)	6.3 ± 0.8 (5.2 - 7.4)
LMR21-WB2	pH 6.5	24.8 ± 1.0 (24.1 - 25.6)	452 ± 36 (426 - 477)	6.67 ± 0.21 (6.52 - 6.82)	6.1 ± 2.3 (4.4 - 7.7)

Treatment	Modification	Temperature (° C)	Conductivity (µS/cm)	pH (SU)	DO (mg/L)
	Unmodified	24.6 ± 0.5 (24.0 - 25.2)	388 ± 32 (363 - 444)	7.76 ± 0.25 (7.40 - 7.99)	6.3 ± 0.8 (5.5 - 7.4)
	Zeolite	24.9 ± 0.5 (24.1 - 25.5)	409 ± 26 (390 - 455)	7.98 ± 0.33 (7.46 - 8.24)	6.5 ± 0.8 (5.5 - 7.6)
LMR21-WC2	pH 6.5	24.8 ± 1.1 (24.0 - 25.6)	647 ± 63 (602 - 691)	6.71 ± 0.30 (6.50 - 6.92)	6.7 ± 0.3 (6.5 - 6.9)
	Unmodified	24.2 ± 0.2 (24.0 - 24.3)	575 ± 59 (534 - 617)	7.91 ± 0.08 (7.85 - 7.97)	7.2 ± 1.3 (6.3 - 8.1)
	Zeolite	24.6 ± 0.6 (24.0 - 25.1)	553 ± 46 (526 - 606)	7.95 ± 0.39 (7.50 - 8.22)	6.6 ± 1.0 (5.7 - 7.7)
Reference Toxicity (KCl)	0.17 g/L	24.3 ± 0.3 (24.1 - 24.5)	631 ± 37 (605 - 657)	7.84 ± 0.21 (7.69 - 7.99)	6.9 ± 0.9 (6.3 - 7.6)
	0.34 g/L	24.3 ± 0.3 (24.1 - 24.5)	975 ± 66 (928 - 1021)	7.82 ± 0.14 (7.72 - 7.92)	7.0 ± 1.2 (6.2 - 7.8)
	0.68 g/L	24.3 ± 0.2 (24.1 - 24.4)	1661 ± 108 (1584 - 1737)	7.87 ± 0.13 (7.77 - 7.96)	7.0 ± 1.2 (6.2 - 7.8)
	1.35 g/L	24.1 ± 0 (24.0 - 24.1)	2908 ± 223 (2751 - 3066)	7.85 ± 0.11 (7.78 - 7.93)	6.8 ± 0.4 (6.5 - 7.1)
	2.7 g/L	24.2 ± 0.2 (24.0 - 24.3)	5501 ± 506 (5144 - 5859)	7.87 ± 0.27 (7.68 - 8.06)	6.9 ± 1.2 (6.1 - 7.8)

Table A4. Water quality parameters for the first round of 48-h *Ceriodaphnia dubia* bioassays. Measurements from 0 h and 48 h are indicated.

Treatment	Concentration (%)	Temperature (° C)		Conductivity (µS/cm)		pH (SU)		DO (mg/L)	
Control	NA	24.5	24.2	295	282	7.78	7.72	7.2	6.6
LMR21-SBA1	6.25%	24.5	24.2	306	287	7.92	8.00	6.6	7.6
	12.5%	24.5	24.2	314	293	7.90	7.96	6.9	7.6
	25%	24.5	24.2	328	308	7.89	7.95	6.2	7.4
	50%	24.5	24.2	364	338	7.89	7.95	7.2	7.0
	100%	24.5	24.2	430	394	7.88	8.00	6.3	6.5
LMR21-SBA2	6.25%	24.5	24.2	301	284	7.96	7.92	6.7	7.6
	12.5%	24.5	24.2	302	285	7.94	7.91	6.7	7.5
	25%	24.5	24.2	306	290	7.92	7.89	6.8	7.5
	50%	24.5	24.2	315	297	7.90	7.90	7.1	7.5
	100%	24.5	24.2	334	315	7.89	7.92	6.8	7.3
LMR21-SBA3	6.25%	24.5	24.2	302	290	7.83	7.88	6.8	7.5
	12.5%	24.5	24.2	310	306	7.84	7.91	7.0	7.6
	25%	24.5	24.2	323	324	7.85	7.94	6.6	6.7
	50%	24.5	24.2	347	369	7.85	7.98	6.7	6.2
	100%	24.5	24.2	401	451	7.89	8.12	6.2	6.8
LMR21-SBB1	10%	24.5	24.2	323	302	7.92	7.92	6.7	7.5
	50%	24.5	24.2	402	373	7.82	8.01	6.5	7.2
	100%	24.5	24.2	524	461	7.79	8.09	7.0	7.0
LMR21-SBB2	10%	24.5	24.2	315	296	7.94	7.99	6.6	7.5
	50%	24.5	24.2	373	351	7.87	7.99	5.9	7.5
	100%	24.5	24.2	458	421	7.83	8.05	7.1	7.4
LMR21-SBC	10%	24.5	24.2	312	290	7.96	7.83	6.7	5.5
	50%	24.5	24.2	357	331	7.86	7.85	6.8	6.8
	100%	24.5	24.2	418	380	7.82	7.90	6.8	6.5

Table A4. Water quality parameters for the second round of 48-h *Ceriodaphnia dubia* bioassays. Measurements from 0 h and 48 h are indicated.

Treatment	Concentration (%)	Temperature (° C)		Conductivity (µS/cm)		pH (SU)		DO (mg/L)	
Control	NA	24.5	24.0	294	300	8.51	8.07	7.9	6.2
LMR21-SBD	10%	24.6	24.2	311	306	8.49	8.01	8.0	7.3
	50%	24.5	24.2	419	319	8.56	7.97	8.4	7.5
	100%	24.7	24.2	499	337	8.48	7.98	8.4	7.4
LMR21-WA1	6.25%	24.6	24.0	308	308	8.60	7.99	7.4	7.2
	12.5%	24.5	24.0	323	321	8.44	7.97	7.5	7.4
	25%	24.7	24.0	350	348	8.43	7.97	7.6	7.5
	50%	24.7	24.0	404	393	8.34	8.03	7.6	7.3
	100%	24.6	24.0	523	494	8.34	8.00	8.0	6.5
LMR21-WA2	6.25%	24.5	24.1	303	309	8.45	7.98	7.5	7.3
	12.5%	24.5	24.2	317	316	8.46	7.99	7.4	7.2
	25%	24.5	24.1	351	334	8.43	7.99	7.5	7.1
	50%	24.6	24.1	397	365	8.32	7.98	7.8	7.2
	100%	24.6	24.1	460	435	8.25	7.96	7.8	6.7
LMR21-WA3	10%	24.0	24.3	311	327	8.52	8.02	7.8	7.4
	50%	24.1	24.2	353	367	8.37	8.04	7.8	7.2
	100%	24.2	24.2	441	424	8.38	8.02	7.9	6.8
LMR21-WB1	10%	24.1	24.0	331	337	8.30	8.05	7.0	7.3
	50%	25.0	24.0	438	406	7.93	8.10	5.2	7.2
	100%	24.5	24.0	535	508	7.77	7.99	7.9	6.2
LMR21-WB2	10%	24.4	24.4	297	311	8.49	8.06	7.8	7.3
	50%	24.5	24.4	325	331	8.51	8.02	8.1	7.3
	100%	24.6	24.4	368	361	8.57	8.03	8.4	7.4
LMR21-WC1	10%	24.7	24.0	304	300	8.51	7.79	7.7	6.5
	50%	24.7	24.0	332	334	8.43	8.01	7.9	7.3
	100%	24.4	24.0	382	373	8.41	8.04	8.3	7.0
LMR21-WC2	10%	24.5	24.1	321	333	8.36	8.06	7.4	6.8

Treatment	Concentration (%)	Temperature (° C)		Conductivity (µS/cm)		pH (SU)		DO (mg/L)	
	50%	24.5	24.1	408	389	8.24	8.00	7.4	6.3
	100%	24.5	24.1	502	474	8.13	8.09	7.3	7.0

Table A4. Water quality parameters for the third round of 48-h *Ceriodaphnia dubia* bioassays. Measurements from 0 h and 48 h are indicated.

Treatment	Modification	Temperature (° C)		Conductivity (µS/cm)		pH (SU)		DO (mg/L)	
Control	pH 6.5	24.4	24.0	435	382	6.68	7.49	7.9	7.3
	Unmodified	24.0	24.1	325	264	7.23	7.66	7.6	6.7
	Zeolite	24.1	24.0	326	296	7.94	8.03	7.8	7.7
LMR21-SBC	pH 6.5	24.5	24.0	463	411	6.51	7.43	8.2	6.5
	Unmodified	24.1	24.0	435	378	7.64	7.78	6.8	6.9
	Zeolite	24.0	24.0	444	402	7.49	8.25	7.4	7.0
LMR21-WB2	pH 6.5	24.1	24.1	477	421	6.52	7.51	7.7	6.3
	Unmodified	24.0	24.2	444	388	7.77	7.87	7.4	6.9
	Zeolite	24.1	24.1	455	405	7.86	8.29	7.6	7.2
LMR21-WC2	pH 6.5	24.0	24.1	691	601	6.50	7.56	8.4	5.9
	Unmodified	24.0	24.0	617	531	7.97	8.00	8.1	5.8
	Zeolite	24.0	24.0	606	539	8.12	8.41	7.7	7.0
Reference Toxicity (KCl)	0.17 g/L	24.3	24.0	452	385	7.89	7.70	7.1	7.6
	0.34 g/L	24.3	24.1	569	497	7.84	7.78	7.6	7.3
	0.68 g/L	24.3	24.1	840	731	7.95	7.85	7.4	7.4
	1.35 g/L	24.3	24.1	1359	1188	7.93	7.88	7.0	7.5
	2.7 g/L	24.3	24.1	2396	2092	7.96	7.92	7.3	7.5

Table A5. Ammonia concentrations measured in elutriate toxicity tests.

Temp = temperature, Cond = conductivity, TAN = total ammonia-N, NH3 = ammonia, UIA = un-ionized ammonia

Date (initiation)	Test species	Sediment	Treatment	Conc	Initial ammonia	Temp(avg)	Cond(avg)	pH(avg)	TAN	NH3	UIA
8/23/2021	Pimephales promelas	Control-1	Control	0	0.04	24.2	315	7.57	0.04	0.05	0.00
8/23/2021	Pimephales promelas	LMR21-SBA1	Unmodified	6.25	0.60	24.5	328	7.695	0.60	0.73	0.02
8/23/2021	Pimephales promelas	LMR21-SBA1	Unmodified	12.5	1.28	24.5	333	7.71	1.28	1.56	0.05
8/23/2021	Pimephales promelas	LMR21-SBA1	Unmodified	25	2.74	24.6	345	7.69	2.74	3.33	0.11
8/23/2021	Pimephales promelas	LMR21-SBA1	Unmodified	50	5.83	24.5	375	7.8	5.83	7.09	0.29
8/23/2021	Pimephales promelas	LMR21-SBA1	Unmodified	100	12.00	24.4	429	7.905	12.00	14.59	0.74
8/23/2021	Pimephales promelas	LMR21-SBA2	Unmodified	6.25	0.05	24.2	323	7.865	0.05	0.06	0.00
8/23/2021	Pimephales promelas	LMR21-SBA2	Unmodified	12.5	0.07	24.1	320	7.805	0.07	0.08	0.00
8/23/2021	Pimephales promelas	LMR21-SBA2	Unmodified	25	0.11	24.1	324	7.775	0.11	0.13	0.01
8/23/2021	Pimephales promelas	LMR21-SBA2	Unmodified	50	0.21	24.1	330	7.775	0.21	0.26	0.01
8/23/2021	Pimephales promelas	LMR21-SBA2	Unmodified	100	0.60	24.1	346	7.765	0.60	0.73	0.03
8/23/2021	Pimephales promelas	LMR21-SBA3	Unmodified	6.25	0.51	24.5	329	7.79	0.51	0.62	0.03
8/23/2021	Pimephales promelas	LMR21-SBA3	Unmodified	12.5	1.02	24.4	332	7.755	1.02	1.24	0.05
8/23/2021	Pimephales promelas	LMR21-SBA3	Unmodified	25	2.43	24.4	347	7.76	2.43	2.95	0.11
8/23/2021	Pimephales promelas	LMR21-SBA3	Unmodified	50	5.34	24.4	375	7.81	5.34	6.49	0.27
8/23/2021	Pimephales promelas	LMR21-SBA3	Unmodified	100	11.30	24.3	428	7.92	11.30	13.74	0.72
8/23/2021	Pimephales promelas	LMR21-SBB1	Unmodified	10	0.31	24.3	324	7.84	0.31	0.38	0.02
8/23/2021	Pimephales promelas	LMR21-SBB1	Unmodified	50	1.82	24.2	348	7.765	1.82	2.21	0.08
8/23/2021	Pimephales promelas	LMR21-SBB1	Unmodified	100	4.01	24.2	378	7.79	4.01	4.88	0.19
8/23/2021	Pimephales promelas	LMR21-SBB2	Unmodified	10	0.50	24.4	335	7.795	0.50	0.60	0.02
8/23/2021	Pimephales promelas	LMR21-SBB2	Unmodified	50	2.40	24.3	385	7.76	2.40	2.92	0.11
8/23/2021	Pimephales promelas	LMR21-SBB2	Unmodified	100	5.15	24.2	453	7.84	5.15	6.26	0.27
8/23/2021	Pimephales promelas	LMR21-SBC	Unmodified	10	1.68	24.5	334	7.81	1.68	2.04	0.09
8/23/2021	Pimephales promelas	LMR21-SBC	Unmodified	50	5.56	24.3	366	7.8	5.56	6.76	0.27
8/23/2021	Pimephales promelas	LMR21-SBC	Unmodified	100	12.00	24.2	412	7.86	12.00	14.59	0.66

Date (initiation)	Test species	Sediment	Treatment	Conc	Initial ammonia	Temp(avg)	Cond(avg)	pH(avg)	TAN	NH3	UIA
9/20/2021	Pimephales promelas	Control-2	Control	0	0.06	24.4	292	429.2	0.06	0.08	0.10
9/20/2021	Pimephales promelas	LMR21-SBD	Unmodified	10	0.33	24.5	309	8.03	0.33	0.40	0.03
9/20/2021	Pimephales promelas	LMR21-SBD	Unmodified	50	1.14	24.4	380	8.005	1.14	1.39	0.09
9/20/2021	Pimephales promelas	LMR21-SBD	Unmodified	100	2.28	24.5	434	7.94	2.28	2.77	0.15
9/20/2021	Pimephales promelas	LMR21-WA1	Unmodified	6.25	2.00	24.4	308	7.93	2.00	2.43	0.13
9/20/2021	Pimephales promelas	LMR21-WA1	Unmodified	12.5	3.71	24.4	322	7.915	3.71	4.51	0.23
9/20/2021	Pimephales promelas	LMR21-WA1	Unmodified	25	7.28	24.5	351	7.96	7.28	8.85	0.51
9/20/2021	Pimephales promelas	LMR21-WA1	Unmodified	50	14.50	24.5	385	7.945	14.50	17.63	0.99
9/20/2021	Pimephales promelas	LMR21-WA1	Unmodified	100	29.90	24.5	510	8.07	29.90	36.35	2.66
9/20/2021	Pimephales promelas	LMR21-WA2	Unmodified	6.25	1.18	24.3	302	7.955	1.18	1.43	0.08
9/20/2021	Pimephales promelas	LMR21-WA2	Unmodified	12.5	2.19	24.4	319	7.975	2.19	2.66	0.16
9/20/2021	Pimephales promelas	LMR21-WA2	Unmodified	25	4.74	24.4	346	7.975	4.74	5.76	0.34
9/20/2021	Pimephales promelas	LMR21-WA2	Unmodified	50	9.46	24.4	388	7.93	9.46	11.50	0.62
9/20/2021	Pimephales promelas	LMR21-WA2	Unmodified	100	19.00	24.4	447	8.105	19.00	23.10	1.81
9/20/2021	Pimephales promelas	LMR21-WA3	Unmodified	10	1.67	24.1	313	7.9	1.67	2.03	0.10
9/20/2021	Pimephales promelas	LMR21-WA3	Unmodified	50	8.40	24.1	359	7.96	8.40	10.21	0.57
9/20/2021	Pimephales promelas	LMR21-WA3	Unmodified	100	17.30	24.2	437	8.035	17.30	21.03	1.40
9/20/2021	Pimephales promelas	LMR21-WB1	Unmodified	10	2.77	24.1	325	7.905	2.77	3.37	0.17
9/20/2021	Pimephales promelas	LMR21-WB1	Unmodified	50	13.40	24.5	425	7.755	13.40	16.29	0.60
9/20/2021	Pimephales promelas	LMR21-WB1	Unmodified	100	26.80	24.4	535	7.86	26.80	32.59	1.50
9/20/2021	Pimephales promelas	LMR21-WB2	Unmodified	10	0.75	24.3	304	8.02	0.75	0.91	0.06
9/20/2021	Pimephales promelas	LMR21-WB2	Unmodified	50	3.25	24.3	330	7.995	3.25	3.95	0.24
9/20/2021	Pimephales promelas	LMR21-WB2	Unmodified	100	6.62	24.3	372	8.07	6.62	8.05	0.58
9/20/2021	Pimephales promelas	LMR21-WC1	Unmodified	10	0.88	24.4	305	8.01	0.88	1.07	0.07
9/20/2021	Pimephales promelas	LMR21-WC1	Unmodified	50	4.04	24.4	338	7.945	4.04	4.91	0.27
9/20/2021	Pimephales promelas	LMR21-WC1	Unmodified	100	8.23	24.3	385	7.995	8.23	10.01	0.61
9/20/2021	Pimephales promelas	LMR21-WC2	Unmodified	10	1.85	24.3	320	7.935	1.85	2.25	0.12
9/20/2021	Pimephales promelas	LMR21-WC2	Unmodified	50	8.70	24.4	402	7.905	8.70	10.58	0.54

Date (initiation)	Test species	Sediment	Treatment	Conc	Initial ammonia	Temp(avg)	Cond(avg)	pH(avg)	TAN	NH3	UIA
9/20/2021	Pimephales promelas	LMR21-WC2	Unmodified	100	17.30	24.4	490	8.08	17.30	21.03	1.57
9/1/2021	Ceriodaphnia dubia	LMR21-SBA1	Unmodified	6.25	0.69	24.6	297	7.96	0.69	0.84	0.05
9/1/2021	Ceriodaphnia dubia	LMR21-SBA1	Unmodified	12.5	1.62	24.6	304	7.93	1.62	1.97	0.11
9/1/2021	Ceriodaphnia dubia	LMR21-SBA1	Unmodified	25	2.90	24.5	318	7.92	2.90	3.53	0.19
9/1/2021	Ceriodaphnia dubia	LMR21-SBA1	Unmodified	50	5.85	24.4	351	7.92	5.85	7.11	0.37
9/1/2021	Ceriodaphnia dubia	LMR21-SBA1	Unmodified	100	12.00	24.3	412	7.94	12.00	14.59	0.80
9/1/2021	Ceriodaphnia dubia	LMR21-SBA2	Unmodified	6.25	0.15	24.5	293	7.94	0.15	0.18	0.01
9/1/2021	Ceriodaphnia dubia	LMR21-SBA2	Unmodified	12.5	0.20	24.6	294	7.925	0.20	0.24	0.01
9/1/2021	Ceriodaphnia dubia	LMR21-SBA2	Unmodified	25	0.38	24.5	298	7.905	0.38	0.46	0.02
9/1/2021	Ceriodaphnia dubia	LMR21-SBA2	Unmodified	50	0.59	24.5	306	7.9	0.59	0.71	0.04
9/1/2021	Ceriodaphnia dubia	LMR21-SBA2	Unmodified	100	0.93	24.4	325	7.905	0.93	1.13	0.06
9/1/2021	Ceriodaphnia dubia	LMR21-SBA3	Unmodified	6.25	1.21	24.2	296	7.855	1.21	1.47	0.07
9/1/2021	Ceriodaphnia dubia	LMR21-SBA3	Unmodified	12.5	2.24	24.3	308	7.875	2.24	2.72	0.13
9/1/2021	Ceriodaphnia dubia	LMR21-SBA3	Unmodified	25	4.47	24.2	324	7.895	4.47	5.43	0.27
9/1/2021	Ceriodaphnia dubia	LMR21-SBA3	Unmodified	50	9.13	24.3	358	7.915	9.13	11.10	0.57
9/1/2021	Ceriodaphnia dubia	LMR21-SBA3	Unmodified	100	17.80	24.2	426	8.005	17.80	21.64	1.35
9/1/2021	Ceriodaphnia dubia	LMR21-SBB1	Unmodified	10	1.59	24.3	313	7.92	1.59	1.93	0.10
9/1/2021	Ceriodaphnia dubia	LMR21-SBB1	Unmodified	50	8.15	24.3	388	7.915	8.15	9.91	0.51
9/1/2021	Ceriodaphnia dubia	LMR21-SBB1	Unmodified	100	16.30	24.2	493	7.94	16.30	19.82	1.07
9/1/2021	Ceriodaphnia dubia	LMR21-SBB2	Unmodified	10	0.56	24.2	306	7.965	0.57	0.69	0.04
9/1/2021	Ceriodaphnia dubia	LMR21-SBB2	Unmodified	50	2.81	24.2	362	7.93	2.81	3.42	0.18
9/1/2021	Ceriodaphnia dubia	LMR21-SBB2	Unmodified	100	5.24	24.2	440	7.94	5.24	6.37	0.34
9/1/2021	Ceriodaphnia dubia	Control	Unmodified	0	<1	24.4	289	7.75	NA	NA	NA
9/1/2021	Ceriodaphnia dubia	LMR21-SBC	Unmodified	10	1.39	24.4	301	7.895	1.39	1.69	0.08
9/1/2021	Ceriodaphnia dubia	LMR21-SBC	Unmodified	50	6.96	24.3	344	7.855	6.96	8.46	0.38
9/1/2021	Ceriodaphnia dubia	LMR21-SBC	Unmodified	100	13.90	24.3	399	7.86	13.90	16.90	0.77
9/20/2021	Ceriodaphnia dubia	Control_2	Unmodified	0	0.06	24.3	297	8.29	0.06	0.08	0.01
9/20/2021	Ceriodaphnia dubia	LMR21-SBD	Unmodified	10	0.33	24.4	309	8.25	0.33	0.40	0.04

Date (initiation)	Test species	Sediment	Treatment	Conc	Initial ammonia	Temp(avg)	Cond(avg)	pH(avg)	TAN	NH3	UIA
9/20/2021	Ceriodaphnia dubia	LMR21-SBD	Unmodified	50	1.14	24.4	369	8.265	1.14	1.39	0.15
9/20/2021	Ceriodaphnia dubia	LMR21-SBD	Unmodified	100	2.28	24.5	418	8.23	2.28	2.77	0.29
9/20/2021	Ceriodaphnia dubia	LMR21-WA1	Unmodified	6.25	2.00	24.3	308	8.295	2.00	2.43	0.28
9/20/2021	Ceriodaphnia dubia	LMR21-WA1	Unmodified	12.5	3.71	24.3	322	8.205	3.71	4.51	0.44
9/20/2021	Ceriodaphnia dubia	LMR21-WA1	Unmodified	25	7.28	24.4	349	8.2	7.28	8.85	0.85
9/20/2021	Ceriodaphnia dubia	LMR21-WA1	Unmodified	50	14.50	24.4	399	8.185	14.50	17.63	1.64
9/20/2021	Ceriodaphnia dubia	LMR21-WA1	Unmodified	100	29.90	24.3	509	8.17	29.90	36.35	3.26
9/20/2021	Ceriodaphnia dubia	LMR21-WA2	Unmodified	6.25	1.18	24.3	306	8.215	1.18	1.43	0.14
9/20/2021	Ceriodaphnia dubia	LMR21-WA2	Unmodified	12.5	2.19	24.4	317	8.225	2.19	2.66	0.27
9/20/2021	Ceriodaphnia dubia	LMR21-WA2	Unmodified	25	4.74	24.3	343	8.21	4.74	5.76	0.56
9/20/2021	Ceriodaphnia dubia	LMR21-WA2	Unmodified	50	9.46	24.4	381	8.15	9.46	11.50	0.99
9/20/2021	Ceriodaphnia dubia	LMR21-WA2	Unmodified	100	19.00	24.4	448	8.105	19.00	23.10	1.81
9/20/2021	Ceriodaphnia dubia	LMR21-WA3	Unmodified	10	1.67	24.2	319	8.27	1.67	2.03	0.22
9/20/2021	Ceriodaphnia dubia	LMR21-WA3	Unmodified	50	8.40	24.2	360	8.205	8.40	10.21	0.98
9/20/2021	Ceriodaphnia dubia	LMR21-WA3	Unmodified	100	17.30	24.2	433	8.2	17.30	21.03	2.00
9/20/2021	Ceriodaphnia dubia	LMR21-WB1	Unmodified	10	2.77	24.1	334	8.175	2.77	3.37	0.30
9/20/2021	Ceriodaphnia dubia	LMR21-WB1	Unmodified	50	13.40	24.5	422	8.015	13.40	16.29	1.06
9/20/2021	Ceriodaphnia dubia	LMR21-WB1	Unmodified	100	26.80	24.3	522	7.88	26.80	32.59	1.55
9/20/2021	Ceriodaphnia dubia	LMR21-WB2	Unmodified	10	0.75	24.4	304	8.275	0.75	0.91	0.10
9/20/2021	Ceriodaphnia dubia	LMR21-WB2	Unmodified	50	3.25	24.5	328	8.265	3.25	3.95	0.44
9/20/2021	Ceriodaphnia dubia	LMR21-WB2	Unmodified	100	6.62	24.5	365	8.3	6.62	8.05	0.96
9/20/2021	Ceriodaphnia dubia	LMR21-WC1	Unmodified	10	0.88	24.4	302	8.15	0.88	1.07	0.09
9/20/2021	Ceriodaphnia dubia	LMR21-WC1	Unmodified	50	4.04	24.4	333	8.22	4.04	4.91	0.49
9/20/2021	Ceriodaphnia dubia	LMR21-WC1	Unmodified	100	8.23	24.2	378	8.225	8.23	10.01	1.00
9/20/2021	Ceriodaphnia dubia	LMR21-WC2	Unmodified	10	1.85	24.3	327	8.21	1.85	2.25	0.22
9/20/2021	Ceriodaphnia dubia	LMR21-WC2	Unmodified	50	8.70	24.3	399	8.12	8.70	10.58	0.85
9/20/2021	Ceriodaphnia dubia	LMR21-WC2	Unmodified	100	17.30	24.3	488	8.11	17.30	21.03	1.66
10/25/2021	Pimephales promelas	Control	Unmodified	0	<1	24.6	310	7.49	NA	NA	NA

Date (initiation)	Test species	Sediment	Treatment	Conc	Initial ammonia	Temp(avg)	Cond(avg)	pH(avg)	TAN	NH3	UIA
10/25/2021	Pimephales promelas	Control	Zeolite	0	<1	24.7	307	8.01	NA	NA	NA
10/25/2021	Pimephales promelas	Control	pH 6.5	0	<1	24.9	411	6.73	NA	NA	NA
10/25/2021	Pimephales promelas	LMR21-SBC	Unmodified	100	10.80	24.6	404	7.835	10.80	13.13	0.58
10/25/2021	Pimephales promelas	LMR21-SBC	Zeolite	100	<1	24.6	420	7.86	NA	NA	NA
10/25/2021	Pimephales promelas	LMR21-SBC	pH 6.5	100	11.20	25.1	437	6.645	11.20	13.62	0.04
10/25/2021	Pimephales promelas	LMR21-WB2	Unmodified	100	13.90	24.4	408	7.86	13.90	16.90	0.78
10/25/2021	Pimephales promelas	LMR21-WB2	Zeolite	100	<1	24.6	429	8.065	NA	NA	NA
10/25/2021	Pimephales promelas	LMR21-WB2	pH 6.5	100	14.90	24.9	452	6.66	14.90	18.12	0.06
10/25/2021	Pimephales promelas	LMR21-WC2	Unmodified	100	23.40	24.2	NA	7.87	23.40	28.45	1.32
10/25/2021	Pimephales promelas	LMR21-WC2	Zeolite	100	<1	24.0	NA	8.12	NA	NA	NA
10/25/2021	Pimephales promelas	LMR21-WC2	pH 6.5	100	23.50	24.8	NA	6.685	23.50	28.57	0.09
10/25/2021	Ceriodaphnia dubia	Control	Unmodified	0	<1	24.1	295	7.445	NA	NA	NA
10/25/2021	Ceriodaphnia dubia	Control	Zeolite	0	<1	24.1	311	7.985	NA	NA	NA
10/25/2021	Ceriodaphnia dubia	Control	pH 6.5	0	<1	24.2	409	7.085	NA	NA	NA
10/25/2021	Ceriodaphnia dubia	LMR21-SBC	Unmodified	100	10.80	24.1	407	7.71	10.80	13.13	0.42
10/25/2021	Ceriodaphnia dubia	LMR21-SBC	Zeolite	100	<1	24.0	423	7.87	NA	NA	NA
10/25/2021	Ceriodaphnia dubia	LMR21-SBC	pH 6.5	100	11.20	24.3	437	6.97	11.20	13.62	0.08
10/25/2021	Ceriodaphnia dubia	LMR21-WB2	Unmodified	100	13.90	24.1	416	7.82	13.90	16.90	0.70
10/25/2021	Ceriodaphnia dubia	LMR21-WB2	Zeolite	100	<1	24.1	430	8.075	NA	NA	NA
10/25/2021	Ceriodaphnia dubia	LMR21-WB2	pH 6.5	100	14.90	24.1	449	7.015	14.90	18.12	0.12
10/25/2021	Ceriodaphnia dubia	LMR21-WC2	Unmodified	100	23.40	24.0	574	7.985	23.40	28.45	1.68
10/25/2021	Ceriodaphnia dubia	LMR21-WC2	Zeolite	100	<1	24.0	573	8.265	NA	NA	NA
10/25/2021	Ceriodaphnia dubia	LMR21-WC2	pH 6.5	100	23.50	24.1	646	7.03	23.50	28.57	0.20

Appendix B. Water quality parameters for whole sediment and bioaccumulation bioassays

Table B1. Overlying water quality parameters for 10-d *Hyalella azteca* whole sediment toxicity bioassay. Means and one standard deviation from the mean are indicated, with the minimum and maximum range of the data provided in parentheses.

Sediment	Temperature (°C)	pH (SU)	Dissolved oxygen (mg/L)	Alkalinity (mg/L CACO3)	Hardness (mg/L CACO3)	Conductivity (µS/cm)	Maximum Ammonia (mg/L)
Control	22.5 ± 0.4 (22 - 23.1)	7.2 ± 0.1 (7.1 - 7.4)	6.6 ± 0.4 (6.0 - 7.6)	75 ± 13 (66 - 84)	64 ± 11 (56 - 72)	206 ± 26 (176 - 232)	<1
LMR21-11S	22.5 ± 0.3 (22 - 23.1)	7.5 ± 0.2 (7.2 - 7.8)	5.8 ± 0.6 (4.8 - 7.3)	86 ± 3 (84 - 88)	72 ± 3 (70 - 74)	256 ± 14 (233 - 282)	<1
LMR21-12S	22.5 ± 0.3 (22 - 23.1)	7.7 ± 0.4 (7.4 - 8.6)	5.7 ± 0.4 (5.1 - 6.8)	76 ± 11 (68 - 84)	74 ± 3 (72 - 76)	254 ± 14 (237 - 290)	<1
LMR21-14S	22.4 ± 0.3 (22 - 23)	7.6 ± 0.1 (7.5 - 7.8)	5.7 ± 0.4 (5.0 - 6.9)	80 ± 6 (76 - 84)	76 ± 0 (76 - 76)	255 ± 10 (240 - 277)	<1
LMR21-15S	22.3 ± 0.3 (22 - 22.9)	7.5 ± 0.1 (7.4 - 7.6)	5.1 ± 0.4 (4.0 - 5.8)	82 ± 3 (80 - 84)	75 ± 1 (74 - 76)	248 ± 8 (232 - 256)	<1
LMR21-17S	22.5 ± 0.3 (22 - 23)	7.7 ± 0.3 (7.4 - 8.1)	5.3 ± 0.5 (4.3 - 6.1)	83 ± 4 (80 - 86)	79 ± 10 (72 - 86)	263 ± 25 (236 - 317)	<1
LMR21-19S	22.3 ± 0.3 (22 - 22.9)	8 ± 0.4 (7.5 - 8.5)	5.7 ± 0.5 (4.6 - 6.3)	82 ± 3 (80 - 84)	83 ± 13 (74 - 92)	254 ± 26 (222 - 298)	<1
LMR21-25S	22.3 ± 0.3 (22 - 22.9)	7.9 ± 0.3 (7.6 - 8.3)	5.9 ± 0.4 (5.2 - 6.6)	96 ± 17 (84 - 108)	74 ± 3 (72 - 76)	254 ± 21 (226 - 302)	<1
LMR21-27S	22.3 ± 0.3 (22 - 22.9)	7.6 ± 0.3 (7.2 – 8.0)	5.6 ± 0.4 (4.8 - 6.3)	86 ± 3 (84 - 88)	78 ± 8 (72 - 84)	261 ± 9 (250 - 277)	<1
LMR21-30S	22.3 ± 0.2 (22 - 22.7)	7.7 ± 0.1 (7.5 - 7.8)	5.9 ± 0.3 (5.1 - 6.4)	73 ± 18 (60 - 86)	75 ± 4 (72 - 78)	252 ± 8 (239 - 260)	<1
LMR21-35S	22.4 ± 0.4 (22 - 23.2)	7.7 ± 0.1 (7.6 - 7.8)	5.7 ± 0.4 (5.0 - 6.2)	86 ± 3 (84 - 88)	73 ± 1 (72 - 74)	256 ± 14 (242 - 291)	<1
LMR21-37S	22.2 ± 0.2 (22 - 22.6)	7.9 ± 0.4 (7.5 - 8.3)	5.4 ± 0.7 (4.3 - 6.7)	94 ± 3 (92 - 96)	85 ± 10 (78 - 92)	294 ± 30 (268 - 368)	<1
LMR21-39S	22.6 ± 0.5 (22 - 23.4)	7.7 ± 0.2 (7.5 - 8.1)	6.2 ± 0.5 (5.0 – 7.0)	78 ± 14 (68 - 88)	75 ± 1 (74 - 76)	235 ± 21 (212 - 259)	<1

Sediment	Temperature (°C)	pH (SU)	Dissolved oxygen (mg/L)	Alkalinity (mg/L CACO3)	Hardness (mg/L CACO3)	Conductivity (µS/cm)	Maximum Ammonia (mg/L)
LMR21-41S	22.6 ± 0.5 (22 - 23.5)	7.9 ± 0.3 (7.6 - 8.3)	5.1 ± 0.7 (3.3 – 6.0)	98 ± 8 (92 - 104)	92 ± 6 (88 - 96)	296 ± 41 (245 - 390)	<1
LMR21-43S	22.3 ± 0.3 (22 - 22.8)	7.8 ± 0.2 (7.5 - 8.1)	5.8 ± 0.5 (4.8 - 6.5)	76 ± 23 (60 - 92)	78 ± 3 (76 - 80)	251 ± 13 (224 - 272)	<1
LMR21-45S	22.6 ± 0.2 (22.3 - 23.1)	7.9 ± 0.2 (7.7 - 8.1)	5.6 ± 0.5 (4.8 - 6.4)	80 ± 11 (72 - 88)	88 ± 6 (84 - 92)	258 ± 13 (241 - 272)	<1
LMR21-47S	22.5 ± 0.3 (22 - 23.2)	7.7 ± 0.1 (7.6 - 7.8)	5.5 ± 0.4 (4.5 - 6.1)	86 ± 3 (84 - 88)	80 ± 0 (80 - 80)	249 ± 9 (231 - 259)	<1
LMR21-48S	22.5 ± 0.3 (22 - 22.9)	7.8 ± 0.1 (7.8 – 8/0)	6.0 ± 0.5 (5.1 - 6.5)	77 ± 4 (74 - 80)	70 ± 14 (60 - 80)	252 ± 11 (238 - 269)	<1
LMR21-49S	22.2 ± 0.3 (22 - 23.2)	7.5 ± 0.1 (7.4 - 7.6)	5.3 ± 0.4 (4.7 - 5.9)	83 ± 16 (72 - 94)	80 ± 6 (76 - 84)	255 ± 12 (241 - 281)	<1
LMR21-52S	22.5 ± 0.4 (22 - 23.2)	7.6 ± 0.1 (7.5 - 7.8)	5.4 ± 0.4 (4.5 - 6.1)	83 ± 7 (78 - 88)	72 ± 0 (72 - 72)	269 ± 13 (254 - 294)	<1
LMR21-53S	22.5 ± 0.3 (22 - 23.2)	7.7 ± 0.1 (7.5 - 7.9)	5.7 ± 0.5 (4.8 - 6.6)	82 ± 14 (72 - 92)	84 ± 0 (84 - 84)	265 ± 13 (254 - 299)	<1
LMR21-55S	22.3 ± 0.2 (22 - 22.8)	7.8 ± 0.1 (7.6 - 7.9)	5.6 ± 0.4 (4.6 - 6.3)	87 ± 10 (80 - 94)	71 ± 7 (66 - 76)	268 ± 25 (253 - 334)	<1
LMR21-57S	22.2 ± 0.3 (22 - 22.9)	7.7 ± 0.1 (7.6 - 7.8)	5.9 ± 0.5 (5.0 - 6.7)	79 ± 1 (78 - 80)	70 ± 3 (68 - 72)	259 ± 26 (242 - 331)	<1
LMR21-59S	22.2 ± 0.2 (22 - 22.8)	7.9 ± 0.3 (7.6 - 8.3)	5.7 ± 0.5 (4.8 - 6.3)	84 ± 11 (76 - 92)	72 ± 11 (64 - 80)	248 ± 28 (216 - 276)	<1
LMR21-61S	22.5 ± 0.4 (22 - 23.3)	7.9 ± 0.2 (7.7 - 8.2)	5.9 ± 0.4 (5.1 - 6.5)	79 ± 7 (74 - 84)	72 ± 17 (60 - 84)	261 ± 9 (245 - 273)	<1
LMR21-62S	22.7 ± 0.2 (22.4 - 23)	7.8 ± 0.1 (7.7 - 7.9)	5.9 ± 0.4 (5 - 6.7)	82 ± 3 (80 - 84)	70 ± 8 (64 - 76)	256 ± 9 (240 - 271)	<1
LMR21-64S	22.4 ± 0.4 (22 - 23.5)	8.0 ± 0.2 (7.7 - 8.3)	5.6 ± 0.5 (4.3 - 6.3)	85 ± 7 (80 - 90)	79 ± 16 (68 - 90)	271 ± 16 (246 - 294)	<1
LMR21-66S	22.5 ± 0.2 (22.2 - 22.9)	7.9 ± 0.2 (7.7 - 8.2)	5.7 ± 0.5 (4.8 - 6.3)	82 ± 3 (80 - 84)	68 ± 6 (64 - 72)	266 ± 17 (251 - 310)	<1
LMR21-68S	22.4 ± 0.4 (22 - 23.2)	7.9 ± 0.2 (7.7 - 8.2)	5.7 ± 0.5 (4.9 - 6.5)	*84 ± 0 (84 - 84)	73 ± 10 (66 - 80)	271 ± 12 (252 - 298)	<1

Sediment	Temperature (°C)	pH (SU)	Dissolved oxygen (mg/L)	Alkalinity (mg/L CACO3)	Hardness (mg/L CACO3)	Conductivity (µS/cm)	Maximum Ammonia (mg/L)
LMR21-69S (Reference)	22.5 ± 0.4 (22.0 - 23.3)	7.9 ± 0.1 (7.7 - 8.1)	5.8 ± 0.5 (4.6 - 6.4)	74 ± 8 (68 - 80)	74 ± 8 (68 - 80)	260 ± 10 (247 - 278)	<1

*Only one measurement recorded

Table B2. Overlying water quality parameters for 10-d *Chironomus dilutus* whole sediment bioassay. Means and one standard deviation from the mean are indicated, with the minimum and maximum range of the data provided in parentheses.

Sediment	Temperature (°C)	pH (SU)	Dissolved oxygen (mg/L)	Alkalinity (mg/L CACO3)	Hardness (mg/L CACO3)	Conductivity (µS/cm)	Maximum Ammonia (mg/L)
Control	22.8 ± 0.3 (22.2 - 23.3)	7.4 ± 0.2 (7.2 – 8.0)	5.7 ± 1.0 (4.2 - 7.3)	72 ± 6 (68 - 76)	72 ± 14 (62 - 82)	205 ± 17 (182 - 231)	<1
LMR21-11S	22.9 ± 0.4 (22.3 - 23.9)	7.4 ± 0.1 (7.4 - 7.6)	5.4 ± 0.9 (4 - 6.5)	92 ± 17 (80 - 104)	82 ± 8 (76 - 88)	246 ± 28 (213 - 280)	<1
LMR21-12S	22.7 ± 0.7 (21.4 - 23.7)	7.5 ± 0.1 (7.3 - 7.6)	5.2 ± 1.1 (2.5 - 6.9)	108 ± 0 (108 - 108)	90 ± 3 (88 - 92)	256 ± 30 (220 - 295)	<1
LMR21-14S	23.1 ± 0.4 (22.5 - 24.1)	7.5 ± 0.2 (7.3 - 7.7)	5.3 ± 1.2 (2.9 - 6.9)	98 ± 3 (96 - 100)	88 ± 11 (80 - 96)	245 ± 28 (211 - 278)	<1
LMR21-15S	23.0 ± 0.4 (22.3 - 23.9)	7.5 ± 0.2 (7.2 - 7.7)	4.9 ± 1.3 (3.3 - 6.6)	100 ± 0 (100 - 100)	84 ± 6 (80 - 88)	247 ± 31 (215 - 281)	<1
LMR21-17S	23.0 ± 0.3 (22.3 - 23.6)	7.5 ± 0.2 (7.3 - 7.7)	5.1 ± 1.1 (3.4 - 6.7)	95 ± 1 (94 - 96)	83 ± 1 (82 - 84)	245 ± 24 (218 - 273)	<1
LMR21-19S	22.9 ± 0.5 (22.1 - 24)	7.5 ± 0.1 (7.4 - 7.7)	5.2 ± 1.1 (3.6 - 6.8)	98 ± 3 (96 - 100)	81 ± 10 (74 - 88)	242 ± 23 (217 - 266)	<1
LMR21-25S	22.9 ± 0.4 (22.0 - 23.4)	7.6 ± 0.2 (7.4 - 7.8)	5.4 ± 0.9 (3.9 - 6.5)	98 ± 3 (96 - 100)	88 ± 11 (80 - 96)	247 ± 25 (217 - 274)	<1
LMR21-27S	22.8 ± 0.4 (22.1 - 23.6)	7.5 ± 0.1 (7.4 - 7.7)	5.1 ± 0.8 (3.6 - 6.3)	90 ± 3 (88 - 92)	90 ± 8 (84 - 96)	254 ± 29 (222 - 288)	<1
LMR21-30S	23.0 ± 0.3 (22.3 - 23.4)	7.6 ± 0.2 (7.4 - 7.7)	5.3 ± 1.0 (3.9 - 6.6)	93 ± 7 (88 - 98)	88 ± 6 (84 - 92)	247 ± 22 (220 - 273)	<1
LMR21-35S	22.9 ± 0.3 (22.3 - 23.5)	7.5 ± 0.1 (7.4 - 7.7)	5.2 ± 0.9 (3.6 - 6.5)	98 ± 3 (96 - 100)	84 ± 6 (80 - 88)	255 ± 29 (217 - 290)	<1
LMR21-37S	22.9 ± 0.3 (22.4 - 23.5)	7.5 ± 0.1 (7.4 - 7.7)	5.2 ± 0.9 (3.1 - 6.4)	98 ± 3 (96 - 100)	92 ± 6 (88 - 96)	255 ± 33 (218 - 306)	<1
LMR21-39S	22.9 ± 0.4 (22.4 - 23.5)	7.6 ± 0.2 (7.5 - 7.8)	6.1 ± 0.7 (5.1 - 7.1)	100 ± 6 (96 - 104)	85 ± 4 (82 - 88)	242 ± 24 (216 - 267)	<1
LMR21-41S	23.0 ± 0.4 (22.2 - 23.7)	7.6 ± 0.1 (7.4 - 7.8)	4.7 ± 1.1 (3.0 - 6.2)	96 ± 0 (96 - 96)	90 ± 3 (88 - 92)	257 ± 29 (224 - 305)	<1

Sediment	Temperature (°C)	pH (SU)	Dissolved oxygen (mg/L)	Alkalinity (mg/L CACO3)	Hardness (mg/L CACO3)	Conductivity (µS/cm)	Maximum Ammonia (mg/L)
LMR21-43S	23.0 ± 0.6 (21.9 - 23.8)	7.6 ± 0.1 (7.4 - 7.7)	5.4 ± 0.9 (4 .0- 7.0)	96 ± 6 (92 - 100)	84 ± 6 (80 - 88)	463 ± 659 (224 - 2338)	<1
LMR21-45S	22.9 ± 0.5 (22.3 - 24.1)	7.6 ± 0.1 (7.4 - 7.7)	5.1 ± 1.0 (3.3 - 6.3)	96 ± 6 (92 - 100)	84 ± 6 (80 - 88)	251 ± 26 (222 - 283)	<1
LMR21-47S	23.1 ± 0.5 (22.2 - 24.2)	7.5 ± 0.2 (7.4 - 7.7)	5.3 ± 0.5 (4.4 - 5.9)	96 ± 6 (92 - 100)	81 ± 10 (74 - 88)	239 ± 26 (211 - 272)	<1
LMR21-48S	22.8 ± 0.6 (21.8 - 24.1)	7.6 ± 0.1 (7.4 - 7.8)	5.4 ± 1.0 (3.8 - 6.6)	96 ± 0 (96 - 96)	89 ± 7 (84 - 94)	248 ± 22 (222 - 273)	<1
LMR21-49S	22.9 ± 0.4 (22.3 - 23.7)	7.4 ± 0.1 (7.3 - 7.5)	4.9 ± 0.7 (3.8 - 6.3)	95 ± 7 (90 - 100)	82 ± 8 (76 - 88)	245 ± 28 (215 - 273)	<1
LMR21-52S	22.8 ± 0.4 (21.8 - 23.6)	7.4 ± 0.2 (7.3 - 7.6)	5.3 ± 0.9 (4.0- 6.5)	99 ± 1 (98 - 100)	92 ± 6 (88 - 96)	258 ± 32 (220 - 297)	<1
LMR21-53S	22.9 ± 0.5 (22.0 - 23.7)	7.5 ± 0.2 (7.4 - 7.7)	5.3 ± 0.9 (3.3 - 6.3)	92 ± 6 (88 - 96)	88 ± 11 (80 - 96)	260 ± 43 (221 - 362)	<1
LMR21-55S	23 ± 0.4 (22.1 - 23.7)	7.6 ± 0.1 (7.4 - 7.7)	5.5 ± 0.9 (4.0 - 6.8)	98 ± 3 (96 - 100)	90 ± 3 (88 - 92)	248 ± 27 (216 - 276)	<1
LMR21-57S	22.9 ± 0.3 (22.3 - 23.2)	7.5 ± 0.1 (7.3 - 7.7)	5.3 ± 0.9 (3.1 - 6.5)	100 ± 6 (96 - 104)	90 ± 3 (88 - 92)	253 ± 28 (221 - 292)	<1
LMR21-59S	22.9 ± 0.4 (22.2 - 23.5)	7.5 ± 0.1 (7.4 - 7.6)	5.0 ± 0.9 (3.2 - 6.2)	102 ± 8 (96 - 108)	90 ± 8 (84 - 96)	255 ± 26 (224 - 284)	<1
LMR21-61S	22.9 ± 0.4 (22.1 - 23.7)	7.5 ± 0.1 (7.4 - 7.7)	5.3 ± 0.9 (3.9 - 6.7)	92 ± 0 (92 - 92)	84 ± 6 (80 - 88)	248 ± 25 (211 - 281)	<1
LMR21-62S	23 ± 0.4 (22.3 - 23.6)	7.6 ± 0.1 (7.5 - 7.7)	5.5 ± 0.8 (4.2 - 6.5)	87 ± 16 (76 - 98)	84 ± 6 (80 - 88)	247 ± 26 (218 - 274)	<1
LMR21-64S	22.9 ± 0.4 (22.2 - 23.7)	7.6 ± 0.1 (7.4 - 7.7)	5.1 ± 1.1 (2.8 - 6.3)	100 ± 6 (96 - 104)	94 ± 8 (88 - 100)	254 ± 25 (222 - 278)	<1
LMR21-66S	22.8 ± 0.6 (21.7 - 23.8)	7.5 ± 0.1 (7.4 - 7.6)	5.1 ± 1.0 (3.1 - 6.2)	102 ± 3 (100 - 104)	93 ± 13 (84 - 102)	256 ± 31 (222 - 292)	<1
LMR21-68S	23.0 ± 0.5 (22.3 - 24.2)	7.5 ± 0.1 (7.4 - 7.6)	5.2 ± 1.1 (3.2 - 7.1)	99 ± 1 (98 - 100)	101 ± 1 (100 - 102)	258 ± 23 (222 - 283)	<1
LMR21-69S (Reference)	23.0 ± 0.3 (22.5 - 23.5)	7.5 ± 0.1 (7.4 - 7.7)	5.5 ± 0.9 (3.7 - 6.7)	104 ± 0 (104 - 104)	92 ± 6 (88 - 96)	250 ± 26 (220 - 283)	<1

Table B3. Overlying water quality parameters for 28-d *Lumbriculus variegatus* bioaccumulation bioassay. Means and one standard deviation from the mean are indicated, with the minimum and maximum range of the data provided in parentheses.

Sediment	Temperature (°C)	pH (SU)	Dissolved oxygen (mg/L)	Alkalinity (mg/L CACO3)	Hardness (mg/L CACO3)	Conductivity (µS/cm)	Maximum Ammonia (mg/L)
Control	22.8 ± 0.5 (21.5 - 24.3)	7.7 ± 0.3 (7.0 - 8.2)	6.8 ± 1.0 (5 - 8.5)	106 ± 20 (92 - 120)	100 ± 17 (88 - 112)	289 ± 42 (210 - 339)	1
LMR21-11S	23.1 ± 0.8 (21.9 - 25.2)	7.8 ± 0.2 (7.5 - 8.1)	6.7 ± 0.6 (4.9 - 7.8)	102 ± 14 (92 - 112)	112 ± 28 (92 - 132)	308 ± 44 (225 - 357)	1
LMR21-12S	22.8 ± 0.6 (22 - 24.4)	7.8 ± 0.1 (7.6 – 8.0)	7.0 ± 0.6 (6.3 - 8.1)	106 ± 3 (104 - 108)	111 ± 10 (104 - 118)	321 ± 30 (268 - 362)	1
LMR21-14S	23.1 ± 0.6 (22.3 - 24.9)	7.9 ± 0.1 (7.5 - 8.1)	7.0 ± 0.5 (6.0 - 7.9)	102 ± 3 (100 - 104)	107 ± 10 (100 - 114)	306 ± 32 (249 - 341)	2
LMR21-15S	22.7 ± 0.6 (21.4 - 24.1)	7.8 ± 0.1 (7.5 - 8.2)	6.7 ± 0.7 (4.8 - 7.5)	103 ± 7 (98 - 108)	88 ± 23 (72 - 104)	306 ± 27 (246 - 343)	7
LMR21-17S	23.0 ± 0.7 (21.9 - 24.6)	7.8 ± 0.1 (7.4 - 8.1)	7.2 ± 0.5 (6.4 - 8)	98 ± 25 (80 - 116)	101 ± 18 (88 - 114)	308 ± 41 (244 - 363)	<1
LMR21-19S	23.1 ± 0.6 (22.6 - 24.7)	7.9 ± 0.1 (7.6 – 8.0)	6.9 ± 0.6 (5.3 - 7.9)	90 ± 3 (88 - 92)	105 ± 23 (88 - 121)	314 ± 51 (236 - 373)	<1
LMR21-25S	23.1 ± 0.6 (22.7 - 24.8)	7.8 ± 0.3 (6.9 - 8.1)	7.1 ± 0.6 (6.0 – 8.0)	109 ± 18 (96 - 122)	118 ± 14 (108 - 128)	320 ± 37 (247 - 366)	<1
LMR21-45S	23 ± 0.7 (22.1 - 25.1)	7.9 ± 0.2 (7.2 - 8.2)	7.0 ± 0.5 (6.1 – 8.0)	112 ± 28 (92 - 132)	109 ± 18 (96 - 122)	313 ± 37 (245 - 354)	<1
LMR21-64S	22.8 ± 0.5 (21.7 - 24.2)	7.9 ± 0.2 (7.7 - 8.2)	7.0 ± 0.7 (5.1 – 8.0)	114 ± 20 (100 - 128)	112 ± 17 (100 - 124)	310 ± 41 (237 - 365)	<1
LMR21-66S	22.8 ± 0.4 (21.8 - 23.5)	7.9 ± 0.2 (7.3 - 8.2)	7.0 ± 0.5 (6.4 – 8.0)	111 ± 1 (110 - 112)	113 ± 1 (112 - 114)	320 ± 40 (248 - 380)	<1
LMR21-68S	23.0 ± 0.7 (22.2 - 24.8)	7.9 ± 0.1 (7.7 - 8.2)	7.1 ± 0.5 (6.4 - 7.9)	109 ± 13 (100 - 118)	112 ± 17 (100 - 124)	315 ± 38 (239 - 368)	<1
LMR21-69S (Reference)	22.5 ± 0.6 (21.4 - 24.2)	7.9 ± 0.2 (7.3 - 8.1)	7.1 ± 0.7 (5.4 - 8.5)	108 ± 11 (100 - 116)	113 ± 18 (100 - 126)	309 ± 37 (245 - 362)	<1

Table B4. *Hyalella azteca* 10-d whole sediment bioassay total porewater ammonia concentrations (mg/L as N).

Sediment	Test Day	
	0	10
Control	1.03	0.683
LMR21-11S	11	4.20
LMR21-12S	9.73	5.29
LMR21-14S	10.0	5.38
LMR21-15S	35.2	11.6
LMR21-17S	11.3	6.35
LMR21-19S	5.08	2.94
LMR21-25S	4.35	2.81
LMR21-27S	9.31	4.60
LMR21-30S	5.95	1.42
LMR21-35S	3.77	1.53
LMR21-37S	5.61	3.69
LMR21-39S	4.51	2.47
LMR21-41S	4.60	1.82
LMR21-43S	4.25	2.87
LMR21-45S	4.90	2.88
LMR21-47S	3.77	3.63
LMR21-48S	3.19	1.87
LMR21-49S	5.43	2.53
LMR21-52S	9.80	4.73
LMR21-53S	6.65	3.32
LMR21-55S	8.17	3.87
LMR21-57S	5.06	2.88
LMR21-59S	6.14	3.51
LMR21-61S	6.05	2.75
LMR21-62S	4.05	2.66
LMR21-64S	4.17	2.40
LMR21-66S	6.31	3.61
LMR21-68S	4.90	3.49
LMR21-69S (Reference)	4.64	3.12

Table B5. *Chironomus dilutus* 10-d whole sediment bioassay total porewater ammonia concentrations (mg/L as N).

Sediment	Test Day	
	0	10
Control	1.08	0.631
LMR21-11S	10.1	4.20
LMR21-12S	13.8	5.78
LMR21-14S	13.6	7.42
LMR21-15S	43.5	25.0
LMR21-17S	13.0	5.90
LMR21-19S	8.02	3.51
LMR21-25S	4.89	2.16
LMR21-27S	10.3	5.19
LMR21-30S	6.40	2.26
LMR21-35S	8.45	3.21
LMR21-37S	7.67	3.96
LMR21-39S	5.67	2.87
LMR21-41S	10.4	7.65
LMR21-43S	4.20	3.08
LMR21-45S	6.83	3.01
LMR21-47S	5.30	3.04
LMR21-48S	4.44	2.55
LMR21-49S	7.16	3.17
LMR21-52S	11.9	5.49
LMR21-53S	7.64	1.79
LMR21-55S	8.15	3.88
LMR21-57S	6.83	3.68
LMR21-59S	5.79	3.47
LMR21-61S	7.76	4.44
LMR21-62S	6.17	2.50
LMR21-64S	5.11	2.63
LMR21-66S	7.11	4.28
LMR21-68S	7.52	3.32
LMR21-69S (Reference)	6.40	3.37

Appendix C. Reference toxicity test statistics for *Pimephales promelas*

Acute Fish Test-96 Hr Survival

Start Date:	8/23/2021	Test ID:	1	Sample ID:	Ref tox KCl
End Date:	8/27/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

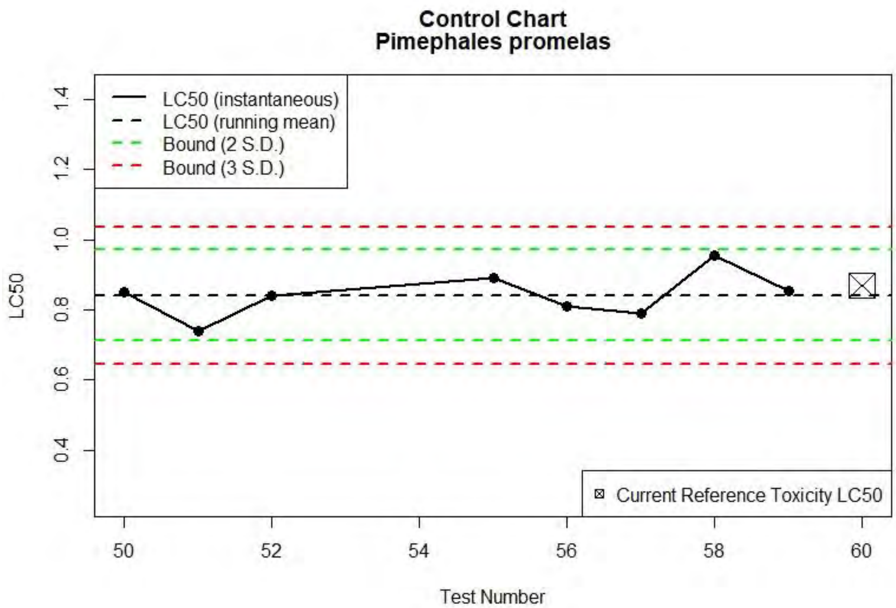
Conc-gm/l	1	2	3	4	5
Control	0.9000	1.0000	0.9000	1.0000	1.0000
0.169	1.0000	1.0000	1.0000		
0.338	1.0000	1.0000	0.9000		
0.675	0.8000	0.9000	0.9000		
1.35	0.0000	0.0000	0.0000		
2.7	0.0000	0.0000	0.0000		

			Transform: Arcsin Square Root					Number	Total
Conc-gm/l	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3468	1.2490	1.4120	6.628	5	2	50
0.169	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	3	0	30
0.338	0.9667	1.0069	1.3577	1.2490	1.4120	6.930	3	1	30
0.675	0.8667	0.9028	1.2017	1.1071	1.2490	6.817	3	4	30
1.35	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30
2.7	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.793528	0.825	-0.7011	-1.31964
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	0.8729	0.8009	0.9513
5.0%	0.8993	0.8173	0.9896
10.0%	0.9115	0.7951	1.0449
20.0%	0.9123	0.8663	0.9607
Auto-0.0%	0.8729	0.8009	0.9513



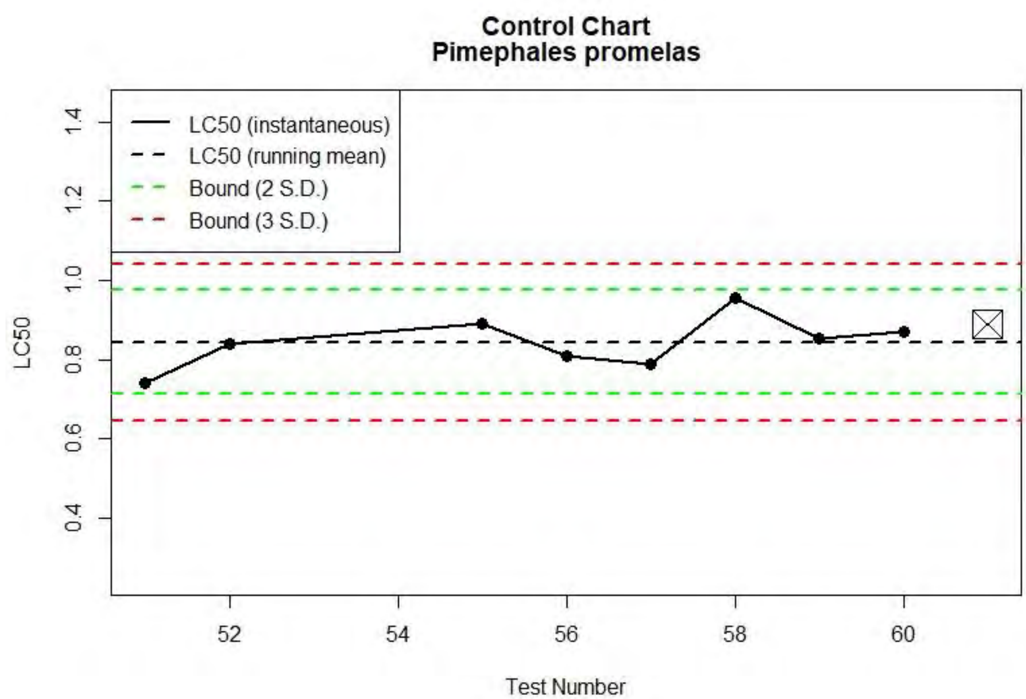
Acute Fish Test-96 Hr Survival							
Start Date:	9/30/2021	Test ID:	1	Sample ID:	Ref tox KCl		
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:			
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas		
Comments:							

Conc-gm/l	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
0.169	1.0000	1.0000	1.0000		
0.338	1.0000	1.0000	1.0000		
0.675	0.9000	1.0000	0.8000		
1.35	0.0000	0.0000	0.0000		
2.7	0.0000	0.0000	0.0000		

			Transform: Arcsin Square Root					Number	Total
Conc-gm/l	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5	2	50
0.169	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	3	0	30
0.338	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	3	0	30
0.675	0.9000	0.9375	1.2561	1.1071	1.4120	12.145	3	3	30
1.35	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30
2.7	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.820057	0.825	-1.31199	2.776487
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber			
Trim Level	EC50	95% CL	
0.0%	0.8983	0.8362	0.9649
5.0%	0.9181	0.8371	1.0068
10.0%	0.9233	0.8844	0.9639
20.0%	0.9233	0.8844	0.9639
Auto-0.0%	0.8983	0.8362	0.9649



Acute Fish Test-96 Hr Survival

Start Date:	10/25/2021	Test ID:	1	Sample ID:	KCl ref tox
End Date:	10/29/2021	Lab ID:		Sample Type:	
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

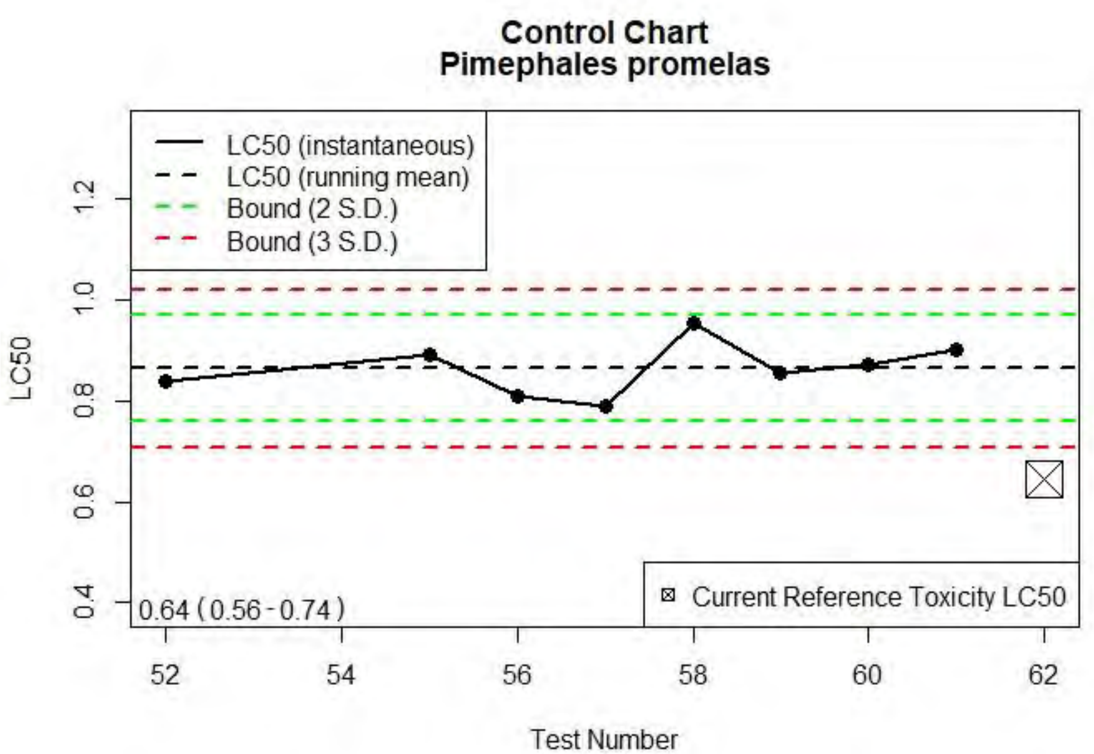
Conc-gm/l	1	2	3
Control	1.0000	1.0000	1.0000
0.16875	1.0000	1.0000	1.0000
0.3375	1.0000	1.0000	0.9000
0.675	0.5000	0.6000	0.3000
1.35	0.0000	0.0000	0.0000
2.7	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-gm/l	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	3	0	30
0.16875	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	3	0	30
0.3375	0.9667	0.9667	1.3577	1.2490	1.4120	6.930	3	1	30
0.675	0.4667	0.4667	0.7504	0.5796	0.8861	20.815	3	16	30
1.35	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30
2.7	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.868114	0.805	-0.7883	1.774982
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	0.6445	0.5636	0.7371
5.0%	0.6507	0.5648	0.7496
10.0%	0.6499	0.5554	0.7604
20.0%	0.6483	0.5289	0.7946
Auto-0.0%	0.6445	0.5636	0.7371



Appendix D. Reference toxicity test statistics for *Ceriodaphnia dubia*

In-house reference toxicity test (month of September 2021)

Acute Fish Test-48 Hr Survival

Start Date:	9/1/2021	Test ID:	1	Sample ID:	Ref tox KCl	
End Date:	9/3/2021	Lab ID:	ERDC-EL	Sample Type:		
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia	
Comments:						

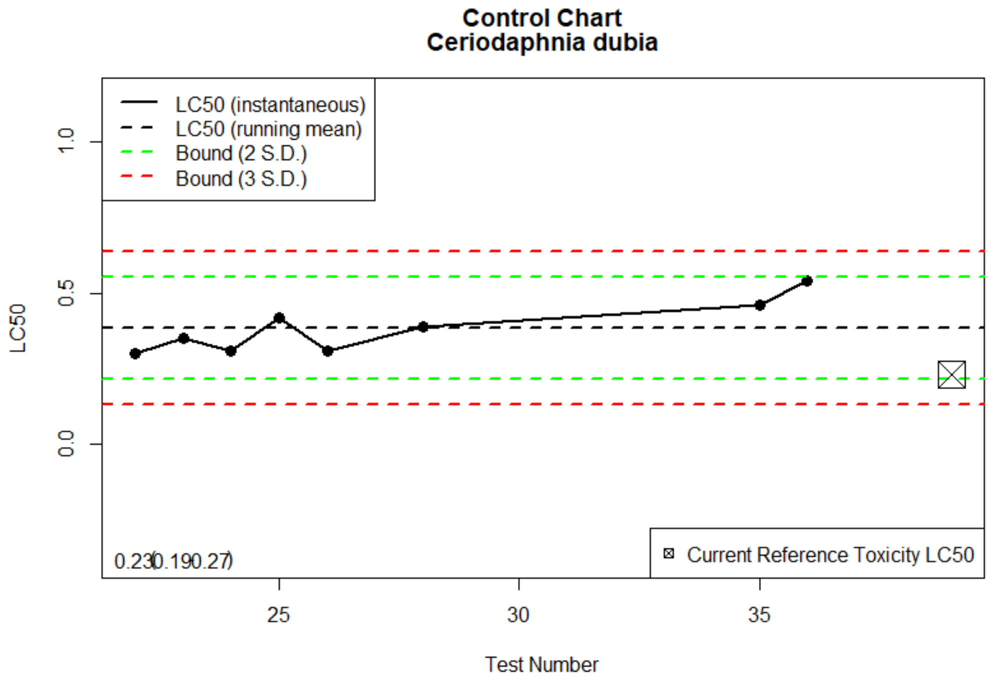
Conc-gm/l	1	2	3
Control	1.0000	0.8000	1.0000
0.0625	0.8000	1.0000	1.0000
0.125	1.0000	0.8000	1.0000
0.25	0.2000	0.4000	0.2000
0.5	0.0000	0.0000	0.2000
1	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-gm/l	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9333	1.0000	1.2659	1.1071	1.3453	10.861	3	1	15
0.0625	0.9333	1.0000	1.2659	1.1071	1.3453	10.861	3	1	15
0.125	0.9333	1.0000	1.2659	1.1071	1.3453	10.861	3	1	15
0.25	0.2667	0.2857	0.5373	0.4636	0.6847	23.753	3	11	15
0.5	0.0667	0.0714	0.3049	0.2255	0.4636	45.094	3	14	15
1	0.0000	0.0000	0.2255	0.2255	0.2255	0.000	3	15	15

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.85117	0.835	-0.19728	-1.60843
Bartlett's Test indicates equal variances (p = 1.00)	0.014303	13.2767		

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	0.2264	0.1880	0.2728
5.0%	0.2181	0.1794	0.2651
10.0%	0.2132	0.1734	0.2622
20.0%	0.2059	0.1633	0.2596
Auto-0.0%	0.2264	0.1880	0.2728



In-house reference toxicity test (month of October 2021)

Acute Fish Test-96 Hr Survival

Start Date:	10/25/2021	Test ID:	1	Sample ID:	KCl ref tox
End Date:	10/29/2021	Lab ID:		Sample Type:	
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

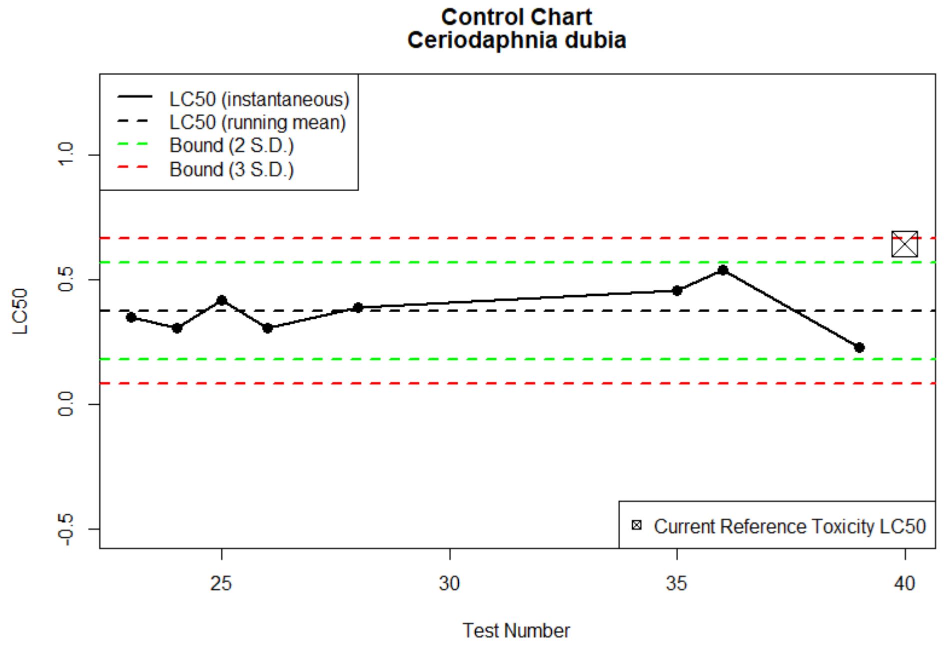
Conc-gm/l	1	2	3
Control	1.0000	1.0000	1.0000
0.16875	1.0000	1.0000	1.0000
0.3375	1.0000	1.0000	0.9000
0.675	0.5000	0.6000	0.3000
1.35	0.0000	0.0000	0.0000
2.7	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-gm/l	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	3	0	30
0.16875	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	3	0	30
0.3375	0.9667	0.9667	1.3577	1.2490	1.4120	6.930	3	1	30
0.675	0.4667	0.4667	0.7504	0.5796	0.8861	20.815	3	16	30
1.35	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30
2.7	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	3	30	30

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.868114	0.805	-0.7883	1.774982
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	0.6445	0.5636	0.7371
5.0%	0.6507	0.5648	0.7496
10.0%	0.6499	0.5554	0.7604
20.0%	0.6483	0.5289	0.7946
Auto-0.0%	0.6445	0.5636	0.7371



Appendix E. Pimephales promelas Elutriate toxicity test statistics

Acute Fish Test-96 Hr Survival

Start Date:	8/23/2021	Test ID:	1	Sample ID:	LMR21-SBA1
End Date:	8/27/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	0.9000	1.0000	0.9000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	0.9000
50	1.0000	0.9000	0.8000	0.9000	1.0000
100	0.0000	0.0000	0.0000	0.1000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.3468	1.2490	1.4120	6.628	5		
6.25	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	32.50	16.00
12.5	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	32.50	16.00
25	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	30.00	16.00
50	0.9200	0.9583	1.2859	1.1071	1.4120	10.026	5	24.00	16.00
*100	0.0200	0.0208	0.1914	0.1588	0.3218	38.084	5	15.00	16.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.93530822	0.9	-0.30885733	0.69630375
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steels Many-One Rank Test	50	100	70.7106781	2

Acute Fish Test-96 Hr Survival

Start Date:	8/23/2021	Test ID:	1	Sample ID:	LMR21-SBA1
End Date:	8/27/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	0.9000	1.0000	0.9000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	0.9000
50	1.0000	0.9000	0.8000	0.9000	1.0000
100	0.0000	0.0000	0.0000	0.1000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3468	1.2490	1.4120	6.628	5	2	50
6.25	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	0	50
12.5	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	0	50
25	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	1	50
50	0.9200	0.9583	1.2859	1.1071	1.4120	10.026	5	4	50
100	0.0200	0.0208	0.1914	0.1588	0.3218	38.084	5	49	50

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.3468	1.2490	1.4120	6.628	5		
10	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	4	24.00	11.00
50	0.9600	1.0000	1.3468	1.2490	1.4120	6.628	5	27.50	17.00
100	0.8400	0.8750	1.1691	0.9912	1.2490	10.000	5	18.00	17.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.84034169	0.863	-0.74646639	-0.67968895
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Wilcoxon Rank Sum Test	100	>100		1

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA1
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	0.9000	1.0000	1.0000
25	0.9000	1.0000	0.9000	0.6000	0.9000
50	0.7000	0.0000	0.0000	0.2000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5		
6.25	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	30.00	17.00
12.5	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	26.00	17.00
25	0.8600	0.8958	1.2090	0.8861	1.4120	16.038	5	21.00	17.00
*50	0.3400	0.3542	0.5759	0.1588	1.1071	78.391	5	15.50	17.00
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.86359203	0.888	0.1663813	1.69285414
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	25	50	35.3553391	4

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA1
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.93538822	0.9	-0.30885733	0.89630375
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%			
5.0%	69.325	64.640	74.349
10.0%	69.451	67.278	71.695
20.0%	69.451	67.278	71.695
Auto-2.0%	68.595	64.942	72.454

Acute Fish Test-96 Hr Survival

Start Date:	8/23/2021	Test ID:	1	Sample ID:	LMR21-SBA3
End Date:	8/27/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	0.9000	1.0000	0.9000	1.0000	1.0000
6.25	0.9000	1.0000	0.9000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.9000	0.8000	0.9000	0.8000	0.9000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.3468	1.2490	1.4120	6.628	5		
6.25	0.9600	1.0000	1.3468	1.2490	1.4120	6.628	5	27.50	16.00
12.5	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	32.50	16.00
25	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	32.50	16.00
50	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	32.50	18.00
100	0.8600	0.8958	1.1923	1.1071	1.2490	6.519	5	18.00	16.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.80066345	0.9	-0.61175772	-0.51992525
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1

Acute Fish Test-96 Hr Survival

Start Date:	8/23/2021	Test ID:	1	Sample ID:	LMR21-SBC
End Date:	8/27/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	0.9000	1.0000	0.9000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	
50	0.9000	1.0000	1.0000	0.9000	1.0000
100	0.9000	0.7000	0.9000	0.9000	0.8000

12.5	1.0000	1.0000	0.9000	1.0000	1.0000
25	0.9000	1.0000	0.9000	0.6000	0.9000
50	0.7000	0.8000	0.0000	0.2000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5	2	50
6.25	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	0	50
12.5	0.9800	1.0209	1.3794	1.2490	1.4120	5.284	5	1	50
25	0.8600	0.8958	1.2090	0.8861	1.4120	16.033	5	7	50
50	0.3400	0.3542	0.5759	0.1588	1.1071	78.391	5	33	50
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5	50	50

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.86359203	0.888	0.1668813	1.69285414
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber			
Trim Level	EC50	95% CL	
0.0%	41.308	36.883	46.264
5.0%	41.815	37.023	47.227
10.0%	41.975	37.081	47.514
20.0%	41.451	36.143	47.539
Auto-0.0%	41.308	36.883	46.264

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA2
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
6.25	0.9000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	0.9000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.8000	0.9000	0.9000	0.9000	0.9000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5		
6.25	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	28.00	17.00
12.5	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	28.00	17.00
25	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	30.00	17.00
50	0.8800	0.9167	1.2207	1.1071	1.2490	5.199	5	19.50	17.00
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.68719655	0.888	-2.10092026	4.16996177
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	50	100	70.7106781	2

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA2
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
6.25	0.9000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	0.9000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.8000	0.9000	0.9000	0.9000	0.9000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5	2	50
6.25	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	1	50
12.5	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	1	50
25	1.0000	1.0417	1.4120	1.4120	1.4120	0.000	5	0	50
50	0.8800	0.9167	1.2207	1.1071	1.2490	5.199	5	6	50
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5	50	50

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.68718655	0.888	-2.10092026	4.16996177
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	65.882	62.086	69.910
5.0%	67.367	62.577	72.523
10.0%	67.979	60.938	75.834
20.0%	67.960	65.524	70.528
Auto-0.0%	65.882	62.086	69.910

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA3
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
10	1.0000	1.0000	1.0000	1.0000	0.9000
50	1.0000	1.0000	0.8000	1.0000	0.9000
100	0.4000	0.1000	0.0000	0.2000	0.0000

			Transform: Arcsin Square Root					1-Tailed		
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5			
10	0.9800	1.0208	1.3794	1.2490	1.4120	5.284	5	-0.295	2.230	0.2145
50	0.9400	0.9792	1.3184	1.1071	1.4120	10.436	5	0.339	2.230	0.2145
*100	0.1400	0.1458	0.3575	0.1588	0.6847	62.321	5	10.331	2.230	0.2145

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89800298	0.866	-0.05422282	0.43269275
Bartlett's Test indicates equal variances (p = 0.25)	4.07377625	11.3448668		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	50	100	70.7106781	2	0.12946212	0.135921	1.23343651	0.02312054	1.5E-06	3, 16

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA3
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
10	1.0000	1.0000	1.0000	1.0000	0.9000
50	1.0000	1.0000	0.8000	1.0000	0.9000
100	0.4000	0.1000	0.0000	0.2000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5	2	50
10	0.9800	1.0208	1.3794	1.2490	1.4120	5.294	5	1	50
50	0.9400	0.9792	1.3184	1.1071	1.4120	10.436	5	3	50
100	0.1400	0.1458	0.3575	0.1588	0.6947	62.321	5	43	50

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.89800298	0.868	-0.05422282	0.43269275
Bartlett's Test indicates equal variances (p = 0.25)	4.07377625	11.3448668		

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%			
5.0%			
10.0%			
20.0%	74.162	70.494	78.020
Auto-14.4%	74.162	70.494	78.020

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WB1
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
10	1.0000	1.0000	0.9000	0.9000	0.9000
50	0.0000	0.7000	0.1000	0.1000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5		
10	0.9400	0.9792	1.3142	1.2490	1.4120	6.792	5	24.00	18.00
*50	0.1800	0.1875	0.3904	0.1588	0.9912	88.503	5	15.00	18.00
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.80259663	0.835	1.72927747	5.06715133
Bartlett's Test indicates equal variances (p = 0.03)	6.74543858	9.2103405		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	10	50	22.3606798	10

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WB1
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 21-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
10	1.0000	1.0000	0.9000	0.9000	0.9000
50	0.0000	0.7000	0.1000	0.1000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5	2	50
10	0.9400	0.9792	1.3142	1.2490	1.4120	6.792	5	3	50
50	0.1800	0.1875	0.3904	0.1588	0.9912	88.503	5	41	50
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5	50	50

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.80259663	0.835	1.72927747	5.06715133
Bartlett's Test indicates equal variances (p = 0.03)	6.74543858	9.2103405		

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%			
5.0%	26.956	23.380	31.079
10.0%	26.700	22.980	31.023
20.0%	26.489	23.036	30.459
Auto-2.1%	27.135	23.675	31.101

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WC2
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
10	1.0000	1.0000	0.8000	1.0000	1.0000
50	1.0000	0.6000	0.8000	0.9000	0.6000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root						1-Tailed	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5			
10	0.9800	1.0208	1.3794	1.2490	1.4120	5.264	5	-0.281	2.110	0.2132
*50	0.7800	0.8125	1.1081	0.8861	1.4120	20.718	5	2.404	2.110	0.2132
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5			

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.88088739	0.835	-0.17000477	0.28495768
Bartlett's Test indicates equal variances (p = 0.12)	4.18666801	9.2103405		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	10	50	22.3606798	10	0.12854162	0.13495457	0.11122497	0.02553522	0.03782849	2, 12

Acute Fish Test-96 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WC2
End Date:	9/24/2021	Lab ID:	ERDC-EL	Sample Type:	
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	0.8000	1.0000
10	1.0000	1.0000	0.9000	1.0000	1.0000
50	1.0000	0.6000	0.8000	0.9000	0.6000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.3510	1.1071	1.4120	10.092	5	2	50
10	0.9800	1.0208	1.3794	1.2490	1.4120	5.264	5	1	50
50	0.7800	0.8125	1.1081	0.8861	1.4120	20.718	5	11	50
100	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	5	50	50

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.88088739	0.835	-0.17000477	0.28495768

Bartlett's Test indicates equal variances (p = 0.12) 4.18666601 9.2103405

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	56.435	49.593	64.220
5.0%	59.574	51.276	69.213
10.0%	62.798	51.506	75.350
20.0%	64.986	61.192	59.016
Auto-0.0%	56.435	49.593	64.220

Appendix F. Ceriodaphnia dubia Elutriate toxicity test statistics

Acute Fish Test-48 Hr Survival

Start Date: 9/1/2021	Test ID: 1	Sample ID:	LMR21-SBA1
End Date: 9/3/2021	Lab ID: ERDC-EL	Sample Type:	LMR21-SBA1
Sample Dat	Protocol: EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:			

Conc-%	1	2	3	4	5
Control	1.0000	0.8000	1.0000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	0.8000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.6000	1.0000	1.0000	1.0000	1.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5		
6.25	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5	30.00	17.00
12.5	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5	27.50	17.00
25	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5	30.00	17.00
50	0.9200	0.9583	1.2534	0.8861	1.3453	16.384	5	27.00	17.00
100	0.0000	0.0000	0.2255	0.2255	0.2255	0.000	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.6777706	0.888	-2.395501	6.284047
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	50	100	70.710678	2

Acute Fish Test-48 Hr Survival

Start Date: 9/1/2021	Test ID: 1	Sample ID:	LMR21-SBA1
End Date: 9/3/2021	Lab ID: ERDC-EL	Sample Type:	LMR21-SBA1
Sample Dat	Protocol: EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:			

Conc-%	1	2	3	4	5
Control	1.0000	0.8000	1.0000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	0.8000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.6000	1.0000	1.0000	1.0000	1.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5	1	25
6.25	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5	0	25
12.5	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5	1	25
25	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5	0	25
50	0.9200	0.9583	1.2534	0.8861	1.3453	16.384	5	2	25
100	0.0000	0.0000	0.2255	0.2255	0.2255	0.000	5	25	25

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.6777706	0.888	-2.395501	6.284047

Equality of variance cannot be confirmed

Trimmed Spearman-Karber			
Trim Level	EC50	95% CL	
0.0%	67.773	63.414	72.431
5.0%	69.079	62.607	76.221
10.0%	69.130	66.572	71.787
20.0%	69.130	66.572	71.787
Auto-0.0%	67.773	63.414	72.431

Acute Fish Test-48 Hr Survival

Start Date: 9/1/2021 Test ID: 1 Sample ID: LMR21-SBA3
End Date: 9/3/2021 Lab ID: ERDC-EL Sample Type: LMR21-SBA3
Sample Dat Protocol: EPAA 91-EPA Acute Test Species: CD-Ceriodaphnia dubia
Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.8000	1.0000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	0.8000	1.0000
50	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.4000	0.6000	0.8000	0.4000	0.6000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5		
6.25	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5	30.00	16.00
12.5	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5	30.00	16.00
25	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5	27.50	16.00
50	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5	30.00	16.00
*100	0.5600	0.5833	0.8497	0.6847	1.1071	20.667	5	15.50	16.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7436875	0.9	-0.279742	3.3187653
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	50	100	70.710678	2

Acute Fish Test-48 Hr Survival

Start Date: 9/1/2021 Test ID: 1 Sample ID: LMR21-SBC
End Date: 9/3/2021 Lab ID: ERDC-EL Sample Type: LMR21-SBC
Sample Dat Protocol: EPAA 91-EPA Acute Test Species: CD-Ceriodaphnia dubia
Comments:

Conc-%	1	2	3	4	5
Control	1.0000	0.8000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
50	1.0000	1.0000	1.0000	0.8000	1.0000
100	0.6000	0.6000	0.8000	0.4000	0.6000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical

Control	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5			
10	1.0000	1.0417	1.3453	1.3453	1.3453	0.000	5		30.00	17.00
50	0.9600	1.0000	1.2977	1.1071	1.3453	8.207	5		27.50	17.00
100	0.6000	0.6250	0.8900	0.6847	1.1071	16.792	5		15.50	17.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7770725	0.868	-0.721325	1.8288243
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	50	100	70.710678	2

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA1
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WA1
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	1.0000	0.8000	0.8000	0.4000	0.8000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5		
6.25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	17.00
12.5	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	17.00
25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	17.00
50	0.7600	0.7600	1.0703	0.6847	1.3453	22.324	5	17.50	17.00
100	0.0000	0.0000	0.2255	0.2255	0.2255	0.000	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.4565964	0.889	-1.774954	13.03503
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	50	100	70.710678	2

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA1
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WA1
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000

50	1.0000	0.8000	0.8000	0.4000	0.8000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
6.25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
12.5	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
50	0.7600	0.7600	1.0703	0.6847	1.3453	22.324	5	6	25
100	0.0000	0.0000	0.2255	0.2255	0.2255	0.000	5	25	25

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.4555964	0.888	-1.774954	13.03503
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	59.874	53.188	67.401
5.0%	60.918	53.270	69.662
10.0%	61.864	52.739	72.568
20.0%	63.213	48.787	81.905
Auto-0.0%	59.874	53.188	67.401

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA2
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WA2
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.8000	0.6000	0.6000	0.8000	0.6000
100	0.0000	0.0000	0.0000	0.4000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5		
6.25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	16.00
12.5	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	16.00
25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	16.00
*50	0.6800	0.6800	0.9745	0.8861	1.1071	12.425	5	15.00	16.00
*100	0.0800	0.0800	0.3174	0.2255	0.6847	64.711	5	15.00	16.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.6366805	0.9	2.6120397	9.9845052
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	25	50	35.355339	4

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA2
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WA2
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
6.25	1.0000	1.0000	1.0000	1.0000	1.0000
12.5	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.8000	0.6000	0.6000	0.8000	0.6000
100	0.0000	0.0000	0.0000	0.4000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
6.25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
12.5	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
25	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
50	0.6800	0.6800	0.9745	0.8861	1.1071	12.425	5	8	25
100	0.0800	0.0800	0.3174	0.2255	0.6847	64.711	5	23	25

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.6366805	0.9	2.6120397	9.9845052
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%			
5.0%			
10.0%	59.703	50.115	71.127
20.0%	60.815	47.056	78.598
Auto-8.0%	59.460	50.417	70.125

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA3
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WA3
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
50	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5		
10	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	18.00
50	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	18.00
100	0.0000	0.0000	0.2255	0.2255	0.2255	0.000	5		

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	1	0.835		
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	50	100	70.710678	2

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WA3
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WA3
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
50	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
10	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
50	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
100	0.0000	0.0000	0.2255	0.2255	0.2255	0.000	5	25	25

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	1	0.835		
Equality of variance cannot be confirmed				

Graphical Method

Trim Level	EC50
0.0%	70.711
	70.711

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WB1
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WB1
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.6000	0.8000	0.6000	0.8000	1.0000
100	0.0000	0.0000	0.0000	0.2000	0.6000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5		
10	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	17.00
50	0.7600	0.7600	1.0663	0.8861	1.3453	17.924	5	17.50	17.00
*100	0.1600	0.1600	0.4053	0.2255	0.8861	71.039	5	15.00	17.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7654438	0.868	1.5267518	3.8635464
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	50	100	70.710678	2

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WB1
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WB1
Sample Dat		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
50	0.6000	0.8000	0.6000	0.8000	1.0000
100	0.0000	0.0000	0.0000	0.2000	0.6000

			Transform: Arcsin Square Root					Number	Total
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
10	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	0	25
50	0.7600	0.7600	1.0663	0.8861	1.3453	17.924	5	6	25
100	0.1600	0.1600	0.4053	0.2255	0.8861	71.039	5	21	25

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.7654438	0.868	1.5267518	3.8635464
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%			
5.0%			
10.0%			
20.0%	57.020	40.974	109.620
Auto-16.0%	65.777	44.696	96.800

Acute Fish Test-48 Hr Survival

Start Date:	9/20/2021	Test ID:	1	Sample ID:	LMR21-WC2
End Date:	9/22/2021	Lab ID:	ERDC-EL	Sample Type:	LMR21-WC2
Sample Date		Protocol:	EPAA 91-EPA Acute	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-%	1	2	3	4	5
Control	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000
50	1.0000	1.0000	0.8000	0.8000	0.8000
100	0.4000	0.6000	0.4000	0.8000	1.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5		
10	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	5	27.50	17.00
50	0.8800	0.8800	1.2024	1.1071	1.3453	10.848	5	20.00	17.00
100	0.6400	0.6400	0.9416	0.6847	1.3453	30.292	5	17.50	17.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.862484	0.868	0.7750871	2.7112039
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1

LMR21-SBC vs control

```
> t.test(Control$FractSur,DMMU$FractSur, alternative = "greater",
+        var.equal = FALSE, paired = FALSE)

        Welch Two Sample t-test

data:  Control$FractSur and DMMU$FractSur
t = 2.7456, df = 4, p-value = 0.0258
alternative hypothesis: true difference in means is greater than 0
95 percent confidence interval:
 0.06259343        Inf
sample estimates:
mean of x mean of y
     1.00      0.72
```

pH6.5 vs control

```
> wilcox.test(as_Con,as_DM, alternative = "greater")

        Wilcoxon rank sum test with continuity correction

data:  as_Con and as_DM
W = 22.5, p-value = 0.01158
alternative hypothesis: true location shift is greater than 0
```

Appendix G. Reference toxicity test statistics for *Hyalella azteca*

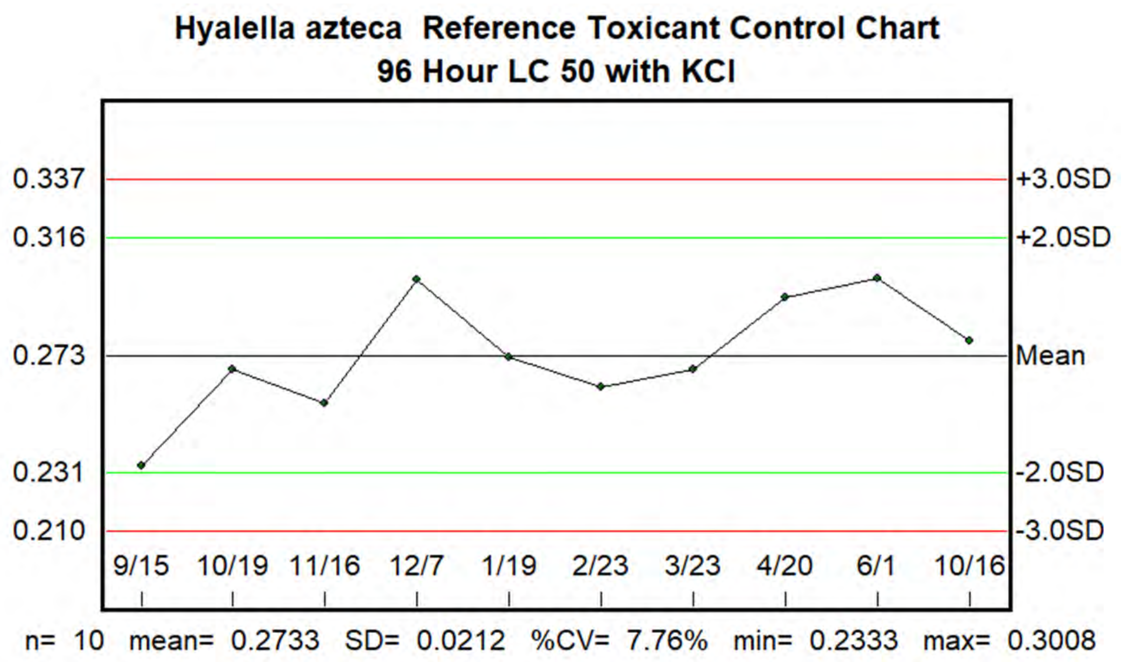
LC50 Test-LC50-Survival										
Start Date:	9/3/2021		Test ID:	01HAREF			Sample ID:	REF-Ref Toxicant		
End Date:	9/7/2021		Lab ID:	US Army ERDC			Sample Type:	KCL-Potassium chloride		
Sample Da			Protocol:	EPAF 94-EPA Freshwater			Test Species:	HA-Hyalella azteca		
Comments Maumee River AOC										

Conc-gm/L	1	2	3
0	1.0000	1.0000	1.0000
0.625	1.0000	1.0000	1.0000
0.125	1.0000	1.0000	1.0000
0.25	0.5000	0.7000	0.6000
0.5	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000

			Transform: Untransformed						
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
0	1.0000	1.0000	1.0000	1.0000	1.0000	0.000	3	1.0000	0.0000
0.625	1.0000	1.0000	1.0000	1.0000	1.0000	0.000	3	1.0000	0.0000
0.125	1.0000	1.0000	1.0000	1.0000	1.0000	0.000	3	1.0000	0.0000
0.25	0.6000	0.6000	0.6000	0.5000	0.7000	16.667	3	0.6000	0.4000
0.5	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3	0.0000	1.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3	0.0000	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.599513	0.805	0	5.5
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber			
Trim Level	EC50	95% CL	
0.0%	0.2679	0.1810	0.3966
5.0%	0.2698	0.1742	0.4179
10.0%	0.2716	0.1650	0.4473
20.0%	0.2753	0.1368	0.5537
Auto-0.0%	0.2679	0.1810	0.3966



Appendix H. Reference toxicity test statistics for *Chironomus dilutus*

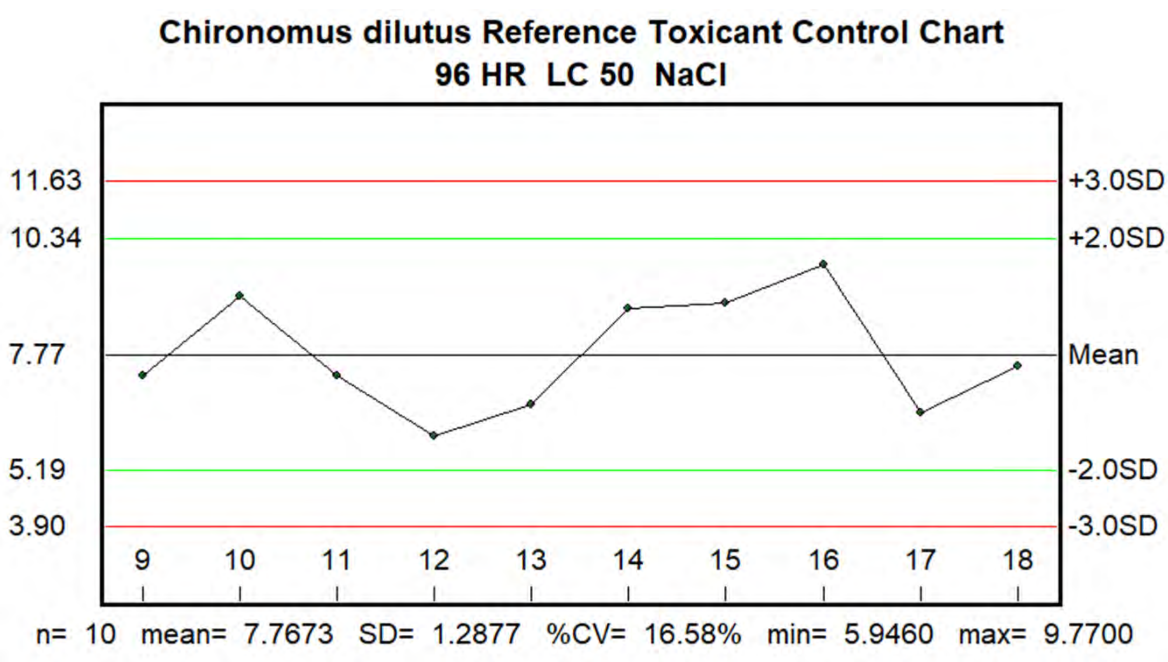
LC50 Test-LC50-Survival					
Start Date:	10/5/2021	Test ID:	02CDREFTOX	Sample ID:	REF-Ref Toxicant
End Date:	10/9/2021	Lab ID:	ERDC-ARMY ERDC	Sample Type:	NACL-Sodium chloride
Sample Da		Protocol:	EPAF 94-EPA Freshwater	Test Species:	CD-Chironomus dilutus
Comments	Maumee River AOC				

Conc-%	1	2	3
0	0.7000	0.6000	0.8000
1.25	0.6000	0.5000	0.7000
2.5	0.9000	0.9000	0.8000
5	0.7000	1.0000	0.8000
10	0.0000	0.1000	0.3000
20	0.0000	0.0000	0.0000

			Transform: Untransformed						
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
0	0.7000	1.0000	0.7000	0.6000	0.8000	14.286	3	0.7000	0.0000
1.25	0.6000	0.8571	0.6000	0.5000	0.7000	16.667	3	0.6000	0.1429
2.5	0.8667	1.2381	0.8667	0.8000	0.9000	6.662	3	0.8667	-0.2381
5	0.8333	1.1905	0.8333	0.7000	1.0000	18.330	3	0.8333	-0.1905
10	0.1333	0.1905	0.1333	0.0000	0.3000	114.564	3	0.1333	0.8095
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	3	0.0000	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.935925	0.835	0.347985	-0.91209
Bartlett's Test indicates equal variances (p = 0.77)	1.81063	13.2767		

Trimmed Spearman-Karber			
Trim Level	EC50	95% CL	
0.0%	7.9984	5.8899	10.8617
5.0%	7.8355	5.6490	10.8683
10.0%	7.7099	5.5716	10.6688
20.0%	7.6213	6.0777	9.5569
Auto-0.0%	7.9984	5.8899	10.8617



Appendix I. Whole sediment toxicity test statistics for *Hyalella azteca*

Hyalella azteca survival analysis following dredging guidance

Distribution analysis of: Survival

The UNIVARIATE Procedure

Variable: Survival

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	W	0.83131	Pr < W	0.0095
Kolmogorov-Smirnov	D	0.204471	Pr > D	0.0896
Cramer-von Mises	W-Sq	0.154097	Pr > W-Sq	0.0194
Anderson-Darling	A-Sq	0.967119	Pr > A-Sq	0.0109

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Distribution analysis of: rank_Survival

The UNIVARIATE Procedure

Variable: rank_Survival (Rank for Variable Survival)

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	W	0.917895	Pr < W	0.1789
Kolmogorov-Smirnov	D	0.161734	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.041101	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.38008	Pr > A-Sq	>0.2500

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One-Way Analysis of Variance Results

The ANOVA Procedure

Class Level Information		
Class	**Levels**	**Values**
Sediment	3	LMR21-47S LMR21-49S LMR21-69S
Number of Observations Read	15	
Number of Observations Used	15	

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One-Way Analysis of Variance Results

The ANOVA Procedure

Dependent Variable: rank_Survival Rank for Variable Survival

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	8.439658	4.219829	14.22	0.0007
Error	12	3.561597	0.2968		
Corrected Total	14	12.00125			

R-Square	Coeff Var	Root MSE	rank_Survival Mean
0.703231	-4.60E+17	0.544793	0

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Sediment	2	8.439658	4.219829	14.22	0.0007

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Levene's Test for Homogeneity of rank_Survival Variance ANOVA of Squared Deviations from Group Means					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	2	0.0626	0.0313	0.46	0.6427
Error	12	0.8194	0.0683		

Brown and Forsythe's Test for Homogeneity of rank_Survival Variance ANOVA of Absolute Deviations from Group Medians					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	2	0.0229	0.0115	0.06	0.9452
Error	12	2.4313	0.2026		

Bartlett's Test for Homogeneity of rank_Survival Variance			
Source	DF	Chi-Square	Pr > ChiSq
Sediment	2	0.3678	0.832

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Level of Sediment	N	rank_Survival Mean	rank_Survival Std Dev
LMR21-47S	5	-0.99576	0.496186
LMR21-49S	5	0.181162	0.640937
LMR21-69S	5	0.814599	0.483113

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One-Way Analysis of Variance
Results
The ANOVA Procedure

t Tests (LSD) for rank_Survival

Note: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

One-tailed Alpha	0.05
Error Degrees of Freedom	12
Error Mean Square	0.2968
Critical Value of t	1.78229
Least Significant Difference	0.6141

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One-tailed comparisons significant at the 0.05 level are indicated by ***.		
Sediment Comparison	Difference Between Means	
LMR21-69S - LMR21-49S	0.6334	***
LMR21-69S - LMR21-47S	1.8104	***

Hyalella azteca survival analysis without consideration of level of survival observed

One-Way Analysis of Variance
Results
The ANOVA Procedure

Class Level Information		
Class	Levels	Values
Sediment	30	Control LMR21-11S LMR21-12S LMR21-14S LMR21-15S LMR21-17S LMR21-19S LMR21-25S LMR21-27S LMR21-30S LMR21-35S LMR21-37S LMR21-39S LMR21-41S LMR21-43S LMR21-45S LMR21-47S LMR21-48S LMR21-49S LMR21-52S LMR21-53S LMR21-55S LMR21-57S LMR21-59S LMR21-61S LMR21-62S LMR21-64S LMR21-66S LMR21-68S LMR21-69S

Number of Observations Read	150
Number of Observations Used	150

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Dependent Variable: rank_Survival Rank for Variable Survival

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	29	41.2875371	1.423708	2.53	0.0002
Error	120	67.4378712	0.561982		
Corrected Total	149	108.7254084			

R-Square	Coeff Var	Root MSE	rank_Survival Mean
0.379741	1.32E+17	0.749655	5.68E-16

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Sediment	29	41.28753714	1.423708	2.53	0.0002

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Levene's Test for Homogeneity of rank_Survival Variance
ANOVA of Squared Deviations from Group Means

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	29	10.2908	0.3549	1.16	0.2855
Error	120	36.7705	0.3064		

Brown and Forsythe's Test for Homogeneity of rank_Survival Variance
ANOVA of Absolute Deviations from Group Medians

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	29	6.0777	0.2096	0.4	0.997
Error	120	62.2863	0.5191		

Bartlett's Test for Homogeneity of rank_Survival Variance

Source	DF	Chi-Square	Pr > ChiSq
Sediment	28	19.3477	0.8871

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Level of Sediment	N	rank_Survival Mean	rank_Survival Std Dev
Control	5	0.64964226	0
LMR21-11S	5	0.40265344	0.552284
LMR21-12S	5	0.15566461	0.676407
LMR21-14S	5	0.04038988	0.858781
LMR21-15S	5	-0.45358776	0.66531
LMR21-17S	5	0.04038988	0.858781
LMR21-19S	5	-0.1322251	1.075404
LMR21-25S	5	0.40265344	0.552284
LMR21-27S	5	0.2873787	0.810046
LMR21-30S	5	0.15566461	0.676407
LMR21-35S	5	-0.3158577	0.993423
LMR21-37S	5	0.15566461	0.676407
LMR21-39S	5	-0.70057659	0.257762
LMR21-41S	5	0.40265344	0.552284
LMR21-43S	5	-0.20659894	0.816287
LMR21-45S	5	0.15566461	0.676407
LMR21-47S	5	-2.14555011	0.324263
LMR21-48S	5	0.17811994	1.054356
LMR21-49S	5	-0.94036712	1.004178
LMR21-52S	5	0.15566461	0.676407
LMR21-53S	5	0.40265344	0.552284
LMR21-55S	5	0.23003845	0.938263
LMR21-57S	5	0.40265344	0.552284
LMR21-59S	5	-0.09132421	0.676407
LMR21-61S	5	0.40265344	0.552284
LMR21-62S	5	0.15566461	0.676407
LMR21-64S	5	0.40265344	0.552284
LMR21-66S	5	-0.07488486	0.9921
LMR21-68S	5	-0.15793834	1.115529
LMR21-69S	5	0.04038988	0.858781

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One-Way Analysis of Variance
Results
The ANOVA Procedure

t Tests (LSD) for rank_Survival

Note: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	120
Error Mean Square	0.561982
Critical Value of t	1.65765
Least Significant Difference	0.7859

One-tailed comparisons significant at the 0.05 level are indicated by ***.

Sediment Comparison	Difference Between Means	90% Confidence Limits		
Control - LMR21-11S	0.247	-0.5389	1.0329	
Control - LMR21-64S	0.247	-0.5389	1.0329	
Control - LMR21-25S	0.247	-0.5389	1.0329	
Control - LMR21-53S	0.247	-0.5389	1.0329	
Control - LMR21-41S	0.247	-0.5389	1.0329	
Control - LMR21-57S	0.247	-0.5389	1.0329	
Control - LMR21-61S	0.247	-0.5389	1.0329	
Control - LMR21-27S	0.3623	-0.4237	1.1482	
Control - LMR21-55S	0.4196	-0.3663	1.2055	
Control - LMR21-48S	0.4715	-0.3144	1.2575	
Control - LMR21-52S	0.494	-0.292	1.2799	
Control - LMR21-12S	0.494	-0.292	1.2799	
Control - LMR21-37S	0.494	-0.292	1.2799	
Control - LMR21-45S	0.494	-0.292	1.2799	
Control - LMR21-30S	0.494	-0.292	1.2799	
Control - LMR21-62S	0.494	-0.292	1.2799	
Control - LMR21-17S	0.6093	-0.1767	1.3952	
Control - LMR21-69S	0.6093	-0.1767	1.3952	
Control - LMR21-14S	0.6093	-0.1767	1.3952	
Control - LMR21-66S	0.7245	-0.0614	1.5105	
Control - LMR21-59S	0.741	-0.045	1.5269	
Control - LMR21-19S	0.7819	-0.0041	1.5678	
Control - LMR21-68S	0.8076	0.0216	1.5935	***
Control - LMR21-43S	0.8562	0.0703	1.6422	***
Control - LMR21-35S	0.9655	0.1796	1.7514	***
Control - LMR21-15S	1.1032	0.3173	1.8892	***
Control - LMR21-39S	1.3502	0.5643	2.1361	***
Control - LMR21-49S	1.59	0.8041	2.3759	***
Control - LMR21-47S	2.7952	2.0093	3.5811	***
LMR21-69S - Control	-0.6093	-1.3952	0.1767	
LMR21-69S - LMR21-11S	-0.3623	-1.1482	0.4237	
LMR21-69S - LMR21-64S	-0.3623	-1.1482	0.4237	
LMR21-69S - LMR21-25S	-0.3623	-1.1482	0.4237	
LMR21-69S - LMR21-53S	-0.3623	-1.1482	0.4237	
LMR21-69S - LMR21-41S	-0.3623	-1.1482	0.4237	
LMR21-69S - LMR21-57S	-0.3623	-1.1482	0.4237	
LMR21-69S - LMR21-61S	-0.3623	-1.1482	0.4237	
LMR21-69S - LMR21-27S	-0.247	-1.0329	0.5389	
LMR21-69S - LMR21-55S	-0.1896	-0.9756	0.5963	
LMR21-69S - LMR21-48S	-0.1377	-0.9237	0.6482	
LMR21-69S - LMR21-52S	-0.1153	-0.9012	0.6707	
LMR21-69S - LMR21-12S	-0.1153	-0.9012	0.6707	
LMR21-69S - LMR21-37S	-0.1153	-0.9012	0.6707	
LMR21-69S - LMR21-45S	-0.1153	-0.9012	0.6707	
LMR21-69S - LMR21-30S	-0.1153	-0.9012	0.6707	
LMR21-69S - LMR21-62S	-0.1153	-0.9012	0.6707	
LMR21-69S - LMR21-17S	0	-0.7859	0.7859	
LMR21-69S - LMR21-14S	0	-0.7859	0.7859	
LMR21-69S - LMR21-66S	0.1153	-0.6707	0.9012	
LMR21-69S - LMR21-59S	0.1317	-0.6542	0.9176	
LMR21-69S - LMR21-19S	0.1726	-0.6133	0.9585	
LMR21-69S - LMR21-68S	0.1983	-0.5876	0.9843	
LMR21-69S - LMR21-43S	0.247	-0.5389	1.0329	
LMR21-69S - LMR21-35S	0.3562	-0.4297	1.1422	
LMR21-69S - LMR21-15S	0.494	-0.292	1.2799	
LMR21-69S - LMR21-39S	0.741	-0.045	1.5269	
LMR21-69S - LMR21-49S	0.9808	0.1948	1.7667	***
LMR21-69S - LMR21-47S	2.1859	1.4	2.9719	***

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Appendix J. Whole sediment toxicity test statistics for *Chironomus dilutus*

Chironomus dilutus survival analysis following dredging guidance

Distribution analysis of: Survival

The UNIVARIATE Procedure

Variable: Survival

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.93283	Pr < W	0.101
Kolmogorov-Smirnov	D	0.151512	Pr > D	0.1423
Cramer-von Mises	W-Sq	0.084207	Pr > W-Sq	0.1801
Anderson-Darling	A-Sq	0.598271	Pr > A-Sq	0.109

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One-Way Analysis of Variance

Results

The ANOVA Procedure

Class Level Information		
Class	Levels	Values
Sediment	5	LMR21-30S LMR21-47S LMR21-49S LMR2
Number of Observations Read	25	
Number of Observations Used	25	

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One-Way Analysis of Variance

Results

The ANOVA Procedure

Dependent Variable: Survival

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	0.556	0.139	3.95	0.016
Error	20	0.704	0.0352		
Corrected Total	24	1.26			

R-Square	Coeff Var	Root MSE	Survival Mean
0.44127	27.59068	0.187617	0.68

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Sediment	4	0.556	0.139	3.95	0.016

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One-Way Analysis of Variance

Results

The ANOVA Procedure

Brown and Forsythe's Test for Homogeneity of Survival Variance ANOVA of Absolute Deviations from Group Medians					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	4	0.1096	0.0274	2.14	0.1133
Error	20	0.256	0.0128		

Bartlett's Test for Homogeneity of Survival Variance			
Source	DF	Chi-Square	Pr > ChiSq
Sediment	4	9.4427	0.0509

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Level of Sediment	N	Survival Mean	Survival Std Dev
LMR21-30S	5	0.62	0.311448
LMR21-47S	5	0.52	0.130384
LMR21-49S	5	0.62	0.148324
LMR21-59S	5	0.68	0.192354
LMR21-69S	5	0.96	0.054772

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One-Way Analysis of Variance
Results
The ANOVA Procedure

t Tests (LSD) for Survival

Note: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	20
Error Mean Square	0.0352
Critical Value of t	1.72472
Least Significant Difference	0.2047

One-tailed comparisons significant at the 0.05 level are indicated by ***.

Sediment Comparison	Difference Between Means	
LMR21-69S - LMR21-59S	0.28	***
LMR21-69S - LMR21-30S	0.34	***
LMR21-69S - LMR21-49S	0.34	***
LMR21-69S - LMR21-47S	0.44	***

Generated by the SAS Syste

Chironomus dilutus survival analysis without consideration of level of survival observed

One-Way Analysis of Variance

Results

The ANOVA Procedure

Class Level Information

Class	Levels	Values
Sediment	30	Control LMR21-11S LMR21-12S LMR21-14S LMR21-15S LMR21-17S LMR21-19S LMR21-25S LMR21-27S LMR21-30S LMR21-35S LMR21-37S LMR21-39S LMR21-41S LMR21-43S LMR21-45S LMR21-47S LMR21-48S LMR21-49S LMR21-52S LMR21-53S LMR21-55S LMR21-57S LMR21-59S LMR21-61S LMR21-62S LMR21-64S LMR21-66S LMR21-68S LMR21-69S

Number of Observations Read	150
Number of Observations Used	150

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One-Way Analysis of Variance

Results

The ANOVA Procedure

Dependent Variable: rank_Survival Rank for Variable Survival

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	29	45.1387982	1.55651	2.08	0.0031
Error	120	89.6567242	0.747139		
Corrected Total	149	134.7955223			

R-Square	Coeff Var	Root MSE	rank_Survival Mean
0.334869	#######	0.864372	0

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Sediment	29	45.13879815	1.55651	2.08	0.0031

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One-Way Analysis of Variance

Results

The ANOVA Procedure

Levene's Test for Homogeneity of rank_Survival Variance
ANOVA of Squared Deviations from Group Means

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	29	18.8151	0.6488	1.5	0.0687
Error	120	52.0397	0.4337		

Brown and Forsythe's Test for Homogeneity of rank_Survival Variance
ANOVA of Absolute Deviations from Group Medians

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	29	7.7305	0.2666	0.7	0.8705
Error	120	45.9742	0.3831		

Bartlett's Test for Homogeneity of rank_Survival Variance

Source	DF	Chi-Square	Pr > ChiSq
Sediment	29	23.4589	0.7551

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One-Way Analysis of Variance

Results

The ANOVA Procedure

Level of Sediment	N	rank_Survival Mean	Std Dev
Control	5	0.44542114	0.855062
LMR21-11S	5	-0.17449763	0.971157
LMR21-12S	5	0.8431886	0.917998
LMR21-14S	5	0.09119187	0.701779
LMR21-15S	5	0.2900756	0.879692
LMR21-17S	5	0.33586046	0.577432
LMR21-19S	5	0.07149987	1.266567
LMR21-25S	5	0.11142949	1.058593
LMR21-27S	5	-0.46042475	0.749191
LMR21-30S	5	-0.98509951	1.314292
LMR21-35S	5	0.32308684	0.928912
LMR21-37S	5	0.33586046	0.577432
LMR21-39S	5	-0.17449763	0.971157
LMR21-41S	5	0.21352617	0.657014
LMR21-43S	5	0.03715972	0.914714
LMR21-45S	5	0.45819476	0.444718
LMR21-47S	5	-1.53122153	0.520121
LMR21-48S	5	0.03715972	0.914714
LMR21-49S	5	-1.1252087	0.613155
LMR21-52S	5	0.73362792	0.744289
LMR21-53S	5	-0.53100656	0.244621
LMR21-55S	5	0.15949401	0.890169
LMR21-57S	5	0.45819476	0.444718
LMR21-59S	5	-0.82650796	0.860631
LMR21-61S	5	0.08427349	1.040565
LMR21-62S	5	0.12420311	0.773258
LMR21-64S	5	-0.08745424	0.866274
LMR21-66S	5	-0.22720087	1.382047
LMR21-68S	5	0.11370915	1.101201
LMR21-69S	5	0.85596222	0.544666

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One-Way Analysis of Variance
Results
The ANOVA Procedure

t Tests (LSD) for rank_Survival

Note: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	120
Error Mean Square	0.747139
Critical Value of t	1.65765
Least Significant Difference	0.9062

One-tailed comparisons significant at the 0.05 level are indicated by *.**

Sediment Comparison	Difference Between Means	90% Confidence Limits		
LMR21-69S - LMR21-12S	0.0128	-0.8934	0.919	
LMR21-69S - LMR21-52S	0.1223	-0.7839	1.0285	
LMR21-69S - LMR21-57S	0.3978	-0.5084	1.304	
LMR21-69S - LMR21-45S	0.3978	-0.5084	1.304	
LMR21-69S - Control	0.4105	-0.4957	1.3167	
LMR21-69S - LMR21-37S	0.5201	-0.3861	1.4263	
LMR21-69S - LMR21-17S	0.5201	-0.3861	1.4263	
LMR21-69S - LMR21-35S	0.5329	-0.3733	1.4391	
LMR21-69S - LMR21-15S	0.5659	-0.3403	1.4721	
LMR21-69S - LMR21-41S	0.6424	-0.2638	1.5486	
LMR21-69S - LMR21-55S	0.6965	-0.2097	1.6027	
LMR21-69S - LMR21-62S	0.7318	-0.1744	1.638	
LMR21-69S - LMR21-68S	0.7423	-0.1639	1.6485	
LMR21-69S - LMR21-25S	0.7445	-0.1617	1.6507	
LMR21-69S - LMR21-14S	0.7648	-0.1414	1.671	
LMR21-69S - LMR21-61S	0.7717	-0.1345	1.6779	
LMR21-69S - LMR21-19S	0.7845	-0.1217	1.6907	
LMR21-69S - LMR21-43S	0.8188	-0.0874	1.725	
LMR21-69S - LMR21-48S	0.8188	-0.0874	1.725	
LMR21-69S - LMR21-64S	0.9434	0.0372	1.8496	***
LMR21-69S - LMR21-39S	1.0305	0.1243	1.9367	***
LMR21-69S - LMR21-11S	1.0305	0.1243	1.9367	***
LMR21-69S - LMR21-66S	1.0832	0.177	1.9894	***
LMR21-69S - LMR21-27S	1.3164	0.4102	2.2226	***
LMR21-69S - LMR21-53S	1.387	0.4808	2.2932	***
LMR21-69S - LMR21-59S	1.6825	0.7763	2.5887	***
LMR21-69S - LMR21-30S	1.8411	0.9349	2.7473	***
LMR21-69S - LMR21-49S	1.9812	1.075	2.8874	***
LMR21-69S - LMR21-47S	2.3872	1.481	3.2934	***
Control - LMR21-69S	-0.4105	-1.3167	0.4957	
Control - LMR21-12S	-0.3978	-1.304	0.5084	
Control - LMR21-52S	-0.2882	-1.1944	0.618	
Control - LMR21-57S	-0.0128	-0.919	0.8934	
Control - LMR21-45S	-0.0128	-0.919	0.8934	
Control - LMR21-37S	0.1096	-0.7966	1.0158	
Control - LMR21-17S	0.1096	-0.7966	1.0158	
Control - LMR21-35S	0.1223	-0.7839	1.0285	
Control - LMR21-15S	0.1553	-0.7509	1.0615	
Control - LMR21-41S	0.2319	-0.6743	1.1381	
Control - LMR21-55S	0.2859	-0.6203	1.1921	
Control - LMR21-62S	0.3212	-0.585	1.2274	
Control - LMR21-68S	0.3317	-0.5745	1.2379	
Control - LMR21-25S	0.334	-0.5722	1.2402	
Control - LMR21-14S	0.3542	-0.552	1.2604	
Control - LMR21-61S	0.3611	-0.5451	1.2673	
Control - LMR21-19S	0.3739	-0.5323	1.2801	
Control - LMR21-43S	0.4083	-0.4979	1.3145	
Control - LMR21-48S	0.4083	-0.4979	1.3145	
Control - LMR21-64S	0.5329	-0.3733	1.4391	
Control - LMR21-39S	0.6199	-0.2863	1.5261	
Control - LMR21-11S	0.6199	-0.2863	1.5261	
Control - LMR21-66S	0.6726	-0.2336	1.5788	
Control - LMR21-27S	0.9058	-0.0004	1.812	
Control - LMR21-53S	0.9764	0.0702	1.8826	***
Control - LMR21-59S	1.2719	0.3657	2.1781	***
Control - LMR21-30S	1.4305	0.5243	2.3367	***
Control - LMR21-49S	1.5706	0.6644	2.4768	***
Control - LMR21-47S	1.9766	1.0704	2.8828	***

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Chironomus dilutus growth analysis following without consideration of level of survival observed

One-Way Analysis of Variance
Results
The ANOVA Procedure

Class Level Information		
Class	Levels	Values
Sediment	30	Control LMR21-11S LMR21-12S LMR21-14S LMR21-15S LMR21-17S LMR21-19S LMR21-25S LMR21-27S LMR21-30S LMR21-35S LMR21-37S LMR21-39S LMR21-41S LMR21-43S LMR21-45S LMR21-47S LMR21-48S LMR21-49S LMR21-52S LMR21-53S LMR21-55S LMR21-57S LMR21-59S LMR21-61S LMR21-62S LMR21-64S LMR21-66S LMR21-68S LMR21-69S
Number of Observations Read	173	
Number of Observations Used	150	

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Dependent Variable: rank_Mass (mg) Rank for Variable 'Mass (mg)'n

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	29	80.0153335	2.759149	4.97	<.0001
Error	120	66.6669752	0.555558		
Corrected Total	149	146.6823087			

R-Square	Coeff Var	Root MSE	rank_Mass (mg) Mean
0.545501	########	0.745358	0

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Sediment	29	80.01533349	2.759149	4.97	<.0001

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Levene's Test for Homogeneity of rank_Mass (mg) Variance
ANOVA of Squared Deviations from Group Means

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	29	18.5614	0.64	1.66	0.0306
Error	120	46.263	0.3855		

Brown and Forsythe's Test for Homogeneity of rank_Mass (mg) Variance
ANOVA of Absolute Deviations from Group Medians

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sediment	29	6.9386	0.2393	0.92	0.5913
Error	120	31.296	0.2608		

Bartlett's Test for Homogeneity of rank_Mass (mg) Variance

Source	DF	Chi-Square	Pr > ChiSq
Sediment	29	44.2065	0.0351

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One-Way Analysis of Variance
Results
The ANOVA Procedure

Level of Sediment	N	rank_Mass (mg) Mean	rank_Mass (mg) Std Dev
Control	5	0.40661508	1.057807
LMR21-11S	5	0.71248852	1.031368
LMR21-12S	5	0.09078407	0.658685
LMR21-14S	5	1.07866701	0.391223
LMR21-15S	5	0.29926271	0.553909
LMR21-17S	5	0.78293131	0.219334
LMR21-19S	5	0.63845454	0.745419
LMR21-25S	5	0.23470962	0.958485
LMR21-27S	5	0.58271047	0.593242
LMR21-30S	5	1.62286525	0.830244
LMR21-35S	5	0.02615366	0.50961
LMR21-37S	5	-0.04599117	0.757347
LMR21-39S	5	0.39082212	1.002584
LMR21-41S	5	0.41703	0.334416
LMR21-43S	5	0.01896963	0.709526
LMR21-45S	5	-0.59622383	0.461101
LMR21-47S	5	-2.13905949	0.345069
LMR21-48S	5	0.06644863	0.716816
LMR21-49S	5	-1.67304807	0.189606
LMR21-52S	5	-0.8528082	0.501294
LMR21-53S	5	-0.41357285	0.37015
LMR21-55S	5	-0.64937036	0.348794
LMR21-57S	5	-0.55264104	0.674564
LMR21-59S	5	0.00748498	1.225055
LMR21-61S	5	-0.17209958	1.288296
LMR21-62S	5	-0.29202947	0.954082
LMR21-64S	5	-0.27370686	0.622227
LMR21-66S	5	0.26974978	1.075068
LMR21-68S	5	0.19063389	0.994628
LMR21-69S	5	-0.17623034	0.35143

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One-Way Analysis of Variance Results

The ANOVA Procedure

t Tests (LSD) for rank_Mass (mg)

Note: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	120
Error Mean Square	0.555558
Critical Value of t	1.65765
Least Significant Difference	0.7814

One-tailed comparisons significant at the 0.05 level are indicated by *.**

Sediment Comparison	Difference Between Means	90% Confidence Limits		
Control - LMR21-30S	-1.2163	-1.9977	-0.4348	***
Control - LMR21-14S	-0.6721	-1.4535	0.1094	
Control - LMR21-17S	-0.3763	-1.1577	0.4051	
Control - LMR21-11S	-0.3059	-1.0873	0.4756	
Control - LMR21-19S	-0.2318	-1.0133	0.5496	
Control - LMR21-27S	-0.1761	-0.9575	0.6053	
Control - LMR21-41S	-0.0104	-0.7918	0.771	
Control - LMR21-39S	0.0158	-0.7656	0.7972	
Control - LMR21-15S	0.1074	-0.6741	0.8888	
Control - LMR21-66S	0.1369	-0.6446	0.9183	
Control - LMR21-25S	0.1719	-0.6095	0.9533	
Control - LMR21-68S	0.216	-0.5654	0.9974	
Control - LMR21-12S	0.3158	-0.4656	1.0973	
Control - LMR21-48S	0.3402	-0.4413	1.1216	
Control - LMR21-35S	0.3805	-0.401	1.1619	
Control - LMR21-43S	0.3876	-0.3938	1.1691	
Control - LMR21-59S	0.3991	-0.3823	1.1806	
Control - LMR21-37S	0.4526	-0.3288	1.234	
Control - LMR21-61S	0.5787	-0.2027	1.3601	
Control - LMR21-69S	0.5828	-0.1986	1.3643	
Control - LMR21-64S	0.6803	-0.1011	1.4617	
Control - LMR21-62S	0.6986	-0.0828	1.4801	
Control - LMR21-53S	0.8202	0.0388	1.6016	***
Control - LMR21-57S	0.9593	0.1778	1.7407	***
Control - LMR21-45S	1.0028	0.2214	1.7843	***
Control - LMR21-55S	1.056	0.2746	1.8374	***
Control - LMR21-52S	1.2594	0.478	2.0408	***
Control - LMR21-49S	2.0797	1.2982	2.8611	***
Control - LMR21-47S	2.5457	1.7642	3.3271	***
LMR21-69S - LMR21-30S	-1.7991	-2.5805	-1.0177	***
LMR21-69S - LMR21-14S	-1.2549	-2.0363	-0.4735	***
LMR21-69S - LMR21-17S	-0.9592	-1.7406	-0.1777	***
LMR21-69S - LMR21-11S	-0.8887	-1.6701	-0.1073	***
LMR21-69S - LMR21-19S	-0.8147	-1.5961	-0.0333	***
LMR21-69S - LMR21-27S	-0.7589	-1.5404	0.0225	
LMR21-69S - LMR21-41S	-0.5933	-1.3747	0.1882	
LMR21-69S - Control	-0.5828	-1.3643	0.1986	
LMR21-69S - LMR21-39S	-0.5671	-1.3485	0.2144	
LMR21-69S - LMR21-15S	-0.4755	-1.2569	0.3059	
LMR21-69S - LMR21-66S	-0.446	-1.2274	0.3354	
LMR21-69S - LMR21-25S	-0.4109	-1.1924	0.3705	
LMR21-69S - LMR21-68S	-0.3669	-1.1483	0.4146	
LMR21-69S - LMR21-12S	-0.267	-1.0484	0.5144	
LMR21-69S - LMR21-48S	-0.2427	-1.0241	0.5387	
LMR21-69S - LMR21-35S	-0.2024	-0.9838	0.579	
LMR21-69S - LMR21-43S	-0.1952	-0.9766	0.5862	
LMR21-69S - LMR21-59S	-0.1837	-0.9651	0.5977	
LMR21-69S - LMR21-37S	-0.1302	-0.9117	0.6512	
LMR21-69S - LMR21-61S	-0.0041	-0.7856	0.7773	
LMR21-69S - LMR21-64S	0.0975	-0.6839	0.8789	
LMR21-69S - LMR21-62S	0.1158	-0.6656	0.8972	
LMR21-69S - LMR21-53S	0.2373	-0.5441	1.0188	
LMR21-69S - LMR21-57S	0.3764	-0.405	1.1578	
LMR21-69S - LMR21-45S	0.42	-0.3614	1.2014	
LMR21-69S - LMR21-55S	0.4731	-0.3083	1.2546	
LMR21-69S - LMR21-52S	0.6766	-0.1048	1.458	
LMR21-69S - LMR21-49S	1.4968	0.7154	2.2782	***
LMR21-69S - LMR21-47S	1.9628	1.1814	2.7443	***

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Appendix K. Data tables for elutriate tests

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	8/23/2021	Control-1	Control	0	10	10	9
Pimephales promelas	8/23/2021	Control-1	Control	0	10	10	10
Pimephales promelas	8/23/2021	Control-1	Control	0	10	10	9
Pimephales promelas	8/23/2021	Control-1	Control	0	10	10	10
Pimephales promelas	8/23/2021	Control-1	Control	0	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	25	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	50	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	50	10	8	8
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	50	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	100	10	0	0
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	100	10	0	0
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	100	10	0	0
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	100	10	1	1
Pimephales promelas	8/23/2021	LMR21-SBA1	Unmodified	100	10	0	0
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	6.25	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	12.5	10	10	10

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	100	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	100	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBA2	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	6.25	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	6.25	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	6.25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	12.5	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	25	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	100	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	100	10	9	8
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	100	10	9	9

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	100	10	8	8
Pimephales promelas	8/23/2021	LMR21-SBA3	Unmodified	100	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	10	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	10	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	50	11	11	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	100	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBB1	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	10	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	10	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	100	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBB2	Unmodified	100	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	10	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	50	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	50	10	10	10

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	50	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	50	10	10	10
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	100	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	100	10	7	7
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	100	10	10	9
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	100	10	9	9
Pimephales promelas	8/23/2021	LMR21-SBC	Unmodified	100	10	8	8
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	10
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	10
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	9
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.675	10	10	8
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.675	10	9	9
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	0.675	10	9	9
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	8/23/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	9/20/2021	Control-2	Control	0	10	10	10
Pimephales promelas	9/20/2021	Control-2	Control	0	10	10	10
Pimephales promelas	9/20/2021	Control-2	Control	0	10	10	10
Pimephales promelas	9/20/2021	Control-2	Control	0	10	10	8
Pimephales promelas	9/20/2021	Control-2	Control	0	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	10	10	10	9
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	10	10	10	10

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	10	11	11	11
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	100	10	10	9
Pimephales promelas	9/20/2021	LMR21-SBD	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	12.5	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	25	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	25	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	25	10	10	6
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	25	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	50	10	10	7
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	50	10	9	8
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	50	10	10	0
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	50	10	9	2
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	50	10	10	0
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WA1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	6.25	10	9	9
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	6.25	10	10	10

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	6.25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	12.5	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	12.5	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	25	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	50	10	10	8
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	50	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	50	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	50	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	50	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	100	10	7	0
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	100	10	9	0
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	100	10	7	0
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	100	10	6	0
Pimephales promelas	9/20/2021	LMR21-WA2	Unmodified	100	10	9	0
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	10	10	10	9
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	50	10	9	8
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	50	10	9	9
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	100	10	5	4
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	100	10	8	1
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	100	10	4	0
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	100	10	7	2
Pimephales promelas	9/20/2021	LMR21-WA3	Unmodified	100	10	7	0
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	10	10	10	9
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	10	10	10	9

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	10	10	10	9
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	50	10	9	0
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	50	10	10	7
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	50	10	9	1
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	50	10	10	1
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	50	10	10	0
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WB1	Unmodified	100	10	0	0
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	10	10	10	9
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	50	10	9	9
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	100	11	11	11
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	100	10	9	9
Pimephales promelas	9/20/2021	LMR21-WB2	Unmodified	100	10	10	9
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	10	10	9	9
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	100	10	10	10

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	9/20/2021	LMR21-WC1	Unmodified	100	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	10	10	10	9
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	10	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	50	10	10	10
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	50	10	10	6
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	50	10	9	8
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	50	10	10	9
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	50	10	10	6
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	100	10	10	0
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	100	10	9	0
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	100	10	10	0
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	100	10	8	0
Pimephales promelas	9/20/2021	LMR21-WC2	Unmodified	100	10	10	0
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	12.5	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	50	5	3	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	100	5	0	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	9/1/2021	LMR21-SBA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	6.25	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	6.25	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	6.25	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	12.5	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	12.5	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	25	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	100	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	25	5	4	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	100	5	2	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	100	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	100	5	2	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBA3	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	10	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	50	5	3	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	100	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	10	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	100	5	5	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	9/1/2021	LMR21-SBB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/1/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/1/2021	Control	Unmodified	0	5	4	NA
Ceriodaphnia dubia	9/1/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/1/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/1/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	100	5	4	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	100	5	2	NA
Ceriodaphnia dubia	9/1/2021	LMR21-SBC	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/20/2021	Control_2	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/20/2021	Control_2	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/20/2021	Control_2	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/20/2021	Control_2	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/20/2021	Control_2	Unmodified	0	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	100	5	5	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	9/20/2021	LMR21-SBD	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	50	5	2	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	6.25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	12.5	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	25	5	5	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	25	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	50	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	50	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	50	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	100	5	2	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WA3	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	50	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	50	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	100	5	0	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	100	5	1	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	9/20/2021	LMR21-WB1	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	100	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	100	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC1	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	10	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	50	5	5	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	50	5	4	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	50	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	100	5	2	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	100	5	3	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	100	5	2	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	100	5	4	NA
Ceriodaphnia dubia	9/20/2021	LMR21-WC2	Unmodified	100	5	5	NA
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	10
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	10
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	10
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.675	10	9	9
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.675	10	10	10
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	0.675	10	8	8
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	9/20/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	10/25/2021	Control	Unmodified	0	10	10	10
Pimephales promelas	10/25/2021	Control	Unmodified	0	10	10	10
Pimephales promelas	10/25/2021	Control	Unmodified	0	10	10	10
Pimephales promelas	10/25/2021	Control	Unmodified	0	10	10	10
Pimephales promelas	10/25/2021	Control	Unmodified	0	10	10	10
Pimephales promelas	10/25/2021	Control	Zeolite	0	10	4	4
Pimephales promelas	10/25/2021	Control	Zeolite	0	10	9	9
Pimephales promelas	10/25/2021	Control	Zeolite	0	10	7	7
Pimephales promelas	10/25/2021	Control	Zeolite	0	10	6	5
Pimephales promelas	10/25/2021	Control	Zeolite	0	10	3	3

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	10/25/2021	Control	pH 6.5	0	10	NA	10
Pimephales promelas	10/25/2021	Control	pH 6.5	0	10	NA	9
Pimephales promelas	10/25/2021	Control	pH 6.5	0	10	NA	10
Pimephales promelas	10/25/2021	Control	pH 6.5	0	10	NA	10
Pimephales promelas	10/25/2021	Control	pH 6.5	0	10	NA	10
Pimephales promelas	10/25/2021	LMR21-SBC	Unmodified	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-SBC	Unmodified	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-SBC	Unmodified	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-SBC	Unmodified	100	10	10	9
Pimephales promelas	10/25/2021	LMR21-SBC	Unmodified	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-SBC	Zeolite	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-SBC	Zeolite	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-SBC	Zeolite	100	10	9	9
Pimephales promelas	10/25/2021	LMR21-SBC	Zeolite	100	10	10	9
Pimephales promelas	10/25/2021	LMR21-SBC	Zeolite	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-SBC	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-SBC	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-SBC	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-SBC	pH 6.5	100	10	NA	9
Pimephales promelas	10/25/2021	LMR21-SBC	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WB2	Unmodified	100	10	10	8
Pimephales promelas	10/25/2021	LMR21-WB2	Unmodified	100	10	10	9
Pimephales promelas	10/25/2021	LMR21-WB2	Unmodified	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-WB2	Unmodified	100	10	10	9
Pimephales promelas	10/25/2021	LMR21-WB2	Unmodified	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-WB2	Zeolite	100	10	9	9
Pimephales promelas	10/25/2021	LMR21-WB2	Zeolite	100	10	9	9
Pimephales promelas	10/25/2021	LMR21-WB2	Zeolite	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-WB2	Zeolite	100	10	10	9
Pimephales promelas	10/25/2021	LMR21-WB2	Zeolite	100	10	10	10
Pimephales promelas	10/25/2021	LMR21-WB2	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WB2	pH 6.5	100	10	NA	8
Pimephales promelas	10/25/2021	LMR21-WB2	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WB2	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WB2	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WC2	Unmodified	100	10	0	0
Pimephales promelas	10/25/2021	LMR21-WC2	Unmodified	100	10	0	0
Pimephales promelas	10/25/2021	LMR21-WC2	Unmodified	100	10	0	0
Pimephales promelas	10/25/2021	LMR21-WC2	Unmodified	100	10	0	0
Pimephales promelas	10/25/2021	LMR21-WC2	Unmodified	100	10	0	0

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Pimephales promelas	10/25/2021	LMR21-WC2	Zeolite	100	10	10	NA
Pimephales promelas	10/25/2021	LMR21-WC2	Zeolite	100	10	10	NA
Pimephales promelas	10/25/2021	LMR21-WC2	Zeolite	100	10	9	9
Pimephales promelas	10/25/2021	LMR21-WC2	Zeolite	100	10	10	NA
Pimephales promelas	10/25/2021	LMR21-WC2	Zeolite	100	10	10	NA
Pimephales promelas	10/25/2021	LMR21-WC2	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WC2	pH 6.5	100	10	NA	9
Pimephales promelas	10/25/2021	LMR21-WC2	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WC2	pH 6.5	100	10	NA	10
Pimephales promelas	10/25/2021	LMR21-WC2	pH 6.5	100	10	NA	NA
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.169	10	10	10
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	10
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.338	10	10	10
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.338	10	9	9
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.675	10	5	5
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.675	10	7	6
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	0.675	10	3	3
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	1.35	10	0	0
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Pimephales promelas	10/25/2021	Reference Toxicity	KCl (g/L)	2.7	10	0	0
Ceriodaphnia dubia	10/25/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	Unmodified	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	Zeolite	0	5	5	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	10/25/2021	Control	Zeolite	0	5	4	NA
Ceriodaphnia dubia	10/25/2021	Control	Zeolite	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	Zeolite	0	5	4	NA
Ceriodaphnia dubia	10/25/2021	Control	Zeolite	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	pH 6.5	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	pH 6.5	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	pH 6.5	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	pH 6.5	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	Control	pH 6.5	0	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Unmodified	100	5	4	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Unmodified	100	5	2	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Unmodified	100	5	3	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Unmodified	100	5	4	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Unmodified	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	Zeolite	100	5	4	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	pH 6.5	100	5	3	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	pH 6.5	100	5	4	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	pH 6.5	100	5	4	NA
Ceriodaphnia dubia	10/25/2021	LMR21-SBC	pH 6.5	100	5	4	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Unmodified	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	pH 6.5	100	5	4	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WB2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Unmodified	100	5	0	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Unmodified	100	5	0	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	Zeolite	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	LMR21-WC2	pH 6.5	100	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.0625	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.0625	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.0625	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.0625	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.125	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.125	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.125	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.125	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.25	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.25	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.25	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.25	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.5	5	4	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.5	5	4	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.5	5	5	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	0.5	5	4	NA

Test species	Date (initiation)	Sediment	Treatment	Conc	# Loaded	# Recovered (48h)	# Recovered (96h)
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	1	5	0	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	1	5	0	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	1	5	0	NA
Ceriodaphnia dubia	10/25/2021	Reference Toxicity	KCl (g/L)	1	5	0	NA

Appendix L. Data tables for whole sediment tests

Hyalella azteca

Sediment	Replicate	# Recovered	% Survival
Control	A	10	100%
Control	B	10	100%
Control	C	10	100%
Control	D	10	100%
Control	E	10	100%
LMR21-11S	A	10	100%
LMR21-11S	B	9	90%
LMR21-11S	C	10	100%
LMR21-11S	D	10	100%
LMR21-11S	E	10	100%
LMR21-12S	A	9	90%
LMR21-12S	B	9	90%
LMR21-12S	C	10	100%
LMR21-12S	D	10	100%
LMR21-12S	E	10	100%
LMR21-14S	A	10	100%
LMR21-14S	B	8	80%
LMR21-14S	C	10	100%
LMR21-14S	D	10	100%
LMR21-14S	E	9	90%
LMR21-15S	A	9	90%
LMR21-15S	B	9	90%
LMR21-15S	C	8	80%
LMR21-15S	D	10	100%
LMR21-15S	E	9	90%
LMR21-17S	A	9	90%
LMR21-17S	B	10	100%
LMR21-17S	C	10	100%
LMR21-17S	D	10	100%
LMR21-17S	E	8	80%
LMR21-19S	A	10	100%
LMR21-19S	B	10	100%
LMR21-19S	C	7	70%
LMR21-19S	D	8	80%
LMR21-19S	E	10	100%
LMR21-25S	A	10	100%
LMR21-25S	B	10	100%
LMR21-25S	C	9	90%

Sediment	Replicate	# Recovered	% Survival
LMR21-25S	D	10	100%
LMR21-25S	E	10	100%
LMR21-27S	A	10	100%
LMR21-27S	B	8	80%
LMR21-27S	C	10	100%
LMR21-27S	D	10	100%
LMR21-27S	E	10	100%
LMR21-30S	A	10	100%
LMR21-30S	B	9	90%
LMR21-30S	C	9	90%
LMR21-30S	D	10	100%
LMR21-30S	E	10	100%
LMR21-35S	A	9	90%
LMR21-35S	B	10	100%
LMR21-35S	C	9	90%
LMR21-35S	D	10	100%
LMR21-35S	E	5	50%
LMR21-37S	A	10	100%
LMR21-37S	B	9	90%
LMR21-37S	C	9	90%
LMR21-37S	D	10	100%
LMR21-37S	E	10	100%
LMR21-39S	A	9	90%
LMR21-39S	B	9	90%
LMR21-39S	C	9	90%
LMR21-39S	D	8	80%
LMR21-39S	E	9	90%
LMR21-41S	A	10	100%
LMR21-41S	B	10	100%
LMR21-41S	C	10	100%
LMR21-41S	D	10	100%
LMR21-41S	E	9	90%
LMR21-43S	A	10	100%
LMR21-43S	B	10	100%
LMR21-43S	C	9	90%
LMR21-43S	D	9	90%
LMR21-43S	E	8	80%
LMR21-45S	A	10	100%
LMR21-45S	B	9	90%
LMR21-45S	C	10	100%
LMR21-45S	D	9	90%
LMR21-45S	E	10	100%

Sediment	Replicate	# Recovered	% Survival
LMR21-47S	A	0	0%
LMR21-47S	B	1	10%
LMR21-47S	C	0	0%
LMR21-47S	D	5	50%
LMR21-47S	E	1	10%
LMR21-48S	A	10	100%
LMR21-48S	B	10	100%
LMR21-48S	C	10	100%
LMR21-48S	D	10	100%
LMR21-48S	E	5	50%
LMR21-49S	A	2	20%
LMR21-49S	B	9	90%
LMR21-49S	C	7	70%
LMR21-49S	D	7	70%
LMR21-49S	E	10	100%
LMR21-52S	A	9	90%
LMR21-52S	B	9	90%
LMR21-52S	C	10	100%
LMR21-52S	D	10	100%
LMR21-52S	E	10	100%
LMR21-53S	A	9	90%
LMR21-53S	B	10	100%
LMR21-53S	C	10	100%
LMR21-53S	D	10	100%
LMR21-53S	E	10	100%
LMR21-55S	A	10	100%
LMR21-55S	B	7	70%
LMR21-55S	C	10	100%
LMR21-55S	D	10	100%
LMR21-55S	E	10	100%
LMR21-57S	A	10	100%
LMR21-57S	B	9	90%
LMR21-57S	C	10	100%
LMR21-57S	D	10	100%
LMR21-57S	E	10	100%
LMR21-59S	A	9	90%
LMR21-59S	B	9	90%
LMR21-59S	C	10	100%
LMR21-59S	D	9	90%
LMR21-59S	E	10	100%
LMR21-61S	A	10	100%

Sediment	Replicate	# Recovered	% Survival
LMR21-61S	B	10	100%
LMR21-61S	C	9	90%
LMR21-61S	D	10	100%
LMR21-61S	E	10	100%
LMR21-62S	A	10	100%
LMR21-62S	B	9	90%
LMR21-62S	C	10	100%
LMR21-62S	D	9	90%
LMR21-62S	E	10	100%
LMR21-64S	A	10	100%
LMR21-64S	B	9	90%
LMR21-64S	C	10	100%
LMR21-64S	D	10	100%
LMR21-64S	E	10	100%
LMR21-66S	A	8	80%
LMR21-66S	B	10	100%
LMR21-66S	C	10	100%
LMR21-66S	D	10	100%
LMR21-66S	E	8	80%
LMR21-68S	A	10	100%
LMR21-68S	B	8	80%
LMR21-68S	C	10	100%
LMR21-68S	D	10	100%
LMR21-68S	E	6	60%
LMR21-69S	A	9	90%
LMR21-69S	B	8	80%
LMR21-69S	C	10	100%
LMR21-69S	D	10	100%
LMR21-69S	E	10	100%

Chironomus dilutus

Sediment	Replicate	# Recovered	% Survival	Total Biomass (mg)	Mean Individual Dry Weight (mg)
Control	A	10	100%	25.104	2.282
Control	B	10	100%	19.054	2.117
Control	C	9	90%	22.310	2.789
Control	D	7	70%	21.710	3.618
Control	E	9	90%	19.964	2.496
LMR21-11S	A	6	60%	21.994	3.666
LMR21-11S	B	9	90%	23.818	2.646
LMR21-11S	C	7	70%	17.060	2.437
LMR21-11S	D	8	80%	24.312	3.039
LMR21-11S	E	10	100%	21.626	2.163
LMR21-12S	A	10	100%	23.944	2.660
LMR21-12S	B	7	70%	18.576	2.654
LMR21-12S	C	10	100%	25.380	2.538
LMR21-12S	D	10	100%	19.016	2.377
LMR21-12S	E	10	100%	16.156	2.020
LMR21-14S	A	8	80%	24.064	3.008
LMR21-14S	B	8	80%	18.384	2.626
LMR21-14S	C	9	90%	22.342	2.793
LMR21-14S	D	10	100%	25.888	2.876
LMR21-14S	E	8	80%	22.866	3.267
LMR21-15S	A	8	80%	18.362	2.623
LMR21-15S	B	8	80%	22.706	2.838
LMR21-15S	C	8	80%	19.322	2.415
LMR21-15S	D	10	100%	21.892	2.189
LMR21-15S	E	10	100%	25.584	2.558
LMR21-17S	A	9	90%	25.366	2.818
LMR21-17S	B	9	90%	25.118	2.791
LMR21-17S	C	10	100%	26.652	2.665
LMR21-17S	D	9	90%	22.382	2.798
LMR21-17S	E	8	80%	13.064	2.613
LMR21-19S	A	10	100%	22.994	2.299
LMR21-19S	B	5	50%	17.448	3.490
LMR21-19S	C	10	100%	28.444	2.844
LMR21-19S	D	7	70%	17.804	2.543
LMR21-19S	E	9	90%	20.584	2.573
LMR21-25S	A	10	100%	27.430	2.743
LMR21-25S	B	7	70%	19.514	2.788
LMR21-25S	C	8	80%	9.938	2.485
LMR21-25S	D	10	100%	16.542	1.654

Sediment	Replicate	# Recovered	% Survival	Total Biomass (mg)	Mean Individual Dry Weight (mg)
LMR21-25S	E	7	70%	16.538	2.756
LMR21-27S	A	9	90%	16.542	2.363
LMR21-27S	B	6	60%	18.550	3.092
LMR21-27S	C	9	90%	24.816	2.757
LMR21-27S	D	6	60%	14.302	2.384
LMR21-27S	E	8	80%	21.566	2.696
LMR21-30S	A	2	20%	8.352	4.176
LMR21-30S	B	4	40%	15.620	3.905
LMR21-30S	C	9	90%	24.620	3.078
LMR21-30S	D	7	70%	18.644	2.663
LMR21-30S	E	9	90%	26.986	2.998
LMR21-35S	A	9	90%	21.038	2.338
LMR21-35S	B	10	100%	15.478	2.580
LMR21-35S	C	8	80%	16.078	2.297
LMR21-35S	D	10	100%	19.344	2.149
LMR21-35S	E	7	70%	18.886	2.698
LMR21-37S	A	9	90%	23.528	2.614
LMR21-37S	B	9	90%	19.156	2.395
LMR21-37S	C	8	80%	21.770	2.721
LMR21-37S	D	10	100%	19.072	1.907
LMR21-37S	E	9	90%	20.144	2.238
LMR21-39S	A	8	80%	18.936	2.367
LMR21-39S	B	10	100%	20.038	2.004
LMR21-39S	C	9	90%	23.512	2.612
LMR21-39S	D	7	70%	20.008	2.858
LMR21-39S	E	6	60%	16.096	3.219
LMR21-41S	A	9	90%	21.182	2.354
LMR21-41S	B	10	100%	27.208	2.721
LMR21-41S	C	8	80%	20.776	2.597
LMR21-41S	D	8	80%	21.924	2.741
LMR21-41S	E	9	90%	22.804	2.534
LMR21-43S	A	10	100%	21.924	2.192
LMR21-43S	B	9	90%	18.258	2.282
LMR21-43S	C	8	80%	16.694	2.385
LMR21-43S	D	6	60%	18.002	3.000
LMR21-43S	E	9	90%	19.946	2.216
LMR21-45S	A	9	90%	20.982	2.331
LMR21-45S	B	10	100%	21.296	1.936
LMR21-45S	C	9	90%	20.840	2.316
LMR21-45S	D	9	90%	17.126	2.141
LMR21-45S	E	9	90%	18.384	2.043
LMR21-47S	A	6	0.60	2.274	0.379

Sediment	Replicate	# Recovered	% Survival	Total Biomass (mg)	Mean Individual Dry Weight (mg)
LMR21-47S	B	7	70%	2.890	0.413
LMR21-47S	C	4	40%	3.864	0.966
LMR21-47S	D	5	50%	5.648	1.130
LMR21-47S	E	4	40%	2.396	0.599
LMR21-48S	A	9	90%	18.620	2.069
LMR21-48S	B	9	90%	20.606	2.290
LMR21-48S	C	8	80%	19.142	2.393
LMR21-48S	D	6	60%	17.192	2.865
LMR21-48S	E	10	100%	25.276	2.528
LMR21-49S	A	4	40%	4.952	1.651
LMR21-49S	B	6	60%	3.890	0.648
LMR21-49S	C	7	70%	9.218	1.317
LMR21-49S	D	6	80%	8.852	1.475
LMR21-49S	E	8	80%	9.314	1.164
LMR21-52S	A	9	90%	20.156	2.240
LMR21-52S	B	10	100%	18.498	1.850
LMR21-52S	C	10	100%	21.242	2.124
LMR21-52S	D	10	100%	16.420	1.642
LMR21-52S	E	8	80%	17.626	2.203
LMR21-53S	A	7	70%	11.070	2.214
LMR21-53S	B	7	70%	15.006	2.144
LMR21-53S	C	8	80%	16.153	2.308
LMR21-53S	D	8	80%	19.044	2.381
LMR21-53S	E	8	80%	16.370	2.046
LMR21-55S	A	6	60%	11.772	1.962
LMR21-55S	B	9	90%	18.898	2.100
LMR21-55S	C	9	90%	17.038	2.130
LMR21-55S	D	9	90%	17.314	2.164
LMR21-55S	E	10	100%	23.132	2.313
LMR21-57S	A	10	100%	23.188	2.576
LMR21-57S	B	9	90%	14.440	1.805
LMR21-57S	C	9	90%	18.112	2.012
LMR21-57S	D	9	90%	17.350	2.169
LMR21-57S	E	9	90%	18.382	2.298
LMR21-59S	A	9	90%	13.246	2.208
LMR21-59S	B	7	70%	19.562	2.795
LMR21-59S	C	4	40%	13.274	3.319
LMR21-59S	D	6	60%	9.202	1.840
LMR21-59S	E	8	80%	16.638	2.080
LMR21-61S	A	9	90%	19.192	2.399
LMR21-61S	B	10	100%	14.568	1.821
LMR21-61S	C	9	90%	21.000	2.333
LMR21-61S	D	5	50%	17.658	3.532

Sediment	Replicate	# Recovered	% Survival	Total Biomass (mg)	Mean Individual Dry Weight (mg)
LMR21-61S	E	9	90%	16.016	1.780
LMR21-62S	A	9	90%	22.056	2.451
LMR21-62S	B	9	90%	15.780	1.973
LMR21-62S	C	8	80%	23.328	2.916
LMR21-62S	D	10	100%	20.300	2.030
LMR21-62S	E	7	70%	14.734	2.105
LMR21-64S	A	8	80%	12.410	2.068
LMR21-64S	B	7	70%	12.836	2.567
LMR21-64S	C	10	100%	19.866	2.207
LMR21-64S	D	9	90%	16.740	2.093
LMR21-64S	E	7	70%	18.162	2.595
LMR21-66S	A	7	70%	15.996	2.285
LMR21-66S	B	6	60%	18.244	3.041
LMR21-66S	C	10	100%	23.072	2.307
LMR21-66S	D	5	50%	9.308	3.103
LMR21-66S	E	10	100%	20.410	2.041
LMR21-68S	A	10	100%	23.106	2.311
LMR21-68S	B	10	100%	20.974	2.097
LMR21-68S	C	8	80%	16.638	2.377
LMR21-68S	D	6	60%	21.572	3.595
LMR21-68S	E	8	80%	19.042	2.380
LMR21-69S	A	9	90%	22.288	2.476
LMR21-69S	B	10	100%	21.408	2.379
LMR21-69S	C	10	100%	21.284	2.128
LMR21-69S	D	9	90%	21.262	2.362
LMR21-69S	E	10	100%	22.238	2.224

Appendix M. Data tables for bioaccumulation test

Sediment	Repl.	Mass of sediment Added (kg)	Day 0 Mass Added Tissue Mass (g)	Day 28 Mass Recovered Tissue Mass (g)	% Recovered Tissue Mass (g)
Control	A	6	28.2	5.9	20.9%
Control	B	6	28.2	2.3	8.2%
Control	C	6	28.9	15.9	55.0%
Control	D	6	28.9	17.1	59.2%
Control	E	6	28.9	17.9	61.9%
LMR21-11S	A	6	28.4	6.0	21.1%
LMR21-11S	B	6	28.6	4.7	16.4%
LMR21-11S	C	6	28.9	15.6	54.0%
LMR21-11S	D	6	28.7	16.3	56.8%
LMR21-11S	E	6	28.8	16.9	58.7%
LMR21-12S	A	6	28.8	7.7	26.7%
LMR21-12S	B	6	28.2	8.2	29.0%
LMR21-12S	C	6	28.9	17.9	61.9%
LMR21-12S	D	6	28.7	17.8	62.0%
LMR21-12S	E	6	28.7	19.6	68.3%
LMR21-14S	A	6	28.7	3.1	10.8%
LMR21-14S	B	6	28.9	8.5	29.4%
LMR21-14S	C	6	28.8	18.3	63.5%
LMR21-14S	D	6	28.9	18.1	62.6%
LMR21-14S	E	6	28.9	16.8	58.1%
LMR21-15S	A	6	28.5	3.4	11.9%
LMR21-15S	B	6	28.7	9.0	31.4%
LMR21-15S	C	6	28.8	15.8	54.9%
LMR21-15S	D	6	28.9	15.0	51.9%
LMR21-15S	E	6	28.9	13.5	46.7%

Sediment	Repl.	Mass of sediment Added (kg)	Day 0 Mass Added Tissue Mass (g)	Day 28 Mass Recovered Tissue Mass (g)	% Recovered Tissue Mass (g)
LMR21-17S	A	6	28.8	5.8	20.1%
LMR21-17S	B	6	28.7	2.7	9.4%
LMR21-17S	C	6	28.7	17.2	59.9%
LMR21-17S	D	6	28.9	16.1	55.7%
LMR21-17S	E	6	28.8	18.4	63.9%
LMR21-19S	A	6	28.5	3.1	10.9%
LMR21-19S	B	6	28.8	6.4	22.2%
LMR21-19S	C	6	28.9	17.8	61.6%
LMR21-19S	D	6	28.9	17.5	60.6%
LMR21-19S	E	6	28.9	19.8	68.5%
LMR21-25S	A	6	28.9	6.3	21.8%
LMR21-25S	B	6	28.8	7.5	26.0%
LMR21-25S	C	6	28.9	20.2	69.9%
LMR21-25S	D	6	28.8	20.2	70.1%
LMR21-25S	E	6	28.7	21.6	75.3%
LMR21-27S	A	6	28.9	1.9	6.6%
LMR21-27S	B	6	28.8	2.1	7.3%
LMR21-27S	C	6	28.8	18.3	63.5%
LMR21-27S	D	6	28.9	19.5	67.5%
LMR21-27S	E	6	28.8	18.6	64.6%
LMR21-45S	A	6	28.6	5.5	19.2%
LMR21-45S	B	6	28.7	7.9	27.5%
LMR21-45S	C	6	28.5	17.5	61.4%
LMR21-45S	D	6	28.9	18.4	63.7%
LMR21-45S	E	6	28.8	18.3	63.5%
LMR21-64S	A	6	28.8	3.7	12.8%
LMR21-64S	B	6	28.9	7.7	26.6%
LMR21-64S	C	6	28.8	21.4	74.3%

Sediment	Repl.	Mass of sediment Added (kg)	Day 0 Mass Added Tissue Mass (g)	Day 28 Mass Recovered Tissue Mass (g)	% Recovered Tissue Mass (g)
LMR21-64S	D	6	28.8	20.5	71.2%
LMR21-64S	E	6	28.9	17.1	59.2%
LMR21-66S	A	6	28.8	9.6	33.3%
LMR21-66S	B	6	28.7	9.5	33.1%
LMR21-66S	C	6	28.9	18.6	64.4%
LMR21-66S	D	6	28.7	19.5	67.9%
LMR21-66S	E	6	28.8	18.1	62.8%
LMR21-68S	A	6	28.9	3.4	11.7%
LMR21-68S	B	6	28.8	8.9	30.9%
LMR21-68S	C	6	28.6	18.2	63.6%
LMR21-68S	D	6	28.8	18.2	63.2%
LMR21-68S	E	6	28.9	15.9	55.0%
LMR21-69S	A	6	28.9	10.0	34.6%
LMR21-69S	B	6	28.7	8.3	28.9%
LMR21-69S	C	6	28.7	15.6	54.4%
LMR21-69S	D	6	28.9	17.7	61.2%
LMR21-69S	E	6	28.8	19.0	66.0%

Appendix N. Tissue Lipid Raw Data

Sediment	Replicate	% Lipid
LMR21-11S	A	2.01
LMR21-11S	B	1.93
LMR21-11S	C	1.72
LMR21-11S	D	1.98
LMR21-11S	E	1.9
LMR21-12S	A	1.48
LMR21-12S	B	1.58
LMR21-12S	C	1.88
LMR21-12S	D	2.09
LMR21-12S	E	1.45
LMR21-14S	A	1.89
LMR21-14S	B	1.91
LMR21-14S	C	1.73
LMR21-14S	D	2.42
LMR21-14S	E	1.87
LMR21-15S	A	2.86
LMR21-15S	B	2.74
LMR21-15S	C	2.54
LMR21-15S	D	2.44
LMR21-15S	E	2.44
LMR21-17S	A	1.87
LMR21-17S	B	2.52
LMR21-17S	C	2.3
LMR21-17S	D	2.65
LMR21-17S	E	1.74
LMR21-19S	A	2.23
LMR21-19S	B	2.09
LMR21-19S	C	2.04

Sediment	Replicate	% Lipid
LMR21-19S	D	2.14
LMR21-19S	E	1.82
LMR21-25S	A	1.62
LMR21-25S	B	2.07
LMR21-25S	C	1.72
LMR21-25S	D	1.43
LMR21-25S	E	1.41
LMR21-27S	A	1.56
LMR21-27S	B	1.71
LMR21-27S	C	1.74
LMR21-27S	D	1.34
LMR21-27S	E	1.28
LMR21-45S	A	1.57
LMR21-45S	B	1.9
LMR21-45S	C	1.6
LMR21-45S	D	1.77
LMR21-45S	E	1.6
LMR21-64S	A	1.33
LMR21-64S	B	1.74
LMR21-64S	C	1.8
LMR21-64S	D	1.43
LMR21-64S	E	1.56
LMR21-66S	A	1.55
LMR21-66S	B	1.33
LMR21-66S	C	1.36
LMR21-66S	D	1.4
LMR21-66S	E	1.45
LMR21-68S	A	1.72
LMR21-68S	B	1.39

Sediment	Replicate	% Lipid
LMR21-68S	C	1.24
LMR21-68S	D	1.25
LMR21-68S	E	1.5
LMR21-69S	A	1.36
LMR21-69S	B	1.49
LMR21-69S	C	1.34
LMR21-69S	D	1.25
LMR21-69S	E	1.27

Appendix O. Raw data sheets for elutriate tests

TEST ORGANISM RECEIPT AND ACCLIMATION SHEET

Project: Lower Maumee River	Test Initiation Date: 10/25/21 Time: 1500
Laboratory: ERDC-EL-EPR	Test Date(s): 10/21/21 Time: 1400
Test Species: *Pimephales promelas*	Page 1 of 1
Exposure duration: 96h	Environmental chamber temperature: 25°C

Day	Date	Original Number	Number Dead/removed	Estimated Survival	Water Change (Y/N)	Feeding (Y/N)	Temp. (°C)	Salinity/Cond. (ppt / uS/cm)	pH (SU)	D.O. (mg/L)	Initials	Comments (mg/L)
0*	10/21	1980	–	100%	partial	Y	22.8	382.7	7.60	16.25	TB	
1	10/22	–	–	99%	N	Y	25.2	341	7.90	7.24	NM	
2	10/23	–	–	99%	Y	Y	24.9	361	7.94	7.60	NM	
3	10/24	–	–	99%	N	Y	25.0	366	7.98	6.41	NM	
4												
5												
6												
7												
8												
9												
10												
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22												
23												
24												

* Taken immediately upon receiving

Reviewed by Lauren May on 12/1/2021

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

AQUATIC BIO SYSTEMS ABS INC.

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE:	10/20/2021
SPECIES:	*Pimephales promelas*
AGE:	N/A
LIFE STAGE:	Embryo
HATCH DATE:	10/20/2021
BEGAN FEEDING:	N/A
FOOD:	N/A

Water Chemistry Record:	**Current**	**Range**
TEMPERATURE:	23°C	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	110 mg/l	--
TOTAL ALKALINITY (as $CaCO_3$):	90 mg/l	--
pH:	8.00	--

Comments:

Facility Supervisor

°C	DO	µs	pH
22.8	16.25	382.7	7.60

Aquatic BioSystems, Inc • Quality Research Organisms

TEST ORGANISM RECEIPT AND ACCLIMATION SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/2021 Time: AM
Laboratory: ERDC-EL-EPR	Test Date(s): 9/20 – 9/24 Time: –
Test Species: *Pimephales promelas*	Page 1 of 1
Exposure duration: 96h	Environmental chamber temperature: 25°C

Day	Date	Original Number	Number Dead/removed	Estimated Survival	Water Change (Y/N)	Feeding (Y/N)	Temp. (°C)	Salinity/Cond. (ppt / uS/cm)	pH (SU)	D.O. (mg/L)	Initials	Comments (mg/L)
0*	9/17	2200	Ø	100%	partial	Y	23.1	323.8	7.77	19.94	NM	
1	9/18	–	–	100%	N	Y	24.8	352	7.85	6.92	NM	
2	9/19	–	–	100%	Y	Y	25.1	371	8.04	6.46	NM	
3												
4												
5												
6												
7												
8												
9												
10												
11												
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* Taken immediately upon receiving

Reviewed by Lauren May on 9/27/2021

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

AQUATIC BIO SYSTEMS ABS INC.

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 9/17/2021

SPECIES: *Pimephales promelas*

AGE: N/A

LIFE STAGE: Embryo

HATCH DATE: 9/17/2021

BEGAN FEEDING: N/A

FOOD: N/A

Water Chemistry Record:

	Current	Range
TEMPERATURE:	24°C	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	116 mg/l	--
TOTAL ALKALINITY (as $CaCO_3$):	85 mg/l	--
pH:	8.10	--

°c	DO	µS	pH
23.1	19.94	323.8	7.77

Comments:

Facility Supervisor

Maumee elutriate

TEST ORGANISM RECEIPT [illegible]D ACCLIMATION SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1425
Laboratory: ERDC-EL-EPR	Test Date(s): 8/20/21 Time: 1200
Test Species: *Pimephales promelas*	Page 1 of 1
Exposure duration: 96h	Environmental chamber temperature: 25°C

Day	Date	Original Number	Number Dead/removed	Estimated Survival	Water Change (Y/N)	Feeding (Y/N)	Temp. (°C)	Salinity/Cond. (ppt / uS/cm)	pH (SU)	D.O. (mg/L)	Initials	Comments (mg/L)
0*	8-20	1680	–	100	Partial	Y	23.8	381	7.34	11.07	AK	TB; 1 BAG; 10:30
1	8/21	–	–	100%	N	Y	25.1	344	7.90	6.90	JM	
2	8/22	–	–	100%	N	Y	25.2	349	7.97	7.14	NM	
3	8/23											Test initiation.
4												
5												
6												
7												
8												
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17												
18												
19												
20												
21												
22												
23												
24												

* Taken immediately upon receiving

Reviewed by Lauren May on 9/27/2021

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

AQUATIC BIO SYSTEMS ABS INC.

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 8/19/2021

SPECIES: *Pimephales promelas*

AGE: N/A

LIFE STAGE: Embryo

HATCH DATE: 8/19/2021

BEGAN FEEDING: N/A

FOOD: N/A

C° DO NS
23.8 11.07 381.4
pH
7.34

Water Chemistry Record:	**Current**	**Range**
TEMPERATURE:	25ºC	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	108 mg/l	--
TOTAL ALKALINITY (as $CaCO_3$):	70 mg/l	--
pH:	7.94	--

Comments:

Facility Supervisor

Aquatic BioSystems, Inc • Quality Research Organisms

ELUTRIATE PREPARATION LOG

Project: Maumee
Laboratory: ERDC

Test Initiation Date: 11-3-21 Time: 0800
Sediment: WC-1

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	904		AK/WM
0:00	Manually stir	904		
0:10	Manually stir	914		
0:20	Manually stir	924		
0:30	Terminate mixing	934		
1:00	Observation	1034		
1:30	Terminate settling	1034		

Reviewed by Lauren May on 12/1/2021

ELUTRIATE PREPARATION LOG

Project: Maumee | Test Initiation Date: 11-3-21 · Time: 0800

Laboratory: ERDC | Sediment: WB1

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0946		NM
0:00	Manually stir	0946		
0:10	Manually stir	956		
0:20	Manually stir	1006		
0:30	Terminate mixing	1016		
1:00	Observation	1046		
1:30	Terminate settling	1116		

Reviewed by Lauren May on 12/1/2021

ELUTRIATE PREPARATION LOG

Project: Maumee	Test Initiation Date: 11-3-21 Time: 0800
Laboratory: ERDC	Sediment: WA-3

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	951		NM
0:00	Manually stir	NM 11-3 ~~1001~~ 951		
0:10	Manually stir	1001		
0:20	Manually stir	1011		
0:30	Terminate mixing	1021		
1:00	Observation	1051		
1:30	Terminate settling	1121		

Reviewed by Lauren May on 12/1/2021

GRADUATED PH ADJUSTMENT LOG

Project: Maumee River	Test Initiation Date: 10-25 Time: 1500
Laboratory: ERDC-EL-EPR	Sediment: LMR21-WB2

Date/time	Acid	Volume	Talley	pH	Initials
10-25/1300				7.66	AK
1309	HCl	0.1	16	6.54	AK
1505	–	–	–	~~6.543~~ AK	AK
				6.43 10-25	
				6.53	AK
10.27				7.13	
1340	HCL (1M)	0.1mL	11	6.73	NM
	HCl (0.1M)	0.1mL	1111	6.54	NM

Reviewed by Lauren May on 12/1/2021

GRADUATED PH ADJUSTMENT LOG

Project: Maumee River	Test Initiation Date: 10/25/21 Time: 1500
Laboratory: ERDC-EL-EPR	Sediment: LMR21-SBC

Date/time	Acid	Volume	Talley	pH	Initials
10-25				~~7.67~~ AK	AK
1336				~~7.84~~ 10-25	AK
~~1345~~			16	6.58	AK
1452				~~6.66~~ AK	AK
~~1455~~	~~HCl~~		~~1~~ AK 10-25	~~6.10~~ 10/25	AK
	~~NaOH~~ AK 10-25		8 AK 10-25		
1515				6.52	AK
10-27				6.96	
1327	HCl (1M)	0.1mL	III	6.61	NM
	HCl (0.1M)	0.1mL	~~IIII~~	6.51	NM

Reviewed by Lauren May on 12/1/2021

CONTROL

				~~7.67~~	AK
10-25				7.94	
12:48	HCl	0.1mL	17	6.28	
14:52	HCl	0.1	1	6.66	
				6.10	
1502	NaOH	0.1	8	650	
1509				6.66	
10-27				7.38	NM
1300	HCl(1M)	0.1mL	III	6.50	

ELUTRIATE PREPARATION LOG

Project: Maumee River	Test Initiation Date: 10/25/21 Time: 1500
Laboratory: ERDC-EL-EPR	Sediment: LMR21-WC2

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0905		AK
0:00	Manually stir	0905		AK
0:10	Manually stir	0915		AK
0:20	Manually stir	0925		NM
0:30	Terminate mixing	0935		NM
1:00	Observation	1005		NM
1:30	Terminate settling	1035		NM

Reviewed by Lauren May on 12/1/2021

ELUTRIATE PREPARATION LOG

Project: Maumee River | Test Initiation Date: 10/25/21 | Time: 1500
Laboratory: ERDC-EL-EPR | Sediment: LMR21-SBC

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0920		NM
0:00	Manually stir	0920		NM
0:10	Manually stir	0930		NM
0:20	Manually stir	0940		NM
0:30	Terminate mixing	0950		NM
1:00	Observation	1020		NM
1:30	Terminate settling	1050		

Reviewed by Lauren May on 12/1/2021

ELUTRIATE PREPARATION LOG

Project: Maumee River	Test Initiation Date: 10/25/21 Time: 1500
Laboratory: ERDC-EL-EPR	Sediment: LMR21-WB2

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0910		NM
0:00	Manually stir	0910		NM
0:10	Manually stir	0920		NM
0:20	Manually stir	0930		NM
0:30	Terminate mixing	0940		NM
1:00	Observation	1010		NM
1:30	Terminate settling	1040		NM

Reviewed by Lauren May on 12/1/2021

GRADUATED PH ADJUSTMENT LOG

Project: Maumee River	Test Initiation Date: 10/25/21 Time: 1500
Laboratory: ERDC-EL-EPR	Sediment: LMR21-WC2

Date/time	Acid	Volume	Talley	pH	Initials
10/25/1322	HCl	0.1		8.17	AK
1327	HCl	0.1	13	6.47	AK
1512				6.39	AK
	NaOH	0.1	1	6.50	AK

Reviewed by Lauren May on 12/1/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 9/20/2021 | Time: 0812

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-SBD**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0812		~~[illegible]~~ TB
0:00	Manually stir	0812		TB
0:10	Manually stir	0822		TB
0:20	Manually stir	0832		NM
0:30	Terminate mixing	0842		PK
1:00	Observation	0912		TB
1:30	Terminate settling	0942		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District
Test Initiation Date: 9/20/2021 Time: 0847
Laboratory: ERDC-EL-EPR
Sediment: **LMR21-WA-1**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0847		NM
0:00	Manually stir	0847		NM
0:10	Manually stir	0857		PK
0:20	Manually stir	0907		PK
0:30	Terminate mixing	0917		PK
1:00	Observation	0947		TB
1:30	Terminate settling	1017		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 9/20/2021 | Time: 0840

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-WA-2**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0840		PK
0:00	Manually stir	0840		PK
0:10	Manually stir	0850		PK
0:20	Manually stir	0900		PK
0:30	Terminate mixing	0910		PK
1:00	Observation	0940		TB
1:30	Terminate settling	1010		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 9/20/2021 | Time: 0854

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-WA-3**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0854		NM
0:00	Manually stir	0854		NM
0:10	Manually stir	0904		PK
0:20	Manually stir	0914		PK
0:30	Terminate mixing	0924		PK
1:00	Observation	0954		TB
1:30	Terminate settling	1024		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 9/20/2021 | Time: 0901

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-WB-1**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0901		NM
0:00	Manually stir	0901		NM
0:10	Manually stir	0911		PK
0:20	Manually stir	0921		PK
0:30	Terminate mixing	0931		PK
1:00	Observation	1001		TB
1:30	Terminate settling	1031		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District	Test Initiation Date: 9/20/2021 Time: 0831
Laboratory: ERDC-EL-EPR	Sediment: **LMR21-WB-2**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0831		~~AB~~ NM
0:00	Manually stir	0831		NM
0:10	Manually stir	0841		PK
0:20	Manually stir	0851		PK
0:30	Terminate mixing	0901		PK
1:00	Observation	0931		TB
1:30	Terminate settling	1001		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 9/20/2021 | Time: 0828

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-WC-1**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0828		TB
0:00	Manually stir	0828		TB
0:10	Manually stir	0838		TB
0:20	Manually stir	0848		PK
0:30	Terminate mixing	0858		PK
1:00	Observation	0928		TB
1:30	Terminate settling	0958		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 09/20/2021 | Time: 0906

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-WC-2**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0906		TB
0:00	Manually stir	0906		TB
0:10	Manually stir	0916		PK
0:20	Manually stir	0926		PK
0:30	Terminate mixing	0936		PK
1:00	Observation	1006		TB
1:30	Terminate settling	1036		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: ERDC - Maumee | Test Initiation Date: 9-1 | Time: 0938

Laboratory: ERDC - EPR | Sediment: SBA1 | C. dubia

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	938		AK
0:00	Manually stir	938		
0:10	Manually stir	948		
0:20	Manually stir	958		
0:30	Terminate mixing	1008		
1:00	Observation	1008	Centrifuge	
1:30	Terminate settling	1108		

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project:	Maumee	Test Initiation Date: 9-1	Time: 0942
Laboratory:	ERDC-EPR	Sediment: SBA2	C. dubia

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	942		AK
0:00	Manually stir	942		
0:10	Manually stir	952		
0:20	Manually stir	AK ~~9~~ 1002		
0:30	Terminate mixing	1012		
1:00	Observation	1012	Centrifuge	
1:30	Terminate settling	1112		

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Maumee | Test Initiation Date: 9-1 Time: 0946

Laboratory: ERDC-EPR | Sediment: SBA3 C. dubia

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	946		AK
0:00	Manually stir	946		
0:10	Manually stir	956		
0:20	Manually stir	1006		
0:30	Terminate mixing	1016		
1:00	Observation	1016	Centrifuge	
1:30	Terminate settling	1116		

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Maumee	Test Initiation Date: 9-1-2021 Time: 0931
Laboratory: ERDC - EPR	Sediment: SBB1 C.dubia

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	931		AK
0:00	Manually stir	931		
0:10	Manually stir	941		
0:20	Manually stir	951		
0:30	Terminate mixing	1001		
1:00	Observation	1001	Centrifuge	
1:30	Terminate settling	1101		

Reviewed by Lauren May on 09/27/2021

ELUTRIATE PREPARATION LOG

Project: Maumee
Test Initiation Date: 9-1
Time: 0934

Laboratory: ERDC-EPR
Sediment: SBB2
C. dubia

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	934		AK
0:00	Manually stir	934		
0:10	Manually stir	944		
0:20	Manually stir	954		
0:30	Terminate mixing	1004		
1:00	Observation	1004	Centrifuge	
1:30	Terminate settling	1104		

Reviewed by Lauren May on 09/27/2021

ELUTRIATE PREPARATION LOG

Project: Maumee | Test Initiation Date: 9-1-2021 Time: 0926

Laboratory: ERDC-EL | Sediment: SBC C. dubia

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	926		AK
0:00	Manually stir	926		
0:10	Manually stir	936		
0:20	Manually stir	946		
0:30	Terminate mixing	956		
1:00	Observation	956	Centrifuge	
1:30	Terminate settling	1056		

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District	Test Initiation Date: 8/23/2021 Time: 0842
Laboratory: ERDC-EL-EPR	Sediment: **LMR21-SBC**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0842		NM
0:00	Manually stir	0842		NM
0:10	Manually stir	0852		NM
0:20	Manually stir	0902		TB
0:30	Terminate mixing	0912		NM
1:00	Observation	0942		TB
1:30	Terminate settling	~~1002~~ 1012		TB
			petroleum odor after centrifuging	TD

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District	Test Initiation Date: 8/23/2021 Time: ~~0904~~ 0906
Laboratory: ERDC-EL-EPR	Sediment: **LMR21-SBA2**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0906		TB
0:00	Manually stir	0906		TB
0:10	Manually stir	0916		NM
0:20	Manually stir	0926		NM
0:30	Terminate mixing	0936		TB
1:00	Observation	1006		TB
1:30	Terminate settling	1036		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 8/23/2021 | Time: 0850

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-SBB2**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0850		NM
0:00	Manually stir	0850		NM
0:10	Manually stir	0900		TB
0:20	Manually stir	0910		NM
0:30	Terminate mixing	0920		NM
1:00	Observation	0950		TB
1:30	Terminate settling	1020		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District | Test Initiation Date: 8/23/2021 | Time: 0913

Laboratory: ERDC-EL-EPR | Sediment: **LMR21-SBA1**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0913	Sediment has petroleum odor.	TB
0:00	Manually stir	0913		TB
0:10	Manually stir	0923		AK
0:20	Manually stir	0933		TB
0:30	Terminate mixing	0943		VRM
1:00	Observation	1013	sheen on surface	TB
1:30	Terminate settling	1043		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District	Test Initiation Date: 8/23/2021 Time: 0921
Laboratory: ERDC-EL-EPR	Sediment: **LMR21-SBA3**

Time	Activity	Actual time	Comments	Initials
0:00	Add 1:4 (Sediment:water)	0921		TB
0:00	Manually stir	0921		TB
0:10	Manually stir	0931	Mild sheen, no odor	TB
0:20	Manually stir	0941		LRM
0:30	Terminate mixing	0951		TB
1:00	Observation	1021		TB
1:30	Terminate settling	1051		TB

Reviewed by Lauren May on 9/27/2021

ELUTRIATE PREPARATION LOG

Project: Lower Maumee River - Buffalo District		Test Initiation Date: 8/23/2021	Time: 0924	
Laboratory: ERDC-EL-EPR		Sediment: **LMR21-SBB1**		
Time	**Activity**	**Actual time**	**Comments**	**Initials**
0:00	Add 1:4 (Sediment:water)	0924		TB
0:00	Manually stir	0924		TB
0:10	Manually stir	0934		TB
0:20	Manually stir	0944		LRM
0:30	Terminate mixing	0954		TB
1:00	Observation	1024		TB
1:30	Terminate settling	1054		TB

Reviewed by Lauren May on 09/27/2021

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: P. promelas Test Duration: 96h
Date of Analysis: 10/29/2021

Treatment	total ammonia Ammonia as N (mg/L)	pH (SU)	Temp (°C)	Comments
Control	<1			
Control Zeolite	<1			
Control pH 6.5	<1			
Reference Tox 100%	—			
LMR21-SBC 100%	6.25			
LMR21-WB2 100%	6.43			
LMR21-WC2 100%	12.7			
LMR21-SBC Zeolite	<1			
LMR21-WB2 Zeolite	<1			
LMR21-WC2 Zeolite	1.52			
LMR21-SBC pH 6.5	10.1			
LMR21-WB2 pH 6.5	12.8			
LMR21-WC2 pH 6.5	23.0			
Initials	VRM			
Date	10/29/2021			

Reviewed by: [signature] 12/1/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: C. dubia   Test Duration: 48h
Date of Analysis: 10/27/2021

Treatment	total ammonia: Ammonia as N (mg/L)	pH (SU)	Temp (°C)	Comments
Control	<1			
Control Zeolite	<1			
Control pH 6.5	<1			
Reference Tox 100%	<1			
LMR21-SBC 100%	9.77			
LMR21-WB2 100%	12.8			
LMR21-WC2 100%	21.1			
LMR21-SBC Zeolite	<1			
LMR21-WB2 Zeolite	<1			
LMR21-WC2 Zeolite	<1			
LMR21-SBC pH 6.5	10.9			
LMR21-WB2 pH 6.5	13.8			
LMR21-WC2 pH 6.5	23.7			
Initials	VRM			
Date	10/27/2021			

Reviewed by: Lauren May 12/1/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: p. promelas & C. dubia Test Duration: 96h/48h
Date of Analysis: 10/25/2021

Treatment	total ammonia			
	Ammonia as N (mg/L)	pH (SU)	Temp (°C)	Comments
Control	<1			
Control Zeolite	<1			
Control pH 6.5	<1			
Reference Tox 100%	.0639			
LMR21-SBC 100%	10.8			
LMR21-WB2 100%	13.9			
LMR21-WC2 100%	23.4			
LMR21-SBC Zeolite	<1			
LMR21-WB2 Zeolite	<1			
LMR21-WC2 Zeolite	<1			
LMR21-SBC pH 6.5	11.2			
LMR21-WB2 pH 6.5	14.9			
LMR21-WC2 pH 6.5	23.5			
Initials	JB			
Date	10/25/21			

Reviewed by: [signature] 12/1/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: *Pimephales promelas* Test Duration: 96-hr
Date of Analysis: 8/23/21

Treatment	total ammonia			
	Ammonia as N (mg/L)	Salinity / Conductivity (ppt / uS/cm)	Temp (°C)	pH (SU)
Control	0.0378	—	~~22.9~~ 25.0	8.27
Reference Tox 100%	0.0183	—		8.26
LMR21-SBA1 6.25%	0.602	—		8.53
LMR21-SBA1 12.5%	1.28	—		8.53
LMR21-SBA1 25%	2.74	—		8.47
LMR21-SBA1 50%	5.83	—		8.48
LMR21-SBA1 100%	12.0	—		8.49
LMR21-SBA2 6.25%	0.0498	—		8.48
LMR21-SBA2 12.5%	0.0684	—		8.52
LMR21-SBA2 25%	0.110	—		8.58
LMR21-SBA2 50%	0.214	—		8.52
LMR21-SBA2 100%	0.599	—		8.48
LMR21-SBA3 6.25%	0.509	—		8.52
LMR21-SBA3 12.5%	1.02	—		8.51
LMR21-SBA3 25%	2.43	—		8.51
LMR21-SBA3 50%	5.34	—		8.49
LMR21-SBA3 100%	11.3	—		8.45
LMR21-SBB1 10%	0.314	—		8.53
LMR21-SBB1 50%	1.82	—		8.52
LMR21-SBB1 100%	4.01	—		8.51
LMR21-SBB2 10%	0.496	—		8.53
LMR21-SBB2 50%	2.40	—		8.48
LMR21-SBB2 100%	5.15	—		8.43
LMR21-SBC 10%	1.68	—		8.46
LMR21-SBC 50%	5.56	—		8.41
LMR21-SBC 100%	12.0	—		8.39
Initials	AH	—	AH	AH

Reviewed by: Lauren May 9/27/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: *Pimephales promelas* Test Duration: 96hr
Date of Analysis: 9/27/2021

Treatment	total ammonia			
	Ammonia as N (mg/L)	Salinity / Conductivity (ppt / uS/cm)	Temp (°C)	pH (SU)
Control	<1	–	24.7	8.00
Reference Tox ~~100~~ 25%	<1	–	24.4	8.21
LMR21-SBA1 6.25%	0.925	–	24.8	8.22
LMR21-SBA1 12.5%	1.61	–	24.6	8.25
LMR21-SBA1 25%	2.87	–	24.4	8.23
LMR21-SBA1 50%	5.36	–	24.4	8.30
LMR21-SBA1 100%	10.4	–	24.1	8.44
LMR21-SBA2 6.25%	<1	–	24.7	8.37
LMR21-SBA2 12.5%	<1	–	24.5	8.35
LMR21-SBA2 25%	<1	–	24.4	8.33
LMR21-SBA2 50%	0.577	–	24.4	8.37
LMR21-SBA2 100%	0.781	–	24.2	8.19
LMR21-SBA3 6.25%	0.900	–	24.6	8.27
LMR21-SBA3 12.5%	1.55	–	24.2	8.29
LMR21-SBA3 25%	2.73	–	24.1	8.36
LMR21-SBA3 50%	4.97	–	24.0	8.46
LMR21-SBA3 100%	9.39	–	24.1	8.46
LMR21-SBB1 10%	0.828	–	24.4	8.35
LMR21-SBB1 50%	2.25	–	24.3	8.39
LMR21-SBB1 100%	4.01	–	24.2	8.46
LMR21-SBB2 10%	0.907	–	24.3	8.41
LMR21-SBB2 50%	2.78	–	24.1	8.43
LMR21-SBB2 100%	5.30	–	24.0	8.51
LMR21-SBC 10%	1.55	–	24.2	8.41
LMR21-SBC 50%	6.10	–	24.2	8.36
LMR21-SBC 100%	11.7	–	24.1	8.43
Initials	LRM	–	LRM	LRM

Reviewed by: Lauren May 9/27/21

ELUTRIATE TOTAL AMMONIA				
Project: Maumee River				
Laboratory: ERDC-EL-EPR				
Test Species: C. dubia			Test Duration: 48h	
Date of Analysis: 9/1/21				
Treatment	total ammonia			
	Ammonia as N (mg/L)	Salinity / Conductivity (ppt / uS/cm)	Temp (°C)	pH (SU)
Control	< 1			
SBC 10%	1.39			
SBC 50%	6.96			
SBC 100%	13.9			
SBB1 10%	1.59			
SBB1 50%	8.15			
SBB1 100%	16.3			
SBB2 10%	0.565			
SBB2 50%	2.81			
SBB2 100%	5.24			
SBA1 6.25%	0.693			
SBA1 12.5%	1.62			
SBA1 25%	2.90			
SBA1 50%	5.85			
SBA1 100%	12.0			
SBA2 6.25%	0.151			
SBA2 12.5%	0.200			
SBA2 25%	0.378			
SBA2 50%	0.587			
SBA2 100%	0.931			
SBA3 6.25	1.21			
SBA3 12.5	2.24			
SBA3 25	4.47			
SBA3 50	9.13			
SBA3 100	17.8			
Initials	AK			

Lauren May 9/27/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: *Ceriodaphnia dubia* Test Duration: 48hr
Date of Analysis: 9/3/21

Treatment	total ammonia			
	Ammonia as N (mg/L)	Salinity / Conductivity (ppt / uS/cm)	Temp (°C)	pH (SU)
Control	<1	—	21.9	8.57
Reference Tox 100%	—	—	—	—
LMR21-SBA1 6.25%	0.728	—	21.8	8.64
LMR21-SBA1 12.5%	1.28	—	21.8	8.76
LMR21-SBA1 25%	2.78	—	21.9	9.33
LMR21-SBA1 50%	5.58	—	22.0	8.89
LMR21-SBA1 100%	vem ~~5.39~~ 11.2	—	22.1	8.63
LMR21-SBA2 6.25%	<1	—	21.6	9.56
LMR21-SBA2 12.5%	<1	—	21.7	8.71
LMR21-SBA2 25%	<1	—	21.7	8.60
LMR21-SBA2 50%	<1	—	21.8	8.59
LMR21-SBA2 100%	0.728	—	21.9	8.57
LMR21-SBA3 6.25%	1.00	—	vem ~~22.5~~ 21.5	8.37
LMR21-SBA3 12.5%	2.26	—	21.7	8.52
LMR21-SBA3 25%	4.07	—	21.7	8.58
LMR21-SBA3 50%	8.17	—	21.7	8.58
LMR21-SBA3 100%	15.7	—	21.8	8.64
LMR21-SBB1 10%	1.72	—	22.0	8.73
LMR21-SBB1 50%	7.28	—	22.1	8.66
LMR21-SBB1 100%	14.9	—	22.3	8.71
LMR21-SBB2 10%	0.785	—	22.3	9.41
LMR21-SBB2 50%	2.47	—	22.0	8.74
LMR21-SBB2 100%	4.73	—	22.0	9.17
LMR21-SBC 10%	1.51	—	22.2	8.66
LMR21-SBC 50%	6.19	—	22.1	8.57
LMR21-SBC 100%	12.1	—	22.0	8.56
Initials	vem	—	vem	vem

Reviewed by: Lauren May 9/27/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: P. promelas & C. dubia Test Duration: 96h
Date of Analysis: 9/20/21

Treatment	total ammonia Ammonia as N (mg/L)	Salinity / Conductivity (ppt / uS/cm)	Temp (°C)	pH (SU)
Control	.0633			8.51
Reference Tox 100%	.0597			8.44
LMR21-SBD 10%	.332			8.49
LMR21-SBD 50%	1.14			8.56
LMR21-SBD 100%	2.28			8.48
LMR21-WA-1 6.25%	2.00			8.60
LMR21-WA-1 12.5%	3.71			8.44
LMR21-WA-1 25%	7.28			8.43
LMR21-WA-1 50%	14.5			8.34
LMR21-WA-1 100%	29.9			8.34
LMR21-WA-2 6.25%	1.18			8.45
LMR21-WA-2 12.5%	2.19			8.46
LMR21-WA-2 25%	4.74			8.43
LMR21-WA-2 50%	9.46			8.32
LMR21-WA-2 100%	19.0			8.25
LMR21-WA-3 10%	1.67			8.52
LMR21-WA-3 50%	8.40			8.37
LMR21-WA-3 100%	17.3			8.38
LMR21-WB-1 10%	2.77			8.30
LMR21-WB-1 50%	13.4			7.93
LMR21-WB-1 100%	26.8			7.77
LMR21-WB-2 10%	.745			8.49
LMR21-WB-2 50%	3.25			8.51
LMR21-WB-2 100%	6.62			8.57
LMR21-WC-1 10%	.884			8.51
LMR21-WC-1 50%	4.04			8.43
LMR21-WC-1 100%	8.23			8.41
LMR21-WC-2 10%	1.85			8.36
LMR21-WC-2 50%	8.70			8.24
LMR21-WC-2 100%	17.3			8.13
Initials	JB			JB
Date	9/20/21			9/20/21

Reviewed by: Lauren May 9/27/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: C. dubia Test Duration: 48h
Date of Analysis: 9/22/21

Treatment	total ammonia			
	Ammonia as N (mg/L)	Salinity / Conductivity (ppt / uS/cm)	Temp (°C)	pH (SU)
Control	<1			
Reference Tox 100%				
LMR21-SBD 10%	<1			
LMR21-SBD 50%	1.14			
LMR21-SBD 100%	2.02			
LMR21-WA-1 6.25%	1.53			
LMR21-WA-1 12.5%	2.97			
LMR21-WA-1 25%	6.63			
LMR21-WA-1 50%	12.9			
LMR21-WA-1 100%	26.5			
LMR21-WA-2 6.25%	1.17			
LMR21-WA-2 12.5%	2.05			
LMR21-WA-2 25%	4.23			
LMR21-WA-2 50%	8.31			
LMR21-WA-2 100%	16.8			
LMR21-WA-3 10%	1.61			
LMR21-WA-3 50%	7.48			
LMR21-WA-3 100%	14.9			
LMR21-WB-1 10%	2.54			
LMR21-WB-1 50%	11.6			
LMR21-WB-1 100%	24.0			
LMR21-WB-2 10%	0.964			
LMR21-WB-2 50%	3.10			
LMR21-WB-2 100%	5.86			
LMR21-WC-1 10%	0.767			
LMR21-WC-1 50%	3.64			
LMR21-WC-1 100%	7.25			
LMR21-WC-2 10%	1.61			
LMR21-WC-2 50%	7.36			
LMR21-WC-2 100%	14.9			
Initials	mm			
Date	9/22/21			

Reviewed by: Lauren May 9/27/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: P. promelas Test Duration: 96 hr
Date of Analysis: 9/24/21

Treatment	total ammonia			
	Ammonia as N (mg/L)	Salinity / Conductivity (ppt / uS/cm)	Temp (°C)	pH (SU)
Control	0.170			
Reference Tox 100%	0.375			
LMR21-SBD 10%	0.325			
LMR21-SBD 50%	0.827			
LMR21-SBD 100%	1.53			
LMR21-WA-1 6.25%	1.46			
LMR21-WA-1 12.5%	2.49			
LMR21-WA-1 25%	6.23			
LMR21-WA-1 50%	8.79			
LMR21-WA-1 100%	—			
LMR21-WA-2 6.25%	1.02			
LMR21-WA-2 12.5%	1.69			
LMR21-WA-2 25%	3.48			
LMR21-WA-2 50%	6.39			
LMR21-WA-2 100%	—			
LMR21-WA-3 10%	1.53			
LMR21-WA-3 50%	6.49			
LMR21-WA-3 100%	12.6			
LMR21-WB-1 10%	2.47			
LMR21-WB-1 50%	10.2			
LMR21-WB-1 100%				
LMR21-WB-2 10%	0.807			
LMR21-WB-2 50%	2.71			
LMR21-WB-2 100%	5.32			
LMR21-WC-1 10%	0.964			
LMR21-WC-1 50%	3.54			
LMR21-WC-1 100%	7.33			
LMR21-WC-2 10%	1.87			
LMR21-WC-2 50%	8.07			
LMR21-WC-2 100%	—			
Initials	TB			
Date	9/24/21			

Reviewed by: Lauren May 9/27/21

ELUTRIATE TOTAL AMMONIA

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: Test Duration:
Date of Analysis:

Treatment	total ammonia			
	Ammonia as N (mg/L)	pH (SU)	Temp (°C)	Comments
Control				
Control Zeolite				
Control pH 6.5				
Reference Tox 100%				
LMR21-SBC 100%				
LMR21-WB2 100%				
LMR21-WC2 100%				
LMR21-SBC Zeolite				
LMR21-WB2 Zeolite				
LMR21-WC2 Zeolite				
LMR21-SBC pH 6.5				
LMR21-WB2 pH 6.5				
LMR21-WC2 pH 6.5				
Initials				
Date				

Reviewed by: ______________________

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: Ø

Date: 10/25/2021 **Technician Initials:** NM, AK, VRM, JB, PK, TB
Time: 0800

Comments Elutriates prepared (see elutriate prep log). Organisms fed artemia prior to test addition. Ref Tox solutions prepared for FHM (2.7g/L) and C.dubia (1g/L). TREs prepared - zeolite column and pH adjustments (see pH adjustment sheet). Elutriates centrifuged. Water quality recorded on all treatments. Ammonia recorded on all treatments. Odor noticed on elutriates - SBC, WB2, ~~&~~ WC2.

Day: 1 (24h)

Date: 10/26/21 **Technician Initials:** VRM/NM
Time: 1400

Comments Survival recorded on all replicates (except pH 6.5 treatment. These remaining closed and sealed to maintain pH levels.). Water quality recorded on Rep B of all treatments (except pH 6.5 treatments). Water quality also recorded on replicates with 100% mortality. Cerio survival recorded. FHM fed —

Day: 2 (48h)
Date: 10/27/21 **Technician Initials:** NM
Time: 1600

Comments Survival recorded for all replicates (except pH 6.5 treatment). Water quality recorded for all reps C. C.dubia test terminated. Water quality and survival recorded.

Reviewed and Understood by: Lauren May on 12/1/2021

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: 3 (72h)

Date: 10/28/21 Technician Initials: km
Time: 1500

Comments Survival recorded for all reps except pH 6.5. Water quality recorded for all reps D except pH 6.5. P. promelas fed 500 artemia per beaker.

Day: 4 (96h)

Date: 10/29/21 Technician Initials: NM
Time: 1600

Comments P. promelas test terminated. Survival and water quality recorded for all replicates. All fish euthanized with MS-222.

Day:
Date:______ Technician Initials:______
Time:______

Comments

Reviewed and Understood by : Lauren May on 12/1/2021

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District
P. promelas and C. dubia
Day: Ø

Date: 9/20/21 Technician Initials: TB/AK/NM/MB/JB/PK/AH
Time: 0800

Comments Elutriates made (see elutriate prep logs). Centrifuged Elutriates for 15 min @ 4000 RPM. P. Promelas fed prior to test inistion, centrifuged Elutriates aireated for 30 min. Elutriate prepared with MHRW. Chemistry samples taken according to sampling plan. organisms added to each replicate - 10 Each. Initiation times recorded. water quality recorded on Each Treatment - Temp, DO, pH, conductivity, +ammonia. Alkalinity + Hardness recorded on 100%, control, Ref tox iniated (see log). 5 C. dubia added to test vessels. (n=5)
* pH probe malfunctioning. pH values measured on Orion Dual Star pH/ISE meter. on YSI Meter.

Day: 1

Date: 9/21/21 Technician Initials: NM
Time: 1352

Comments Water quality recorded on each replicate "B." Both organisms counted for survival. P. promelas fed 500 artemia per beaker at 1430.

Survival @ 24hr cerio test recorded.

Day: 2
Date: 9/22/21 Technician Initials: TB/NM
Time: 0800

Comments Elutriates placed in chamber @ 25°C and placed on air prior to water change. Out water quality recorded for FHM. Elutriates diluted and IN water WQ recorded. Survival recorded on each rep. ~90% water siphoned from beakers, then filled with respective renewal water.

Cerio test terminated. Survival recorded. WQ obtained on composite of each treatment. Ammonia measurements recorded.

Reviewed and Understood by: Lauren May on 9/27/2021

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: 3

Date: 9/23/2021 Technician Initials: NM
Time: 0800

Comments FHM fed 500 artemia per beaker in Am. Daily water quality recorded on Rep D of each treatment. Survival recorded on all beakers.

Day: 4

Date: 9/24/2021 Technician Initials: NM/TB
Time: 1200

Comments FHM test terminated. Water quality recorded on all replicates. Survival recorded on all replicates. Ammonia measurements recorded. FHM disposed of according to EL-6009-2019-2 protocol.

Day:
Date:________ Technician Initials:________________
Time:________

Comments

Reviewed and Understood by : Lauren May on 9/27/2021

Daily Observations

Day: 0

Date: 9/1/21 Technician Initials: NM

Time: 1400

Dilutor counter: —

Comments Elutriates prepared, centrifuged, and aerated (30 mins). Water quality recorded for all treatments. Organisms added to test vessels.

* No Alkalinity/Hardness measurements recorded.

Day: 1

Date: 9/2/21 Technician Initials: NM

Time: 1400

Dilutor counter: —

Comments All replicates counted and survival recorded.

Day: 2

Date: 9/3/21 Technician Initials: NM

Time: 1400

Dilutor counter: —

Comments All replicates counted and survival recorded. Water quality measured for all treatments. Ammonia measured for all treatments.

Lauren May 9/27/2021

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: Ø

Date: 8/23/21 Technician Initials: AK/TB/NM/AH/LRM/JB/MB
Time: 0800

Comments: Elutriates made (see elutriate prep logs). Centrifuged elutriates for 30min @ 4000rpm. P. promelas fed prior to test initiation. Centrifuged elutriates aerated for 30min. elutriate prepared with MHRW. Chemistry samples taken according to sampling plan. Organisms added to each replicate - 10 each. Initiation times recorded. Water quality recorded on each treatment - temp. D.O, pH, conductivity and ammonia. Alkalinity & Hardness recorded on 100% & control. Ref tox initiated (see log).

Day: 1

Date: 8/24/21 Technician Initials: TB/NM/LRM
Time: 0930

Comments: Fed 500 artemia/Beaker @ 24hr, Am.
Elutriate water warmed to appropriate temperature for C. dubia (25°C) and aerated for 30 minutes. Dilution concentrations mixed and water quality recorded. C. dubia added to test vessels. Ammonia measured.

Daily parameters recorded on Rep B of all treatments. Survival recorded on all replicates. Full water quality recorded on replicates with 100% mortality.

Day: 2
Date: 8/25/2021 Technician Initials: LRM/NM
Time: 0800

Comments: Elutriates placed in chamber @25°C and placed on air @ 0838 prior to water change. "Out" water quality recorded for FHM, 1110 nm. Elutriates diluted and "In" water quality recorded. Fish in each test vessel counted. ~90% of water siphoned from beakers, then filled with proper renewal water.
Survival recorded for C. dubia.

Reviewed and Understood by: Lauren May on 9/27/2021

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: 3

Date: 8/26/21 Technician Initials: NM
Time: 0800

Comments FHM fed 500 artemia per beaker at 0800. NM Water quality recorded and survival counted for FHM. C. dubia survival recorded, water quality recorded, ammonia measured.

Day: 4

Date: 8/27/21 Technician Initials: NM/TB/JB/VEM
Time: 1200

Comments Test terminated. Water quality obtained on all replicates. Ammonia samples measured on each treatment. Survival recorded on each replicate. Fish disposed of according to EL-6009-2019-2 protocol.

Day:
Date:
Technician Initials:
Time:

Comments

Reviewed and Understood by: Lauren May on 9/27/2021

ELUTRIATE ORGANISM INITIATION TIMES

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: P. promelas Test Duration: 96h
Date: 10/25/2021

Treatment	Initiation Times: Time	Initials	Comments
Control ~~Zeo~~	1512	VEM	
Reference Tox	1455	VEM	
LMR21-SBC 100%	1500	PK	
LMR21-WB2 100%	1503	VEM	
LMR21-WC2 100%	1508	VEM	
LMR21-SBC Zeolite	1525	AH	
LMR21-WB2 Zeolite	1525	VEM	
LMR21-WC2 Zeolite	1512	~~VPK~~ PK	
LMR21-SBC pH 6.5	1539	VEM	
LMR21-WB2 pH 6.5	1540	AH	
LMR21-WC2 pH 6.5	1533	AH	
Control Zeolite	1512	VEM	
Control pH6.5	1533	VEM	

Reviewed by: Lauren May

ELUTRIATE ORGANISM INITIATION TIMES

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: P. promelas Test Duration: 96h
Date: 10/25/2021

Treatment	Initiation Times		
	Time	Initials	Comments
Control ~~Zeo~~	1512	VRM	
Reference Tox	1455	VRM	
LMR21-SBC 100%	1500	PK	
LMR21-WB2 100%	1503	VRM	
LMR21-WC2 100%	1508	VRM	
LMR21-SBC Zeolite	1525	AH	
LMR21-WB2 Zeolite	1525	VRM	
LMR21-WC2 Zeolite	1512	~~VK~~ PK	
LMR21-SBC pH 6.5	1539	VRM	
LMR21-WB2 pH 6.5	1540	AH	
LMR21-WC2 pH 6.5	1533	AH	
Control Zeolite	1512	VRM	
Control pH 6.5	1533	VRM	

Reviewed by: Lauren May

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River
Site ID: **LMR21-SBC**
Test Species: *Pimephales promelas*
Exposure duration: 96hr

Test Initiation Date: 10/25/2021 Time: 1500
Test Termination Date: 10/29/2021 Time: 1400
Page 2 of 4
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive				Temp. (°C)					Conductivity (uS/cm)					pH (SU)					D.O. (mg/L)					Alkalinty (mg/L)	Hardness (mg/L)
			24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	0 h
100%	A	10	10	10	10	10	24.1				25.0	435				373	7.64				8.03	6.84				6.07	—	—
	B	10	10	10	10	10		24.2			25.0		375			376		7.42			7.98		6.10			5.52		
	C	10	10	10	10	10			25.0		24.9			~~370~~ 371.8 TB		375			7.08		7.95			4.34		5.65		
	D	10	10	10	10	9				25.3	24.9				372	375				8.04	8.00				6.08	6.17		
	E	10	10	10	10	10					24.8					376					8.05					6.20		
ZEOLITE	A	10	10	10	10	10	24.0				25.2	444				395	7.49				8.23	7.39				6.44	—	—
	B	10	10	10	10	10		24.7			25.1		391			397		7.95			8.23		6.59			6.41		
	C	10	9	9	9	9			25.3		25.1			390.4		396			7.53		8.16			5.22		5.94		
	D	10	10	10	10	9				25.5	25.1				393	396				8.18	8.16				6.08	6.06		
	E	10	10	10	10	10					24.9					402					8.19					6.46		
pH 6.5	A	10	NC	NC	NC	10	24.5				25.6	463				410	6.51				6.78	8.20				3.99	—	—
	B	10				10					25.7					411					6.82					4.09		
	C	10				10					25.6					411					6.75					4.01		
	D	10				9					25.6					411					6.83					4.40		
	E	10				10					25.5					411					6.80					3.89		
Initials:		PK/AH/ VRM	VRM	TB	MM	MM	MM	VRM	TB	MM	MM																	
Date:		10/25	10/26	10/27	10/28	10/29	10/25	10/26	10/27	10/28	10/29																	
Time:		1500/1525 1539	1305	1330	1720	1930	1400	1334	1100	1718	1316																	
Initials (QA):		MK	MM	MM	TB	TB																						

Reviewed by Lauren May on 12/1/2021

NC = Not counted. Treatment remained airtight, no counts performed

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River
Site ID: CONTROLS
Test Species: *Pimephales promelas*
Exposure duration: 96hr

Test Initiation Date: 10/25/21 Time: 1500
Test Termination Date: 10/29/2021 Time: 1400
Page 1 of 4
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinty (mg/L) 0 h	Hardness (mg/L) 0 h
CONTROL	A	10	10	10	10	10	24.0				25.2	325				294	7.23				7.75	7.62				5.97	—	—
	B	10	10	10	10	10		24.6			25.1		289			296		7.33			7.82		6.85			5.87		
	C	10	10	10	10	10			24.9		24.8			293.3		299			7.15		7.87			6.06		5.95		
	D	10	10	10	10	10				25.3	25.0				284	293				7.70	7.86				5.66	6.25		
	E	10	10	10	10	10					25.2					291					7.84					5.88		
CONTROL ZEOLITE	A	10	4	4	4	4	24.1				25.2	326				287	7.94				8.08	7.83				6.59	—	—
	B	10	9	9	9	9		24.7			25.2		283			286		7.81			7.99		6.90			6.50		
	C	10	8	7	7	7			25.2		25.1			284.4		287			7.49		8.00			6.06		6.53		
	D	10	6	6	6	5				25.4	25.1				285	286				8.02	7.98				6.30	6.46		
	E	10	3	3	3	3					25.1					286					7.99					6.16		
CONTROL pH 6.5	A	10	NC	NC	NC	10	24.4				25.5	435				386	6.68				6.78	7.87				4.80	—	—
	B	10				9					25.6					388					6.95					5.09		
	C	10				10					25.6					388					6.80					5.81		
	D	10				10					25.5					388					6.73					5.81		
	E	10				10					25.5					389					6.73					5.48		
Initials:			VRM	VRM	TB	NM	NM	NM	VRM	TB	NM	NM																
Date:			10/25	10/26	10/27	10/28	10/29	10/25	10/26	10/27	10/28	10/29																
Time:			1512/1533	1303	1330	1720	1400	1400	1332	1100	1715	1310																
Initials (QA):			NM	NM	NM	TB	TB																					

Reviewed by Lauren May on 12/1/2021

NC = Not counted. Treatment remained airtight so no counts observed.

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River
Site ID: LMR21-WB2
Test Species: *Pimephales promelas*
Exposure duration: 96hr

Test Initiation Date: 10/25/21 Time: 1500
Test Termination Date: 10/29/21 Time: 1400
Page 3 of 4
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
100%	A	10	10	10	10	8	24.0				24.8	444				372	7.77				7.95	7.38				5.97	—	—
	B	10	10	10	10	9		24.1			24.7		383			372		7.65			7.99		6.78			6.09		
	C	10	10	10	10	10			24.9		24.7			377.9		371			7.40		8.01			5.48		6.20		
	D	10	10	10	10	9				25.2	24.7				363	372				7.98	8.00				5.93	5.76		
	E	10	10	10	10	10					24.8					371					7.99					5.52		
ZEOLITE	A	10	9	9	9	9	24.1				25.1	455				402	7.86				8.27	7.58				6.45	—	—
	B	10	10	9	9	9		24.8			25.1		397			402		8.11			8.25		6.93			5.87		
	C	10	10	10	10	10			25.2		25.1			390.3		402			7.46		8.21			5.48		6.03		
	D	10	10	10	10	9				25.5	25.1				400	401				8.22	8.25				6.32	5.85		
	E	10	10	10	10	10					25.1					402					8.21					6.07		
pH 6.5	A	10	NC	NC	NC	10	24.1				25.6	477				426	6.52				6.80	7.70				4.47	—	—
	B	10				8					25.6					426 NM					6.87					4.22		
	C	10				10					25.6					426					6.81					4.12		
	D	10				10					25.5					427					6.76					4.39		
	E	10				10					25.5					426					6.79					4.80		
Initials:		NM	VRM	TB	NM	NM	NM	VRM	TB	NM	NM																	
Date:		10/25	10/26	10/27	10/28	10/29	10/25	10/26	10/27	10/28	11/29																	
Time:		1515	1400	1330	1120	1425	1400	1336	1100	1720	1318																	
Initials (QA):		TB	NM	NM	TB	TB																						

Reviewed by Lauren May on 12/1/2021

NC = Not counted. Treatment remained airtight, no ~~intermedia~~ counts. intermediate

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 10/25/2021 Time: 1500
Site ID: LMR21-WC2	Test Termination Date: 10/29/2021 Time: 1400
Test Species: *Pimephales promelas*	Page 4 of 4
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. (°C) 24 h	Temp. (°C) 48 h	Temp. (°C) 72 h	Temp. (°C) 96 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 24 h	Conductivity (uS/cm) 48 h	Conductivity (uS/cm) 72 h	Conductivity (uS/cm) 96 h	pH (SU) 0 h	pH (SU) 24 h	pH (SU) 48 h	pH (SU) 72 h	pH (SU) 96 h	D.O. (mg/L) 0 h	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	D.O. (mg/L) 72 h	D.O. (mg/L) 96 h	Alkalinty (mg/L) 0 h	Hardness (mg/L) 0 h
100%	A	10	0	0			24.0	24.3				617	527				7.97	7.77				8.08	6.78				—	—
	B	10	0	0				24.4					539					7.86					6.26					
	C	10	0	0				24.4					539					7.89					6.30					
	D	10	0	0				24.3					535					7.89					6.49					
	E	10	0	0				24.3					529					7.84					5.73					
ZEOLITE	A	10	10	10	—	—	24.0					606					8.12					7.71					—	—
	B	10	10	10	—	—		24.7					526					8.22					6.54					
	C	10	9	9	9	9			25.1	—				527.0					7.50					5.67				
	D	10	10	10	—	—				—					—					—					—			
	E	10	10	10	—	—																						
pH 6.5	A	10	NC	NC	NC	10	24.0				25.6	691				603	6.50	~~6.50~~ [illegible]			6.87	8.57				3.21	—	—
	B	10				9					25.6					603					6.95					3.32		
	C	10				10					25.5					598					7.19					3.49		
	D	10				10					25.5					604					6.68					3.90		
	E	10	—	—	—	—					—					—					—					—		
Initials:		NM	VRM	TB	NM	NM	NM	VRM	TB	/	NM																	
Date:		10/25	10/26	10/27	10/28	10/29	10/25	10/26	10/27	/	10/29																	
Time:		1530	1308	1330	1720	1440	1405	1330	1100	/	1356																	
Initials (QA):		TB	NM	NM	TD	TB																						

Reviewed by Lauren May on 12/1/2021

NC = Not counted. Treatments remained airtight, no intermediate counts.
No WQ recorded at 72hrs.

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River
Site ID: **CONTROL**
Test Species: *Pimephales promelas*
Exposure duration: 96hr

Test Initiation Date: 9/20/21 Time: 1422
Test Termination Date: 9/24/21 Time: 1402
Page 1 of 9
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. (°C) 24 h	Temp. (°C) 48 h	Temp. (°C) 72 h	Temp. (°C) 96 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 24 h	Conductivity (uS/cm) 48 h	Conductivity (uS/cm) 72 h	Conductivity (uS/cm) 96 h	pH (SU) 0 h	pH (SU) 24 h	pH (SU) 48 h	pH (SU) 72 h	pH (SU) 96 h	D.O. (mg/L) 0 h	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	D.O. (mg/L) 72 h	D.O. (mg/L) 96 h	Alkalinty (mg/L) 0 h	Hardness (mg/L) 0 h
CONTROL	A	10	10	10	10	10	24.5				24.3	293.8				290	851				7.40	7.92				5.35	60	84
	B	10	10	10	10	10		24.3			24.0		294			295		7.53			7.41		6.44			5.42		
	C	10	10	10	10	10			24.9		24.0			286		295			7.43		7.40			5.51		5.43		
	D	10	10	10	8	8				24.2	24.0				276	300				7.70	7.40				6.00	6.13		
	E	10	10	10	10	10					24.0					301					7.40					5.45		
	A	10																										
	B	10																										
	C	10																										
	D	10																										
	E	10																										
	A	10																										
	B	10																										
	C	10																										
	D	10																										
	E	10																										
Initials:		AK/AH	MJ	Im	TH	TB	TB	MH	NM	NM	NM																TB	TB
Date:		9/20	9/21	9/22	9/23	9/24	1400	1315	1057	1247	1217																9/20	9/20
Time:		1422	1230	1217	1206	1402	9/20	9/21	9/22	9/23	9/24																1400	1400
Initials (QA):		VRM	VRM	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1410
Site ID: **LMR21-SBD**	Test Termination Date: 9/24/21 Time: 1321
Test Species: *Pimephales promelas*	Page 2 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. (°C) 24 h	Temp. (°C) 48 h	Temp. (°C) 72 h	Temp. (°C) 96 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 24 h	Conductivity (uS/cm) 48 h	Conductivity (uS/cm) 72 h	Conductivity (uS/cm) 96 h	pH (SU) 0 h	pH (SU) 24 h	pH (SU) 48 h	pH (SU) 72 h	pH (SU) 96 h	D.O. (mg/L) 0 h	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	D.O. (mg/L) 72 h	D.O. (mg/L) 96 h	Alkalinty (mg/L) 0 h	Hardness (mg/L) 0 h
10%	A	10	10	10	10	10	24.6				24.3	311.0				307	8.49				7.62	7.99				4.98	TB ~~80~~	~~116~~ TB
	B	10	10	10	9	9		24.4			24.3		313			303		7.57			7.58		6.03			5.41		
	C	10	10	10	10	10			24.6		24.3			314		307			7.55		7.54			6.00		5.53		
	D	10	10	10	10	10				24.0	24.3				291	305				7.74	7.51				6.39	5.34		
	E	11 ~~10~~ TB	11	11	11	11					24.3					304					7.49					5.79		
50%	A	10	10	10	10	10	24.5				24.2	418.5				341	8.56				7.45	8.37				5.18	—	—
	B	10	10	10	10	10		24.4			24.2		415			340		7.59			7.46		6.18			5.39		
	C	10	10	10	10	10			24.6		24.2			384		340			7.51		7.46			6.10		5.41		
	D	10	10	10	10	10				24.0	24.1				327	336				7.23	7.47				6.52	5.79		
	E	10	10	10	10	10					24.2					333					7.44					5.06		
100%	A	10	10	10	10	10	24.7				24.2	499.1				369	8.48				7.40	8.36				4.51	80	116
	B	10	10	10	10	10		24.4			24.2		501			375		7.63			7.44		6.34			5.15		
	C	10	10	10	10	10			24.7		24.2			486		372			7.49		7.49			5.29		5.79		
	D	10	10	10	10	9				24.1	24.2				354	376				7.71	7.52				6.34	5.48		
	E	10	10	10	10	10					24.2					372					7.53					5.65		
Initials:		MB/SK	TB	TB	TB	TB	TB	NM	NM	NM	NM																TB	TB
Date:		9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/21
Time:		1410	1217	1152	1128	1321	1400	1312	1056	1256	1207																1000	1000
Initials (QA):		VRM	VRM	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1422
Site ID: **LMR21-WA-1**	Test Termination Date: 9/24/21 Time: 1328
Test Species: *Pimephales promelas*	Page 3 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

			No. Alive				Temp. (°C)					Conductivity (uS/cm)					pH (SU)					D.O. (mg/L)					Alkalinty (mg/L)	Hardness (mg/L)
Conc.	Repl.	No. Loaded	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	0 h
6.25%	A	10	10	10	10	10	24.6				24.2	307.9				308	8.60				7.26	7.44				5.26	—	—
	B	10	10	10	10	10		24.4			24.2		312			309		7.45			7.29		6.37			5.55		
	C	10	10	10	10	10			24.8		24.2			303		310			7.57		7.32			5.60		5.72		
	D	10	10	10	10	10				24.2	24.2				292	311				7.75	7.32				6.07	5.12		
	E	10	10	10	10	10					24.3					309					7.33					5.42		
12.5%	A	10	10	10	10	10	24.5				24.2	322.7				322	8.44				7.38	7.51				5.46	—	—
	B	10	10	10	10	10		24.4			24.1		328			322		7.46			7.42		6.24			5.97		
	C	10	10	10	10	9			24.7		24.1			317		323			7.55		7.45			6.27		5.68		
	D	10	10	10	10	10				24.1	24.2				308	323				7.74	7.44				6.37	5.52		
	E	10	10	10	10	10					24.2					323					7.44					5.56		
25%	A	10	10	10	9	9	24.7				24.3	350.4				352	8.43				7.49	7.59				5.39	—	—
	B	10	10	10	10	10		24.4			24.2		352			352		7.54			7.53		6.18			5.77		
	C	10	10	10	10	9			24.7		24.2			339		368			7.57		7.57			5.49		5.60		
	D	10	10	10	TB ~~8~~ 7	6				24.1	24.2				337	372				7.78	7.60				6.30	5.43		
	E	10	10	10	9	9					24.3					369					7.61					5.43		
50%	A	10	10	10	7	7	24.7				24.3	404.0				365	8.34				7.55	7.56				5.10	—	—
	B	10	9	9	8	8		24.4			24.2		407			373		7.69			7.61		6.18			5.74		
	C	10	10	10	1	0			24.8		24.2			392		407			7.58		7.65			4.44		4.78		
	D	10	10	9	2	2				24.2	24.2				348	404				7.81	7.68				6.21	5.57		
	E	10	10	10	1	0					24.3					408					7.70					4.85		
100%	A	10	0	0	0	0	24.6	24.3				523.2	517				8.34	7.80				8.01	5.89				160	92
	B	10	0	0	0	0		24.3					523					7.83					6.19					
	C	10	0	0	0	0		24.2					523					7.84					6.16					
	D	10	0	0	0	0		24.2					521					7.85					5.98					
	E	10	0	0	0	0		24.4					528					7.85					5.06					
	Initials:	MB/PK	TB	TB/LM	TB	TB	TB	NM	NM	NM	NM																TB	TB
	Date:	9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/21
	Time:	1422	1223	1156	1134	1328	1400	1310	1051	1245	1206																1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1449
Site ID: **LMR21-WA-2**	Test Termination Date: 9/24/21 Time: 1533
Test Species: *Pimephales promelas*	Page 4 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
6.25%	A	10	10	9	9	9	24.5				24.0	303.0				301	8.45				7.46	7.46				5.26	—	—
	B	10	10	10	10	10		24.2			24.0		307			307		7.73			7.50		6.13			5.80		
	C	10	10	10	10	10			24.4		24.1			303		311			7.49		7.51			6.52		5.93		
	D	10	10	10	10	10				24.0	24.0				295	307				7.92	7.51				6.57	5.73		
	E	10	10	10	10	10					24.1					317					7.51					6.01		
12.5%	A	10	10	10	10	10	24.5				24.2	317.3				320	8.46				7.49	7.39				5.50	—	—
	B	10	10	10	10	10		24.1			24.2		325			318		7.74			7.51		6.62			5.36		
	C	10	10	10	10	10			24.5		24.2			315		323			7.54		7.51			6.46		5.55		
	D	10	10	10	10	9				24.0	24.2				305	325				7.87	7.51				6.64	5.35		
	E	10	10	10	10	10					24.1					318					7.51					5.56		
25%	A	10	10	10	10	10	24.5				24.2	351.4				340	8.43				7.52	7.49				5.52	—	—
	B	10	10	10	10	10		24.1			24.0		337			339		7.75			7.53		6.07			5.53		
	C	10	10	10	10	10			24.8		24.2			324		338			7.55		7.53			5.96		5.76		
	D	10	10	10	10	10				24.0	24.1				325	340				7.83	7.53				6.61	5.93		
	E	10	10	10	10	10					24.1					341					7.54					5.35		
50%	A	10	10	10	10	8	24.4				24.1	396.9				380	8.32				7.54	7.82				4.88	—	—
	B	10	10	10	10	9		24.0			24.0		394			380		7.78			7.57		6.05			5.78		
	C	10	10	10	9	9			24.6		24.0			362		377			7.64		7.60			6.06		5.52		
	D	10	10	10	9	9				24.0	24.0				364	376				7.88	7.61				6.43	5.34		
	E	10	10	10	9	9					24.0					375					7.63					5.67		
100%	A	10	7	7	0	0	24.6			24.1		460.3			434		8.25			7.96		7.78			6.11		136	108
	B	10	9	9	0	0		24.1		24.0			459		440			7.79		7.98			5.72		5.54			
	C	10	7	7	0	0			24.5	24.0				430	434				7.78	7.96				6.20	6.53			
	D	10	8	6	0	0				24.1					435					7.99					5.59			
	E	10	9	9	0	0				24.3					438					7.98					5.59			
	Initials:	AW/AH	TB	TB	TB	TB	TB	NM	NM	NM	NM																TB	TB
	Date:	9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/21
	Time:	1449	1243	1204	1141	1533	1400	1329	1122	1305	1253																1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1510
Site ID: **LMR21-WA-3**	Test Termination Date: 9/24/21 Time: 1500
Test Species: *Pimephales promelas*	Page 5 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive				Temp. (°C)					Conductivity (uS/cm)					pH (SU)					D.O. (mg/L)					Alkalinty (mg/L)	Hardness (mg/L)
			24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	0 h
10%	A	10	10	10	10	10	24.0				24.1	311.3				315	8.52				7.28	7.80				5.20	—	—
	B	10	10	10	10	10		24.0			24.1		312			316		7.63			7.33	~~7.80~~	6.51			5.82		
	C	10	10	10	10	10			24.4		24.1			302		314			7.56		7.37			6.08		5.34		
	D	10	10	10	10	10				24.0	24.2				302	310				7.76	7.38				6.83	5.40		
	E	10	10	10	9	9					24.2					311					7.38					5.35		
50%	A	10	10	10	10	10	24.1				24.1	353.3				365	8.37				7.55	7.80				5.79	—	—
	B	10	10	10	10	10		24.1			24.1		355			367		7.70			7.55		6.41			4.12		
	C	10	10	9	8	8			24.4		24.1			355		369			7.59		7.59			5.77		5.43		
	D	10	10	10	10	10				24.0	24.1				352	371				7.84	7.62				6.81	5.47		
	E	10	10	9	9	9					24.0					370					7.63					4.74		
100%	A	10	7	5	4	4	24.2				24.1	440.9				432	8.38				7.69	7.85				5.32	120	100
	B	10	9	8	1	1		24.0			24.0		435			433		7.83			7.76		6.34			5.89		
	C	10	7	4	0	0			24.6	24.2	24.1			419	424	442			7.69	8.02	7.73			4.89	6.32	4.03		
	D	10	9	7	2	2				24.0					418					7.94					6.72			
	E	10	10	7	0	0				24.3					426					8.03					5.69			
Initials:		AK/AH	TB	TB	TB	NM	TB	NM	NM	NM	NM																TB	TB
Date:		9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/21
Time:		1510	~~1510~~ TB 1230	1208	1151	1500	1400	1325	1106	1306	1225																1000	1000
Initials (QA):		VRM	VRM	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1510
Site ID: **LMR21-WB-1**	Test Termination Date: 9/24/21 Time: 1349
Test Species: *Pimephales promelas*	Page 6 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinty (mg/L) 0 h	Hardness (mg/L) 0 h
10%	A	10	10	10	10	10	24.1				24.1	330.6				319	8.30				7.51	7.02				5.50	—	—
	B	10	10	10	10	10		24.0			24.1		327			322		7.64			7.52		6.46			5.36		
	C	10	10	10	10	9			24.6		24.1			312		320			7.68		7.52			6.24		5.29		
	D	10	10	10	10	9				24.0	24.1				309	320				7.87	7.49				6.78	5.41		
	E	10	10	10	10	9					24.2					318					7.49					5.08		
50%	A	10	9	9	TB ~~9~~ 1	0	25.0				24.0	438.4				412	7.93				7.58	5.21				5.37	—	—
	B	10	10	10	TB ~~10~~ 7	7		24.2			23.8		422			413		7.73			7.67		5.77			5.16		
	C	10	9	9	TB ~~9~~ 1	1			24.6		24.0			392		410			7.69		7.70			5.87		5.35		
	D	10	10	10	[illegible]	1				24.2	23.9				397	410				7.93	7.73				5.81	5.06		
	E	10	10	10	TB ~~10~~ 0	0				24.6					396					7.95					5.86			
100%	A	10	0	0	0	0	24.5	24.3				535.0	539				7.77	7.95				7.93	5.03				180	116
	B	10	0	0	0	0		24.2					530					7.97					5.81					
	C	10	0	0	0	0		24.2					539					8.01					5.31					
	D	10	0	0	0	0		24.2					526					8.00					5.21					
	E	10	0	0	0	0		24.2					532					8.03					5.35					
Initials:		MB/PK	TB/MW	LM/TB	TB	TB	TB	NM	NM	NM	NM																TB	TB
Date:		9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/21
Time:		1510	1200	1210	1200	1349	1400	1339	1806	1300	1227																1000	1000
Initials (QA):		LRM	LRM	LRM	LRM	LRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1443
Site ID: **LMR21-WB-2**	Test Termination Date: 9/24/21 Time: 1353
Test Species: *Pimephales promelas*	Page 7 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive				Temp. (°C)					Conductivity (uS/cm)					pH (SU)					D.O. (mg/L)					Alkalinty (mg/L)	Hardness (mg/L)
			24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	0 h
10%	A	10	10	10	10	10	24.4				24.1	297.4				310	8.49				7.55	7.83				5.42	—	—
	B	10	10	10	10	10		24.1			24.0		301			307		7.69			7.55		6.34			5.77		
	C	10	10	10	10	10			24.5		24.0			304		313			7.42		7.54			6.35		5.87		
	D	10	10	10	10	10				24.1	24.0				299	311				7.88	7.52				6.55	5.62		
	E	10	10	10	9	9					24.0					306					7.51					5.44		
50%	A	10	10	10	10	10	245				24.0	325.2				335	8.51				7.48	8.05				5.42	—	—
	B	10	10	10	10	10		24.1			24.0		332			336		7.70			7.51		6.42			5.68		
	C	10	10	10	10	10			24.5		24.0			327		344			7.49		7.52			6.15		5.55		
	D	10	9	9	9	9				24.1	24.0				321	338				7.82	7.54				6.62	5.72		
	E	10	10	10	TB ~~9~~ 10	10					24.0					341					7.55					5.56		
100%	A	10	10	10	10	10	24.6				24.0	367.7				375	8.57				7.57	8.40				5.30	112	112
	B	10	10	10	10	10		24.0			24.0		374			379		7.74			7.62		6.48			5.85		
	C	11 ~~10~~	11	11	11	11			24.7		24.0			360		378			7.62		7.64			6.25		5.34		
	D	10	9	9	9	9				24.1	24.0				360	379				7.84	7.64				6.28	5.57		
	E	10	10	10	9	9					24.0					377					7.63					4.88		
Initials:		MB/PK	MJ	LM/TB	TB	TB	TB	NM	NM	NM	NM																TB	TB
Date:		9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/21
Time:		1443	1220	1213	1158	1353	1400	1318	1100	1250	1244																1000	1000
Initials (QA):		VRM	VRM	VRM	NM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1500
Site ID: **LMR21-WC-1**	Test Termination Date: 9/24/21 Time: 1358
Test Species: *Pimephales promelas*	Page 8 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
10%	A	10	10	10	10	10	24.7				24.0	304.1				306	8.51				7.51	7.70				5.60	—	—
	B	10	10	10	10	10		24.1			24.0		318			316		7.79			7.51		6.35			5.82		
	C	10	10	10	10	10			24.8		24.0			309		306			7.67		7.51			6.10		5.90		
	D	10	10	10	10	10				24.1	24.0				296	309				7.85	7.49				6.60	5.76		
	E	10	9	9	9	9					24.0					308					7.49					5.41		
50%	A	10	10	10	10	10	24.7				24.0	332.9				342	8.43				7.76	7.89				5.57	—	—
	B	10	10	10	10	10		24.2			24.0		338			342		7.76			7.50		6.44			5.52	-	
	C	10	10	10	10	10			24.6		24.0			331		347			7.64		7.52			6.18		5.62		
	D	10	10	10	10	10				24.2	24.0				327	345				7.80	7.52				6.68	5.46		
	E	10	10	10	10	10					24.0					344					7.54					5.59		
100%	A	10	10	10	10	10	24.4				24.1	382.2				387	8.41				7.58	8.30				5.84	112	108
	B	10	10	10	10	10		24.2			24.1		386			388		7.83			7.65		6.15			5.33		
	C	10	10	10	10	10			24.7		24.1			371		387			7.69		7.21			6.13		5.21		
	D	10	10	10	10	10				24.1	24.2				372	358				7.86	7.70				6.00	4.92		
	E	10	10	10	10	10					24.3					388					7.70					4.57		
Initials:		TB/NM	MJ	TB/LM	TB	TB	TB	NM	NM	NM	NM																TB	TB
Date:		9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/24
Time:		1500	1225	1213	1201	1358	1400	1322	1103	1253	1246																1000	1000
Initials (QA):		VRM	VRM	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1500
Site ID: **LMR21-WC-2**	Test Termination Date: 9/24/21 Time: 1402
Test Species: *Pimephales promelas*	Page 9 of 9
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
10%	A	10	10	10	10	10	24.5				24.0	320.8				318	8.36				7.51	7.38				5.09	—	—
	B	10	10	10	10	10		24.2			24.0		323			316		7.57			7.50		5.77			5.63		
	C	10	10	10	10	9			24.8		24.0			304		316			7.44		7.49			5.85		5.70		
	D	10	10	10	10	10				24.1	24.1				302	315				7.69	7.48				6.43	5.35		
	E	10	10	10	10	10					24.2					315					7.46					5.36		
50%	A	10	10	10	10	10	24.5				24.2	407.8				395	8.24				7.57	7.44				5.36	—	—
	B	10	10	10	8	6		24.1			24.0		408			399		7.73			7.63		6.36			5.05		
	C	10	10	9	8	9			24.8		24.0			383		398			7.46		7.62			4.97		4.74		
	D	10	10	10	9	9				24.0	24.0				396	396				7.81	7.60				6.38	4.09		
	E	10	10	10	8	6					24.1					396					7.66					4.12		
100%	A	10	10	10	ø	ø	24.5			24.3	NM ~~24.1~~	501.9			478		8.13			8.03		7.33			4.58	~~5.08~~	164	124
	B	10	10	9	ø	ø		24.2		24.3	~~24.0~~		499		480			7.68		8.08			5.46		4.89	~~4.79~~		
	C	10	10	10	ø	ø			24.8	24.3	~~24.0~~			465	479				7.43	8.08				4.12	4.68	~~4.22~~		
	D	10	10	8	ø	ø				24.5	~~24.1~~				479					8.04					4.89			
	E	10	10	10	ø	ø				24.6	~~24.1~~				478					8.07					4.47			
	Initials:	AK/AH	MJ	TB/mn	TB	TB	TB	NM	NM	NM	NM																TB	TB
	Date:	9/20	9/21	9/22	9/23	9/24	9/20	9/21	9/22	9/23	9/24																9/21	9/21
	Time:	1500	1230	1217	1203	1402	1400	1317	1058	1309	1250																1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET - WATER EXCHANGE, WATER QUALITY SHEET	
Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: —
Site ID: All	Test Termination Date: 9/24/21 Time: —
Test Species: *Pimephales promelas*	Page 1 of 1
Exposure duration: 96hr	Environmental chamber temperature: 25°C
Water Quality for Water Change - In Water	

Conc.	Temp. (°C)	Conductivity (uS/cm)	pH (SU)	D.O. (mg/L)
Control	24.0	277	7.90	7.31
LMR21-SCD 10%	24.4	284	7.54	6.54
LMR21-SCD 50%	24.3	306	7.68	7.21
LMR21-SCD 100%	24.3	332	7.76	7.10
LMR21-WA-1 6.25%	24.4	293	7.89	7.05
LMR21-WA-1 12.5%	24.4	305	7.95	7.09
LMR21-WA-1 25%	24.4	333	8.03	7.29
LMR21-WA-1 50%	24.3	388	8.13	7.39
LMR21-WA-1 100%	—	—	—	—
LMR21-WA-2 6.25%	24.6	288	7.89	7.35
LMR21-WA-2 12.5%	24.5	298	7.94	7.34
LMR21-WA-2 25%	24.5	319	8.00	7.19
LMR21-WA-2 50%	24.2	357	8.08	7.26
LMR21-WA-2 100%	24.2	436	8.17	7.38
LMR21-WA-3 10%	24.5	293	8.00	6.94
LMR21-WA-3 50%	24.2	350	8.06	7.43
LMR21-WA-3 100%	24.2	422	8.14	7.22
LMR21-WB-1 10%	~~24.6~~ 24.5	~~390~~ 302	~~7.69~~ 8.04	~~5.87~~ 7.01
LMR21-WB-1 50%	~~24.5~~ 24.3	~~302~~ 388	~~8.~~ 8.22	~~7.01~~ 7.07
LMR21-WB-1 100%	~~24.3~~ NM	~~388~~ NM	—	~~7.07~~ NM
LMR21-WB-2 10%	24.3	286	7.94	6.95
LMR21-WB-2 50%	24.0	317	8.00	7.73
LMR21-WB-2 100%	24.0	358	8.09	7.68
LMR21-WC-1 10%	24.3	288	7.78	7.53
LMR21-WC-1 50%	24.0	323	7.92	7.59
LMR21-WC-1 100%	24.0	369	8.03	7.58
LMR21-WC-2 10%	24.3	299	8.07	7.25
LMR21-WC-2 50%	24.0	374	8.15	7.35
LMR21-WC-2 100%	24.0	472	8.26	7.58
Initials:	NM			
Date:	9/22			
Time:	1300			
Initials (QA):	Ycm			

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1425
Site ID: Control	Test Termination Date: 8/27/2021 Time: 1423
Test Species: *Pimephales promelas*	Page 1 of 7
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
Control	A	10	10	10	9	9	23.9	~~24.8~~ vrm			24.5	308.0	~~312.1~~ vrm			321.4	7.72	~~7.56~~ vrm			7.42	6.61	~~5.83~~ vrm			6.29	68	100
	B	10	10	10	10	10		24.8			24.6		312.1			316.7		7.56			7.41		5.83			5.82		
	C	10	10	10	9	9			24.8		24.6			309		316.7			7.22		7.40			4.35		5.53		
	D	10	10	10	10	10				24.9	24.6				295	316.4				7.65	7.39				6.61	5.88		
	E	10	10	10	10	10					24.6					317.6					7.40					5.92		
	A	10																										
	B	10																										
	C	10																										
	D	10																										
	E	10																										
	A	10																										
	B	10																										
	C	10																										
	D	10																										
	E	10																										
Initials:		TB	VRM	SB	NM	NM	SB	VRM	NM	NM	TB	SB					SB					SB					VRM	SB
Date:		8/23	8/24	8/25	8/26	8/27	8/23	8/24	8/25	8/26	8/27	8/23					8/23					8/23					8/23	8/23
Time:		1425	1458	1240	1116	1923	1430	1441	1047	1023	1332	1430					1430					1430					1545	1530
Initials (QA):		VRM	TB	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1447
Site ID: **LMR21-SBA1**	Test Termination Date: 8/27/2021 Time: 1425
Test Species: *Pimephales promelas*	Page 2 of 7
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
6.25%	A	10	10	10	10	10	24.5				24.5	323.8				331.3	7.97				7.42	6.25				6.12	—	—
	B	10	10	10	10	10		24.6			24.5		319.9			330.0		7.53			7.45		6.02			6.31		
	C	10	10	10	10	10			24.5		24.6			317		325.7			7.33		7.45			4.23		5.87		
	D	10	10	10	10	10				25.0	24.5				301	~~332.1~~ 324.0				7.49	7.43				6.16	5.57		
	E	10	10	10	10	10					24.2					332.1					7.45					6.25		
12.5%	A	10	10	10	10	10	24.4				24.5	338.1				335.9	7.97				7.45	7.25				5.87	—	—
	B	10	10	10	10	10		24.6			24.5		325.2			335.4		7.52			7.46		5.75			5.71		
	C	10	10	10	10	10			24.4		24.5			325		333.8			7.29		7.45			3.81		5.51		
	D	10	10	10	10	10				24.9	24.4				311	334.0				7.48	7.44				5.79	~~5.30~~ 5.51		
	E	10	10	10	10	10					24.4					334.3					7.42					~~4.84~~ 5.30		
25%	A	10	10	10	10	10	24.5				24.7	344.1				345.7	7.98				7.40	7.22				~~5.86~~ 4.84	—	—
	B	10	10	10	10	10		24.4			24.5		343.4			350.1		7.54			7.50		5.88			5.86		
	C	10	10	10	10	10			24.3		24.4			341		350.0			7.27		7.52			3.96		5.64		
	D	10	10	10	10	10				24.9	24.4				329	347.3				7.50	7.49				6.08	5.16		
	E	10	10	10	10	9					24.5					347.3					7.47					5.20		
50%	A	10	10	10	10	10	24.3				24.6	373.5				375.4	7.97				7.68	7.44				5.73	—	—
	B	10	10	9	9	9		24.6			24.5		365.7			375.6		7.65			7.65		5.85			5.53		
	C	10	10	8	8	8			24.4		24.5			368		376.2			7.28		7.62			3.35		5.05		
	D	10	10	9	9	9				24.9	24.5				351	376.0				7.61	7.63				5.95	5.36		
	E	10	10	10	10	10					24.6					375.5					7.56					4.48		
100%	A	10	0	0	0	0	24.4	24.3				433.1	424.6				7.98	7.83				7.65	5.85				165	110
	B	10	0	0	0	0		24.7					426.6					7.81					5.53					
	C	10	0	0	0	0		24.2	NM				424.8					~~7.9~~ 7.74					5.63					
	D	10	0	1	1	1			24.5	24.9	24.5			416	402	427.5			7.32	7.73	7.75			3.04	5.06	4.99		
	E	10	0	0	0	0		24.3					422.1					7.81					5.41					
Initials:		MB/TB	VRM	NM	NM	NM	TB	VRM	NM	NM	TB	JB					JB					JB					LRM	JB
Date:		8/23	8/24	8/25	8/26	8/27	8/23	8/24	8/25	8/26	8/27	8/23					8/23					8/23					8/23	8/23
Time:		1447	1514	1243	1106	1925	1530	1445	1106	1030	1343	1430					1430					1430					1545	1530
Initials (QA):		LRM	TB	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1500
Site ID: **LMR21-SBA2**	Test Termination Date: 8/27/2021 Time: 1448
Test Species: *Pimephales promelas*	Page 3 of 7
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinty (mg/L) 0 h	Hardness (mg/L) 0 h
6.25%	A	10	10	10	9	9	24.0				24.3	317.7				326.4	8.08				7.65	7.25				6.17	—	—
	B	10	10	10	10	10		24.8			24.1		313.1			320.4		7.59			7.64		5.77			6.36		
	C	10	10	10	10	10			24.6		24.0			318		324.2			7.41		7.60			5.02		6.28		
	D	10	10	10	10	10				24.7	24.0				297	319.9				7.59	7.57				5.96	5.92		
	E	10	10	10	10	10					24.0					326.8					7.57					6.40		
12.5%	A	10	10	10	10	10	24.0				24.2	317.6				321.9	8.06				7.55	7.35				6.00	—	—
	B	10	10	10	10	10		24.7			24.1		318.2			325.7		7.55			7.54		5.65			6.16		
	C	10	10	10	10	10			24.9		24.1			313		323.5			7.32		7.54			3.63		5.92		
	D	10	10	10	10	10				24.6	24.0				301	327.1				7.53	7.53				6.36	6.16		
	E	10	10	10	10	10					24.0					327.7					7.54					6.46		
25%	A	10	10	10	10	10	24.0				24.2	320.9				326.0	8.05				7.50	7.31				5.43	—	—
	B	10	10	10	10	10		24.8			24.1		318.6			326.7		7.54			7.52		5.78			6.24		
	C	10	10	10	10	10			24.6		24.0			319		331.2			7.28		7.52			3.91		6.15		
	D	10	10	10	10	10				24.5	23.9				307	336.5				7.54	7.55				6.19	6.65		
	E	10	10	10	10	10					24.0					334.4					7.54					6.22		
50%	A	10	10	10	10	10	24.0				24.1	327.4				332.3	8.04				7.51	7.32				5.79	—	-
	B	10	10	10	10	10		24.8			24.1		324.2			332.2		7.45			7.48		5.24			5.23		
	C	10	10	10	10	10			24.8		24.1			322		335.4			7.24		7.50			3.67		6.21		
	D	10	10	10	10	10				24.8	24.1				308	331.4				7.51	7.46				5.88	5.05		
	E	10	10	10	10	10					24.0					339.6					7.49					6.46		
100%	A	10	10	10	10	9	24.0				24.1	340.1				351.0	8.04				7.49	7.54				6.07	91	100
	B	10	10	10	10	10		24.8			24.1		335.8			350.2		7.49			7.52		5.50			6.19		
	C	10	10	10	10	10			24.8		24.1			334		345.9			7.23		7.51			4.14		5.71		
	D	10	10	10	10	9				24.7	24.0				323	353.0				7.49	7.52				6.02	6.36		
	E	10	10	10	10	10					24.0					353.9					7.54					6.40		
		Initials: MB/NM	AK	TB	NM	NM	TB	URM	NM	NM	TB	JB					JB					JB					URM	JB
		Date: 8/23	8/24	8/25	8/26	8/27	8/23	8/24	8/25	8/26	8/27	8/23					8/23					8/23					8/23	8/23
		Time: 1500	1508	1220	1100	1448	1530	1453	1055	1028	1445	1435					1435					1435					1545	1536
		Initials (QA): URM	URM	URM	URM	URM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River
Site ID: LMR21-SBA3
Test Species: *Pimephales promelas*
Exposure duration: 96hr

Test Initiation Date: 8/23/2021 Time: 1502
Test Termination Date: 8/27/2021 Time: 1434
Page 4 of 7
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
6.25%	A	10	10	9	9	9	24.5				24.5	334.4				327.2	8.04				7.54	7.21				5.47	—	—
	B	10	10	10	10	10		24.8			24.5		319.0			324.4		7.61			7.51		5.71			5.11		
	C	10	10	10	9	9			24.6		24.4			319		330.8			7.40		7.53			4.27		6.01		
	D	10	10	10	10	10				24.8	24.4				301	324.7				7.65	7.53				6.41	5.76		
	E	10	10	10	10	10					24.4					325.2					7.52					5.78		
12.5%	A	10	10	10	10	10	24.5				24.3	328.8				335.4	8.50				7.51	7.25				5.82	—	—
	B	10	10	10	10	10		24.6			24.3		325.6			339.2		7.57			7.94		5.70			6.03		
	C	10	10	10	10	10			24.6		24.3			323		334.5			7.35	~~[illegible]~~	7.52			4.29		5.76		
	D	10	10	10	10	10				24.8	24.4				308	331.5				7.63	7.47				5.52	5.33		
	E	10	10	10	10	10					24.3					334.4					7.48					5.73		
25%	A	10	10	10	10	10	24.5				24.3	344.0				349.1	7.97				7.55	7.35				5.84	—	—
	B	10	10	10	10	10		24.5			24.2		340.9			351.1		7.58			7.57		5.67			5.87		
	C	10	10	10	10	10			24.7		24.3			335		346.6			7.35		7.54			4.56		5.38		
	D	10	10	10	10	10				24.6	24.2				323	348.1				7.62	7.59				6.20	6.20		
	E	10	10	10	10	10					24.2					349.0					7.58					5.80		
50%	A	10	10	10	10	10	24.6				24.3	372.7				376.5	7.97				7.65	7.00				5.85	—	—
	B	10	10	10	10	10		24.7			24.3		369.3			375.6		7.66			7.68		5.76			5.78		
	C	10	10	10	10	10			24.6		24.2			367		376.8			7.34		7.74			3.77		6.34		
	D	10	10	10	10	10				24.6	24.2				350	375.4				7.69	7.76				6.43	6.25		
	E	10	10	10	10	10					24.1					375.3					7.77					6.27		
100%	A	10	9	9	9	9	24.3				24.3	424.8				424.8	7.97				7.87	7.14				6.25	155	105
	B	10	9	9	9	8		24.8			24.3		424.5			430.6		7.72			7.74		4.92			3.79		
	C	10	9	9	9	9			24.5		24.2			414		426.5			7.39		7.83			3.63		5.94		
	D	10	9	8	8	8				24.6	24.2				399	425.7				7.81	7.86				6.15	5.94		
	E	10	9	9	9	9					24.3					429.3					7.78					4.57		
Initials:		MB/NM	URM	NM	NM	NM	TB	URM	NM	NM	TB	JB					JB					JB					URM	JB
Date:		8/23	8/24	8/25	8/26	8/27	8/23	8/24	8/25	8/26	8/27	8/23					8/23					8/23					8/23	8/23
Time:		1502	1519	1230	[illegible]	1434	1530	1446	1103	1035	1419	1450					1450					1450					1545	1535
Initials (QA):		URM	TD	URM	URM	URM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1545
Site ID: **LMR21-SBB1**	Test Termination Date: 8/27/2021 Time: 1445
Test Species: *Pimephales promelas*	Page 5 of 7
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. 24 h	Temp. 48 h	Temp. 72 h	Temp. 96 h	Conductivity (uS/cm) 0 h	Cond. 24 h	Cond. 48 h	Cond. 72 h	Cond. 96 h	pH (SU) 0 h	pH 24 h	pH 48 h	pH 72 h	pH 96 h	D.O. (mg/L) 0 h	D.O. 24 h	D.O. 48 h	D.O. 72 h	D.O. 96 h	Alkalinity (mg/L) 0 h	Hardness (mg/L) 0 h
10%	A	10	10	10	10	10	24.2				24.3	323.4				324.9	8.00				7.68	6.02				5.87	—	—
	B	10	10	10	10	10		24.8			24.4		314.6			324.3		7.51			7.58		5.49			4.99		
	C	10	10	10	10	10			24.8		24.4			312		324.0			~~7.22~~		7.57			4.25		5.82		
	D	10	10	10	10	9				24.9	24.4				302	324.2				7.59	7.53				5.77	5.38		
	E	10	10	10	9	9					24.4					323.6					7.53					5.79		
50%	A	10	10	10	10	10	24.0				24.4	345.8				349.6	7.99				7.54	7.39				5.80	—	—
	B	10	10	10	10	10		24.6			24.3		341.8			351.1		7.55			7.59		5.71			6.07		
	C	10	10	10	10	10			24.8		24.2			338		349.9			7.21		7.59			4.47		5.79		
	D	10	10	10	10	10				24.8	24.3				325	348.7				7.55	7.59				6.07	5.62		
	E	~~10~~ 11	11	11	10	10					24.3					351.2					7.59					5.83		
100%	A	10	10	10	10	10	23.9				24.5	376.4				380.4	8.03				7.55	7.00				4.76	108	110
	B	10	10	10	10	10		24.5			24.3		374.0			382.8		7.66			7.65		5.76			5.95		
	C	10	10	10	10	10			24.6		24.1			366		382			7.23		7.69			4.39		5.87		
	D	10	10	10	10	9				24.7	24.2				356	382				7.60	7.70				6.21	5.86		
	E	10	10	10	10	10					24.2					379.9					7.73					6.07		
Initials:		AK	VRM	TB	NM	NM	TD	VRM	NM	NM	TB	JB					JB					JB					VRM	JB
Date:		8/23	8/24	8/24	8/26	8/27	8/23	8/24	8/25	8/26	8/27	8/23					8/23					8/23					8/23	8/23
Time:		1545	1505	1240	1120	1445	1530	1443	1049	1024	1436	1530					1530					1530					1545	1530
Initials (QA):		VRM	TB	VRM	VRM	VRM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1437
Site ID: LMR21-SBB2	Test Termination Date: 8/27/2021 Time: 1430
Test Species: *Pimephales promelas*	Page 6 of 7
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive				Temp. (°C)					Conductivity (uS/cm)					pH (SU)					D.O. (mg/L)					Alkalinty (mg/L)	Hardness (mg/L)
			24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	24 h	48 h	72 h	96 h	0 h	0 h
10%	A	10	10	10	10	9	24.6				24.1	331.2				339.3	7.98				7.61	7.04				5.89	—	—
	B	10	10	10	10	10		25.0			24.1		325.6			331.9		7.46			7.59		5.65			5.40		
	C	10	10	10	10	10			24.9		24.1			322		331.8			7.25		7.58			4.40		5.66		
	D	10	10	9	9	9				25.0	24.1				307	331				7.53	7.55				5.53	5.48		
	E	10	10	10	10	10					24.1					331.3					7.53					5.82		
50%	A	10	10	10	10	10	24.2				24.3	383.5				386.2	7.96				7.56	7.12				5.12	—	—
	B	10	10	10	10	10		24.9			24.2		380.7			391.5		7.53			7.59		5.60			5.43		
	C	10	10	10	10	10			24.9		24.1			377		390			7.24		7.65			3.82		5.87		
	D	10	10	10	10	10				25.0	24.2				361	388.4				7.57	7.67				6.44	5.72		
	E	10	10	10	10	10					24.3					387.3					7.66					5.47		
100%	A	10	10	10	10	~~9~~ 10 NM	24.0				24.3	452.6				~~35~~ 452	7.96				7.72	7.25				5.34	142	120
	B	10	10	9	9	9		24.8			24.2		449.2			455.6		7.81			7.80		5.99			5.80		
	C	10	10	10	10	10			24.9		24.3			444		456			7.33		7.77			4.02		5.00		
	D	10	10	10	10	10				25.0	24.2				425	455.4				7.75	7.78				6.07	5.04		
	E	10	10	10	10	10					24.3					456.4					7.76					5.04		
Initials:		~~143~~ MB TB	URM	NM	NM	NM	TB	URM	NM	NM	TB	JB					JB					JB					URM	JB
Date:		8/23	8/24	8/25	8/26	8/27	8/23	8/24	8/25	8/26	8/27	8/23					8/23					8/23					8/23	8/23
Time:		1437	1501	1300	1123	1430	1530	1455	1052	1022	1428	1435					1435					1435					1545	1530
Initials (QA):		LRM	TB	URM	URM	URM																						

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1412
Site ID: **LMR21-SBC**	Test Termination Date: 8/27/2021 Time: 1417
Test Species: *Pimephales promelas*	Page 7 of 7
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	No. Alive 72 h	No. Alive 96 h	Temp. (°C) 0 h	Temp. (°C) 24 h	Temp. (°C) 48 h	Temp. (°C) 72 h	Temp. (°C) 96 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 24 h	Conductivity (uS/cm) 48 h	Conductivity (uS/cm) 72 h	Conductivity (uS/cm) 96 h
10%	A	10	10	10	10	10	24.6				24.4	329.8				338.3
	B	10	10	10	10	10		24.7			24.5		320.4			327.7
	C	10	10	10	10	10			24.7		24.5			319		325.6
	D	10	10	10	10	10				24.8	24.4				303	325.4
	E	10	10	10	10	10					24.4					327.7
50%	A	10	10	10	10	9	24.2				24.4	365.1				365.8
	B	10	~~8~~ 10 AK 8/24	10	10	10		24.6			24.4		360.9			367.3
	C	10	10	10	10	10			24.7		24.4			359		366.6
	D	10	10	9	9	9				24.8	24.5				341	366.9
	E	10	10	10	10	10					24.4					368.6
100%	A	10	10	10	9	9	24.0				24.4	416.2				407.9
	B	10	8	7	7	7		24.8			24.45		409.2			414.4
	C	10	10	10	10	9			24.5		24.5			400		409.7
	D	10	9	9	9	9				24.8	24.4				386	411.1
	E	10	9	8	8	8					24.5					412.4
Initials:		TB	AK	TB	NM	NM	TB	URM	WME	NM	TB	TB				
Date:		8/23	8/24	8/25	8/26	8/27	8/23	8/24	8/25	8/26	8/27	8/23				
Time:		1412	1515	1200	1125	1417	1530	1450	1100	1033	1400	1340				
Initials (QA):		URM	URM	URM	URM	URM										

Conc.	Repl.	pH (SU) 0 h	pH (SU) 24 h	pH (SU) 48 h	pH (SU) 72 h	pH (SU) 96 h	D.O. (mg/L) 0 h	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	D.O. (mg/L) 72 h	D.O. (mg/L) 96 h	Alkalinty (mg/L) 0 h	Hardness (mg/L) 0 h
10%	A	8.10				7.52	7.63				5.67	–	—
	B		7.59			7.49		5.72			5.59		
	C			7.22		7.50			3.82		5.75		
	D				7.59	7.56				6.16	5.83		
	E					7.49					5.87		
50%	A	8.02				7.58	7.64				5.90	—	—
	B		7.64			7.62		5.63			5.86		
	C			7.33		7.67			4.06		5.80		
	D				7.64	7.64				6.25	5.40		
	E					7.57					4.65		
100%	A	7.99				7.73	7.63				5.82	164	110
	B		7.77			7.67		5.31			3.98		
	C			7.46		7.82			4.32		5.65		
	D				7.80	7.81				5.90	5.41		
	E					7.78					5.06		
Initials:		TB					TB					URM	JB
Date:		8/23					8/23					8/23	8/23
Time:		1340					1340					1545	1530

Reviewed by Lauren May on 9/27/2021

ELUTRIATE TOXICITY TEST SHEET - WATER EXCHANGE, WATER QUALITY SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1400
Site ID: All	Test Termination Date: 8/27/2021 Time: 1400
Test Species: *Pimephales promelas*	Page 1 of 1
Exposure duration: 96hr	Environmental chamber temperature: 25°C

Water Quality for Water Change - In Water

Conc.	Temp. (°C)	Conductivity (uS/cm)	pH (SU)	D.O. (mg/L)
Control	24.2	307	7.48	6.49
LMR21-SBA1 6.25%	24.2	314	7.96	6.98
LMR21-SBA1 12.5%	24.2	321	7.88	6.98
LMR21-SBA1 25%	24.3	335	7.92	6.79
LMR21-SBA1 50%	24.3	364	8.01	6.95
LMR21-SBA1 100%	24.3	417	8.09	6.70
LMR21-SBA2 6.25%	24.0	307	8.00	6.54
LMR21-SBA2 12.5%	24.1	310	7.94	6.80
LMR21-SBA2 25%	24.1	313	7.89	6.81
LMR21-SBA2 50%	24.1	320	7.86	6.99
LMR21-SBA2 100%	24.0	333	7.88	6.82
LMR21-SBA3 6.25%	24.0	313	7.87	6.87
LMR21-SBA3 12.5%	24.0	321	7.86	6.81
LMR21-SBA3 25%	24.1	335	7.90	6.76
LMR21-SBA3 50%	24.2	362	7.94	6.59
LMR21-SBA3 100%	24.0	415	8.02	6.73
LMR21-SBB1 10%	24.2	313	7.81	6.61
LMR21-SBB1 50%	24.2	338	7.83	6.81
LMR21-SBB1 100%	24.1	368	7.88	6.91
LMR21-SBB2 10%	24.1	319	7.87	6.57
LMR21-SBB2 50%	24.1	375	7.97	6.95
LMR21-SBB2 100%	24.0	441	8.10	6.69
LMR21-SBC 10%	24.0	315	7.58	6.73
LMR21-SBC 50%	24.0	355	7.81	6.93
LMR21-SBC 100%	24.0	400	7.96	6.93
Initials:	NM			
Date:	8/25/2021			
Time:	1154			
Initials (QA):	LRM			

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River
Site/chemical ID: **Controls**
Test Species: *Ceriodaphnia dubia*
Exposure duration: 48h

Test Initiation Date: 10/25/2021 Time: 1500
Test Termination Date: 10/27/2021 Time: 1400
Page 1 of 4
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
Control	A	5	5	5	24.0	24.1	325	264	7.23	7.66	7.62	6.68	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
Control Zeolite	A	5	5	5	24.1	24.0	326	296	7.94	8.03	7.83	7.74	—	—
	B	5	4	4										
	C	5	5	5										
	D	5	5	4										
	E	5	5	5										
Control pH 6.5	A	5	5	5	24.4	24.0	435	382	6.68	7.49	7.87	7.27	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	3										
	Initials:	NM	nm	nm	NM	nm								
	Date:	10/25/2021	10/26	10/27	10/25/21	10/27/21								
	Time:	1500	1650	1410	1400	1509								
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 12/1/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 10/25/21 Time: 1500
Site/chemical ID: **LMR21-SBC**	Test Termination Date: 10/27/21 Time: 1400
Test Species: *Ceriodaphnia dubia*	Page 2 of 4
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
100%	A	5	5	4	24.1	24.0	435	378	7.64	7.78	6.84	6.86	—	—
	B	5	4	2										
	C	5	4	3										
	D	5	5	4										
	E	5	5	5										
Zeolite	A	5	5	5	24.0	24.0	444	402	7.49	8.25	7.39	6.99	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	4										
pH 6.5	A	5	3	3	24.5	24.0	463	411	6.51	7.43	8.20	6.79	—	—
	B	5	5	4										
	C	5	5	5										
	D	5	4	4										
	E	5	4	4										
	Initials:	NM	nm	nm	NM	nm								
	Date:	10/25/21	10/26	10/27	10/25/21	10/27/21								
	Time:	1500	1650	1410	1400	1511								
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 12/1/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 10/25/2021 Time: 1500
Site/chemical ID: **LMR21-WB2**	Test Termination Date: 10/27/2021 Time: 1400
Test Species: *Ceriodaphnia dubia*	Page 3 of 4
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive		Temp. (°C)		Conducitivity (uS/cm)		pH (SU)		D.O. (mg/L)		Alkalinty (mg/L)	Hardness (mg/L)
			24 h	48 h	0 h	48 h	0 h	48 h	0 h	48 h	0 h	48 h		
100%	A	5	5	5	24.0	24.2	444	388	7.77	7.87	7.38	6.93	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
Zeolite	A	5	5	5	24.1	24.1	455	405	7.86	8.29	7.58	7.15	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
pH 6.5	A	5	5	5	24.1	24.1	477	421	6.52	7.51	7.70	6.28	—	—
	B	5	5	4										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
	Initials:	NM	NM	NM	NM	NM								
	Date:	10/25/21	10/26	10/27	10/25/21	10/27/21								
	Time:	1500	1650	1413	1400	1519								
	Initials (QA):	VEM	VEM	VEM	VEM	VEM								

Reviewed by Lauren May on 12/1/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 10/25/2021 Time: 1500
Site/chemical ID: **LMR21-WC2**	Test Termination Date: 10/27/2021 Time: 1900
Test Species: *Ceriodaphnia dubia*	Page 4 of 4
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
100%	A	5	0	0	24.0	24.0	617	531	7.97	8.00	8.08	5.83	—	—
	B	5	0	0										
	C	5	0	0										
	D	5	0	0										
	E	5	0	0										
Zeolite	A	5	5	5	24.0	24.0	606	539	8.12	8.41	7.71	7.00	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
pH 6.5	A	5	5	5	24.0	24.1	691	601	6.50	7.56	8.37	5.89	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
	Initials:	NM	NM	NM	NM	NM								
	Date:	10/25/21	10/26	10/27	10/25/21	10/27/21								
	Time:	1500	1650	1408	1400	1516								
	Initials (QA):	VEM	VEM	VEM	VEM	VEM								

Reviewed by Lauren May on 12/1/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/2021 Time: 1334
Site/chemical ID: Control	Test Termination Date: 9/22/2021 Time: 1340
Test Species: *Ceriodaphnia dubia*	Page 1 of 9
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive		Temp. (°C)		Conducitivity (uS/cm)		pH (SU)		D.O. (mg/L)		Alkalinty (mg/L)	Hardness (mg/L)
			24 h	48 h	0 h	48 h	0 h	48 h	0 h	48 h	0 h	48 h		
Control	A	5	5	5	24.5	24.0	293.8	300	8.51	8.07	7.92	6.18	60	84
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
	A													
	B													
	C													
	D													
	E													
	A													
	B													
	C													
	D													
	E													
	Initials:	NM	NM	NM	TB	NM							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/20	9/20
	Time:	1334	1424	1340	1400	1428							1400	1400
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River
Site/chemical ID: **LMR21-SBD**
Test Species: *Ceriodaphnia dubia*
Exposure duration: 48h

Test Initiation Date: 9/20/2021 Time: 1341
Test Termination Date: 9/22/2021 Time: 1341
Page 2 of 9
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
10%	A	5	5	5	24.6	24.2	311.0	306	8.49	8.01	7.99	7.34	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	5	24.5	24.2	418.5	319	8.56	7.97	8.37	7.46	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
100%	A	5	5	5	24.7	24.2	499.1	337	8.48	7.98	8.36	7.43	80	116
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
	Initials:	nm	nm	nm	TB	nm							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/21
	Time:	1341	1420	1341	1400	1430							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/2021 Time: 1351
Site/chemical ID: **LMR21-WA-1**	Test Termination Date: 9/22/2021 Time: 1330
Test Species: *Ceriodaphnia dubia*	Page 3 of 9
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive		Temp. (°C)		Conductivity (uS/cm)		pH (SU)		D.O. (mg/L)		Alkalinty (mg/L)	Hardness (mg/L)
			24 h	48 h	0 h	48 h	0 h	48 h	0 h	48 h	0 h	48 h		
6.25%	A	5	5	5	24.6	24.0	307.9	308	8.60	7.99	7.44	7.22	–	–
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
12.5%	A	5	5	5	24.5	24.0	322.7	321	8.44	7.97	7.51	7.42	–	–
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
25%	A	5	5	5	24.7	24.0	350.4	348	8.43	7.97	7.59	7.48	–	–
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	4	24.7	24.0	404.0	393	8.34	8.03	7.56	7.28	–	–
	B	5	5	5										
	C	5	4	4										
	D	5	4	2										
	E	5	5	4										
100%	A	5	0	0	24.6	24.0	523.2	494	8.34	8.00	8.01	6.48	160	92
	B	5	0	0										
	C	5	0	0										
	D	5	0	0										
	E	5	0	0										
	Initials:	NM	NM	NM	TB	NM							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/21
	Time:	1351	1348	1330	1400	1433							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River
Site/chemical ID: **LMR21-WA-2**
Test Species: *Ceriodaphnia dubia*
Exposure duration: 48h

Test Initiation Date: 9/20/2021 Time: 1359
Test Termination Date: 9/22/2021 Time: 1337
Page 4 of 9
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
6.25%	A	5	5	5	24.5	24.1	303.0	309	8.45	7.98	7.46	7.25	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
12.5%	A	5	5	5	24.5	24.2	317.3	316	8.46	7.99	7.29	7.18	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
25%	A	5	5	5	24.5	24.1	351.4	334	8.43	7.99	7.49	7.06	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	4	24.6	24.1	396.9	365	8.32	7.98	7.82	7.24	—	—
	B	5	5	3										
	C	5	5	3										
	D	5	5	4										
	E	5	5	3										
100%	A	5	4	0	24.6	24.1	460.3	435	8.25	7.96	7.78	6.65	136	108
	B	5	3	0										
	C	5	5	0										
	D	5	5	2										
	E	5	4	0										
	Initials:	NM	NM	NM	TB	NM							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/21
	Time:	1359	1356	1337	1400	1436							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/2021 Time: 1410
Site/chemical ID: **LMR21-WA-3**	Test Termination Date: 9/22/2021 Time: 1319
Test Species: *Ceriodaphnia dubia*	Page 5 of 9
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
10%	A	5	5	5	24.0	24.3	311.3	327	8.52	8.02	7.80	7.35	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	5	24.1	24.2	353.3	367	8.37	8.04	7.80	7.21	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
100%	A	5	0	0	24.2	24.2	440.9	424	8.38	8.02	7.85	6.82	120	100
	B	5	2	0										
	C	5	2	0										
	D	5	3	0										
	E	5	1	0										
	Initials:	NM	NM	NM	TB	NM							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/21
	Time:	1410	1901	1319	1400	1438							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/2021 Time: 1415
Site/chemical ID: **LMR21-WB-1**	Test Termination Date: 9/22/2021 Time: 1324
Test Species: *Ceriodaphnia dubia*	Page 6 of 9
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
10%	A	5	5	5	~~24.0~~	24.0	~~311.3~~	337	~~8.52~~	8.05	~~7.80~~	7.31	—	—
	B	5	5	5	24.1		330.6		8.30		7.02			
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	3	~~24.1~~	24.0	~~353.3~~	406	~~8.37~~	8.10	5.21	7.21	—	—
	B	5	5	4	25.0		438.4		7.93					
	C	5	5	3										
	D	5	5	4										
	E	5	5	5										
100%	A	5	1	0	~~24.2~~	24.0	~~440.9~~	508	~~8.38~~	7.99	7.93	6.18	~~120~~	~~100~~
	B	5	0	0	24.5		535.0		7.77				180	116
	C	5	4	0										
	D	5	5	1										
	E	5	5	3										
	Initials:	NM	NM	NM	TB	NM							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/20
	Time:	1415	1406	1324	1400	1440							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/2021 Time: 1347
Site/chemical ID: **LMR21-WB-2**	Test Termination Date: 9/22/2021 Time: 1326
Test Species: *Ceriodaphnia dubia*	Page 7 of 9
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
10%	A	5	5	5	24.4	24.4	297.4	311	8.49	8.06	7.83	7.31	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	5	24.5	24.4	325.2	331	8.51	8.02	8.05	7.27	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
100%	A	5	5	4	24.6	24.4	367.7	361	8.57	8.03	8.40	7.37	112	112
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
	Initials:	NM	NM	NM	JB	NM							JB	JB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/21
	Time:	1347	1407	1326	1400	1441							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/2021 Time: 1337
Site/chemical ID: **LMR21-WC-1**	Test Termination Date: 9/22/2021 Time: 1444
Test Species: *Ceriodaphnia dubia*	Page 8 of 9
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
10%	A	5	5	5	24.7	24.0	304.1	300	8.51	7.79	7.70	6.48	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	5	24.7	24.0	332.9	334	8.43	8.01	7.89	7.31	—	—
	B	5	5	4										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
100%	A	5	5	5	24.4	24.0	382.2	373	8.41	8.04	8.30	7.01	112	108
	B	5	5	5										
	C	5	NM ~~4~~ 5	5										
	D	5	5	5										
	E	5	5	3										
	Initials:	NM	NM	NM	TB	NM							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/21
	Time:	1337	1413	1345	1400	1444							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Lower Maumee River
Site/chemical ID: **LMR21-WC-2**
Test Species: *Ceriodaphnia dubia*
Exposure duration: 48h
Test Initiation Date: 9/20/2021 Time: 1420
Test Termination Date: 9/22/2021 Time: 1446
Page 9 of 9
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
10%	A	5	5	5	24.5	24.1	320.8	333	8.36	8.06	7.38	6.77	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
	E	5	5	5										
50%	A	5	5	5	24.5	24.1	407.8	389	8.24	8.00	7.44	6.26	—	—
	B	5	5	5										
	C	5	5	4										
	D	5	5	4										
	E	5	5	4										
100%	A	5	5	2	24.5	24.1	501.9	474	8.13	8.09	7.33	7.01	164	124
	B	5	5	3										
	C	5	5	2										
	D	5	5	4										
	E	5	5	5										
	Initials:	NM	NM	NM	TB	NM							TB	TB
	Date:	9/20	9/21	9/22	9/20	9/22/21							9/21	9/21
	Time:	1420	1416	1351	1400	1446							1000	1000
	Initials (QA):	VRM	VRM	VRM	VRM	VRM								

Reviewed by ______________________ on ______________

TOXICITY TEST SHEET

Project: Maumee River
Site/chemical ID: LMR21- SBA1
Test Species: *Ceriodaphnia dubia*
Exposure duration: 48h

Test Initiation Date: 9/1/21 Time: 1420
Test Termination Date: 9/3/21 Time: 1320
Page 1 of 5
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
SBA1 6.25%	A	5	5	5	24.7	24.4	306	287	7.92	8.00	6.61	7.61		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA1 12.5%	A		5	4	24.7	24.4	314	293	7.90	7.96	6.88	7.60		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA1 25%	A		5	5	24.6	24.3	328	308	7.89	7.95	6.17	7.37		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA1 50%	A		4	3	24.5	24.3	364	338	7.89	7.95	7.18	7.01		
	B		4	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA1 100%	A		2	0	24.3	24.3	430	394	7.88	8.00	6.33	6.47		
	B		2	0										
	C		3	0										
	D		1	0										
	E		1	0										
	A													
	B													
	C													
	D													
	E													
	Initials:	NM	NM	NM	NM	NM								
	Date:	9/1/21	9/2/21	9/3/21	9/1/21	9/3/21								
	Time:	1446	1536	1357	1343	1354								
	Initials (QA):	VRM	VRM	VRM										

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Maumee River
Site/chemical ID: LMR21-SBA2
Test Species: *Ceriodaphnia dubia*
Exposure duration: 48 h

Test Initiation Date: 9/1/21 Time: 1490
Test Termination Date: 9/3/21 Time: 1320
Page 2 of 5
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
SBA2 6.25%	A	5	5	5	24.7	24.2	301	284	7.96	7.92	6.72	7.56		
	B		5	4										
	C		5	5										
	D		5	4										
	E		5	4										
SBA2 12.5%	A		5	5	24.8	24.3	302	285	7.94	7.91	6.67	7.50		
	B		4	4										
	C		5	5										
	D		4	4										
	E		5	5										
SBA2 25%	A		5	4	24.7	24.3	306	290	7.92	7.89	6.80	7.46		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA2 50%	A		5	5	24.6	24.3	315	297	7.90	7.90	7.12	7.49		
	B		4	4										
	C		5	5										
	D		5	5										
	E		5	5										
SBA2 100%	A		4	4	24.4	24.3	334	315	7.89	7.92	6.82	7.26		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
	A													
	B													
	C													
	D													
	E													
	Initials:	NM	NM	NM	NM	NM								
	Date:	9/1/21	9/2/21	9/3/21	9/1/21	9/3/21								
	Time:	1455	1542	1409	1348	1406								
	Initials (QA):	VPM	VPM	VPM										

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Maumee River
Site/chemical ID: LMR21- SBA3
Test Species: *Ceriodaphnia dubia*
Exposure duration: 48h

Test Initiation Date: 9/1/21 Time: 1420
Test Termination Date: 9/3/21 Time: 1320
Page 3 of 5
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
SBA3 6.25%	A	5	5	5	24.3	24.1	302	290	7.83	7.89	6.77	7.50		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA3 12.5%	A		5	5	24.4	24.1	310	306	7.84	7.91	7.03	7.57		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA3 25%	A		5	5	24.3	24.1	323	324	7.85	7.94	6.58	6.74		
	B		5	5										
	C		5	5										
	D		4	4										
	E		5	5										
SBA3 50%	A		5	5	24.4	24.1	347	369	7.85	7.98	6.74	6.19		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBA3 100%	A		5	2	24.4	24.0	401	451	7.89	8.12	6.24	6.77		
	B		5	3										
	C		5	4										
	D		5	2										
	E		5	3										
	A													
	B													
	C													
	D													
	E													
	Initials:	NM	NM	NM	NM	NM								
	Date:	9/1/21	9/2/21	9/3/21	9/1/21	9/3/21								
	Time:	1308	1512	1415	1337	1419								
	Initials (QA):	VEM	VEM	VEM										

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Maumee River	Test Initiation Date: 9/1/21 Time: 1420
Site/chemical ID: LMR21-SBB1 / LMR21-SBB2	Test Termination Date: 9/3/21 Time: 1320
Test Species: *Ceriodaphnia dubia*	Page 4 of 5
Exposure duration: 48h	Environmental chamber temperature: 25 °C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
SBB1 10%	A	5	5	5	24.4	24.2	323	302	7.92	7.92	6.73	7.50		
	B		5	4										
	C		5	5										
	D		5	5										
	E		5	5										
SBB1 50%	A		5	5	24.4	24.2	402	373	7.82	8.01	6.50	7.19		
	B		5	5										
	C		5	5										
	D		5	3										
	E		5	5										
SBB1 100%	A		5	5	24.2	24.2	524	469	7.79	8.09	6.97	6.99		
	B		5	5										
	C		4	4										
	D		5	5										
	E		5	5										
SBB2 10%	A		5	5	24.3	24.1	315	296	7.94	7.99	6.57	7.53		
	B		5	5										
	C		5	5										
	D		5	4										
	E		5	5										
SBB2 50%	A		5	5	24.3	24.0	373	351	7.87	7.99	5.87	7.45		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBB2 100%	A		5	5	24.3	24.0	458	421	7.83	8.05	7.05	7.37		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
	Initials:	NM	NM	NM	NM	NM								
	Date:	9/1/21	9/2/21	9/3/21	9/1/21	9/3/21								
	Time:	1425	1521	1346	1340	1347								
	Initials (QA):	vem	vem	vem										

Reviewed by Lauren May on 9/27/2021

TOXICITY TEST SHEET

Project: Maumee River	Test Initiation Date: 9/1/21 Time: 1420
Site/chemical ID: LMR21 - SBC	Test Termination Date: 9/3/21 Time: 1320
Test Species: *Ceriodaphnia dubia*	Page 5 of 5
Exposure duration: 48h	Environmental chamber temperature: 25 °C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
Control	A	5	5	5	24.5	24.2	295	282	7.78	7.72	7.21	6.57		
	B		5	4										
	C		5	5										
	D		5	5										
	E		5	5										
SBC 10%	A		5	5	24.6	24.1	312	290	7.96	7.83	6.66	5.54		
	B		5	5										
	C		5	5										
	D		5	5										
	E		5	5										
SBC 50%	A		5	5	24.5	24.1	357	331	7.86	7.85	6.81	6.82		
	B		~~4~~5 NM	5										
	C		5	~~4~~5 NM										
	D		4	4										
	E		5	5										
SBC 100%	A		5	3	24.4	24.1	418	380	7.82	7.90	6.83	6.50		
	B		4	3										
	C		5	4										
	D		5	2										
	E		5	3										
	A													
	B													
	C													
	D													
	E													
	A													
	B													
	C													
	D													
	E													
	Initials:	NM	NM	NM	NM	NM								
	Date:	9/1/21	9/2/21	9/3/21	9/1/21	9/3/21								
	Time:	1422	1504	1333	1340	1330								
	Initials (QA):	VRM	VRM	VRM										

Reviewed by Lauren May on 9/27/2021

REFERENCE TOXICITY TEST SHEET

Project: Lower Maumee River
Laboratory: ERDC-EL-EPR
Test Species: *Pimephales promelas*
Chemical ID: KCl (2.7g/L)

Test Initiation Date: 10/25/2021 Time: 1455
Test Termination Date: 10/29/2021 Time:
Page 1 of 1
Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	Number Alive 24 h	Number Alive 48 h	Number Alive 72 h	Number Alive 96 h	Temp. (°C) 0 h	Temp. (°C) 96 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 96 h	pH (SU) 0 h	pH (SU) 96 h	D.O. (mg/L) 0 h	D.O. (mg/L) 96 h	Ammonia (mg/L) 0 h	Ammonia (mg/L) 96 h
6.25%	A	10	10	10	10	10	24.1	24.5	657	599	7.99	7.65	7.55	6.04	—	—
	B	10	10	10	10	10		24.5		603		7.70		6.34		
	C	10	10	10	10	10		24.5		612		7.73		6.50		
12.5%	A	10	10	10	10	10	24.1	24.5	1021	920	7.92	7.76	7.82	6.58	—	—
	B	10	10	10	10	10		24.6		913		7.67		6.03		
	C	10	9	9	9	9		24.4		952		7.73		5.94		
25%	A	10	9	5	5	5	24.1	24.4	1737	1548	7.96	7.74	7.84	5.53	—	—
	B	10	8	7	7	6		24.4		1612		7.78		6.53		
	C	10	5	3	3	3		24.4		1593		7.79		6.40		
50%	A	10	Ø				24.1	24.1	3066	~~243~~ 2743	7.93	7.81	7.14	6.51	—	—
	B	10	Ø					24.0		2742		7.77		6.28		
	C	10	Ø					24.0		2767		7.75		6.73		
100%	A	10	Ø				24.3	24.0	5859	5138	8.06	7.70	7.76	5.88	—	—
	B	10	Ø					24.1		5144		7.68		6.04		
	C	10	Ø					24.0		5149		7.67		6.24		
	Initials:	VPM	VRM	TB	NM	NM	NM	NM								
	Date:	10/25	10/26	10/27	10/28	10/29	10/25	10/29								
	Time:	1455	1320	1445	1720	1425	1404	1340								
	QA:	JM	JM	NM	VRM	VRM	VRM	VRM								

Reviewed by Lauren May on 12/1/2021

REFERENCE TOXICITY TEST SHEET

Project: Maumee River - Buffalo District	Test Initiation Date: 10/25/2021 Time: 1500
Site/chemical ID: Reference Toxicity (1g/L)	Test Termination Date: 10/27/2021 Time: 1400
Test Species: *Ceriodaphnia dubia*	Page 1 of 1
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	No. Alive 24 h	No. Alive 48 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conducitivity (uS/cm) 0 h	Conducitivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Alkalinty (mg/L)	Hardness (mg/L)
6.25%	A	5	5	5	24.3	24.0	452	385	7.89	7.70	7.05	7.59	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
12.5%	A	5	5	5	24.3	24.1	569	497	7.84	7.78	7.55	7.25	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
25%	A	5	5	5	24.3	24.1	840	731	7.95	7.85	7.36	7.37	—	—
	B	5	5	5										
	C	5	5	5										
	D	5	5	5										
50%	A	5	5	4	24.3	24.1	1359	1188	7.93	7.88	7.02	7.50	—	—
	B	5	4	4										
	C	5	5	5										
	D	5	4	4										
100%	A	5	0	0	24.3	24.1	2396	2092	7.96	7.92	7.27	7.53	—	—
	B	5	0	0										
	C	5	0	0										
	D	5	0	0										
	Initials:	NM	NM	NM	NM	NM								
	Date:	10/25/21	10/26	10/27	10/25	10/27								
	Time:	1500	1650	1418	1409	1518								
	Initials (QA):	VRM	VRM	VRM										

Reviewed by Lauren May on 12/1/2021

REFERENCE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 9/20/21 Time: 1422
Laboratory: ERDC-EL-EPR	Test Termination Date: 9/24/21 Time: 1402
Test Species: *Pimephales promelas*	Page 1 of 1
Chemical ID: KCl (2.7 g/L)	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	Number Alive 24 h	48 h	72 h	96 h	Temp. (°C) 0 h	96 ~~48~~ h	Conductivity (uS/cm) 0 h	96 ~~48~~ h	pH (SU) 0 h	96 ~~48~~ h	D.O. (mg/L) 0 h	96 ~~48~~ h	Comments
6.25%	A	10	10	10	10	10	24.3	23.8	598.0	631.0	7.25	7.50	7.57	5.57	
	B	10	10	10	10	10		23.9		626		7.52		5.83	
	C	10	10	10	10	10		24.0		628		7.52		5.85	
12.5%	A	10	10	10	10	10	24.2	23.8	908.0	930	7.47	~~9.30~~ 7.50	7.61	5.09	
	B	10	10	10	10	10		23.9		955		7.52		5.81	
	C	10	10	10	10	10		24.1		954		7.52		5.77	
25%	A	10	10	9	9	~~10~~ 9	24.2	24.0	1504.0	1506	7.65	7.50	7.65	5.65	
	B	10	10	10	10	10		24.0		1558		7.52		5.56	
	C	10	8	8	8	8		24.0		1512		7.53		5.46	
50%	A	10	0	0	0	0	24.1	24.6	2632.0	2630	7.77	7.84	7.55	6.06	
	B	10	0	0	0	0		24.6		2679		7.86		6.11	
	C	10	0	0	0	0		24.6		2661		7.86		5.62	
100%	A	10	0	0	0	0	24.3	24.6	4912.0	4834	8.44	7.80	7.58	5.67	0.0597
	B	10	0	0	0	0		24.6		4924		7.80		5.77	
	C	10	0	0	0	0		24.7		4922		7.80		5.62	
	Initials:	NM/TB	TB	TB	TB	TB	NM	NM							
	Date:	9/20	9/21	9/22	9/23	9/24	9/20	9/24							
	Time:	1422	1230	1217	1207	1402	1400	1217							
	QA:	VRM	VRM	VRM	VRM	VRM	VRM	VRM							

Reviewed by Lauren May on 9/27/2021

REFERENCE TOXICITY TEST SHEET

Project: Maumee River	Test Initiation Date: 9/1/21 Time: 1420
Laboratory: ERDC-EL-EPR	Test Termination Date: 9/3/21 Time: 1320
Test Species: C. dubia	Page 1 of 1
Exposure duration: 48h	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	Number Alive					Temp. (°C)		Salinity (ppt)		pH (SU)		D.O. (mg/L)		Comments
			0 h	24 h	48 h	72 h	96 h	0 h	96 h	0 h	96 h	0 h	96 h	0 h	96 h	
Control	A	5														
	B															
	C															
0.062 g/L	A			5	4			24.3	24.1	419	432	7.97	7.76	7.31	6.96	
	B			5	5											
	C			5	5											
0.125g/L	A			5	5			24.3	24.0	534	546	7.94	7.78	7.24	7.39	
	B			5	4											
	C			5	5											
0.25g/L	A			3	1			24.4	24.1	761	789	7.86	7.84	7.52	7.07	
	B			3	2											
	C			2	1											
0.5g/L	A			5	0			24.4	24.0	1204	1296	7.96	7.87	7.44	7.59	
	B			0	0											
	C			1	1											
1g/L KCl	A			0	0			24.4	24.0	2073	2162	7.98	7.92	7.44	7.58	
	B			0	0											
	C			0	0											
	Initials:	NM		NM	NM			NM	NM	NM	NM	NM	NM	NM	NM	

Reviewed by Lauren May on 9/27/2021

REFERENCE TOXICITY TEST SHEET

Project: Lower Maumee River	Test Initiation Date: 8/23/2021 Time: 1523
Laboratory: ERDC-EL-EPR	Test Termination Date: 8/27/2021 Time: 1454
Test Species: *Pimephales promelas*	Page 1 of 1
Chemical ID: KCl (2.7 g/L)	Environmental chamber temperature: 25°C

Conc.	Repl.	No. Loaded	Number Alive 24 h	Number Alive 48 h	Number Alive 72 h	Number Alive 96 h	Temp. (°C) 0 h	Temp. (°C) 48 h	Conductivity (uS/cm) 0 h	Conductivity (uS/cm) 48 h	pH (SU) 0 h	pH (SU) 48 h	D.O. (mg/L) 0 h	D.O. (mg/L) 48 h	Comments
Control	A	10					~~23.9~~		~~3050~~		~~7.72~~		~~6.61~~		
	B	10													
	C	10													
6.25%	A	10	10	10	10	10	24.2	24.0	630.0	674	7.80	7.51	7.01	6.37	
	B	10	10	10	10	10		24.0		664		7.54		6.18	
	C	10	10	10	10	10		24.0 ~~23.9~~		683		7.55		6.01	
12.5%	A	10	10	10	10	10	24.3	24.0	944.0	946	7.88	7.55	7.07	5.90	
	B	10	10	10	10	10		24.0		1027		7.57		6.38	
	C	10	10	10	9	9		24.0		1056		7.61		6.62	
25%	A	10	10	10	8	8	24.0	24.0	1524.0	1596	7.90	7.62	6.76	6.15	
	B	10	9	9	9	9		24.0		1596		7.61		5.96	
	C	10	9	9	9	9		24.0		1574		7.64		6.32	
50%	A	10	0	0	0	0	24.1	24.3	2676.0	2673	7.94	7.78	6.81	5.77	Terminated 8/24/2021
	B	10	0	0	0	0		24.2		2736		7.79		5.99	
	C	10	0	0	0	0		24.2		2723		7.78		6.12	
100%	A	10	0	0	0	0	24.3	24.4	4840.0	4861	7.95	~~7.70~~ 7.70	6.68	5.71	
	B	10	0	0	0	0		24.3		4907		7.72		5.75	
	C	10	0	0	0	0		24.3		4913		7.71		5.65	
	Initials:	MB/NM	VRM	NM	AK	NM	JB	VRM/JB	JB		JB		JB		
	Date:	8/23	8/24	8/25	8/26	8/27	8/23	8/24 8/24	8/23		8/23		8/23		
	Time:	1523	1524	1310	1121	1454	1430	1604/1[illegible]	1430		1430		1430		
	QA:	VRM	A+L	VRM	VRM	VRM	VRM	VRM							

Reviewed by Lauren May on 9/27/2021

ERDC Datasheet

Reference Toxicant Solution Log

Date of Preparation: 9/20/2021 Technician: ~~

STUDY: Lower Maumee River Elutriate

Test ID: Pimephales promelas Ref TOX

Toxicant: KCl

Source Water: MHRW

Date Source Water prepared or collected: 9/20/2021

Initial Conductivity or Salinity: 293.8 µs

Soure Water Alterations: None.

Initial Volume of Stock Solution: 2L

Weight of Toxicant: 5.4 g

Number of Dilutions: 5

Description of Solution Preparation: Dissolved 5.4g KCl into 2L MHRW. Measured out 1L with graduated cylinder and poured into beakers – this is the 100% top concentration. Diluted remaining 1L with 1L MHRW. This is now 50%. Continue to pour off half and serial dilute for total treatments of 100%, 50%, 25%, 12.5% & 6.25%.

Signature: [signature]

Disclosed and Understood by: Lauren May

ERDC Datasheet

Reference Toxicant Solution Log

Date of Preparation: 8/24/2021 Technician: NM

STUDY: Lower Maumee River Elutriate

Test ID: Ceriodaphnia dubia ref tox

Toxicant: KCl

Source Water: MHRW

Date Source Water prepared or collected: 8/24/2021

Initial Conductivity or Salinity: ______

Soure Water Alterations: None.

Initial Volume of Stock Solution: 1 L

Weight of Toxicant: ~~5.44g~~ AH ~~2.0g~~ 1.0g

Number of Dilutions: 5

Description of Solution Preparation: Dissolve 1 g of KCl into 1L of MHRW. Pour off 500ml with graduated cylinder and place into test vessels - 3reps. (this is the 100% top concentration.). Add 500ml to solution bringing it to 1L - this is now 50%. continue to serial dilute to get concentrations of 100%, 50%, 25% 12.5% & 6.25%.

Signature: NM

Disclosed and Understood by: Lauren May

ERDC Datasheet

Reference Toxicant Solution Log

Date of Preparation: 8/23/21 Technician: AH

STUDY: Lower Maumee River Elutriate

Test ID: Pimephales promelas ref tox

Toxicant: KCl

Source Water: MHRW

Date Source Water prepared or collected: 8/23/21

Initial Conductivity or Salinity: 280-300

Soure Water Alterations: None

Initial Volume of Stock Solution: 2L

Weight of Toxicant: 5.44g (2.7g/L)

Number of Dilutions: 5

Description of Solution Preparation: Dissolved 5.44g KCl in 2L of MHRW. Measured out 1L with graduated cylinder and poured into beakers. Diluted remaining 1L with 1L MHRW. Mixed poured and continued serial dilution. 100, 50, 25, 12.5, 6.25%.

Signature: Ashley Harmon

Disclosed and Understood by: Lauren May

Maumee River Elutriate
P. promelas

***** Calibrate: pH

Date	08/27/21 MM/DD/YY
Time	11:11:50 24-hour
Buffer Value	7.006316 pH
Sensor Value:	-46.299999 pH mV
Temperature	24.249994 °C
Buffer Value	10.007586 pH
Sensor Value:	-213.000000 pH mV
Temperature	24.450006 °C
Slope	55.645720 mV/pH
Slope	94.123342 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	08/27/21 MM/DD/YY
Time	11:04:33 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	79.099998 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	22.200001 °C
Cal Cell Constant:	4.681837
Calibrate Status	Calibrated

***** Calibrate: DO

Date	08/27/21 MM/DD/YY
Time	10:59:39 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	6.245927 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	6.245927 Auto
Temperature	21.799999 °C
Barometer	757.500000 mmHg
Calibrate Status	Calibrated

***** Calibrate: DO

Date	08/26/21 MM/DD/YY
Time	07:55:21 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	5.794096 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	5.794096 Auto
Temperature	21.600000 °C
Barometer	757.799988 mmHg
Calibrate Status	Calibrated

***** Calibrate: pH

Date	08/26/21 MM/DD/YY
Time	07:53:43 24-hour
Buffer Value	7.015975 pH
Sensor Value:	-48.700001 pH mV
Temperature	21.649988 °C
Buffer Value	10.000000 pH
Sensor Value:	-210.500000 pH mV
Temperature	21.749994 °C
Slope	54.819533 mV/pH
Slope	92.725868 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	08/26/21 MM/DD/YY
Time	07:50:32 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	87.800003 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	22.500000 °C
Cal Cell Constant:	4.408732
Calibrate Status	Calibrated

Page **1** of **3**

Maumee River Elutriate
P. promelas

***** Calibrate: pH

Date 08/25/21 MM/DD/YY
Time 10:41:54 24-hour
Buffer Value 7.004977 pH
Sensor Value: -47.599998 pH mV
Temperature 24.749994 °C

Buffer Value 10.004156 pH
Sensor Value: -213.199997 pH mV
Temperature 24.649988 °C

Slope 55.280031 mV/pH
Slope 93.504789 % of Ideal pH Value
Calibrate Status Calibrated

***** Calibrate: Conductivity

Date 08/25/21 MM/DD/YY
Time 10:36:44 24-hour
Method Sp. Conductance
Cal Value: 84.000000 SPC-uS/cm
Sensor Value: 84.699997 SPC-uS/cm
Temperature Ref. 25.000000 °C
Temperature Comp. 1.910000 %/C
TDS Constant 0.650000
Temperature 24.700001 °C
Cal Cell Constant: 4.608174
Calibrate Status Calibrated

***** Calibrate: DO

Date 08/25/21 MM/DD/YY
Time 08:11:20 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 7.451456 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 7.451456 Auto
Temperature 24.299999 °C
Barometer 757.700012 mmHg
Calibrate Status Calibrated

***** Calibrate: pH

Date 08/24/21 MM/DD/YY
Time 11:12:04 24-hour
Buffer Value 7.005643 pH
Sensor Value: -47.299999 pH mV
Temperature 24.550013 °C

Buffer Value 10.004156 pH
Sensor Value: -213.000000 pH mV
Temperature 24.749994 °C

Slope 55.307034 mV/pH
Slope 93.550464 % of Ideal pH Value
Calibrate Status Calibrated

***** Calibrate: Conductivity

Date 08/24/21 MM/DD/YY
Time 11:03:42 24-hour
Method Sp. Conductance
Cal Value: 84.000000 SPC-uS/cm
Sensor Value: 85.599998 SPC-uS/cm
Temperature Ref. 25.000000 °C
Temperature Comp. 1.910000 %/C
TDS Constant 0.650000
Temperature 24.700001 °C
Cal Cell Constant: 4.646574
Calibrate Status Calibrated

***** Calibrate: DO

Date 08/24/21 MM/DD/YY
Time 08:15:00 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 7.479537 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 7.479537 Auto
Temperature 24.500000 °C
Barometer 756.700012 mmHg
Calibrate Status Calibrated

Page **2** of **3**

Maumee River Elutriate
P. promelas

***** Calibrate: pH

Date	08/23/21 MM/DD/YY
Time	07:45:51 24-hour
Buffer Value	7.005310 pH
Sensor Value:	-44.599998 pH mV
Temperature	24.550013
Buffer Value	10.000000 pH
Sensor Value:	-210.500000 pH mV
Temperature	24.550013°C
Slope	54.819533 mV/pH
Slope	92.725868 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	08/23/21 MM/DD/YY
Time	07:49:17 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	84.699997 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	24.700001 °C
Cal Cell Constant:	4.608174
Calibrate Status	Calibrated

***** Calibrate: DO

Date	08/23/21 MM/DD/YY
Time	07:54:41 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	6.245927 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	6.245927 Auto
Temperature	24.700001 °C
Barometer	757.500000 mmHg
Calibrate Status	Calibrated

Page **3** of **3**

Maumee River Elutriate
Ceriodaphnia dubia

***** Calibrate: pH

Date	09/03/21 MM/DD/YY
Time	08:16:49 24-hour
Buffer Value	7.008369 pH
Sensor Value:	-51.700001 pH mV
Temperature	23.749994 °C
Buffer Value	10.014493 pH
Sensor Value:	-213.899994 pH mV
Temperature	23.749994 °C
Slope	54.183698 mV/pH
Slope	91.650369 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/03/21 MM/DD/YY
Time	08:11:46 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	83.500000 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	23.500000 °C
Cal Cell Constant:	4.490147
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/03/21 MM/DD/YY
Time	08:09:40 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	5.183740 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	5.183740 Auto
Temperature	18.000000 °C
Barometer	756.599976 mmHg
Calibrate Status	Calibrated

***** Calibrate: pH

Date	09/02/21 MM/DD/YY
Time	07:11:28 24-hour
Buffer Value	7.007679 pH
Sensor Value:	-47.400002 pH mV
Temperature	23.950006 °C
Buffer Value	10.015650 pH
Sensor Value:	-209.199997 pH mV
Temperature	23.649988 °C
Slope	54.035224 mV/pH
Slope	91.399228 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/02/21 MM/DD/YY
Time	07:06:52 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	91.599998 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	24.299999 °C
Cal Cell Constant:	4.463422
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/02/21 MM/DD/YY
Time	07:05:29 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	7.248839 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	7.248839 Auto
Temperature	24.400000 °C
Barometer	754.500000 mmHg
Calibrate Status	Calibrated

Page **1** of **2**

Maumee River Elutriate
Ceriodaphnia dubia

***** Calibrate: pH

Date	09/01/21 MM/DD/YY
Time	07:47:55 24-hour
Buffer Value	7.007679 pH
Sensor Value:	-46.400002 pH mV
Temperature	23.950006 °C
Buffer Value	10.013337 pH
Sensor Value:	-210.100006 pH mV
Temperature	23.950006 °C
Slope	54.656432 mV/pH
Slope	92.449986 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/01/21 MM/DD/YY
Time	07:42:02 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	80.800003 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	24.600000 °C
Cal Cell Constant:	4.867254
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/01/21 MM/DD/YY
Time	07:37:03 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	7.065467 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	7.065467 Auto
Temperature	24.100000 °C
Barometer	752.400024 mmHg
Calibrate Status	Calibrated

Page **2** of **2**

Maumee River Elutriate
P. promelas and *C. dubia*

***** Calibrate: pH

Date	09/24/21 MM/DD/YY
Time	10:13:36 24-hour
Buffer Value	7.000000 pH
Sensor Value:	-53.700001 pH mV
Temperature	23.950006 °C
Buffer Value	10.000000 pH
Sensor Value:	-215.399994 pH mV
Temperature	23.950006 °C
Slope	54.090486 mV/pH
Slope	91.492703 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/24/21 MM/DD/YY
Time	10:06:46 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	81.400002 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	23.500000 °C
Cal Cell Constant:	4.831785
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/24/21 MM/DD/YY
Time	10:02:51 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	5.084709 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	5.084709 Auto
Temperature	17.299999 °C
Barometer	760.599976 mmHg
Calibrate Status	Calibrated

***** Calibrate: pH

Date	09/22/21 MM/DD/YY
Time	09:02:59 24-hour
Buffer Value	7.010832 pH
Sensor Value:	-52.500000 pH mV
Temperature	23.050013 °C
Buffer Value	10.023794 pH
Sensor Value:	-211.699997 pH mV
Temperature	23.050013 °C
Slope	53.186215 mV/pH
Slope	89.963151 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/22/21 MM/DD/YY
Time	08:59:04 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	87.500000 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	22.900000 °C
Cal Cell Constant:	4.682232
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/22/21 MM/DD/YY
Time	08:57:41 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	4.972315 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	4.972315 Auto
Temperature	17.500000 °C
Barometer	760.700012 mmHg
Calibrate Status	Calibrated

Page **1** of **2**

Maumee River Elutriate
P. promelas and *C. dubia*

***** Calibrate: pH

Date	09/21/21 MM/DD/YY
Time	13:01:30 24-hour
Buffer Value	7.004977 pH
Sensor Value:	-48.799999 pH mV
Temperature	24.649988 °C
Buffer Value	10.005298 pH
Sensor Value:	-215.800003 pH mV
Temperature	24.649988 °C
Slope	55.726134 mV/pH
Slope	94.259360 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/21/21 MM/DD/YY
Time	12:53:06 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	82.900002 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	24.500000 °C
Cal Cell Constant:	4.877324
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/21/21 MM/DD/YY
Time	12:50:02 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	6.301689 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	6.301689 Auto
Temperature	22.400000 °C
Barometer	757.200012 mmHg
Calibrate Status	Calibrated

***** Calibrate: pH

Date	09/20/21 MM/DD/YY
Time	07:39:15 24-hour
Buffer Value	7.008717 pH
Sensor Value:	-51.500000 pH mV
Temperature	23.550013 °C
Buffer Value	10.020293 pH
Sensor Value:	-209.000000 pH mV
Temperature	23.350000 °C
Slope	52.589324 mV/pH
Slope	88.953525 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/20/21 MM/DD/YY
Time	07:35:17 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	74.000000 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	23.900000 °C
Cal Cell Constant:	4.813456
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/20/21 MM/DD/YY
Time	07:32:14 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	7.063650 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	7.063650 Auto
Temperature	24.299999 °C
Barometer	754.700012 mmHg
Calibrate Status	Calibrated

Page **2** of **2**

Appendix P. Raw data sheets for whole sediment tests

Hyalella azteca

TEST ORGANISM RECEIPT AND ACCLIMATION SHEET

Project: Lower Maumee River | Test Initiation Date: 9/3/2021 Time: AM
Organism Source: In House | Test Date(s): 9/3 – 9/13 Time: AM
Test Species: Hyalella azteca | Page 1 of 1
Instrumentation used: | Environmental chamber temperature: 23°C

Day	Date	Original Number	Number Dead/removed	Estimated Survival	Water Change (Y/N)	Feeding (Y/N)	Temp. (°C)	Salinity/Cond. (ppt / uS/cm)	pH (SU)	D.O. (mg/L)	Comments ~~(mg/L)~~
0*	9/2/2021	1850+		~95%	Y	Y	23°C	–	–	–	IN house culture. placed on air overnight

* Taken immediately upon receiving

Signature: [signature]

Disclosed and Understood by: Kaitlin May

BULK SEDIMENT TOTAL AMMONIA PORE WATER MEASUREMENTS

Project: Maumee River	Date: 8/18/2021
Laboratory: ERDC	Page 1 of 1
Test Species: *Hyalella azteca*	
Exposure Duration: 10-d	Number of prior water exhanges: Ø

Sediment	Total Ammonia (mg/L)	pH	Temperature (°C)	Comments
Control				
LMR21-11S	JB ~~26.7~~ 29.3	6.90	22.5	
LMR21-12S	36.2	7.01	22.5	
LMR21-14S	30.6	7.09	22.5	
LMR21-15S	112	7.25	22.5	
LMR21-17S	36.2	7.26	22.5	
LMR21-19S	14.2	7.35	22.5	
LMR21-25S	19.9	6.98	22.5	
LMR21-27S	30.2	7.10	22.5	
LMR21-30S	15.2	7.09	22.5	
LMR21-35S	20.5	7.03	22.5	
LMR21-37S	23.8	6.96	22.5	
LMR21-39S	10.3	7.20	22.5	
LMR21-41S	24.4	7.03	22.5	
LMR21-43S	14.5	7.18	22.5	
LMR21-45S	16.8	7.04	22.5	
LMR21-47S	10.6	7.78	22.5	
LMR21-49S	9.20	7.26	22.5	
LMR21-52S	26.2	7.03	22.5	
LMR21-53S	15.9	7.06	22.5	
LMR21-55S	19.8	7.10	22.5	
LMR21-57S	12.5	7.19	22.5	
LMR21-59S	14.0	7.06	22.5	
LMR21-61S	19.4	7.05	22.5	
LMR21-62S	16.3	7.05	22.5	
LMR21-64S	10.5	7.13	22.5	
LMR21-66S	17.8	7.07	22.5	
LMR21-68S	14.7	7.09	22.5	
LMR21-69S	15.0	6.98	22.5	
LMR21-~~70S~~ 48	9.88	7.25	22.5	

Signature: Jonna Bayda

Disclosed and Understood by: Lauren May

DAY 0 SEDIMENT TOTAL AMMONIA PORE WATER MEASUREMENTS

Project: Maumee River	Date: 9/3/2021
Laboratory: ERDC	Page 1 of 1
Test Species: *Hyalella azteca*	
Exposure Duration: 10-d	Number of prior water exhanges: 24 cycles

Sediment	Total Ammonia (mg/L)	pH	Temperature (°C)	Comments
Control	1.03	6.22	23.0	
LMR21-11S	11.0	7.50	22.8	
LMR21-12S	9.73	7.33	22.8	
LMR21-14S	10.0	7.58	22.8	
LMR21-15S	35.2	7.45	22.7	strong odor (petro)
LMR21-17S	11.3	7.70	22.2	
LMR21-19S	5.08	7.70	22.7	
LMR21-25S	4.35	7.51	21.9	
LMR21-27S	9.31	7.45	21.9	
LMR21-30S	5.95	7.36	22.0	
LMR21-35S	3.77	7.62	22.0	
LMR21-37S	5.61	7.55	22.2	
LMR21-39S	4.51	7.63	22.2	
LMR21-41S	4.60	7.67	21.8	
LMR21-43S	4.25	7.61	22.1	
LMR21-45S	4.90	7.54	21.9	
LMR21-47S	3.77	8.03	22.0	strong odor & sheen
LMR21-49S	5.43	7.69	22.0	" "
LMR21-52S	9.80	7.45	22.0	
LMR21-53S	6.65	7.49	21.8	
LMR21-55S	8.17	7.55	21.8	
LMR21-57S	5.06	7.57	21.8	
LMR21-59S	6.14	7.51	22.0	
LMR21-61S	6.05	7.78	22.0	
LMR21-62S	4.05	7.86	22.2	
LMR21-64S	4.17	7.63	22.2	
LMR21-66S	6.31	7.54	22.1	
LMR21-68S	4.90	7.67	22.2	
LMR21-69S	4.64	7.63	22.3	
LMR21-~~70S~~ 98S	3.19	7.77	22.5	

Signature:

Disclosed and Understood by: Lauren May

DAY 10 SEDIMENT TOTAL AMMONIA PORE WATER MEASUREMENTS

Project: Maumee River	Date: 9/13/2021
Laboratory: ERDC	Page 1 of 1
Test Species: *Hyalella azteca*	
Exposure Duration: 10-d	Number of prior water exhanges: 76 WKS

Sediment	Total Ammonia (mg/L)	pH	Temperature (°C)	Comments
Control	0.683	6.46	22.5	
LMR21-11S	4.20	7.14	22.1	
LMR21-12S	5.29	7.34	22.1	
LMR21-14S	5.38	7.39	22.2	
LMR21-15S	11.6	7.53	22.1	
LMR21-17S	6.35	~~7.17~~ 7.17	22.1	
LMR21-19S	2.94	7.03	22.1	
LMR21-25S	2.81	7.20	22.0	
LMR21-27S	4.60	7.35	22.1	
LMR21-30S	1.42	7.36	21.9	
LMR21-35S	1.53	7.34	22.0	
LMR21-37S	3.69	7.07	22.1	
LMR21-39S	2.47	8.01	22.2	
LMR21-41S	1.82	7.18	22.0	
LMR21-43S	2.87	7.54	22.0	
LMR21-45S	2.88	7.13	22.1	
LMR21-47S	3.63	7.95	22.2	
LMR21-49S	2.53	7.60	22.0	
LMR21-52S	4.73	7.32	21.8	
LMR21-53S	3.32	7.28	21.7	
LMR21-55S	3.87	7.21	22.0	
LMR21-57S	2.88	7.48	22.0	
LMR21-59S	3.51	7.17	22.1	
LMR21-61S	2.75	7.19	22.1	
LMR21-62S	2.66	7.30	22.3	
LMR21-64S	2.40	7.02	22.3	
LMR21-66S	3.61	7.33	22.1	
LMR21-68S	3.49	7.27	21.9	
LMR21-69S	3.12	7.26	22.0	
LMR21-70S	1.87	7.52	21.7	

Signature: [signature]

Disclosed and Understood by: Lauren May

DAILY TEMPERATURE MONITORING SHEET

Project: Maumee River
Test Location:

Test Initiation Date: 9/3/2021

Test Species: *H. azteca*

Chamber/ Module #: 1|2

Day	Temperature (°C)	Min (°C)/Max (°C)	Comments	Initials
0	24.6 | 24.5	24.6/25.3 /24.5/25.6	9/3/21 Modules warmed to to Ambient air temps.	VRM
1	24.5 | 25.0	24.5/25.4 /24.5/25.3	9/4/2021	VRM
2	25.2 | 23.8	23.7/25.2/23.3/26.0	9/5/2021	VRM
3	23.8 | 24.7	23.6/25.3/23.3/25.8	9/6/2021	VRM
4	24.7 | 25.0	23.6/25.2/23.4/26.4	9/7/2021	VRM
5	24.6 | 24.4	23.7/25.6/23.4/25.8	9/8/2021	VRM
6	24.1 | 25.0	23.7/25.0/23.4/27.6	9/9/2021	VRM
7	23.8 | 24.3	23.6/25.1/23.2/26.1	9/10/2021	VRM
8	23.8 | 23.7	23.5/25.2/21.2/25.7	9/11/2021	VRM
9	23.7 | 24.0	23.4/25.4/23.4/25.0	9/12/2021	VRM
10				

Signature: [illegible]

Disclosed and Understood by: Lauren May

Initi Overlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 **Date:** 9/2/21 **Time:** 1200 **Technician initials:** VRM

1068

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
Control	A	Red	22.7	7.27	7.35	56	66	176.8	<1
Control	B	Red	22.3	7.29	6.86			185.2	
Control	C	Red	22.9	7.41	7.55			189.4	
Control	D	Red	22.7	7.34	6.84			177.8	
Control	E	Red	22.5	7.28	6.81			175.8	
LMR21-11S	A	Orange	22.5	7.24	6.29	70	88	232.6	<1
LMR21-11S	B	Orange	22.3	7.31	6.32			254.4	
LMR21-11S	C	Orange	22.6	7.40	6.04			240.2	
LMR21-11S	D	Orange	22.6	7.36	4.97			282.0	
LMR21-11S	E	Orange	22.6	7.39	4.84			271.1	
LMR21-12S	A	Yellow	22.8	7.41	5.38	72	68	255.7	<1
LMR21-12S	B	Yellow	22.7	7.40	5.50			289.5	
LMR21-12S	C	Yellow	22.9	7.47	5.92			254.6	
LMR21-12S	D	Yellow	22.4	7.54	6.17			236.8	
LMR21-12S	E	Yellow	22.2	7.53	5.77			238.3	
LMR21-14S	A	Green	22.7	7.49	5.40	76	84	276.7	<1
LMR21-14S	B	Green	22.7	7.54	5.77			239.6	
LMR21-14S	C	Green	22.3	7.53	5.94			243.7	
LMR21-14S	D	Green	22.1	7.53	5.28			252.4	
LMR21-14S	E	Green	22.5	7.53	5.88			253.7	

Initi verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/2/21 Time: 1400 Technician initials: VRM

2 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-15S	A	Blue	22.3	7.37	5.05	74	80	232.3	<1
LMR21-15S	B	Blue	22.9	7.37	5.49			237.1	
LMR21-15S	C	Blue	22.9	7.37	5.15			251.4	
LMR21-15S	D	Blue	22.8	7.37	5.49			255.1	
LMR21-15S	E	Blue	22.2	7.36	4.81			247.9	
LMR21-17S	A	Violet	22.7	7.40	5.02	72	80	278.7	<1
LMR21-17S	B	Violet	22.0	7.40	5.26			252.4	
LMR21-17S	C	Violet	22.8	7.47	6.00			235.8	
LMR21-17S	D	Violet	22.5	7.44	6.11			238.3	
LMR21-17S	E	Violet	22.8	7.43	5.56			238.2	
LMR21-19S	A	Pink	22.0	7.52	6.05	74	80	258.8	<1
LMR21-19S	B	Pink	22.5	7.61	6.34			225.7	
LMR21-19S	C	Pink	22.6	7.61	6.22			222.0	
LMR21-19S	D	Pink	22.2	7.59	5.91			229.7	
LMR21-19S	E	Pink	22.8	7.62	5.97			224.0	
LMR21-25S	A	Tan	22.5	7.66	6.63	72	108	234.0	<1
LMR21-25S	B	Tan	22.0	7.57	5.76			301.5	
LMR21-25S	C	Tan	22.6	7.64	6.24			225.7	
LMR21-25S	D	Tan	22.9	7.61	5.84			237.8	
LMR21-25S	E	Tan	22.0	7.61	5.61			249.3	

Init verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/2/21 Time: 1650 Technician initials: VRM 3 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-27S	A	Grn-Red	22.1	7.22	5.82	84	88	268.2	<1
LMR21-27S	B	Grn-Red	22.5	7.30	5.40			272.7	
LMR21-27S	C	Grn-Red	22.6	7.35	5.53			262.4	
LMR21-27S	D	Grn-Red	22.9	7.45	5.49			255.4	
LMR21-27S	E	Grn-Red	22.2	7.44	5.17			249.5	
LMR21-30S	A	Grn-Orange	22.7	7.54	5.97	72	86	253.2	<1
LMR21-30S	B	Grn-Orange	22.6	7.61	6.09			251.6	
LMR21-30S	C	Grn-Orange	22.3	7.67	6.18			245.2	
LMR21-30S	D	Grn-Orange	22.1	7.70	5.99			238.9	
LMR21-30S	E	Grn-Orange	22.1	7.71	6.12			241.2	
LMR21-35S	A	Grn-Yellow	22.6	7.74	6.06	72	84	243.6	<1
LMR21-35S	B	Grn-Yellow	22.7	7.71	5.90			251.3	
LMR21-35S	C	Grn-Yellow	22.6	7.71	5.86			244.2	
LMR21-35S	D	Grn-Yellow	22.0	7.60	4.98			290.6	
LMR21-35S	E	Grn-Yellow	22.2	7.67	5.79			242.0	
LMR21-37S	A	Grn-Blue	22.6	7.56	5.21	78	92	308.8	<1
LMR21-37S	B	Grn-Blue	22.2	7.50	4.92			368.4	
LMR21-37S	C	Grn-Blue	22.5	7.52	4.71			310.7	
LMR21-37S	D	Grn-Blue	22.0	7.50	5.30			269.0	
LMR21-37S	E	Grn-Blue	22.3	7.52	5.80			285.6	

Initi verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/2/21 Time: 1730 Technician initials: VRM 4068

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-39S	A	Grn-Violet	22.7	7.48	6.97	74	88	VRM ~~233.7~~ 223.7	<1
LMR21-39S	B	Grn-Violet	22.2	7.57	6.84			~~223.7~~ 212.9	
LMR21-39S	C	Grn-Violet	22.3	7.56	6.52			214.9	
LMR21-39S	D	Grn-Violet	22.5	7.56	6.14			213.6	
LMR21-39S	E	Grn-Violet	22.2	7.58	6.11			211.8	
LMR21-41S	A	Grn-Pink	22.6	7.68	5.80	88	92	320.9	<1
LMR21-41S	B	Grn-Pink	22.7	7.59	4.28			289.9	
LMR21-41S	C	Grn-Pink	22.8	7.60	5.48			285.2	
LMR21-41S	D	Grn-Pink	22.0	7.69	5.35			244.8	
LMR21-41S	E	Grn-Pink	22.9	7.60	5.02			262.1	
LMR21-43S	A	Grn-Tan	22.6	7.68	5.35	80	92	249.3	<1
LMR21-43S	B	Grn-Tan	22.0	7.75	6.39			242.3	
LMR21-43S	C	Grn-Tan	22.8	7.79	6.03			247.4	
LMR21-43S	D	Grn-Tan	22.4	7.74	5.44			256.5	
LMR21-43S	E	Grn-Tan	22.1	7.48	5.96			224.4	
LMR21-45S	A	Blue-Red	22.5	7.75	6.09	92	VRM ~~92~~ 72	250.2	<1
LMR21-45S	B	Blue-Red	22.8	7.73	6.01			248.2	
LMR21-45S	C	Blue-Red	22.9	7.71	6.01			252.6	
LMR21-45S	D	Blue-Red	22.4	7.73	6.07			242.9	
LMR21-45S	E	Blue-Red	22.9	7.69	5.53			241.3	

Initi verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/2/21 Time: 1700 Technician initials: VPM 5068

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-47S	A	Blue-Orange	22.6	7.66	5.34	80	88	246.9	<1
LMR21-47S	B	Blue-Orange	22.7	7.61	4.93			252.6	
LMR21-47S	C	Blue-Orange	22.4	7.62	5.76			237.6	
LMR21-47S	D	Blue-Orange	22.8	7.59	5.23			251.4	
LMR21-47S	E	Blue-Orange	22.6	7.60	5.41			231.4	
LMR21-49S	A	Blue-Yellow	22.1	7.43	5.44	84	94	250.0	<1
LMR21-49S	B	Blue-Yellow	22.2	7.51	5.29			243.5	
LMR21-49S	C	Blue-Yellow	22.1	7.51	4.88			246.0	
LMR21-49S	D	Blue-Yellow	22.2	7.51	4.93			240.9	
LMR21-49S	E	Blue-Yellow	22.3	7.47	4.66			280.8	
LMR21-52S	A	Blue-Pink	22.8	7.51	5.01	72	78	269.6	<1
LMR21-52S	B	Blue-Pink	22.7	7.52	5.06			285.7	
LMR21-52S	C	Blue-Pink	22.7	7.52	5.51			293.6	
LMR21-52S	D	Blue-Pink	22.4	7.56	5.01			263.8	
LMR21-52S	E	Blue-Pink	22.4	7.56	9.20			256.2	
LMR21-53S	A	Blue-Tan	22.7	7.48	6.06	84	72	271.1	<1
LMR21-53S	B	Blue-Tan	22.6	7.54	5.95			268.7	
LMR21-53S	C	Blue-Tan	22.6	7.58	6.08			256.3	
LMR21-53S	D	Blue-Tan	22.4	7.62	5.97			254.3	
LMR21-53S	E	Blue-Tan	22.6	7.63	5.52			256.1	

Init verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 | **Date:** 9/2/21 | **Time:** 1750 | **Technician initials:** VRM

6068

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-55S	A	Orange-Red	22.6	7.66	5.53	66	80	253.1	<1
LMR21-55S	B	Orange-Red	22.3	7.55	4.97			334.1	
LMR21-55S	C	Orange-Red	22.3	7.68	6.06			259.0	
LMR21-55S	D	Orange-Red	22.8	7.69	5.60			253.5	
LMR21-55S	E	Orange-Red	22.2	7.70	5.57			255.7	
LMR21-57S	A	Orange-Yellow	22.2	7.67	6.04	68	78	330.5	<1
LMR21-57S	B	Orange-Yellow	22.9	7.80	6.58			242.2	
LMR21-57S	C	Orange-Yellow	22.8	7.63	4.96			256.3	
LMR21-57S	D	Orange-Yellow	22.5	7.70	5.97			247.9	
LMR21-57S	E	Orange-Yellow	22.0	7.71	6.05			243.6	
LMR21-59S	A	Orange-Pink	~~22.1~~ 22.7	~~7.80~~ 7.59	~~5.74~~ ~~6.20~~ 6.33	64	76	VRM ~~257.1~~ 217.3	<1
LMR21-59S	B	Orange-Pink	~~22.7~~ 22.3	~~7.77~~ 7.59	~~5.94~~ 5.95			~~256.9~~ 221.5	
LMR21-59S	C	Orange-Pink	~~22.7~~ 22.1	~~7.76~~ 7.60	~~6.06~~ 6.34			~~255.3~~ 220.3	
LMR21-59S	D	Orange-Pink	~~22.0~~ 22.3	~~7.76~~ 7.61	~~5.99~~ 6.08			~~244.7~~ 216.2	
LMR21-59S	E	Orange-Pink	~~22.8~~ 22.8	~~7.71~~ 7.60	~~5.69~~ 6.08			~~272.8~~ 235.1	
LMR21-61S	A	Orange-Tan	22.1	7.80	5.74	60	74	257.1	<1
LMR21-61S	B	Orange-Tan	22.7	7.77	5.94			256.9	
LMR21-61S	C	Orange-Tan	22.7	7.76	6.06			255.3	
LMR21-61S	D	Orange-Tan	22.0	7.76	5.99			244.7	
LMR21-61S	E	Orange-Tan	22.8	7.71	5.69			272.8	

Init[illegible] Overlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/2/21 Time: 1830 Technician initials: URM

7068

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-62S	A	Orange-Violet	22.6	7.78	6.40	64	80	254.7	<1
LMR21-62S	B	Orange-Violet	22.6	7.80	6.42			240.2	
LMR21-62S	C	Orange-Violet	22.9	7.71	5.47			269.3	
LMR21-62S	D	Orange-Violet	22.7	7.74	5.83			253.5	
LMR21-62S	E	Orange-Violet	22.9	7.75	5.78			246.9	
LMR21-64S	A	Yellow-Violet	22.2	7.72	5.86	68	80	264.5	<1
LMR21-64S	B	Yellow-Violet	22.4	7.73	5.87			294.2	
LMR21-64S	C	Yellow-Violet	22.5	7.80	6.34			245.7	
LMR21-64S	D	Yellow-Violet	22.2	7.77	5.70			247.2	
LMR21-64S	E	Yellow-Violet	22.3	7.72	5.80			280.7	
LMR21-66S	A	Yellow-Pink	22.4	7.79	6.28	64	84	250.5	<1
LMR21-66S	B	Yellow-Pink	22.6	7.66	5.53			310.3	
LMR21-66S	C	Yellow-Pink	22.9	7.71	5.51			268.4	
LMR21-66S	D	Yellow-Pink	22.3	7.71	5.74			256.1	
LMR21-66S	E	Yellow-Pink	22.7	7.68	5.57			270.9	
LMR21-68S	A	Yellow-Tan	22.9	7.74	6.33	66	84	251.5	<1
LMR21-68S	B	Yellow-Tan	22.7	7.73	6.03			297.9	
LMR21-68S	C	Yellow-Tan	22.6	7.72	6.08			278.9	
LMR21-68S	D	Yellow-Tan	22.4	7.73	5.80			264.9	
LMR21-68S	E	Yellow-Tan	22.3	7.73	5.84			259.9	

Init verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/2/21 Time: 1845 Technician initials: VRM

8 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-69S	A	Yellow-Red	22.3	7.77	6.36	68	80	246.5	<1
LMR21-69S	B	Yellow-Red	22.2	7.77	6.02			257.6	
LMR21-69S	C	Yellow-Red	22.8	7.72	6.25			277.6	
LMR21-69S	D	Yellow-Red	22.3	7.75	5.96			254.1	
LMR21-69S	E	Yellow-Red	22.7	7.73	5.92			261.2	
LMR21-~~70S~~48	A	Pink-Red	22.5	7.78	6.52	60	74	244.8	<1
LMR21-~~70S~~48	B	Pink-Red	22.9	7.79	VRM ~~6.5~~6.26			239.2	
LMR21-~~70S~~48	C	Pink-Red	22.4	7.76	6.26			268.7	
LMR21-~~70S~~48	D	Pink-Red	22.4	7.78	6.20			238.3	
LMR21-~~70S~~48	E	Pink-Red	22.4	7.78	6.23			238.8	

* Measured from a composite sample

Signature:

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/4/2021, 1300 **Test Day:** 1

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	A	Red	23.1	6.57	LKM	
LMR21-11S	A	Orange	22.6	7.29		
LMR21-12S	A	Yellow	22.7	5.52		
LMR21-14S	A	Green	22.7	5.67		
LMR21-15S	A	Blue	22.3	4.80		
LMR21-17S	A	Violet	22.8	5.61		
LMR21-19S	A	Pink	22.6	6.04		
LMR21-25S	A	Tan	22.5	6.24		
LMR21-27S	A	Grn-Red	22.2	5.91		
LMR21-30S	A	Grn-Orange	22.4	6.20		
LMR21-35S	A	Grn-Yellow	22.9	6.08		
LMR21-37S	A	Grn-Blue	22.4	5.57		
LMR21-39S	A	Grn-Violet	23.4	6.26		
LMR21-41S	A	Grn-Pink	22.7	5.70		
LMR21-43S	A	Grn-Tan	22.6	5.45		
LMR21-45S	A	Blue-Red	22.7	6.01		
LMR21-47S	A	Blue-Orange	22.4	5.47		
LMR21-49S	A	Blue-Yellow	21.9	5.59		
LMR21-52S	A	Blue-Pink	22.6	5.80		
LMR21-53S	A	Blue-Tan	22.7	5.81		
LMR21-55S	A	Orange-Red	22.5	5.80		
LMR21-57S	A	Orange-Yellow	22.4	6.30		
LMR21-59S	A	Orange-Pink	21.6	6.20		
LMR21-61S	A	Orange-Tan	23.3	6.24		
LMR21-62S	A	Orange-Violet	22.8	6.66		
LMR21-64S	A	Yellow-Violet	23.5	5.99		
LMR21-66S	A	Yellow-Pink	22.3	6.13		
LMR21-68S	A	Yellow-Tan	21.7	6.49		
LMR21-69S	A	Yellow-Red	22.4	6.05		
LMR21-~~70~~S 48	A	Pink Red	22.4	6.49		

Signature: [illegible]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/5/2021, 1130 Test Day: 2

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	B	Red	22.4	6.64	LRM	
LMR21-11S	B	Orange	22.7	5.50		
LMR21-12S	B	Yellow	22.6	5.26		
LMR21-14S	B	Green	22.6	5.47		
LMR21-15S	B	Blue	22.0	4.86		
LMR21-17S	B	Violet	22.8	5.03		
LMR21-19S	B	Pink	22.3	5.87		
LMR21-25S	B	Tan	22.8	5.68		
LMR21-27S	B	Grn-Red	22.7	5.39		
LMR21-30S	B	Grn-Orange	22.5	5.90		
LMR21-35S	B	Grn-Yellow	23.2	5.41		
LMR21-37S	B	Grn-Blue	22.2	5.66		
LMR21-39S	B	Grn-Violet	22.7	6.14		
LMR21-41S	B	Grn-Pink	22.7	4.27		
LMR21-43S	B	Grn-Tan	22.0	6.23		
LMR21-45S	B	Blue-Red	23.1	5.58		
LMR21-47S	B	Blue-Orange	22.8	5.31		
LMR21-49S	B	Blue-Yellow	22.2	5.57		
LMR21-52S	B	Blue-Pink	22.8	5.36		
LMR21-53S	B	Blue-Tan	22.5	5.82		
LMR21-55S	B	Orange-Red	22.4	5.60		
LMR21-57S	B	Orange-Yellow	22.0	6.36		
LMR21-59S	B	Orange-Pink	22.2	5.56		
LMR21-61S	B	Orange-Tan	22.8	5.76		
LMR21-62S	B	Orange-Violet	22.8	5.98		
LMR21-64S	B	Yellow-Violet	22.6	5.77		
LMR21-66S	B	Yellow-Pink	22.2	5.86		
LMR21-68S	B	Yellow-Tan	22.8	5.77		
LMR21-69S	B	Yellow-Red	22.5	5.84		
LMR21-78S	B	Pink Red	22.2	6.09		

Signature: [illegible]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/6/2021, 1430 Test Day: 3

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	C	Red	22.8	6.77	JRM	
LMR21-11S	C	Orange	22.9	5.91		
LMR21-12S	C	Yellow	23.1	5.91		
LMR21-14S	C	Green	22.5	6.01		
LMR21-15S	C	Blue	22.6	4.85		
LMR21-17S	C	Violet	22.7	5.70		
LMR21-19S	C	Pink	22.4	5.90		
LMR21-25S	C	Tan	22.5	5.75		
LMR21-27S	C	Grn-Red	22.7	5.95		
LMR21-30S	C	Grn-Orange	22.3	5.90		
LMR21-35S	C	Grn-Yellow	22.6	5.82		
LMR21-37S	C	Grn-Blue	22.4	5.58		
LMR21-39S	C	Grn-Violet	22.7	6.20		
LMR21-41S	C	Grn-Pink	23.3	5.84		
LMR21-43S	C	Grn-Tan	22.8	6.26		
LMR21-45S	C	Blue-Red	22.8	5.97		
LMR21-47S	C	Blue-Orange	22.4	5.65		
LMR21-49S	C	Blue-Yellow	23.2	5.42		
LMR21-52S	C	Blue-Pink	22.7	5.96		
LMR21-53S	C	Blue-Tan	22.5	5.89		
LMR21-55S	C	Orange-Red	22.3	5.93		
LMR21-57S	C	Orange-Yellow	22.5	6.22		
LMR21-59S	C	Orange-Pink	22.1	5.92		
LMR21-61S	C	Orange-Tan	22.4	6.06		
LMR21-62S	C	Orange-Violet	23.0	5.84		
LMR21-64S	C	Yellow-Violet	22.2	5.98		
LMR21-66S	C	Yellow-Pink	22.8	5.85		
LMR21-68S	C	Yellow-Tan	22.7	5.98		
LMR21-69S	C	Yellow-Red	23.2	6.23		
LMR21-~~70S~~48	C	Pink Red	22.7	6.05		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/7/2021 1300 Test Day: 4

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	D	Red	22.3	6.80	VRM	
LMR21-11S	D	Orange	22.1	6.23		
LMR21-12S	D	Yellow	22.1	5.98		
LMR21-14S	D	Green	22.0	5.94		
LMR21-15S	D	Blue	22.3	5.46		
LMR21-17S	D	Violet	22.1	5.88		
LMR21-19S	D	Pink	22.0	6.02		
LMR21-25S	D	Tan	22.0	6.07		
LMR21-27S	D	Grn-Red	22.2	6.25		
LMR21-30S	D	Grn-Orange	22.3	6.16		
LMR21-35S	D	Grn-Yellow	VRM ~~22.6~~ 22.0	6.16		
LMR21-37S	D	Grn-Blue	VRM ~~22.2~~ 22.0	6.33		
LMR21-39S	D	Grn-Violet	22.0	6.71		
LMR21-41S	D	Grn-Pink	VRM ~~22.1~~ 22.0	5.74		
LMR21-43S	D	Grn-Tan	VRM ~~22.4~~ 22.1	6.41		
LMR21-45S	D	Blue-Red	VRM ~~22.0~~ 22.4	6.42		
LMR21-47S	D	Blue-Orange	22.0	5.93		
LMR21-49S	D	Blue-Yellow	22.0	5.84		
LMR21-52S	D	Blue-Pink	22.0	5.85		
LMR21-53S	D	Blue-Tan	22.0	6.40		
LMR21-55S	D	Orange-Red	22.2	6.34		
LMR21-57S	D	Orange-Yellow	22.0	6.43		
LMR21-59S	D	Orange-Pink	22.0	5.91		
LMR21-61S	D	Orange-Tan	22.0	6.47		
LMR21-62S	D	Orange-Violet	22.5	6.33		
LMR21-64S	D	Yellow-Violet	22.0	5.79		
LMR21-66S	D	Yellow-Pink	22.4	6.29		
LMR21-68S	B	Yellow-Tan	22.0	6.11		
LMR21-69S	D	Yellow-Red	22.0	6.36		
LMR21-~~70S~~ 48	D	Pink Red	22.5	6.48		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/8/2021, 1430 Test Day: 5

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	E	Red	22.1	6.53	Vem	
LMR21-11S	E	Orange	22.2	5.67		
LMR21-12S	E	Yellow	22.0	5.57		
LMR21-14S	E	Green	22.5	5.87		
LMR21-15S	E	Blue	22.0	5.34		
LMR21-17S	E	Violet	22.7	5.09		
LMR21-19S	E	Pink	22.0	5.47		
LMR21-25S	E	Tan	22.0	5.56		
LMR21-27S	E	Grn-Red	22.1	6.11		
LMR21-30S	E	Grn-Orange	22.0	5.74		
LMR21-35S	E	Grn-Yellow	22.0	5.68		
LMR21-37S	E	Grn-Blue	22.1	5.51		
LMR21-39S	E	Grn-Violet	22.0	6.16		
LMR21-41S	E	Grn-Pink	22.0	5.44		
LMR21-43S	E	Grn-Tan	22.0	5.90		
LMR21-45S	E	Blue-Red	22.6	6.33		
LMR21-47S	E	Blue-Orange	22.2	5.53		
LMR21-49S	E	Blue-Yellow	22.0	5.04		
LMR21-52S	E	Blue-Pink	22.1	5.56		
LMR21-53S	E	Blue-Tan	22.4	5.70		
LMR21-55S	E	Orange-Red	22.4	5.63		
LMR21-57S	E	Orange-Yellow	22.0	5.95		
LMR21-59S	E	Orange-Pink	22.4	5.49		
LMR21-61S	E	Orange-Tan	22.4	5.80		
LMR21-62S	E	Orange-Violet	22.6	5.87		
LMR21-64S	E	Yellow-Violet	22.0	5.49		
LMR21-66S	E	Yellow-Pink	22.4	5.77		
LMR21-68S	E	Yellow-Tan	22.0	5.50		
LMR21-69S	E	Yellow-Red	22.4	5.75		
LMR21-~~70S~~ 48	E	Pink Red	22.0	5.88		

Signature:

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/9/2021 0945 Test Day: 6

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	A	Red	23.1	5.99	VRM	
LMR21-11S	A	Orange	22.7	5.79		
LMR21-12S	A	Yellow	22.6	5.91		
LMR21-14S	A	Green	22.9	5.78		
LMR21-15S	A	Blue	22.2	5.39		
LMR21-17S	A	Violet	22.7	5.33		
LMR21-19S	A	Pink	22.8	5.46		
LMR21-25S	A	Tan	22.5	6.08		
LMR21-27S	A	Grn-Red	22.2	6.02		
LMR21-30S	A	Grn-Orange	22.5	5.79		
LMR21-35S	A	Grn-Yellow	22.9	5.91		
LMR21-37S	A	Grn-Blue	22.5	5.30		
LMR21-39S	A	Grn-Violet	23.3	6.13		
LMR21-41S	A	Grn-Pink	22.8	5.32		
LMR21-43S	A	Grn-Tan	22.4	5.43		
LMR21-45S	A	Blue-Red	22.5	4.78		
LMR21-47S	A	Blue-Orange	22.3	5.62		
LMR21-49S	A	Blue-Yellow	22.1	5.78		
LMR21-52S	A	Blue-Pink	22.5	5.96		
LMR21-53S	A	Blue-Tan	23.2	5.78		
LMR21-55S	A	Orange-Red	22.3	5.36		
LMR21-57S	A	Orange-Yellow	22.2	6.08		
LMR21-59S	A	Orange-Pink	VRM ~~21.7~~ 22.0	5.90		
LMR21-61S	A	Orange-Tan	23.1	5.90		
LMR21-62S	A	Orange-Violet	22.8	6.54		
LMR21-64S	A	Yellow-Violet	23.2	5.28		
LMR21-66S	A	Yellow-Pink	22.2	6.16		
LMR21-68S	A	Yellow-Tan	22.0	5.43		
LMR21-69S	A	Yellow-Red	22.4	6.01		
LMR21-~~70S~~ 78	A	Pink Red	22.3	6.17		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/10/2021, 1400 **Test Day:** 7

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	B	Red	22.2	6.59	LPM	
LMR21-11S	B	Orange	22.9	6.04		
LMR21-12S	B	Yellow	22.4	5.85		
LMR21-14S	B	Green	22.4	5.75		
LMR21-15S	B	Blue	22.0	5.72		
LMR21-17S	B	Violet	22.6	5.07		
LMR21-19S	B	Pink	22.1	5.87		
LMR21-25S	B	Tan	22.5	6.60		
LMR21-27S	B	Grn-Red	22.3	5.83		
LMR21-30S	B	Grn-Orange	22.1	6.28		
LMR21-35S	B	Grn-Yellow	22.9	5.77		
LMR21-37S	B	Grn-Blue	22.0	5.84		
LMR21-39S	B	Grn-Violet	23.0	6.55		
LMR21-41S	B	Grn-Pink	23.1	4.46		
LMR21-43S	B	Grn-Tan	22.0	6.54		
LMR21-45S	B	Blue-Red	22.9	5.75		
LMR21-47S	B	Blue-Orange	22.6	6.05		
LMR21-49S	B	Blue-Yellow	22.0	5.93		
LMR21-52S	B	Blue-Pink	23.1	5.68		
LMR21-53S	B	Blue-Tan	22.2	6.04		
LMR21-55S	B	Orange-Red	22.0	5.92		
LMR21-57S	B	Orange-Yellow	22.0	6.67		
LMR21-59S	B	Orange-Pink	22.0	5.84		
LMR21-61S	B	Orange-Tan	22.4	6.06		
LMR21-62S	B	Orange-Violet	22.8	6.25		
LMR21-64S	B	Yellow-Violet	22.1	5.84		
LMR21-66S	B	Yellow-Pink	22.4	6.07		
LMR21-68S	B	Yellow-Tan	22.7	6.16		
LMR21-69S	B	Yellow-Red	23.2	5.91		
LMR21-~~70S~~ 48S	B	Pink Red	22.7	6.07		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River
Test Species: *Hyalella azteca*
Date/Time: 9/11/2021, 1700 Test Day: 8

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	C	Red	22.6	6.85	VRM	
LMR21-11S	C	Orange	22.7	5.45		
LMR21-12S	C	Yellow	22.9	5.75		
LMR21-14S	C	Green	22.2	5.85		
LMR21-15S	C	Blue	22.5	4.84		
LMR21-17S	C	Violet	22.1	5.18		
LMR21-19S	C	Pink	22.1	5.95		
LMR21-25S	C	Tan	22.3	6.02		
LMR21-27S	C	Grn-Red	22.1	5.88		
LMR21-30S	C	Grn-Orange	22.5	5.99		
LMR21-35S	C	Grn-Yellow	22.2	5.16		
LMR21-37S	C	Grn-Blue	22.4	6.69		
LMR21-39S	C	Grn-Violet	23.3	4.96		
LMR21-41S	C	Grn-Pink	22.5	6.00		
LMR21-43S	C	Grn-Tan	22.8	5.35		
LMR21-45S	C	Blue-Red	22.3	5.84		
LMR21-47S	C	Blue-Orange	23.2	5.30		
LMR21-49S	C	Blue-Yellow	22.8	5.83		
LMR21-52S	C	Blue-Pink	22.2	6.10		
LMR21-53S	C	Blue-Tan	22.2	6.01		
LMR21-55S	C	Orange-Red	22.4	6.08		
LMR21-57S	C	Orange-Yellow	22.2	5.40		
LMR21-59S	C	Orange-Pink	22.4	5.54		
LMR21-61S	C	Orange-Tan	22.9	5.67		
LMR21-62S	C	Orange-Violet	22.4	5.78		
LMR21-64S	C	Yellow-Violet	22.6	5.95		
LMR21-66S	C	Yellow-Pink	22.6	5.78		
LMR21-68S	C	Yellow-Tan	23.2	5.72		
LMR21-69S	C	Yellow-Red	22.3	5.98		
LMR21-~~70S~~ 78	C	Pink Red	22.4	6.01		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Hyalella azteca*

Date/Time: 9/12/2021, 1300. Test Day: 9

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	D	Red	22.0	6.19	VEM	Temp of Module adjusted.
LMR21-11S	D	Orange	22.0	5.87		
LMR21-12S	D	Yellow	22.0	5.83		
LMR21-14S	D	Green	22.0	5.69		
LMR21-15S	D	Blue	22.3	5.83		
LMR21-17S	D	Violet	22.0	5.67		
LMR21-19S	D	Pink	22.0	5.74		
LMR21-25S	D	Tan	22.0	5.75		
LMR21-27S	D	Grn-Red	22.0	6.21		
LMR21-30S	D	Grn-Orange	22.0	6.40		
LMR21-35S	D	Grn-Yellow	22.0	5.92		
LMR21-37S	D	Grn-Blue	22.0	6.30		
LMR21-39S	D	Grn-Violet	22.0	6.19		
LMR21-41S	D	Grn-Pink	22.0	5.58		
LMR21-43S	D	Grn-Tan	22.0	6.19		
LMR21-45S	D	Blue-Red	22.3	6.11		
LMR21-47S	D	Blue-Orange	22.0	6.00		
LMR21-49S	D	Blue-Yellow	22.0	5.62		
LMR21-52S	D	Blue-Pink	22.0	5.59		
LMR21-53S	D	Blue-Tan	22.0	6.55		
LMR21-55S	D	Orange-Red	22.0	5.91		
LMR21-57S	D	Orange-Yellow	22.0	6.15		
LMR21-59S	D	Orange-Pink	22.0	5.69		
LMR21-61S	D	Orange-Tan	22.0	6.25		
LMR21-62S	D	Orange-Violet	22.5	6.10		
LMR21-64S	D	Yellow-Violet	22.0	5.78		
LMR21-66S	D	Yellow-Pink	22.3	6.12		
LMR21-68S	D	Yellow-Tan	22.0	5.70		
LMR21-69S	D	Yellow-Red	22.0	6.09		
LMR21-~~70~~S 48	D	Pink Red	22.4	6.32		

Signature: [signature]

Disclosed and Understood by: Lauren May

Fin[illegible]verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day:0 Date: 9/12/21 Time: 1600 Technician initials: VRM

1068

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
Control	A	Red	22.2	7.05	6.33	72	84	229.2	<1
Control	B	Red	22.0	7.05	6.40			230.8	
Control	C	Red	22.9	7.05	6.58			230.6	
Control	D	Red	22.1	7.10	6.21			231.6	
Control	E	Red	22.0	7.10	6.26			228.7	
LMR21-11S	A	Orange	22.5	7.31	5.41	74	84	258.1	<1
LMR21-11S	B	Orange	23.1	7.50	5.23			263.1	
LMR21-11S	C	Orange	22.8	7.57	5.36			255.3	
LMR21-11S	D	Orange	22.2	7.68	5.77			253.4	
LMR21-11S	E	Orange	22.2	7.75	5.60			252.8	
LMR21-12S	A	Yellow	22.6	7.68	5.09	76	84	257.5	<1
LMR21-12S	B	Yellow	22.4	7.67	5.11			254.0	
LMR21-12S	C	Yellow	23.0	7.64	5.23			252.6	
LMR21-12S	D	Yellow	22.2	7.68	5.66			249.6	
LMR21-12S	E	Yellow	22.0	7.71	5.95			246.9	
LMR21-14S	A	Green	23.0	7.69	5.01	76	76	264.7	<1
LMR21-14S	B	Green	22.5	7.72	5.13			254.9	
LMR21-14S	C	Green	22.3	7.72	5.58			254.2	
LMR21-14S	D	Green	22.0	7.77	5.57			253.5	
LMR21-14S	E	Green	22.3	7.73	5.10			258.6	

Fin… verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 10 Date: 9/12/21 Time: 1620 Technician initials: VRM

2 of 8

			Temp (°C)	pH	D.O	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-15S	A	Blue	22.1	7.62	4.99	76	84	249.0	<1
LMR21-15S	B	Blue	22.0	7.56	5.15			248.4	
LMR21-15S	C	Blue	22.6	7.53	4.78			253.0	
LMR21-15S	D	Blue	22.6	7.47	4.01			255.5	
LMR21-15S	E	Blue	22.0	7.51	5.50			246.8	
LMR21-17S	A	Violet	22.5	7.74	5.00	86	86	272.0	<1
LMR21-17S	B	Violet	23.0	8.06	4.28			317.3	
LMR21-17S	C	Violet	22.5	8.14	5.14			265.6	
LMR21-17S	D	Violet	22.2	8.06	5.36			261.5	
LMR21-17S	E	Violet	22.8	8.07	4.30			269.9	
LMR21-19S	A	Pink	22.9	8.21	4.56	92	84	297.9	<1
LMR21-19S	B	Pink	22.4	8.34	5.05			269.4	
LMR21-19S	C	Pink	22.3	8.41	4.73			273.5	
LMR21-19S	D	Pink	22.0	8.46	5.43			269.4	
LMR21-19S	E	Pink	22.0	8.53	5.69			266.8	
LMR21-25S	A	Tan	22.1	8.28	5.68	76	84	259.6	<1
LMR21-25S	B	Tan	22.9	8.10	5.34			261.8	
LMR21-25S	C	Tan	22.3	8.05	5.21			260.9	
LMR21-25S	D	Tan	22.0	8.11	5.69			254.4	
LMR21-25S	E	Tan	22.0	8.12	5.63			256.4	

Fin verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 **Date:** 9/12/21 **Time:** 1645 **Technician initials:** vrm

3 of 8

			Temp (°C)	pH	D.O.	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-27S	A	Grn-Red	22.0	7.97	5.18	72	84	255.5	<1
LMR21-27S	B	Grn-Red	22.7	7.84	5.03			257.2	
LMR21-27S	C	Grn-Red	22.5	7.77	5.10			vrm ~~55~~257.1	
LMR21-27S	D	Grn-Red	22.2	7.76	5.28			251.5	
LMR21-27S	E	Grn-Red	22.4	7.68	4.81			277.2	
LMR21-30S	A	Grn-Orange	22.4	7.74	5.12	78	60 *	260.0	<1
LMR21-30S	B	Grn-Orange	22.4	7.78	5.72			258.9	
LMR21-30S	C	Grn-Orange	22.1	7.77	5.51			258.7	
LMR21-30S	D	Grn-Orange	22.4	7.77	5.50			257.0	
LMR21-30S	E	Grn-Orange	22.0	7.79	6.20			252.1	
LMR21-35S	A	Grn-Yellow	22.7	7.77	5.49	74	88	258.7	<1
LMR21-35S	B	Grn-Yellow	22.4	7.79	5.46			262.2	
LMR21-35S	C	Grn-Yellow	22.6	7.79	5.13			261.6	
LMR21-35S	D	Grn-Yellow	22.0	7.82	5.68			256.5	
LMR21-35S	E	Grn-Yellow	22.0	7.81	6.23			249.8	
LMR21-37S	A	Grn-Blue	22.5	8.11	4.28	92	96	290.3	<1
LMR21-37S	B	Grn-Blue	22.1	8.26	5.07			271.5	
LMR21-37S	C	Grn-Blue	22.3	8.21	4.56			274.2	
LMR21-37S	D	Grn-Blue	22.0	8.21	4.76			268.1	
LMR21-37S	E	Grn-Blue	22.0	8.33	4.45			295.0	

Fin verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 | **Date:** 9/12/21 | **Time:** 1700 | **Technician initials:** VRM

			Temp (°C)	pH	D.O.	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-39S	A	Grn-Violet	22.6	8.07	5.50	~~72~~ 76	~~84~~ 68	255.3	<1
LMR21-39S	B	Grn-Violet	23.3	7.93	5.50			258.5	
LMR21-39S	C	Grn-Violet	22.5	7.86	5.75			257.8	
LMR21-39S	D	Grn-Violet	22.0	7.87	6.69			249.7	
LMR21-39S	E	Grn-Violet	22.0	7.85	6.45			247.6	
LMR21-41S	A	Grn-Pink	22.8	8.25	4.30	~~78~~ 96	~~60~~ 104	322.4	<1
LMR21-41S	B	Grn-Pink	23.2	8.16	3.31			303.8	
LMR21-41S	C	Grn-Pink	23.5	8.20	4.40			280.0	
LMR21-41S	D	Grn-Pink	22.0	8.30	4.85			269.1	
LMR21-41S	E	Grn-Pink	22.0	8.33	5.12			280.8	
LMR21-43S	A	Grn-Tan	22.4	8.09	4.82	~~74~~ 76	~~88~~ 60*	272.1	<1
LMR21-43S	B	Grn-Tan	22.1	7.95	5.73			253.2	
LMR21-43S	C	Grn-Tan	22.7	7.77	4.77			264.3	
LMR21-43S	D	Grn-Tan	22.0	7.76	5.42			258.1	
LMR21-43S	E	Grn-Tan	22.0	7.80	6.23			243.6	
LMR21-45S	A	Blue-Red	~~22.0~~ 22.4	8.00	4.90	84	88	271.8	<1
LMR21-45S	B	Blue-Red	22.3	8.06	5.09			271.9	
LMR21-45S	C	Blue-Red	22.8	8.08	4.87			271.9	
LMR21-45S	D	Blue-Red	22.5	7.99	4.87			267.5	
LMR21-45S	E	Blue-Red	22.5	8.05	5.02			266.2	

Fin verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/12/21 Time: 1715 Technician initials: VRM 5 of 8

			Temp (°C)	pH	D.O.	Hardness	Alkalinity	conductivity	Ammonia
LMR21-47S	A	Blue-Orange	22.3	7.83	4.54	80	84	258.8	<1
LMR21-47S	B	Blue-Orange	22.9	7.72	5.05			256.7	
LMR21-47S	C	Blue-Orange	22.2	7.70	5.47			252.9	
LMR21-47S	D	Blue-Orange	22.0	7.68	5.75			253.1	
LMR21-47S	E	Blue-Orange	22.2	7.67	5.53			247.6	
LMR21-49S	A	Blue-Yellow	22.2	7.63	4.96	76	72	257.2	<1
LMR21-49S	B	Blue-Yellow	22.0	7.59	5.07			256.1	
LMR21-49S	C	Blue-Yellow	22.7	7.55	4.81			256.2	
LMR21-49S	D	Blue-Yellow	22.0	7.58	5.44			251.1	
LMR21-49S	E	Blue-Yellow	22.0	7.53	4.97			267.1	
LMR21-52S	A	Blue-Pink	22.5	7.63	5.14	72	88	261.5	<1
LMR21-52S	B	Blue-Pink	23.2	7.65	4.47			265.3	
LMR21-52S	C	Blue-Pink	22.9	7.71	5.04			265.6	
LMR21-52S	D	Blue-Pink	22.0	7.68	5.36			274.8	
LMR21-52S	E	Blue-Pink	22.1	7.77	5.66			253.7	
LMR21-53S	A	Blue-Tan	23.2	7.74	4.88	84	92	266.0	<1
LMR21-53S	B	Blue-Tan	22.4	7.82	5.02			262.3	
LMR21-53S	C	Blue-Tan	22.4	7.81	5.14			263.6	
LMR21-53S	D	Blue-Tan	22.0	7.81	5.25			261.4	
LMR21-53S	E	Blue-Tan	22.4	7.88	4.78			263.7	

Fin verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/12/21 Time: 1730 Technician initials: VRM 6 of 8

			Temp (°C)	pH	D.O.	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-55S	A	Orange-Red	22.4	7.86	4.59	76	94	283.0	<1
LMR21-55S	B	Orange-Red	22.2	7.91	5.24			263.9	
LMR21-55S	C	Orange-Red	22.1	7.91	5.21			264.6	
LMR21-55S	D	Orange-Red	22.0	7.88	6.05			254.0	
LMR21-55S	E	Orange-Red	22.4	7.85	5.18			261.4	
LMR21-57S	A	Orange-Yellow	22.0	7.83	5.79	72	80	253.9	<1
LMR21-57S	B	Orange-Yellow	22.0	7.81	5.92			251.2	
LMR21-57S	C	Orange-Yellow	22.4	7.76	5.34			256.3	
LMR21-57S	D	Orange-Yellow	22.1	7.74	5.50			253.9	
LMR21-57S	E	Orange-Yellow	22.0	7.74	5.33			250.2	
LMR21-59S	A	Orange-Pink	22.0	8.06	4.82	80	92	275.4	<1
LMR21-59S	B	Orange-Pink	22.0	8.19	4.92			276.0	
LMR21-59S	C	Orange-Pink	22.2	8.27	4.84			276.3	
LMR21-59S	D	Orange-Pink	22.0	8.26	5.70			265.2	
LMR21-59S	E	Orange-Pink	22.3	8.29	4.76			276.4	
LMR21-61S	A	Orange-Tan	22.5	8.15	5.36	84	84	265.2	<1
LMR21-61S	B	Orange-Tan	22.6	8.10	5.42			263.1	
LMR21-61S	C	Orange-Tan	22.5	8.01	5.10			269.8	
LMR21-61S	D	Orange-Tan	22.0	8.01	6.41			251.6	
LMR21-61S	E	Orange-Tan	22.2	7.97	5.34			259.8	

Fin verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 Date: 9/12/21 Time: 1745 Technician initials: vem 7 of 8

			Temp (°C)	pH	D.O.	Hardness	Alkalinity	conductivity	Ammonia
LMR21-62S	A	Orange-Violet	23.0	7.87	5.95	76	84	254.2	<1
LMR21-62S	B	Orange-Violet	22.9	7.80	5.70			254.0	
LMR21-62S	C	Orange-Violet	23.0	7.83	4.96			271.3	
LMR21-62S	D	Orange-Violet	22.7	7.84	5.35			258.1	
LMR21-62S	E	Orange-Violet	22.4	7.83	5.52			255.8	
LMR21-64S	A	Yellow-Violet	22.6	8.03	4.29	90	90	283.4	<1
LMR21-64S	B	Yellow-Violet	22.4	8.18	5.02			277.1	
LMR21-64S	C	Yellow-Violet	22.0	8.20	5.69			265.1	
LMR21-64S	D	Yellow-Violet	22.1	8.29	4.52			273.6	
LMR21-64S	E	Yellow-Violet	22.1	8.23	5.11			279.5	
LMR21-66S	A	Yellow-Pink	22.4	8.16	5.20	72	80	260.7	<1
LMR21-66S	B	Yellow-Pink	22.7	8.07	4.78			266.8	
LMR21-66S	C	Yellow-Pink	22.7	8.04	5.40			260.3	
LMR21-66S	D	Yellow-Pink	22.6	7.98	5.12			258.0	
LMR21-66S	E	Yellow-Pink	22.3	7.98	4.87			258.6	
LMR21-68S	A	Yellow-Tan	22.0	7.84	5.07	80	84	vem ~~568~~ 268.9	<1
LMR21-68S	B	Yellow-Tan	22.9	7.86	4.91			271.0	
LMR21-68S	C	Yellow-Tan	22.8	8.01	5.06			273.1	
LMR21-68S	D	Yellow-Tan	22.0	8.04	4.90			273.2	
LMR21-68S	E	Yellow-Tan	22.0	8.24	5.72			267.0	

Fin verlying Water Quality

Project: Maumee River

Organism: *Hyalella azteca*

Test Day: 0 **Date:** 9/12/21 **Time:** 1750 **Technician initials:** URM 8 of 8

			Temp (°C)	pH	D.O.	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-69S	A	Yellow-Red	22.4	8.09	5.51	80	68	251.7	<1
LMR21-69S	B	Yellow-Red	22.7	7.96	4.59			262.5	
LMR21-69S	C	Yellow-Red	23.3	7.92	4.83			267.4	
LMR21-69S	D	Yellow-Red	22.0	7.95	6.08			254.2	
LMR21-69S	E	Yellow-Red	22.3	7.86	5.25			271.6	
LMR21-~~70~~48S	A	Pink-Red	22.4	7.90	5.35	80	80	262.2	<1
LMR21-~~70~~48S	B	Pink-Red	22.7	7.90	5.14			258.5	
LMR21-~~70~~48S	C	Pink-Red	22.8	7.88	5.05			261.3	
LMR21-~~70~~48S	D	Pink-Red	22.9	7.88	5.19			259.5	
LMR21-~~70~~48S	E	Pink-Red	22.0	7.96	6.04			250.7	

* Measured from a composite sample

Signature:

Disclosed and Understood by: Lauren May

10 day Survival

Project: Maumee River

Test Species: ***Hyalella azteca*** **Initiation Date:** 9/3/2021

t Day: 10 **Breakdown Date:** 9/13/2021

Sediment	Replicate	Color	Number Recovered	Technician initials	Comments
Control	A	Red	10	DM	
Control	B	Red	10	MJ	
Control	C	Red	10	PK	
Control	D	Red	10	PK	
Control	E	Red	10	DF	
LMR21-11S	A	Orange	10	JB	
LMR21-11S	B	Orange	9	DF	
LMR21-11S	C	Orange	10	GL	
LMR21-11S	D	Orange	10	GL	
LMR21-11S	E	Orange	10	GL	
LMR21-12S	A	Yellow	9	GL	
LMR21-12S	B	Yellow	9	GL	
LMR21-12S	C	Yellow	10	DF	
LMR21-12S	D	Yellow	10	MJ	
LMR21-12S	E	Yellow	10	DM	
LMR21-14S	A	Green	10	MJ	
LMR21-14S	B	Green	8	GL	
LMR21-14S	C	Green	10	GL	
LMR21-14S	D	Green	10	DM	
LMR21-14S	E	Green	9	PK	
LMR21-15S	A	Blue	9	PK	
LMR21-15S	B	Blue	9	DF	
LMR21-15S	C	Blue	8	DF	
LMR21-15S	D	Blue	10	PK	
LMR21-15S	E	Blue	9	PK	

10 day Survival

Project: Maumee River

Test Species: ***Hyalella azteca*** **Initiation Date:** 9/3/2021

t Day: 10 **Breakdown Date:** 9/13/2021

Sediment	Replicate	Color	Number Recovered	Technician initials	Comments
LMR21-17S	A	Violet	9	GL	
LMR21-17S	B	Violet	10	DF	
LMR21-17S	C	Violet	10	GL	
LMR21-17S	D	Violet	10	MJ	
LMR21-17S	E	Violet	8	DF	
LMR21-19S	A	Pink	10	DF	
LMR21-19S	B	Pink	10	DF	
LMR21-19S	C	Pink	7	GL	
LMR21-19S	D	Pink	8	DM	
LMR21-19S	E	Pink	10	PK	
LMR21-25S	A	Tan	10	JB	
LMR21-25S	B	Tan	10	DF	
LMR21-25S	C	Tan	9	GL	
LMR21-25S	D	Tan	10	PK	
LMR21-25S	E	Tan	10	PK	
LMR21-27S	A	Grn-Red	10	JB	
LMR21-27S	B	Grn-Red	8	GL	
LMR21-27S	C	Grn-Red	11	JB	
LMR21-27S	D	Grn-Red	10	PK	
LMR21-27S	E	Grn-Red	10	DF	
LMR21-30S	A	Grn-Orange	10	MJ	
LMR21-30S	B	Grn-Orange	9	GL	
LMR21-30S	C	Grn-Orange	9	GL	
LMR21-30S	D	Grn-Orange	11	DF	
LMR21-30S	E	Grn-Orange	10	PK	

10 day Survival

Project: Maumee River

Test Species: ***Hyalella azteca***
t Day: 10

Initiation Date: 9/3/2021
Breakdown Date: 9/13/2021

Sediment	Replicate	Color	Number Recovered	Technician initials	Comments
LMR21-35S	A	Grn-Yellow	9	GL	
LMR21-35S	B	Grn-Yellow	10	GL	
LMR21-35S	C	Grn-Yellow	9	GL	
LMR21-35S	D	Grn-Yellow	10	PK	
LMR21-35S	E	Grn-Yellow	5	PK	
LMR21-37S	A	Grn-Blue	10	DM	
LMR21-37S	B	Grn-Blue	9	JB	
LMR21-37S	C	Grn-Blue	9	JB	
LMR21-37S	D	Grn-Blue	10	DF	
LMR21-37S	E	Grn-Blue	10	JB	
LMR21-39S	A	Grn-Violet	9	JB	
LMR21-39S	B	Grn-Violet	9	DF	
LMR21-39S	C	Grn-Violet	9	GL	
LMR21-39S	D	Grn-Violet	8	PK	
LMR21-39S	E	Grn-Violet	9	DM	
LMR21-41S	A	Grn-Pink	10	DF	
LMR21-41S	B	Grn-Pink	10	DF	
LMR21-41S	C	Grn-Pink	10	DF	
LMR21-41S	D	Grn-Pink	10	DM	
LMR21-41S	E	Grn-Pink	9	DM	
LMR21-43S	A	Grn-Tan	10	MJ	
LMR21-43S	B	Grn-Tan	10	DF	
LMR21-43S	C	Grn-Tan	9	GL	
LMR21-43S	D	Grn-Tan	9	GL	
LMR21-43S	E	Grn-Tan	8	PK	

10 day Survival

Project: Maumee River

Test Species: ***Hyalella azteca***

t Day: 10

Initiation Date: 9/3/2021

Breakdown Date: 9/13/2021

Sediment	Replicate	Color	Number Recovered	Technician initials	Comments
LMR21-45S	A	Blue-Red	10	JB	
LMR21-45S	B	Blue-Red	9	GL	
LMR21-45S	C	Blue-Red	10	MJ	
LMR21-45S	D	Blue-Red	9	PK	
LMR21-45S	E	Blue-Red	10	PK	
LMR21-47S	A	Blue-Orange	Ø	DF	strong Petroleum Odor Sheen
LMR21-47S	B	Blue-Orange	1	GL	
LMR21-47S	C	Blue-Orange	Ø	GL	
LMR21-47S	D	Blue-Orange	5	MJ	
LMR21-47S	E	Blue-Orange	1	PK	
LMR21-49S	A	Blue-Yellow	2	JB	Sheen on sediment
LMR21-49S	B	Blue-Yellow	9	PK	
LMR21-49S	C	Blue-Yellow	7	PK	
LMR21-49S	D	Blue-Yellow	7	DM	
LMR21-49S	E	Blue-Yellow	10	DF	
LMR21-52S	A	Blue-Pink	9	MJ	
LMR21-52S	B	Blue-Pink	9	DF	
LMR21-52S	C	Blue-Pink	10	DF	
LMR21-52S	D	Blue-Pink	10	PK	
LMR21-52S	E	Blue-Pink	10	MJ	
LMR21-53S	A	Blue-Tan	9	DF	
LMR21-53S	B	Blue-Tan	10	GL	
LMR21-53S	C	Blue-Tan	10	JB	
LMR21-53S	D	Blue-Tan	10	JB	
LMR21-53S	E	Blue-Tan	10	SC	

10 day Survival

Project: Maumee River

Test Species: ***Hyalella azteca*** **Initiation Date:** 9/3/2021

t Day: 10 **Breakdown Date:** 9/13/2021

Sediment	Replicate	Color	Number Recovered	Technician initials	Comments
LMR21-55S	A	Orange-Red	10	GL	
LMR21-55S	B	Orange-Red	7	JB	
LMR21-55S	C	Orange-Red	10	JB	
LMR21-55S	D	Orange-Red	10	MJ	
LMR21-55S	E	Orange-Red	10	PK	
LMR21-57S	A	Orange-Yellow	10	JB	
LMR21-57S	B	Orange-Yellow	9	DF	
LMR21-57S	C	Orange-Yellow	10	DF	
LMR21-57S	D	Orange-Yellow	10	JB	
LMR21-57S	E	Orange-Yellow	10	DM	
LMR21-59S	A	Orange-Pink	9	DF	
LMR21-59S	B	Orange-Pink	9	GL	
LMR21-59S	C	Orange-Pink	10	MJ	
LMR21-59S	D	Orange-Pink	9	PK	
LMR21-59S	E	Orange-Pink	10	SC	
LMR21-61S	A	Orange-Tan	10	GL	
LMR21-61S	B	Orange-Tan	10	GL	
LMR21-61S	C	Orange-Tan	9	DF	
LMR21-61S	D	Orange-Tan	10	JB	
LMR21-61S	E	Orange-Tan	10	DM	
LMR21-62S	A	Orange-Violet	10	DF	
LMR21-62S	B	Orange-Violet	9	GL	
LMR21-62S	C	Orange-Violet	10	DF	
LMR21-62S	D	Orange-Violet	9	SC	
LMR21-62S	E	Orange-Violet	10	DM	

10 day Survival

Project: Maumee River

Test Species: ***Hyalella azteca*** **Initiation Date:** 9/3/2021

t Day: 10 **Breakdown Date:** 9/13/2021

Sediment	Replicate	Color	Number Recovered	Technician initials	Comments
LMR21-64S	A	Yellow-Violet	10	DF	
LMR21-64S	B	Yellow-Violet	9	GL	
LMR21-64S	C	Yellow-Violet	10	DF	
LMR21-64S	D	Yellow-Violet	11	DM	
LMR21-64S	E	Yellow-Violet	10	MJ	
LMR21-66S	A	Yellow-Pink	8	JB	
LMR21-66S	B	Yellow-Pink	10	DM	
LMR21-66S	C	Yellow-Pink	10	GL	
LMR21-66S	D	Yellow-Pink	10	DF	
LMR21-66S	E	Yellow-Pink	8	JB	
LMR21-68S	A	Yellow-Tan	10	DF	
LMR21-68S	B	Yellow-Tan	8	DF	
LMR21-68S	C	Yellow-Tan	10	GL	
LMR21-68S	D	Yellow-Tan	10	MJ	
LMR21-68S	E	Yellow-Tan	6	PK	
LMR21-69S	A	Yellow-Red	9	DF	
LMR21-69S	B	Yellow-Red	8	DM	
LMR21-69S	C	Yellow-Red	10	MJ	
LMR21-69S	D	Yellow-Red	10	DM	
LMR21-69S	E	Yellow-Red	10	MJ	

10 day Survival

Project: Maumee River

Test Species: ***Hyalella azteca*** **Initiation Date:** 9/3/2021

t Day: 10 **Breakdown Date:** 9/13/2021

Sediment	Replicate	Color	Number Recovered	Technician initials	Comments
LMR21-~~70~~ 48 S	A	Pink-Red	10	DF	
LMR21-~~70~~ 48 S	B	Pink-Red	10	DF	
LMR21-~~70~~ 48 S	C	Pink-Red	10	~~PK~~ MJ	strong oil smell oil sheen ~~clumps~~
LMR21-~~70~~ 48 S	D	Pink-Red	10	PK	
LMR21-~~70~~ 48 S	E	Pink-Red	5	JB	~~ETK~~ URM

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Feeding and Maintenance Checklist
Project: Maumee River
Test Species: *Hyalella azteca*

Test Day	1	2	3	4	5
~~Day~~	9/4/2021	9/5/2021	—	—	—
Date	1300	1130	9/6/2021	9/7/2021	9/8/2021
Time	—	—	1430	1600	1430
Technician Initials	VRM	VRM	VRM	VRM	VRM
Daily Temperature/D.O. Recorded?	Y	Y	Y	Y	Y
Water Quality Parameters Conducted (if required)?	—	—	—	—	—
Organisms Fed?	Y	Y	Y	Y	Y
Daily Observations Recorded?	Y	Y	Y	Y	Y
Timer OK?	Y	Y	Y	Y	Y
Beaker Water Level Ok?	Y	Y	Y	Y	Y
Pump plugged in?	Y	Y	Y	Y	Y
Counter Number (Module A/B)?	6/6	17/17	24/24	32/32	40/40
Water Exchange Verified?	Y	Y	Y	Y	Y

Daily Feeding and Maintenance Checklist
Project: Maumee River
Test Species: *Hyalella azteca*

Test Day	6	7	8	9	10
~~Day~~	—	—	—	—	—
Date	9/9/2021	9/10/2021	9/11/2021	9/12/2021	9/13/2021
Time	0945	1400	1700	1315	0800
Technician Initials	VRM	VRM	VRM	VRM	VRM/DF
Daily Temperature/D.O. Recorded?	Y	Y	Y	Y	—
Water Quality Parameters Conducted (if required)?	—	—	—	—	Y
Organisms Fed?	Y	Y	Y	Y	—
Daily Observations Recorded?	Y	Y	Y	Y	Y
Timer OK?	Y	Y	Y	Y	—
Beaker Water Level Ok?	Y	Y	Y	Y	—
Pump plugged in?	Y	Y	Y	Y	—
Counter Number (Module A/B)?	46/46	56/56	64/64	72/72	76/76
Water Exchange Verified?	Y	Y	Y	Y	Y

Signature: [illegible]

Disclosed and Understood by: Lauren May

Daily Observations

Project: Maumee River

Test Species: ***Hyalella azteca***

Day: —

Date: 8/25/2021 **Technician Initials:** VRM/DF
Time: 0800

Comments: Sediment from each treatment ~~are~~ were homogenized and added ~60ml to each 300ml beaker. Overlying dechlorinated tap water added. Beakers randomly added to water bath & water change system. System started for daily water changes (every 4 hrs). Replicates A-C added to Module 1. Replicates D-F added to Module 2.

Day: Ø

Date: 9/3/2021 **Technician Initials:** VRM/DF
Time: 0800

Comments: Test initiated. 10 organisms added to Replicates A-F. Full water quality recorded on replicates A-E on all treatments on 9/2 PM due to volume of test vessels. Replicate G broken down for pore water ammonia. Measurements recorded.

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Observations

Project: Maumee River

Test Species: ***Hyalella azteca***

Day: 1

Date: 9/4/2021 **Technician Initials:** VRM
Time: 1300

Comments: Daily temp and DO recorded on replicate A of all treatments. Test fed @ 1300. Module temps recorded. 1 dead organism floating in DMR21-59 Rep A. - organism removed. Daily checklist completed.

Day: 2

Date: 9/5/2021 **Technician Initials:** VRM
Time: 1100

Comments: Daily temperature and dissolved oxygen recorded on Replicate B of all treatments. Test fed after water change – 1300. Daily checklist completed. Checked for floaters, only 2 found.

Signature:

Disclosed and Understood by: Lauren May

Daily Observations

Project: Maumee River

Test Species: ***Hyalella azteca***

Day: 3

Date: 9/6/2021 **Technician Initials:** VRM
Time: 1430

Comments: Daily temperature & D.O. recorded on replicate C of all treatments. Checked for floaters - none observed. Test fed 1ml of YCT @ 1545. Daily checklist completed. Module temps recorded.

Day: 4

Date: 9/7/2021 **Technician Initials:** VRM
Time: 1400

Comments: Daily temps & D.O. recorded on replicate D of all treatments. No floaters observed. Test fed 1ml of YCT @ 1400. Daily checklist completed. Module temps recorded.

Signature:

Disclosed and Understood by: Lauren May

Daily Observations

Project: Maumee River

Test Species: *Hyalella azteca*

Day: 5

Date: 9/8/2021 **Technician Initials:** VRM

Time: 1430

Comments: Daily temperature and dissolved oxygen recorded on Rep E of all treatments. No floaters observed. Test fed 1mL YCT @ 1500. Module temps recorded. Daily checklist completed.

Day: 6

Date: 9/9/2021 **Technician Initials:** VRM

Time: 0945

Comments: Daily temperature and D.O. recorded on Rep A of all treatments. 1 floater observed - DF. Test fed YCT (1mL) @ 1000. Module temps recorded. Daily checklist completed.

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Observations

Project: Maumee River

Test Species: *Hyalella azteca*

Day: 7

Date: 9/10/2021 **Technician Initials:** VRM

Time: 1400

Comments: Daily temps and D.O. recorded on Rep B of all treatments. Module temps recorded. Daily checklist completed. No floaters observed. Test fed at 1500, 1ml YCT/replicate.

Day: 8

Date: 9/11/2021 **Technician Initials:** VRM

Time: 1700

Comments: Daily temperatures and D.O. recorded on Rep C of all treatments. Daily checklist completed. Module temps recorded. Test fed 1ml YCT/beaker @ 1800

Signature:

Disclosed and Understood by: Lauren May

Daily Observations

Project: Maumee River

Test Species: ***Hyalella azteca***

Day: 9

Date: 9/12/2021 **Technician Initials:** VRM

Time: 1300

Comments: Daily DO and temps recorded on Rep D of all treatments. Daily checklist completed. Module temps recorded. Test fed @ 1300, 1ml YCT/beaker.

Day: 10

Date: 9/13/2021 **Technician Initials:** VRM/DF

Time: 0800

Comments: Complete water recorded on all replicates A-E. Overlying Ammonia, hardness, and alkalinity recorded on composite of each treatment. Rep F terminated for pore water ammonia – results recorded. Tests terminated (by – DF, MJ, DM, GL, JB, PK, SC, VRM).

Signature: [signature]

Disclosed and Understood by: Lauren May

REFERENCE T[illegible]CITY TEST SHEET

Project: Maumee River	Test Initiation Date: 9/3/21 Time: 11:30
Laboratory: ERDC	Test Termination Date: 9/7/21 Time: 12:00
Test Species: *Hyalella azteca*	Page 1 of 1
Chemical: KCl	Environmental chamber temperature: 23.0°C
Exposure duration: 96 hour	MJ

Conc. (g/L)	Repl.	No. Loaded	Survival 96 h	Temp. (°C) 0 h	Temp. (°C) 96 h	pH (SU) 0 h	pH (SU) 96 h	Salinity 0h	Salinity 96 h	D.O. (mg/L) 0 h	D.O. (mg/L) 96 h
0	1	10	10	22.9	21.8	7.86	8.06	0.09	0.11	6.40	7.72
	2		10		21.8		7.99		0.11		7.96
	3		10		21.8		7.97		0.12		8.09
0.0625	1		10	22.8	22.0	7.96	7.95	0.15	0.17	6.66	8.11
	2		10		21.8		7.96		0.17		8.08
	3		10		21.8		~~8.02~~ 7.97		0.18		~~7.97~~ 8.02
0.125	1		10	22.7	22.0	8.06	7.99	0.20	0.23	7.25	7.99
	2		10		21.9		8.00		0.23		8.00
	3		10		21.9		8.00		0.24		8.06
0.25	1		5	22.8	21.9	8.11	8.01	0.31	0.35	7.28	7.94
	2		7		21.9		8.03		0.36		7.91
	3		6		22.0		8.04		0.36		7.94
0.5	1		0	22.7	22.0	8.13	8.06	0.52	0.60	7.08	7.76
	2		0		21.9		8.07		0.61		8.11
	3		0		22.0		8.09		0.60		7.71
1.0	1		0	22.8	22.1	8.21	8.10	0.95	1.11	7.10	7.89
	2		0		22.1		8.12		1.09		8.01
	3	10	0		22.2		8.13		1.07		7.96

Signature: [illegible]

Disclosed and Understood by: Lauren May

ERDC Datasheet

Reference Toxicant Solution Log

Date of Preparation: 9/3/21 Technician: M. Jung

STUDY: Maumee River 2021

Test ID: Hyallela azteca Reference Tox

Toxicant: KCl

Source Water: DeChlorinated Tap Water

Date Source Water prepared or collected: 9/3/21

Initial Conductivity or Salinity: 0.09

Soure Water Alterations: None

Initial Volume of Stock Solution: 2 liters

Weight of Toxicant: 2g

Number of Dilutions: 5

Description of Solution Preparation: Weighed out 2g KCl and put into 2 liter volumetric flask, filling to mark with DeChlor water. ~~1 liter~~ Mixed thoroghly. 1 liter poured into graduated cylinder and pour into 3 250ml beakers to 200ml level. 1 liter DeChlor mixed into volumetric flask and repeated through dilutions 1.0, 0.5, 0.25, 0.125 + 0.0625. Control also poured from source water.

Signature: M Jung

Disclosed and Understood by: Lauren May

Maumee River – YSI Calibration Logs
Sediment Toxicity Test – *H. azteca*

***** Calibrate: pH

Date	09/12/21 MM/DD/YY
Time	14:01:44 24-hour
Buffer Value	7.004977 pH
Sensor Value:	-46.799999 pH mV
Temperature	24.749994 °C
Buffer Value	10.003016 pH
Sensor Value:	-210.600006 pH mV
Temperature	24.749994 °C
Slope	54.681570 mV/pH
Slope	92.492508 % of Ideal pH Value
Calibrate Status	Calibrated

***** Calibrate: Conductivity

Date	09/12/21 MM/DD/YY
Time	13:58:56 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	77.699997 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	23.000000 °C
Cal Cell Constant:	4.871611
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/12/21 MM/DD/YY
Time	13:17:49 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	4.791707 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	4.791707 Auto
Temperature	17.000000 °C
Barometer	760.500000 mmHg
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/11/21 MM/DD/YY
Time	17:21:01 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	4.667160 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	4.667160 Auto
Temperature	16.700001 °C
Barometer	759.000000 mmHg
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/10/21 MM/DD/YY
Time	14:16:49 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	4.824912 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	4.824912 Auto
Temperature	17.299999 °C
Barometer	758.299988 mmHg
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/09/21 MM/DD/YY
Time	09:43:41 24-hour
Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	4.873141 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	4.873141 Auto
Temperature	17.400000 °C
Barometer	756.900024 mmHg
Calibrate Status	Calibrated

Page **1** of **3**

Maumee River – YSI Calibration Logs
Sediment Toxicity Test – *H. azteca*

***** Calibrate: DO

Date 09/08/21 MM/DD/YY
Time 13:27:34 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 5.056706 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 5.056706 Auto
Temperature 17.799999 °C
Barometer 753.900024 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 09/07/21 MM/DD/YY
Time 10:58:37 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 5.364045 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 5.364045 Auto
Temperature 19.900000 °C
Barometer 755.400024 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 09/06/21 MM/DD/YY
Time 14:49:59 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 4.903683 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 4.903683 Auto
Temperature 17.400000 °C
Barometer 754.500000 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 09/05/21 MM/DD/YY
Time 11:28:36 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 4.928141 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 4.928141 Auto
Temperature 17.600000 °C
Barometer 755.099976 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 09/04/21 MM/DD/YY
Time 11:00:46 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 5.014978 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 5.014978 Auto
Temperature 18.100000 °C
Barometer 756.500000 mmHg
Calibrate Status Calibrated

***** Calibrate: pH

Date 09/03/21 MM/DD/YY
Time 08:16:49 24-hour
Buffer Value 7.008369 pH
Sensor Value: -51.700001 pH mV
Temperature 23.749994 °C

Buffer Value 10.014493 pH
Sensor Value: -213.899994 pH mV
Temperature 23.749994 °C

Slope 54.183698 mV/pH
Slope 91.650369 % of Ideal pH Value

Page **2** of **3**

Maumee River – YSI Calibration Logs
Sediment Toxicity Test – *H. azteca*

Calibrate Status Calibrated

***** Calibrate: Conductivity

Date	09/03/21 MM/DD/YY
Time	08:11:46 24-hour
Method	Sp. Conductance
Cal Value:	84.000000 SPC-uS/cm
Sensor Value:	83.500000 SPC-uS/cm
Temperature Ref.	25.000000 °C
Temperature Comp.	1.910000 %/C
TDS Constant	0.650000
Temperature	23.500000 °C
Cal Cell Constant:	4.490147
Calibrate Status	Calibrated

***** Calibrate: DO

Date	09/03/21 MM/DD/YY
Time	08:09:40 24-hour

Method	DO Air Calibrate
Cal Value:	100.000000 %
Sensor Value:	5.183740 uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	5.183740 Auto
Temperature	18.000000 °C
Barometer	756.599976 mmHg
Calibrate Status	Calibrated

Page **3** of **3**

Chironomus dilutus

TEST ORGANISM RECEIPT AND ACCLIMATION SHEET

Project: Maumee SedTox	Test Initiation Date: 10/5/2021 Time: AM
Organism Source: ABS	Test Date(s): 10/5-10/15 Time: AM
Test Species: Chironomus dilutus	Page 1 of 1
Instrumentation used:	Environmental chamber temperature: 23°C

Day	Date	Original Number	Number Dead/removed	Estimated Survival	Water Change (Y/N)	Feeding (Y/N)	Temp. (°C)	Salinity/Cond. (ppt / uS/cm)	pH (SU)	D.O. (mg/L)	Comments (mg/L)
0*	9/23/21	20	Ø	100%.	partial	N	22.1	—	—	—	~20 egg masses received.
1	9/24/21					N	—	—	—	—	placed in tubs on air.
2	9/25/21	—	—	—	partial	Y 300mg TF/tub	23.8	—	—	—	Egg mass hatched. -Ø
3	9/26/21	—	—	—	none	N	22.5, 22.5 23.6	—	—	—	-1
4	9/27/21	—	—	—	none	Y	23.0 22.1 23.4	—	—	—	-2
5	9/28/21	—	—	—	Yes. 80%.	Y	23.0	—	—	—	-3
6	9/29/21	—	—	—	N	Y	23.0	—	—	—	-4
7	9/30/21	—	—	—	N	N	22.7 22.9 23.2	—	—	—	-5
8	10/1/2021	—	—	—	Y	Y	" "	—	—	—	-6
9	10/2/21	—	—	—	N	Y	23.5	—	—	—	-7
10	10/3/21	—	—	—	Y	Y	23.2	—	—	—	-8
11	10/4/21	—	—	—	Y	Y	23.0	—	—	—	-9
12	10/5/21	—	—	—	—	—	23.1	—	—	—	test initiated. -10

* Taken immediately upon receiving

Signature: [signature]

Disclosed and Understood by: Lauren May

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

AQUATIC BIO SYSTEMS ABS INC.

Toll Free: 800/331-5916
Tel:970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE:	9/22/2021
SPECIES:	*Chironomus dilutus (formerly C. tentans)*
AGE:	Deposited on 9/22/2021
LIFE STAGE:	Second Instar 10/1/2021
HATCH DATE:	Emergent date 10/13/2021
BEGAN FEEDING:	Immediately
FOOD:	*Raphidocelis subcapitata.**, Flake slurry

Temp upon receival
22.1°C

Water Chemistry Record:	**Current**	**Range**
TEMPERATURE:	24°C	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	122 mg/l	--
TOTAL ALKALINITY (as $CaCO_3$):	75 mg/l	--
pH:	7.86	--

Comments: * Formerly known as *Psuedokirschneriella subcapitata* and *Selenastrum capricornutum*

Facility Supervisor

Aquatic BioSystems, Inc • Quality Research Organisms

DAILY TEMPERATURE MONITORING SHEET

Project: Maumee River
Test Location:
Test Species: *C. dilutus*

Test Initiation Date: 10/5/2021
Chamber/ Module #: 1|2

Day	Temperature (°C)	Min (°C)/Max (°C)	Comments	Initials
0	23.1 | 23.1	—	10/5/2021	VRM
1	22.8 | 22.6	21.6/23.4 / 22.0/23.1	10/6/2021	VRM
2	22.0 | 22.4	21.9/23.6 / 21.4/22.7	10/7/2021	VRM
3	22.4 | 22.5	21.6/23.1 / 21.8/23.0	10/8/2021	VRM
4	22.8 | 22.9	21.6/23.0 / 22.0/23.1	10/9/2021	VRM
5	22.9 | 22.9	21.8/24.2 / 22.4/24.3	10/10/2021	VRM
6	22.9 | 22.9	21.9/23.4 / 22.5/23.6	10/11/2021, temp adjusted in both.	VRM
7	22.2 | 23.1	21.1/23.0 / 21.8/23.5	10/12/2021	VRM
8	22.0 | 22.8	21.1/22.2 / 21.7/23.2	10/13/2021	VRM
9	21.9 | 22.5	21.1/22.2 / 21.9/23.1	10/14/2021	VRM
10			10/15/2021	

Signature: [signature]

Disclosed and Understood by: Lauren May

Initial Over g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 **Date:** 10/4/2021 **Time:** 1500 **Technician initials:** VRM

1 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
Control	A	Red	23.1	7.36	7.11	82	76	231.1	<1
Control	B	Red	23.1	7.40	7.21			214.0	
Control	C	Red	23.1	7.38	6.94			182.1	
Control	D	Red	23.0	7.24	7.25			222.1	
Control	E	Red	23.1	7.24	7.16			228.9	
LMR21-11S	A	Orange	23.1	7.42	6.48	88	104	266.6	<1
LMR21-11S	B	Orange	22.9	7.50	6.16			269.9	
LMR21-11S	C	Orange	23.1	7.46	5.61			276.9	
LMR21-11S	D	Orange	23.1	7.52	6.50			280.4	
LMR21-11S	E	Orange	23.1	7.59	6.53			268.1	
LMR21-12S	A	Yellow	23.1	7.57	6.10	92	108	294.7	<1
LMR21-12S	B	Yellow	23.1	7.60	6.37			277.4	
LMR21-12S	C	Yellow	23.0	7.63	6.42			274.2	
LMR21-12S	D	Yellow	23.1	7.59	6.13			280.9	
LMR21-12S	E	Yellow	23.1	7.60	6.53			291.6	
LMR21-14S	A	Green	23.0	7.69	6.23	96	100	277.8	<1
LMR21-14S	B	Green	23.1	7.72	6.72			269.2	
LMR21-14S	C	Green	23.2	7.71	6.47			271.4	
LMR21-14S	D	Green	23.0	7.71	6.52			270.5	
LMR21-14S	E	Green	23.0	7.74	6.93			270.1	

Initial Over g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 Date: 10/4/21 Time: 1520 Technician initials: VRM

2 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-15S	A	Blue	23.1	7.70	6.50	88	100	272.9	1
LMR21-15S	B	Blue	23.0	7.68	6.42			271.7	
LMR21-15S	C	Blue	23.1	7.67	6.56			275.4	
LMR21-15S	D	Blue	22.9	7.63	6.18			278.5	
LMR21-15S	E	Blue	23.1	7.63	6.51			281.2	
LMR21-17S	A	Violet	23.1	7.59	6.35	84	96	264.3	<1
LMR21-17S	B	Violet	23.1	7.61	6.28			266.2	
LMR21-17S	C	Violet	23.1	7.63	6.29			266.6	
LMR21-17S	D	Violet	22.9	7.63	6.17			272.7	
LMR21-17S	E	Violet	23.0	7.67	6.67			264.7	
LMR21-19S	A	Pink	23.1	7.68	6.33	88	100	263.3	<1
LMR21-19S	B	Pink	23.0	7.65	6.34			265.5	
LMR21-19S	C	Pink	23.1	7.64	6.35			262.5	
LMR21-19S	D	Pink	23.1	7.67	6.67			262.7	
LMR21-19S	E	Pink	23.1	7.68	6.44			265.0	
LMR21-25S	A	Tan	23.1	7.74	6.19	96	100	270.9	<1
LMR21-25S	B	Tan	23.1	7.73	6.17			272.5	
LMR21-25S	C	Tan	23.1	7.73	6.39			265.3	
LMR21-25S	D	Tan	23.0	7.72	6.14			273.7	
LMR21-25S	E	Tan	23.1	7.75	6.51			269.1	

Initial Over g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 Date: 10/4/21 Time: 1538 Technician initials: VRM 3 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-27S	A	Grn-Red	23.1	7.71	5.62	96	88	281.6	<1
LMR21-27S	B	Grn-Red	23.1	7.70	6.025			273.3	
LMR21-27S	C	Grn-Red	23.0	7.58	5.39			287.9	
LMR21-27S	D	Grn-Red	23.0	7.58	6.26			278.4	
LMR21-27S	E	Grn-Red	23.0	7.60	6.00			281.3	
LMR21-30S	A	Grn-Orange	23.1	7.66	6.34	92	88	266.6	<1
LMR21-30S	B	Grn-Orange	23.1	7.68	6.51			264.3	
LMR21-30S	C	Grn-Orange	23.1	7.69	6.42			266.3	
LMR21-30S	D	Grn-Orange	23.1	7.74	6.56			266.4	
LMR21-30S	E	Grn-Orange	23.1	7.72	6.31			272.6	
LMR21-35S	A	Grn-Yellow	23.1	7.69	6.20	88	96	289.8	<1
LMR21-35S	B	Grn-Yellow	23.1	7.63	5.81			288.8	
LMR21-35S	C	Grn-Yellow	23.0	7.60	6.19			277.3	
LMR21-35S	D	Grn-Yellow	23.0	7.66	6.40			272.3	
LMR21-35S	E	Grn-Yellow	23.1	7.68	6.54			271.4	
LMR21-37S	A	Grn-Blue	22.9	7.67	5.94	96	96	284.8	<1
LMR21-37S	B	Grn-Blue	22.9	7.67	5.89			273.7	
LMR21-37S	C	Grn-Blue	23.1	7.63	6.01			287.3	
LMR21-37S	D	Grn-Blue	23.0	7.67	6.40			275.0	
LMR21-37S	E	Grn-Blue	23.0	7.63	6.35			305.7	

Initial Over g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 **Date:** 10/4/21 **Time:** 1552 **Technician initials:** VRM

4 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-39S	A	Grn-Violet	22.9	7.74	6.82	88	96	264.9	<1
LMR21-39S	B	Grn-Violet	22.9	7.76	6.92			264.3	
LMR21-39S	C	Grn-Violet	23.1	7.77	6.93			264.5	
LMR21-39S	D	Grn-Violet	23.1	7.80	7.03			263.5	
LMR21-39S	E	Grn-Violet	23.0	7.81	7.08			266.5	
LMR21-41S	A	Grn-Pink	23.1	7.77	6.20	92	96	270.2	<1
LMR21-41S	B	Grn-Pink	23.1	7.68	5.56			304.7	
LMR21-41S	C	Grn-Pink	23.1	7.66	5.69			283.2	
LMR21-41S	D	Grn-Pink	23.1	7.66	5.99			278.3	
LMR21-41S	E	Grn-Pink	23.1	7.67	6.04			278.8	
LMR21-43S	A	Grn-Tan	23.0	7.69	6.02	88	92	298.4	<1
LMR21-43S	B	Grn-Tan	23.1	7.65	6.11			280.5	
LMR21-43S	C	Grn-Tan	23.1	7.70	6.23			272.4	
LMR21-43S	D	Grn-Tan	23.1	7.71	6.35			274.2	
LMR21-43S	E	Grn-Tan	23.1	7.71	6.63			264.8	
LMR21-45S	A	Blue-Red	23.0	7.71	6.28	88	92	273.1	<1
LMR21-45S	B	Blue-Red	23.0	7.69	5.93			280.0	
LMR21-45S	C	Blue-Red	23.1	7.66	5.86			282.8	
LMR21-45S	D	Blue-Red	23.1	7.68	6.13			272.4	
LMR21-45S	E	Blue-Red	23.0	7.70	6.34			270.6	

Initial Over[illegible]g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 **Date:** 10/4/21 **Time:** 1618 **Technician initials:** VRM

5068

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-47S	A	Blue-Orange	23.1	7.74	4.91	88	92	271.7	<1
LMR21-47S	B	Blue-Orange	23.1	7.70	5.67			261.8	
LMR21-47S	C	Blue-Orange	23.1	7.66	5.65			259.5	
LMR21-47S	D	Blue-Orange	23.1	7.67	5.81			260.1	
LMR21-47S	E	Blue-Orange	23.1	7.64	5.68			264.1	
LMR21-49S	A	Blue-Yellow	23.0	7.46	5.01	88	100	272.6	<1
LMR21-49S	B	Blue-Yellow	23.0	7.51	5.31			271.0	
LMR21-49S	C	Blue-Yellow	23.0	7.51	5.39			269.4	
LMR21-49S	D	Blue-Yellow	23.1	7.53	5.55			272.8	
LMR21-49S	E	Blue-Yellow	23.0	7.53	5.57			269.2	
LMR21-52S	A	Blue-Pink	23.1	7.54	6.46	96	100	286.5	<1
LMR21-52S	B	Blue-Pink	23.1	7.57	5.77			283.1	
LMR21-52S	C	Blue-Pink	23.1	7.58	6.22			291.4	
LMR21-52S	D	Blue-Pink	23.0	7.62	6.54			297.3	
LMR21-52S	E	Blue-Pink	23.1	7.62	6.41			282.4	
LMR21-53S	A	Blue-Tan	23.1	7.65	6.04	96	88	274.7	<1
LMR21-53S	B	Blue-Tan	23.1	7.67	6.25			268.4	
LMR21-53S	C	Blue-Tan	23.1	7.64	5.91			275.5	
LMR21-53S	D	Blue-Tan	23.0	7.61	6.26			362.2	
LMR21-53S	E	Blue-Tan	22.9	7.73	6.21			273.2	

Initial Over g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 Date: 10/4/21 Time: 1632 Technician initials: VRM

6 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-55S	A	Orange-Red	23.1	7.70	6.03	92	100	275.5	<1
LMR21-55S	B	Orange-Red	23.1	7.68	6.15			273.9	
LMR21-55S	C	Orange-Red	23.0	7.69	6.29			270.0	
LMR21-55S	D	Orange-Red	23.1	7.70	6.44			275.8	
LMR21-55S	E	Orange-Red	23.0	7.70	6.71			270.0	
LMR21-57S	A	Orange-Yellow	23.1	7.65	5.86	92	~~90~~ 96	274.6	<1
LMR21-57S	B	Orange-Yellow	23.1	7.58	5.49			292.2	
LMR21-57S	C	Orange-Yellow	23.1	7.58	6.25			273.3	
LMR21-57S	D	Orange-Yellow	23.1	7.64	6.48			273.9	
LMR21-57S	E	Orange-Yellow	23.1	7.64	6.14			280.0	
LMR21-59S	A	Orange-Pink	23.0	7.62	6.01	96	108	279.2	<1
LMR21-59S	B	Orange-Pink	23.0	7.59	5.71			283.7	
LMR21-59S	C	Orange-Pink	22.9	7.61	5.95			278.7	
LMR21-59S	D	Orange-Pink	22.9	7.64	6.21			276.9	
LMR21-59S	E	Orange-Pink	22.9	7.64	5.99			276.9	
LMR21-61S	A	Orange-Tan	23.0	7.66	6.30	88	92	269.7	<1
LMR21-61S	B	Orange-Tan	23.0	7.63	6.09			280.5	
LMR21-61S	C	Orange-Tan	23.1	7.71	6.08			269.8	
LMR21-61S	D	Orange-Tan	23.1	7.67	6.70			265.4	
LMR21-61S	E	Orange-Tan	23.1	7.67	6.46			267.0	

Initial Over g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 Date: 10/4/21 Time: 1646 Technician initials: vem 7 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-62S	A	Orange-Violet	23.0	7.72	6.26	88	76	272.9	<1
LMR21-62S	B	Orange-Violet	23.1	7.72	6.46			266.2	
LMR21-62S	C	Orange-Violet	23.2	7.71	6.29			270.7	
LMR21-62S	D	Orange-Violet	23.1	7.71	6.40			273.7	
LMR21-62S	E	Orange-Violet	23.0	7.71	6.48			272.4	
LMR21-64S	A	Yellow-Violet	23.0	7.69	6.29	100	104	277.8	<1
LMR21-64S	B	Yellow-Violet	23.1	7.66	6.15			274.9	
LMR21-64S	C	Yellow-Violet	23.1	7.63	6.14			277.7	
LMR21-64S	D	Yellow-Violet	23.1	7.64	6.07			276.8	
LMR21-64S	E	Yellow-Violet	23.0	7.63	6.10			277.8	
LMR21-66S	A	Yellow-Pink	23.0	7.64	6.19	102	104	277.9	<1
LMR21-66S	B	Yellow-Pink	23.1	7.63	5.98			282.6	
LMR21-66S	C	Yellow-Pink	22.9	7.55	5.52			292.4	
LMR21-66S	D	Yellow-Pink	23.0	7.53	6.13			288.4	
LMR21-66S	E	Yellow-Pink	23.1	7.57	6.13			282.9	
LMR21-68S	A	Yellow-Tan	23.1	7.58	6.01	102	100	282.0	<1
LMR21-68S	B	Yellow-Tan	23.1	7.61	6.22			270.8	
LMR21-68S	C	Yellow-Tan	23.1	7.63	5.97			283.3	
LMR21-68S	D	Yellow-Tan	23.0	7.63	6.15			269.9	
LMR21-68S	E	Yellow-Tan	23.1	7.62	6.00			273.3	

Initial Over g Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 0 Date: 10/4/21 Time: 1058 Technician initials: VRM 8 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
LMR21-69S	A	Yellow-Red	23.1	7.66	6.02	96	* 104	271.1	<1
LMR21-69S	B	Yellow-Red	23.0	7.67	6.38			272.7	
LMR21-69S	C	Yellow-Red	23.1	7.64	5.92			283.1	
LMR21-69S	D	Yellow-Red	23.0	7.67	6.15			271.3	
LMR21-69S	E	Yellow-Red	23.1	7.69	6.70			271.3	
LMR21-70S 48	A	Pink-Red	23.0	7.70	6.50	94	96	267.8	<1
LMR21-70S 48	B	Pink-Red	23.0	7.70	6.32			269.3	
LMR21-70S 48	C	Pink-Red	23.1	7.73	6.62			264.4	
LMR21-70S 48	D	Pink-Red	23.1	7.73	6.33			273.4	
LMR21-70S 48	E	Pink-Red	23.1	7.75	6.61			266.9	

* Measured from a composite sample

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/6/2021, 1230 **Test Day:** 1

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	A	Red	22.4	5.51	LRM	
LMR21-11S	A	Orange	22.9	6.28		
LMR21-12S	A	Yellow	22.4	5.83		
LMR21-14S	A	Green	22.9	5.97		
LMR21-15S	A	Blue	22.8	6.21		
LMR21-17S	A	Violet	22.9	5.95		
LMR21-19S	A	Pink	22.2	5.45		
LMR21-25S	A	Tan	22.2	6.04		
LMR21-27S	A	Grn-Red	22.8	5.74		
LMR21-30S	A	Grn-Orange	22.5	6.00		
LMR21-35S	A	Grn-Yellow	22.8	5.07		
LMR21-37S	A	Grn-Blue	22.8	5.92		
LMR21-39S	A	Grn-Violet	22.6	6.58		
LMR21-41S	A	Grn-Pink	23.0	5.95		
LMR21-43S	A	Grn-Tan	23.0	5.87		
LMR21-45S	A	Blue-Red	22.5	6.31		
LMR21-47S	A	Blue-Orange	22.7	5.89		
LMR21-49S	A	Blue-Yellow	22.7	5.81		
LMR21-52S	A	Blue-Pink	22.3	6.42		
LMR21-53S	A	Blue-Tan	22.3	6.27		
LMR21-55S	A	Orange-Red	22.8	6.30		
LMR21-57S	A	Orange-Yellow	22.6	6.02		
LMR21-59S	A	Orange-Pink	22.6	5.86		
LMR21-61S	A	Orange-Tan	23.0	6.08		
LMR21-62S	A	Orange-Violet	23.1	5.83		
LMR21-64S	A	Yellow-Violet	22.6	6.09		
LMR21-66S	A	Yellow-Pink	22.4	6.16		
LMR21-68S	A	Yellow-Tan	22.4	7.13		
LMR21-69S	A	Yellow-Red	22.6	6.46		
LMR21-70S	A	Pink-Red	22.6	5.10		

Signature:

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/7/2021, 1300 Test Day: 2

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	B	Red	22.8	6.08	VRM	
LMR21-11S	B	Orange	22.7	6.23		
LMR21-12S	B	Yellow	22.9	5.87		
LMR21-14S	B	Green	23.3	6.10		
LMR21-15S	B	Blue	23.5	5.22		
LMR21-17S	B	Violet	23.1	5.71		
LMR21-19S	B	Pink	23.2	5.89		
LMR21-25S	B	Tan	23.2	5.91		
LMR21-27S	B	Grn-Red	23.2	5.60		
LMR21-30S	B	Grn-Orange	23.2	6.18		
LMR21-35S	B	Grn-Yellow	23.4	5.99		
LMR21-37S	B	Grn-Blue	22.9	5.51		
LMR21-39S	B	Grn-Violet	23.2	6.09		
LMR21-41S	B	Grn-Pink	23.6	5.00		
LMR21-43S	B	Grn-Tan	23.4	5.55		
LMR21-45S	B	Blue-Red	23.0	5.61		
LMR21-47S	B	Blue-Orange	23.2	5.86		
LMR21-49S	B	Blue-Yellow	23.3	5.45		
LMR21-52S	B	Blue-Pink	23.0	5.53		
LMR21-53S	B	Blue-Tan	22.8	5.81		
LMR21-55S	B	Orange-Red	23.4	6.00		
LMR21-57S	B	Orange-Yellow	22.7	6.06		
LMR21-59S	B	Orange-Pink	23.4	5.26		
LMR21-61S	B	Orange-Tan	23.4	4.93		
LMR21-62S	B	Orange-Violet	23.2	5.81		
LMR21-64S	B	Yellow-Violet	23.2	6.11		
LMR21-66S	B	Yellow-Pink	22.1	5.94		
LMR21-68S	B	Yellow-Tan	22.8	6.12		
LMR21-69S	B	Yellow-Red	23.5	6.42		
LMR21-70S 98	B	Pink Red	23.2	5.74		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/8/2021, 1300 Test Day: 3

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	C	Red	22.8	6.23	KRM	
LMR21-11S	C	Orange	22.7	5.98		
LMR21-12S	C	Yellow	21.7	6.88		
LMR21-14S	C	Green	22.8	6.52		
LMR21-15S	C	Blue	22.7	5.59		
LMR21-17S	C	Violet	22.9	6.01		
LMR21-19S	C	Pink	22.5	6.80		
LMR21-25S	C	Tan	22.9	6.50		
LMR21-27S	C	Grn-Red	22.5	6.13		
LMR21-30S	C	Grn-Orange	23.1	6.11		
LMR21-35S	C	Grn-Yellow	22.6	5.97		
LMR21-37S	C	Grn-Blue	22.9	5.56		
LMR21-39S	C	Grn-Violet	22.8	6.67		
LMR21-41S	C	Grn-Pink	22.9	5.40		
LMR21-43S	C	Grn-Tan	22.1	6.95		
LMR21-45S	C	Blue-Red	22.8	5.00		
LMR21-47S	C	Blue-Orange	22.9	5.73		
LMR21-49S	C	Blue-Yellow	22.9	6.27		
LMR21-52S	C	Blue-Pink	22.8	6.09		
LMR21-53S	C	Blue-Tan	23.2	6.25		
LMR21-55S	C	Orange-Red	22.5	6.82		
LMR21-57S	C	Orange-Yellow	23.1	6.28		
LMR21-59S	C	Orange-Pink	22.9	5.75		
LMR21-61S	C	Orange-Tan	22.6	5.85		
LMR21-62S	C	Orange-Violet	22.9	6.28		
LMR21-64S	C	Yellow-Violet	22.8	6.33		
LMR21-66S	C	Yellow-Pink	23.3	5.28		
LMR21-68S	C	Yellow-Tan	23.2	5.44		
LMR21-69S	C	Yellow-Red	23.2	5.82		
LMR21-~~70~~S 48	C	Pink Red	22.3	6.55		

Signature: ______

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/9/2021, 0930 **Test Day:** 4

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	D	Red	23.3	4.78	JRM	
LMR21-11S	D	Orange	23.5	4.72		
LMR21-12S	D	Yellow	23.7	4.36		
LMR21-14S	D	Green	24.0	4.76		
LMR21-15S	D	Blue	22.9	4.79		
LMR21-17S	D	Violet	23.6	4.02		
LMR21-19S	D	Pink	22.8	4.80		
LMR21-25S	D	Tan	23.1	4.86		
LMR21-27S	D	Grn-Red	22.5	4.74		
LMR21-30S	D	Grn-Orange	22.8	4.97		
LMR21-35S	D	Grn-Yellow	22.8	5.11		
LMR21-37S	D	Grn-Blue	22.6	5.14		
LMR21-39S	D	Grn-Violet	23.4	5.50		
LMR21-41S	D	Grn-Pink	23.6	4.30		
LMR21-43S	D	Grn-Tan	23.7	4.69		
LMR21-45S	D	Blue-Red	23.0	4.94		
LMR21-47S	D	Blue-Orange	23.3	4.96		
LMR21-49S	D	Blue-Yellow	23.2	4.21		
LMR21-52S	D	Blue-Pink	22.8	4.52		
LMR21-53S	D	Blue-Tan	23.7	4.62		
LMR21-55S	D	Orange-Red	23.7	4.90		
LMR21-57S	D	Orange-Yellow	23.2	4.99		
LMR21-59S	D	Orange-Pink	23.5	4.67		
LMR21-61S	D	Orange-Tan	23.7	4.75		
LMR21-62S	D	Orange-Violet	23.5	5.07		
LMR21-64S	D	Yellow-Violet	22.9	4.61		
LMR21-66S	D	Yellow-Pink	23.8	4.48		
LMR21-68S	D	Yellow-Tan	23.6	4.70		
LMR21-69S	D	Yellow-Red	23.3	5.13		
LMR21-70S 48	D	Pink Red	22.7	3.76		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/10/2021, 1430 **Test Day:** 5

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	E	Red	23.2	5.67	lrm	
LMR21-11S	E	Orange	23.1	5.57		
LMR21-12S	E	Yellow	22.9	4.92		
LMR21-14S	E	Green	23.0	5.47		
LMR21-15S	E	Blue	23.9	4.76		
LMR21-17S	E	Violet	23.0	5.45		
LMR21-19S	E	Pink	24.0	4.81		
LMR21-25S	E	Tan	23.4	5.79		
LMR21-27S	E	Grn-Red	23.1	5.07		
LMR21-30S	E	Grn-Orange	23.4	5.08		
LMR21-35S	E	Grn-Yellow	23.1	5.39		
LMR21-37S	E	Grn-Blue	23.5	5.36		
LMR21-39S	E	Grn-Violet	23.1	5.90		
LMR21-41S	E	Grn-Pink	23.1	5.32		
LMR21-43S	E	Grn-Tan	23.8	5.62		
LMR21-45S	E	Blue-Red	24.1	5.42		
LMR21-47S	E	Blue-Orange	24.2	5.56		
LMR21-49S	E	Blue-Yellow	23.7	5.35		
LMR21-52S	E	Blue-Pink	23.6	5.02		
LMR21-53S	E	Blue-Tan	23.4	5.59		
LMR21-55S	E	Orange-Red	23.2	5.76		
LMR21-57S	E	Orange-Yellow	23.1	~~5.4~~ 5.54		
LMR21-59S	E	Orange-Pink	23.5	5.03		
LMR21-61S	E	Orange-Tan	23.0	5.76		
LMR21-62S	E	Orange-Violet	23.6	5.80		
LMR21-64S	E	Yellow-Violet	23.7	4.49		
LMR21-66S	E	Yellow-Pink	23.8	5.36		
LMR21-68S	E	Yellow-Tan	24.2	5.31		
LMR21-69S	E	Yellow-Red	23.4	5.76		
LMR21-~~70S~~ 4B	E	Pink Red	24.1	5.55		

Signature: [signature]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/11/2021, 1400 Test Day: 6

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	A	Red	23.1	5.91	YRM	
LMR21-11S	A	Orange	23.9	5.58		
LMR21-12S	A	Yellow	23.1	5.34		
LMR21-14S	A	Green	23.5	4.30		
LMR21-15S	A	Blue	23.8	4.29		
LMR21-17S	A	Violet	23.4	5.12		
LMR21-19S	A	Pink	23.0	5.16		
LMR21-25S	A	Tan	22.8	5.53		
LMR21-27S	A	Grn-Red	23.6	4.87		
LMR21-30S	A	Grn-Orange	23.2	4.99		
LMR21-35S	A	Grn-Yellow	23.5	4.53		
LMR21-37S	A	Grn-Blue	23.1	5.17		
LMR21-39S	A	Grn-Violet	23.4	5.96		
LMR21-41S	A	Grn-Pink	23.7	5.30		
LMR21-43S	A	Grn-Tan	23.7	5.37		
LMR21-45S	A	Blue-Red	23.0	5.39		
LMR21-47S	A	Blue-Orange	23.1	5.83		
LMR21-49S	A	Blue-Yellow	23.0	4.39		
LMR21-52S	A	Blue-Pink	22.9	5.73		
LMR21-53S	A	Blue-Tan	22.7	5.65		
LMR21-55S	A	Orange-Red	23.2	5.62		
LMR21-57S	A	Orange-Yellow	23.2	5.41		
LMR21-59S	A	Orange-Pink	23.0	5.19		
LMR21-61S	A	Orange-Tan	23.4	5.32		
LMR21-62S	A	Orange-Violet	23.4	4.59		
LMR21-64S	A	Yellow-Violet	23.0	5.14		
LMR21-66S	A	Yellow-Pink	22.7	5.67		
LMR21-68S	A	Yellow-Tan	23.1	5.06		
LMR21-69S	A	Yellow-Red	23.2	5.46		
LMR21-70S	A	Pink Red	23.2	5.69		

Signature: [illegible]

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/12/2021, 1500 **Test Day:** 7

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	B	Red	22.5	5.09	LRM	
LMR21-11S	B	Orange	22.4	4.67		
LMR21-12S	B	Yellow	22.4	5.25		
LMR21-14S	B	Green	22.7	4.94		
LMR21-15S	B	Blue	23.0	4.10		
LMR21-17S	B	Violet	22.8	4.85		
LMR21-19S	B	Pink	22.7	4.41		
LMR21-25S	B	Tan	22.7	5.19		
LMR21-27S	B	Grn-Red	22.8	5.20		
LMR21-30S	B	Grn-Orange	22.7	5.50		
LMR21-35S	B	Grn-Yellow	22.7	4.95		
LMR21-37S	B	Grn-Blue	22.6	5.10		
LMR21-39S	B	Grn-Violet	22.5	5.77		
LMR21-41S	B	Grn-Pink	23.0	4.10		
LMR21-43S	B	Grn-Tan	22.8	4.45		
LMR21-45S	B	Blue-Red	22.5	3.78		
LMR21-47S	B	Blue-Orange	22.8	5.81		
LMR21-49S	B	Blue-Yellow	22.6	4.35		
LMR21-52S	B	Blue-Pink	22.5	4.93		
LMR21-53S	B	Blue-Tan	22.2	5.47		
LMR21-55S	B	Orange-Red	22.8	5.08		
LMR21-57S	B	Orange-Yellow	22.3	5.12		
LMR21-59S	B	Orange-Pink	23.0	4.48		
LMR21-61S	B	Orange-Tan	23.0	4.53		
LMR21-62S	B	Orange-Violet	22.4	5.64		
LMR21-64S	B	Yellow-Violet	22.5	4.76		
LMR21-66S	B	Yellow-Pink	22.0	5.17		
LMR21-68S	B	Yellow-Tan	22.5	5.68		
LMR21-69S	B	Yellow-Red	23.0	5.89		
LMR21-70S	B	Pink Red	22.5	5.52		

Signature:

Disclosed and Understood by: Lauren May

Daily Dissolved Oxygen/Temperature

Project: Maumee River

Test Species: *Chironomus dilutus*

Date/Time: 10/13/2021, ~~18~~1500 **Test Day:** 8

Sediment	Replicate	Color	Temperature (°C)	D.O. (mg/L)	Technician Initials	Comments
Control	C	Red	22.2	4.87	vrm	
LMR21-11S	C	Orange	22.3	4.34		
LMR21-12S	C	Yellow	21.7	4.60		
LMR21-14S	C	Green	22.5	4.40		
LMR21-15S	C	Blue	22.3	3.59		
LMR21-17S	C	Violet	22.3	4.14		
LMR21-19S	C	Pink	22.4	4.12		
LMR21-25S	C	Tan	22.7	4.29		
LMR21-27S	C	Grn-Red	22.1	4.07		
LMR21-30S	C	Grn-Orange	22.8	4.03		
LMR21-35S	C	Grn-Yellow	22.3	4.17		
LMR21-37S	C	Grn-Blue	22.7	3.14		
LMR21-39S	C	Grn-Violet	22.4	5.05		
LMR21-41S	C	Grn-Pink	22.2	3.44		
LMR21-43S	C	Grn-Tan	21.9	4.64		
LMR21-45S	C	Blue-Red	22.3	4.05		
LMR21-47S	C	Blue-Orange	22.6	4.50		
LMR21-49S	C	Blue-Yellow	22.3	4.74		
LMR21-52S	C	Blue-Pink	22.5	4.13		
LMR21-53S	C	Blue-Tan	22.5	4.41		
LMR21-55S	C	Orange-Red	22.2	5.08		
LMR21-57S	C	Orange-Yellow	22.6	4.76		
LMR21-59S	C	Orange-Pink	22.4	4.21		
LMR21-61S	C	Orange-Tan	22.1	4.60		
LMR21-62S	C	Orange-Violet	22.3	4.59		
LMR21-64S	C	Yellow-Violet	22.4	4.42		
LMR21-66S	C	Yellow-Pink	22.5	3.06		
LMR21-68S	C	Yellow-Tan	22.5	4.29		
LMR21-69S	C	Yellow-Red	22.5	4.25		
LMR21-~~70S~~48	C	Pink Red	22.0	4.95		

Signature: [signature]

Disclosed and Understood by: Lauren May

Fin Overlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1608 Technician initials: VRM

1 of 8

Sediment	Replicate	Color	Temperature (°C)	pH	D.O. (mg/L)	Hardness (PPM $CaCO_3$)*	Alkalinity (PPM $CaCO_3$)*	Conductivity (uS)	Ammonia (mg/L)*
Control	A	Red	22.4	7.96	5.17	62	68	201.6	<1
Control	B	Red	22.4	7.64	4.35			196.7	
Control	C	Red	22.4	7.46	4.69			190.6	
Control	D	Red	23.0	7.38	4.19			195.6	
Control	E	Red	23.0	7.32	4.95			191.9	
LMR21-11S	A	Orange	22.9	7.41	4.57	76	80	217.6	<1
LMR21-11S	B	Orange	22.3	7.38	4.03			223.9	
LMR21-11S	C	Orange	22.4	7.37	4.74			226.8	
LMR21-11S	D	Orange	23.4	7.38	4.63			215.6	
LMR21-11S	E	Orange	23.2	7.40	4.09			213.2	
LMR21-12S	A	Yellow	22.4	7.37	4.64	88	108	230.0	<1
LMR21-12S	B	Yellow	22.2	7.39	4.49			219.9	
LMR21-12S	C	Yellow	21.4	7.39	4.43			221.4	
LMR21-12S	D	Yellow	23.7	7.29	2.54			236.1	
LMR21-12S	E	Yellow	22.8	7.27	3.73			233.1	
LMR21-14S	A	Green	22.7	7.35	2.87	80	96	226.4	<1
LMR21-14S	B	Green	22.6	7.34	3.51			210.5	
LMR21-14S	C	Green	22.7	7.35	3.86			222.2	
LMR21-14S	D	Green	24.1	7.34	3.92			219.2	
LMR21-14S	E	Green	23.1	7.48	5.24			216.8	

Fin. verlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1633 Technician initials: vem 2 of 8

			Temp	pH	DO	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-15S	A	Blue	22.8	7.43	3.31	80	100	215.2	<1
LMR21-15S	B	Blue	22.8	7.36	3.50			217.8	
LMR21-15S	C	Blue	22.5	7.31	3.25			217.0	
LMR21-15S	D	Blue	22.9	7.28	3.30			216.1	
LMR21-15S	E	Blue	23.6	7.22	3.63			220.8	
LMR21-17S	A	Violet	22.6	7.26	4.08	82	94	218.9	<1
LMR21-17S	B	Violet	22.8	7.28	3.53			219.8	
LMR21-17S	C	Violet	22.5	7.31	3.77			225.6	
LMR21-17S	D	Violet	23.4	7.29	3.39			234.0	
LMR21-17S	E	Violet	22.8	7.35	4.07			218.2	
LMR21-19S	A	Pink	22.2	7.41	4.10	74	96	221.7	<1
LMR21-19S	B	Pink	22.6	7.42	3.57			221.7	
LMR21-19S	C	Pink	22.1	7.41	3.97			220.1	
LMR21-19S	D	Pink	23.1	7.42	4.02			217.0	
LMR21-19S	E	Pink	23.8	7.39	3.99			223.3	
LMR21-25S	A	Tan	22.0	7.40	4.42	80	96	223.7	<1
LMR21-25S	B	Tan	22.7	7.40	3.87			221.8	
LMR21-25S	C	Tan	22.5	7.39	4.22			232.1	
LMR21-25S	D	Tan	23.2	7.40	4.60			223.8	
LMR21-25S	E	Tan	23.4	7.42	4.43			217.2	

Fin verlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1652 Technician initials: VRM 3 of 8

			Temp	pH	DO	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-27S	A	Grn-Red	22.8	7.46	3.55	84	92	231.6	<1
LMR21-27S	B	Grn-Red	22.5	7.44	4.39			225.6	
LMR21-27S	C	Grn-Red	22.3	7.45	4.27			228.7	
LMR21-27S	D	Grn-Red	22.8	7.41	3.92			221.7	
LMR21-27S	E	Grn-Red	22.9	7.38	4.17			226.5	
LMR21-30S	A	Grn-Orange	22.3	7.40	4.16	84	98	229.3	<1
LMR21-30S	B	Grn-Orange	22.6	7.42	4.03			220.5	
LMR21-30S	C	Grn-Orange	22.6	7.38	4.39			234.3	
LMR21-30S	D	Grn-Orange	23.3	7.42	4.05			219.5	
LMR21-30S	E	Grn-Orange	23.2	7.40	3.90			227.4	
LMR21-35S	A	Grn-Yellow	22.6	7.39	3.62	80	100	256.1	<1
LMR21-35S	B	Grn-Yellow	22.6	7.42	4.05			231.7	
LMR21-35S	C	Grn-Yellow	22.4	7.40	4.25			228.4	
LMR21-35S	D	Grn-Yellow	22.9	7.46	4.62			216.5	
LMR21-35S	E	Grn-Yellow	22.9	7.49	4.32			220.9	
LMR21-37S	A	Grn-Blue	22.5	7.47	4.55	88	100	227.0	<1
LMR21-37S	B	Grn-Blue	22.5	7.45	4.48			222.5	
LMR21-37S	C	Grn-Blue	22.4	7.40	VRM ~~4~~ 3.60			240.3	
LMR21-37S	D	Grn-Blue	22.6	7.44	4.59			217.6	
LMR21-37S	E	Grn-Blue	23.4	7.45	4.18			220.8	

Fin[illegible]verlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1708 Technician initials: VRM 4 of 8

			Temp	pH	DO	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-39S	A	Grn-Violet	22.5	7.50	5.55	82	104	219.8	<1
LMR21-39S	B	Grn-Violet	22.5	7.50	5.83			218.8	
LMR21-39S	C	Grn-Violet	22.4	7.49	5.55			221.4	
LMR21-39S	D	Grn-Violet	23.5	7.46	5.36			219.2	
LMR21-39S	E	Grn-Violet	23.1	7.50	5.61			216.1	
LMR21-41S	A	Grn-Pink	22.7	7.46	3.50	88	96	223.6	<1
LMR21-41S	B	Grn-Pink	22.7	7.43	3.07			234.9	
LMR21-41S	C	Grn-Pink	22.4	7.40	3.03			241.5	
LMR21-41S	D	Grn-Pink	23.4	7.43	3.70			227.2	
LMR21-41S	E	Grn-Pink	22.9	7.44	3.75			225.5	
LMR21-43S	A	Grn-Tan	22.4	7.46	4.60	80	100	233.8	<1
LMR21-43S	B	Grn-Tan	22.7	7.44	3.95			227.5	
LMR21-43S	C	Grn-Tan	22.3	7.44	4.18			228.5	
LMR21-43S	D	Grn-Tan	23.6	7.42	4.96			225.4	
LMR21-43S	E	Grn-Tan	23.6	7.43	4.71			223.5	
LMR21-45S	A	Blue-Red	22.3	7.47	3.81	80	100	224.6	<1
LMR21-45S	B	Blue-Red	22.5	7.41	3.25			233.1	
LMR21-45S	C	Blue-Red	22.5	7.39	4.05			230.5	
LMR21-45S	D	Blue-Red	23.1	7.40	4.52			222.4	
LMR21-45S	E	Blue-Red	23.7	7.41	4.52			222.1	

Fin verlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1723 Technician initials: vem

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			Temp.	pH	DO	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-47S	A	Blue-Orange	22.2	7.46	5.11	74	100	212.9	<1
LMR21-47S	B	Blue-Orange	22.5	7.39	4.37			224.1	
LMR21-47S	C	Blue-Orange	22.6	7.39	5.20			211.0	
LMR21-47S	D	Blue-Orange	23.3	7.36	4.45			214.3	
LMR21-47S	E	Blue-Orange	24.0	7.35	4.84			212.2	
LMR21-49S	A	Blue-Yellow	22.4	7.34	4.38	76	90	218.1	<1
LMR21-49S	B	Blue-Yellow	22.4	7.31	4.21			218.4	
LMR21-49S	C	Blue-Yellow	22.3	7.30	4.61			218.9	
LMR21-49S	D	Blue-Yellow	23.2	7.27	3.77			221.3	
LMR21-49S	E	Blue-Yellow	23.4	7.27	4.54			215.0	
LMR21-52S	A	Blue-Pink	21.8	7.31	~~4.78~~ 4.48 vem	88	98	219.8	<1
LMR21-52S	B	Blue-Pink	22.5	7.30	4.60			232.1	
LMR21-52S	C	Blue-Pink	22.6	7.31	4.24			228.8	
LMR21-52S	D	Blue-Pink	23.2	7.29	4.04			230.8	
LMR21-52S	E	Blue-Pink	23.2	7.31	4.36			227.4	
LMR21-53S	A	Blue-Tan	22.2	7.37	4.09	80	96	224.6	<1
LMR21-53S	B	Blue-Tan	22.0	7.38	4.45			221.3	
LMR21-53S	C	Blue-Tan	22.6	7.36	4.50			233.2	
LMR21-53S	D	Blue-Tan	23.6	7.39	4.40			224.4	
LMR21-53S	E	Blue-Tan	23.1	7.36	3.28			237.9	

Fin. verlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1738 Technician initials: vem

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			Temp.	pH	DO	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-55S	A	Orange-Red	22.4	7.43	3.95	88	96	228.6	<1
LMR21-55S	B	Orange-Red	22.8	7.42	4.00			229.0	
LMR21-55S	C	Orange-Red	22.1	7.44	5.10			216.9	
LMR21-55S	D	Orange-Red	23.6	7.41	4.25			222.4	
LMR21-55S	E	Orange-Red	23.2	7.42	4.50			215.9	
LMR21-57S	A	Orange-Yellow	22.5	7.41	4.32	88	104	237.2	<1
LMR21-57S	B	Orange-Yellow	22.3	7.40	3.06			233.6	
LMR21-57S	C	Orange-Yellow	22.7	7.38	4.83			222.5	
LMR21-57S	D	Orange-Yellow	23.1	7.39	4.65			223.0	
LMR21-57S	E	Orange-Yellow	22.8	7.41	4.11			221.3	
LMR21-59S	A	Orange-Pink	22.2	7.42	4.29	84	96	226.5	<1
LMR21-59S	B	Orange-Pink	22.7	7.41	3.70			248.5	
LMR21-59S	C	Orange-Pink	22.4	7.46	4.11			224.3	
LMR21-59S	D	Orange-Pink	23.5	7.44	3.92			225.6	
LMR21-59S	E	Orange-Pink	23.1	7.43	3.17			231.0	
LMR21-61S	A	Orange-Tan	22.6	7.43	3.97	80	92	227.0	<1
LMR21-61S	B	Orange-Tan	22.6	7.39	3.93			246.9	
LMR21-61S	C	Orange-Tan	22.1	7.43	4.83			225.7	
LMR21-61S	D	Orange-Tan	23.5	7.44	4.94			211.3	
LMR21-61S	E	Orange-Tan	22.7	7.45	4.88			219.2	

Fin verlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1800 Technician initials: VRM

Ammonia 7 of 8

			Temp (C)	pH	DO	Hardness	Alkalinity	Conductivity	Ammonia
LMR21-62S	A	Orange-Violet	22.6	7.49	5.22	80	98	229.0	<1
LMR21-62S	B	Orange-Violet	22.3	7.47	4.91			221.9	
LMR21-62S	C	Orange-Violet	22.4	7.45	4.47			224.4	
LMR21-62S	D	Orange-Violet	23.4	7.46	4.84			221.3	
LMR21-62S	E	Orange-Violet	23.3	7.46	4.22			218.2	
LMR21-64S	A	Yellow-Violet	22.2	7.48	3.76	88	96	229.1	<1
LMR21-64S	B	Yellow-Violet	22.5	7.48	4.38			2275	
LMR21-64S	C	Yellow-Violet	22.5	7.46	4.30			227.1	
LMR21-64S	D	Yellow-Violet	23.2	7.47	3.50			221.8	
LMR21-64S	E	Yellow-Violet	23.1	7.43	2.77			247.0	
LMR21-66S	A	Yellow-Pink	22.1	7.46	4.03	84	100	223.5	<1
LMR21-66S	B	Yellow-Pink	21.7	7.46	4.22			23.2.0	
LMR21-66S	C	Yellow-Pink	22.7	7.37	3.67			237.3	
LMR21-66S	D	Yellow-Pink	23.6	7.42	4.32			221.8	
LMR21-66S	E	Yellow-Pink	23.3	7.42	4.04			225.0	
LMR21-68S	A	Yellow-Tan	22.3	7.39	3.18	100	98	275.5	<1
LMR21-68S	B	Yellow-Tan	22.3	7.46	4.69			222.2	
LMR21-68S	C	Yellow-Tan	22.9	7.41	3.38			229.4	
LMR21-68S	D	Yellow-Tan	23.2	7.39	3.61			238.3	
LMR21-68S	E	Yellow-Tan	23.7	7.38	3.92			239.0	

Fin verlying Water Quality

Project: Maumee River

Organism: *Chironomus dilutus*

Test Day: 10 Date: 10/14/21 Time: 1809 Technician initials: VRM

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			Temp (°C)	pH	DO	Hardness	Alkalinity	conductivity	Ammonia
LMR21-69S	A	Yellow-Red	22.5	7.43	3.84	88	104	226.4	<1
LMR21-69S	B	Yellow-Red	22.6	7.43	4.85			222.9	
LMR21-69S	C	Yellow-Red	22.7	7.40	3.65			238.9	
LMR21-69S	D	Yellow-Red	23.2	7.41	4.82			223.1	
LMR21-69S	E	Yellow-Red	23.0	7.44	5.09			219.9	
LMR21-~~70S~~48	A	Pink-Red	22.3	7.44	4.57	84	96	225.5	<1
LMR21-~~70S~~48	B	Pink-Red	22.6	7.45	4.38			223.6	
LMR21-~~70S~~48	C	Pink-Red	21.8	7.46	4.94			221.7	
LMR21-~~70S~~48	D	Pink-Red	22.9	7.44	3.85			238.7	
LMR21-~~70S~~48	E	Pink-Red	23.5	7.46	4.26			225.4	

* Measured from a composite sample

Signature: [signature]

Disclosed and Understood by: Lauren May

Initial Mass

ject: Maumee River

Test species: *Chironomus dilutus*

Test Day: 0

Initial Pan weight date: 10/5/2021 Technician: VRM

Animal + pan dry wt date: 10/14/2021 Technician: VRM

Ash Free dry wt date: NA Technician: NA

Replicate	Pan Number	Initial Pan weight (mg)	Number of animals	Pan + Animal Dry Weight (mg)	Comment
1	1	216.438	10	219.820	
2	2	214.802	10	218.802	
3	3	216.202	10	219.642	
4	4	214.506	10	217.828	
5	5	225.614	10	229.132	

Signature: [signature]

Disclosed and Understood by: Lauren May

10 day Survival

Project: Maumee River

Test Species: *Chironomus dilutus*
Test Day: 10

Test Initiation Date: 10/5/2021
Breakdown Date: 10/15/2021

Initial Pan weight date: 10/14/2021
Animal + pan dry wt date: 10/20/2021

Technician: VRM
Technician: VRM

Sediment	Replicate	Color	Number Recovered	Pan Number	# Organnism on Pan	Pan Wt. (g)	Pan & Organism Wt. (g)	Technician Initials	Comments
Control	A	Red	11	1	11	227.704	252.808	MB	—
Control	B	Red	10	2	9	218.950	238.004	—	1P
Control	C	Red	9	3	8	219.856	242.166	JB	1P
Control	D	Red	7	4	6	213.184	234.894	—	1P
Control	E	Red	9	5	8	215.992	235.956	—	1P
LMR21-11S	A	Orange	6	6	6	216.600	238.594	JB	
LMR21-11S	B	Orange	9	7	9	217.544	241.362	—	
LMR21-11S	C	Orange	7	8	7	225.086	242.146	GL	
LMR21-11S	D	Orange	8	9	8	226.610	250.922	TB	
LMR21-11S	E	Orange	10	10	10	224.988	246.614	GL	
LMR21-12S	A	Yellow	10	11	9	223.478	247.422	—	1P
LMR21-12S	B	Yellow	7	12	7	222.608	241.184	TB	
LMR21-12S	C	Yellow	10	13	10	223.940	249.320	—	
LMR21-12S	D	Yellow	10	14	8	220.672	239.688	MB	2P
LMR21-12S	E	Yellow	10	15	8	215.436	231.592	JB	2P
LMR21-14S	A	Green	8	16	8	214.508	238.572	JB	
LMR21-14S	B	Green	8	17	7	209.998	228.382	GL	1P
LMR21-14S	C	Green	9	18	8	219.512	241.854	JB	1P
LMR21-14S	D	Green	10	19	9	217.978	243.866	JB	1P
LMR21-14S	E	Green	8	20	7	213.662	236.528	TB	1P
LMR21-15S	A	Blue	8	21	7	218.060	236.422	—	1P
LMR21-15S	B	Blue	8	22	8	218.840	241.546	GL	
LMR21-15S	C	Blue	8	23	8	214.888	234.210	—	
LMR21-15S	D	Blue	10	24	10	213.054	234.946	JB	
LMR21-15S	E	Blue	10	25	10	220.284	245.868	REB	
LMR21-17S	A	Violet	9	26	9	225.308	250.674	JB	
LMR21-17S	B	Violet	9	27	9	232.748	257.866	—	
LMR21-17S	C	Violet	10	28	10	217.812	244.464	JB	
LMR21-17S	D	Violet	9	29	8	215.586	237.968	MB	1P
LMR21-17S	E	Violet	8	30	5	216.176	229.240	TB	3P
LMR21-19S	A	Pink	10	31	10	216.874	239.868	TB	
LMR21-19S	B	Pink	5	32	5	214.282	231.730	GL	
LMR21-19S	C	Pink	10	33	10	215.816	244.260	MJ	
LMR21-19S	D	Pink	7	34	7	212.442	230.246	—	
LMR21-19S	E	Pink	9	35	8	211.792	232.376	JB	1P
LMR21-25S	A	Tan	10	36	10	213.314	240.744	TB	
LMR21-25S	B	Tan	7	37	7	222.098	241.612	JB	~~4P~~ VRM
LMR21-25S	C	Tan	8	38	4	215.438	225.376	JB	4P
LMR21-25S	D	Tan	10	39	10	214.570	231.112	TB	
LMR21-25S	E	Tan	7	40	6	212.196	228.734	TB	1P

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10 day Survival

Project: Maumee River

Test Species: *Chironomus dilutus* | Test Initiation Date: 10/5/2021 | Initial Pan weight date: 10-14-21 | Technician: PK
Test Day: 10 | Breakdown Date: 10/15/2021 | Animal + pan dry wt date: 10/20/2021 | Technician: VRM

Sediment	Replicate	Color	Number Recovered	Pan Number	# Organnism on Pan	Pan Wt. (g)	Pan & Organism Wt. (g)	Technician initials	Comments
LMR21-27S	A	Grn-Red	RW ~~8~~ 9	41	7	228.816	245.358	—	2P
LMR21-27S	B	Grn-Red	6	42	6	212.362	230.912	JB	
LMR21-27S	C	Grn-Red	9	43	9	217.292	242.108	GL	
LMR21-27S	D	Grn-Red	6	44	6	211.220	225.522	—	
LMR21-27S	E	Grn-Red	8	45	8	208.686	230.252	TB	
LMR21-30S	A	Grn-Orange	2	46	2	218.528	226.880	GL	
LMR21-30S	B	Grn-Orange	4	47	4	219.540	235.160	—	
LMR21-30S	C	Grn-Orange	~~7~~ 9	48	8	216.990	241.610	~~TB~~ JB	1P
LMR21-30S	D	Grn-Orange	7	49	7	214.806	233.450	TB	
LMR21-30S	E	Grn-Orange	9	50	~~8~~ 9	221.894	248.880	~~JB~~ REB	~~1P~~
LMR21-35S	A	Grn-Yellow	9	51	9	227.698	248.736	GL	
LMR21-35S	B	Grn-Yellow	10	52	6	219.006	234.484	JB	4P
LMR21-35S	C	Grn-Yellow	8	53	7	223.188	239.266	GL	1P
LMR21-35S	D	Grn-Yellow	10	54	9	221.236	240.580	—	1P
LMR21-35S	E	Grn-Yellow	7	55	7	226.926	245.812	—	
LMR21-37S	A	Grn-Blue	9	56	9	217.312	240.840	JB	
LMR21-37S	B	Grn-Blue	9	57	8	221.928	241.084	—	
LMR21-37S	C	Grn-Blue	8	58	8	215.268	237.038	JB	
LMR21-37S	D	Grn-Blue	10	59	10	221.080	240.152	—	
LMR21-37S	E	Grn-Blue	9	60	9	224.036	244.180	—	
LMR21-39S	A	Grn-Violet	8	61	8	218.912	237.848	—	
LMR21-39S	B	Grn-Violet	10	62	10	220.440	240.478	JB	
LMR21-39S	C	Grn-Violet	9	63	9	224.032	247.544	—	
LMR21-39S	D	Grn-Violet	7	64	7	220.988	240.996	REB	
LMR21-39S	E	Grn-Violet	6	65	5	213.996	230.092	—	1P
LMR21-41S	A	Grn-Pink	9	66	9	218.418	239.600	MI	
LMR21-41S	B	Grn-Pink	10	67	10	221.656	248.864	JB	
LMR21-41S	C	Grn-Pink	8	68	8	217.342	238.118	—	
LMR21-41S	D	Grn-Pink	8	69	8	218.210	240.134	MB	
LMR21-41S	E	Grn-Pink	9	70	9	220.296	243.100	—	
LMR21-43S	A	Grn-Tan	10	71	10	224.210	246.134	MI	
LMR21-43S	B	Grn-Tan	9	72	8	217.350	235.608	—	1P
LMR21-43S	C	Grn-Tan	8	73	7	220.656	237.350	JB	1P
LMR21-43S	D	Grn-Tan	6	74	6	223.342	241.344	—	
LMR21-43S	E	Grn-Tan	9	75	9	221.098	241.044	REB	
LMR21-45S	A	Blue-Red	9	76	9	223.818	244.800	—	
LMR21-45S	B	Blue-Red	11	77	11	220.770	242.066	JB	
LMR21-45S	C	Blue-Red	9	78	9	223.248	244.088	—	
LMR21-45S	D	Blue-Red	9	79	8	220.522	237.648	MB	1P
LMR21-45S	E	Blue-Red	9	80	9	213.460	231.844	REB	

Page 2 of 4

10 day Survival

Project: Maumee River

Test Species: *Chironomus dilutus* Test Initiation Date: 10/5/2021 Initial Pan weight date: 10/14/21 Technician: PK

Test Day: 10 Breakdown Date: 10/15/2021 Animal + pan dry wt date: 10/20/2021 Technician: Vem

Sediment	Replicate	Color	Number Recovered	Pan Number	# Organnism on Pan	Pan Wt. (g)	Pan & Organism Wt. (g)	Technician initials	Comments
LMR21-47S	A	Blue-Orange	6	81	221.490	6	JB	223.764	
LMR21-47S	B	Blue-Orange	7	82	218.450	7	—	221.340	Very small
LMR21-47S	C	Blue-Orange	4	83	216.968	4	GL	220.832	
LMR21-47S	D	Blue-Orange	5	84	222.818	5	TB	228.466	
LMR21-47S	E	Blue-Orange	4	85	221.544	4	REB	223.940	
LMR21-49S	A	Blue-Yellow	4	86	213.008	3	GL	217.960	1 emerged
LMR21-49S	B	Blue-Yellow	6	87	218.204	6	—	222.094	2 small, 4 small
LMR21-49S	C	Blue-Yellow	7	88	214.816	7	—	224.034	1 very small, 2 big
LMR21-49S	D	Blue-Yellow	6	89	218.324	6	—	227.176	
LMR21-49S	E	Blue-Yellow	8	90	219.586	8	REB	228.900	3 small
LMR21-52S	A	Blue-Pink	9	91	217.412	9	MJ	237.568	1 small
LMR21-52S	B	Blue-Pink	10	92	220.784	10	MJ	239.282	
LMR21-52S	C	Blue-Pink	10	93	213.878	10	GL	235.120	
LMR21-52S	D	Blue-Pink	10	94	220.146	10	TB	236.566	
LMR21-52S	E	Blue-Pink	8	95	221.570	8	—	239.196	
LMR21-53S	A	Blue-Tan	7	96	220.574	5	MB	231.644	2 pupated
LMR21-53S	B	Blue-Tan	7	97	217.478	7	GL	232.484	
LMR21-53S	C	Blue-Tan	8	98	219.079	7	JB	235.232	1 pupated
LMR21-53S	D	Blue-Tan	8	99	223.960	8	REB	243.004	1 small
LMR21-53S	E	Blue-Tan	8	100	218.128	8	TB	234.498	
LMR21-55S	A	Orange-Red	6	101	220.692	6	—	232.464	
LMR21-55S	B	Orange-Red	9	102	219.262	9	—	238.160	
LMR21-55S	C	Orange-Red	9	103	215.710	8	MB	232.748	~~*~~ 1 pupated
LMR21-55S	D	Orange-Red	9	104	220.888	6	TB	238.202	1 H
LMR21-55S	E	Orange-Red	10	105	226.064	10	REB	249.196	
LMR21-57S	A	Orange-Yellow	10	106	221.886	9	—	245.074	1 pupated
LMR21-57S	B	Orange-Yellow	9	107	216.928	8	GL	231.368	1 pupated
LMR21-57S	C	Orange-Yellow	9	108	224.584	9	JB	242.696	1 small
LMR21-57S	D	Orange-Yellow	9	109	220.914	8	TB	238.264	1 pupated
LMR21-57S	E	Orange-Yellow	9	110	222.902	8	TB	241.284	1 pupated
LMR21-59S	A	Orange-Pink	9	111	221.996	6	TB	235.242	3 pupated
LMR21-59S	B	Orange-Pink	7	112	218.776	7	MJ	238.338	
LMR21-59S	C	Orange-Pink	4	113	221.886	4	GL	235.160	
LMR21-59S	D	Orange-Pink	6	114	221.318	5	MJ	230.520	1 pupating
LMR21-59S	E	Orange-Pink	8	115	220.742	8	TB	237.380	
LMR21-61S	A	Orange-Tan	PK ~~8~~ 9	116	220.716	8	—	239.908	1 pupated
LMR21-61S	B	Orange-Tan	10 ~~9~~ PK	117	219.904	~~9~~ 8	~~TB~~ JB	234.472	2 pupated
LMR21-61S	C	Orange-Tan	9	118	221.662	9	JB	242.662	
LMR21-61S	D	Orange-Tan	5	119	219.556	5	REB	237.214	
LMR21-61S	E	Orange-Tan	9	120	217.818	9	TB	233.834	

10 day Survival

Project: Maumee River

Test Species: *Chironomus dilutus*
Test Day: 10

Test Initiation Date: 10/5/2021
Breakdown Date: 10/15/2021

Initial Pan weight date: 10/14/21
Animal + pan dry wt date: 10/20/2021

Technician: PK
Technician: VEM

Sediment	Replicate	Color	Number Recovered	Pan Number	# Organnism on Pan	Pan Wt. (g)	Pan & Organism Wt. (g)	Technician initials	Comments
LMR21-62S	A	Orange-Violet	9	121	~~7~~ 9	209.362	231.418	—	
LMR21-62S	B	Orange-Violet	9	122	8	209.024	224.804	GL	1 pupated
LMR21-62S	C	Orange-Violet	8	123	8	208.716	232.044	JB	
LMR21-62S	D	Orange-Violet	10	124	10	210.152	230.452	—	
LMR21-62S	E	Orange-Violet	7	125	7	206.966	221.700	—	
LMR21-64S	A	Yellow-Violet	8	126	6	206.904	219.314	GL	2 pupated
LMR21-64S	B	Yellow-Violet	7	127	5	208.982	221.818	JB	2 pupated
LMR21-64S	C	Yellow-Violet	10	128	9	223.226	243.092	JB	1 pupated
LMR21-64S	D	Yellow-Violet	PK ~~8~~ 9	129	PK ~~6~~ 8	224.496	241.236	JB	1 ~~2~~ pupated
LMR21-64S	E	Yellow-Violet	7	130	7	221.558	239.720	GL	
LMR21-66S	A	Yellow-Pink	7	131	7	223.756	239.752	—	
LMR21-66S	B	Yellow-Pink	6	132	6	220.488	238.732	GL	
LMR21-66S	C	Yellow-Pink	10	133*	10	235.730	258.802	MJ	
LMR21-66S	D	Yellow-Pink	5	134	3	219.338	228.646	TB	2 H
LMR21-66S	E	Yellow-Pink	10	135	10	222.728	243.138	TB	
LMR21-68S	A	Yellow-Tan	10	136	10	213.906	237.012	—	
LMR21-68S	B	Yellow-Tan	10	137	10	215.474	236.448	GL	
LMR21-68S	C	Yellow-Tan	8	138	7	211.802	228.440	—	1 H
LMR21-68S	D	Yellow-Tan	6	139	6	214.252	235.824	REB	
LMR21-68S	E	Yellow-Tan	8	140	8	212.036	231.078	REB	
LMR21-69S	A	Yellow-Red	9	141	9	210.872	233.160	GL	
LMR21-69S	B	Yellow-Red	10	142	9	212.326	233.734	JB	1 emerged
LMR21-69S	C	Yellow-Red	10	143	10	220.256	~~GL~~ *	GL	*241.540mg
LMR21-69S	D	Yellow-Red	9	144	9	207.532	228.794	—	
LMR21-69S	E	Yellow-Red	10	145	10	207.210	229.448	TB	
LMR21-~~70S~~ 48	A ✱	Pink-Red	9	146	9	214.066	232.686	REB	
LMR21-~~70S~~ 48	B	Pink-Red	9	147	9	216.692	237.298	GL	
LMR21-~~70S~~ 48	C	Pink-Red	8	148	8	219.800	238.942	MB	
LMR21-~~70S~~ 48	D	Pink-Red	6	149	6	223.764	240.956	TB	
LMR21-~~70S~~ 48	E	Pink-Red	10	150	10	222.468	247.744	TB	

Signature: [illegible]

Disclosed and Understood by: Lauren May

* Pan 133 was missing when initial weights were recorded, & was thus made later than the others & not placed in the oven & desiccator before being weighed

✱ On beakers, 70 crossed out & 48 written
✓

Daily Feeding and Maintenance Checklist
Project: Maumee River
Test Species: *Chironomus dilutus*

Test Day	1	2	3	4	5
Day	Wednesday	Thursday	Friday	Saturday	Sunday
Date	10/6/2021	10/7/2021	10/8/2021	10/9/2021	10/10/2021
Time	1225	1330	1337	0935	1412
Technician Initials	VRM	VRM	VRM	VRM	VRM
Daily Temperature/D.O. Recorded?	Y	Y	Y	Y	Y
Water Quality Parameters Conducted (if required)?	—	—	—	—	—
Organisms Fed?	Y	Y	Y	Y	Y
Daily Observations Recorded?	Y	Y	Y	Y	Y
Timer OK?	Y	Y	Y	Y	Y
Beaker Water Level Ok?	Y	Y	Y	Y	Y
Pump plugged in?	Y	Y	Y	Y	Y
Counter Number (Module A/B)?	10/10	19/18	27/26	34/32	42/41
Water Exchange Verified?	Y	Y	Y	Y	Y

Daily Feeding and Maintenance Checklist
Project: Maumee River
Test Species: *Chironomus dilutus*

Test Day	6	7	8	9	10
Day	Monday	Tuesday	Wednesday	Thursday	Friday
Date	10/11/2021	10/12/2021	10/13/2021	10/14/2021	10/15/2021
Time	1430	1500	1500	1800	0800
Technician Initials	VRM	VRM	VRM	VRM	VRM
Daily Temperature/D.O. Recorded?	Y	Y	Y	–	–
Water Quality Parameters Conducted (if required)?	–	–	–	Y	Y
Organisms Fed?	Y	Y	Y	Y	–
Daily Observations Recorded?	Y	Y	Y	Y	Y
Timer OK?	Y	Y	Y	Y	Y
Beaker Water Level Ok?	Y	Y	Y	Y	Y
Pump plugged in?	Y	Y	Y	Y	Y
Counter Number (Module A/B)?	51/49	59/57	67/65	78/75	82/79
Water Exchange Verified?	Y	Y	Y	Y	Y

Signature: [illegible]

Disclosed and Understood by: Lauren May

Daily Observations

Project: Maumee River

Test Species: *Chironomus dilutus*

Day: –

Date: – **Technician Initials:** –

Time: –

Comments: 9/23/2021: Received ~20 egg masses. Egg masses placed in small cultures bowls with 23°C dechlorinated tap water and placed on air. ~1-2 egg masses per culture bowl. ~2-3 culture bowls per tub. See organism acclimation sheet for additional details.
9/28/2021: Add sediment (~60mls) to beakers. Beakers placed in modules & added overlying dechlor water.

Day: Ø

Date: 10/5/2021 **Technician Initials:** VRM/AH/TB/JB/PK/MJ

Time: 0830

Comments: Test initiated. 10 organisms added to each beaker. Rep G terminated for pore water ammonias and recorded. Water quality measured on each replicate and recorded. Overlying ammonia, alkalinity, hardness recorded on composite of each treatment. Test fed @ 1700 6mg in 1.5ml to each beaker (tetrafin). Ref tox initiated - see ref tox sheets. Ref tox test also fed.
Noticed organisms in LMR21-47S are not burrowing. All other treatments appear to have the organisms burrowed.

Signature:

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Daily Observations

Project: Maumee River

Test Species: *Chironomus dilutus*

Day: 1

Date: 10/6/2021 **Technician Initials:** VRM

Time: 1225

Comments: Daily temperature & D.O. on Rep A of all treatments & recorded. Module temps recorded via sham (blank) within the module. Test fed 6mg/1.5ml tetrafin. Daily notes completed. Organisms in LMR21-47S remain to have organisms on sediment surface. Other treatments have organisms burrowed. One floater in LMR21-45S Rep C.

Day: 2

Date: 10/7/2021 **Technician Initials:** VRM

Time: 1300

Comments: Daily temperature and D.O. on Rep B of all treatments and recorded. Module temps recorded. Test fed 6mg/1.5ml of tetrafin. Ref tox fed. Daily notes completed.

Signature: [signature]

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Daily Observations

Project: Maumee River

Test Species: ***Chironomus dilutus***

Day: 3

Date: 10/8/2021 **Technician Initials:** VRM
Time: 1240

Comments: Daily temperatures & D.O. recorded on Rep C of all treatments. Module temps recorded. Daily checklist completed. Test Fed 6mg/1.5ml of tetrafin.

Day: 4

Date: 10/9/2021 **Technician Initials:** VRM
Time: 0930

Comments: Daily temperatures & D.O. recorded on Rep D of all treatments. D.O. low - however water change about to occur. Turbidity observed in majority of beakers. Daily checklist completed. Test fed 6mg tetrafin in 1.5ml. Ref TOX terminated.

Signature:

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Daily Observations

Project: Maumee River

Test Species: *Chironomus dilutus*

Day: 5

Date: 10/10/2021 **Technician Initials:** DF VRM

Time: 1415

Comments: Power out for 2 hours in late AM. DO's seem fine after spot check (≥6 mg/L). Airline off 645 rep 5 DO was 3.41 mg/L

comments for lumbriculus bioaccumulation Maumee River.

Daily temperatures & DO recorded on Rep E of all treatments. Module temps recorded. Daily checklist completed. Test fed @ 1430. Test not affected by power outage.

Day: 6

Date: 10/11/2021 **Technician Initials:** VRM

Time: 1430

Comments: Daily temps and DO recorded on Rep A of all treatments. Module temps recorded – adjusted to cooler temp. Daily checklist completed. Test fed @ 1445.

Signature: [signature]

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Daily Observations

Project: Maumee River

Test Species: *Chironomus dilutus*

Day: 7

Date: 10/12/2021 **Technician Initials:** VRM

Time: 1500

Comments: Daily temperatures and DO recorded of Rep B on all treatments. Module temps recorded. Test fed @ 1550. Daily checklist completed.

Day: 8

Date: 10/13/2021 **Technician Initials:** VRM

Time: 1500

Comments: Daily temperatures and DO recorded on Rep C of all treatments. Module temps recorded. Daily checklist completed. Test fed @ 1545. Turbidity remains in majority of replicates, however, several replicates in the following treatment have little to no turbidity – LMR21-47S, 49S, 15S, 19S & 17S.

Signature: [signature]

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Daily Observations

Project: Maumee River

Test Species: ***Chironomus dilutus***

Day: 9

Date: 10/14/2021 **Technician Initials:** VEM

Time: 1800

Comments: Daily temperatures recorded. Daily checklist completed. Test fed at 1800. No daily temps/DO recorded for day 9 due to final WQ being recorded on 10/14/2021.

Day: 10

Date: 10/15/2021 **Technician Initials:** VEM, TB, JB, PK, DM, MB, RB, MJ, DF

Time: 0800

Comments: Test terminated. Reps A-E, survival recorded and remaining organisms (not in the pupated stage) were placed on assigned, preweighed pans - then pans placed in oven for dry weights. Rep F terminated for pore water ammonia measurements. - data recorded. Overlying Ammonia, Alkalinity, and Hardness recorded on each treatment.

Signature: [signature]

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REFERENCE T CITY TEST SHEET

Project: Maumee River	Test Initiation Date: 10/5/2021 Time: 1300
Laboratory: ERDC	Test Termination Date: 10/9/2021 Time: 1200
Test Species: *C. dilutus*	Page 1 of 1
Chemical: NaCl	Environmental chamber temperature: 23°C
Exposure duration: 96 hour	

Conc. (g/L)	Repl.	No. Loaded	Survival	Temp. (°C)		pH (SU)		~~Salinity~~ conductivity (us)		D.O. (mg/L)	
			96 h	0 h	96 h	0 h	96 h	0h	96 h	0 h	96 h
0	1	10	7	22.0	~~21.9~~ 22.0	7.95	7.43	284.4	301.9	5.33	3.92
	2	10	6		~~21.5~~ 22.1		7.27		301.3		3.48
	3	10	8		~~21.7~~ 22.0		7.31		302.3		5.14
1.25	1	10	6	22.0	22.0	8.17	7.33	2604.0	2516	6.09	3.98
	2	10	5		22.~~2~~0		7.37		2554		3.74
	3	10	7		22.~~7~~0		7.38		2535		3.97
2.5	1	10	9	22.0	21.9	8.23	7.31	4833	4586	6.95	4.11
	2	10	9		21.9		7.40		4675		5.41
	3	10	8		21.9		7.45		4732		4.95
5	1	10	7	22.0	22.0	8.21	7.37	9115	8552	6.87	4.11
	2	10	10		22.0		7.42		8762		5.38
	3	10	8		22.0		7.46		8748		5.03
10	1	10	Ø	22.2	21.8	8.14	7.31	17040	16248	6.76	4.19
	2	10	1		21.9		7.37		16585		5.44
	3	10	3		21.9		7.40		16456		4.60
20	1	10	Ø	22.7	21.8	8.06	7.26	32417	~~30~~ 30529	6.29	4.56
	2	10	Ø		21.8		7.34		31741		5.19
	3	10	Ø		21.9		7.40		31120		5.51

Signature: [signature]

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ERDC Datasheet

Reference Toxicant Solution Log

Date of Preparation: 10/5/2021 Technician: VRM

STUDY: Maumee River

Test ID: C. dilutus Ref Tox

Toxicant: NaCl

Source Water: Dechlorinated Tap

Date Source Water prepared or collected: —

Initial Conductivity or Salinity: 284.4 µS

Soure Water Alterations: None

Initial Volume of Stock Solution: 1L

Weight of Toxicant: 20.0066g

Number of Dilutions: 5

Description of Solution Preparation: Weigh out 20g of NaCl & add to 1L of dechlorinated tap water. Mix well. Pour out 500ml of 1L Mixture – this is the top concentration of 20g/L. Pour the 500ml into 3, 250 ml beakers. Add dechlor to the 1L mark. Mix & repeat steps for 10, 5, 2.5, & 1.25 g/L.

Signature: [signature]

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BULK SEDIMENT TOTAL AMMONIA PORE WATER MEASUREMENTS				
Project: Maumee River		Date: 10/5/2021		
Laboratory: ERDC		Page 1 of 1		
Test Species: *Chironomus dilutus*				
Exposure Duration: 10-d		Number of prior water exhanges: 30 flicks		
Sediment	**Total Ammonia (mg/L)**	**pH**	**Temperature (°C)**	**Comments**
Control	1.08	6.20	22.5	
LMR21-11S	10.1	7.55		
LMR21-12S	13.8	7.44		
LMR21-14S	13.6	7.46		
LMR21-15S	43.5	7.58		
LMR21-17S	13.0	7.82		
LMR21-19S	8.02	7.68		
LMR21-25S	4.89	7.74		
LMR21-27S	10.3	8.00		
LMR21-30S	6.40	7.66		
LMR21-35S	8.45	7.49		
LMR21-37S	7.67	7.64		
LMR21-39S	5.67	7.71		
LMR21-41S	10.4	7.48		
LMR21-43S	4.20	7.96		
LMR21-45S	6.83	7.46		
LMR21-47S	5.30	7.94		
LMR21-49S	7.16	7.66		
LMR21-52S	11.9	7.43		
LMR21-53S	7.64	7.56		
LMR21-55S	8.15	7.69		
LMR21-57S	6.83	7.61		
LMR21-59S	5.79	7.71		
LMR21-61S	7.76	7.57		
LMR21-62S	6.17	7.57		
LMR21-64S	5.11	7.70		
LMR21-66S	7.11	7.62		
LMR21-68S	7.52	7.54		
LMR21-69S	6.40	7.56		
LMR21-~~70S~~ 48	4.44	7.78		

Signature: [illegible]

Disclosed and Understood by: Lauren May

DAY 0 SEDIMENT TOTAL AMMONIA PORE WATER MEASUREMENTS

Project: Maumee River	Date: 10/15/2021
Laboratory: ERDC	Page 1 of 1
Test Species: *Chironomus dilutus*	
Exposure Duration: 10-d	Number of prior water exhanges: 82/79 clicks

Sediment	Total Ammonia (mg/l)	pH	Temperature (°C)	Comments
Control	.631	6.67	22.5	
LMR21-11S	4.20	7.35	22.5	
LMR21-12S	5.78	7.39	22.5	
LMR21-14S	7.41	7.44	22.5	
LMR21-15S	15.0	7.68	22.5	
LMR21-17S	5.90	7.14	22.5	
LMR21-19S	3.51	7.27	22.5	
LMR21-25S	~~.631~~ 2.16 SB	6.695 SB	22.5	
LMR21-27S	5.19	7.45	22.5	
LMR21-30S	2.26	7.36	22.5	
LMR21-35S	3.21	7.29	22.5	
LMR21-37S	3.96	7.24	22.5	
LMR21-39S	2.87	7.63	22.5	
LMR21-41S	7.65	7.29	22.5	
LMR21-43S	3.08	7.51	22.5	
LMR21-45S	3.01	7.47	22.5	
LMR21-47S	3.04	7.98	22.5	
LMR21-49S	3.17	7.64	22.5	
LMR21-52S	5.49	7.36	22.5	
LMR21-53S	1.79	7.44	22.5	
LMR21-55S	3.88	7.36	22.5	
LMR21-57S	3.68	7.37	22.5	
LMR21-59S	3.47	7.36	22.5	
LMR21-61S	4.44	7.33	22.5	
LMR21-62S	2.50	7.42	22.5	
LMR21-64S	2.63	7.49	22.5	
LMR21-66S	4.28	7.42	22.5	
LMR21-68S	3.32	7.32	22.5	
LMR21-69S	3.37	7.32	22.5	
LMR21-~~70~~S 98	2.55	7.44	22.5	

Signature: Jonn Bayde

Disclosed and Understood by: Lauren May

Maumee River 2021
10-Day Sediment Toxicity Test – *Chironomus dilutus*

***** Calibrate: pH

Date 10/14/21 MM/DD/YY
Time 15:40:01 24-hour
Buffer Value 7.005643 pH
Sensor Value: -52.400002 pH mV
Temperature 24.550013 °C

Buffer Value 10.005298 pH
Sensor Value: -214.399994 pH mV
Temperature 24.550013 °C

Slope 54.087855 mV/pH
Slope 91.488254 % of Ideal pH Value
Calibrate Status Calibrated

***** Calibrate: Conductivity

Date 10/14/21 MM/DD/YY
Time 15:33:57 24-hour
Method Sp. Conductance
Cal Value: 84.000000 SPC-uS/cm
Sensor Value: 98.500000 SPC-uS/cm
Temperature Ref. 25.000000 °C
Temperature Comp. 1.910000 %/C
TDS Constant 0.650000
Temperature 24.700001 °C
Cal Cell Constant: 4.112990
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/14/21 MM/DD/YY
Time 15:28:31 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 6.906699 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 6.906699 Auto
Temperature 24.799999 °C
Barometer 753.099976 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/13/21 MM/DD/YY
Time 14:04:38 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 6.551991 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 6.551991 Auto
Temperature 22.400000 °C
Barometer 754.700012 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/12/21 MM/DD/YY
Time 15:01:56 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 6.466274 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 6.466274 Auto
Temperature 23.600000 °C
Barometer 755.099976 mmHg
Calibrate Status Calibrated

Page **1** of **3**

Maumee River 2021
10-Day Sediment Toxicity Test – *Chironomus dilutus*

***** Calibrate: DO

Date 10/11/21 MM/DD/YY
Time 10:04:30 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 5.246228 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 5.246228 Auto
Temperature 19.299999 °C
Barometer 753.200012 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/10/21 MM/DD/YY
Time 14:24:26 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 5.494452 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 5.494452 Auto
Temperature 19.600000 °C
Barometer 753.200012 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/09/21 MM/DD/YY
Time 09:36:33 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 4.722737 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 4.722737 Auto
Temperature 17.400000 °C
Barometer 757.900024 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/08/21 MM/DD/YY
Time 12:50:43 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 6.201027 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 6.201027 Auto
Temperature 22.400000 °C
Barometer 758.700012 mmHg
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/07/21 MM/DD/YY
Time 12:31:55 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 6.348078 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 6.348078 Auto
Temperature 22.700001 °C
Barometer 759.099976 mmHg
Calibrate Status Calibrated

Page **2** of **3**

Maumee River 2021
10-Day Sediment Toxicity Test – *Chironomus dilutus*

***** Calibrate: DO

Date 10/06/21 MM/DD/YY
Time 07:31:46 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 4.745711 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 4.745711 Auto
Temperature 16.200001 °C
Barometer 757.200012 mmHg
Calibrate Status Calibrated

***** Calibrate: pH

Date 10/04/21 MM/DD/YY
Time 12:24:40 24-hour
Buffer Value 7.004316 pH
Sensor Value: -55.700001 pH mV
Temperature 24.850000 °C

Buffer Value 10.001877 pH
Sensor Value: -216.000000 pH mV
Temperature 24.950006 °C

Slope 53.485762 mV/pH
Slope 90.469827 % of Ideal pH Value
Calibrate Status Calibrated

***** Calibrate: Conductivity

Date 10/04/21 MM/DD/YY
Time 12:22:11 24-hour
Method Sp. Conductance
Cal Value: 84.000000 SPC-uS/cm
Sensor Value: 83.099998 SPC-uS/cm
Temperature Ref. 25.000000 °C
Temperature Comp. 1.910000 %/C
TDS Constant 0.650000
Temperature 24.799999 °C
Cal Cell Constant: 4.879966
Calibrate Status Calibrated

***** Calibrate: DO

Date 10/04/21 MM/DD/YY
Time 12:20:57 24-hour

Method DO Air Calibrate
Cal Value: 100.000000 %
Sensor Value: 5.689963 uA
Sensor Type Polarographic
Membrane Type 1.25 PE Yellow
Salinity Mode 5.689963 Auto
Temperature 20.400000 °C
Barometer 760.099976 mmHg
Calibrate Status Calibrated

Page **3** of **3**

Appendix Q. Raw data sheets for Bioaccumulation test

Aquatic Research Organisms

DATA SHEET

I. Organism History

- Species: Lumbriculus variegatus
- Source: Lab reared ✓ Hatchery reared ____ Field collected ____ 13.8°c
- Hatch date: mixed ages Receipt date: ____
- Lot number: 090721LV Strain: ARO
- Brood origination: USGS MO

II. Water Quality

- Temperature: 20 °C Salinity: — ppt D.O.: sat ppm
- pH: 7.5 su Hardness: ~100 ppm Alkalinity: ~101 ppm

III. Culture Conditions

- Freshwater ✓ Saltwater ____ Other ____
- Recirculating ____ Flow through ✓ Static renewal ____
- **DIET:** Flake food ____ Phytoplankton ____ Trout chow ✓
- Artemia ____ Rotifers ____ YCT ____ Other ____
- Prophylactic treatments: ____
- Comments: ____

IV. Shipping Information

- Client: USACE BUF # of Organisms: 900+
- Carrier: FED EX Date shipped: 09/07/21
- Biologist: [illegible]

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

ENVIRONMENTAL CHAMBER DAILY TEMPERATURE MONITORING SHEET				
Project: Maumee River (AOC)		Test Initiation Date: 9/14/21		
Laboratory: US Army ERDC				
Test Species: *L. variegatus*		Page 1 of 2		
Exposure duration: 28 days				
Day	**Temperature (°C)**	**Min (°C)/Max (°C)**	**Comments**	**Initials**
1	23.2	—	9/14/21	MJ
2	23.4	23.2/23.5	9/15/21	MJ
3	23.6	23.3/23.6	9/16/21	AH
4	23.4	23.2/23.5	9/17/21	MJ
5	~~23.~~ 23.4	23.2/23.4	9/18/21	DK
6	23.4	23.2/23.5	9/19/21	DK
7	23.4	23.4/23.5	9/20/21	AH
8	23.5	23.4/23.6	9/21/21	AH
9	23.7	23.5/23.7	9/22/21	AH
10	23.5	23.3/23.5	9/23/21	AH
11	23.5 ~~23.5~~ vem	23.5 ~~23.2~~ / 23.5 ~~23.5~~ vem	9/24/21	AH
12	23.5	23.2/23.5	9/25/21	vem
13	23.4	23.3/23.5	9/26/21	vem
14	23.4	23.3/23.5	9/27/21	AH
15	23.4	23.3/23.8	9/28/21	AH
16	23.4	23.3/23.5	9/29/21	AH
17	23.5	23.3/23.5	9/30/21	AH
18	23.2	23.2/24.0	10/1/21	AH
19	23.3	23.0/23.4	10/2/21	AH
20	23.4	23.2/23.5	10/3/21	AH
21	23.2	23.2/23.5	10/4/21	AH
22	23.5	23.2/23.5	10/5/21	AH
23	23.4	23.2/23.5	10/6/21	AH
24	23.0	23.0/23.4	10/7/21	AH
25	23.2	23.2/23.5	10/8/21	AH
26	23.2	23.2/23.5	10/9/21	AH
27	23.3	23.2/23.4	10/10/21	AH
28	23.5	22.8/23.5	10/11/21	AH

Signature: Ashley Harmon

Disclosed and Understood by: Lauren May

ENVIRONMENTAL CHAMBER DAILY TEMPERATURE MONITORING SHEET

Project: Maumee River (AOC)	Test Initiation Date: 9/14/21 Time: AM
Laboratory: US Army ERDC	Test Date(s): — Time: —
Test Species: *L. variegatus*	Page 2 of 2
Exposure duration: 28 days	Environmental chamber temperature: 23°C

Day	Temperature (°C)	Min (°C)/Max (°C)	Comments	Initials
29 10/12	23.3	23.3 | 24.0	10/12/21	AH
30 10/13	AH ~~22.8~~ 24.1	22.8 | 24.1	10/13/21	AH
31	23.6	23.5 / 23.6	10/14/21	AH
32	23.8	23.5 | 23.8	10/15/21	AH
33	23.6	23.4 | 23.8	10/16/21	AH
34	23.6	23.4 | 23.8	10/17/21	AH
35	23.8	23.5 | 23.7	10/18/21	AH

Tom Biber

Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 0
Date: 9/8/21
Initials: AH
Observations/notes: Maumee River Sediment added to 80 tanks, water and aeration added

Day: 1
Date: 9/9/21
Initials: AH
Observations/notes: Daily Temps recorded and aeration adjusted on a few tanks

Day: 2
Date: 9/10/21
Initials: AH
Observations/notes: 50% water exchange done on all tanks and temps checked on all tanks.

Signature: Tom Biber
Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 3
Date: 9/11/21
Initials: AH
Observations/notes: Aeration good

Day: 4
Date: 9/12/21
Initials: AH
Observations/notes: Aeration good

Day: 5
Date: 9/13/21
Initials: AH
Observations/notes: 50% Water exchange on reps A-B
Aeration checked

Signature: Tom Biber

Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 6
Date: 9/14/21
Initials: AH
Observations/notes: Lumbriculus added to reps A-B.
Aeration checked

Day: 7
Date: 9/15/21
Initials: AH
Observations/notes: 50% water exchange on reps C-D
Aeration checked

Day: 8
Date: 9/16/21
Initials: AH
Observations/notes: Water quality done and aeration checked. Lumbriculus added to Reps C-D.

Signature: Tom Bibo

Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 9
Date: 9/17/21
Initials: AH
Observations/notes: 50% water exchange on reps A-D. Sites 47 and 49 lumbriculus not burrowing

Day: 10
Date: 9/18/21
Initials: DK
Observations/notes: aeration checked. All aquaria on air. Daily temp recorded.

Day: 11
Date: 9/19/21
Initials: DK
Observations/notes: aeration checked and adjusted. All species on air. Recorded daily temp.

Signature: Tom Biber
Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 12

Date: 9/20/21

Initials: AH

Observations/notes: 50% water exchange on all tanks. lumbriculus added to rep E. Water quality done on tanks A and E.

Day: 13

Date: 9/21/21

Initials: AH

Observations/notes: Aeration checked on all tanks. 47/49 Dark water

Day: 14

Date: 9/22/21

Initials: AH

Observations/notes: 50% water exchange on all tanks. Water quality taken on rep B of all treatments.

Signature: Tom Biber

Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 15
Date: 9/23/2021
Initials: AH
Observations/notes: ~~Dai~~ Aeration good on all tanks.
Daily temp recorded.

Day: 16
Date: 9/24/2021
Initials: AH
Observations/notes: 50% water exchange on all tanks
Daily temp recorded. Water quality on Rep C.

Day: 17
Date: 9/25/2021
Initials: LRM
Observations/notes: Daily temps recorded. Aeration good on all tanks.

Signature: Tom Biber

Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 18
Date: 9/26/2021
Initials: LRM
Observations/notes: Daily chamber temps recorded.
Aeration good on all reps.

Day: 19
Date: 9/27/21
Initials: AH
Observations/notes: 50% water exchange on all tanks
Daily chamber temps recorded. Aeration good
Water quality on Rep D.

Day: 20
Date: 9/28/21
Initials: AH
Observations/notes: Daily chamber temps recorded.
Aeration good on all reps.

Signature: Tom Biber

Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 21
Date: 9/29/21
Initials: AH
Observations/notes: Daily chamber temps recorded.
Aeration good on all reps.

Day: 22
Date: 9/30/21
Initials: AH
Observations/notes: 50% water exchange on all tanks
Water quality done on all Rep A

Day: 23
Date: 10/1/21
Initials: AH
Observations/notes: 50% water exchange on all tanks.
Water quality done on all Rep B
Aeration good on all tanks.

Signature: Tom Biber

Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 24
Date: 10/2/21
Initials: AH
Observations/notes: Daily chamber temps recorded
Aeration good on all tanks

Day: 25
Date: 10/3/21
Initials: AH
Observations/notes: Daily chamber temps recorded
Aeration good on all tanks.

Day: 26
Date: 10/4/21
Initials: AH
Observations/notes: Daily Chamber temps recorded.
50% Water exchange and water quality
taken on all rep C.

Signature: Tom Bibo
Disclosed and Understood by: Lauren May

DAILY NOTES SHEET

Project: Maumee River (AOC)

Day: 27
Date: 10/5/21
Initials: AH
Observations/notes: Daily chamber temps recorded. Aeration good on all tanks.

Day: 28
Date: 10/6/21
Initials: AH
Observations/notes: Daily chamber temps recorded. Aeration good on all tanks. Water quality taken on Rep D.

Day: 29
Date: 10/7/21
Initials: AH
Observations/notes: Aeration good on all tanks.

Signature: Tom Bibar

Disclosed and Understood by: Lauren May

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: 30
Date: 10/8/21 Technician Initials: AH
Time: —

Comments 50% water exchange on all tanks. Aeration checked. Daily temps recorded.

Day: 31
Date: 10/9/21 Technician Initials: AH
Time:

Comments Aeration good. Daily temps recorded. Power outage. Tanks temporarily off air. Spot checked DO. Measurements:
Red control = 7.30
11 = 6.70 64 = 7.12
12 = 7.12 68 = 7.27
14 = 7.50 69 = 7.39
17 = 7.32
45 = 7.17

Day: 32
Date: 10/10/21 Technician Initials: AH
Time: —

Comments Aeration good. Daily temps recorded.

Tom Biber
Reviewed and Understood by: Lauren May on —

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: 33

Date: 10/11/21 Technician Initials: AH
Time: —

Comments 50% Water exchange on all tanks. Aeration checked Daily temps recorded. Final Parameters Recorded on Reps A&B.

Day: 34

Date: 10/12/21 Technician Initials: AH
Time: —

Comments Termination of Reps A&B. Aeration is good on remaining tanks. Daily temps recorded.

Day: 35
Date: 10/13/21 Technician Initials: AH
Time: —

Comments Extraction of lumbriculus for Reps A+B. Weighed and placed in jars. Water quality and exchange on Reps C, D, E. Daily temps recorded!

Tom Biber

Reviewed and Understood by: Lauren May on —

Daily Observations
Project: Lower Maumee River 2021 - Buffalo District

Day: 34

Date: 10/4/21 Technician Initials: AH
Time: —

Comments: Termination of tanks C+D. Water ~~exchange~~ quality on Rep E. Aeration good on all tanks. Daily temps recorded

Day: 37

Date: 10/5/21 Technician Initials: AH
Time: —

Comments: Extraction of Lumbriculus for Reps C+D. Weighed and placed in jars for analysis. Water exchange on Rep E. Daily temps recorded.

Day: 36
Date: 10/6/21 Technician Initials: AH
Time: —

Comments: Aeration Good. Daily temps recorded.

Tom Bibo
Reviewed and Understood by: Lauren May on —

Daily Observations

Project: Maumee River

Test Species: L. variegatus

Day: 39

Date: 10/17/21 **Technician Initials:** AH

Time: –

Comments: Aeration Good. Daily temps Recorded.

Day: 40

Date: 10/18/2021 **Technician Initials:** AH

Time: –

Comments: Termination of all Rep E. Water quality recorded on All replicates. Tissue removed from sediment and purged for 24hrs.

Signature: Tom Biber

Disclosed and Understood by: Lauren May.

Daily Observations

Project: Maumee River

Test Species: L. variegatus

Day: 41

Date: 10/19/21 **Technician Initials:** AH

Time: —

Comments: Tissue (purged) collected and persevered in freezer. Weights recorded.

Day:

Date: **Technician Initials:**

Time:

Comments:

Signature: Tom Biber

Disclosed and Understood by: Lauren May

FINAL WATER QUALITY MONITORING SHEET

Project: Maumee River (AOC) — Test Initiation Date: See below — Time: —
Laboratory: US Army ERDC — Test Date(s): — Time: —
Test Species: *L. variegatus* — Page 1 of 3 — Test day: 28
Exposure duration: 28 days

Treatment	Repl.	Date	Temp. (°C) (23-26°C)	pH (6.5 - 9.0)	D.O. (>2.5 mg/L)	Conductivity (uS)*	Alkalinity (Mg/L $CaCO_3$)*	Hardness (Mg/L $CaCO_3$) *	Ammonia (mg/L)*
Control	A	10/11	/	/	/	/	120	112	<1
	B	10/11	/	/	/	/			
	C	10/13	22.9	7.02	5.77	320.8			
	D	10/13	22.2	7.26	7.03	322.2			
	E	10/18	22.6	7.67	8.11	259.6			
LMR21-11S	A	10/11	21.9	7.90	7.14	330.5	~~128~~ 112 PK	132	<1
	B	10/11	22.9	7.85	6.91	325.5			
	C	10/13	22.9	7.50	6.48	340.7			
	D	10/13	22.9	7.59	6.40	341.1			
	E	10/18	22.9	7.77	7.44	275.8			
LMR21-12S	A	10/11	22.0	7.93	7.12	325.7	108	118	<1
	B	10/11	22.9	7.89	7.09	316.2			
	C	10/13	22.5	7.65	6.97	329.2			
	D	10/13	23.2	7.68	6.33	342.1			
	E	10/18	23.0	7.80	7.38	275.7			
LMR21-14S	A	10/11	22.7	7.97	7.37	314.8	104	114	<1
	B	10/11	22.3	7.93	7.17	311.8			
	C	10/13	23.0	7.77	6.88	328.7			
	D	10/13	23.1	7.74	6.04	341.6			
	E	10/18	23.2	7.73	6.78	272.8			
LMR21-15S	A	10/11	23.0	7.90	6.40	303.4	98	~~114~~ 104 PK	<1
	B	10/11	22.9	7.86	7.13	304.8			
	C	10/13	23.0	7.74	6.35	330.9			
	D	10/13	22.2	7.75	7.17	322.8			
	E	10/18	22.8	7.76	7.4	263.6			
LMR21-17S	A	10/11	22.7	7.96	7.48	320.4	116	114	<1
	B	10/11	22.8	7.97	7.41	321.2			
	C	10/13	22.9	7.76	6.42	361.5			
	D	10/13	22.2	7.81	6.96	361.0			
	E	10/18	23.0	7.82	7.56	279.4			

FINAL WATER QUALITY MONITORING SHEET

Project: Maumee River (AOC)
Laboratory: US Army ERDC
Test Species: *L. variegatus*
Exposure duration: 28 days

Test Initiation Date: See below   Time:
Test Date(s):   Time:
Page 2 of 3   Test day: 28

Treatment	Repl.	Date	Temp. (°C) (23- 26°C)	pH (6.5 - 9.0)	D.O. (>2.5 mg/L)	Conductivity (uS)*	Alkalinity (Mg/L $CaCO_3$)*	Hardness (Mg/L $CaCO_3$) *	Ammonia (mg/L)*
LMR21-19S	A	10/11	22.7	7.93	6.92	360.9	92	121	<1
	B	10/~~13~~11	23.2	7.95	6.60	329.1			
	C	10/13	22.6	7.85	7.12	370.3			
	D	10/13	22.7	7.85	6.81	373.3			
	E	10/18	22.6	7.9	7.73	292.0			
LMR21-25S	A	10/11	22.9	7.94	7.01	338.6	122	128	<1
	B	10/11	22.8	7.92	7.02	325.2			
	C	10/13	22.9	7.85	6.71	366.1			
	D	10/13	22.7	7.91	7.17	334.6			
	E	10/18	22.8	7.88	7.40	295.6			
LMR21-27S	A	10/11	22.5	7.94	7.01	338.6	110	128	<1
	B	10/11	22.8	7.92	7.02	325.2			
	C	10/13	22.5	7.90	6.93	356.6			
	D	10/13	22.8	7.90	6.68	344.9			
	E	10/18	22.9	7.89	7.47	276.4			
LMR21-45S	A	10/11	22.4	7.85	6.97	315.4	132	122	<1
	B	10/11	22.6	7.89	7.08	324.3			
	C	10/13	22.7	7.92	7.23	342.9			
	D	10/13	22.2	7.92	6.88	337.7			
	E	10/18	23.2	7.84	7.22	274.4			
LMR21-47S	A								
	B								
	C								
	D								
	E								
LMR21-49S	A								
	B								
	C								
	D								
	E								

FINAL WATER QUALITY MONITORING SHEET

Project: Maumee River (AOC)
Laboratory: US Army ERDC
Test Species: *L. variegatus*
Exposure duration: 28 days

Test Initiation Date: — Time: —
Test Date(s): see below Time: —
Page 3 of 3 Test day: 28

Treatment	Repl.	Date	Temp. (°C) (23- 26°C)	pH (6.5 - 9.0)	D.O. (>2.5 mg/L)	Conductivity (uS)*	Alkalinity (Mg/L $CaCO_3$)*	Hardness (Mg/L $CaCO_3$)*	Ammonia (mg/L)*
LMR21-64S	A	10/11	22.3	7.85	6.99	321.5	128	124	<1
	B	10/11	22.5	7.88	7.44	282.4			
	C	10/13	22.6	7.95	7.19	299.5			
	D	10/13	22.4	7.92	7.21	343.5			
	E	10/18	22.8	7.87	7.59	276.0			
LMR21-66S	A	10/11	22.8	7.82	7.1	338.1	110	114	<1
	B	10/11	23.0	7.85	7.39	321.3			
	C	10/13	22.8	7.92	6.98	356.6			
	D	10/13	22.9	7.91	6.76	355			
	E	10/18	22.8	7.82	7.46	278.0			
LMR21-68S	A	10/11	22.8	7.71	7.24	321.3	118	124	<1
	B	10/11	22.2	7.79	7.39	343.0			
	C	10/13	~~21.4~~ 22.4	7.97	7.28	368.3			
	D	10/13	22.4	7.97	6.43	353.1			
	E	10/18	22.8	7.88	7.63	279.5			
LMR21-69S (Reference)	A	10/11	22.5	7.91	6.88	340.8	116	126	<1
	B	10/11	22.7	7.31	7.61	294.1			
	C	10/13	21.4	7.95	7.34	362.5			
	D	10/13	22.7	7.96	7.27	345.5			
	E	10/18	21.5	7.59	3.36	294.9			

* Composite sample from all replicates

Signature: Tom Biber

Disclosed and Understood by: Lauren May

INITIAL WATER QUALITY MONITORING SHEET

Project: Maumee River (AOC)
Laboratory: US Army ERDC
Test Species: *L. variegatus*
Exposure duration: 28 days

Test Initiation Date: seedate Time: AM
Test Date(s): — Time: —
Page 1 of 3 Test day: 0

Treatment	Repl.	Date	Temp. (°C) (23- 26°C)	pH (6.5 - 9.0)	D.O. (>2.5 mg/L)	Conductivity (uS)*	Alkalinity (Mg/L $CaCO_3$)*	Hardness (Mg/L $CaCO_3$) *	Ammonia (mg/L)*
Control Red	A	9/14	21.5	7.74	8.46	237.3	92	88	1
	B	9/14	22.9	7.88	7.13	238.6			
	C	9/16	22.9	7.71	7.85	214.5			
	D	9/16	22.8	7.73	7.62	210.0			
	E	9/20	21.4	—	—	277.6			
LMR21-11S Yellow	A	9/14	24.6	7.95	6.93	266.4	92	92	1
	B	9/14	25.2	7.47	7.06	225.2			
	C	9/16	22.9	7.55	6.50	246.3			
	D	9/16	22.0	7.73	7.81	260.4			
	E	9/20	23.7	—	—	273.5			
LMR21-12S green	A	9/14	24.4	7.97	7.53	~~257~~ 275.7	104	104	1
	B	9/14	24.6	8.02	7.03	290.0			
	C	9/16	23.0	7.78	7.46	277.7			
	D	9/16	22.3	7.88	8.01	267.4			
	E	9/20	22.1	—	—	—			
LMR21-14S Teal	A	9/14	24.9	7.99	6.21	248.7	100	100	2
	B	9/14	23.5	7.95	7.10	273.8			
	C	9/16	22.7	7.92	7.88	261.2			
	D	9/16	22.9	7.92	7.86	257.3			
	E	9/20	23.8	—	—	—			
LMR21-15S magenta	A	9/14	21.4	8.02	6.76	288.8	108	72	7
	B	9/14	21.6	7.94	6.96	312.6			
	C	9/16	23.0	7.75	7.14	245.7			
	D	9/16	22.6	7.66	6.97	280.1			
	E	9/20	23.3	—	—	—			
LMR21-17S Blue	A	9/14	24.6	7.93	7.05	252.1	80	88	<1
	B	9/14	24.3	7.96	7.58	258.2			
	C	9/16	22.8	7.82	7.92	249.2			
	D	9/16	22.7	7.88	8.02	244.2			
	E	9/20	24.1	7.7	7.25	294.1			

INITIAL WATER QUALITY MONITORING SHEET

Project: Maumee River (AOC)
Laboratory: US Army ERDC
Test Species: *L. variegatus*
Exposure duration: 28 days

Test Initiation Date: see date Time: —
Test Date(s): — Time: —
Page 2 of 3 Test day: 0

Treatment	Repl.	Date	Temp. (°C) (23- 26°C)	pH (6.5 - 9.0)	D.O. (>2.5 mg/L)	Conductivity (uS)*	Alkalinity (Mg/L $CaCO_3$)*	Hardness (Mg/L $CaCO_3$) *	Ammonia (mg/L)*
	A	9/14	24.0	8.00	7.53	244.7	88	88	<1
	B	9/14	24.7	7.99	6.59	238.6			
LMR21-19S	C	9/16	22.7	7.83	7.88	257.4			
Dark green	D	9/16	22.6	7.90	7.91	235.8			
	E	9/20	23.0	—	—	—			
	A	9/14	23.3	8.05	7.63	275.1	96	108	<1
	B	9/14	24.8	8.08	7.16	269.7			
LMR21-25S	C	9/16	22.8	8.03	7.43	270.4			
Light Tan	D	9/16	22.8	8.03	7.45	247.4			
	E	9/20	24.0	—	—	—			
	A	9/14	24.7	7.78	5.13	277.9	104	104	1
	B	9/14	24.3	7.96	7.42	266.1			
LMR21-27S	C	9/16	~~22.5~~ VRM	~~7.87~~	~~7.52~~	~~268.8~~			
Purple	D	9/16	22.5	7.97	7.52	268.8			
	E	9/20	23.7	—	—	—			
	A	9/14	25.1	8.08	6.13	244.0	92	96	<1
	B	9/14	23.8	8.09	7.68	259.8			
LMR21-45S	C	9/16	—	—	—	—			
Brown	D	9/16	22.5	8.00	8.00	262.8			
	E	9/20	22.3	—	—	—			
	A	9/14	21.9	8.05	6.19	247.4	80	92	1
	B	9/14	24.6	7.95	6.33	226.4			
LMR21-47S	C	9/16	22.7	7.98	7.79	233.9			
Gray	D	9/16	22.9	7.94	7.87	226.1			
	E	9/20	23.9	7.70	7.23	—			
	A	9/14	24.4	7.99	6.64	237.4	88	96	<1
	B	9/14	23.7	8.02	7.81	251.2			
LMR21-49S	C	9/16	22.4	7.97	7.99	235.1			
green Yellow	D	9/16	22.6	8.00	7.95	241.7			
	E	9/20	23.7	7.88	6.79	—			

INITIAL WATER QUALITY MONITORING SHEET

Project: Maumee River (AOC) | Test Initiation Date: See Below | Time: —
Laboratory: US Army ERDC | Test Date(s): — | Time: —
Test Species: *L. variegatus* | Page 3 of 3 | Test day: 0
Exposure duration: 28 days

Treatment	Repl.	Date	Temp. (°C) (23- 26°C)	pH (6.5 - 9.0)	D.O. (>2.5 mg/L)	Conductivity (uS)*	Alkalinity (Mg/L $CaCO_3$)*	Hardness (Mg/L $CaCO_3$) *	Ammonia (mg/L)*
LMR21-64S Teal pink	A	9/14	23.6	8.06	7.84	264.2	100	100	<1
	B	9/14	21.7	8.02	7.06	266.8			
	C	9/16	22.5	8.01	7.96	242.0			
	D	9/16	22.7	8.06	7.83	237.4			
	E	9/20	23.0	8.20	6.62	—			
LMR21-66S Grey Blue	A	9/14	22.5	8.05	7.56	265.9	112	112	<1
	B	9/14	21.8	8.01	7.96	303.4			
	C	9/16	22.8	7.78	6.85	247.4			
	D	9/16	22.4	7.93	7.75	258.8			
	E	9/20	23.5	7.96	7.10	—			
LMR21-68S White	A	9/14	24.8	8.09	7.20	231.3	100	108	<1
	B	9/14	23.8	8.07	7.64	265.7			
	C	9/16	22.7	8.01	7.40	286.5			
	D	9/16	22.8	8.01	7.75	253.2			
	E	9/20	23.9	8.16	6.97	—			
LMR21-69S (Reference) Black	A	9/14	21.4	8.09	8.48	262.9	100	100	<1
	B	9/14	24.2	7.87	5.19	245.1			
	C	9/16	22.8	8.03	7.89	252.1			
	D	9/16	22.7	8.05	7.95	268.0			
	E	9/20	22.5	8.23	6.25	—			

* Composite sample from all replicates

Signature: Tom Bdar

Disclosed and Understood by: Lauren May

TEST INITIATION/TERMINATION SHEET

Project: Maumee River (AOC)
Laboratory: US Army ERDC
Test Species: *L. variegatus*
Exposure duration: 28 days

Test Initiation Date: 9/14/21 Time: —
Test Termination Date: A/B: 10/12/21 C/D: 10/14/21 E: 10/18/21 Time: A/B: 1100
Page 1 of 3

Treatment	Repl.	Day 0 Mass Added Tissue Mass (g)	Day 28 Mass Recovered Tissue Mass (g)	Comments	
Control	A	28.2	AH ~~86.0g~~ 5.9g	12:49	~~8:54~~ 1156
	B	28.2	AH ~~4.7g~~ 2.3g	12:55	~~9:11~~ 1159
	C	28.9	15.9	4:15	10:54
	D	28.9	17.1	4:25	11:03
	E	28.9	17.9	12:15	9:10
LMR21-11S	A	28.4	AH ~~7.7g~~ 6.0g 8:54	10:46	Not many Lumbriculus ~~840~~
	B	28.6	AH ~~8.1~~ 4.7g 9:10	10:52	Few worms in 11. PAH odor. 0846
	C	28.9	15.6g	11:00	8:35
	D	28.7	16.3g	11:12	8:38
	E	28.8	15.9g	0905	8:10
LMR21-12S	A	28.8	7.7g	11:03	0910
	B	28.2	8.19g	11:10	0916
	C	28.9	17.9g	11:24	8:44
	D	28.7	17.8g	11:39	8:46
	E	28.7	19.6	9:15	8:15
LMR21-14S	A	28.7	3.1g	11:17	0926
	B	28.9	8.5g	11:22	0930
	C	~~28.9~~ 28.8	18.3g	11:50	8:49
	D	~~28.7~~ 28.9	18.1g	12:14	8:52
	E	28.9	16.8	9:30	8:18
LMR21-15S	A	28.5	3.4g	0938 Strong PAH odor. Few organisms	11:29
	B	28.7	9.0g	11:33	0955
	C	28.8	15.8g	1225	9:00 PAH s[illegible] Worm count[illegible]
	D	28.9	15.0g	1238	9:06
	E	28.9	13.5g	9:50	worm count[illegible]
LMR21-17S	A	28.8	5.8g	11:40	1008
	B	28.7	2.7g	11:45	0959
	C	28.7	17.2	1250	9:15
	D	28.9	16.1g	1:12	9:25
	E	28.8	18.9g	10:20	worm count[illegible]

TEST INITIATION/TERMINATION SHEET

Project: Maumee River (AOC)
Laboratory: US Army ERDC
Test Species: *L. variegatus*
Exposure duration: 28 days

Test Initiation Date: 9/14/21 Time: –
Test Termination Date: AB: 10/12 CD: 10/14 E: 10/18 Time: –
Page 2 of 3

Treatment	Repl.	Day 0 Mass Added: Tissue Mass (g)	Day 28 Mass Recovered: Tissue Mass (g)	Comments
LMR21-19S	A	28.5	3.1g	strong PAH odor. 11:50 ~~10:25~~ 10:23
	B	28.8	~~0.1g~~ 6.4g	11:57 10:32
	C	28.9	17.8	1:22 strong odor 9:32
	D	28.9	17.5g	1:30 9:42
	E	28.9	19.8	10:35 8:31
LMR21-25S	A	28.9	6.3g	11:59 10:35
	B	28.8	7.5g	12:04 10:39
	C	28.9	20.2	1:35 9:48
	D	28.8	20.2	1:50 9:55
	E	28.7	21.68	10:50 8:35
LMR21-27S	A	28.9	1.9g	1209 10:43
	B	28.8	2.1g	1212 10:46
	C	28.8	18.3g	2:00 AH ~~9:48~~ 10:08
	D	28.9	19.3g	2:15 AH ~~9:55~~ 10:15
	E	28.8	18.6	11:10 8:39
LMR21-45S	A	28.6	5.5	strong odor 12:17 10:53
	B	28.7	7.9	12:20 11:05
	C	28.5	17.5	2:25 10:20
	D	28.9	18.4	2:35 10:23
	E	28.8	18.3	11:24 8:41
LMR21-47S	A	28.6		strong odor ~~12:22~~
	B	28.8		~~12:24~~
	C	28.9		tanks terminated
	D	28.8		
	E	28.9		
LMR21-49S	A	28.9		Strong odor
	B	28.8		tanks terminated
	C	28.8		
	D	28.8		
	E	28.8		

TEST INITIATION/TERMINATION SHEET

Project: Maumee River (AOC)
Laboratory: US Army ERDC
Test Species: *L. variegatus*
Exposure duration: 28 days

Test Initiation Date: 9/14/21 Time: –
Test Termination Date: AB 10/12 CD: 10/14 E: 10/18 Time: –
Page 3 of 3

Treatment	Repl.	Day 0 Mass Added Tissue Mass (g)	Day 28 Mass Recovered Tissue Mass (g)	Comments	
LMR21-64S	A	28.8	3.7g	12:22	1101
	B	28.9	7.7g	12:24	1103
	C	28.8	21.4	2:43	10:25
	D	28.8	20.5	2:52	10:28
	E	28.9	17.1	1:152	8:45
LMR21-66S	A	28.8	9.6g	12:27	1115
	B	28.7	9.5	12:30	1112
	C	28.9	18.6	3:00	10:34
	D	28.7	~~20~~ 19.5	3:15	10:37
	E	28.8	18.1	11:52	8:47
LMR21-68S	A	28.9	3.39	12:34	1122
	B	28.8	8.9g	12:38	1124
	C	28.6	18.2	3:30	10:37
	D	28.8	18.2	3:45	10:42
	E	28.9	15.9	12:00	8:50
LMR21-69S (Reference)	A	28.9	10.0g	12:41	1127
	B	28.9	8.3g	12:44	1130
	C	28.7	15.6g	10:50	8:32
	D	28.5	17.7	4:00	10:46
	E	28.8	19.0	12:15	8:52

Signature: Tom Biber

Disclosed and Understood by: Lauren May

Weekly Water Quality Monitoring Sheet

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Timestamp	Salinity (ppt)	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	pH_1 (Units)	Temperature (C)	Comment	Site	Rep	Folder	Unit ID
9/14/2021 9:05	0.11	237.3	8.46	7.74	21.5		RED	A	LUMBRICL	TEST 2
9/14/2021 9:06	0.11	238.6	7.13	7.88	22.9		RED	B	LUMBRICL	TEST 2
9/14/2021 9:09	0.13	266.4	6.93	7.95	24.6		ORANGE 11	A	LUMBRICL	TEST 2
9/14/2021 9:09	0.11	225.2	7.06	7.97	25.2		ORANGE 11	B	LUMBRICL	TEST 2
9/14/2021 9:10	0.13	275.7	7.53	7.97	24.4		YELLOW 12	A	LUMBRICL	TEST 2
9/14/2021 9:11	0.14	290	7.03	8.02	24		YELLOW 12	B	LUMBRICL	TEST 2
9/14/2021 9:12	0.12	248.7	6.21	7.99	24.9		GREEN 14	A	LUMBRICL	TEST 2
9/14/2021 9:13	0.13	273.8	7.1	7.95	23.5		GREEN 14	B	LUMBRICL	TEST 2
9/14/2021 9:15	0.14	288.8	6.76	8.02	21.4		BLUE 15	A	LUMBRICL	TEST 2
9/14/2021 9:15	0.15	312.6	6.96	7.94	21.6		BLUE 15	B	LUMBRICL	TEST 2
9/14/2021 9:17	0.12	252.1	7.05	7.93	24.6		VIOLET 17	A	LUMBRICL	TEST 2
9/14/2021 9:17	0.12	258.2	7.58	7.96	24.3		VIOLET 17	B	LUMBRICL	TEST 2
9/14/2021 9:18	0.12	244.7	7.53	8	24		PINK 19	A	LUMBRICL	TEST 2
9/14/2021 9:18	0.11	238.6	6.59	7.99	24.7		PINK 19	B	LUMBRICL	TEST 2
9/14/2021 9:20	0.13	275.1	7.63	8.05	23.3		TAN 25	A	LUMBRICL	TEST 2
9/14/2021 9:20	0.13	269.7	7.16	8.08	24.8		TAN 25	B	LUMBRICL	TEST 2
9/14/2021 9:21	0.13	277.9	5.13	7.78	24.7		GRN RED 27	A	LUMBRICL	TEST 2
9/14/2021 9:22	0.13	266.1	7.42	7.96	24.3		GRN RED 27	B	LUMBRICL	TEST 2
9/14/2021 9:26	0.11	244	6.13	8.08	25.1		BLUE RED 45	A	LUMBRICL	TEST 2
9/14/2021 9:27	0.12	259.8	7.68	8.09	23.8		BLUE RED 45	B	LUMBRICL	TEST 2
9/14/2021 9:29	0.12	247.4	6.19	8.05	21.9		BLUE ORNG 47	A	LUMBRICL	TEST 2
9/14/2021 9:29	0.11	226.4	6.33	7.95	24.6		BLUE ORNG 47	B	LUMBRICL	TEST 2
9/14/2021 9:30	0.11	237.4	6.64	7.99	24.4		BLUE YELO 49	A	LUMBRICL	TEST 2
9/14/2021 9:31	0.12	251.2	7.81	8.02	23.7		BLUE YELO 49	B	LUMBRICL	TEST 2
9/14/2021 9:32	0.12	264.2	7.84	8.06	23.6		YELO VIOLT 64	A	LUMBRICL	TEST 2
9/14/2021 9:33	0.13	266.8	7.06	8.07	21.7		YELO VIOLT 64	B	LUMBRICL	TEST 2
9/14/2021 9:34	0.13	265.9	7.56	8.05	22.5		YELO PINK 66	A	LUMBRICL	TEST 2
9/14/2021 9:35	0.14	303.4	7.96	8.01	21.8		YELO PINK 66	B	LUMBRICL	TEST 2
9/14/2021 9:36	0.11	239.3	7.2	8.09	24.8		YELO TAN 68	A	LUMBRICL	TEST 2
9/14/2021 9:37	0.13	265.7	7.64	8.07	23.8		YELO TAN 68	B	LUMBRICL	TEST 2
9/14/2021 9:37	0.12	262.9	8.48	8.09	21.4		YELO RED 69	A	LUMBRICL	TEST 2
9/14/2021 9:38	0.12	245.1	5.19	7.87	24.2		YELO RED 69	B	LUMBRICL	TEST 2
9/16/2021 9:12	0.1	214.5	7.85	7.71	22.9		RED	C	LUMBRICL	TEST 2
9/16/2021 9:12	0.1	210	7.62	7.73	22.8		RED	D	LUMBRICL	TEST 2
9/16/2021 9:13	0.12	246.3	6.5	7.55	22.9		ORANGE 11	C	LUMBRICL	TEST 2
9/16/2021 9:13	0.12	250.4	7.81	7.73	23		ORANGE 11	D	LUMBRICL	TEST 2
9/16/2021 9:15	0.13	277.7	7.46	7.78	23		YELLOW 12	C	LUMBRICL	TEST 2
9/16/2021 9:15	0.13	267.9	8.01	7.88	22.3		YELLOW 12	D	LUMBRICL	TEST 2
9/16/2021 9:16	0.12	261.2	7.88	7.92	22.7		GREEN 14	C	LUMBRICL	TEST 2
9/16/2021 9:17	0.12	257.3	7.86	7.92	22.9		GREEN 14	D	LUMBRICL	TEST 2
9/16/2021 9:18	0.12	245.7	7.14	7.75	23		BLUE 15	C	LUMBRICL	TEST 2
9/16/2021 9:18	0.13	280.1	6.97	7.66	22.5		BLUE 15	D	LUMBRICL	TEST 2

Weekly Water Quality Monitoring Sheet

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	Salinity	Specific Cond	DO	PH	Temp	Site		
9/16/2021 9:19	0.12	249.2	7.92	7.82	22.8	VIOLET 17	C	LUMBRICL TEST 2
9/16/2021 9:19	0.12	244.2	8.02	7.88	22.7	VIOLET 17	D	LUMBRICL TEST 2
9/16/2021 9:20	0.12	251.4	7.88	7.83	21.7	PINK 19	C	LUMBRICL TEST 2
9/16/2021 9:21	0.11	235.8	7.91	7.9	22.6	PINK 19	D	LUMBRICL TEST 2
9/16/2021 9:23	0.13	270.4	7.93	8.03	22.8	TAN 25	C	LUMBRICL TEST 2
9/16/2021 9:24	0.12	247.4	7.95	8.03	22.8	TAN 25	D	LUMBRICL TEST 2
9/16/2021 9:25	0.13	268.8	7.52	7.87	22.5	GRN RED 27	~~D~~ C	LUMBRICL TEST 2
9/16/2021 9:27	0.12	262.8	8	8	22.5	BLUE RED 45	~~D~~ C	LUMBRICL TEST 2
9/16/2021 9:28	0.11	233.9	7.79	7.96	22.7	BLUE ORNG 47	C	LUMBRICL TEST 2
9/16/2021 9:29	0.11	226.1	7.87	7.94	22.9	BLUE ORNG 47	D	LUMBRICL TEST 2
9/16/2021 9:30	0.11	235.1	7.99	7.97	22.4	BLUE YELO 49	C	LUMBRICL TEST 2
9/16/2021 9:31	0.12	246.7	7.95	8	22.6	BLUE YELO 49	D	LUMBRICL TEST 2
9/16/2021 9:32	0.11	242	7.96	8.01	22.5	YELO VIOLT 64	C	LUMBRICL TEST 2
9/16/2021 9:32	0.11	237.4	7.83	8.06	22.7	YELO VIOLT 64	D	LUMBRICL TEST 2
9/16/2021 9:33	0.12	247.9	6.85	7.78	22.8	YELO PINK 66	C	LUMBRICL TEST 2
9/16/2021 9:34	0.12	258.8	7.75	7.93	22.9	YELO PINK 66	D	LUMBRICL TEST 2
9/16/2021 9:35	0.14	286.5	7.9	8.01	22.7	YELO TAN 68	C	LUMBRICL TEST 2
9/16/2021 9:37	0.12	253.2	7.75	8.01	22.8	YELO TAN 68	D	LUMBRICL TEST 2
9/16/2021 9:38	0.12	252.1	7.89	8.03	22.8	YELO RED 69	C	LUMBRICL TEST 2
9/16/2021 9:38	0.11	238	7.95	8.05	22.7	YELO RED 69	D	LUMBRICL TEST 2
9/20/2021 11:14	0.14	294.7	7.23	7.7	21.3	VIOLET 17	A	LUMBRICL TEST 2
9/20/2021 11:15	0.15	307.7	6.08	7.98	22.1	BLUE RED 45	A	LUMBRICL TEST 2
9/20/2021 11:16	0.14	299.2	6.62	7.94	23	GRN RED 27	A	LUMBRICL TEST 2
9/20/2021 11:17	0.13	273.1	7.17	7.98	23.3	CON	A	LUMBRICL TEST 2
9/20/2021 11:18	0.13	274.2	6.59	7.94	23.8	BLUE YELO 49	A	LUMBRICL TEST 2
9/20/2021 11:20	0.14	296.5	6.24	7.86	24	ORANGE 11	A	LUMBRICL TEST 2
9/20/2021 11:21	0.13	273.5	6.42	7.89	23.7	BLUE ORNG 47	A	LUMBRICL TEST 2
9/20/2021 11:22	0.15	311.8	7.1	7.96	23	YELO RED 69	A	LUMBRICL TEST 2
9/20/2021 11:23	0.14	295.4	5.1	7.96	24.1	GREEN 14	A	LUMBRICL TEST 2
9/20/2021 11:25	0.14	297.6	7.11	7.92	21.4	BLUE 15	A	LUMBRICL TEST 2
9/20/2021 11:26	0.15	320.8	6.39	7.88	23.9	YELLOW 12	A	LUMBRICL TEST 2
9/20/2021 11:27	0.16	341.5	6.38	8.03	23.7	TAN 25	A	LUMBRICL TEST 2
9/20/2021 11:28	0.16	336	6.25	8.23	23.9	YELO VIOLT 64	A	LUMBRICL TEST 2
9/20/2021 11:28	0.16	331.9	6.62	8.2	23.7	YELO PINK 66	A	LUMBRICL TEST 2
9/20/2021 11:29	0.15	321.3	6.97	8.16	23.5	YELO TAN 68	A	LUMBRICL TEST 2
9/20/2021 12:38	0.15	311	7.99	6.4	23.2	~~SBD~~ 19		LUMBRICL TEST 2
~~9/20/2021 12:38~~	~~0.2~~	~~418.5~~	~~8.37~~	~~6.92~~	~~23.1~~	~~SBD~~		~~LUMBRICL TEST 2~~
~~9/20/2021 12:39~~	~~0.24~~	~~499.1~~	~~8.36~~	~~7.4~~	~~23~~	~~SBD~~		~~LUMBRICL TEST 2~~
9/22/2021 13:44	0.14	302	6.09	7.88	22.6	YELO RED 69	B	LUMBRICL TEST 2
9/22/2021 13:45	0.17	351.3	7.08	7.91	22.4	GRN RED 27	B	LUMBRICL TEST 2
9/22/2021 13:45	0.17	351.8	7.2	7.93	22.5	YELLOW 12	B	LUMBRICL TEST 2
9/22/2021 13:46	0.12	263.5	5.33	7.98	24.2	PINK 19	B	LUMBRICL TEST 2
9/22/2021 13:47	0.11	234.9	5.66	8.04	24	BLUE ORNG 47	B	LUMBRICL TEST 2

~~Temp~~ ~~DO~~ ~~pH~~

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Date	Salinity	Cond (uS)	DO (mg/L)	pH	Temp (°C)	Site	Rep	
9/22/2021 13:48	0.13	275.2	5.98	8	24.3	TAN 25	B	LUMBRICL TEST 2
9/22/2021 13:49	0.13	277.8	6.38	8.04	23.8	YELO TAN 68	B	LUMBRICL TEST 2
9/22/2021 13:49	0.12	244.6	6.98	8.12	24.2	BLUE YELO 49	B	LUMBRICL TEST 2
9/22/2021 13:50	0.13	268.6	6.99	8.07	23.9	ORANGE 11	B	LUMBRICL TEST 2
9/22/2021 13:51	0.12	261.6	7.07	8.11	23.6	VIOLET 17	B	LUMBRICL TEST 2
9/22/2021 13:52	0.13	274.7	7.08	8.13	24	GREEN 14	B	LUMBRICL TEST 2
9/22/2021 13:52	0.12	246.5	5.33	8.19	24.3	CON	B	LUMBRICL TEST 2
9/22/2021 13:53	0.12	263.8	6.25	8.24	24	BLUE RED 45	B	LUMBRICL TEST 2
9/22/2021 13:54	0.13	266.3	5.11	8.23	24.2	YELO VIOLT 64	B	LUMBRICL TEST 2
9/22/2021 13:55	0.13	267.3	4.75	8.18	24.1	BLUE 15	B	LUMBRICL TEST 2
9/22/2021 13:56	0.14	305.5	6.35	8.18	23.4	YELO PINK 66	B	LUMBRICL TEST 2
9/24/2021 10:16	0.15	317.8	4.94	8.03	22.7	ORANGE 11	C	LUMBRICL TEST 2
9/24/2021 10:18	0.17	355	6.72	7.89	22.6	YELO PINK 66	C	LUMBRICL TEST 2
9/24/2021 10:18	0.15	324.5	6.43	7.9	22.8	GREEN 14	C	LUMBRICL TEST 2
9/24/2021 10:19	0.13	284.4	6.68	7.92	22.7	BLUE ORNG 47	C	LUMBRICL TEST 2
9/24/2021 10:20	0.16	326.6	6.28	7.82	22.5	YELLOW 12	C	LUMBRICL TEST 2
9/24/2021 10:20	0.15	309.2	6.95	7.86	22.4	VIOLET 17	C	LUMBRICL TEST 2
9/24/2021 10:30	0.15	308.8	6.97	7.88	22.4	BLUE RED 45	C	LUMBRICL TEST 2
9/24/2021 10:30	0.15	309.2	6.83	7.9	22.5	YELO RED 69	C	LUMBRICL TEST 2
9/24/2021 10:31	0.17	347.4	7.13	7.9	22.2	YELO TAN 68	C	LUMBRICL TEST 2
9/24/2021 10:32	0.14	284.9	7.03	7.97	22.1	BLUE YELO 49	C	LUMBRICL TEST 2
9/24/2021 10:33	0.15	317.2	6.43	7.88	22.8	PINK 19	C	LUMBRICL TEST 2
9/24/2021 10:34	0.17	354.3	6.7	7.89	22.5	YELO VIOLT 64	C	LUMBRICL TEST 2
9/24/2021 10:35	0.15	324.3	6.51	7.92	22.7	TAN 25	C	LUMBRICL TEST 2
9/24/2021 10:36	0.16	333.4	6.42	7.87	22.8	GRN RED 27	C	LUMBRICL TEST 2
9/24/2021 10:37	0.14	286.7	6.34	7.93	22.7	CON	C	LUMBRICL TEST 2
9/27/2021 10:17	0.16	336.7	6.45	6.85	22.8	TAN 25	D	LUMBRICL TEST 2
9/27/2021 10:18	0.16	328.6	7.06	7.2	22.7	YELO VIOLT 64	D	LUMBRICL TEST 2
9/27/2021 10:18	0.16	343.9	6.42	7.28	23	YELO TAN 68	D	LUMBRICL TEST 2
9/27/2021 10:20	0.16	334.5	6.73	7.43	22.8	VIOLET 17	D	LUMBRICL TEST 2
9/27/2021 10:20	0.15	325.3	6.96	7.5	22.7	GREEN 14	D	LUMBRICL TEST 2
9/27/2021 10:22	0.16	328.1	6.76	7.57	23.1	YELLOW 12	D	LUMBRICL TEST 2
9/27/2021 10:23	0.16	327	5.3	7.51	22.5	BLUE 15	D	LUMBRICL TEST 2
9/27/2021 10:23	0.16	334.9	6.68	7.51	22.6	ORANGE 11	D	LUMBRICL TEST 2
9/27/2021 10:24	0.16	328.2	6.48	7.59	22.9	PINK 19	D	LUMBRICL TEST 2
9/27/2021 10:25	0.16	337.1	6.73	7.65	22.8	BLUE RED 45	D	LUMBRICL TEST 2
9/27/2021 10:26	0.13	265.8	7.08	7.74	22.9	BLUE ORNG 47	D	LUMBRICL TEST 2
9/27/2021 10:27	0.16	337.6	6.45	7.69	22.8	YELO PINK 66	D	LUMBRICL TEST 2
9/27/2021 10:28	0.15	320.9	6.53	7.72	23	YELO RED 69	D	LUMBRICL TEST 2
9/27/2021 10:29	0.15	312.4	4.97	7.62	23	CON	D	LUMBRICL TEST 2
9/30/2021 13:39	0.17	357.1	6.82	7.79	22.7	ORANGE 11	A	LUMBRICL TEST 2
9/30/2021 13:40	0.17	350.7	7.47	7.76	22.4	YELLOW 12	A	LUMBRICL TEST 2
9/30/2021 13:40	0.16	335.4	7.09	7.8	22.6	GREEN 14	A	LUMBRICL TEST 2

~~Temp~~ ~~DO~~ ~~pH~~

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Date	Salinity	Spec. Conductivity (us)	D.O. (mg/L)	pH	Temp (°C)	Site	Rep	
9/30/2021 13:41	0.16	342.9	7.37	7.82	21.9	PINK 19	A	LUMBRICL TEST 2
9/30/2021 13:42	0.16	334.5	7.53	7.82	22.8	VIOLET 17	A	LUMBRICL TEST 2
9/30/2021 13:45	0.17	355.3	6.75	7.85	23	TAN 25	A	LUMBRICL TEST 2
9/30/2021 13:46	0.16	339.9	7.02	7.91	22.8	GRN RED 27	A	LUMBRICL TEST 2
9/30/2021 13:47	0.16	332.8	6.95	7.96	23	BLUE RED 45	A	LUMBRICL TEST 2
9/30/2021 13:48	0.15	315.9	7.36	7.99	22.9	BLUE YELO 49	A	LUMBRICL TEST 2
9/30/2021 13:49	0.16	333.4	6.82	7.98	22.8	YELO TAN 68	A	LUMBRICL TEST 2
9/30/2021 13:50	0.15	320.9	7.68	8	22.7	YELO RED 69	A	LUMBRICL TEST 2
9/30/2021 13:51	0.16	343.1	6.85	7.97	22.8	YELO PINK 66	A	LUMBRICL TEST 2
9/30/2021 13:52	0.15	322.1	7.39	8.02	22.8	CON	A	LUMBRICL TEST 2
10/1/2021 9:35	0.17	349.9	7	7.92	22.4	YELO RED 69	B	LUMBRICL TEST 2
10/1/2021 9:36	0.13	284.3	6.36	7.82	23	BLUE ORNG 47	B	LUMBRICL TEST 2
10/1/2021 9:37	0.17	357.9	6.94	7.76	22.7	GRN RED 27	B	LUMBRICL TEST 2
10/1/2021 9:38	0.18	368.9	6.55	7.78	22.8	TAN 25	B	LUMBRICL TEST 2
10/1/2021 9:38	0.17	362	6.39	7.82	22.6	YELLOW 12	B	LUMBRICL TEST 2
10/1/2021 9:39	0.17	355.4	6.89	7.85	22.9	ORANGE 11	B	LUMBRICL TEST 2
10/1/2021 9:40	0.17	347.9	6.95	7.86	22.8	VIOLET 17	B	LUMBRICL TEST 2
10/1/2021 9:59	0.17	346.8	7.4	7.89	22.6	BLUE RED 45	B	LUMBRICL TEST 2
10/1/2021 10:00	0.16	329.4	6.95	7.97	22.7	BLUE YELO 49	B	LUMBRICL TEST 2
10/1/2021 10:01	0.17	349.3	7.07	7.94	23	BLUE YELO 49	B	LUMBRICL TEST 2
10/1/2021 10:01	0.17	349.5	6.51	7.93	23	YELO TAN 68	B	LUMBRICL TEST 2
10/1/2021 10:03	0.16	332.7	6.75	7.92	22.8	GREEN 14	B	LUMBRICL TEST 2
10/1/2021 10:04	0.16	331.7	5.92	7.84	22.8	BLUE 15	B	LUMBRICL TEST 2
10/1/2021 10:05	0.17	359.1	6.38	7.77	23	YELO VIOLT 64	B	LUMBRICL TEST 2
10/1/2021 10:05	0.18	379.5	6.75	7.8	22.8	YELO PINK 66	B	LUMBRICL TEST 2
10/1/2021 10:06	0.16	338.9	6.45	7.8	22.8	CON	B	LUMBRICL TEST 2
10/4/2021 9:47	0.15	317.9	7.13	7.55	22.9	CON	C	LUMBRICL TEST 2
10/4/2021 9:48	0.16	338	6.56	7.6	22.9	YELO PINK 66	C	LUMBRICL TEST 2
10/4/2021 9:48	0.17	347.7	7.15	7.68	22.5	YELO VIOLT 64	C	LUMBRICL TEST 2
10/4/2021 9:49	0.17	348.7	6.36	7.72	22.7	GRN RED 27	C	LUMBRICL TEST 2
10/4/2021 9:50	0.16	341.9	7.09	7.77	22.8	TAN 25	C	LUMBRICL TEST 2
10/4/2021 9:50	0.17	352.5	6.51	7.77	23.1	PINK 19	C	LUMBRICL TEST 2
10/4/2021 9:51	0.15	321.1	6.57	7.76	23	BLUE 15	C	LUMBRICL TEST 2
10/4/2021 9:52	0.16	344.7	6.35	7.67	22.6	ORANGE 11	C	LUMBRICL TEST 2
10/4/2021 9:52	0.16	336.9	7.05	7.73	22.7	GREEN 14	C	LUMBRICL TEST 2
10/4/2021 9:53	0.16	340.4	6.38	7.74	22.7	YELLOW 12	C	LUMBRICL TEST 2
10/4/2021 9:53	0.16	332.7	6.8	7.78	22.8	VIOLET 17	C	LUMBRICL TEST 2
10/4/2021 9:55	0.16	326.6	7.02	7.82	22.6	BLUE RED 45	C	LUMBRICL TEST 2
10/4/2021 9:55	0.13	284.3	7.07	7.88	22.4	BLUE ORNG 47	C	LUMBRICL TEST 2
10/4/2021 9:57	0.17	364.3	7.01	7.85	22.6	YELO TAN 68	C	LUMBRICL TEST 2
10/4/2021 9:58	0.16	328.2	7.06	7.9	22.6	YELO RED 69	C	LUMBRICL TEST 2
10/6/2021 14:21	0.15	323.1	6.02	7.32	22.9	CON	D	LUMBRICL TEST 2
10/6/2021 14:22	0.16	341.2	6.48	7.46	22.7	ORANGE 11	D	LUMBRICL TEST 2

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Date	Salinity	Spec. Conductivity (uS)	D.O (mg/L)	pH	Temp (°C)	Site	Rep	
10/6/2021 14:22	0.16	341.1	6.36	7.57	23.1	YELLOW 12	D	LUMBRICL TEST 2
10/6/2021 14:23	0.16	335.6	6.83	7.7	23	GREEN 14	D	LUMBRICL TEST 2
10/6/2021 14:24	0.15	322.9	6.46	7.75	22.9	BLUE 15	D	LUMBRICL TEST 2
10/6/2021 14:24	0.16	335.2	6.61	7.74	22.9	VIOLET 17	D	LUMBRICL TEST 2
10/6/2021 14:25	0.17	346.4	6.52	7.73	22.8	PINK 19	D	LUMBRICL TEST 2
10/6/2021 14:26	0.17	363.8	6.58	7.74	22.8	TAN 25	D	LUMBRICL TEST 2
10/6/2021 14:26	0.17	363.9	6.55	7.74	22.8	TAN 25	D	LUMBRICL TEST 2
10/6/2021 14:26	0.17	354.4	6.36	7.81	22.5	GRN RED 27	D	LUMBRICL TEST 2
10/6/2021 14:27	0.16	343.3	6.57	7.84	22.9	BLUE RED 45	D	LUMBRICL TEST 2
10/6/2021 14:28	0.17	364.8	6.23	7.81	23	YELO VIOLT 64	D	LUMBRICL TEST 2
10/6/2021 14:29	0.17	350.8	6.38	7.85	22.8	YELO TAN 68	D	LUMBRICL TEST 2
10/6/2021 14:29	0.16	343.9	6.54	7.88	23	YELO PINK 66	D	LUMBRICL TEST 2
10/6/2021 14:30	0.16	340.8	6.88	7.91	22.5	YELO RED 69	A	LUMBRICL TEST 2
10/11/2021 10:12	0.14	294.1	7.61	7.31	22.7	YELO RED 69	B	LUMBRICL TEST 2
10/11/2021 10:13	0.17	351	6.98	7.51	22.3	YELO RED 69	C	LUMBRICL TEST 2
10/11/2021 10:14	0.15	321.3	7.24	7.71	22.8	YELO TAN 68	A	LUMBRICL TEST 2
10/11/2021 10:14	0.16	343	7.39	7.79	22.2	YELO TAN 68	B	LUMBRICL TEST 2
10/11/2021 10:15	0.16	338.1	7.1	7.82	22.8	YELO PINK 66	A	LUMBRICL TEST 2
10/11/2021 10:16	0.15	321.3	7.39	7.85	23	YELO PINK 66	B	LUMBRICL TEST 2
10/11/2021 10:16	0.15	321.5	6.99	7.85	22.3	YELO VIOLT 64	A	LUMBRICL TEST 2
10/11/2021 10:17	0.13	282.4	7.44	7.88	22.5	YELO VIOLT 64	B	LUMBRICL TEST 2
10/11/2021 10:18	0.15	315.4	6.97	7.85	22.4	BLUE RED 45	A	LUMBRICL TEST 2
10/11/2021 10:18	0.15	324.3	7.08	7.89	22.6	BLUE RED 45	B	LUMBRICL TEST 2
10/11/2021 10:19	0.17	351.7	6.84	7.88	22.9	TAN 25	A	LUMBRICL TEST 2
10/11/2021 10:20	0.15	324.1	7.34	7.95	22.8	TAN 25	B	LUMBRICL TEST 2
10/11/2021 10:20	0.16	338.6	7.01	7.94	22.5	GRN RED 27	A	LUMBRICL TEST 2
10/11/2021 10:21	0.15	325.2	7.02	7.92	22.8	GRN RED 27	B	LUMBRICL TEST 2
10/11/2021 10:28	0.17	360.9	6.92	7.93	22.7	PINK 19	A	LUMBRICL TEST 2
10/11/2021 10:29	0.16	329.1	6.6	7.95	23.2	PINK 19	B	LUMBRICL TEST 2
10/11/2021 10:29	0.15	320.4	7.48	7.96	22.7	VIOLET 17	A	LUMBRICL TEST 2
10/11/2021 10:30	0.15	314.8	7.37	7.97	22.7	GREEN 14	A B	LUMBRICL TEST 2
10/11/2021 10:31	0.15	321.2	7.41	7.97	22.8	VIOLET 17	B	LUMBRICL TEST 2
10/11/2021 10:31	0.16	325.7	7.12	7.93	22	YELLOW 12	A	LUMBRICL TEST 2
10/11/2021 10:32	0.16	330.5	7.14	7.9	21.9	ORANGE 11	A	LUMBRICL TEST 2
10/11/2021 10:32	0.15	311.8	7.17	7.93	22.3	GREEN 14	B	LUMBRICL TEST 2
10/11/2021 10:33	0.14	303.4	6.4	7.9	23	BLUE 15	A	LUMBRICL TEST 2
10/11/2021 10:34	0.14	304.8	7.13	7.86	22.9	BLUE 15	B	LUMBRICL TEST 2
10/11/2021 10:34	0.15	325.5	6.91	7.85	22.9	ORANGE 11	B	LUMBRICL TEST 2
10/11/2021 10:35	0.15	316.2	7.09	7.89	22.9	YELLOW 12	B	LUMBRICL TEST 2
10/13/2021 14:06	0.15	320.8	5.77	7.02	22.9	CON	~~A~~ C	LUMBRICL TEST 2
10/13/2021 14:07	0.15	322.2	7.03	7.26	22.2	CON	~~B~~ D	LUMBRICL TEST 2
10/13/2021 14:08	0.16	340.7	6.48	7.5	22.9	ORANGE 11	C	LUMBRICL TEST 2
10/13/2021 14:08	0.16	341.1	6.4	7.59	22.9	ORANGE 11	D	LUMBRICL TEST 2

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Date	salinity	Spec. conductivity (us)	D.O. (mg/L)	pH	Temp (°C)	site	Rep	
10/13/2021 14:09	0.16	329.2	6.97	7.65	22.5	YELLOW 12	C	LUMBRICL TEST 2
10/13/2021 14:10	0.16	342.1	6.33	7.68	23.2	YELLOW 12	D	LUMBRICL TEST 2
10/13/2021 14:10	0.16	328.7	6.88	7.77	23	GREEN 14	C	LUMBRICL TEST 2
10/13/2021 14:11	0.16	341.6	6.04	7.74	23.1	GREEN 14	D	LUMBRICL TEST 2
10/13/2021 14:11	0.16	330.9	6.35	7.74	23	BLUE 15	C	LUMBRICL TEST 2
10/13/2021 14:12	0.15	322.8	7.17	7.75	22.2	BLUE 15	D	LUMBRICL TEST 2
10/13/2021 14:13	0.17	361.5	6.42	7.76	22.9	VIOLET 17	C	LUMBRICL TEST 2
10/13/2021 14:13	0.17	361	6.96	7.81	22.2	VIOLET 17	D	LUMBRICL TEST 2
10/13/2021 14:14	0.18	370.3	7.12	7.85	22.6	PINK 19	C	LUMBRICL TEST 2
10/13/2021 14:14	0.18	373.3	6.81	7.85	22.7	PINK 19	D	LUMBRICL TEST 2
10/13/2021 14:15	0.17	366.1	6.71	7.85	22.9	TAN 25	C	LUMBRICL TEST 2
10/13/2021 14:15	0.16	334.6	7.17	7.91	22.7	TAN 25	D	LUMBRICL TEST 2
10/13/2021 14:16	0.17	356.6	6.93	7.9	22.5	GRN RED 27	C	LUMBRICL TEST 2
10/13/2021 14:17	0.16	344.9	6.68	7.9	22.8	GRN RED 27	D	LUMBRICL TEST 2
10/13/2021 14:17	0.16	342.9	7.23	7.92	22.7	BLUE RED 45	C	LUMBRICL TEST 2
10/13/2021 14:18	0.16	337.7	6.88	7.92	22.2	BLUE RED 45	D	LUMBRICL TEST 2
10/13/2021 14:19	0.14	299.5	7.19	7.95	22.6	YELO VIOLT 64	C	LUMBRICL TEST 2
10/13/2021 14:19	0.16	343.5	7.21	7.92	22.4	YELO VIOLT 64	D	LUMBRICL TEST 2
10/13/2021 14:20	0.17	356.6	6.98	7.92	22.8	YELO PINK 66	C	LUMBRICL TEST 2
10/13/2021 14:21	0.17	355	6.76	7.91	22.9	YELO PINK 66	D	LUMBRICL TEST 2
10/13/2021 14:21	0.17	362.5	7.34	7.95	21.4	YELO RED 69	C	LUMBRICL TEST 2
10/13/2021 14:22	0.16	345.5	7.27	7.96	22.7	YELO RED 69	D	LUMBRICL TEST 2
10/13/2021 14:22	0.18	368.3	7.28	7.97	22.4	YELO TAN 68	C	LUMBRICL TEST 2
10/13/2021 14:23	0.17	353.1	6.43	7.97	22.4	YELO TAN 68	D	LUMBRICL TEST 2
10/15/2021 15:09	0.14	298.9	6.8	7.65	22.5	YELO RED 69	E	LUMBRICL TEST 2
10/15/2021 15:10	0.14	293.4	6.42	7.77	22.8	YELO TAN 68	E	LUMBRICL TEST 2
10/15/2021 15:10	0.14	301.1	6.54	7.78	22.8	YELO PINK 66	E	LUMBRICL TEST 2
10/15/2021 15:11	0.13	278	6.61	7.84	22.7	YELO VIOLT 64	E	LUMBRICL TEST 2
10/15/2021 15:12	0.14	290.5	6.79	7.79	23.2	BLUE RED 45	E	LUMBRICL TEST 2
10/15/2021 15:12	0.14	288.6	7.11	7.81	22.7	GRN RED 27	E	LUMBRICL TEST 2
10/15/2021 15:13	0.15	315	6.59	7.81	23	TAN 25	E	LUMBRICL TEST 2
10/15/2021 15:14	0.15	309.9	6.94	7.9	22.7	PINK 19	E	LUMBRICL TEST 2
10/15/2021 15:15	0.14	296.8	6.17	7.92	23.1	VIOLET 17	E	LUMBRICL TEST 2
10/15/2021 15:15	0.13	272.1	6.73	7.87	23	BLUE 15	E	LUMBRICL TEST 2
10/15/2021 15:17	0.14	288.9	5.85	7.79	23.2	GREEN 14	E	LUMBRICL TEST 2
10/15/2021 15:18	0.14	288.5	7.09	7.81	22.9	YELLOW 12	E	LUMBRICL TEST 2
10/15/2021 15:18	0.14	286	6.84	7.84	23.2	ORANGE 11	E	LUMBRICL TEST 2
10/18/2021 7:34	0.12	259.6	8.11	7.67	22.6	RED	E	LUMBRICL TEST 2
10/18/2021 7:36	0.13	275.8	7.44	7.77	22.9	ORANGE 11	E	LUMBRICL TEST 2
10/18/2021 7:37	0.13	275.7	7.38	7.8	23	YELLOW 12	E	LUMBRICL TEST 2
10/18/2021 7:38	0.13	272.8	6.78	7.73	23.2	GREEN 14	E	LUMBRICL TEST 2
10/18/2021 7:39	0.12	263.6	7.4	7.76	22.8	BLUE 15	E	LUMBRICL TEST 2
10/18/2021 7:41	0.13	279.4	7.56	7.82	23	VIOLET 17	E	LUMBRICL TEST 2

7 of 7

Date	salinity	spec. conductivity (us)	D.O (mg/L)	pH	Temp (°c)	site	Rep	
10/18/2021 7:42	0.14	292	7.73	7.9	22.6	PINK 19	E	LUMBRICL TEST 2
10/18/2021 7:43	0.14	295.6	7.4	7.88	22.8	TAN 25	E	LUMBRICL TEST 2
10/18/2021 7:44	0.13	276.4	7.47	7.89	22.9	GRN RED 27	E	LUMBRICL TEST 2
10/18/2021 7:46	0.13	274.4	7.22	7.84	23.2	BLUE RED 45	E	LUMBRICL TEST 2
10/18/2021 7:47	0.13	276	7.59	7.87	22.8	YELO VIOLT 64	E	LUMBRICL TEST 2
10/18/2021 7:48	0.13	278	7.46	7.82	22.8	YELO PINK 66	E	LUMBRICL TEST 2
10/18/2021 7:49	0.13	279.5	7.63	7.88	22.8	YELO TAN 68	E	LUMBRICL TEST 2
10/18/2021 7:50	0.14	294.9	3.36	7.59	21.5	YELO RED 69	E	LUMBRICL TEST 2

Lauren May

Appendix R. Chain of Custody Records

Sediment

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 1 of 1
ALS Quote #:

Client Name: USACE Buffalo
Address: 1776 Niagara Street
Buffalo, NY 14207
Contact: Jay Miller
Phone#: 716-879-4394
Project Name/#: Lower Maumee River
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [ ] -Y
Fax? [ ] -Y No.:

Container Type: PL
Container Size: 2-GAL
Preservative: NA

ANALYSES/METHOD REQUESTED: Biological Testing

Receipt Information (completed by Receiving Lab)
W.O. Temp: Therm ID:
Courier/Tracking #:
Purchase Order #:
Project Comments:
ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Biological Testing	Sample/COC Comments
1	See attached sample log						
2							
3							
4							
5							
6							
7							
8							
9							
10							

SAMPLED BY (Please Print): Jay Miller
Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	MILLER.JAMES.M.1239506352 Digitally signed by MILLER.JAMES.M.1239506352 Date: 2021.08.16 18:10:00 -04'00'			2	Lauren May / ERDC	8/18/21	1130
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [X] USACE/DOD [ ]
Special Processing: USACE [X] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] OH other
Reportable to PADEP? Yes [ ] No [X]
PWSID #
Sample Disposal: Lab [X] Special [ ]
EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

Lower Maumee River ERDC COC			
SampleID	**#of Buckets Collected**	**Date**	**Time**
LMR21-11S	4	8/18/2021	1130
LMR21-12S	4		
LMR21-14S	4		
LMR21-15S	4		
LMR21-17S	4		
LMR21-19S	4		
LMR21-25S	4		
LMR21-27S	4		
LMR21-30S	**1**		
LMR21-35S	**1**		
LMR21-37S	**1**		
LMR21-39S	**1**		
LMR21-41S	**1**		
LMR21-43S	**1**		
LMR21-45S	4		
LMR21-47S	4		
LMR21-49S	4		
LMR21-52S	**1**		
LMR21-53S	**1**		
LMR21-55S	**1**		
LMR21-57S	**1**		
LMR21-59S	**1**		
LMR21-61S	**1**		
LMR21-62S	**1**		
LMR21-64S	4		
LMR21-66S	4		
LMR21-68S	4		
LMR21-69S**	**5**		
*Reference Sediment			
Total	~~74~~ 75		
LMR21-48S	1		

ERDC COC

SampleID	DATE	TIME	# of Buckets
Sway Bridge Area C			
Composite of Above: LMR21-SBC	8/18/2021	1130	1
Sway Bridge Area B2			
Composite of Above: LMR21-SBB2			1
Sway Bridge Area A2			
Composite of Above: LMR21-SBA2			1
Sway Bridge Area A1			
Composite of Above: LMR21-SBA1			2
Sway Bridge Area A3			
Composite of Above: LMR21-SBA3			2
Sway Bridge Area B1			
Composite of Above: LMR21-SBB1			1
Sway Bridge Area D			
Composite of Above: LMR21-SBD			1
WWTP Area C1			
Composite of Above: LMR21-WC-1			1
WWTP Area B2			
Composite of Above: LMR21-WB-2			1
WWTP Area A2			
Composite of Above: LMR21-WA-2			1
WWTP Area A1			
Composite of Above: LMR21-WA-1			1
WWTP Area A3			
Composite of Above: LMR21-WA-3			1
WWTP Area B1			
Composite of Above: LMR21-WB-1			1
WWTP Area C2			
Composite of Above: LMR21-WC-2			1
		Total	16
		Grand Total:	90

Elutriate

ALS
301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: | 3 of 3
ALS Quote #: 852797

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street
Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

ANALYSES/METHOD REQUESTED

	Container Type				PL	PL	PL	AG	AG	AG	AG	CG		
	Container Size				125mL	250mL	250mL	250mL	125mL	1L	1L	40mL		
	Perservative				HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL		
	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon [on Elutriate]	Sample/COC Comments
1	LMR21-SBA1	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
2	LMR21-SBA2	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
3	LMR21-SBA3	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
4	LMR21-SBB1	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
5	LMR21-SBB2	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
6	LMR21-SBC	8/23/21	1300			1	1	1	1	2	0	0	2	2	Sample Matrix is Elutriate
7															
8															
9															
10															

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print):
Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May	8/24/21	1009	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV
Special Processing: USACE [x] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other
Reportable to PADEP? Yes [ ] No [x]
PWSID #
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- Custom

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

ALS

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Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Quote #: 852797

2 of 3

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street, Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Container Type	PL	PL	PL	AG	AG	AG	AG	CG		
Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL		
Perservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL		

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon [on Elutriate]		Sample/COC Comments
1	LMR21-SBA1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
2	LMR21-SBA2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
3	LMR21-SBA3	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
4	LMR21-SBB1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
5	LMR21-SBB2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
6	LMR21-SBC	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
7																
8																
9																
10																

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May	8/24/21	1009	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Reportable to PADEP? Yes [ ] No [x]
PWSID #

EDDS: Format Type- Custom

Special Processing: USACE [x] Navy [ ] [ ]

Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

ALS
301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 1 of 3
ALS Quote #: 852797

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street, Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)
TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:
ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

ANALYSES/METHOD REQUESTED

	Container Type	PL	PL	PL	AG	AG	AG	AG	CG		
	Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL		
	Preservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL		

Enter Number of Containers Per Sample or Field Results Below.

#	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon [on Elutriate]		Sample/COC Comments
1	LMR21-SBA1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
2	LMR21-SBA2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
3	LMR21-SBA3	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
4	LMR21-SBB1	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
5	LMR21-SBB2	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
6	LMR21-SBC	8/23/21	1300			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
7																
8																
9																
10																

SAMPLED BY (Please Print):
Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May	8/24/21	1009	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV
Special Processing: USACE [x] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other
Reportable to PADEP? Yes [ ] No [x]
PWSID #
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- Custom

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

ALS

301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Quote #: 852797

1 of 4

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street
Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other: ____

Container Type					PL	PL	PL	AG	AG	AG	AG	CG	AV		
Container Size					125mL	250mL	250mL	250mL	125mL	1L	1L	40mL	40mL		
Preservative					HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL	HCl		
ANALYSES/METHOD REQUESTED					DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon		
	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C / **Matrix	Enter Number of Containers Per Sample or Field Results Below.										Sample/COC Comments
1	LMR21-SCD	09/20/21	see bottle		0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
2	LMR21-WA-1				0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
3	LMR21-WA-2				0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
4	LMR21-WA-3				0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
5	LMR21-WB-1				1	1	1	1	2	1	1	2	2		Sample Matrix is Elutriate
6	LMR21-WB-2				0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
7	LMR21-WC-1				0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
8	LMR21-WC-2				1	1	1	1	2	1	1	2	2		Sample Matrix is Elutriate
9															
10															

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May - EL	9/21/21	1100	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Reportable to PADEP? Yes [ ] No [x]
PWSID #

Special Processing: USACE [x] Navy [ ]

Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

EDDS: Format Type- Custom

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

ALS
301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 2 of 4

ALS Quote #: 852797

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street
Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other: ____

ANALYSES/METHOD REQUESTED

					Container Type	PL	PL	PL	AG	AG	AG	AG	CG	AV	
					Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL	40mL	
					Perservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL	HCl	
	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon	Sample/COC Comments
1	LMR21-SCD	09/20/21	see bottles			0	0	0	0	0	0	0	0	0	Sample Matrix is Elutriate
2	LMR21-WA-1					0	0	0	0	0	0	0	0	0	Sample Matrix is Elutriate
3	LMR21-WA-2					1	1	1	1	2	1	1	2	2	Sample Matrix is Elutriate
4	LMR21-WA-3					1	1	1	1	2	1	1	2	2	Sample Matrix is Elutriate
5	LMR21-WB-1					0	0	0	0	0	1	1	0	0	Sample Matrix is Elutriate
6	LMR21-WB-2					0	0	0	0	0	0	0	0	0	Sample Matrix is Elutriate
7	LMR21-WC-1					0	0	0	0	0	0	0	0	0	Sample Matrix is Elutriate
8	LMR21-WC-2					0	0	0	0	0	1	1	0	0	Sample Matrix is Elutriate
9															
10															

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May -EL	9/21/21	1100	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Reportable to PADEP? Yes [ ] No [x]
PWSID # ____

EDDS: Format Type- Custom

Special Processing: USACE [x] Navy [ ]

Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

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ALS

301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Quote #: 852797

3 of 4

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street
Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 21 BD Approved?
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other: ____

		Container Type	PL	PL	PL	AG	AG	AG	AG	CG	AV	
		Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL	40mL	
		Preservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL	HCl	

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon		Sample/COC Comments
1	LMR21-SCD	09/20/21	see bottles			0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
2	LMR21-WA-1					1	1	1	1	2	1	1	2	2		Sample Matrix is Elutriate
3	LMR21-WA-2					0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
4	LMR21-WA-3					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
5	LMR21-WB-1					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
6	LMR21-WB-2					1	1	1	1	2	1	1	2	2		Sample Matrix is Elutriate
7	LMR21-WC-1					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
8	LMR21-WC-2					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
9																
10																

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Aurelli May - EL	9/21/21	1100	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Reportable to PADEP? Yes [ ] No [x]
PWSID # ____
EDDS: Format Type- Custom

Special Processing: USACE [x] Navy [ ] [ ]

Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: | 4 of 4
ALS Quote #: 852797

Client Name: USACE BUFFALO DISTRICT
Address: 1776 Niagara Street
Buffalo NY 14207
Contact: Jay Miller
Phone#: (716) 879-4394
Project Name/#: Maumee AOC Lower Maumee OH
Bill To: ADVANCED ENVIRONMENTAL GROUP LLC (AEMG)
TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 21 BD **Approved?**
Email? [x] -Y James.Miller@usace.army.mil
Fax? [ ] -Y No.:

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ **Therm ID:** ____
Courier/Tracking #:
Purchase Order #: W912P421F0023
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

Container Type	PL	PL	PL	AG	AG	AG	AG	CG	AV
Container Size	125mL	250mL	250mL	250mL	125mL	1L	1L	40mL	40mL
Preservative	HNO3	H2SO4	NaOH	H2SO4	NONE	NONE	H2SO4	HCL	HCl

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	DOD Total TAL Metals 6010/7470	DOD TKN,NH3, Phos	DOD Cyanide	DOD Oil and Grease	DOD PCBs 8082/3511	DOD 8270 PAH/PAHSIM	DOD TPHDRO/ORO	DOD TPHGRO	DOD Total Organic Carbon		Sample/COC Comments
1	LMR21-SCD	09/20/21	see bottles			1	1	1	1	2	1	1	2	2		Sample Matrix is Elutriate
2	LMR21-WA-1					0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
3	LMR21-WA-2					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
4	LMR21-WA-3					0	0	0	0	0	1	1	0	0		Sample Matrix is Elutriate
5	LMR21-WB-1					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
6	LMR21-WB-2					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
7	LMR21-WC-1					1	1	1	1	2	1	1	2	2		Sample Matrix is Elutriate
8	LMR21-WC-2					0	0	0	0	0	0	0	0	0		Sample Matrix is Elutriate
9																
10																

Enter Number of Containers Per Sample or Field Results Below.

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Lauren May	9/21/21	1100	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV
Reportable to PADEP? Yes [ ] No [x]
PWSID #
EDDS: Format Type- Custom

Special Processing: USACE [x] Navy [ ]
Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

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Tissue

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 1 of 7
ALS Quote #:

Client Name: ALS
Address: 301 Fulling Mill Road
Middletown PA 17057
Contact: Susan Scherer
Phone#: (717) 702-2245
Project Name/#: Lower Maumee River
Bill To: ALS

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 8 weeks Approved?
Email? [x]-Y Susan.Scherer@ALSGlobal.com
Fax? [ ]-Y No.:

Container Type: CG
Container Size: 8oz
Preservative: NONE

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners 1668C	Cooler 1	Cooler 2	Sample/COC Comments
1	LMR21-11S Rep A	10/12/21			*	1	1		
2	LMR21-11S Rep B	10/12/21				1	1		*Worm Tissue
3	LMR21-11S Rep C	10/14/21				1		1	
4	LMR21-11S Rep D	10/14/21				1		1	
5	LMR21-11S Rep E	10/18/21				1	1		
6	LMR21-12S Rep A	10/12/21				1	1		
7	LMR21-12S Rep B	10/12/21				1	1		
8	LMR21-12S Rep C	10/14/21				1		1	EDDs:
9	LMR21-12S Rep D	10/14/21				1		1	USACE Buffalo
10	LMR21-12S Rep E	10/18/21				1	1		ERPTOOLS X Middletown

EPA region 5

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: 40-3208400

Project Comments:
Subcontract to ALS Burlington Ontario Canada; Worm Tissue Samples for PCB Congener analysis.

ALS Field Services: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment
Other:

SAMPLED BY (Please Print):

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Ashley Harmon / USACE	1/27/21	11:00	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Reportable to PADEP? Yes [ ] No [x]
PWSID # See Comments
EDDS: Format Type-

Special Processing: USACE [ ] Navy [ ]

Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

* G=Grab; C=Composite
**Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

ALS

301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 2 of 7

ALS Quote #:

Client Name: ALS
Address: 301 Fulling Mill Road, Middletown PA 17057
Contact: Susan Scherer
Phone#: (717) 702-2245
Project Name/#: Lower Maumee River
Bill To: ALS

TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.
Date Required: 8 weeks Approved?
Email? [x] -Y Susan.Scherer@ALSGlobal.com
Fax? ☐ -Y No.:

Container Type: CG | Container Size: 8oz | Preservative: NONE

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners 1668C	Cooler 1	Cooler 2
1	LMR21-14S Rep A	10/12/21			*	1	1	
2	LMR21-14S Rep B	10/12/21				1	1	
3	LMR21-14S Rep C	10/14/21				1		1
4	LMR21-14S Rep D	10/14/21				1		1
5	LMR21-14S Rep E	10/18/21				1	1	
6	LMR21-15S Rep A	10/12/21				1	1	
7	LMR21-15S Rep B	10/12/21				1	1	X AH
8	LMR21-15S Rep C	10/14/21				1		1
9	LMR21-15S Rep D	10/14/21				1	AH	1
10	LMR21-15S Rep E	10/18/21				1	1	

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: 40-3208400

Project Comments:
Subcontract to ALS Burlington Ontario Canada; Worm Tissue Samples for PCB Congener analysis.

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

Sample/COC Comments
*Worm Tissue

EDDs:
USACE Buffalo
ERPTOOLS X Middletown
EPA region 5

SAMPLED BY (Please Print):

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Ashley Harmon / USACE	10/27/21	11:00	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: ☐ Standard ☐ CLP-like [x] USACE/DOD [x] Level IV

Special Processing: USACE ☐ Navy ☐ ☐

State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC [x] OH other

Reportable to PADEP? Yes ☐ No [x]
PWSID # See Comments

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type-

* G=Grab; C=Composite

**Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

ALS

301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 3 of 7

ALS Quote #:

Client Name: ALS
Address: 301 Fulling Mill Road
Middletown PA 17057
Contact: Susan Scherer
Phone#: (717) 702-2245
Project Name/#: Lower Maumee River
Bill To: ALS

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 8 weeks Approved?
Email? [x] -Y Susan.Scherer@ALSGlobal.com
Fax? [ ] -Y No.:

Container Type: CG; Container Size: 8oz; Preservative: NONE

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners 1668C	Cooler 1	Cooler 2
1	LMR21-17S Rep A	10/12/21			*	1	1	
2	LMR21-17S Rep B	10/12/21				1	1	
3	LMR21-17S Rep C	10/14/21				1		1
4	LMR21-17S Rep D	10/14/21				1		1
5	LMR21-17S Rep E	10/18/21				1	1	
6	LMR21-19S Rep A	10/12/21				1	1	
7	LMR21-19S Rep B	10/12/21				1	1	
8	LMR21-19S Rep C	10/14/21				1		1
9	LMR21-19S Rep D	10/14/21				1		1
10	LMR21-19S Rep E	10/18/21				1	1	

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: 40-3208400

Project Comments:
Subcontract to ALS Burlington Ontario Canada; Worm Tissue Samples for PCB Congener analysis.

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

Sample/COC Comments
*Worm Tissue

EDDs:
USACE Buffalo
ERPTOOLS X Middletown
EPA region 5

SAMPLED BY (Please Print):

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Ashley Harmon / USACE	10/27/21	11:00	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Reportable to PADEP? Yes [ ] No [x]
PWSID # See Comments
EDDS: Format Type-

Special Processing: USACE [ ] Navy [ ] [ ]

Sample Disposal: Lab [ ] Special [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

ALS
301 Fulling Mill Rd
Middletown, PA 17057
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F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 4 of 7

ALS Quote #:

Client Name: ALS
Address: 301 Fulling Mill Road
Middletown PA 17057
Contact: Susan Scherer
Phone#: (717) 702-2245
Project Name/#: Lower Maumee River
Bill To: ALS

TAT ☐ Normal-Standard TAT is 10-12 business days.
☐ Rush-Subject to ALS approval and surcharges.
Date Required: 8 weeks Approved?
Email? [x] -Y Susan.Scherer@ALSGlobal.com
Fax? ☐ -Y No.:

Container Type: CG
Container Size: 8oz
Preservative: NONE

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners 1668C	Cooler 1	Cooler 2
1	LMR21-25S Rep A	10/12/21			*	1	1	
2	LMR21-25S Rep B	10/12/21				1	1	
3	LMR21-25S Rep C	10/14/21				1		1
4	LMR21-25S Rep D	10/14/21				1		1
5	LMR21-25S Rep E	10/18/21				1	1	
6	LMR21-27S Rep A	10/12/21				1	1	
7	LMR21-27S Rep B	10/12/21				1	1	
8	LMR21-27S Rep C	10/14/21				1		1
9	LMR21-27S Rep D	10/14/21				1		1
10	LMR21-27S Rep E	10/18/21				1	1	

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: 40-3208400

Project Comments:
Subcontract to ALS Burlington Ontario Canada; Worm Tissue Samples for PCB Congener analysis.

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

Sample/COC Comments
*Worm Tissue

EDDs:
USACE Buffalo
ERPTOOLS X Middletown
EPA region 5

SAMPLED BY (Please Print):

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Ashley Herman	10/27/21	11:00	2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: ☐ Standard ☐ CLP-like [x] USACE/DOD [x] Level IV

Special Processing: USACE ☐ Navy ☐ ☐

State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC [x] OH other

Reportable to PADEP? Yes ☐ No [x]
PWSID # See Comments

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

ALS
301 Fulling Mill Rd
Middletown, PA 17057
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F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 5 of 7

ALS Quote #:

Client Name: ALS
Address: 301 Fulling Mill Road
Middletown PA 17057
Contact: Susan Scherer
Phone#: (717) 702-2245
Project Name/#: Lower Maumee River
Bill To: ALS

TAT
- [ ] Normal-Standard TAT is 10-12 business days.
- [ ] Rush-Subject to ALS approval and surcharges.

Date Required: 8 weeks Approved?
Email? [x] -Y Susan.Scherer@ALSGlobal.com
Fax? [ ] -Y No.:

Container Type: CG
Container Size: 8oz
Preservative: NONE

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners 1668C	Cooler 1	Cooler 2
1	LMR21-45S Rep A	10/12/21			*	1	1	
2	LMR21-45S Rep B	10/12/21				1	1	
3	LMR21-45S Rep C	10/14/21				1		1
4	LMR21-45S Rep D	10/14/21				1		1
5	LMR21-45S Rep E	10/18/21				1	1	
6	LMR21-64S Rep A	10/12/21				1	1	
7	LMR21-64S Rep B	10/12/21				1	1	
8	LMR21-64S Rep C	10/14/21				1		1
9	LMR21-64S Rep D	10/14/21				1		1
10	LMR21-64S Rep E	10/18/21				1	1	

SAMPLED BY (Please Print):

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Ashley Herrmann / USACE	10/21/21	11:00	2			
3				4			
5				6			
7				8			
9				10			

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: 40-3208400

Project Comments:
Subcontract to ALS Burlington Ontario Canada; Worm Tissue Samples for PCB Congener analysis.

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

Sample/COC Comments
*Worm Tissue

EDDs:
USACE Buffalo
ERPTOOLS X Middletown
EPA region 5

Data Deliverables
- [ ] Standard
- [ ] CLP-like
- [x] USACE/DOD
- [x] Level IV

Special Processing
- USACE [ ]
- Navy [ ]

State Samples Collected In
- [ ] NY
- [ ] NJ
- [ ] PA
- [ ] NC
- [x] OH
- other

Reportable to PADEP? Yes [ ] No [x]
PWSID # See Comments

Sample Disposal
- Lab [ ]
- Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite

**Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 6 of 7

ALS Quote #:

Client Name: ALS
Address: 301 Fulling Mill Road
Middletown PA 17057
Contact: Susan Scherer
Phone#: (717) 702-2245
Project Name/#: Lower Maumee River
Bill To: ALS

TAT [ ] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: 8 weeks Approved?
Email? [x] -Y Susan.Scherer@ALSGlobal.com
Fax? [ ] -Y No.:

Container Type: CG | Container Size: 8oz | Perservative: NONE

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners 1668C	Cooler 1	Cooler 2
1	LMR21-66S Rep A	10/12/21			*	1	|	
2	LMR21-66S Rep B	10/12/21				1	|	
3	LMR21-66S Rep C	10/14/21				1		|
4	LMR21-66S Rep D	10/14/21				1		|
5	LMR21-66S Rep E	10/18/21				1	|	
6	LMR21-68S Rep A	10/12/21				1	|	
7	LMR21-68S Rep B	10/12/21				1	|	
8	LMR21-68S Rep C	10/14/21				1		|
9	LMR21-68S Rep D	10/14/21				1		|
10	LMR21-68S Rep E	10/18/21				1	|	

SAMPLED BY (Please Print):

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ashley Harmer / USACE	10/27/21	11:00	2		
3			4		
5			6		
7			8		
9			10		

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: 40-3208400

Project Comments:
Subcontract to ALS Burlington Ontario Canada; Worm Tissue Samples for PCB Congener analysis.

ALS Field Services: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment
Other:

Sample/COC Comments
*Worm Tissue

EDDs:
USACE Buffalo
ERPTOOLS X Middletown
EPA region 5

Data Deliverables: [ ] Standard [ ] CLP-like [x] USACE/DOD [x] Level IV

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [x] OH other

Reportable to PADEP? Yes [ ] No [x]
PWSID # See Comments

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

ALS
301 Fulling Mill Rd
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 7 of 7
ALS Quote #:

Client Name: ALS
Address: 301 Fulling Mill Road, Middletown PA 17057
Contact: Susan Scherer
Phone#: (717) 702-2245
Project Name/#: Lower Maumee River
Bill To: ALS

TAT ☐ Normal-Standard TAT is 10-12 business days.
☐ Rush-Subject to ALS approval and surcharges.
Date Required: 8 weeks Approved?
Email? [x]-Y Susan.Scherer@ALSGlobal.com
Fax? ☐-Y No.:

Container Type: CG | Container Size: 8oz | Preservative: NONE

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	PCB Congeners 1668C	Cooler 1	Cooler 2
1	LMR21-69S Rep A	10/12/21			*	1	1	
2	LMR21-69S Rep B	10/12/21				1	1	
3	LMR21-69S Rep C	10/14/21				1		1
4	LMR21-69S Rep D	10/14/21				1		1
5	LMR21-69S Rep E	10/18/21				1	1	
6								
7								
8								
9								
10								

Receipt Information (completed by Receiving Lab)
W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #: 40-3208400

Project Comments:
Subcontract to ALS Burlington Ontario Canada; Worm Tissue Samples for PCB Congener analysis.

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other:

Sample/COC Comments
*Worm Tissue

EDDs:
USACE Buffalo
ERPTOOLS X Middletown
EPA region 5

SAMPLED BY (Please Print):

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Ashley Howard / USACE			2			
3				4			
5				6			
7				8			
9				10			

Data Deliverables: ☐ Standard ☐ CLP-like [x] USACE/DOD [x] Level IV
Reportable to PADEP? Yes ☐ No [x]
PWSID # See Comments
EDDS: Format Type-

Special Processing: USACE ☐ Navy ☐ ☐
Sample Disposal: Lab ☐ Special ☐

State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC [x] OH other

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, MIDDLETOWN, PA 17057

Rev 11/18

Appendix S. Lipid Analysis Laboratory Report

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

26 January 2022

Buffalo District
Buffalo District
-
-, --
RE: Buffalo District Maumee River

Enclosed are the results of analyses for samples received by the laboratory on 10-Nov-2021-10-Nov-2021. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer then these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jenifer Milam Netchaev
Database Manager

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
LMR21-11S A	21K1001-06	Tissue	12-Oct-2021	10-Nov-2021
LMR21-11S B	21K1001-07	Tissue	12-Oct-2021	10-Nov-2021
LMR21-11S C	21K1001-08	Tissue	14-Oct-2021	10-Nov-2021
LMR21-11S D	21K1001-09	Tissue	14-Oct-2021	10-Nov-2021
LMR21-11S E	21K1001-10	Tissue	18-Oct-2021	10-Nov-2021
LMR21-12S A	21K1001-11	Tissue	12-Oct-2021	10-Nov-2021
LMR21-12S B	21K1001-12	Tissue	12-Oct-2021	10-Nov-2021
LMR21-12S C	21K1001-13	Tissue	14-Oct-2021	10-Nov-2021
LMR21-12S D	21K1001-14	Tissue	14-Oct-2021	10-Nov-2021
LMR21-12S E	21K1001-15	Tissue	18-Oct-2021	10-Nov-2021
LMR21-14S A	21K1001-16	Tissue	12-Oct-2021	10-Nov-2021
LMR21-14S B	21K1001-17	Tissue	12-Oct-2021	10-Nov-2021
LMR21-14S C	21K1001-18	Tissue	14-Oct-2021	10-Nov-2021
LMR21-14S D	21K1001-19	Tissue	14-Oct-2021	10-Nov-2021
LMR21-14S E	21K1001-20	Tissue	18-Oct-2021	10-Nov-2021
LMR21-15S A	21K1001-21	Tissue	12-Oct-2021	10-Nov-2021
LMR21-15S B	21K1001-22	Tissue	12-Oct-2021	10-Nov-2021
LMR21-15S C	21K1001-23	Tissue	14-Oct-2021	10-Nov-2021
LMR21-15S D	21K1001-24	Tissue	14-Oct-2021	10-Nov-2021
LMR21-15S E	21K1001-25	Tissue	18-Oct-2021	10-Nov-2021
LMR21-17S A	21K1001-26	Tissue	12-Oct-2021	10-Nov-2021
LMR21-17S B	21K1001-27	Tissue	12-Oct-2021	10-Nov-2021
LMR21-17S C	21K1001-28	Tissue	14-Oct-2021	10-Nov-2021
LMR21-17S D	21K1001-29	Tissue	14-Oct-2021	10-Nov-2021
LMR21-17S E	21K1001-30	Tissue	18-Oct-2021	10-Nov-2021
LMR21-19S A	21K1001-31	Tissue	12-Oct-2021	10-Nov-2021
LMR21-19S B	21K1001-32	Tissue	12-Oct-2021	10-Nov-2021
LMR21-19S C	21K1001-33	Tissue	14-Oct-2021	10-Nov-2021
LMR21-19S D	21K1001-34	Tissue	14-Oct-2021	10-Nov-2021
LMR21-19S E	21K1001-35	Tissue	18-Oct-2021	10-Nov-2021
LMR21-25S A	21K1002-01	Tissue	12-Oct-2021	10-Nov-2021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
LMR21-25S B	21K1002-02	Tissue	12-Oct-2021	10-Nov-2021
LMR21-25S C	21K1002-03	Tissue	14-Oct-2021	10-Nov-2021
LMR21-25S D	21K1002-04	Tissue	14-Oct-2021	10-Nov-2021
LMR21-25S E	21K1002-05	Tissue	18-Oct-2021	10-Nov-2021
LMR21-27S A	21K1002-06	Tissue	12-Oct-2021	10-Nov-2021
LMR21-27S B	21K1002-07	Tissue	12-Oct-2021	10-Nov-2021
LMR21-27S C	21K1002-08	Tissue	14-Oct-2021	10-Nov-2021
LMR21-27S D	21K1002-09	Tissue	14-Oct-2021	10-Nov-2021
LMR21-27S E	21K1002-10	Tissue	18-Oct-2021	10-Nov-2021
LMR21-45S A	21K1002-11	Tissue	12-Oct-2021	10-Nov-2021
LMR21-45S B	21K1002-12	Tissue	12-Oct-2021	10-Nov-2021
LMR21-45S C	21K1002-13	Tissue	14-Oct-2021	10-Nov-2021
LMR21-45S D	21K1002-14	Tissue	14-Oct-2021	10-Nov-2021
LMR21-45S E	21K1002-15	Tissue	18-Oct-2021	10-Nov-2021
LMR21-64S A	21K1002-16	Tissue	12-Oct-2021	10-Nov-2021
LMR21-64S B	21K1002-17	Tissue	12-Oct-2021	10-Nov-2021
LMR21-64S C	21K1002-18	Tissue	14-Oct-2021	10-Nov-2021
LMR21-64S D	21K1002-19	Tissue	14-Oct-2021	10-Nov-2021
LMR21-64S E	21K1002-20	Tissue	18-Oct-2021	10-Nov-2021
LMR21-66S A	21K1002-21	Tissue	12-Oct-2021	10-Nov-2021
LMR21-66S B	21K1002-22	Tissue	12-Oct-2021	10-Nov-2021
LMR21-66S C	21K1002-23	Tissue	14-Oct-2021	10-Nov-2021
LMR21-66S D	21K1002-24	Tissue	14-Oct-2021	10-Nov-2021
LMR21-66S E	21K1002-25	Tissue	18-Oct-2021	10-Nov-2021
LMR21-68S A	21K1002-26	Tissue	12-Oct-2021	10-Nov-2021
LMR21-68S B	21K1002-27	Tissue	12-Oct-2021	10-Nov-2021
LMR21-68S C	21K1002-28	Tissue	14-Oct-2021	10-Nov-2021
LMR21-68S D	21K1002-29	Tissue	14-Oct-2021	10-Nov-2021
LMR21-68S E	21K1002-30	Tissue	18-Oct-2021	10-Nov-2021
LMR21-69S A	21K1002-31	Tissue	12-Oct-2021	10-Nov-2021
LMR21-69S B	21K1002-32	Tissue	12-Oct-2021	10-Nov-2021
LMR21-69S C	21K1002-33	Tissue	14-Oct-2021	10-Nov-2021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
LMR21-69S D	21K1002-34	Tissue	14-Oct-2021	10-Nov-2021
LMR21-69S E	21K1002-35	Tissue	18-Oct-2021	10-Nov-2021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

Case Narrative

No issues were experienced during the analysis of Work Order 21K1001 unless specified below.

Case Narrative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Value is outside of acceptance limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-11S A

21K1001-06 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters								
% Lipids	**2.01**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-11S B

21K1001-07 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.93**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-11S C

21K1001-08 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters								
% Lipids	**1.72**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-11S D

21K1001-09 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.98**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determinatio n	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-11S E

21K1001-10 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.90**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	 **Reported:** 26-Jan-2022

LMR21-12S A

21K1001-11 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.48**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-12S B

21K1001-12 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.58**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-12S C

21K1001-13 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.88**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-12S D

21K1001-14 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.09**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-12S E

21K1001-15 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.45**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Page 15 of 74

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-14S A

21K1001-16 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.89**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-14S B

21K1001-17 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.91**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		**Reported:**
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-14S C

21K1001-18 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.73**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Page 18 of 74

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-14S D

21K1001-19 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.42**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Page 19 of 74

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-14S E

21K1001-20 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.87**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-15S A

21K1001-21 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.86**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-15S B

21K1001-22 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.74**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-15S C

21K1001-23 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**2.54**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-15S D

21K1001-24 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.44**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-15S E

21K1001-25 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.44**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-17S A

21K1001-26 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.87**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-17S B

21K1001-27 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.52**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-17S C

21K1001-28 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.30**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-17S D

21K1001-29 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.65**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-17S E

21K1001-30 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters

% Lipids	**1.74**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-19S A

21K1001-31 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.23**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-19S B

21K1001-32 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**2.09**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-19S C

21K1001-33 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.04**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		**Reported:**
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-19S D

21K1001-34 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters								
% Lipids	**2.14**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	**Reported:** 26-Jan-2022

LMR21-19S E

21K1001-35 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.82**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	**Reported:** 26-Jan-2022

LMR21-25S A

21K1002-01 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.62**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determinatio n	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-25S B

21K1002-02 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**2.07**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-25S C

21K1002-03 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.72**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-25S D

21K1002-04 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters

% Lipids	**1.43**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-25S E

21K1002-05 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.41**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-27S A

21K1002-06 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.56**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-27S B

21K1002-07 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.71**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-27S C

21K1002-08 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.74**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-27S D

21K1002-09 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.34**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-27S E

21K1002-10 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.28**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	**Project:** Buffalo District Maumee River	
-		**Reported:**
- -, -	**Project Manager:** Buffalo District	26-Jan-2022

LMR21-45S A

21K1002-11 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.57**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-45S B

21K1002-12 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.90**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-45S C

21K1002-13 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.60**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-45S D

21K1002-14 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.77**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-45S E

21K1002-15 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.60**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-64S A

21K1002-16 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.33**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-64S B

21K1002-17 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.74**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-64S C

21K1002-18 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.80**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-64S D

21K1002-19 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters								
% Lipids	**1.43**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-64S E

21K1002-20 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.56**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-66S A

21K1002-21 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.55**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-66S B

21K1002-22 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.33**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-66S C

21K1002-23 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.36**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-66S D

21K1002-24 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
% Lipids	**1.40**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		**Reported:**
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-66S E

21K1002-25 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.45**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determinatio n	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-68S A

21K1002-26 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.72**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-68S B

21K1002-27 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.39**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-68S C

21K1002-28 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.24**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-68S D

21K1002-29 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
				ERDC-EL-EP-C				
Classical Chemistry Parameters								
% Lipids	**1.25**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-68S E

21K1002-30 (Tissue)

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
Classical Chemistry Parameters								
% Lipids	**1.50**			**% by Weight**	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-69S A

21K1002-31 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes

ERDC-EL-EP-C

Classical Chemistry Parameters

% Lipids	**1.36**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-69S B

21K1002-32 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
ERDC-EL-EP-C								
Classical Chemistry Parameters								
% Lipids	**1.49**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-69S C

21K1002-33 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.34**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

LMR21-69S D

21K1002-34 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.25**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

LMR21-69S E

21K1002-35 (Tissue)

Analyte	Result	Detection Limit	Reporting Limit	Units	Prepared	Analyzed	Method	Notes
			ERDC-EL-EP-C					
Classical Chemistry Parameters								
% Lipids	**1.27**			% by Weight	11-Jan-2022	13-Jan-2022	Lipid Content by Colorimetric Determination	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District - - -, -	Project: Buffalo District Maumee River Project Manager: Buffalo District	Reported: 26-Jan-2022

Classical Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B21K100 - * DEFAULT PREP *****											
Blank (B21K100-BLK1)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	0.00			% by Weight							U
Blank (B21K100-BLK2)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	0.00			% by Weight							U
LCS (B21K100-BS1)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	1.36			% by Weight	1.000		136	75-125			Q
LCS (B21K100-BS2)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	1.16			% by Weight	1.000		116	75-125			
LCS Dup (B21K100-BSD1)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	1.25			% by Weight	1.000		125	75-125	8.43	30	
LCS Dup (B21K100-BSD2)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	1.31			% by Weight	1.000		131	75-125	12.1	30	Q
Batch B21K101 - * DEFAULT PREP *****											
Blank (B21K101-BLK1)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	0.00			% by Weight							U
Blank (B21K101-BLK2)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	0.00			% by Weight							U
LCS (B21K101-BS1)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	0.955			% by Weight	1.000		95.5	75-125			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Buffalo District	Project: Buffalo District Maumee River	
-		Reported:
- -, -	Project Manager: Buffalo District	26-Jan-2022

Classical Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B21K101 - * DEFAULT PREP *****											
LCS (B21K101-BS2)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	1.15			% by Weight	1.000		115	75-125			
LCS Dup (B21K101-BSD1)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	1.04			% by Weight	1.000		104	75-125	8.81	30	
LCS Dup (B21K101-BSD2)					**Prepared: 11-Jan-2022 Analyzed: 13-Jan-2022**						
% Lipids	1.04			% by Weight	1.000		104	75-125	10.2	30	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ECB Sample Submission Form

Form to be completed and returned to Kelli Hartman Bldg. 3299, Rm. 102, Ext. 3966

Analysis will not begin until this form is received. *A valid SOW is required in advance*.

Person submitting samples: Ashley Harmon Extension to be reached at: 5424

P.I. name: Dan Farrar

Extension to be reached at: 2118

Project Name: Maumee River

People to receive report: X P.I.

Submitter ☐ Other:

Special considerations (High concentrations, non-standard matrix, e.g.):

#	Sample ID	Sample Date	Sample Matrix	Preservative	Analysis Requested
~~1~~	~~Control A~~	~~10/12/2021~~	~~L. variegatus~~	~~None~~	~~Lipids~~
~~2~~	~~Control B~~	~~10/12/2021~~	~~L. variegatus~~	~~None~~	Lipids No control
~~3~~	~~Control C~~	~~10/14/2021~~	~~L. variegatus~~	~~None~~	~~Lipids~~
~~4~~	~~Control D~~	~~10/14/2021~~	~~L. variegatus~~	~~None~~	~~Lipids~~ samples recieved
~~5~~	~~Control E~~	~~10/18/2021~~	~~L. variegatus~~	~~None~~	Lipids
6	LMR21-11S A	10/12/2021	L. variegatus	None	Lipids -AH
7	LMR21-11S B	10/12/2021	L. variegatus	None	Lipids
8	LMR21-11S C	10/14/2021	L. variegatus	None	Lipids
9	LMR21-11S D	10/14/2021	L. variegatus	None	Lipids
10	LMR21-11S E	10/18/2021	L. variegatus	None	Lipids
11	LMR21-12S A	10/12/2021	L. variegatus	None	Lipids
12	LMR21-12S B	10/12/2021	L. variegatus	None	Lipids
13	LMR21-12S C	10/14/2021	L. variegatus	None	Lipids
14	LMR21-12S D	10/14/2021	L. variegatus	None	Lipids
15	LMR21-12S E	10/18/2021	L. variegatus	None	Lipids
16	LMR21-14S A	10/12/2021	L. variegatus	None	Lipids
17	LMR21-14S B	10/12/2021	L. variegatus	None	Lipids
18	LMR21-14S C	10/14/2021	L. variegatus	None	Lipids
19	LMR21-14S D	10/14/2021	L. variegatus	None	Lipids
20	LMR21-14S E	10/18/2021	L. variegatus	None	Lipids
21	LMR21-15S A	10/12/2021	L. variegatus	None	Lipids
22	LMR21-15S B	10/12/2021	L. variegatus	None	Lipids
23	LMR21-15S C	10/14/2021	L. variegatus	None	Lipids
24	LMR21-15S D	10/14/2021	L. variegatus	None	Lipids
25	LMR21-15S E	10/18/2021	L. variegatus	None	Lipids
26	LMR21-17S A	10/12/2021	L. variegatus	None	Lipids
27	LMR21-17S B	10/12/2021	L. variegatus	None	Lipids
28	LMR21-17S C	10/14/2021	L. variegatus	None	Lipids
29	LMR21-17S D	10/14/2021	L. variegatus	None	Lipids
30	LMR21-17S E	10/18/2021	L. variegatus	None	Lipids
31	LMR21-19S A	10/12/2021	L. variegatus	None	Lipids
32	LMR21-19S B	10/12/2021	L. variegatus	None	Lipids
33	LMR21-19S C	10/14/2021	L. variegatus	None	Lipids
34	LMR21-19S D	10/14/2021	L. variegatus	None	Lipids
35	LMR21-19S E	10/18/2021	L. variegatus	None	Lipids
36	LMR21-25S A	10/12/2021	L. variegatus	None	Lipids
37	LMR21-25S B	10/12/2021	L. variegatus	None	Lipids
38	LMR21-25S C	10/14/2021	L. variegatus	None	Lipids
39	LMR21-25S D	10/14/2021	L. variegatus	None	Lipids
40	LMR21-25S E	10/18/2021	L. variegatus	None	Lipids

Dwan Nash 11/10/2021 1106 S.O.C

Ashley Harmon 11/10/2021 1106

#	Sample ID	Sample Date	Sample	Preservative	Analysis Requested
41	LMR21-27S A	10/12/2021	L. variegatus	None	Lipids
42	LMR21-27S B	10/12/2021	L. variegatus	None	Lipids
43	LMR21-27S C	10/14/2021	L. variegatus	None	Lipids
44	LMR21-27S D	10/14/2021	L. variegatus	None	Lipids
45	LMR21-27S E	10/18/2021	L. variegatus	None	Lipids
46	LMR21-45S A	10/12/2021	L. variegatus	None	Lipids
47	LMR21-45S B	10/12/2021	L. variegatus	None	Lipids
48	LMR21-45S C	10/14/2021	L. variegatus	None	Lipids
49	LMR21-45S D	10/14/2021	L. variegatus	None	Lipids
50	LMR21-45S E	10/18/2021	L. variegatus	None	Lipids
51	LMR21-64S A	10/12/2021	L. variegatus	None	Lipids
52	LMR21-64S B	10/12/2021	L. variegatus	None	Lipids
53	LMR21-64S C	10/14/2021	L. variegatus	None	Lipids
54	LMR21-64S D	10/14/2021	L. variegatus	None	Lipids
55	LMR21-64S E	10/18/2021	L. variegatus	None	Lipids
56	LMR21-66S A	10/12/2021	L. variegatus	None	Lipids
57	LMR21-66S B	10/12/2021	L. variegatus	None	Lipids
58	LMR21-66S C	10/14/2021	L. variegatus	None	Lipids
59	LMR21-66S D	10/14/2021	L. variegatus	None	Lipids
60	LMR21-66S E	10/18/2021	L. variegatus	None	Lipids
61	LMR21-68S A	10/12/2021	L. variegatus	None	Lipids
62	LMR21-68S B	10/12/2021	L. variegatus	None	Lipids
63	LMR21-68S C	10/14/2021	L. variegatus	None	Lipids
64	LMR21-68S D	10/14/2021	L. variegatus	None	Lipids
65	LMR21-68S E	10/18/2021	L. variegatus	None	Lipids
66	LMR21-69S A	10/12/2021	L. variegatus	None	Lipids
67	LMR21-69S B	10/12/2021	L. variegatus	None	Lipids
68	LMR21-69S C	10/14/2021	L. variegatus	None	Lipids
69	LMR21-69S D	10/14/2021	L. variegatus	None	Lipids
70	LMR21-69S E	10/18/2021	L. variegatus	None	Lipids

Appendix 3
Statistical Evaluation of Worm Tissue PCB Congener Concentrations

Appendix 3

Table A3.1	Summary of Total PCB Congeners Results per Worm Tissue Sample
Table A3.2	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-10S vs. LMR21-69S
Table A3.3	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-12S vs. LMR21-69S
Table A3.4	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-14S vs. LMR21-69S
Table A3.5	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-15S vs. LMR21-69S
Table A3.6	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-17S vs. LMR21-69S
Table A3.7	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-19S vs. LMR21-69S
Table A3.8	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-25S vs. LMR21-69S
Table A3.9	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-27S vs. LMR21-69S
Table A3.10	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-45S vs. LMR21-69S
Table A3.11	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-64S vs. LMR21-69S
Table A3.12	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-66S vs. LMR21-69S
Table A3.13	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-68S vs. LMR21-69S

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Table A3.5	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-15S vs. LMR21-69S
Table A3.6	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-17S vs. LMR21-69S
Table A3.7	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-19S vs. LMR21-69S
Table A3.8	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-25S vs. LMR21-69S
Table A3.9	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-27S vs. LMR21-69S
Table A3.10	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-45S vs. LMR21-69S
Table A3.11	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-64S vs. LMR21-69S
Table A3.12	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-66S vs. LMR21-69S
Table A3.13	Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-68S vs. LMR21-69S

Table A3.1 Summary of Total PCB Congeners Results per Worm Tissue Sample

Replicate / sample (LMR21-_)	10S	12S	14S	15S	17S	19S	25S	27S	45S	64S	66S	68S	69S (reference)
A	50.08	16.78	33.3	408.21	765.18	1224.62	21.41	20.24	30.3	22.53	31.5	29.49	10.74
B	41.87	26.12	39.28	387.11	732.44	134.22	15.73	26.89	22.75	26.92	36.19	29.4	11.23
C	38.94	17.92	33.1	303.29	766.6	758.89	13.43	16.22	27.36	20.16	23.97	38.27	10.41
D	42.65	16.37	30.91	309.41	631.83	869.05	13.59	16.77	30.63	19.26	46.96	22.57	9.55
E	40.16	16.11	33.58	279.21	655.17	777.03	14.83	15.68	29.43	25.89	33.29	22.82	10.79
preliminary mean worm tPCB (µg/kg)	42.74	18.66	34.03	337.45	710.24	752.76	15.80	19.16	28.09	22.95	34.38	28.51	10.54
validated mean worm tPCB (µg/kg)	42.79	18.71	33.98	337.48	710.25	753.00	15.82	19.23	28.11	22.96	34.41	28.51	10.49

Note, validated results of individual worm tissue samples are presented in Table A.14

Table A3.2 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-10S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:23
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 10
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	38.94	9.55
Maximum	50.08	11.23
Mean	42.74	10.54
Median	41.87	10.74
SD	4.351	0.628
SE of Mean	1.946	0.281
CV	10.18%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	16.375	1.397	0
Welch-Satterthwaite (Unequal Var	4.2	16.375	1.533	0

Pooled SD 3.109
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	18.93
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	48.071	0.002

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.3 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-12S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:27
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 12
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	16.11	9.55
Maximum	26.12	11.23
Mean	18.66	10.54
Median	16.78	10.74
SD	4.227	0.628
SE of Mean	1.891	0.281
CV	22.65%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	4.246	1.397	0.001
Welch-Satterthwaite (Unequal Var	4.2	4.246	1.533	0.006

Pooled SD 3.022
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	17.87
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	45.369	0.003

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.4 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-14S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:37
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 14
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	30.91	9.55
Maximum	39.28	11.23
Mean	34.03	10.54
Median	33.3	10.74
SD	3.118	0.628
SE of Mean	1.395	0.281
CV	9.16%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	16.513	1.397	0
Welch-Satterthwaite (Unequal Var	4.3	16.513	1.533	0

Pooled SD 2.249
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	9.724
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	24.688	0.009

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.5 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-15S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:39
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 15
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	279.2	9.55
Maximum	408.2	11.23
Mean	337.4	10.54
Median	309.4	10.74
SD	56.61	0.628
SE of Mean	25.32	0.281
CV	16.78%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	12.912	1.397	0
Welch-Satterthwaite (Unequal Var	4	12.912	1.533	0

Pooled SD 40.031
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	3205
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	8135.814	0

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.6 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-17S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:42
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 17
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	631.8	9.55
Maximum	766.6	11.23
Mean	710.2	10.54
Median	732.4	10.74
SD	62.99	0.628
SE of Mean	28.17	0.281
CV	8.87%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	24.839	1.397	0
Welch-Satterthwaite (Unequal Var	4	24.839	1.533	0

Pooled SD 44.539
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	3967
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	10071.93	0

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.7 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-19S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:42
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 19
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	134.2	9.55
Maximum	1225	11.23
Mean	752.8	10.54
Median	777	10.74
SD	393.5	0.628
SE of Mean	176	0.281
CV	52.27%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	4.218	1.397	0.001
Welch-Satterthwaite (Unequal Var	4	4.218	1.533	0.007

Pooled SD 278.252
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	154848
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	393136	0

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.8 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-25S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:43
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 25
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	13.43	9.55
Maximum	21.41	11.23
Mean	15.8	10.54
Median	14.83	10.74
SD	3.276	0.628
SE of Mean	1.465	0.281
CV	20.73%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	3.523	1.397	0.004
Welch-Satterthwaite (Unequal Var	4.3	3.523	1.533	0.011

Pooled SD 2.358
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	10.73
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	27.241	0.007

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.9 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-27S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:44
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 27
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	15.68	9.55
Maximum	26.89	11.23
Mean	19.16	10.54
Median	16.77	10.74
SD	4.674	0.628
SE of Mean	2.09	0.281
CV	24.39%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	4.085	1.397	0.002
Welch-Satterthwaite (Unequal Var	4.1	4.085	1.533	0.007

Pooled SD 3.335
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	21.85
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	55.464	0.002

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.10 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-45S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:45
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 45
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	22.75	9.55
Maximum	30.63	11.23
Mean	28.09	10.54
Median	29.43	10.74
SD	3.247	0.628
SE of Mean	1.452	0.281
CV	11.56%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	11.865	1.397	0
Welch-Satterthwaite (Unequal Var	4.3	11.865	1.533	0

Pooled SD 2.339
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	10.54
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	26.772	0.008

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.11 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-64S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:46
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 64
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	19.26	9.55
Maximum	26.92	11.23
Mean	22.95	10.54
Median	22.53	10.74
SD	3.39	0.628
SE of Mean	1.516	0.281
CV	14.77%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	8.047	1.397	0
Welch-Satterthwaite (Unequal Var	4.3	8.047	1.533	0

Pooled SD 2.438
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	11.5
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	29.185	0.006

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.12 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-66S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:48
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 66
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	23.97	9.55
Maximum	46.96	11.23
Mean	34.38	10.54
Median	33.29	10.74
SD	8.357	0.628
SE of Mean	3.738	0.281
CV	24.31%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	6.36	1.397	0
Welch-Satterthwaite (Unequal Var	4	6.36	1.533	0.002

Pooled SD 5.926
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	69.85
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	177.328	0

Conclusion with Alpha = 0.10
Two variances are not equal

Table A3.13 Statistical Comparison of Mean Total PCB Congener Concentration Worm Tissue Sample LMR21-68S vs. LMR21-69S

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	2/25/2022 8:48
From File	PCB congener worm total3 ProUCL.xls
Full Precision	OFF
Confidence Coefficient	90%
Substantial Difference (S)	0
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: 68
Sample 2 Data: 69

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	5	5
Number of Distinct Observations	5	5
Minimum	22.57	9.55
Maximum	38.27	11.23
Mean	28.51	10.54
Median	29.4	10.74
SD	6.416	0.628
SE of Mean	2.869	0.281
CV	22.50%	5.96%

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.1)	P-Value
Pooled (Equal Variance)	8	6.231	1.397	0
Welch-Satterthwaite (Unequal Var	4.1	6.231	1.533	0.002

Pooled SD 4.559
Conclusion with Alpha = 0.100
Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2
Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	41.17
Variance of Sample 2	0.394

Numerator DF	Denominator DF	F-Test Value	P-Value
4	4	104.518	0.001

Conclusion with Alpha = 0.10
Two variances are not equal

Appendix 4

Data Usability Summary Report

Data Usability Assessment Report

Lower Maumee River
Wastewater Treatment Plant and Sway Bridge
Data Gap Investigation
Maumee Area of Concern, Toledo Ohio

Prepared For:
United States Environmental Protection Agency
Great Lakes National Program Office
77 West Jackson Boulevard, SR-6J
Chicago, Illinois 60604-3507
Interagency Agreement/Amendment No. DW-096-95916501 – 8

Prepared By:
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June 2022

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Attachment 1 Data Validation Reports

1. Introduction

This Data Usability Assessment Report summarizes the data quality evaluation (data review and validation) performed on the data sets collected from the field investigation of the Lower Maumee River from August 10 – 13, 2021. The purpose of the data quality evaluation is to determine whether the sample results meet the Data Quality Objectives (DQO) outlined in the Quality Assurance Project Plan (QAPP), and whether the data is of sufficient quality to be used for project decision making purposes. The sediment characterization effort is intended to collect data of sufficient quality and quantity to evaluate potential sediment contaminant impacts contributing to beneficial use impairments (BUI) in the Lower Maumee River portion of the Maumee AOC. These characterization efforts are intended to support the development of remedial alternatives in a subsequent Feasibility Study which may be necessary to address BUIs associated with sediment contamination.

Details concerning sampling design, sample collection, and analytical program are provided in Sections 1, 2, and 3 of the Sediment Characterization Report.

Results of chemical analysis on the sediment, elutriate, and worm tissue samples were received from 3 different laboratories, ALS Middleton and ALS Burlington (under contract to USACE) as well as Battelle (under contract to EPA Office of Research and Development). In addition, results from grain size analysis of the sediment samples were received from Toledo Testing Laboratories (under contract to USACE). Biological (bioassay) testing results on sediment and elutriate samples were received from the USACE Engineer Research and Development Center Environmental Laboratory.

2. Data Review

All data were reviewed and verified by USACE to ensure completeness and accuracy of field chain-of-custody, laboratory EDDs, and laboratory analytical data packages. During this review, some discrepancies were noted in sample identifiers in the EDDs, which were corrected when the data were imported into USACE's database.

The chemical analytical results from sediment, elutriate, and worm tissue underwent a third party validation, which is summarized in Section 3.

Further details of USACE's review of the physical and biological analyses of sediments are provided below.

2.1. Physical analysis

Grain size results were obtained from the Toledo Testing Laboratory via 8 EDDs and associated Grain Size Distribution charts. The data sets were reviewed by USACE for completeness, and were incorporated into USACE's database.

2.2. Bioassays

The ERDC environmental laboratory performed 3 types of bioassays on the sediment samples as summarized and fully described in Section 5 and Appendix 2 of the Sediment Characterization Report. As described in Appendix 2, the ERDC environmental laboratory employed a data quality assurance management process generally following those outlined in the National Environmental Laboratory Accreditation Program. In addition, following receipt of bioassay testing results, the USACE Buffalo

District Lower Maumee River project team reviewed the results and documentation for completeness and accuracy, and their feedback was incorporated into the final presentation of results in Appendix 2.

3. Data Validation of Chemical Analytical Results

A total of 36 sediment delivery groups (SDGs) and associated Electronic Data Deliverables (EDDs), along with the Level II and Level IV data packages were received from the 3 different chemistry laboratories (ALS Middleton, ALS Burlington, and Battelle) which reported results of chemical analysis on the sediment, elutriate, and worm tissue samples. After an initial review by USACE, the Level IV data packages and EDDs with results from chemical analysis on sediment, elutriate, and worm tissue samples were transmitted to APTIM Federal Services, LLC, contracted under EPA's Quality Assurance Technical Support (QATS) Program. A Tier 2 Validation Review was performed on 100% of these data. Validation reports from their review of the 36 SDGs are provided in Attachment 1.

As indicated in Attachment 1, the organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions. The following aspects of sample collection and analysis were reviewed (some are specific to either organic or inorganic fractions; not all aspects review for all types of analyses):

- Holding time and preservation
- Instrument tuning and performance checks
- Instrument calibration: initial and continuing
- Blanks
- Deuterated/radiolabel monitoring compound recovery
- Matrix spike and matrix spike duplicates (MS/MSD)
- Laboratory control samples
- Laboratory duplicates
- Field blanks and field duplicates
- Laboratory blanks – initial, continuing, and preparation
- Internal standards
- Serial dilution
- Compound identification
- Compound quantitation and reported detection limits
- System performance

Table A4.1 lists the number and type of samples and analyses in each SDG. Table A4.2 lists the qualifiers applied during the data validation process.

4. Data Usability Assessment

The data were evaluated for acceptable quality and quantity based on the critical indicator parameters, represented by precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). The USACE team reviewed all original laboratory reports (including Level II and Level IV packages) and EDDs, as well as APTIM's Data Validation Reports in order to assess whether or not the quality of all data is acceptable to meet project objectives. The QAPP Worksheet 12 provides an indication of the measurement performance activity (e.g., field duplicate, MS/MSD, etc.) and the criteria which must be met to assure data quality based on the PARCCS parameters. These indicators were assessed by the data validator (Attachment 1). Issues which may affect data quality of constituents of potential concern for the Maumee River (such as PAHs, PCBs, and metals such as mercury) are highlighted below. A full description of all issues affecting data quality (including those associated with other constituents such as potassium) are documented in Attachment 1.

4.1. Precision

Precision is determined in the laboratory by assessing the relative percent difference (RPD) for sample duplicate and MS/MSD pairs.

4.1.1. Field Duplicates

As indicated in Table 1.3, field duplicates were collected and analyzed on more than 10% of all samples analyzed. This exceeded the QAPP requirements that field duplicates be collected and analyzed at a frequency of 1 per every 20 samples (5%). According to the validation summary reports (Attachment 1), the majority of the field duplicate analysis were within the specified precision criteria (within the 100% RPD criteria specified in the QAPP). Exceptions include PAHs in samples LMR21-15C(1-4') and LMR21-52C(1-4') and TPH-DRO and -ORO in sample LMR21-56C(1-4'). However, because field duplicate analyses were performed on more than twice the required number of samples, and the vast majority of these results in %RPD within the measurement performance criteria, the discrepancies in reported results for those 2 samples do not impact overall data usability.

4.1.2. Matrix Spike / Matrix Spike Duplicate samples

As indicated in Section 3.5.7 of this Sediment Characterization Report, the additional sample volumes which the field crew collected were not always utilized for their intended purpose as MS/MSD analysis. Therefore, a review of the EDDs was performed to identify all MS/MSD analysis. The QAPP required that MS/MSD samples be run at a frequency of 1 per 20 samples (5%), or 1 MS/MSD sample pair per batch. The database was queried to identify all MS and MSD samples per analysis per batch. Table 1-3 of the Sediment Characterization Report was updated to reflect actual number of MS/MSD samples analyzed. This review affirmed that adequate numbers of MS/MSD samples were analyzed.

Note that for PCB congeners, MS/MSD samples were not required by the QAPP, but instead laboratory control samples were utilized to ensure the precision of laboratory analysis. These include extraction standards, cleanup standards, and injection standards. The project chemist reviewed the laboratory's

Level IV data package and confirmed that the appropriate laboratory standards were performed for PCB congener analysis.

However, for some of the MS/MSD analysis, the RPD% exceeded criteria. This included some metals in WWTP samples (e.g., LMR21-06, -12, -22), aroclors in WWTP samples (e.g., LMR21-12, -22), PAHs and zinc in some of the sway bridge samples, and cyanide and some of the metals in the composite samples. These sample results have been qualified as estimated ("J" flags).

4.1.3.Laboratory Duplicate

For the analysis of PCB congeners, sample LMR21-11S DUP was identified as the laboratory duplicate of sample LMR21-11S. Several PCB congeners exceeded the 20% RPD criteria specified in the QAPP, and were therefore qualified as estimated ("J" flagged).

4.2. Accuracy

Accuracy is generally measured by spiking samples and measuring the percent recovery (%R). When the measured %R exceeded criteria, it was noted by the data validator (Attachment 1). This occurred during the analysis of some aroclors in some samples from both the WWTP and sway bridge areas (e.g., LMR21-12, -14, -18, 20, -34, -37, -46, -47, -50, 51, -52, -53, -54, 57, -58, -59, and -60), and elutriate sample (LMR21-WB1), as well as for PAH and TPH-DRO and -ORO analyses on sway bridge samples (e.g., LMR21-49. -55, -67, -68). These sample results have been qualified as estimated ("J" flags).

Other issues which may affect the accuracy of results are discussed below.

4.2.1.Holding times

The laboratory did not meet the holding times for some analyses, including TOC, TCLP, cyanide, GRO, mercury (sediment samples), and TPHDRO/ORO for Equipment Blanks. This was due in general to a laboratory scheduling issue, exacerbated by the large volume of samples received at once. These sediment samples results were qualified "J-" as the results may be considered underestimated due to being analyzed after holding times expired. The aqueous non-detected results (including from TCLP and also equipment blanks) were qualified "UJ".

In addition, the extraction holding time was exceeded for the surface samples not properly preserved (according to issue described in Section 4.2.2 below) for analysis of 34 PAHs. Although no non-detected results were reported by the laboratory, the detected analytes reported have all been qualified as estimated ("J" flagged).

4.2.2. Sample preservation

As noted in the Validation Summary Reports (Attachment 1), several of the sample coolers were received at the laboratory on ice at a temperature which slightly exceeded the QAPP requirement of ≤6°C. Professional judgment was used to assess that qualification of sample results did not need to be applied unless the temperature is >10°C. No further qualifiers were applied to the sample results as a result of this sample preservation issue.

4.2.3. Mercury volume

The data validator indicated that for the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the USACE project manager) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct. For the mercury fraction, forms for several samples reported incorrect initial weights and were missing the preparation date resulting in incorrect results reported on the Form 1's. Correct results were reported in the EDD file. The accuracy of the mercury results are thus assured.

4.3. Completeness

The completeness of the data set is determined by how many of the planned samples could be collected, the ability of the laboratory to report results for all planned analyses, and the percentage of the reported results which are valid. Each of these issues is addressed.

4.3.1. Sample collection issues

As explained in Sections 3.2 and 3.5 of the Sediment Characterization Report, not all the core samples could be obtained due to presence of underwater (buried) utilities. Core samples could not be collected at LMR21-35C, LMR21-36C, LMR21-48C, LMR21-61C, and LMR21-62C due to the presence of utility lines. However, surface grabs were collected at all locations where cores could not be collected. Therefore, adequate sediment characterization occurred at all sampling locations.

4.3.2. Sample location information

Horizontal data information (x- and y-coordinates) for all sampling locations was recorded and is provided in Table 3.5.1 of the main body of this report. A review of the field records indicates that that vertical data information (water surface elevation or water depth, sediment surface elevation) was not collected during the field effort. This may have been due to a miscommunication between contractor and USACE field personnel. The depths (lengths) of sediment cores were recorded and are provided in Table 3.0.2 of the report. Sediment depth will be used to estimate volumes of sediment being addressed for each remedial alternative being formulated in the feasibility study. Additional surveys may need to be conducted during the design phase for any sediment remedy in order to collect more precise vertical data information.

4.3.3. Incomplete analysis

Completeness of the data set is also affected by the ability of the laboratory to analyze and report results for all parameters scoped. There are a few samples for which no results are reported for individual parameters. No mercury was reported for sample LMR21-16C(0-1’). The field duplicate of several samples are missing TOC results [LMR21-21C(4-7')FD, -43(1-3')FD, -46(4-7')FD, -52C(7-10')FD, -55(1-4')FD, -63(1-2.75')FD, and -67C(1-3')FD]. Results for TOC have been reported for all the corresponding primary samples.

Four elutriate samples scheduled for Aroclor analysis were not analyzed. The laboratory stated "Due to a laboratory error the Elutriate sample formed and provided for PCB (Arochlor) analysis was discarded prior to analysis. There was no remaining unpreserved volume from another container to perform this testing. The affected samples were: LMR21-WA-3, LMR21-WB-1, LMR21-WC-1, LMR21-WC-2." However, the ERDC environmental laboratory had additional sediment volume and was able to re-generate the elutriate for 3 of the samples (-WA3, -WB1, and -WC1), allowing for ALS Middleton to run PCB analyses on these samples. The only elutriate sample for which PCB aroclor analysis was not performed is LMR21-WC2. This issue has been identified in Section 3.5.6 of the main body of the report.

Another issue affecting completeness of elutriate analysis is the lack of toxicity reduction evaluations for ammonia on some of the samples exhibiting high ammonia concentrations during the bioassay. As explained by the USEPA in deriving an aquatic life criterion for ammonia, when ammonia is present in water at high enough levels, it is difficult for aquatic organisms to sufficiently excrete the toxicant, leading to toxic buildup in internal tissues and blood, and potentially death. Ammonia can build up over time during the toxicity testing, and as such a toxicity reduction evaluation is often performed in order to determine whether adding amendments which can remove ammonia from the aqueous phase result in a reduction in toxicity. This would indicate that any observed toxicity is due to the presence of ammonia. Because ammonia can quickly dissipate in an open system and would not cause toxicity during actual dredged material placement operations, it is important to distinguish between toxic effects due to presence of ammonia, vs. due to presence of a persistent legacy contaminant in the sediment. Unfortunately, not enough sediment volume was collected to perform the toxicity reduction evaluation on all elutriate samples (as explained in Section 3.5.3 of the main body of the report). Therefore, the data to answer the disposal question thoroughly are not 100% complete.

As explained in Section 3.5.5 of the main body of the report, the equipment blanks were not analyzed for PAHs. This analytical omission occurred because some of the distilled water which the laboratory had shipped to the site for the purposes of generating equipment blanks had broken in transit. Due to the insufficient water not all of the analytical jars could be filled with equipment rinsate ("blank") water, and no PAHs were analyzed.

4.3.4. Valid results

For reported results, completeness is defined as the percentage of measurements judged to be valid. The validity of sample results is determined through the data review and validation process. The rejected (R) sample results are considered to be incomplete. The data that are qualified as estimated (J) or estimated nondetected (UJ) are considered to be valid and usable.

The laboratory reported numerous individual PCB congener sample results with an "R" qualifier, which is typically reserved for rejected results, but in this case was defined by the laboratory (ALS Burlington) as "The ion abundance ratio for the analyte did not meet the control limit. The reported value represents an estimated concentration." The data validation has instead qualified these as "J" estimated because they represent valid results, and should not be considered rejected data. This affected 291 individual PCB congener sediment sample results, and 436 individual PCB congener worm tissue sample results. Note that several of the sample results were also qualified "J" due to results that are less than the reporting level.

Of all the samples collected, results were reported for over 99% of the analyzed parameters (over 46,000 individual sample analytical results). As a result of the data validation, none of the reported results have been rejected. Therefore 100% of the reported results are usable.

4.4. Comparability

Comparability of the data is a qualitative parameter that expresses the confidence with which one data set may be compared to another. Comparability of the data is achieved by using standard methods for sampling and analysis, reporting data in standard units, normalizing results to standard conditions, and using standardized reporting formats and data validation procedures. The project QAPP documented the standard operating procedures for field sampling collection (QAPP Attachments 1 and 3), laboratory analytical protocols (Attachment 4) performed by a Department of Defense accredited environmental laboratory (QAPP Attachment 2), and data reporting (QAPP Attachment 5). These protocols have been followed to ensure that all the data derived from the field are comparable.

In addition, the results from this sampling event are within the range of what was expected, based on comparison to historical data.

4.5. Sensitivity

Sensitivity is a measure of method performance in terms of the ability to detect chemicals of concern at low enough concentrations to eliminate potential false negatives and to ensure the project goals in terms of actionable concentrations are met. Target detection limits are based on available standard methods applicable to media and are below most applicable regulatory screening criteria. The analytical detection limits for the main constituents of interest (e.g., heavy metals, total PAHs, total PCB aroclors) are well below the screening levels (Section 4.1 of the Sediment Characterization Report). The sensitivity of the laboratory protocols was therefore adequate to ensure the data are usable for site characterization.

4.6. Summary of validation qualifier changes

A comparison of the qualifiers added during the validation process to the qualifiers reported by the laboratory indicates that 5,969 results (out of a total 46,226) had qualification changes during the validation process. This represents approximately 13% of the data. Almost half of these qualifier changes (2,855) were made to the PCB congener results (both sediment and worm tissue) and includes the numerous changes from “R” to “J” flags for PCB congeners discussed in Section 4.3.3. In addition, eight results changed from non-detect (“U” flag) to estimated (“J” flag), and 73 results changed from estimated (“J” flag) to non-detect (“U” flag). The Sediment Characterization Report tables and appendices have been updated to reflect these qualification changes, as they impact the quantification of concentrations of constituents of potential concern.

Other qualification changes which have less affect on data interpretation include 929 TCLP results changing from nondetect (“U” flag) to estimated nondetect (“UJ” flags), 69 elutriate results changing from nondetect (“U” flag) to estimated nondetect (“UJ” flags), and 540 results changed from the laboratory qualifiers “B”, “D”, “E”, “J”, and/or “M” to simply estimated, or estimated high or low (validation qualifiers “J”, “J+”, or “J-“). Overall, there were 2,186 results which the laboratory did not qualify at all but the validator indicated they should be considered estimated (either “J”, “J-“, or “J+” flagged) or not detected (“U” flagged) or estimated to not be detected (UJ” flagged). This is a lower number of sample results considered more uncertain or not detected by the validator, vs. the number of results considered more usable (removal of R flags from PCB congener results during validation).

In summary, although there may be some uncertainty in some of the results (as indicated by “J” flags), all of the data is usable; none of the results have been rejected.

5. Conclusions

The data quality objectives for characterization of two areas of sediment contamination within the Lower Maumee River have been met. The intended number of sediment samples were collected and analyzed in accredited laboratories, and complete results were provided to the USACE team. The data sets received from the five different laboratories (ALS Middleton, ALS Burlington, Toledo Testing Laboratories, Battelle, and Engineer Research and Development Center) have been reviewed and validated (as appropriate) and found to be appropriately precise, accurate, representative, complete, and comparable through the use of standard operating procedures and appropriate data quality assurance management processes. The data is usable for its intended purposes.

SDG	lab	matrix	# samples	analysis
AEG-155	ALS Environmental Middleton PA	Sediment	19	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-156	ALS Environmental Middleton PA	Sediment	14	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-157	ALS Environmental Middleton PA	Sediment	18	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-158	ALS Environmental Middleton PA	Sediment	12;11	12 - Metals (SW-846 6010C), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A); 11 - Total Organic Carbon (TOC) (SW-846 9060A) and Mercury (SW-846 7471B)
AEG-159	ALS Environmental Middleton PA	Sediment	19	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-160	ALS Environmental Middleton PA	Sediment	10	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-161	ALS Environmental Middleton PA	Sediment	19	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-162	ALS Environmental Middleton PA	Sediment	8	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-163	ALS Environmental Middleton PA	Sediment	5	TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D)
AEG-164	ALS Environmental Middleton PA	Sediment	15	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC)(SW-846 9060A)
AEG-165	ALS Environmental Middleton PA	Sediment	15	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC)(SW-846 9060A)
AEG-166	ALS Environmental Middleton PA	Sediment	20	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Semivolatile-SIM (SW-846 8270 SIM), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC)(SW-846 9060A)
AEG-167	ALS Environmental Middleton PA	Sediment	16	Sediment Characterization Report
AEG-168	ALS Environmental Middleton PA	Sediment	19	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D) and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-169	ALS Environmental Middleton PA	Sediment	13	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D) and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-170	ALS Environmental Middleton PA	Sediment	18	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D) and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-171	ALS Environmental Middleton PA	Sediment	15	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D) and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-172	ALS Environmental Middleton PA	Sediment	8	TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D)
AEG-173	ALS Environmental Middleton PA	Sediment	15	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), and GRO/DRO/ORO (SW-846 8015D)
AEG-174	ALS Environmental Middleton PA	Sediment	15	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Cyanide (SW-846 9012B), Total Organic Carbon (TOC)(SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN)(SM4500NH3G and SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)
AEG-175	ALS Environmental Middleton PA	Sediment	2	TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D)

SDG	lab	matrix	# samples	analysis
AEG-176	ALS Environmental Middleton PA	Sediment	2	Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D) and Total Organic Carbon (TOC) (SW-846 9060A)
AEG-177	ALS Environmental Middleton PA	Water (equipment blank)	2;1	2 - Metals (SW-846 6010C), Mercury (SW-846 7471B), and GRO/DRO/ORO (SW-846 8015D); 1 - Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Oil and Grease (HEM)(SW-846 9071B)
AEG-178	ALS Environmental Middleton PA	Water (equipment blank)	1	Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Oil and Grease (HEM) (EPA 1664B), GRO/DRO/ORO (SW-846 8015D), Total Organic Carbon (TOC)(SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN)(SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)
AEG-182	ALS Environmental Middleton PA	Water (Elutriate)	6	Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Semivolatile-SIM (SW-846 8270 SIM), Oil and Grease (HEM) (EPA 1664B), GRO/DRO/ORO (SW-846 8015D), Total Organic Carbon (TOC)(SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN)(SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)
AEG-205	ALS Environmental Middleton PA	Water (Elutriate)	6;2;8	6 - Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Oil and Grease (HEM) (EPA 1664B), Total Organic Carbon (TOC)(SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN)(SM4500NH3G-2011), and Total Phosphorus (EPA 365.1) and GRO (SW-846 8015D); 2 - Aroclor (SW-846 8082A); 8 - Semivolatile SIM (SW-846 8270 SIM) and DRO/ORO (SW-846 8015D)
AEG-206	ALS Environmental Middleton PA	Water (Elutriate)	2	Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Oil and Grease (HEM) (EPA 1664B), GRO (SW-846 8015D), Total Organic Carbon (TOC)(SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN)(SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)
AEG-222	ALS Environmental Middleton PA	Water (Elutriate)	3	aroclors (SW-846 8082A)
DP-21-1009-S21-1066	Battelle Norwell MA	sediment	18	34PAHs (PAH SIM SW-846 8270D Modified)
DP-21-1029-S21-1067	Battelle Norwell MA	sediment	10	34PAHs (PAH SIM SW-846 8270D Modified)
L2628741(1-14)	ALS Life Sciences Burlington ON Canada	sediment	14	PCB congeners (EPA 1668C)
L2628741(15-28)	ALS Life Sciences Burlington ON Canada	sediment	14	PCB congeners (EPA 1668C)
L2656883(1-17)	ALS Life Sciences Burlington ON Canada	worm	17	PCB congeners (EPA 1668C)
L2656883(18-34)	ALS Life Sciences Burlington ON Canada	worm	17	PCB congeners (EPA 1668C)
L2656883(35-51)	ALS Life Sciences Burlington ON Canada	worm	17	PCB congeners (EPA 1668C)
L2656883(52-65)	ALS Life Sciences Burlington ON Canada	worm	14	PCB congeners (EPA 1668C)

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

Attachment 1

Data Validation Reports

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 19, 2022
SUBJECT:	Review of Data for SDG Number: AEG-155 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-155
Number and Type of Samples:	Nineteen (19) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-10C-1-4ft	LMR21-15C-7-10ft	LMR21-12C-4-7ft
LMR21-14C-7-10ft	LMR21-14C-4-7ft	LMR21-14C-7-10ft FD*
LMR21-15C-0-1ft	LMR21-12C-10-13ft	LMR21-18C-0-1ft
LMR21-14C-1-4ft	LMR21-17C-4-7ft	LMR21-18C-7-10ft
LMR21-20C-0-1ft	LMR21-14C-0-1ft	LMR21-18C-4-7ft
LMR21-18C-10-12ft	LMR21-17C-10-13ft	LMR21-19C-7-9ft
LMR21-19C-1-4ft		

(*) Field Duplicate samples were not labeled as FDs by the laboratory. The FDs were determined by matching the Sample IDs, collection date and times in the "COC sample Master list Maumee 15Feb22" spreadsheet.

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Nineteen (19) sediment samples for SDG AEG-155 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-12C-4-7ft LMR21-12C-10-13ft LMR21-18C-7-10ft LMR21-20C-0-1ft LMR21-18C-10-12ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1260	UJ non-detects	LMR21-12C-4-7ft LMR21-14C-1-4ft

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and/or MSD %R criteria exceeded (high) and post-digestion spike within criteria	Potassium	J detects	All samples

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10°C.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMCs 2-Fluorophenol and Phenol-d5 exceeded the upper %R criteria required in the QAPP in one sample in this SDG. These two DMCs are not associated with the target analytes in this SDG. No qualification of sample results is necessary.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems found.

8. LABORATORY CONTROL SAMPLE

No problems found.

9. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-14C-7-10ft FD was identified as the field duplicate of sample LMR21-14C-7-10ft. All RPDs were within the 100% QC limit required by the QAPP; therefore, no qualification of sample results is necessary.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/16/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10°C.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in five samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-12C-4-7ft	LMR21-12C-10-13ft	LMR21-18C-7-10ft
LMR21-20C-0-1ft	LMR21-18C-10-12ft	

The percent recovery (%R) for surrogates TCX and DCB exceeded the upper %R criteria in one sample in this SDG, LMR21-19C-7-9ft. No Aroclors were detected in the sample; therefore no qualification of sample results is necessary.

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS percent recoveries (%Rs) on both GC columns for Aroclor-1260, exceeded the lower %R criteria of 53% specified in the QAPP. The non-detected result for Aroclor-1260 in the parent sample is qualified "UJ".

LMR21-12C-4-7ft: Aroclor-1260

The MS percent recoveries (%Rs) on both GC columns for Aroclor-1260, exceeded the lower %R criteria of 53% specified in the QAPP. The non-detected result for Aroclor-1260 in the parent sample is qualified "UJ".

LMR21-14C-1-4ft: Aroclor-1260

The relative percent difference (RPD) between the MS and MSD analysis results for Aroclors 1016 and 1260 exceeded the RPD QC limit of 30% required in the QAPP in MS/MSD QC sample LMR21-14C-1-4ftMS. Because the parent sample results are non-detects, no qualification of sample results is necessary.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-14C-7-10ft FD was identified as the field duplicate of sample LMR21-14C-7-10ft. No Aroclors were detected in the samples; therefore, no qualification of sample results is necessary.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/16/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10°C.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level ICV (LLICV) analyzed in the 09/05/2021 mercury run was flagged as exceeding criteria on the report form with a %R of 8%. The 8% recovery was calculated using a true value equal to the true value of the ICV and CCVs. The raw data; however, reported a lower true value at the RL and a %R of 112%, which is within criteria. The validator concluded that the raw data was correct and the report forms and narrative were incorrectly reported. No qualification was necessary as the LLICV was within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in the ICB and two CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Aluminum was detected at a level greater than the MDL but less than the RL in one preparation blank. All results for aluminum in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the blank forms provided in the data package do not report blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The Quality Control Data forms provided at the beginning of each data package were used for validation in place of those in the data package.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

The MS and/or MSD percent recoveries (%Rs) for chromium and potassium in QC sample LMR21-14C-1-4ft exceeded the various DOD QSM5.3 %R acceptance limits. The MSD %R for potassium exceeded the DOD limits of 81-116% with a %R of 166%. The MS %R (117%) and the post-digestion spike %R (101%) for potassium were within acceptance limits; therefore, the potassium results for the following associated samples are qualified "J".

LMR21-10C-1-4ft	LMR21-15C-7-10ft	LMR21-12C-4-7ft
LMR21-14C-7-10ft	LMR21-14C-4-7ft	LMR21-14C-7-10ft FD*
LMR21-15C-0-1ft	LMR21-12C-10-13ft	LMR21-18C-0-1ft
LMR21-14C-1-4ft	LMR21-17C-4-7ft	LMR21-18C-7-10ft
LMR21-20C-0-1ft	LMR21-14C-0-1ft	LMR21-18C-4-7ft
LMR21-18C-10-12ft	LMR21-17C-10-13ft	LMR21-19C-7-9ft
LMR21-19C-1-4ft		

A post-digestion spike was not reported for chromium where the MS %R slightly exceeded the DOD limits of 85-113% with a %R of 84% and the MSD %R was within criteria with a %R of 98%. Since the National Functional Guidelines (NFG) for Inorganic Methods allows the use of wider acceptance windows for sediment samples (generally used for GLNPO validation) the chromium results were not qualified.

7. POST DIGESTION SPIKE

A post-digestion spike was reported for potassium only.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Sample LMR21-14C-7-10ft FD was identified as the field duplicate of sample LMR21-14C-7-10ft. All RPDs were within the 100% QC limit required by the QAPP; therefore, no qualification of sample results is necessary.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

According to the Analysis Run Log and raw data, a serial dilution or dilution test was analyzed on sample LMR21-19C-1-4ft with this SDG; however, it was not reported in the data package.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25

mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez/Shellee McGrath DATE: 03/09/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10°C.

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded between seven and nine days. Detected results are qualified "J-".

LMR21-10C-1-4ft	LMR21-15C-7-10ft	LMR21-12C-4-7ft
LMR21-14C-7-10ft	LMR21-14C-4-7ft	LMR21-14C-7-10ft FD
LMR21-15C-0-1ft	LMR21-12C-10-13ft	LMR21-18C-0-1ft
LMR21-14C-1-4ft	LMR21-17C-4-7ft	LMR21-18C-7-10ft
LMR21-20C-0-1ft	LMR21-14C-0-1ft	LMR21-18C-4-7ft
LMR21-18C-10-12ft	LMR21-17C-10-13ft	LMR21-19C-7-9ft
LMR21-19C-1-4ft		

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The three method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-14C-7-10ft FD was identified as the field duplicate of sample LMR21-14C-7-10ft. The RPD is within the 100% QC limit required by the QAPP; therefore, no qualification of sample results is necessary.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall **DATE:** 03/31/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 19, 2022

SUBJECT: Review of Data for SDG Number: AEG-156
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-156

Number and Type of Samples: Fourteen (14) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-WA-1	LMR21-13C-0-1ft	LMR21-12C-0-1ft
LMR21-12C-7-10ft	LMR21-WA-3	LMR21-17C-1-4ft
LMR21-17C-7-10ft	LMR21-17C-0-1ft	LMR21-15C-4-7ft (#)
LMR21-16C-4-7ft FD*	LMR21-13C-1-4ft FD*	LMR21-15C-1-4ft FD*
LMR21-20C-1-4ft	LMR21-18C-1-4ft	

(*) Field Duplicate samples were not labeled as FDs by the laboratory. The FD were determined by matching the Sample IDs, collection date and times in the "COC sample Master list Maumee15Feb22" spreadsheet.
(#) Sample LMR21-15C-4-7ft was also analyzed in SDG AEG-157 (sampled 3 minutes later). Neither sample is labeled FD or MS/MSD on either the COCs or on the "COC sample Master List Maumee 15Feb22" spreadsheet.

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-156
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fourteen (14) sediment samples for SDG AEG-156 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (high)	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene	J+ detects	LMR21-12C-7-10ft
Field Duplicate RPD criteria exceeded	Chrysene	J detect	LMR21-13C-1-4ft FD
Field Duplicate precision criteria exceeded*	Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenzo(a,h)anthracene	UJ non-detect	LMR21-15C-1-4ft FD
Note that the original samples to Field Duplicates LMR21-13C-1-4ft FD LMR21-15C-1-4ft FD were analyzed in SDGs AEG-157 and AEG-158			

*Unmeasurable RPD between field duplicate and original sample, with one result non-detect and the other result positive.

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-WA-1 LMR21-17C-0-1ft LMR21-20C-1-4ft
Surrogate %R criteria exceeded (low)	Aroclor-1016, Aroclor-1221	UJ non-detects	LMR21-15C-4-7ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
	Aroclor-1232, Aroclor-1242		
Surrogate %R criteria exceeded (low)	Aroclor-1260	J- detect	LMR21-15C-4-7ft
RPD between GC Columns >40%	Aroclor-1260	J detect	LMR21-WA-1
RPD between GC Columns >40%	Aroclor-1254	J detect	LMR21-18C-1-4ft

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Field Duplicate RPD criteria exceeded	Aluminum Potassium Vanadium	J detects	LMR21-15C-1-4ft FD
Note that the original sample to Field Duplicate LMR21-15C-1-4ft FD was analyzed in SDG AEG-158			

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMCs 2,4,6-Tribromophenol and Terphenyl-d14 exceeded the upper %R criteria required in the QAPP in one sample in this SDG. DMC 2,4,6-Tribromophenol is not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes in this SDG. The detected analytes in the following sample are qualified "J+", non-detects are not qualified.

LMR21-12C-7-10ft

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

Three field duplicates were included with this SDG. Note that the original analyses for the three field duplicates are in separate SDGs.

Sample LMR21-16C-4-7ft FD is the field duplicate of sample LMR21-16C-4-7ft (SDG AEG-157). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-13C-1-4ft FD is the field duplicate of sample LMR21-13C-1-4ft (SDG AEG-157). All RPDs were within the criteria required by the QAPP with one exception. The RPD for Chrysene exceeded the QAPP 100% RPD criteria. The original and field duplicate sample results are qualified "J". The results are provided in the table below:

Analyte	LMR21-13C-1-4ft Result (µg/kg)	LMR21-13C-1-4ft FD Result (µg/kg)	%RPD
Chrysene	330	1030	103

Sample LMR21-15C-1-4ft FD is the field duplicate of sample LMR21-15C-1-4ft (SDG AEG-158). Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. However, three analytes were detected in the original sample at concentrations significantly above the LOD (78.8 µg/kg) and not in the FD sample. For these analytes the RPD was unmeasurable. Also note that the measurable RPDs between the two samples ranged from 49% to 92%. The non-detected results for the three analytes are qualified "UJ" and the detected analytes are qualified "J". The results are provided in the table below:

Analyte	LMR21-15C-1-4ft Result (µg/kg)	LMR21-15C-1-4ft FD Result (µg/kg)	%RPD
Benzo(b)fluoranthene	3190	Non-detect (<77.5)	NA
Benzo(k)fluoranthene	1950	Non-detect (<77.5)	NA
Dibenzo(a,h)anthracene	375	Non-detect (<77.5)	NA

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/01/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in four samples in this SDG. For one of the four samples, LMR21-15C-4-7ft, surrogate TCX exceeded the lower criteria in the original analysis and the diluted analysis. Analytes reported from the diluted analysis are not qualified. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-WA-1 LMR21-17C-0-1ft LMR21-15C-4-7ft LMR21-20C-1-4ft

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Three field duplicates were included with this SDG. Note that the original analyses for the three field duplicates are in separate SDGs.

Sample LMR21-16C-4-7ft FD is the field duplicate of sample LMR21-16C-4-7ft (SDG AEG-157). No Aroclors were detected in the samples. No qualification of sample results is necessary.

Sample LMR21-13C-1-4ft FD is the field duplicate of sample LMR21-13C-1-4ft (SDG AEG-157) and sample LMR21-15C-1-4ft FD is the field duplicate of sample LMR21-15C-1-4ft (SDG AEG-158). All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Two (2) Aroclor samples have relative percent differences (RPDs) between analyte results per GC column that exceeded the 40% RPD criteria. The detected analytes in each of the following samples are qualified "J".

LMR21-WA-1:	Aroclor-1260
LMR21-18C-1-4ft:	Aroclor-1254

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/07/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level ICV (LLICV) analyzed in the 09/05/2021 mercury run was not reported in this data package. A %R of 112% was reported in the raw data. No qualification was necessary as the LLICV was within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in the ICB and two CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Aluminum, calcium, and iron were detected at levels greater than the MDL but less than the RL in one preparation blank and Aluminum was detected at a level greater than the MDL but less than the RL in the second preparation blank. All results for aluminum, calcium, and iron in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the report forms provided in the data package do not report sample and blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The reported results on these report forms do not match the results reported in the EDD and on the Analytical Results Summary and Quality Control Data forms provided at the beginning of each data package; therefore, validation was performed using the Analytical Results Summary forms and not those in the metals data package.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A Matrix Spike/Matrix Spike Duplicate was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Three field duplicates were included with this SDG. Note that the original samples for the three field duplicates are in other SDGs.

Sample LMR21-16C-4-7ft FD is the field duplicate of sample LMR21-16C-4-7ft (SDG AEG-157). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-13C-1-4ft FD is the field duplicate of sample LMR21-13C-1-4ft (SDG AEG-157). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-15C-1-4ft FD is the field duplicate of sample LMR21-15C-1-4ft (SDG AEG-158). Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. The detected results for three analytes are qualified "J" in both the original and FD sample. The results are provided in the table below:

Analyte	LMR21-15C-1-4ft (AEG-158) Result (mg/kg)	LMR21-15C-1-4ft FD Result (mg/kg)	RPD
Aluminum	6830	27400	120.2%
Potassium	1120	5630	133.6%
Vanadium	16.1	59.9	115.3%

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

According to the Analysis Run Log and raw data, a serial dilution or dilution test was analyzed on sample LMR21-15C-4-7ft with this SDG; however, it was not reported in the data package.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/10/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by nine and ten days. Detected results are qualified "J-".

LMR21-WA-1	LMR21-13C-0-1ft	LMR21-12C-0-1ft
LMR21-12C-7-10ft	LMR21-WA-3	LMR21-17C-1-4ft
LMR21-17C-7-10ft	LMR21-17C-0-1ft	LMR21-15C-4-7ft
LMR21-16C-4-7ft FD	LMR21-13C-1-4ft FD	LMR21-15C-1-4ft FD
LMR21-20C-1-4ft	LMR21-18C-1-4ft	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The two method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Three field duplicates were included with this SDG. Note that the original analyses for the three field duplicates are in separate SDGs.

Sample LMR21-16C-4-7ft FD is the field duplicate of sample LMR21-16C-4-7ft (SDG AEG-157); sample LMR21-13C-1-4ft FD is the field duplicate of sample LMR21-13C-1-4ft (SDG AEG-157); and sample LMR21-15C-1-4ft FD is the field duplicate of sample LMR21-15C-1-4ft (SDG AEG-158). All RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall **DATE: 03/30/2022**

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 19, 2022

SUBJECT: Review of Data for SDG Number: AEG-157
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-157

Number and Type of Samples: Eighteen (18) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-16C-4-7ft	LMR21-13C-4-7ft	LMR21-10C-0-1ft
LMR21-07C-4-7ft	LMR21-11C-7-9ft	LMR21-WB-2
LMR21-WA2	LMR21-16C-7-11ft	LMR21-10C-7-8.5ft
LMR21-08C-0-1ft	LMR21-09C-7-8.1ft	LMR21-13C-1-4ft
LMR21-11C-4-7ft	LMR21-15C-4-7ft (#)	LMR21-10C-4-7ft
LMR21-06C-1-4ft	LMR21-08C-1-4ft	LMR21-09C-0-1ft

(#) Sample LMR21-15C-4-7ft was also analyzed in SDG AEG-156 (sampled 3 minutes earlier). Neither sample is labeled FD or MS/MSD on either the COCs or on the "COC sample Master List Maumee 15Feb22" spreadsheet.

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-157
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Eighteen (18) sediment samples for SDG AEG-157 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Field Duplicate RPD criteria exceeded	Chrysene	J detect	LMR21-13C-1-4ft

Note that the field duplicate for this analysis was analyzed in SDG AEG-156

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-13C-1-4ft LMR21-10C-0-1ft LMR21-WB-2 LMR21-16C-7-11ft LMR21-10C-7-8.5ft LMR21-08C-0-1ft LMR21-13C-4-7ft LMR21-11C-4-7ft
Surrogate %R criteria exceeded (low)	Aroclor-1016, Aroclor-1221 Aroclor-1232, Aroclor-1242	UJ non-detects	LMR21-15C-4-7ft
Surrogate %R criteria exceeded (low)	Aroclor-1254, Aroclor-1260	J- detects	LMR21-15C-4-7ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1016, Aroclor-1260	UJ non-detects	LMR21-16C-7-11ft

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and/or MSD %R criteria exceeded (high) post digestion spike %R within criteria	Potassium	J detect	LMR21-16C-7-11ft LMR21-10C-7-8.5ft LMR21-08C-0-1ft LMR21-09C-7-8.1ft LMR21-13C-1-4ft LMR21-11C-4-7ft LMR21-15C-4-7ft LMR21-10C-4-7ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
			LMR21-06C-1-4ft LMR21-08C-1-4ft LMR21-09C-0-1ft
Serial Dilution %D exceeded criteria	Calcium Magnesium	J detects	LMR21-16C-7-11ft LMR21-10C-7-8.5ft LMR21-08C-0-1ft LMR21-09C-7-8.1ft LMR21-13C-1-4ft LMR21-11C-4-7ft LMR21-15C-4-7ft LMR21-10C-4-7ft LMR21-06C-1-4ft LMR21-08C-1-4ft LMR21-09C-0-1ft

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for two field duplicates are included in this SDG.

Sample LMR21-16C-4-7ft FD (SDG AEG-156) is the field duplicate of sample LMR21-16C-4-7ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-13C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-13C-1-4ft. All RPDs were within the criteria required by the QAPP with one exception. The RPD for Chrysene exceeded the QAPP 100% RPD criteria. The original and field duplicate sample results are qualified "J". The results are provided in the table below:

Analyte	LMR21-13C-1-4ft Result (µg/kg)	LMR21-13C-1-4ft FD Result (µg/kg)	%RPD
Chrysene	330	1030	103%

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/17/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in nine samples in this SDG. For one of the nine samples, LMR21-15C-4-7ft, surrogate TCX exceeded the lower criteria in the original analysis and the diluted analysis. Analytes reported from the diluted analysis are not qualified. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-13C-1-4ft	LMR21-10C-0-1ft	LMR21-WB-2	LMR21-16C-7-11ft
LMR21-10C-7-8.5ft	LMR21-08C-0-1ft	LMR21-13C-4-7ft	LMR21-11C-4-7ft
LMR21-15C-4-7ft			

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS and MSD percent recoveries (%Rs) for Aroclor-1016 and Aroclor-1260 exceeded the lower %R criteria specified in the QAPP. The non-detected Aroclor-1016 and Aroclor-1260 results in the parent sample are qualified "UJ".

LMR21-16C-7-11ft: Aroclor-1016, Aroclor-1260

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for two field duplicates are included in this SDG.

Sample LMR21-16C-4-7ft FD (SDG AEG-156) is the field duplicate of sample LMR21-16C-4-7ft. No Aroclors were detected in the samples.

Sample LMR21-13C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-13C-1-4ft. All RPDs were within the 100% RPD criteria required by the QAPP.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/17/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level ICV (LLICV) analyzed in the 09/05/2021 mercury run was flagged as exceeding criteria on the report form with a %R of 8%. The 8% recovery was calculated using a true value equal to the true value of the ICV and CCV's. The raw data, however, reported a lower true value at the RL and a %R of 112% which is within criteria. The validator concluded that the raw data was correct and the report forms and narrative were incorrectly reported. No qualification was necessary as the LLICV was within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in the ICB and two CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Aluminum, calcium, and iron were detected at levels greater than the MDL but less than the RL in one preparation blank and aluminum and iron were detected at levels greater than the MDL but less than the RL in the second preparation blank. All results for aluminum, calcium, and iron in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the report forms provided in the data package do not report sample and blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The reported results on these report forms do not match the results reported in the EDD and on the Analytical Results Summary and Quality Control Data forms provided at the beginning of each data package; therefore, validation was performed using the Analytical Results Summary forms and not those in the metals data package.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

The MS and/or MSD percent recoveries (%Rs) for potassium in QC sample LMR21-16C-7-11ft exceeded the DOD QSM5.3 %R acceptance limits of 81-116%. The MSD %R also exceeded expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation. The MS and MSD %R for potassium exceeded the DOD limits of 81-116% with %Rs of 118% and 152%. The MSD %R (152%) also exceeded the expanded criteria. Since the post-digestion spike %R (107%) for potassium was within acceptance limits; potassium results for the following associated samples are qualified "J".

LMR21-16C-7-11ft	LMR21-10C-7-8.5ft	LMR21-08C-0-1ft	LMR21-09C-7-8.1ft
LMR21-13C-1-4ft	LMR21-11C-4-7ft	LMR21-15C-4-7ft	LMR21-10C-4-7ft
LMR21-06C-1-4ft	LMR21-08C-1-4ft	LMR21-09C-0-1ft	

The MS and/or MSD percent recoveries (%Rs) for chromium, lead, nickel, vanadium, and zinc in QC sample LMR21-13C-4-7ft exceeded the various DOD QSM5.3 %R acceptance limits. Note that the laboratory only reported post digestion spike %Rs for lead and zinc. Since all the %Rs were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation, the chromium, lead, nickel, vanadium, and zinc results associated with this QC sample were not qualified.

7. POST DIGESTION SPIKE

Not all analytes exceeding the MS/MSD %R criteria were reported for the post-digestion spike.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

No field duplicates were included in this SDG; however, the original analyses for two field duplicates are included in this SDG.

Sample LMR21-16C-4-7ft FD (SDG AEG-156) is the field duplicate of sample LMR21-16C-4-7ft. All RPDs were within the 100% RPD criteria required by the QAPP.

Sample LMR21-13C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-13C-1-4ft. All RPDs were within the 100% RPD criteria required by the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

The percent differences (%Ds) for calcium and magnesium in serial dilution sample LMR21-09C-0-1ft exceeded the expanded acceptance criteria ≤15%, allowed by the NFG and used for GLNPO validation, with %Ds of 23% and 26.9%, respectively. The original sample result is greater than 50X the MDL of the original sample; therefore, the following detected results are qualified "J".

Calcium and Magnesium in samples:

LMR21-16C-7-11ft	LMR21-10C-7-8.5ft	LMR21-08C-0-1ft	LMR21-09C-7-8.1ft
LMR21-13C-1-4ft	LMR21-11C-4-7ft	LMR21-15C-4-7ft	LMR21-10C-4-7ft
LMR21-06C-1-4ft	LMR21-08C-1-4ft	LMR21-09C-0-1ft	

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/11/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded between one and ten days. Detected results are qualified "J-".

LMR21-16C-4-7ft	LMR21-13C-4-7ft	LMR21-10C-0-1ft
LMR21-07C-4-7ft	LMR21-11C-7-9ft	LMR21-WB-2
LMR21-WA2	LMR21-16C-7-11ft	LMR21-10C-7-8.5ft
LMR21-08C-0-1ft	LMR21-09C-7-8.1ft	LMR21-13C-1-4ft
LMR21-11C-4-7ft	LMR21-15C-4-7ft	LMR21-10C-4-7ft
LMR21-06C-1-4ft	LMR21-08C-1-4ft	LMR21-09C-0-1ft

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

One continuing calibration verification (CCV) CCV3 analyzed on 09/17/2022 exceeded the upper %R criteria required in the QAPP. However, CCV4 was analyzed directly after CCV3 and is within criteria; therefore, no qualification is necessary.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for two field duplicates are included in this SDG.

Sample LMR21-16C-4-7ft FD (SDG AEG-156) is the field duplicate of sample LMR21-16C-4-7ft and sample LMR21-13C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-13C-1-4ft. All RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/21/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 19, 2022

SUBJECT: Review of Data for SDG Number: AEG-158
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-158

Number and Type of Samples: Twelve (12) Sediment Samples for Metals (SW-846 6010C), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and eleven (11) Sediment Samples for Total Organic Carbon (TOC) (SW-846 9060A) and Mercury (SW-846 7471B)

EPA Sample Numbers:

LMR21-20C-4-7ft	LMR21-11C-1-4ft	LMR21-15C-1-4ft
LMR21-16C-1-4ft	LMR21-12C-1-4ft	LMR21-19C-4-7ft
LMR21-08C-4-7ft	LMR21-09C-1-4ft	LMR21-16C-0-1ft#
LMR21-09C-4-7ft	LMR21-08C-4-7ft FD*	LMR21-06C-0-1ft

(*) Field Duplicate samples were not labeled as FDs by the laboratory. The FD were determined by matching the Sample IDs, collection date and times in the "COC sample Master list Maumee 15Feb22" spreadsheet.

Sample LMR21-16C-0-1ft was not analyzed for mercury and TOC.

Case Number: NA
SDG Number: AEG-158
Site Name: Lower Maumee River
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Twelve (12) sediment samples for SDG AEG-158 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and eleven (11) sediment samples for Total Organic Carbon (TOC) (SW-846 9060A) and Mercury (SW-846 7471B) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
*Field Duplicate precision criteria exceeded	Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenzo(a,h)anthracene	J detects	LMR21-15C-1-4ft

Note that the field duplicate for this analysis was analyzed in SDG AEG-156
*Unmeasurable RPD between field duplicate and original sample, with one result non-detect and the other result positive.

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-15C-1-4ft LMR21-16C-1-4ft LMR21-09C-4-7ft LMR21-16C-0-1ft
MS/MSD %R exceeded criteria (low)	Aroclor-1260	UJ non-detect	LMR21-12C-1-4ft
MS/MSD %R exceeded criteria (low)	Aroclor-1016 Aroclor-1260	UJ non-detect	LMR21-09C-4-7ft
RPD between GC Columns >40%	Aroclor-1254	J detect	LMR21-11C-1-4ft

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and/or MSD %R exceeded expanded criteria (high) post digestion spike within criteria	Arsenic Barium Beryllium Cadmium Vanadium	J detects	LMR21-12C-1-4ft LMR21-06C-0-1ft
MS and/or MSD %R exceeded expanded criteria (high) no post spike reported	Chromium Lead	J+ detects	LMR21-12C-1-4ft LMR21-06C-0-1ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and/or MSD %R exceeded expanded criteria (high) post digestion spike within criteria	Arsenic Barium Beryllium Cadmium Chromium Lead Potassium Vanadium	J detects	LMR21-09C-4-7ft
*Field Duplicate RPD criteria exceeded	Aluminum Potassium Vanadium	J detects	LMR21-15C-1-4ft

*Note that the field duplicate for this analysis was analyzed in SDG AEG-156

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included with this SDG. In addition, the original analysis for another field duplicate is included in this SDG.

Sample LMR21-08C-4-7ft FD is the field duplicate of sample LMR21-08C-4-7ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-15C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-15C-1-4ft. Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. However, three analytes were detected in the original sample at concentrations significantly above the LOD (78.8 µg/kg) and not in the FD sample. For these analytes the RPD was unmeasurable. Also note that the measurable RPDs between the two samples ranged from 49% to 92%. The non-detected results for the three analytes are qualified "UJ" and the detected analytes are qualified "J". The results are provided in the table below:

Analyte	LMR21-15C-1-4ft Result (µg/kg)	LMR21-15C-1-4ft FD Result (µg/kg)	%RPD
Benzo(b)fluoranthene	3190	Non-detect (<77.5)	NA
Benzo(k)fluoranthene	1950	Non-detect (<77.5)	NA
Dibenzo(a,h)anthracene	375	Non-detect (<77.5)	NA

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/17/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in four samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-15C-1-4ft   LMR21-16C-1-4ft   LMR21-09C-4-7ft   LMR21-16C-0-1ft

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Two MS/MSD pairs were analyzed with this SDG.

The MS and MSD percent recoveries (%Rs) Aroclor-1260 exceeded the lower %R criteria specified in the QAPP. The non-detected Aroclor-1260 result in the parent sample is qualified "UJ":

LMR21-12C-1-4ft: Aroclor-1260

The MS and MSD percent recoveries (%Rs) for Aroclor-1016 and Aroclor-1260, exceeded the lower %R criteria specified in the QAPP. The non-detected Aroclor-1016 and Aroclor-1260 results in the parent sample are qualified "UJ".

LMR21-09C-4-7ft: Aroclor-1016, Aroclor-1260

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included with this SDG. In addition, the original analysis for another field duplicate is included in this SDG.

Sample LMR21-08C-4-7ft FD is the field duplicate of sample LMR21-08C-4-7ft. No Aroclors were detected in the samples.

Sample LMR21-15C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-15C-1-4ft. All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

One (1) Aroclor sample has a relative percent difference (RPD) between analyte results per GC column that exceeded the 40% RPD criteria. The detected analyte in the following sample is qualified "J".

LMR21-11C-1-4ft: Aroclor-1254

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/07/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 08/29/2021 and 09/05/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 97.6% and 107.6%, respectively, were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in the ICB and four CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

The MS and/or MSD percent recoveries (%Rs) for arsenic, barium, beryllium, cadmium, chromium, lead, selenium, and vanadium in QC sample LMR21-12C-1-4ft exceeded the various DOD QSM5.3 %R acceptance limits and the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation. Since the post-digestion spike %R's for arsenic, barium, beryllium, cadmium, selenium, and vanadium were within acceptance limits; results for arsenic, barium, beryllium, cadmium, and vanadium for the following associated samples are qualified "J".

LMR21-12C-1-4ft LMR21-06C-0-1ft

(Note that the %Rs exceeded criteria high and the selenium results were NDs, therefore, selenium results were not qualified)

A post-digestion spike was not reported for chromium and lead for QC sample LMR21-12C-1-4ft; since the MS and MSD %Rs exceeded the upper acceptance limits, chromium and lead results are qualified "J+" for the following associated samples:

LMR21-12C-1-4ft LMR21-06C-0-1ft

Antimony, silver, sodium, thallium and zinc MS/MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-12C-1-4ft; however, the %Rs for these analytes were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation, the antimony, silver, sodium, thallium, and zinc results associated with this QC sample were not qualified.

The MS and/or MSD percent recoveries (%R's) for arsenic, barium, beryllium, cadmium, chromium, lead, potassium, selenium, and vanadium in QC sample LMR21-09C-4-7ft exceeded the various DOD QSM5.3 %R acceptance limits and the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation. Since the post-digestion spike %R's for all analytes were within acceptance limits; results for arsenic, barium, beryllium, cadmium, chromium, lead, potassium, and vanadium for the following associated sample are qualified "J".

LMR21-09C-4-7ft

(Note that the %Rs exceeded criteria high and the selenium result was ND, therefore, the selenium result was not qualified)

Antimony, silver, and thallium MS/MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-09C-4-7ft; however, the %R's for these analytes were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation, the antimony, silver, and thallium results associated with this QC sample were not qualified.

7. POST DIGESTION SPIKE

Not all analytes exceeding the MS/MSD %R criteria were reported for the post-digestion spike.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Sample LMR21-08C-4-7ft FD is the field duplicate of sample LMR21-08C-4-7ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-15C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-15C-1-4ft. Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. The detected results for three analytes are qualified "J" in both the original and FD sample. The results are provided in the table below:

Analyte	LMR21-15C-1-4ft Result (mg/kg)	LMR21-15C-1-4ft FD (AEG-156) Result (mg/kg)	%RPD
Aluminum	6830	27400	120.2%
Potassium	1120	5630	133.6%
Vanadium	16.1	59.9	115.3%

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

According to the Analysis Run Log, a serial dilution or dilution test was analyzed on sample LMR21-08C-4-7ft with this SDG; however, the raw data results for that analysis were not included with the analytical run and the results were not reported in the data package.

13. ADDITIONAL INFORMATION

Note that sample LMR21-16C-0-1ft was analyzed for metals, however, mercury was not analyzed for this sample.

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/14/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 8˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded between 1 and 13 days. Detected results are qualified "J-".

LMR21-20C-4-7ft	LMR21-11C-1-4ft	LMR21-15C-1-4ft
LMR21-16C-1-4ft	LMR21-12C-1-4ft	LMR21-19C-4-7ft
LMR21-08C-4-7ft	LMR21-09C-1-4ft	LMR21-09C-4-7ft
LMR21-08C-4-7ft FD	LMR21-06C-0-1ft	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

One continuing calibration verification (CCV) CCV3 analyzed on 09/17/2022 exceeded the upper %R criteria required in the QAPP. However, CCV4 was analyzed directly after CCV3 and is within criteria; therefore, no qualification is necessary.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The six method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included with this SDG. In addition, the original analysis for another field duplicate is included in this SDG.

Sample LMR21-08C-4-7ft FD is the field duplicate of sample LMR21-08C-4-7ft and sample LMR21-15C-1-4ft FD (SDG AEG-156) is the field duplicate of sample LMR21-15C-1-4ft. All RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: **Julie Hall** **DATE:** **04/04/2022**

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 19, 2022
SUBJECT:	Review of Data for SDG Number: AEG-159 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-159
Number and Type of Samples:	Nineteen (19) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-WC-1-FD	LMR21-21C-1-4ft	LMR21-21C-1-4ft FD*
LMR21-WB-1	LMR21-24C-1-4ft	LMR21-05C-4-7ft
LMR21-02C-0-1ft	LMR21-24C-0-1ft	LMR21-23C-1-4ft
LMR21-03C-0-1ft	LMR21-21C-0-1ft	LMR21-22C-4-6.5ft FD*
LMR21-22C-0-1ft	LMR21-25C-1-4ft	LMR21-25C-4-7ft
LMR21-22C-4-6.5ft	LMR21-24C-4-8ft	LMR21-13C-7-9ft
LMR21-01C-1-4ft		

(*) Field Duplicate samples were not labeled as FDs by the laboratory. The FDs were determined by matching the Sample IDs, collection date and times in the "COC sample Master list Maumee 15Feb22" spreadsheet.

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-159
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Nineteen (19) sediment samples for SDG AEG-159 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10-11, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects UJ non-detects	LMR21-05C-4-7ft LMR21-03C-0-1ft LMR21-02C-0-1ft

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-WB-1 LMR21-24C-1-4ft LMR21-25C-1-4ft LMR21-24C-4-8ft LMR21-13C-7-9ft
Field Duplicate RPD criteria exceeded	Aroclor-1248 Aroclor-1254	J detects	LMR21-21C-1-4ft LMR21-21C-1-4ft FD
RPD between GC Columns >40%	Aroclor-1260	J detect	LMR21-21C-0-1ft

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
*Field Duplicate RPD criteria exceeded	Potassium	J detect	LMR21-WC-1 FD

*Note that the original sample to Field Duplicate LMR21-WC-1 FD was analyzed in SDG AEG-160.

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	LMR21-21C-1-4ft LMR21-21C-1-4ft FD LMR21-WB-1 LMR21-24C-1-4ft LMR21-24C-0-1ft LMR21-23C-1-4ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
			LMR21-21C-0-1ft LMR21-22C-4-6.5ft LMR21-22C-0-1ft LMR21-25C-1-4ft LMR21-25C-4-7ft LMR21-22C-4-6.5ft FD LMR21-24C-4-8ft LMR21-13C-7-9ft

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in three samples in this SDG. Note that additional DMCs exceeded the various lower %R criteria; however, the DMCs are not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following samples are qualified "J-", non-detects are qualified "UJ".

LMR21-05C-4-7ft LMR21-03C-0-1ft LMR21-02C-0-1ft

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

Note that Benzo(a)pyrene in one of the five LCS analyses was reported by the laboratory as having exceeded the upper percent recovery (%R) criteria with a %R of 108%; however, on one of the five LCS report forms, the laboratory criteria of 58%-102% was reported instead of the QAPP criteria of 45%-129% for the analyte. No qualification of sample results is necessary.

9. FIELD BLANK AND FIELD DUPLICATES

Three field duplicates were included with this SDG. For one of the three field duplicates the original sample is in a separate SDG.

Sample LMR21-WC-1-FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-160). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-22C-4-6.5ft FD is the field duplicate of sample LMR21-22C-4-6.5ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-21C-1-4ft FD is the field duplicate of sample LMR21-21C-1-4ft. Several RPDs exceeded the 100% RPD criteria required by the QAPP; however, qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the RL (LOD) and the RPD is greater than the 100% RPD criteria required by the QAPP. No qualification of sample results is necessary.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/18/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in five samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-WB-1	LMR21-24C-1-4ft	LMR21-25C-1-4ft
LMR21-24C-4-8ft	LMR21-13C-7-9ft	

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Three field duplicates were included with this SDG. For one of the three field duplicates the original sample is in a separate SDG.

Sample LMR21-WC-1-FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-160). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-22C-4-6.5ft FD is the field duplicate of sample LMR21-22C-4-6.5ft. No Aroclors were detected in the samples.

Sample LMR21-21C-1-4ft FD is the field duplicate of sample LMR21-21C-1-4ft. Three RPDs exceeded the 100% RPD criteria required by the QAPP; however, qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the RL (LOD) and the RPD is greater than the 100% RPD criteria required by the QAPP. For Aroclor-1260, both results were less than 5X the RL and a qualifier was not applied. For two of the three analytes that exceeded RPD criteria the original and field duplicate sample results are qualified "J". The results are provided in the table below:

Analyte	LMR21-21C-1-4ft Result (µg/kg)	LMR21-21C-1-4ft FD Result (µg/kg)	%RPD
Aroclor-1248	2570	483	137%
Aroclor-1254	1050 (5X DL)	236 (1X DL)	127%

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

One (1) Aroclor sample has a relative percent difference (RPD) between analyte results per GC column that exceeded the 40% RPD criteria. The detected analyte in the following sample is qualified "J".

LMR21-21C-0-1ft Aroclor-1260

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/18/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 08/22/2021, 08/29/2021 and 09/05/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 105.2%, 97.6%, and 112% (for the second 9/5/2021 run), respectively were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

No problems were found. Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Three field duplicates were included with this SDG. For one of the three field duplicates the original sample is in a separate SDG.

Sample LMR21-WC-1-FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-160). Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. The detected results for potassium are qualified "J" in both the original and FD sample. The results are provided in the table below:

Analyte	LMR21-WC-1 (AEG-160) Result (mg/kg)	LMR21-WC-1 FD Result (mg/kg)	%RPD
Potassium	2010	6100	100.86%

Sample LMR21-22C-4-6.5ft FD is the field duplicate of sample LMR21-22C-4-6.5ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-21C-1-4ft FD is the field duplicate of sample LMR21-21C-1-4ft. All RPDs were within 100% criteria required by the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

According to the Analysis Run Log and raw data, a serial dilution or dilution test was analyzed on sample LMR21-13C-7-9 with this SDG; however, the results were not reported in the data package.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/15/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for 14 TOC sediment samples. The technical holding time was exceeded between 12 and 13 days. Detected results are qualified "J-".

LMR21-21C-1-4ft	LMR21-21C-1-4ft FD	LMR21-WB-1
LMR21-24C-1-4ft	LMR21-24C-0-1ft	LMR21-23C-1-4ft
LMR21-21C-0-1ft	LMR21-22C-4-6.5ft	LMR21-22C-0-1ft
LMR21-25C-1-4ft	LMR21-25C-4-7ft	LMR21-22C-4-6.5ft FD
LMR21-24C-4-8ft	LMR21-13C-7-9ft	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Three field duplicates were included with this SDG. For one of the three field duplicates the original sample is in a separate SDG.

Sample LMR21-WC-1-FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-160); sample LMR21-22C-4-6.5ft FD is the field duplicate of sample LMR21-22C-4-6.5ft; and sample LMR21-21C-1-4ft FD is the field duplicate of sample LMR21-21C-1-4ft. All RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/23/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 19, 2022
SUBJECT:	Review of Data for SDG Number: AEG-160 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-160
Number and Type of Samples:	Ten (10) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:	LMR21-27C-0-1ft	LMR21-03C-4-7ft	LMR21-02C-4-7ft
	LMR21-04C-4-7ft	LMR21-22C-1-4ft	LMR21-20C-7-10ft
	LMR21-WC-1	LMR21-26C-1-4ft	LMR21-01C-7-8ft
	LMR21-02C-7-8ft		

Case Number: NA
SDG Number: AEG-160
Site Name: Lower Maumee River
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Ten (10) sediment samples for SDG AEG-160 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10-11, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects	LMR21-WC-1

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-04C-4-7ft LMR21-26C-1-4ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1016, Aroclor-1260	UJ non-detects	LMR21-22C-1-4ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1260	UJ non-detect	LMR21-WC-1

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and/or MSD %R exceeded expanded criteria (high) post digestion spike within criteria	Arsenic Barium Beryllium Chromium Lead Potassium Vanadium	J detects	LMR21-22C-1-4ft
MS and/or MSD %R exceeded expanded criteria (high) no post spike reported	Cadmium	J+ detects	LMR21-22C-1-4ft
*Field Duplicate RPD criteria exceeded	Potassium	J detect	LMR21-WC-1

*Note that the Field Duplicate to original sample LMR21-WC-1 was analyzed in SDG AEG-159.

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	LMR21-27C-0-1ft LMR21-04C-4-7ft LMR21-22C-1-4ft LMR21-20C-7-10ft LMR21-26C-1-4ft

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in one sample in this SDG. Note that additional DMCs exceeded the various lower %R criteria; however, the DMCs are not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following samples are qualified "J-". There are no non-detected analytes in the sample.

LMR21-WC-1

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1-FD (SDG AEG-159) is the field duplicate of sample LMR21-WC-1. All RPDs were within the 100% criteria required by the QAPP.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/18/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in two samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-04C-4-7ft LMR21-26C-1-4ft

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Two MS/MSD pairs were analyzed with this SDG.

The MS and MSD percent recoveries (%Rs) for Aroclor-1016 and Aroclor-1260, exceeded the lower %R criteria specified in the QAPP. The non-detected Aroclor-1016 and Aroclor-1260 results in the parent sample are qualified "UJ":

LMR21-22C-1-4ft: Aroclor-1016, Aroclor-1260

The MS percent recoveries (%Rs) for Aroclor-1260 on both GC columns, exceeded the lower %R criteria specified in the QAPP. The non-detected Aroclor-1260 result in the parent sample is qualified "UJ":

LMR21-WC-1: Aroclor-1260

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1-FD (SDG AEG-159) is the field duplicate of sample LMR21-WC-1. All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/18/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 08/22/2021, 08/29/2021 and 09/05/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 105.2%, 97.6%, 107.6% and 112% (for the second 9/5/2021 run), respectively, were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

No problems were found. Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

The MS and/or MSD percent recoveries (%R's) for arsenic, barium, beryllium, cadmium, chromium, lead, potassium, selenium, and vanadium in QC sample LMR21-22C-1-4ft exceeded the various DOD QSM5.3 %R acceptance limits and the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation. Since the post-digestion spike %R's for arsenic, barium, beryllium, chromium, lead, potassium, selenium, and vanadium were within acceptance limits; results for arsenic, barium, beryllium, chromium, lead, potassium, and vanadium for the following associated sample are qualified "J".

LMR21-22C-1-4ft

(Note that the %R's exceeded criteria high and the selenium result is ND, therefore, the selenium result was not qualified)

A post-digestion spike was not reported for cadmium for QC sample LMR21-22C-1-4ft; since the MS and MSD %R's exceeded the upper acceptance limits, the cadmium result is qualified "J+" for the following associated sample:

LMR21-22C-1-4ft

Antimony, silver, and thallium MS/MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-22C-1-4ft; however, the %R's for these analytes were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation, the antimony, silver, and thallium results associated with this QC sample were not qualified.

The RPDs for MS/MSD sample LMR21-22C-1-4ft were outside of the DOD QSM5.3 RPD acceptance limits for antimony, arsenic, beryllium, cadmium, cobalt, copper, nickel, selenium, silver, sodium, and thallium; however, the RPDs were within the expanded RPD of 35% allowed for sediment samples in the NFG and used for GLNPO validation. No qualification is necessary.

Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-WC-1; however, the %R's for these analytes were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc results associated with this QC sample were not qualified.

7. POST DIGESTION SPIKE

Not all analytes exceeding the MS/MSD %R criteria were reported for the post-digestion spike.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

No field duplicates were included with this SDG, however, a field duplicate of a sample in this SDG was analyzed in SDG AEG-159.

Sample LMR21-WC-1-FD (AEG-159) is the field duplicate of sample LMR21-WC-1. Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. The detected results for potassium are qualified "J" in both the original and FD sample. The results are provided in the table below:

Analyte	LMR21-WC-1 Result (mg/kg)	LMR21-WC-1 FD (AEG-159) Result (mg/kg)	%RPD
Potassium	2010	6100	100.86%

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A Serial Dilution was not analyzed with this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez **DATE: 03/08/2022**

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for five TOC sediment samples. The technical holding time was exceeded between 1 and 13 days. Detected results are qualified "J-".

LMR21-27C-0-1ft	LMR21-04C-4-7ft	LMR21-22C-1-4ft
LMR21-20C-7-10ft	LMR21-26C-1-4ft	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The four method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1-FD (SDG AEG-159) is the field duplicate of sample LMR21-WC-1. The RPD was within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/23/2022

Case Number: NA
SDG Number: AEG-160
Site Name: Lower Maumee River
Laboratory: ALS Environmental

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 19, 2022
SUBJECT:	Review of Data for SDG Number: AEG-161 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-161
Number and Type of Samples:	Nineteen (19) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-05C-0-1ft	LMR21-23C-4-6ft	LMR21-03C-1-4ft*
LMR21-27C-1-3ft	LMR21-28C-1-4ft	LMR21-26C-4-8ft
LMR21-19C-0-1ft	LMR21-26C-0-1ft	LMR21-23C-0-1ft
LMR21-04C-0-1ft	LMR21-21C-4-7ft	LMR21-02C-1-4ft
LMR21-01C-0-1ft	LMR21-25C-0-1ft	LMR21-04C-1-4ft
LMR21-01C-4-7ft	LMR21-05C-1-4ft	LMR21-05C-7-8ft
LMR21-03C-1-4ft*		

(*) Two samples with the same Sample ID, collected one minute apart, however, there was no FD/MS designation on the COC or in the COC Sample Master List Maumee 15Feb22" spreadsheet.

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-161
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Nineteen (19) sediment samples for SDG AEG-159 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10-11, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects UJ non-detects	LMR21-05C-0-1ft LMR21-01C-0-1ft LMR21-05C-1-4ft

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-27C-1-3ft LMR21-26C-4-8ft LMR21-19C-0-1ft LMR21-26C-0-1ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1260	UJ non-detect	LMR21-21C-4-7ft

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and/or MSD %R criteria exceeded (high) and no post-digestion spike reported	Potassium	J+ detect	LMR21-21C-4-7ft
Serial Dilution %D exceeded criteria	Calcium Magnesium Manganese	J detects	LMR21-05C-0-1ft LMR21-23C-4-6ft LMR21-03C-1-4ft LMR21-27C-1-3ft LMR21-28C-1-4ft LMR21-26C-4-8ft LMR21-19C-0-1ft LMR21-26C-0-1ft LMR21-23C-0-1ft LMR21-04C-0-1ft

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-161
Laboratory: ALS Environmental

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	LMR21-23C-4-6ft LMR21-27C-1-3ft LMR21-28C-1-4ft LMR21-26C-4-8ft LMR21-19C-0-1ft LMR21-26C-0-1ft LMR21-23C-0-1ft LMR21-04C-0-1ft LMR21-21C-4-7ft LMR21-25C-0-1ft LMR21-04C-1-4ft

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in three samples in this SDG. Note that additional DMCs exceeded the various lower %R criteria in these three samples and two additional samples; however, the DMCs are not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following samples are qualified "J-", non-detect are qualified "UJ".

LMR21-05C-0-1ft LMR21-01C-0-1ft LMR21-05C-1-4ft

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems found.

8. LABORATORY CONTROL SAMPLE

No problems found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/18/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in four samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-27C-1-3ft LMR21-26C-4-8ft LMR21-19C-0-1ft LMR21-26C-0-1ft

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS and MSD percent recoveries (%Rs) for Aroclor-1260 on both GC columns exceeded the lower %R criteria specified in the QAPP. The non-detected Aroclor-1260 results in the parent sample are qualified "UJ":

LMR21-21C-4-7ft: Aroclor-1260

The MS/MSD relative percent difference (RPD) for Aroclor-1016 exceeded the 30% RPD criteria required in the QAPP on both GC columns. Aroclor-1016 was not detected in the parent sample and no qualification of sample results is necessary.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/18/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 08/22/2021, 08/29/2021 and 09/05/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 105.2%, 97.6%, 107.6% and 112% (for the second 9/5/2021 run), respectively were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

No problems were found. Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Calcium, potassium, and zinc were detected at levels greater than the MDL but less than the RL in one preparation blank. All results for calcium, potassium, and zinc in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the Method Blank forms provided in the data package do not report blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The reported results on these forms do not match the results reported in the EDD and on and Quality Control Data forms provided at the beginning of each data package; therefore, validation was performed using the raw data and Quality Control Data forms and not those in the metals data package.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

The MS and/or MSD percent recoveries (%Rs) for potassium in QC sample LMR21-21C-4-7ft exceeded the DOD QSM5.3 %R acceptance limits. The MS and MSD %Rs for potassium exceeded the DOD limits of 81-116% with %Rs of 191% and 141%. The MS %R also exceeded the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation. A post-digestion spike was not reported for LMR21-21C-4-7ft; therefore, the potassium result for the following associated sample is qualified "J+".

LMR21-21C-4-7ft

The RPD for MS/MSD sample LMR21-21C-4-7ft was outside of the DOD QSM5.3 RPD acceptance limits for potassium (23.8%); however, the RPD was within the expanded RPD of 35% allowed for sediment samples in the NFG and used for GLNPO validation. No qualification for RPD is necessary.

7. POST DIGESTION SPIKE

Not all analytes exceeding the MS/MSD %R criteria were reported for the post-digestion spike.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

No field duplicates were included with this SDG.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

The percent differences (%Ds) for calcium, magnesium, and manganese in serial dilution sample LMR21-04C-0-1ft exceeded the expanded acceptance criteria ≤15% allowed by the NFG and used for GLNPO validation, with %Ds of 15.8%, 21.1% and 18.2%, respectively. The original sample result is greater than 50X the MDL of the original sample; therefore, the following detected results are qualified "J".

Calcium, Magnesium and Manganese in samples:

LMR21-05C-0-1ft	LMR21-23C-4-6ft	LMR21-03C-1-4ft*
LMR21-27C-1-3ft	LMR21-28C-1-4ft	LMR21-26C-4-8ft
LMR21-19C-0-1ft	LMR21-26C-0-1ft	LMR21-23C-0-1ft
LMR21-04C-0-1ft		

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25

mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/16/2022

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-161
Laboratory: ALS Environmental

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for 11 TOC sediment samples. The technical holding time was exceeded between 1 and 14 days. Detected results are qualified "J-".

LMR21-23C-4-6ft	LMR21-27C-1-3ft	LMR21-28C-1-4ft
LMR21-26C-4-8ft	LMR21-19C-0-1ft	LMR21-26C-0-1ft
LMR21-23C-0-1ft	LMR21-04C-0-1ft	LMR21-21C-4-7ft
LMR21-25C-0-1ft	LMR21-04C-1-4ft	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall **DATE:** 02/23/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 19, 2022
SUBJECT:	Review of Data for SDG Number: AEG-162 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-162
Number and Type of Samples:	Eight (8) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:			
	LMR21-28C-0-1ft	LMR21-WC-2	LMR21-07C-0-1ft
	LMR21-11C-0-1ft	LMR21-06C-4-6.3ft	LMR21-08C-7-7.5ft
	LMR21-07C-7-8ft	LMR21-07C-1-4ft	

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-162
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Eight (8) sediment samples for SDG AEG-162 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10-11, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-11C-0-1ft LMR21-28C-0-1ft

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/21/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and DCB exceeded the lower %R criteria in two samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-11C-0-1ft LMR21-28C-0-1ft

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/21/2022

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 08/29/2021 and 09/05/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 97.6%, 107.6% and 112% (for the second 9/5/2021 run), respectively, were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in one CCB between the MDL and RL for the analytical sequence analyzed on 09/09/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

No problems were found.

Note that the Method Blank forms provided in the data package do not report blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The reported results on these forms do not match the results reported in the EDD and on and Quality Control Data forms provided at the beginning of each data package; therefore, validation was performed using the raw data and Quality Control Data forms and not those in the metals data package.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

No field duplicates were included with this SDG.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/16/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 9˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for all TOC sediment samples. The technical holding time was exceeded between 1 and 13 days. Detected results are qualified "J-".

LMR21-28C-0-1ft	LMR21-WC-2	LMR21-07C-0-1ft
LMR21-11C-0-1ft	LMR21-06C-4-6.3ft	LMR21-08C-7-7.5ft
LMR21-07C-7-8ft	LMR21-07C-1-4ft	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The four method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD samples were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/24/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 19, 2022

SUBJECT: Review of Data for SDG Number: AEG-163
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-163

Number and Type of Samples: Five (5) Sediment Samples for TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D)

EPA Sample Numbers:

LMR21-WA-3	LMR21-WB-2	LMR21-WA-1
LMR21-WA-2	LMR21-WC-1	

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-163
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Five (5) sediment samples for SDG AEG-163 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

TCLP Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

TCLP Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
TCLP extraction exceeded holding time criteria	All SVOA analytes	UJ non-detects	LMR21-WA-3 LMR21-WB-2 LMR21-WA-1 LMR21-WA-2 LMR21-WC-1

TCLP Pesticide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
TCLP extraction exceeded holding time criteria	All pesticide analytes	UJ non-detects	LMR21-WA-3 LMR21-WB-2 LMR21-WA-1 LMR21-WA-2 LMR21-WC-1

TCLP Herbicide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
TCLP extraction exceeded holding time criteria	All herbicide analytes	UJ non-detects	LMR21-WA-3 LMR21-WB-2 LMR21-WA-1 LMR21-WA-2 LMR21-WC-1

TCLP Volatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Reactive Cyanide and Sulfide Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyzed outside of holding time	Reactive Cyanide Reactive Sulfide	J- detects UJ non-detects	LMR21-WA-3 LMR21-WB-2 LMR21-WA-1 LMR21-WA-2 LMR21-WC-1
Analyte detected in MB above the MDL and below the RL	Reactive Cyanide	U	LMR21-WA-3 LMR21-WB-2 LMR21-WA-1 LMR21-WA-2 LMR21-WC-1
Analyte detected in MB above the MDL and below the RL	Reactive Sulfide	J+ detect	LMR21-WA-3 LMR21-WB-2
Analyte detected in MB above the MDL and below the RL	Reactive Sulfide	U	LMR21-WA-1 LMR21-WA-2 LMR21-WC-1

Ignitability and pH Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyzed outside of holding time	Corrosivity as pH	J- detect	LMR21-WA-3 LMR21-WB-2 LMR21-WA-1 LMR21-WA-2 LMR21-WC-1

TCLP METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of mercury sample results is not applied unless the temperature is >10℃.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria.

The Low Level CCV (LLCCV) analyzed in the 08/29/2021 mercury run was not reported in this data package. A %R of 104.5% was reported in the raw data. No qualification was necessary as the LLCCV %R was within criteria.

Several ICP CRDL standard recoveries exceeded criteria on the report forms provided with the data package. The same standard was reported in each of the three SDGs for TCLP Metals for this project. The CRDL standard was reported as failing for AEG-163 and AEG-172, however, the CRDL standard passed in AEG-175. AEG-175 used the CRDL Standard's water true values to calculate the percent recoveries. SDGs AEG-163 and AEG-172 were incorrectly reported using soil true values. No qualification of the data is necessary.

4. BLANKS – INITIAL AND CONTINUING

No problems were found.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike/matrix spike duplicate (MS/MSD) was analyzed on QC sample LMR21-WA-3. All %R's and RPD's were within criteria.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1 FD (SDG AEG-172) is the field duplicate of sample LMR21-WC-1. All RPDs are within the 100% RPD criteria required in the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 1 mL initial volume to calculate mercury results reported on the report forms in the data package. These results do not match those reported in the EDD and on the Analytical Results Summary forms provided at the beginning of each data package. The Analytical Results Summary form results are calculated using a 5 mL final volume and a 5 mL initial volume which matches the volumes listed on the Form 13 (Sample Preparation Summary), the Form 1-sample results form, and EDD.

REVIEWED BY: Aimee Perez DATE: 03/23/2022

TCLP SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day toxicity characteristic leaching procedure (TCLP) holding time criteria for all samples in this SDG. The TCLP procedure was performed two days after the 14 day holding time. No semivolatile target analytes were detected in the samples. All sample non-detected results are qualified "UJ" in the following samples:

LMR21-WA-3	LMR21-WB-2	LMR21-WA-1
LMR21-WA-2	LMR21-WC-1	

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Phenol-d5 exceeded the lower %R criteria of 13% required in the QAPP in two samples in this SDG. Since the other two acid DMCs met %R criteria, no qualification of the data is necessary.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1 FD (SDG AEG-172) is the field duplicate of sample LMR21-WC-1. No SVOA target analytes were detected in either sample.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/21/2022

TCLP PESTICIDE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day toxicity characteristic leaching procedure (TCLP) holding time criteria for all samples in this SDG. The TCLP procedure was performed two days after the 14 day holding time. No pesticide target analytes were detected in the samples. All sample non-detected results are qualified "UJ" in the following samples:

LMR21-WA-3	LMR21-WB-2	LMR21-WA-1
LMR21-WA-2	LMR21-WC-1	

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10°C.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The calibration factor percent difference (%D) for Methoxychlor in one continuing calibration verification (CCV) exceeded the upper %D criteria of ±20%. The CCV is associated with the method blank only. No qualification of sample results is necessary.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogate Decachlorobiphenyl (DCB) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1 FD (SDG AEG-172) is the field duplicate of sample LMR21-WC-1. No pesticide target analytes were detected in either sample.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/21/2022

TCLP HERBICIDE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day toxicity characteristic leaching procedure (TCLP) holding time criteria for all samples in this SDG. The TCLP procedure was performed two days after the 14 day holding time. No herbicide target analytes were detected in the samples. All sample non-detected results are qualified "UJ" in the following samples:

LMR21-WA-3	LMR21-WB-2	LMR21-WA-1
LMR21-WA-2	LMR21-WC-1	

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1 FD (SDG AEG-172) is the field duplicate of sample LMR21-WC-1. No herbicide target analytes were detected in either sample.

9. INTERNAL STANDARDS

No problems were found.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/21/2022

TCLP VOLATILE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory on ice at a temperature of 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1 FD (SDG AEG-172) is the field duplicate of sample LMR21-WC-1. No volatile target analytes were detected in either sample with the exception of chloroform which was detected below the reporting limit in the original analysis. No qualification of sample results is necessary.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/21/2022

REACTIVE CYANIDE AND SULFIDE

1. HOLDING TIME AND PRESERVATION

All samples for Reactive Cyanide and Sulfide were analyzed outside of holding time. The Reactive Cyanide and Sulfide results in the following samples are qualified "J-" or "UJ"

LMR21-WA-3	LMR21-WB-2	LMR21-WA-1
LMR21-WA-2	LMR21-WC-1	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

Reactive Cyanide was detected at a level greater than the MDL but less than the RL in the preparation blank. For the following samples where the result was detected above the MDL but below the RL, the result was elevated to the RL and qualified "U".

LMR21-WA-3	LMR21-WB-2	LMR21-WA-1
LMR21-WA-2	LMR21-WC-1	

Reactive Sulfide was detected at a level greater than the MDL but less than the RL in the preparation blank. For the following samples where the result was detected above the MDL but below the RL, the result was elevated to the RL and qualified "U".

LMR21-WA-1	LMR21-WA-2	LMR21-WC-1

For the following samples where result was detected just over the RL, the result was qualified "J+".

LMR21-WA-3	LMR21-WB-2

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Not applicable.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1 FD (SDG AEG-172) is the field duplicate of sample LMR21-WC-1. All RPDs, where the sample results are greater than 5x the RL, are within the 100% RPD criteria required in the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/25/2022

IGNITABILITY AND pH

1. HOLDING TIME AND PRESERVATION

All samples for Corrosivity as pH were analyzed outside of holding time. The pH results in the following samples are qualified "J-"

LMR21-WA-3	LMR21-WB-2	LMR21-WA-1
LMR21-WA-2	LMR21-WC-1	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

ICV and CCV performed for Corrosivity as pH analysis. No problems were found.

3. BLANKS

Not applicable.

4. LABORATORY DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

Not applicable.

6. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG; however, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-WC-1 FD (SDG AEG-172) is the field duplicate of sample LMR21-WC-1. All RPDs are within the 100% RPD criteria required in the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 04/01/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 19, 2022
SUBJECT:	Review of Data for SDG Number: AEG-164 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-164
Number and Type of Samples:	Fifteen (15) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-11S	LMR21-12S	LMR21-14S
LMR21-15S	LMR21-17S	LMR21-19S
LMR21-25S	LMR21-27S	LMR21-30S
LMR21-35S	LMR21-37S	LMR21-39S
LMR21-41S	LMR21-43S	LMR21-49S

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-164
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fifteen (15) sediment samples for SDG AEG-164 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10, 2021, and shipped to the ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	LMR21-27S LMR21-30S LMR21-35S LMR21-37S LMR21-39S LMR21-41S LMR21-43S LMR21-49S

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 08/22/2021, 08/29/2021 and 09/05/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 105.2%, 97.6% and 112%, respectively were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in the one CCB between the MDL and RL for the analytical sequence analyzed on 09/09/2021 and calcium and aluminum were detected in one CCB between the MDL and RL for the analytical sequence analyzed on 09/17/2021. All associated aluminum and calcium results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

A Field Duplicate was not analyzed with this SDG.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

1. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/17/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

A matrix spike was not analyzed with this SDG.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/07/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by six and seven days. The laboratory did not indicate that the samples were prepared out of holding time but did indicate on the "Analysis - Prep Method Cross Reference Table" that method SW846 5035 was used. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-11S	LMR21-12S	LMR21-14S
LMR21-15S	LMR21-17S	LMR21-19S
LMR21-25S	LMR21-27S	LMR21-30S
LMR21-35S	LMR21-37S	LMR21-39S
LMR21-41S	LMR21-43S	LMR21-49S

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in four samples in this SDG. Since the four samples were diluted at a dilution factor ≥5, no qualification of sample results are necessary.

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/29/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded between seven and nine days. Detected results are qualified "J-".

LMR21-27S	LMR21-30S	LMR21-35S	LMR21-37S
LMR21-39S	LMR21-41S	LMR21-43S	LMR21-49S

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

All Initial and Continuing Calibration Verification standards were within criteria.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The nine method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/24/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 19, 2022
SUBJECT:	Review of Data for SDG Number: AEG-165 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-165
Number and Type of Samples:	Fifteen (15) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:			
	LMR21-45S	LMR21-47S	LMR21-52S
	LMR21-36S	LMR21-48S	LMR21-53S
	LMR21-55S	LMR21-57S	LMR21-59S
	LMR21-61S	LMR21-62S	LMR21-64S
	LMR21-66S	LMR21-68S	LMR21-69S

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-165
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fifteen (15) sediment samples for SDG AEG-165 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10 and 12, 2021, and shipped to the ALS Environmental laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
Surrogate %R criteria exceeded (low)	DRO ORO	J- detects UJ non-detects	LMR21-66S LMR21-69S LMR21-61S LMR21-62S LMR21-48S LMR21-53S LMR21-55S LMR21-57S LMR21-59S LMR21-68S

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/05/2021 and 09/08/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 112% and 99.2%, respectively were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in several CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021 and calcium and aluminum were detected in one CCB between the MDL and RL for the analytical sequence analyzed on 09/17/2021. All associated aluminum and calcium results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Calcium, potassium, and zinc were detected at levels greater than the MDL but less than the RL in one preparation blank. All results for calcium, potassium, and zinc in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the Method Blank forms were not provided in the data package. The Quality Control Data forms provided at the beginning of each data package were unreadable; therefore, validation was performed using the raw data and EDD.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed by ICP-AES for this SDG, however, an MS/MSD was analyzed for mercury on QC sample LMR21-52S. The results for the mercury MS/MSD sample were not reported in the data package and the results reported on the Quality Control Data forms were unreadable; therefore, the validation was performed using the raw data and EDD. No problems were found with the mercury MS/MSD.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

A Field Duplicate was not analyzed with this SDG.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

According to the Analysis Run Log and raw data, serial dilutions or dilution tests were analyzed on samples LMR21-55S and LMR21-68S with this SDG; however, the results were not reported in the data package.

1. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez **DATE:** 03/22/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

A matrix spike was not analyzed with this SDG.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/07/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by seven (7) to 10 days. The laboratory did not indicate that the samples were prepared out of holding time but did indicate on the "Analysis - Prep Method Cross Reference Table" that method SW846 5035 was used. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-45S	LMR21-47S	LMR21-52S
LMR21-36S	LMR21-48S	LMR21-53S
LMR21-55S	LMR21-57S	LMR21-59S
LMR21-61S	LMR21-62S	LMR21-64S
LMR21-66S	LMR21-68S	LMR21-69S

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in 12 samples in this SDG. Since two (2) of the 12 samples were diluted at a dilution factor ≥5, no qualification of those sample results are necessary. The detected DRO and ORO results in the following 10 samples are qualified "J-" and the non-detected results are qualified "UJ"

LMR21-66S	LMR21-69S	LMR21-61S	LMR21-62S	LMR21-48S
LMR21-53S	LMR21-55S	LMR21-57S	LMR21-59S	LMR21-68S

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

A field duplicate was not analyzed with this SDG.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/29/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded between seven and nine days. Detected results are qualified "J-".

LMR21-45S	LMR21-47S	LMR21-52S	LMR21-36S
LMR21-48S	LMR21-53S	LMR21-55S	LMR21-57S
LMR21-59S	LMR21-61S	LMR21-62S	LMR21-64S
LMR21-66S	LMR21-68S	LMR21-69S	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

All Initial and Continuing Calibration Verification standards were within criteria.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A field duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/25/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26, 2022
SUBJECT:	Review of Data for SDG Number: AEG-166 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-166
Number and Type of Samples:	Twenty (20) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Semivolatile-SIM (SW-846 8270 SIM), Aroclor (SW-846 8082A), Oil and Grease (HEM) (SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-57C-0-1ft	LMR21-28C-0-1ft	LMR21-57C-4-6ft
LMR21-58C-4-7ft FD*	LMR21-58C-1-4ft	LMR21-59C-1-4ft#
LMR21-60C-0-1ft	LMR21-59C-4-7ft	LMR21-59C-0-1ft
LMR21-39C-1-3ft	LMR21-37C-0-1ft	LMR21-60C-1-4ft
LMR21-59C-1-4ft#	LMR21-38C-1-2.5ft	LMR21-SBB1
LMR21-38C-0-1ft	LMR21-33C-1-5ft	LMR21-29C-1-4ft FD*
LMR21-34C-0-1ft	LMR21-32C-1.5ft	

(*) Field Duplicate samples were not labeled as FD's by the laboratory. The FD samples were determined by matching the Sample IDs, collection date and times in the "COC sample Master list Maumee 15Feb22" spreadsheet.

Two samples identified with the same Sample ID were collected two minutes apart; however, the second listing of Sample ID LMR21-59C-1-4 (collection time 08:34) should have been an MS/MSD, as is designated on the Chain-of-Custody (COC) and in the “COC Sample Master List Maumee 15Feb22" spreadsheet.

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Twenty (20) sediment samples for SDG AEG-166 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 11 and 12, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Semivolatile-SIM (SW-846 8270 SIM), Aroclor (SW-846 8082A), Oil and Grease (HEM) (SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and MSD %R exceeded expanded criteria (high); post-digestion spike was subsequently analyzed but not reported	Potassium	J+ detects	LMR21-60C-1-4ft LMR21-59C-1-4ft LMR21-38C-1-2.5ft LMR21-SBB1 LMR21-38C-0-1ft LMR21-33C-1-5ft LMR21-29C-1-4ft FD LMR21-34C-0-1ft LMR21-32C-1.5ft

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects UJ non-detects	LMR21-37C-0-1ft

Semivolatile-SIM Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected in method blank (above RL)	Naphthalene	J+ detects	LMR21-29C-1-4ft
DMC %R criteria exceeded (low)	Acenaphthene Acenaphthylene Anthracene Fluorene 2-Methylnaphthalene Naphthalene Phenanthrene	J- detects UJ non-detects	LMR21-57C-0-1ft LMR21-29C-1-4ft LMR21-34C-0-1ft
DMC %R criteria exceeded (low)	All SVOA SIM analytes	J- detects	LMR21-37C-0-1ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Indeno(1,2,3-cd)pyrene Pyrene	J- detects	LMR21-38C-0-1ft
Analyte exceeded calibration range	Fluoranthene Pyrene	J detects	LMR21-58C-4-7ft
Analyte exceeded calibration range	Benzo(a)anthracene Benzo(a)pyrene Chrysene Fluoranthene Phenanthrene Pyrene	J detects	LMR21-59C-1-4ft (collection time 08:32)
Analyte exceeded calibration range	Benzo(a)pyrene Chrysene Fluoranthene Phenanthrene Pyrene	J detects	LMR21-60C-0-1ft
Analyte exceeded calibration range	Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Fluoranthene Naphthalene Phenanthrene Pyrene	J detects	LMR21-59C-4-7ft
Analyte exceeded calibration range	Benzo(a)anthracene Benzo(a)pyrene Chrysene Fluoranthene Phenanthrene Pyrene	J detects	LMR21-60C-1-4ft
Analyte exceeded calibration range	Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Phenanthrene Pyrene	J detects	LMR21-38C-1-2.5ft
Analyte exceeded calibration range	All SVOA SIM analytes	J detects	LMR21-38C-0-1ft
Analyte exceeded calibration range	Chrysene Fluoranthene Phenanthrene Pyrene	J detects	LMR21-34C-0-1ft

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-57C-0-1ft LMR21-58C-0-1ft LMR21-34C-0-1ft LMR21-60C-0-1ft LMR21-37C-0-1ft LMR21-60C-1-4ft LMR21-59C-1-4ft LMR21-SBB1

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
Surrogate %R criteria exceeded (low)	DRO ORO	J- detects	LMR21-59C-0-1ft LMR21-59C-4-7ft LMR21-37C-0-1ft

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/08/2021 mercury run was not reported in this data package. A %R of 99.2% was reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in several CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021. All associated aluminum were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Calcium, potassium, and zinc were detected at levels greater than the MDL but less than the RL in one preparation blank and aluminum and zinc were detected at levels greater than the MDL but less than the RL in the second preparation blank. All results for aluminum, calcium, potassium, and zinc in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the blank report forms provided in the data package do not report blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The reported results on these report forms do not match the results reported in the EDD. Since the Quality Control Data forms provided at the beginning of each data package were unreadable, validation was performed using the raw data and EDD.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Arsenic, barium, chromium, lead, potassium, and vanadium MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-60C-1-4ft; however, the %Rs for these analytes, with the exception of potassium, were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the arsenic, barium, chromium, lead, and vanadium results associated with this QC sample were not qualified. The MS and MSD %Rs for potassium exceeded the DOD limits of 81-116% with %Rs of 252% and 286%. A post-digestion spike was analyzed but not reported by the laboratory; therefore, the potassium results for the following associated samples are qualified "J+".

LMR21-60C-1-4ft	LMR21-59C-1-4ft	LMR21-38C-1-2.5ft
LMR21-SBB1	LMR21-38C-0-1ft	LMR21-33C-1-5ft
LMR21-29C-1-4ft FD	LMR21-34C-0-1ft	LMR21-32C-1.5ft

The RPD for lead between the MS and MSD exceeded laboratory criteria; however, the RPD was within the expanded criteria allowed in the NFG and used for GLNPO validation.

A matrix spike was analyzed for mercury in this SDG on QC sample LMR21-58C-4-7ft. The results for the mercury MS/MSD sample were not reported in the data package and the results reported on the Quality Control Data forms were unreadable; therefore, the validation was performed using the raw data and EDD. No problems were found with the mercury MS/MSD.

7. POST DIGESTION SPIKE

A post-digestion spike was analyzed but not reported with this SDG. Since the post-spike true values are not known, the validators could not evaluate the post spike recoveries.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Two field duplicates were included with this SDG. The original samples are in separate SDGs.

Sample LMR21-58C-4-7ft FD is the field duplicate of sample LMR21-58C-4-7ft (SDG AEG-170). All RPD's were within the 100% criteria required by the QAPP.

Sample LMR21-29C-1-4ft FD is the field duplicate of sample LMR21-29C-1-4ft (SDG AEG-167). All RPD's were within the 100% criteria required by the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

According to the Analysis Run Log and raw data, a serial dilution or dilution test was analyzed on sample LMR21-32C-1-5ft with this SDG; however, the results were not reported in the data package.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/22/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in one sample in this SDG. Note that additional DMCs exceeded the various lower %R criteria in this sample and two additional samples; however, the surrogates are not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following samples are qualified "J-", non-detects are qualified "UJ".

LMR21-37C-0-1ft

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. The original samples are in separate SDGs.

Sample LMR21-58C-4-7ft FD is the field duplicate of sample LMR21-58C-4-7ft (SDG AEG-170). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-29C-1-4ft FD is the field duplicate of sample LMR21-29C-1-4ft (SDG AEG-167). No semivolatile target analytes were detected in the samples with the exception of one analyte detected below the reporting level.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/22/2022

SEMIVOLATILE-SIM

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

One analyte, Naphthalene, was detected in Method Blank 3381896(MB) at a concentration above the reporting limit (LOD). The detected Naphthalene result in the in the one associated sample is qualified "J+".

LMR21-29C-1-4ft: Naphthalene

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMCs 2-Methylnaphthalene-d10 and/or Fluoranthene-d10 exceeded the lower %R criteria of 50% required in the QAPP in five samples in this SDG. No non-detects for the associated target analytes were observed. The detected associated analytes in the following samples are qualified "J-", non-detects are qualified "UJ":

LMR21-57C-0-1ft: Acenaphthene, Acenaphthylene, Anthracene, Fluorene, 2-Methylnaphthalene, Naphthalene, Phenanthrene

LMR21-37C-0-1ft: All SVOA SIM target analytes

LMR21-38C-0-1ft: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

LMR21-29C-1-4ft: Acenaphthene, Acenaphthylene, Anthracene, Fluorene, 2-Methylnaphthalene, Naphthalene, Phenanthrene

LMR21-34C-0-1ft: Acenaphthene, Acenaphthylene, Anthracene, Fluorene, 2-Methylnaphthalene, Naphthalene, Phenanthrene

The percent recovery (%R) for DMCs 2-Methylnaphthalene-d10 and Fluoranthene-d10 exceeded the lower %R criteria of 50% required in the QAPP all Laboratory Control Samples

(LCSs) in this SDG. Since each sample was evaluated and qualified for DMC %R, no additional qualification of samples is necessary.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

The percent recovery (%R) for one analyte, 2-Methylnaphthalene, was not reported on the LCS report forms. The analyte was spiked into the samples and the %R was provided in the raw data. The analyte passed the %R criteria required by the QAPP.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG. Note that the samples specified as field duplicates in the other fractions in this SDG do not apply to the Semivolatiles SIM fraction since the original samples included in AEG-167 and AEG-170, were not analyzed for SVOA SIM.

10. INTERNAL STANDARDS

Internal standard 1,4-Dichlorobenzene-d4 exceeded the 100% upper limit of the area criteria window in one sample, and one LCS in this SDG. No analytes are associated with the internal standard and no qualification of sample results is necessary.

Internal standard Perylene-d12 exceeded the upper 100% limit of the criteria window in one method blank in this SDG. No qualification of sample results is necessary.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

Several analyte results in eight sample in this SDG exceeded the calibration range. The detected analytes in the following samples are qualified "J". See the Data Qualification Summary Table for specific qualified analytes in the following samples:

LMR21-58C-4-7ft	LMR21-59C-1-4ft (collection time 08:34)	
LMR21-60C-0-1ft	LMR21-59C-4-7ft	LMR21-60C-1-4ft
LMR21-38C-1-2.5ft	LMR21-38C-0-1ft	LMR21-34C-0-1ft

REVIEWED BY: Rebecca Garry DATE: 02/22/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and DCB exceeded the lower %R criteria in eight samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-57C-0-1ft	LMR21-58C-0-1ft	LMR21-34C-0-1ft
LMR21-60C-0-1ft	LMR21-37C-0-1ft	LMR21-60C-1-4ft
LMR21-59C-1-4ft	LMR21-SBB1	

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. The original samples are in separate SDGs.

Sample LMR21-58C-4-7ft FD is the field duplicate of sample LMR21-58C-4-7ft (SDG AEG-170). Two RPDs exceeded the 100% RPD criteria required by the QAPP; however, qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the RL (LOD) and the RPD is greater than the 100% RPD criteria required by the QAPP. No qualification of sample results is necessary.

Sample LMR21-29C-1-4ft FD is the field duplicate of sample LMR21-29C-1-4ft (SDG AEG-167). No Aroclor target analytes were detected in the samples.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/24/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. The original samples are in separate SDGs.

Sample LMR21-58C-4-7ft FD is the field duplicate of sample LMR21-58C-4-7ft (SDG AEG-170) and sample LMR21-29C-1-4ft FD is the field duplicate of sample LMR21-29C-1-4ft (SDG AEG-167). The RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/07/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by six to nine days. For this SDG, the laboratory indicated that one sample was prepared out of the method 5035 48 hour holding time but also indicated on the "Analysis - Prep Method Cross Reference Table" that method SW846 5035 was used for all samples. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-57C-0-1ft	LMR21-28C-0-1ft	LMR21-57C-4-6ft
LMR21-58C-4-7ft FD	LMR21-58C-1-4ft	LMR21-59C-1-4ft
LMR21-60C-0-1ft	LMR21-59C-4-7ft	LMR21-59C-0-1ft
LMR21-39C-1-3ft	LMR21-37C-0-1ft	LMR21-60C-1-4ft
LMR21-59C-1-4ft	LMR21-38C-1-2.5ft	LMR21-SBB1
LMR21-38C-0-1ft	LMR21-33C-1-5ft	LMR21-29C-1-4ft FD
LMR21-34C-0-1ft	LMR21-32C-1.5ft	

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in four samples in this SDG. Since one of the four samples was diluted at a dilution factor ≥5, no qualification of those sample results are necessary. The detected DRO and ORO results in the following three samples are qualified "J-". Note that there are no non-detects.

LMR21-59C-0-1ft: DRO, ORO
LMR21-59C-4-7ft: DRO, ORO
LMR21-37C-0-1ft: DRO, ORO

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes.

The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed in this SDG.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. The original samples are in separate SDGs.

Sample LMR21-58C-4-7ft FD is the field duplicate of sample LMR21-58C-4-7ft (SDG AEG-170) and sample LMR21-29C-1-4ft FD is the field duplicate of sample LMR21-29C-1-4ft (SDG AEG-167). All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/29/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 19 and 20 days. Detected results in the following samples are qualified "J-".

LMR21-57C-0-1ft	LMR21-28C-0-1ft	LMR21-57C-4-6ft
LMR21-58C-4-7ft FD	LMR21-58C-1-4ft	LMR21-59C-1-4ft
LMR21-60C-0-1ft	LMR21-59C-4-7ft	LMR21-59C-0-1ft
LMR21-39C-1-3ft	LMR21-37C-0-1ft	LMR21-60C-1-4ft
LMR21-59C-1-4ft	LMR21-38C-1-2.5ft	LMR21-SBB1
LMR21-38C-0-1ft	LMR21-33C-1-5ft	LMR21-29C-1-4ft FD
LMR21-34C-0-1ft	LMR21-32C-1.5ft	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

All Initial and Continuing Calibration Verification standards were within criteria.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. The original samples are in separate SDGs.

Sample LMR21-58C-4-7ft FD is the field duplicate of sample LMR21-58C-4-7ft (SDG AEG-170) and sample LMR21-29C-1-4ft FD is the field duplicate of sample LMR21-29C-1-4ft (SDG AEG-167). All RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/25/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-167
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-167

Number and Type of Samples: Sixteen (16) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-33C-0-1ft	LMR21-56C-1-4ft FD*	LMR21-29C-4-6.5ft
LMR21-31C-0-1ft	LMR21-30C-1-3ft	LMR21-29C-1-4ft
LMR21-30C-0-1ft	LMR21-31C-1-4ft	LMR21-32C-0-1ft
LMR21-29C-0-1ft	LMR21-SBC	LMR21-34C-1-4ft
LMR21-56C-4-7ft #	LMR21-34C-4-7ft	LMR21-56C-0-1ft
LMR21-56C-4-7ft #		

(*) The Field Duplicate sample was not labeled as a FD by the laboratory. The FD was determined by matching the Sample IDs, collection date and times in the "COC sample Master list Maumee15Feb22" spreadsheet.

(#) Sample ID appears twice. According to the "COC sample Master list Maumee 15Feb22" spreadsheet the second LMR21-56C-4-7ft should be a MS/MSD sample.

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Sixteen (16) sediment samples for SDG AEG-167 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 11 and 12, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-32C-0-1ft LMR21-34C-1-4ft LMR21-SBC

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
MS and MSD %R criteria exceeded (high)	DRO ORO	J detects	LMR21-29C-0-1ft
MS/MSD RPD criteria exceeded	DRO ORO	J detects	LMR21-29C-0-1ft
MS and MSD %R criteria exceeded (high)	DRO ORO	J detects	LMR21-34C-1-4ft
Field Duplicate RPD criteria exceeded	DRO ORO	J detects	LMR21-56C-1-4ft FD

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples
MS %R criteria exceeded (low)	TOC	J- detects	LMR21-33C-0-1ft LMR21-56C-1-4ft FD LMR21-29C-4-6.5ft LMR21-31C-0-1ft LMR21-29C-1-4ft LMR21-30C-0-1ft LMR21-31C-1-4ft LMR21-32C-0-1ft LMR21-29C-0-1ft LMR21-SBC LMR21-34C-1-4ft LMR21-56C-4-7ft LMR21-34C-4-7ft LMR21-56C-0-1ft LMR21-56C-4-7ft

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/05/2021 and 09/08/2021 mercury runs were not reported in this data package. Percent Recoveries (%R's) of 107.6% and 99.2%, respectively were reported in the raw data. No qualification was necessary as the LLCCV and LLICV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in several CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021. All associated aluminum were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Aluminum and zinc were detected at levels greater than the MDL but less than the RL in one preparation blank and aluminum and calcium were detected at levels greater than the MDL but less than the RL in the second preparation blank. All results for aluminum, calcium, and zinc in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the blank report forms provided in the data package do not report blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The reported results on these report forms do not match the results reported in the EDD. Since the Quality Control Data forms provided at the beginning of each data package were unreadable, validation was performed using the raw data and EDD.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A MS/MSD was not analyzed for the ICP-AES analysis.

Three MS/MSD pairs were analyzed for mercury on QC samples LMR21-56C-1-4ft, LMR21-29C-1-4ft, and LMR21-33C-0-1ft. The results for the mercury MS/MSD samples were incorrectly reported on the forms in the data package and the results reported on the Quality Control Data forms were unreadable; therefore, the validation was performed using the raw data and EDD. No problems were found with the mercury MS/MSDs.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

One field duplicate was included with this SDG. The original sample is in a separate SDG. In addition, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-56C-1-4ft FD is the field duplicate of sample LMR21-56C-1-4ft (SDG AEG-170). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-29C-1-4ft FD (SDG AEG-166) is the field duplicate of sample LMR21-29C-1-4ft. All RPDs were within the 100% criteria required by the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

The two LCS samples for mercury were reported on the report forms in the data package using an incorrect true value resulting in %R's of 5% reported for both. Since the Quality Control Data forms were unreadable; evaluation of the LCS's was performed using the raw data and EDD. The correct %R's for the mercury LCSs as reported in the EDD are 101% and 99%.

12. SERIAL DILUTION

According to the Analysis Run Log and raw data, a serial dilution or dilution test was analyzed on sample LMR21-56C-4-7ft with this SDG; however, the results were not reported in the data package.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez **DATE:** 03/08/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC 2,4,6-Tribromophenol exceeded the lower %R criteria in two samples in this SDG.   No semivolatiles target analytes are associated with this DMC and not qualification of sample results is necessary.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included with this SDG. The original sample is in a separate SDG. In addition, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-56C-1-4ft FD is the field duplicate of sample LMR21-56C-1-4ft (SDG AEG-170). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-29C-1-4ft FD (SDG AEG-166) is the field duplicate of sample LMR21-29C-1-4ft No semivolatile target analytes were detected in the samples with the exception of one analyte detected below the reporting level.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/24/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and DCB exceeded the lower %R criteria in eight samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-32C-0-1ft	LMR21-34C-1-4ft	LMR21-SBC

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included with this SDG. The original sample is in a separate SDG. In addition, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-56C-1-4ft FD is the field duplicate of sample LMR21-56C-1-4ft (SDG AEG-170). All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-29C-1-4ft FD (SDG AEG-166) is the field duplicate of sample LMR21-29C-1-4ft
No Aroclors were detected in the samples.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/24/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included with this SDG. The original sample is in a separate SDG. In addition, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-56C-1-4ft FD is the field duplicate of sample LMR21-56C-1-4ft (SDG AEG-170) and sample LMR21-29C-1-4ft FD (SDG AEG-166) is the field duplicate of sample LMR21-29C-1-4ft. The RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/07/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by eight to nine days. For this SDG, the laboratory indicated that one sample was prepared out of the method 5035 48 hour holding time but also indicated on the "Analysis - Prep Method Cross Reference Table" that method SW846 5035 was used for all samples. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-33C-0-1ft	LMR21-56C-1-4ft FD	LMR21-29C-4-6.5ft
LMR21-31C-0-1ft	LMR21-30C-1-3ft	LMR21-29C-1-4ft
LMR21-30C-0-1ft	LMR21-31C-1-4ft	LMR21-32C-0-1ft
LMR21-29C-0-1ft	LMR21-SBC	LMR21-34C-1-4ft
LMR21-56C-4-7ft	LMR21-34C-4-7ft	LMR21-56C-0-1ft
LMR21-56C-4-7ft		

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in three samples in this SDG. Since the samples were diluted at a dilution factor ≥5, no qualification of sample results are necessary.

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found with GRO MS/MSD analyses.

The MS and MSD percent recovery (%R) for DRO and ORO exceeded the upper %R criteria of 132% (DRO) and 106% (ORO) specified in the QAPP. The detected analytes in the parent sample are qualified "J".

LMR21-29C-0-1ft: DRO, ORO

The relative percent difference (RPD) between the MS and MSD analysis results for DRO and ORO exceeded the 30% RPD QC limit specified in the QAPP. The detected analytes in the parent sample are qualified "J":

LMR21-29C-0-1ft: DRO, ORO

The MS and MSD percent recovery (%R) for DRO and ORO exceeded the upper %R criteria of 132% (DRO) and 106% (ORO) specified in the QAPP. The detected analytes in the parent sample are qualified "J".

LMR21-34C-1-4ft: DRO, ORO

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-56C-1-4ft FD is the field duplicate of sample LMR21-56C-1-4ft (SDG AEG-170). Two RPDs exceeded the 100% RPD criteria required by the QAPP. The original and field duplicate sample results are qualified "J". The results are provided in the table below:

Analyte	LMR21-56C-1-4ft Result (mg/kg) (SDG AEG-170)	LMR21-56C-1-4ft FD Result (mg/kg)	%RPD
DRO	206	673	106%
ORO	291	1040	113%

Sample LMR21-29C-1-4ft FD (SDG AEG-166) is the field duplicate of sample LMR21-29C-1-4ft All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/30/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 21 to 29 days. Detected results in the following samples are qualified "J-".

LMR21-33C-0-1ft	LMR21-56C-1-4ft FD	LMR21-29C-4-6.5ft
LMR21-31C-0-1ft	LMR21-30C-1-3ft	LMR21-29C-1-4ft
LMR21-30C-0-1ft	LMR21-31C-1-4ft	LMR21-32C-0-1ft
LMR21-29C-0-1ft	LMR21-SBC	LMR21-34C-1-4ft
LMR21-56C-4-7ft	LMR21-34C-4-7ft	LMR21-56C-0-1ft
LMR21-56C-4-7ft		

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

All Initial and Continuing Calibration Verification standards were within criteria.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The three method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS percent recovery (%R) for TOC in one of the two MS analyses exceeded the lower %R criteria of 75% with a 47.7%R. With one exception, the detected in all samples are qualified "J-". Note that since two MS analyses were performed and one did not exceed %R criteria, that sample is not qualified.

LMR21-33C-0-1ft	LMR21-56C-1-4ft FD	LMR21-29C-4-6.5ft
LMR21-31C-0-1ft	LMR21-29C-1-4ft	LMR21-30C-0-1ft
LMR21-31C-1-4ft	LMR21-32C-0-1ft	LMR21-29C-0-1ft
LMR21-SBC	LMR21-34C-1-4ft	LMR21-56C-4-7ft
LMR21-34C-4-7ft	LMR21-56C-0-1ft	LMR21-56C-4-7ft

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included with this SDG. The original sample is in a separate SDG. In addition, the original analyses for one field duplicate is included in this SDG.

Sample LMR21-56C-1-4ft FD is the field duplicate of sample LMR21-56C-1-4ft (SDG AEG-170) and sample LMR21-29C-1-4ft FD (SDG AEG-166) is the field duplicate of sample LMR21-29C-1-4ft. The RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/25/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-168
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-168

Number and Type of Samples: Nineteen (19) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

LMR21-47C-0-1ft	LMR21-46C-1-4ft FD	LMR21-47C-1-4ft
LMR21-46C-7-8.5ft	LMR21-47C-4-8ft	LMR21-46C-0-1ft
LMR21-46C-1-4ft	LMR21-46C-4-7ft	LMR21-50C-1-4ft
LMR21-50C-4-7.5ft	LMR21-54C-1-4ft	LMR21-SBA3
LMR21-50C-0-1ft	LMR21-54C-1-4ft FD	LMR21-54C-0-1ft
LMR21-54C-4-6ft	LMR21-53C-0-1ft	LMR21-53C-4-6ft
LMR21-55C-0-1ft		

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Nineteen (19) sediment samples for SDG AEG-168 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 12 and 13, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical Holding Time exceeded	Mercury	J- detects UJ non-detects	All samples
MS and MSD %R exceeded expanded criteria (high) post-spike %R within criteria	Potassium Zinc	J detects	LMR21-47C-0-1ft LMR21-46C-1-4ft FD LMR21-47C-1-4ft LMR21-46C-7-8.5ft LMR21-47C-4-8ft LMR21-46C-0-1ft LMR21-46C-1-4ft LMR21-46C-4-7ft LMR21-50C-1-4ft LMR21-50C-4-7.5ft LMR21-54C-1-4ft LMR21-SBA3 LMR21-50C-0-1ft LMR21-54C-1-4ft FD LMR21-54C-0-1ft

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects UJ non-detects	LMR21-50C-1-4ft
MS and/or MSD %R criteria exceeded (high)	Benzo(b)fluoranthene Benzo(k)fluoranthene	J detects	LMR21-46C-4-7ft

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-50C-1-4ft LMR21-54C-1-4ft LMR21-53C-0-1ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
			LMR21-54C-0-1ft LMR21-54C-1-4ft FD LMR21-55C-0-1ft LMR21-46C-0-1ft LMR21-46C-1-4ft LMR21-46C-1-4ft FD LMR21-47C-0-1ft LMR21-50C-0-1ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1016 Aroclor-1260	UJ non-detects	LMR21-46C-4-7ft

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
CCV %D criteria exceeded (high)	ORO	J detects	LMR21-53C-0-1ft LMR21-53C-4-6ft LMR21-54C-0-1ft LMR21-54C-4-6ft LMR21-54C-1-4ft FD LMR21-55C-0-1ft LMR21-SBA3
Surrogate %R criteria exceeded (low)	DRO ORO	J- detects	LMR21-54C-1-4ft LMR21-54C-1-4ft FD LMR21-54C-0-1ft LMR21-54C-4-6ft

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples
CCV %R criteria exceeded (high)	TOC	J+ detects	All samples

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for mercury sediment samples. The technical holding time was exceeded by four or five days. Detected results are qualified "J-" and non-detected results are qualified "UJ" in the following samples:

LMR21-47C-0-1ft	LMR21-46C-1-4ft FD	LMR21-47C-1-4ft
LMR21-46C-7-8.5ft	LMR21-47C-4-8ft	LMR21-46C-0-1ft
LMR21-46C-1-4ft	LMR21-46C-4-7ft	LMR21-50C-1-4ft
LMR21-50C-4-7.5ft	LMR21-54C-1-4ft	LMR21-SBA3
LMR21-50C-0-1ft	LMR21-54C-1-4ft FD	LMR21-54C-0-1ft
LMR21-54C-4-6ft	LMR21-53C-0-1ft	LMR21-53C-4-6ft
LMR21-55C-0-1ft		

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The CCV analyzed on 08/31/2021 at 23:43 was not reported on the report forms. Evaluation of this CCV was performed from the raw data. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/13/2021 mercury run was not reported in this data package. A %R of 106.4% was reported in the raw data. No qualification was necessary as the LLCCV/LLICV %R were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in several CCBs between the MDL and RL for the analytical sequence analyzed on 08/31/2021. All associated aluminum were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

Aluminum and calcium were detected at levels greater than the MDL but less than the RL in one preparation blank. All results for aluminum and calcium in the associated samples were detected above the RL; therefore, no qualification of results is necessary.

Note that the blank report forms provided in the data package do not report blank results that are greater than the MDL and below the RL. All results less than the RL are reported as non-detects. The reported results on these report forms do not match the results reported in the

EDD. Validation was performed using the Quality Control Data forms provided at the beginning of each data package, the raw data and EDD.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Arsenic, barium, chromium, lead, potassium, vanadium and zinc MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-46C-4-7ft; however, the %Rs for these analytes, with the exception of potassium and zinc, were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the arsenic, barium, chromium, lead, and vanadium results associated with this QC sample were not qualified. The MS and MSD %Rs for potassium exceeded the DOD limits of 81-116% with %Rs of 260% and 242% and the %Rs for zinc exceeded the DOD limits of 82-113% with %Rs of 168% and 162%. A post-digestion spike %Rs were within criteria for potassium and zinc, therefore, the potassium and zinc results for the following associated samples are qualified "J".

LMR21-47C-0-1ft	LMR21-46C-1-4ft FD	LMR21-47C-1-4ft
LMR21-46C-7-8.5ft	LMR21-47C-4-8ft	LMR21-46C-0-1ft
LMR21-46C-1-4ft	LMR21-46C-4-7ft	LMR21-50C-1-4ft
LMR21-50C-4-7.5ft	LMR21-54C-1-4ft	LMR21-SBA3
LMR21-50C-0-1ft	LMR21-54C-1-4ft FD	LMR21-54C-0-1ft

7. POST DIGESTION SPIKE

No problems were found.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Sample LMR21-46C-1-4ft FD was identified as the field duplicate of sample LMR21-46C-1-4ft and sample LMR21-54C-1-4ft FD was identified as the field duplicate of sample LMR21-54C-1-4ft. All RPDs for the detected analytes are within the 100% RPD criteria required by the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A Serial Dilution was not performed for this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/24/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in one sample in this SDG. Note that additional DMCs exceeded the various lower %R criteria in this sample; however, the surrogates are not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following sample are qualified "J-", non-detects are qualified "UJ".

LMR21-50C-1-4ft

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS and/or MSD percent recoveries (%Rs) for several analytes exceeded the various upper %R criteria specified in the QAPP. With the exception of two analytes, the parent sample results for these analytes were greater than 4x the spike amount, no qualification of those results is necessary. The detected analytes in the parent sample are qualified "J" for two analytes.

LMR21-46C-4-7ft: Benzo(b)fluoranthene, Benzo(k)fluoranthene

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-46C-1-4ft FD was identified as the field duplicate of sample LMR21-46C-1-4ft and sample LMR21-54C-1-4ft FD was identified as the field duplicate of sample LMR21-54C-1-4ft. All RPDs are within the 100% RPD criteria required by the QAPP.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/25/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and DCB exceeded the lower %R criteria in eleven samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-50C-1-4ft	LMR21-54C-1-4ft	LMR21-53C-0-1ft
LMR21-54C-0-1ft	LMR21-54C-1-4ft FD	LMR21-55C-0-1ft
LMR21-46C-0-1ft	LMR21-46C-1-4ft	LMR21-46C-1-4ft FD
LMR21-47C-0-1ft	LMR21-50C-0-1ft	

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS and MSD percent recoveries (%Rs) for Aroclor-1016 and Aroclor-1260, exceeded the lower %R criteria specified in the QAPP. The non-detected Aroclor-1016 and Aroclor-1260 results in the parent sample are qualified "UJ":

LMR21-46C-4-7ft: Aroclor-1016, Aroclor-1260

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-46C-1-4ft FD was identified as the field duplicate of sample LMR21-46C-1-4ft and sample LMR21-54C-1-4ft FD was identified as the field duplicate of sample LMR21-54C-1-4ft. All RPDs for the detected Aroclors are within the 100% RPD criteria required by the QAPP.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/25/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-46C-1-4ft FD was identified as the field duplicate of sample LMR21-46C-1-4ft and sample LMR21-54C-1-4ft FD was identified as the field duplicate of sample LMR21-54C-1-4ft. The RPDs are within the 100% RPD criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/08/2022

GASOLINE RANGE ORGANICS (GRO)/
DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by 10 days. For this SDG, the laboratory indicated that one sample was prepared out of the method 5035 48 hour holding time but also indicated on the "Analysis - Prep Method Cross Reference Table" and the "Quality Control Data" pages that method SW846 5035 was used for all samples. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-47C-0-1ft	LMR21-46C-1-4ft FD	LMR21-47C-1-4ft
LMR21-46C-7-8.5ft	LMR21-47C-4-8ft	LMR21-46C-0-1ft
LMR21-46C-1-4ft	LMR21-46C-4-7ft	LMR21-50C-1-4ft
LMR21-50C-4-7.5ft	LMR21-54C-1-4ft	LMR21-SBA3
LMR21-50C-0-1ft	LMR21-54C-1-4ft FD	LMR21-54C-0-1ft
LMR21-54C-4-6ft	LMR21-53C-0-1ft	LMR21-53C-4-6ft
LMR21-55C-0-1ft		

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The calibration factor percent difference (%D) for ORO in one continuing calibration verification (CCV) exceeded the %D criteria of ±20% specified in the QAPP. The %D for ORO in one CCV (Lab File ID S_NHVA029.d) is 30.96%. Note that CCVs in this SDG are all identified as "CCV" and further identified by Lab File ID. The detected ORO results in the following associated samples are qualified "J". Note that there are no associated non-detects.

LMR21-53C-0-1ft	LMR21-53C-4-6ft	LMR21-54C-0-1ft	LMR21-54C-4-6ft
LMR21-54C-1-4ft FD	LMR21-55C-0-1ft	LMR21-SBA3	

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in 12 samples in this SDG. Since eight (8) of the 12 samples were diluted at a dilution factor ≥5, no qualification of those sample results are necessary. The detected DRO and ORO results in the following four samples are qualified "J-". Note that there are no associated non-detects.

LMR21-54C-1-4ft LMR21-54C-1-4ft FD LMR21-54C-0-1ft
LMR21-54C-4-6ft

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results; no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found with the GRO MS/MSD. No DRO/ORO MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-46C-1-4ft FD was identified as the field duplicate of sample LMR21-46C-1-4ft and sample LMR21-54C-1-4ft FD was identified as the field duplicate of sample LMR21-54C-1-4ft. All RPDs for the GRO/DRO/ORO detected results are within the 100% RPD criteria required by the QAPP.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/30/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 18 days. Detected results in the following samples are qualified "J-".

LMR21-47C-0-1ft	LMR21-46C-1-4ft FD	LMR21-47C-1-4ft
LMR21-46C-7-8.5ft	LMR21-47C-4-8ft	LMR21-46C-0-1ft
LMR21-46C-1-4ft	LMR21-46C-4-7ft	LMR21-50C-1-4ft
LMR21-50C-4-7.5ft	LMR21-54C-1-4ft	LMR21-SBA3
LMR21-50C-0-1ft	LMR21-54C-1-4ft FD	LMR21-54C-0-1ft
LMR21-54C-4-6ft	LMR21-53C-0-1ft	LMR21-53C-4-6ft
LMR21-55C-0-1ft		

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Four Continuing Calibration Verification (CCV) analyses CCV1 - CCV4 exceeded the upper %R criteria required in the QAPP. The TOC results are qualified “J+” in all samples.

LMR21-47C-0-1ft	LMR21-46C-1-4ft FD	LMR21-47C-1-4ft
LMR21-46C-7-8.5ft	LMR21-47C-4-8ft	LMR21-46C-0-1ft
LMR21-46C-1-4ft	LMR21-46C-4-7ft	LMR21-50C-1-4ft
LMR21-50C-4-7.5ft	LMR21-54C-1-4ft	LMR21-SBA3
LMR21-50C-0-1ft	LMR21-54C-1-4ft FD	LMR21-54C-0-1ft
LMR21-54C-4-6ft	LMR21-53C-0-1ft	LMR21-53C-4-6ft
LMR21-55C-0-1ft		

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-46C-1-4ft FD was identified as the field duplicate of sample LMR21-46C-1-4ft and sample LMR21-54C-1-4ft FD was identified as the field duplicate of sample LMR21-54C-1-4ft. The RPDs are within the 100% RPD criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 02/28/2021

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-169
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-169

Number and Type of Samples: Thirteen (13) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:

	LMR21-52C-4-7ft	LMR21-52C-0-1ft	LMR21-53C-1-4ft
	LMR21-55C-1-4ft	LMR21-52C-1-4ft	LMR21-55C-4-7.5ft
	LMR21-52C-1-4ft FD	LMR21-52C-7-10ft	LMR21-51C-0-1ft
	LMR21-51C-1-4ft	LMR21-51C-4-7.5ft	LMR21-SBA2
	LMR21-41C-0-1ft		

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-169
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Thirteen (13) sediment samples for SDG AEG-169 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 12, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Note that the first 136 pages of this data package contains information for a different SDG (SDG AEG-168), including Sample Summary, COCs, Analytical Results forms, and Quality Control Data. A corrected data package was requested but never received.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical Holding Time exceeded	Mercury	J- detects UJ non-detects	LMR21-52C-4-7ft LMR21-52C-0-1ft LMR21-53C-1-4ft LMR21-55C-1-4ft LMR21-52C-1-4ft LMR21-55C-4-7.5ft LMR21-52C-1-4ft FD LMR21-52C-7-10ft LMR21-51C-0-1ft LMR21-51C-1-4ft LMR21-51C-4-7.5ft LMR21-SBA2 LMR21-41C-0-1ft
MS and MSD %R exceeded expanded criteria (high) post-spike %R within criteria	Potassium	J detects	LMR21-52C-4-7ft LMR21-52C-0-1ft LMR21-53C-1-4ft LMR21-55C-1-4ft LMR21-52C-1-4ft LMR21-55C-4-7.5ft LMR21-52C-1-4ft FD LMR21-51C-0-1ft LMR21-51C-1-4ft LMR21-51C-4-7.5ft LMR21-SBA2 LMR21-41C-0-1ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and MSD %R exceeded expanded criteria (high) no post-spike %R reported	Zinc	J+ detects	LMR21-52C-4-7ft LMR21-52C-0-1ft LMR21-53C-1-4ft LMR21-52C-1-4ft LMR21-55C-4-7.5ft LMR21-52C-1-4ft FD LMR21-52C-7-10ft LMR21-51C-0-1ft LMR21-51C-1-4ft LMR21-51C-4-7.5ft LMR21-SBA2 LMR21-41C-0-1ft

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects UJ non-detects	LMR21-53C-1-4ft LMR21-51C-0-1ft
MS and/or MSD %R criteria exceeded (high)	Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Fluoranthene Phenanthrene Pyrene	J detects	LMR21-55C-1-4ft
MS/MSD RPD criteria exceeded	Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Fluoranthene Indeno(1,2,3-cd)pyrene Phenanthrene Pyrene	J detects	LMR21-55C-1-4ft
MS and/or MSD %R criteria exceeded (high)	Fluoranthene Fluorene Phenanthrene	J detects	LMR21-52C-7-10ft
MS/MSD RPD criteria exceeded	Fluorene 2-Methylnaphthalene Phenanthrene	J detects	LMR21-52C-7-10ft
Field duplicate RPD criteria exceeded	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene 2-Methylnaphthalene Naphthalene Phenanthrene Pyrene	J detects	LMR21-52C-1-4ft LMR21-52C-1-4ft FD

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Field Duplicate precision criteria exceeded*	Dibenzo(a,h)anthracene	UJ non-detect	LMR21-52C-1-4ft
Field Duplicate precision criteria exceeded*	Dibenzo(a,h)anthracene	J detect	LMR21-52C-1-4ft FD

*Unmeasurable RPD between field duplicate and original sample, with one result non-detect and the other result positive.

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-51C-0-1ft LMR21-51C-1-4ft LMR21-52C-1-4ft LMR21-52C-1-4ft FD LMR21-53C-1-4ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1260	J detects	LMR21-55C-1-4ft LMR21-52C-7-10ft

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
CCV %D criteria exceeded (high)	ORO	J detects	LMR21-51C-1-4ft LMR21-52C-0-1ft LMR21-52C-1-4ft LMR21-52C-1-4ft FD LMR21-53C-1-4ft LMR21-55C-1-4ft
Surrogate %R criteria exceeded (low)	DRO ORO	J- detects	LMR21-52C-0-1ft LMR21-52C-1-4ft LMR21-52C-1-4ft FD LMR21-51C-1-4ft
MS and/or MSD %R criteria exceeded (high)	GRO	J detect	LMR21-52C-7-10ft

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples
CCV %R criteria exceeded (high)	TOC	J+ detects	LMR21-53C-1-4ft LMR21-55C-1-4ft LMR21-52C-1-4ft LMR21-55C-4-7.5ft LMR21-52C-1-4ft FD LMR21-52C-7-10ft LMR21-51C-1-4ft LMR21-51C-4-7.5ft LMR21-SBA2 LMR21-41C-0-1ft

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for mercury sediment samples. The technical holding time was exceeded by four or five days. Detected results are qualified "J-" and non-detected results are qualified "UJ" in the following samples:

LMR21-52C-4-7ft	LMR21-52C-0-1ft	LMR21-53C-1-4ft
LMR21-55C-1-4ft	LMR21-52C-1-4ft	LMR21-55C-4-7.5ft
LMR21-52C-1-4ft FD	LMR21-52C-7-10ft	LMR21-51C-0-1ft
LMR21-51C-1-4ft	LMR21-51C-4-7.5ft	LMR21-SBA2
LMR21-41C-0-1ft		

1. INITIAL CALIBRATION

No problems were found with the data provided.

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/13/2021 mercury run was not reported in this data package. A %R of 106.4% was reported in the raw data. No qualification was necessary as the LLCCV/LLICV %R were within criteria.

3. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in two CCBs between the MDL and RL for the analytical sequence analyzed on 09/20/2021. All associated aluminum were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

4. PREPARATION BLANK

No problems were found.

5. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Potassium, silver, vanadium and zinc MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-55C-1-4ft; however, the %R's for these analytes, with the exception of potassium were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the silver, vanadium and zinc results associated with this QC sample were not qualified. The MS and MSD %R's for potassium exceeded the DOD limits of 81-116% with %R's of 258% and 154%. A post-digestion spike %R was within criteria for potassium therefore, the potassium results for the following associated samples are qualified "J".

LMR21-52C-4-7ft	LMR21-52C-0-1ft	LMR21-53C-1-4ft
LMR21-55C-1-4ft	LMR21-52C-1-4ft	LMR21-55C-4-7.5ft
LMR21-52C-1-4ft FD	LMR21-51C-0-1ft	LMR21-51C-1-4ft
LMR21-51C-4-7.5ft	LMR21-SBA2	LMR21-41C-0-1ft

Beryllium, chromium, cobalt, copper, nickel, potassium, sodium and zinc MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-52C-7-10ft; however, the %R's for these analytes, with the exception of zinc, were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the beryllium, chromium, cobalt, copper, nickel, potassium and sodium results associated with this QC sample were not qualified. The MS and MSD %R's for zinc exceeded the DOD limits of 82-113% with %R's of 183% and 203%. A post-digestion spike %R was not reported for zinc, therefore, the zinc results for the following associated samples are qualified "J+".

LMR21-52C-4-7ft	LMR21-52C-0-1ft	LMR21-53C-1-4ft
LMR21-52C-1-4ft	LMR21-55C-4-7.5ft	LMR21-52C-1-4ft FD
LMR21-52C-7-10ft	LMR21-51C-0-1ft	LMR21-51C-1-4ft
LMR21-51C-4-7.5ft	LMR21-SBA2	LMR21-41C-0-1ft

6. POST DIGESTION SPIKE

Not all analytes exceeding the MS/MSD %R criteria were reported for the post-digestion spike.

7. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

8. FIELD DUPLICATE COMPARISON

Sample LMR21-52C-1-4ft FD was identified as the field duplicate of sample LMR21-52C-1-4ft. All RPDs for the detected analytes are within the 100% RPD criteria required by the QAPP.

9. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

10. LABORATORY CONTROL SAMPLE

No problems were found.

11. SERIAL DILUTION

A Serial Dilution was not performed for this SDG.

12. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/28/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in two samples in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following sample are qualified "J-", non-detects are qualified "UJ".

LMR21-53C-1-4ft LMR21-51C-0-1ft

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Two MS/MSD analysis pairs were analyzed with this SDG.

The MS percent recoveries (%R's) for nine analytes in the LMR21-55C-1-4ft MS/MSD analyses exceeded the various upper %R criteria required in the QAPP. Note that the MSD %R's all passed %R criteria. The nine detected analytes in the parent sample are qualified "J".

LMR21-55C-1-4ft: Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, and Pyrene

The relative percent difference (RPD) between the MS and MSD analysis results for eleven analytes in the LMR21-55C-1-4ft MS/MSD analyses exceeded the 20% RPD QC limit required in the QAPP. The detected analytes in the parent sample are qualified "J".

LMR21-55C-1-4ft: Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene

The MS percent recoveries (%Rs) for nine analytes in the LMR21-52C-7-10ft MS/MSD analyses exceeded the various upper and/or lower %R criteria required in the QAPP. Since the parent sample result for one of these analytes, Naphthalene, was greater than 4X the spike amount, no qualification of that result is necessary. For the three analyte results that that did not exceed 4X spike amount, the detected analytes in the parent sample are qualified "J".

LMR21-52C-7-10ft: Fluoranthene, Fluorene, and Phenanthrene

The relative percent difference (RPD) between the MS and MSD analysis results for four analytes in the in the LMR21-52C-7-10ft MS/MSD analyses exceeded the 20% RPD QC limit required in the QAPP. As noted above, the parent sample result for one of these analytes, Naphthalene, was greater than 4X the spike amount, no qualification of that result is necessary. For the three analyte results that that did not exceed 4X spike amount, the detected analytes in the parent sample are qualified "J".

LMR21-52C-7-10ft: Fluorene, 2-Methylnaphthalene, and Phenanthrene

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-52C-1-4ft FD is the field duplicate of sample LMR21-52C-1-4ft. All RPDs exceeded the 100% criteria required by the QAPP with three exceptions. Note the following:

- Fourteen (14) of the 17 analytes exceeded the 100% criteria required by the QAPP with RPDs ranging from 101% to 176% as shown in the table below.

- For two of the three analytes that did not exceed RPD criteria, 2-Methylnaphthalene and Naphthalene, the RPDs are 96% and 95%, respectively. Since the difference was significant for these analytes and all others, the analytes were also qualified "J".

- For one analyte, Dibenzo(a,h)anthracene, the analyte was detected in the FD sample at a concentration significantly above the LOD and was not detected in the FD sample. For this analyte the RPD was unmeasurable. Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. However, since the difference between analyte results was significant for this analyte and all others, the detected analyte in the FD was qualified "J" and the non-detected result in the original analysis was qualified "UJ".

The original and field duplicate sample results are qualified "J" with the one exception above. The results are provided in the table below:

Analyte	LMR21-52C-1-4ft Result (mg/kg)	LMR21-52C-1-4ft FD Result (mg/kg)	RPD
Acenaphthene	547	1670	101%
Acenaphthylene	84.9 J	553	147%
Anthracene	363	4080	167%
Benzo(a)anthracene	368	4690	171%
Benzo(a)pyrene	453	6760	175%
Benzo(b)fluoranthene	381	5500	174%
Benzo(g,h,i)perylene	283	3930	173%
Benzo(k)fluoranthene	314	4940	176%
Chrysene	465	5520	169%
Dibenzo(a,h)anthracene	Non-detect (<61.5)	791	NA
Fluoranthene	1640	12600	154%
Fluorene	614	2550	122%
Indeno(1,2,3-cd)pyrene	286	4150	174%
2-Methylnaphthalene	166 J	474 J	96.3%
Naphthalene	706	1980	94.9%
Phenanthrene	2470	13000	136%
Pyrene	1080	8260	154%

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 02/28/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and DCB exceeded the lower %R criteria in eight samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-51C-0-1ft	LMR21-51C-1-4ft	LMR21-52C-1-4ft
LMR21-52C-1-4ft FD	LMR21-53C-1-4ft	

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Two MS/MSD analysis pairs were analyzed with this SDG.

The MS percent recoveries (%Rs) for Aroclor-1260 in the LMR21-55C-1-4ft MS/MSD analyses and the LMR21-52C-7-10ft MS/MSD analyses exceeded the lower %R criteria required in the QAPP. The Aroclor-1260 results in the two parent samples are qualified "J".

LMR21-55C-1-4ft: Aroclor-1260
LMR21-52C-7-10ft: Aroclor-1260

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-52C-1-4ft FD is the field duplicate of sample LMR21-52C-1-4ft. All RPD's were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 02/28/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-52C-1-4ft FD is the field duplicate of sample LMR21-52C-1-4ft. The RPD was within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/08/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by 11 days. For this SDG, the first pages of the data package incorrectly reported information from a separate SDG; therefore, information regarding the use of the 5035B method pertained to that SDG. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-52C-4-7ft	LMR21-52C-0-1ft	LMR21-53C-1-4ft
LMR21-55C-1-4ft	LMR21-52C-1-4ft	LMR21-55C-4-7.5ft
LMR21-52C-1-4ft FD	LMR21-52C-7-10ft	LMR21-51C-0-1ft
LMR21-51C-1-4ft	LMR21-51C-4-7.5ft	LMR21-SBA2
LMR21-41C-0-1ft		

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The calibration factor percent difference (%D) for ORO in one continuing calibration verification (CCV) exceeded the %D criteria of ±20% specified in the QAPP. The %D for ORO in one CCV (Lab File ID S_NHVA029.d) is 30.96%. Note that CCVs in this SDG are all identified as "CCV" and further identified by Lab File ID. The detected ORO results in the following associated samples are qualified "J". Note that there are no associated non-detects. Also note that additional samples were associated with this CCV; however, those samples were reanalyzed at a dilution and associated with a passing CCV.

LMR21-51C-1-4ft	LMR21-52C-0-1ft	LMR21-52C-1-4ft
LMR21-52C-1-4ft FD	LMR21-53C-1-4ft	LMR21-55C-1-4ft

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in several samples in this SDG. Where samples were diluted at a dilution factor ≥5, no qualification of those sample results are necessary. The detected DRO and ORO results in the following samples are qualified "J-". Note that there are no associated non-detects.

LMR21-52C-0-1ft LMR21-52C-1-4ft LMR21-52C-1-4ft FD LMR21-51C-1-4ft

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MSD percent recovery (%R) for GRO exceeded the QAPP-required upper %R criteria of 122% with a 130%R. The following detected result in the parent sample is qualified "J".

LMR21-52C-7-10ft: GRO

The MS and MSD percent recoveries (%Rs) for DRO and ORO exceeded the upper criteria specified in the laboratory QAPP. Since the parent sample results for these analytes were greater than 4x the spike amount, no qualification of results is necessary.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-52C-1-4ft FD is the field duplicate of sample LMR21-52C-1-4ft. All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/31/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 20 and 27 days. Detected results in the following samples are qualified "J-".

LMR21-52C-4-7ft	LMR21-52C-0-1ft	LMR21-53C-1-4ft
LMR21-55C-1-4ft	LMR21-52C-1-4ft	LMR21-55C-4-7.5ft
LMR21-52C-1-4ft FD	LMR21-52C-7-10ft	LMR21-51C-0-1ft
LMR21-51C-1-4ft	LMR21-51C-4-7.5ft	LMR21-SBA2
LMR21-41C-0-1ft		

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Four Continuing Calibration Verification (CCV) analyses CCV3 – CCV6 exceeded the upper %R criteria required in the QAPP. The TOC results are qualified “J+” in the associated samples.

LMR21-53C-1-4ft	LMR21-55C-1-4ft	LMR21-52C-1-4ft
LMR21-55C-4-7.5ft	LMR21-52C-1-4ft FD	LMR21-51C-1-4ft
LMR21-51C-4-7.5ft	LMR21-SBA2	LMR21-41C-0-1ft
LMR21-52C-7-10ft		

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The five method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-52C-1-4ft FD is the field duplicate of sample LMR21-52C-1-4ft. The RPD was within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/02/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26, 2022
SUBJECT:	Review of Data for SDG Number: AEG-170 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-170
Number and Type of Samples:	Eighteen (18) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:			
	LMR21-60C-4-5ft	LMR21-56C-1-4ft	LMR21-29C-4-6.5ft
	LMR21-57C-1-4ft	LMR21-58C-4-7ft	LMR21-39C-0-1ft
	LMR21-37C-1-3ft	LMR21-44C-0-1ft	LMR21-68C-1-3.5ft
	LMR21-67C-0-1ft	LMR21-67C-1-3ft	LMR21-67C-0-1ft FD
	LMR21-68C-0-1ft	LMR21-64C-0-1.75ft FD	LMR21-64C-0-1.75ft
	LMR21-SBB2	LMR21-66C-0-1ft	LMR21-65C-1-2ft

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Eighteen (18) sediment samples for SDG AEG-170 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 11 and 12, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Mercury	UJ non-detect	LMR21-44C-0-1ft
MS and MSD %R exceeded criteria (high) no post spike reported	Potassium	J+ detects	LMR21-60C-4-5ft LMR21-56C-1-4ft LMR21-29C-4-6.5ft LMR21-57C-1-4ft LMR21-58C-4-7ft LMR21-39C-0-1ft LMR21-37C-1-3ft LMR21-44C-0-1ft LMR21-68C-1-3.5ft LMR21-67C-0-1ft LMR21-67C-1-3ft LMR21-67C-0-1ft FD LMR21-68C-0-1ft LMR21-64C-0-1.75ft FD LMR21-64C-0-1.75ft LMR21-SBB2 LMR21-66C-0-1ft LMR21-65C-1-2ft

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects UJ non-detects	LMR21-67C-0-1ft
MS/MSD RPD criteria exceeded	Naphthalene	J detect	LMR21-67C-1-3ft

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects	LMR21-56C-1-4ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
		UJ non-detects	LMR21-57C-1-4ft LMR21-67C-0-1ft FD LMR21-SBB2 LMR21-66C-0-1ft
MS and/or MSD %R criteria exceeded (low)	Aroclor-1016 Aroclor-1260	UJ non-detects	LMR21-67C-1-3ft

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
Surrogate %R criteria exceeded (low)	DRO ORO	J- detects	LMR21-67C-0-1ft LMR21-68C-0-1ft LMR21-SBB2
Field Duplicate RPD criteria exceeded	DRO ORO	J detects	LMR21-56C-1-4ft (original)

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for one mercury sediment sample. The technical holding time was exceeded by four days. The non-detected result is qualified "UJ" for sample LMR21-44C-0-1ft.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/08/2021 and 09/13/2021 mercury runs were not reported in this data package. Percent recoveries (%R's) of 99.2% and 106.4%, respectively were reported in the raw data. No qualification was necessary as the LLCCV/LLICV %R were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in one CCB between the MDL and RL for the analytical sequence analyzed on 09/09/2021. All associated aluminum were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Barium, chromium, potassium, selenium and vanadium MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-67C-1-3ft; however, the %Rs for these analytes, with the exception of potassium, were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the barium, chromium, selenium and vanadium results associated with this QC sample were not qualified. The MS and MSD %Rs for potassium exceeded the DOD limits of 81-116% with %Rs of 197% and 184%. A post-digestion spike %R was analyzed but not reported, therefore, the potassium results for the following associated samples are qualified "J+".

LMR21-60C-4-5ft	LMR21-56C-1-4ft	LMR21-29C-4-6.5ft
LMR21-57C-1-4ft	LMR21-58C-4-7ft	LMR21-39C-0-1ft

LMR21-37C-1-3ft	LMR21-44C-0-1ft	LMR21-68C-1-3.5ft
LMR21-67C-0-1ft	LMR21-67C-1-3ft	LMR21-67C-0-1ft FD
LMR21-68C-0-1ft	LMR21-64C-0-1.75ft FD	LMR21-64C-0-1.75ft
LMR21-SBB2	LMR21-66C-0-1ft	LMR21-65C-1-2ft

7. POST DIGESTION SPIKE

A post-digestion spike was analyzed but not reported. The validator could not calculate %R's for the post-spike without true values.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Two field duplicates were included with this SDG. In addition, the original analyses for two additional field duplicates are included in this SDG.

Sample LMR21-58C-4-7ft FD (SDG AEG-166) is the field duplicate of sample LMR21-58C-4-7ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-56C-1-4ft FD (SDG AEG-167) is the field duplicate of sample LMR21-56C-14ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-67C-0-1ft FD is the field duplicate of sample LMR21-67C-0-1ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-64C-0-1.75ft FD is the field duplicate of sample LMR21-64C-0-1.75ft. All RPDs were within the 100% criteria required by the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

According to the Analysis Run Log and raw data, a serial dilution or dilution test was analyzed on sample LMR21-65C-1-2ft with this SDG; however, the results were not reported in the data package.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 04/07/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in two samples in this SDG. Note that additional DMCs exceeded the various lower %R criteria in this sample and three additional samples; however, the DMCs are not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following sample are qualified "J-", non-detects are qualified "UJ".

LMR21-67C-0-1ft

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the MS and MSD analysis results for one analyte exceeded the 20% RPD QC limit required in the QAPP. The detected analyte in the following parent sample is qualified "J".

LMR21-67C-1-3ft: Naphthalene

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. In addition, the original analyses for two additional field duplicates are included in this SDG.

Sample LMR21-58C-4-7ft FD (SDG AEG-166) is the field duplicate of sample LMR21-58C-4-7ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-56C-1-4ft FD (SDG AEG-167) is the field duplicate of sample LMR21-56C-14ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-67C-0-1ft FD is the field duplicate of sample LMR21-67C-0-1ft. All results were either non-detect or below the reporting level. No qualification of sample results is necessary.

Sample LMR21-64C-0-1.75ft FD is the field duplicate of sample LMR21-64C-0-1.75ft. Several RPDs exceeded the 100% criteria required by the QAPP; however, qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. No qualification of sample results is necessary.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/01/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and DCB exceeded the lower %R criteria in five samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-56C-1-4ft	LMR21-57C-1-4ft	LMR21-67C-0-1ft FD
LMR21-SBB2	LMR21-66C-0-1ft	

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS percent recoveries (%Rs) for Aroclor-1016 and Aroclor-1260 in the MS/MSD analyses exceeded the lower %R criteria required in the QAPP. The non-detected results for Aroclor-1016 and Aroclor-1260 in the following parent sample are qualified "UJ".

LMR21-67C-1-3ft: Aroclor-1016, Aroclor-1260

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. In addition, the original analyses for two additional field duplicates are included in this SDG.

Sample LMR21-58C-4-7ft FD (SDG AEG-166) is the field duplicate of sample LMR21-58C-4-7ft. Two RPDs exceeded the 100% criteria required by the QAPP; however, qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the CRQL and the RPD is greater than the 100% RPD criteria required by the QAPP. No qualification of sample results is necessary.

Sample LMR21-56C-1-4ft FD (SDG AEG-167) is the field duplicate of sample LMR21-56C-14ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-67C-0-1ft FD is the field duplicate of sample LMR21-67C-0-1ft and sample LMR21-64C-0-1.75ft FD is the field duplicate of sample LMR21-64C-0-1.75ft. No Aroclors were detected in the four samples.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/01/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. In addition, the original analyses for two additional field duplicates are included in this SDG.

Sample LMR21-58C-4-7ft FD (SDG AEG-166) is the field duplicate of sample LMR21-58C-4-7ft; sample LMR21-56C-1-4ft FD (SDG AEG-167) is the field duplicate of sample LMR21-56C-14ft; sample LMR21-67C-0-1ft FD is the field duplicate of sample LMR21-67C-0-1ft; and sample LMR21-64C-0-1.75ft FD is the field duplicate of sample LMR21-64C-0-1.75ft. All RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/08/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by six (6) to 10 days. For this SDG, the laboratory indicated that two samples were prepared out of the method 5035 48 hour holding time but also indicated on the "Analysis - Prep Method Cross Reference Table" and the "Quality Control Data" pages that method SW846 5035 was used for all samples. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-60C-4-5ft	LMR21-56C-1-4ft	LMR21-29C-4-6.5ft
LMR21-57C-1-4ft	LMR21-58C-4-7ft	LMR21-39C-0-1ft
LMR21-37C-1-3ft	LMR21-44C-0-1ft	LMR21-68C-1-3.5ft
LMR21-67C-0-1ft	LMR21-67C-1-3ft	LMR21-67C-0-1ft FD
LMR21-68C-0-1ft	LMR21-64C-0-1.75ft FD	LMR21-64C-0-1.75ft
LMR21-SBB2	LMR21-66C-0-1ft	LMR21-65C-1-2ft

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in three samples in this SDG. The detected DRO and ORO results in the following four samples are qualified "J-". Note that there are no associated non-detects.

LMR21-67C-0-1ft LMR21-68C-0-1ft LMR21-SBB2

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. In addition, the original analyses for two additional field duplicates are included in this SDG.

Sample LMR21-67C-0-1ft FD is the field duplicate of sample LMR21-67C-0-1ft and sample LMR21-64C-0-1.75ft FD is the field duplicate of sample LMR21-64C-0-1.75ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-58C-4-7ft FD (SDG AEG-166) is the field duplicate of sample LMR21-58C-4-7ft. All RPDs were within the 100% criteria required by the QAPP.

Sample LMR21-56C-1-4ft FD (SDG AEG-167) is the field duplicate of sample LMR21-56C-14ft. The original and field duplicate sample results are qualified "J". The results are provided in the table below:

Analyte	LMR21-56C-1-4ft Result (mg/kg)	LMR21-56C-1-4ft FD Result (mg/kg) (SDG AEG-167)	%RPD
DRO	206	673	106%
ORO	291	1040	113%

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: **Rebecca Garry** **DATE:** **04/01/2022**

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 21- 25 days. Detected results in the following samples are qualified "J-".

LMR21-60C-4-5ft	LMR21-56C-1-4ft	LMR21-29C-4-6.5ft
LMR21-57C-1-4ft	LMR21-58C-4-7ft	LMR21-39C-0-1ft
LMR21-37C-1-3ft	LMR21-44C-0-1ft	LMR21-68C-1-3.5ft
LMR21-67C-0-1ft	LMR21-67C-1-3ft	LMR21-67C-0-1ft FD
LMR21-68C-0-1ft	LMR21-64C-0-1.75ft FD	LMR21-64C-0-1.75ft
LMR21-SBB2	LMR21-66C-0-1ft	LMR21-65C-1-2ft

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

One Continuing Calibration Verification (CCV) analyses exceeded the upper %R criteria required in the QAPP. The CCV was associated with QC samples only. No qualification of sample results is necessary.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The three method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Two field duplicates were included with this SDG. In addition, the original analyses for two additional field duplicates are included in this SDG. Sample LMR21-58C-4-7ft FD (SDG AEG-166) is the field duplicate of sample LMR21-58C-4-7ft; sample LMR21-56C-1-4ft FD (SDG AEG-167) is the field duplicate of sample LMR21-56C-14ft; sample LMR21-67C-0-1ft FD is the field duplicate of sample LMR21-67C-0-1ft; and sample LMR21-64C-0-1.75ft FD is the field duplicate of sample LMR21-64C-0-1.75ft. All RPDs were within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/01/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26, 2022
SUBJECT:	Review of Data for SDG Number: AEG-171 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-171
Number and Type of Samples:	Fifteen (15) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers:			
	LMR21-63C-0-1ft	LMR21-66C-1-2ft	LMR21-SBD
	LMR21-65C-0-1ft	LMR21-41C-1-3ft	LMR21-49C-1-4ft
	LMR21-45C-1-2ft	LMR21-45C-0-1ft	LMR21-49C-0-1ft
	LMR21-43C-1-3ft	LMR21-63C-1-2.75ft	LMR21-41C-1-3ft FD
	LMR21-42C-0-1ft	LMR21-43C-0-1ft	LMR21-40C-0-1ft

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fifteen (15) sediment samples for SDG AEG-171 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 12, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Mercury	J- detects UJ non-detects	LMR21-41C-1-3ft LMR21-49C-1-4ft LMR21-45C-1-2ft LMR21-45C-0-1ft LMR21-49C-0-1ft LMR21-43C-1-3ft LMR21-41C-1-3ft FD LMR21-42C-0-1ft LMR21-43C-0-1ft
MS and/or MSD %R exceeded expanded criteria (high), post spike recovery within criteria	Vanadium	J detects	LMR21-66C-1-2ft LMR21-SBD LMR21-65C-0-1ft LMR21-41C-1-3ft LMR21-49C-1-4ft LMR21-45C-1-2ft LMR21-45C-0-1ft LMR21-49C-0-1ft LMR21-43C-1-3ft LMR21-41C-1-3ft FD LMR21-42C-0-1ft LMR21-43C-0-1ft LMR21-40C-0-1ft

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene	J- detects	LMR21-49C-1-4ft

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
	Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene		

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-49C-1-4ft

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
MS and/or MSD %R criteria exceeded (high)	DRO	J detect	LMR21-43C-1-3ft
MS and/or MSD %R criteria exceeded (low)	DRO	J detect	LMR21-63C-1-2.75ft

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for mercury sediment samples. The technical holding time was exceeded by three or four days. Detected results are qualified "J-" and non-detected results are qualified "UJ" in the following samples:

LMR21-41C-1-3ft	LMR21-49C-1-4ft	LMR21-45C-1-2ft
LMR21-45C-0-1ft	LMR21-49C-0-1ft	LMR21-43C-1-3ft
LMR21-41C-1-3ft FD	LMR21-42C-0-1ft	LMR21-43C-0-1ft

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCVs (LLCCV) analyzed in the 09/08/2021 and 09/13/2021 mercury runs were not reported in this data package. Percent recoveries (%Rs) of 99.2% and 106.4%, respectively were reported in the raw data. No qualification was necessary as the LLCCV %R's were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in four CCBs between the MDL and RL for the analytical sequence analyzed on 09/20/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. The raw data for the 09/20/2021 analytical sequence ends at 14:07; therefore, the last five potassium CCB results as well as results for eleven of the fifteen samples could not be verified.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Barium, chromium, silver and vanadium MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-43C-1-3ft; however, the %Rs for these analytes, with the exception of vanadium, were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the barium, chromium and silver results associated with this QC sample were not qualified. The MS and MSD %Rs for vanadium exceeded the DOD limits of 82-114% with %R's of 154% and 127%. A post-digestion spike %R for vanadium was within criteria; therefore, the vanadium results for the following associated samples are qualified "J".

LMR21-66C-1-2ft	LMR21-SBD	LMR21-65C-0-1ft
LMR21-41C-1-3ft	LMR21-49C-1-4ft	LMR21-45C-1-2ft
LMR21-45C-0-1ft	LMR21-49C-0-1ft	LMR21-43C-1-3ft
LMR21-41C-1-3ft FD	LMR21-42C-0-1ft	LMR21-43C-0-1ft
LMR21-40C-0-1ft		

Barium, beryllium, cobalt, nickel, silver and vanadium MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-63C-1-2.75ft; however, the %Rs for these analytes were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the barium, beryllium, cobalt, nickel, silver and vanadium results associated with this QC sample were not qualified.

7. POST DIGESTION SPIKE

No problems were found.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Sample LMR21-41C-1-3ft FD was identified as the field duplicate of sample LMR21-41C-1-3ft. All RPDs were within the 100% QC limit required by the QAPP; therefore, no qualification of sample results is necessary.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25

mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

For the mercury fraction, forms for several samples reported incorrect initial weights and were missing the preparation date resulting in incorrect results reported on the Form 1's. Correct results were reported on the Analytical Results forms located at the beginning of the data package and in the EDD file.

REVIEWED BY: Aimee Perez DATE: 04/20/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in one sample in this SDG. Note that this sample was analyzed at a 1X, 20X and 100X dilution. The qualified analytes are from the undiluted analysis only. Note that additional DMCs exceeded the various lower %R criteria in this additional samples; however, the DMCs which exceeded %R criteria are not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes from the undiluted analysis of the following sample are qualified "J-". Note that there were no non-detected analytes.

LMR21-49C-1-4ft: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-41C-1-3ft FD was identified as the field duplicate of sample LMR21-41C-1-3ft. One RPD exceeded the 100% RPD criteria required by the QAPP; however, qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the RL (LOD) and the RPD is greater than the 100% RPD criteria required by the QAPP. No qualification of sample results is necessary.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/02/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB) were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and DCB exceeded the lower %R criteria in one sample in this SDG. The detected Aroclors in the following sample are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-49C-1-4ft

The percent recovery (%R) for surrogate DCB exceeded the upper %R criteria in one sample in this SDG. No Aroclors were detected in the sample and no qualification of sample results is necessary.

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-41C-1-3ft FD was identified as the field duplicate of sample LMR21-41C-1-3ft. No Aroclors were detected in the samples.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/02/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-41C-1-3ft FD was identified as the field duplicate of sample LMR21-41C-1-3ft. The RPD was within the 100% RPD criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/09/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by 10 and 11 days. For this SDG, the laboratory did not indicate that the GRO samples were prepared out of the method 5035 48 hour holding time but indicated on the "Analysis - Prep Method Cross Reference Table" and the "Quality Control Data" pages that method SW846 5035 was used for all samples. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-63C-0-1ft	LMR21-66C-1-2ft	LMR21-SBD
LMR21-65C-0-1ft	LMR21-41C-1-3ft	LMR21-49C-1-4ft
LMR21-45C-1-2ft	LMR21-45C-0-1ft	LMR21-49C-0-1ft
LMR21-43C-1-3ft	LMR21-63C-1-2.75ft	LMR21-41C-1-3ft FD
LMR21-42C-0-1ft	LMR21-43C-0-1ft	LMR21-40C-0-1ft

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in one sample in this SDG. Since the sample was diluted at a dilution factor ≥5, no qualification of sample results is necessary.

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS and MSD percent recovery (%R) for DRO exceeded the QAPP-required upper %R criteria of 132% with an MS %R of 150% and an MSD %R of 215%. The detected analyte in the parent sample is qualified "J".

LMR21-43C-1-3ft: DRO

The MSD percent recovery (%R) for DRO exceeded the QAPP-required lower %R criteria of 38% with a 34.9%R. The detected analyte in the parent sample is qualified "J".

LMR21-63C-1-2.75ft: DRO

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-41C-1-3ft FD was identified as the field duplicate of sample LMR21-41C-1-3ft. All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/01/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 14 and 15 days. Detected results in the following samples are qualified "J-".

LMR21-63C-0-1ft	LMR21-66C-1-2ft	LMR21-SBD
LMR21-65C-0-1ft	LMR21-41C-1-3ft	LMR21-49C-1-4ft
LMR21-45C-1-2ft	LMR21-45C-0-1ft	LMR21-49C-0-1ft
LMR21-43C-1-3ft	LMR21-63C-1-2.75ft	LMR21-41C-1-3ft FD
LMR21-42C-0-1ft	LMR21-43C-0-1ft	LMR21-40C-0-1ft

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

All Initial and Continuing Calibration Verification standards were within criteria.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The three method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-41C-1-3ft FD was identified as the field duplicate of sample LMR21-41C-1-3ft. The RPD was within the 100% RPD criteria required by the QAPP

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/01/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-172
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF
REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-172

Number and Type
of Samples: Eight (8) Sediment Samples for TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D)

EPA Sample
Numbers:

LMR21-WB-1	LMR21-SBB1	LMR21-SBB2
LMR21-SBD	LMR21-WC-2	LMR21-WC-1 FD
LMR21-SBC	LMR21-SBA2	

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Eight (8) sediment samples for SDG AEG-172 were collected by USACE, Buffalo District from the Lower Maumee River project locations between August 10 and 12, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

TCLP Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

TCLP Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
TCLP extraction holding time exceeded	All semivolatile analytes	UJ non-detects	LMR21-WB-1 LMR21-SBB1 LMR21-WC2 LMR21-WC1 FD LMR21-SBC

TCLP Pesticide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
TCLP extraction holding time exceeded	All pesticide analytes	UJ non-detects	LMR21-WB-1 LMR21-SBB1 LMR21-SBB2 LMR21-SBD LMR21-WC-2 LMR21-WC-1 FD LMR21-SBC LMR21-SBA2
CCV %D criteria exceeded (high)	Methoxychlor	UJ non-detects	LMR21-WC1 FD LMR21-SBC LMR21-SBA2

TCLP Herbicide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
TCLP extraction holding time exceeded	All herbicide analytes	UJ non-detects	LMR21-WB-1 LMR21-WC2

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
			LMR21-WC1 FD LMR21-SBC

TCLP Volatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
ZHE extraction holding time exceeded	All volatile analytes	UJ non-detects	LMR21-WC1 FD

Reactive Cyanide and Sulfide Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Reactive Cyanide	UJ non-detects	All samples
Technical holding time exceeded	Reactive Sulfide	J detects UJ non-detects	All samples
Analyte detected below RL in Method Blank (below RL in sample)	Reactive Cyanide	U	All samples
Analyte detected below RL in Method Blank (below RL in sample)	Reactive Sulfide	U	LMR21-WB-1 LMR21-SBB2 LMR21-SBD LMR21-SBC

Ignitability and pH Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Corrosivity as pH	J results	All samples

TCLP METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria.

The Low Level CCV (LLCCV) analyzed in the 08/29/2021 mercury run was not reported in this data package. A %R of 104.5% was reported in the raw data. No qualification was necessary as the LLCCV %R was within criteria.

Several ICP CRDL standard recoveries exceeded criteria on the report forms provided with the data package. The same standard was reported in each of the three SDGs for TCLP Metals for this project. The CRDL standard was reported as failing for AEG-163 and AEG-172, however, the CRDL standard passed in AEG-175. AEG-175 used the CRDL Standard's water true values to calculate the percent recoveries. SDGs AEG-163 and AEG-172 were incorrectly reported using soil true values. No qualification of the data is necessary.

4. BLANKS – INITIAL AND CONTINUING

No problems were found.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

The MS and MSD percent recoveries (%Rs) for mercury in QC sample LMR21-SBD exceeded the DOD QSM5.3 %R acceptance limits of 82-119%. Since all the %Rs were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation, mercury results associated with this QC sample were not qualified. The RPD between the mercury MS and MSD exceeded criteria. Since only detected results are qualified for RPD exceedances between the MS and MSD, no qualification is necessary. All associated mercury results are non-detects. A MS/MSD was not analyzed for the ICP-AES fraction.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

One field duplicate was included in this SDG; however, the original analyses is in a separate SDG.

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1 (AEG-163). All RPDs are within the 100% RPD criteria required in the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 5 mL initial volume to calculate mercury results reported on the report forms in the data package. The Analysis Prep Sheet in the data package and form 1's indicate an initial volume of 5 mL and final volume of 25 mL. The digestion log in the data and EDD file all indicate that a final volume of 5 mL and initial volume of 5 ml was used. The results on the "analytical results" sheet at the beginning of the data package and in the EDD file are all reported using 5 mL initial and 5 mL final.

REVIEWED BY: Aimee Perez DATE: 04/06/2022

TCLP SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day Toxicity Characteristic Leaching Procedure (TCLP) holding time criteria for five sediment samples in this SDG. The TCLP procedure was performed one and two days after the 14 day holding time for four samples and approximately three hours for one sample. No analytes were detected in the samples. Non-detected analytes are qualified “UJ” for the following samples.

LMR21-WB-1	LMR21-SBB1	LMR21-WC2
LMR21-WC1 FD	LMR21-SBC	

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for surrogate Phenol-d5 exceeded the upper %R criteria of 49% required in the QAPP in two samples in this SDG. Since the other two acid DMCs met %R criteria, no qualification of the data is necessary. Note that the semivolatile TCLP target analytes are different from those in the non-TCLP SDGs in this project and therefore DMC associations are also different.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included in this SDG; however, the original analyses is in a separate SDG.

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-163). No semivolatile target analytes were detected in either sample.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/03/2021

TCLP PESTICIDE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day Toxicity Characteristic Leaching Procedure (TCLP) holding time criteria for all sediment samples in this SDG. The TCLP procedure was performed one and two days after the 14 day holding time for four samples and several hours for four samples. No analytes were detected in the samples. Non-detected analytes are qualified “UJ” for the following samples.

LMR21-WB-1	LMR21-SBB1	LMR21-SBB2
LMR21-SBD	LMR21-WC-2	LMR21-WC-1 FD
LMR21-SBC	LMR21-SBA2	

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The percent drift (%D) for Methoxychlor in one continuing calibration verification (CCV) exceeded the %D criteria of ±20% as specified in the QAPP. The %D for Methoxychlor in CCV5 analyzed on 08/27/2021 at 14:26 is 28.4% on the RTX-CLP1 GC column and 33.9% on the RTX-CLP2 GC column. Note that this CCV is the ending calibration for three samples. Note that the NFG requires qualification of non-detected results even where the CCV %D is high. The non-detected analyte results in the following samples are qualified "UJ".

LMR21-WC1 FD:	Methoxychlor
LMR21-SBC:	Methoxychlor
LMR21-SBA2:	Methoxychlor

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included in this SDG; however, the original analyses is in a separate SDG.

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-163). No pesticide target analytes were detected in either sample.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/07/2022

TCLP HERBICIDE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day Toxicity Characteristic Leaching Procedure (TCLP) holding time criteria for four sediment samples in this SDG. The TCLP procedure was performed one and two days after the 14 day holding time for four samples. No analytes were detected in the samples. Non-detected analytes are qualified “UJ” for the following samples.

LMR21-WB-1 LMR21-WC2 LMR21-WC1 FD LMR21-SBC

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included in this SDG; however, the original analyses is in a separate SDG.

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-163). No herbicide target analytes were detected in either sample.

9. INTERNAL STANDARDS

Internal Standard 4,4' - DBFOB was added to all standards and samples. No problems were found.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/07/2022

TCLP VOLATILE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day Zero Headspace Extraction (ZHE) holding time criteria for one sediment sample in this SDG. The ZHE procedure was performed one day after the 14 day holding time. No analytes were detected in the sample. Non-detected analytes are qualified "UJ" for the following sample.

LMR21-WC1 FD

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The percent difference (%D) for one analyte in the initial calibration verification (ICV) analysis exceeded the laboratory-established %D criteria of ±20% (80%-120%). The %D for 2-Butanone in ICV 3379694(LCS) exceeded the lower criteria with a 69.2%D. Note that the laboratory uses the LCS spike and ID as an ICV; however, for this analysis the criteria is specific to the calibration and not the LCS criteria. After the analysis of ICV 3379694(LCS) on 08/24/2021 and before the sample analyses on 08/25/2021 a continuing calibration verification (CCV) analysis and an LCS analysis were analyzed in which 2-Butanone passed CCV %D criteria and the LCS %R criteria required in the QAPP. For these reasons no qualification of sample results is necessary.

5. BLANKS

One analyte, Trichloroethene, was detected above the reporting limit in Blank 3379081(SAM). Note that all organic TCLP procedures submitted with this project (Volatiles, Semivolatiles, Pesticides, and Herbicides) are prepared with a method blank and a SAM blank. The exact definition of the SAM prefix is not provided in the data packages, QAPP, or SOPs. The SAM Blank is assumed to be a leachate blank. All volatiles samples in this SDG are non-detect and no qualification of sample results is necessary.

6. SYSTEM MONITORING COMPOUND RECOVERY

The percent recovery (%R) for system monitoring compound (SMC) Toluene-d8 exceeded the lower %R criteria of 89% in the MSD analysis with a %D of 87.3%. No qualification of sample results is necessary for SMC exceeding %R criteria in an MSD.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

As noted above, the percent recovery (%R) for system monitoring compound (SMC) Toluene-d8 exceeded the lower %R criteria in the MSD analysis. No qualification of sample results is necessary.

8. LABORATORY CONTROL SAMPLE

In this SDG two LCS analyses were submitted. As previously discussed, one LCS analysis was submitted as the ICV analysis with laboratory-established ICV criteria of ±20%. An additional LCS, 3380439(LCS), was submitted with laboratory-established LCS criteria of ±50% (50%-150%). All analytes in this LCS passed the laboratory-established %R criteria as well as the analyte-specific LCS criteria provided in the QAPP.

9. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included in this SDG; however, the original analyses is in a separate SDG.

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-163). No volatile target analytes were detected in either sample with the exception of chloroform which was detected below the reporting limit in the original analysis. No qualification of sample results is necessary.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/03/2022

REACTIVE CYANIDE AND SULFIDE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day technical holding time criteria for all reactive cyanide sediment samples in this SDG. The analysis holding time was exceeded by 4-6 days. Note that for all cyanide samples detects below the reporting level were reported; however, the results were changed to "U" for method blank contamination (see Blanks section) and therefore the sample results are qualified as non-detects. Non-detected analytes are qualified “UJ” for the following samples.

LMR21-WB-1	LMR21-SBB1	LMR21-SBB2
LMR21-SBD	LMR21-WC-2	LMR21-WC-1 FD
LMR21-SBC	LMR21-SBA2	

The laboratory did not meet the seven (7) day technical holding time criteria for all reactive sulfide sediment samples in this SDG. The holding time was exceeded by 11-13 days. Note that for four sulfide samples detects below the reporting level were reported; however, the results were changed to "U" for method blank contamination (see Blanks section) and therefore the sample results are qualified as non-detects. Detected analytes are qualified "J" and non-detected analytes are qualified “UJ” for the following samples.

LMR21-WB-1, LMR21-SBB2, LMR21-SBD, LMR21-SBC "UJ"
LMR21-SBB1, LMR21-WC-2 , LMR21-WC-1 FD, LMR21-SBA2 "J"

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

Reactive cyanide was detected in Method Blank MB 3382696 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The results in all samples were also reported at concentrations between the LOD and the DL. All reactive cyanide results were elevated to the LOD and qualified "U".

LMR21-WB-1	LMR21-SBB1	LMR21-SBB2
LMR21-SBD	LMR21-WC-2	LMR21-WC-1 FD
LMR21-SBC	LMR21-SBA2	

Reactive sulfide was detected in Method Blank MB 3382699 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). Four (4) results in the samples were also reported at concentrations between the LOD and the DL. Those results were elevated to the LOD and qualified "U". The other four samples were reported above the LOD and no qualification of sample results was necessary.

LMR21-WB-1	LMR21-SBB2	LMR21-SBD	LMR21-SBC

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found; however, it should be noted that the laboratory-reported lower percent recovery (%R) criteria for reactive cyanide is "0" and the %R for LCS 3382697 was reported as 4.75%.

6. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included in this SDG; however, the original analyses is in a separate SDG.

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-163). The RPDs for reactive cyanide and reactive sulfide were within the 100% RPD criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: **Julie Hall** **DATE:** **03/25/2022**

IGNITABILITY AND pH

1. HOLDING TIME AND PRESERVATION

The pH was not recorded in the field within 15 minutes of sampling. Since the pH was recorded at the laboratory approximately seven days after sample collection, the pH results are qualified “J" in the following samples:

LMR21-WB-1	LMR21-SBB1	LMR21-SBB2
LMR21-SBD	LMR21-WC-2	LMR21-WC-1 FD
LMR21-SBC	LMR21-SBA2	

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No LCS was analyzed.

6. FIELD BLANK AND FIELD DUPLICATES

One field duplicate was included in this SDG; however, the original analyses is in a separate SDG.

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1 (SDG AEG-163). The RPDs were within the 100% RPD criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 04/01/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-173
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-173

Number and Type of Samples: Fifteen (15) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), and GRO/DRO/ORO (SW-846 8015D)

EPA Sample Numbers:

LMR21-SBA	LMR21-SBB1	LMR21-SBA2
LMR21-WB-2	LMR21-WB-1	LMR21-SBD
LMR21-WA-3	LMR21-WC-1 FD	LMR21-WA-2
LMR21-SBC	LMR21-SBB2	LMR21-WC-1
LMR21-WA-1	LMR21-SBA3	LMR21-WC-2

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fifteen (15) sediment samples for SDG AEG-173 were collected by USACE, Buffalo District from the Lower Maumee River project locations between August 10 and 12, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM) (SW-846 9071B) and GRO/DRO/ORO (SW-846 8015D) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Mercury	J- detects UJ non-detects	LMR21-SBA LMR21-SBA2 LMR21-SBA3

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-WB-2 LMR21-WA-2 LMR21-WC-1 LMR21-WC-2 LMR21-SBB1 LMR21-SBB2 LMR21-SBA3

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detects	All samples
Surrogate %R criteria exceeded (low)	DRO ORO	J- detects	LMR21-SBB2

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	DRO	J- detect	LMR21-WC-1

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for mercury sediment samples. The technical holding time was exceeded by three or four days. Detected results are qualified "J-" and non-detected results are qualified "UJ" in the following samples:

LMR21-SBA LMR21-SBA2 LMR21-SBA3

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data for the 09/09/2021 analytical run. The data for the 09/20/2021 analytical run was not provided in the data package.

The Low Level CCVs (LLCCV) analyzed in the five mercury runs were not reported in this data package. Percent recoveries were reported in the raw data. No qualification was necessary as the LLCCV %Rs were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in one CCB between the MDL and RL for the analytical sequence analyzed on 09/09/2021 and three CCBs between the MDL and RL for the analytical sequence analyzed on 09/20/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. The raw data for the 09/20/2021 analytical sequence was not provided in the data package, therefore the CCB results as well as results for fourteen of the fifteen samples could not be verified.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Potassium and silver MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-WC-1; however, the %Rs for these analytes were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the potassium and silver results associated with this QC sample were not qualified.

7. POST DIGESTION SPIKE

No problems were found.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Sample LMR21-WC-1 FD was identified as the field duplicate of sample LMR21-WC-1. All RPDs were within the 100% QC limit required by the QAPP; therefore, no qualification of sample results is necessary.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

The percent difference (%D) for arsenic in serial dilution sample LMR21-SBB2 exceeded the expanded acceptance criteria of ≤15% with a 15.8%D. The original and serial dilution sample results are less than 50X the MDL; therefore, no qualification was applied.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from the laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

For the mercury fraction, forms for several samples reported incorrect initial weights and were missing the preparation date resulting in incorrect results reported on the Form 1's. Correct results were reported in the EDD file.

REVIEWED BY: Aimee Perez DATE: 04/21/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC 2,4,6-Tribromophenol exceeded the lower %R criteria required in the QAPP in one sample in this SDG; however, this DMC is not associated with the target analytes in this SDG. No qualification of sample results is necessary.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD was identified as the field duplicate of sample LMR21-WC-1. All RPDs were within the 100% criteria required by the QAPP.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/08/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Two surrogates, Tetrachloro-m-xylene (TCX) and Decachlorobiphenyl (DCB), were added to all samples in this SDG. Note that the QAPP provides percent recovery (%R) criteria for TCX and instructs to use laboratory-established criteria for DCB.

The percent recovery (%R) for surrogates TCX and/or DCB exceeded the lower %R criteria in seven samples in this SDG. The detected Aroclors in the following samples are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-WB-2	LMR21-WA-2	LMR21-WC-1	LMR21-WC-2
LMR21-SBB1	LMR21-SBB2	LMR21-SBA3	

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

One MS/MSD pair was analyzed with one extraction batch; however, the parent sample is not included in this SDG. No qualification of sample results is necessary.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD was identified as the field duplicate of sample LMR21-WC-1. All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/08/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD was identified as the field duplicate of sample LMR21-WC-1. The RPD was within the 100% criteria required by the QAPP.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall **DATE:** 03/10/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for all GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by seven (7) to 11 days. For this SDG, the laboratory indicated that four samples were prepared out of the method 5035 48 hour holding time but also indicated on the "Analysis - Prep Method Cross Reference Table" that method SW846 5035 was used for all samples. Detected analytes are qualified “J” and non-detected analytes are qualified “UJ” for the following samples:

LMR21-SBA	LMR21-SBB1	LMR21-SBA2
LMR21-WB-2	LMR21-WB-1	LMR21-SBD
LMR21-WA-3	LMR21-WC-1 FD	LMR21-WA-2
LMR21-SBC	LMR21-SBB2	LMR21-WC-1
LMR21-WA-1	LMR21-SBA3	LMR21-WC-2

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in two undiluted samples in this SDG. Note that for one of the samples, one analyte DRO was reported from the undiluted analysis and ORO was reported from the diluted analysis. Note that where samples are diluted at a dilution factor ≥5, no qualification of sample results is necessary. The detected DRO and/or ORO results in the following samples are qualified "J-". Note that there are no associated non-detects.

LMR21-SBB2: DRO, ORO
LMR21-WC-1: DRO

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found in the GRO MS/MSD analysis.

The MS and MSD percent recoveries (%Rs) for DRO and ORO exceeded the upper criteria specified in the laboratory QAPP. Since the parent sample results for these analytes were greater than 4x the spike amount, no qualification of results is necessary.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD was identified as the field duplicate of sample LMR21-WC-1. All RPDs were within the 100% criteria required by the QAPP.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/04/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-174
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-174

Number and Type of Samples: Fifteen (15) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Cyanide (SW-846 9012B), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G and SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)

EPA Sample Numbers:

LMR21-WC-1	LMR21-WB-2	LMR21-SBC
LMR21-SBA3	LMR21-SBB2	LMR21-SBA2
LMR21-SBB1	LMR21-SBD	LMR21-SBA1
LMR21-WC-1 FD	LMR21-WA-3	LMR21-WB-1
LMR21-WA-1	LMR21-WC-2	LMR21-WA-2

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-174
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fifteen (15) sediment samples for SDG AEG-174 were collected by USACE, Buffalo District from the Lower Maumee River project locations between August 10 and 13, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Cyanide (SW-846 9012B), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH_3) (ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G and SM4500NH3G-2011), and Total Phosphorus (EPA 365.1) analysis.

The inorganic fractions were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Mercury	J- detects UJ non-detects	LMR21-SBA3 LMR21-SBA2 LMR21-SBA1
MS and/or MSD %R exceeded criteria (high) post-digestion spike within criteria (for both QC samples)	Potassium	J detects	LMR21-WC-1 LMR21-WB-2 LMR21-SBC LMR21-SBA3 LMR21-SBB2 LMR21-SBA2 LMR21-SBB1 LMR21-SBD LMR21-SBA1 LMR21-WC-1 FD LMR21-WA-3 LMR21-WB-1 LMR21-WA-1 LMR21-WC-2 LMR21-WA-2

Cyanide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and/or MSD %R criteria exceeded (low)	Cyanide	J- detects UJ non-detects	LMR21-WB-2 LMR21-SBC LMR21-SBA3 LMR21-SBB2 LMR21-SBA2 LMR21-SBB1 LMR21-SBD LMR21-SBA1 LMR21-WC-1 FD

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
			LMR21-WA-3 LMR21-WB-1 LMR21-WA-1 LMR21-WC-2 LMR21-WA-2
MS/MSD RPD criteria exceeded	Cyanide	J detects	LMR21-WB-2 LMR21-SBC LMR21-SBA3 LMR21-SBB2 LMR21-SBA2 LMR21-SBB1 LMR21-SBA1 LMR21-WC-1 FD LMR21-WA-3 LMR21-WB-1 LMR21-WA-1 LMR21-WC-2 LMR21-WA-2
Analyte detected below RL in method blank	Cyanide	U	LMR21-SBD

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	All samples

Ammonia-Nitrogen (NH3) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Total Kjeldahl Nitrogen (TKN) Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Total Phosphorus Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
CCV %R criteria exceeded (low)	Phosphorus	J- detects	LMR21-WB-2 LMR21-SBC LMR21-WC-1 FD LMR21-WA-3 LMR21-WB-1 LMR21-WA-1 LMR21-WC-2 LMR21-WA-2
CCV %R criteria exceeded (high)	Phosphorus	J+ detects	LMR21-SBA3 LMR21-SBB2 LMR21-SBA2 LMR21-SBD LMR21-SBA1

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for mercury water samples. The technical holding times were exceeded by four and five days. Detected results are qualified "J-" and non-detected results are qualified "UJ" in the following samples:

LMR21-SBA3	LMR21-SBA2	LMR21-SBA1

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B report forms. Results were calculated and evaluated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the mercury runs were not reported in this data package. The mercury raw data for the analytical sequences from 08/29/2021, 09/05/2021, and 09/08/2021 were not included in the data package. The LLCCV or LLICV recoveries were found in the data from several other data packages. All recoveries were within acceptance limits.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in three CCBs between the MDL and RL for the analytical sequence analyzed on 09/20/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Barium, beryllium, chromium, cobalt, nickel, potassium, silver and vanadium MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-SBA1; however, the %Rs for these analytes, with the exception of potassium, were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the barium, beryllium, chromium, cobalt, nickel, silver, and vanadium results associated with this QC sample were not qualified. The MS and MSD %Rs for potassium exceeded the DOD limits of 81-116% with %Rs of 313% and 158%. A post-digestion spike %R was within criteria for potassium, therefore, the potassium results for the following associated samples are qualified "J".

LMR21-SBA1	LMR21-WC-1 FD	LMR21-WA-3
LMR21-WB-1	LMR21-WA-1	LMR21-WC-2
LMR21-WA-2		

Chromium, cobalt, lead, potassium, silver, vanadium and zinc MS and/or MSD recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-WC-1; however, the %Rs for these analytes, with the exception of potassium, were within the expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation; therefore, the chromium, cobalt, lead, silver, vanadium and zinc results associated with this QC sample were not qualified. The MS and MSD %Rs for potassium exceeded the DOD limits of 81-116% with %Rs of 188% and 201%. A post-digestion spike %R was within criteria for potassium, therefore, the potassium results for the following associated samples are qualified "J".

LMR21-WC-1	LMR21-WB-2	LMR21-SBC
LMR21-SBA3	LMR21-SBB2	LMR21-SBA2
LMR21-SBB1	LMR21-SBD	

7. POST DIGESTION SPIKE

No problems were found.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

Sample LMR21-WC-1 FD was identified as the field duplicate of sample LMR21-WC-1. All RPDs for the detected analytes are within the 100% RPD criteria required by the QAPP.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A Serial Dilution was not performed for this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 04/21/2022

CYANIDE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The laboratories Form 6B inaccurately labeled one of the low level CCVs as a high level CCV, thereby exceeding the upper percent recovery (%R) criteria. No qualification of sample results is necessary.

3. BLANKS

Cyanide was detected in Method Blank MB 3379585 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The results for one associated sample was also reported at a concentration between the LOD and the DL. The following sample result was elevated to the LOD and qualified "U".

LMR21-SBD

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Three MS/MSD samples were analyzed in this SDG.

For two of the three MS and/or MSD analyses the percent recoveries (%Rs) for Cyanide exceeded the lower %R criteria of 76% specified in the QAPP. With the exception of one MS/MSD parent sample (LMR21-WC-1) which passed %R criteria, all sample detects are qualified "J-" and one non-detect is qualified "UJ". Note that the sample non-detect was originally a detect and changed to a non-detect and as noted in the Blanks section of this report, the sample result was and therefore qualified "UJ" for the low MS/MSD %R. Also, as noted below a more severe "J" final qualifier was applied to all detects for MS/MSD RPD.

Qualified "J-"

LMR21-WB-2	LMR21-SBC	LMR21-SBA3	LMR21-SBB2
LMR21-SBA2	LMR21-SBB1	LMR21-SBA1	LMR21-WC-1 FD
LMR21-WA-3	LMR21-WB-1	LMR21-WA-1	LMR21-WC-2
LMR21-WA-2			

Qualified "UJ"
LMR21-SBD

The relative percent difference (RPD) between the MS and MSD analysis results for Cyanide exceeded the QAPP required RPD QC Limit in one of the MS/MSD pairs. The following detected cyanide results are qualified "J":

LMR21-WB-2	LMR21-SBC	LMR21-SBA3	LMR21-SBB2
LMR21-SBA2	LMR21-SBB1	LMR21-SBA1	LMR21-WC-1 FD
LMR21-WA-3	LMR21-WB-1	LMR21-WA-1	LMR21-WC-2
LMR21-WA-2			

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1. The RPD for cyanide is within the 100% RPD criteria required in the QAPP. No qualification of results is necessary.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/16/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 1- 29 days. Detected results in the following samples are qualified "J-".

LMR21-WC-1	LMR21-WB-2	LMR21-SBC
LMR21-SBA3	LMR21-SBB2	LMR21-SBA2
LMR21-SBB1	LMR21-SBD	LMR21-SBA1
LMR21-WC-1 FD	LMR21-WA-3	LMR21-WB-1
LMR21-WA-1	LMR21-WC-2	LMR21-WA-2

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Four Continuing Calibration Verification (CCV) analyses submitted with this SDG exceeded the upper %R criteria required in the QAPP. The CCVs were not associated with the samples in this SDG. No qualification of sample results is necessary.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The six method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1. The RPD for TOC is within the 100% RPD criteria required in the QAPP. No qualification of results is necessary.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 04/07/2022

AMMONIA NITROGEN (NH3)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS/MSD percent recoveries (%Rs) exceeded the laboratory-established lower %R criteria; however, the %Rs were within expanded acceptance windows (10-150%) for sediment samples allowed by the National Functional Guidelines for Inorganic Methods and used for GLNPO validation.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1. The RPD for NH3 is within the 100% RPD criteria required in the QAPP. No qualification of results is necessary.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/22/2022

TOTAL KJELDAHL NITROGEN (TKN)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. LABORATORY DUPLICATE

Duplicate analysis was performed on TKN sample LMR21-WC-1-FD. The RPD was within laboratory-established RPD criteria.

7. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1. The RPD for TKN is within the 100% RPD criteria required in the QAPP. No qualification of results is necessary.

8. SYSTEM PERFORMANCE

No problems were found.

9. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/22/2022

TOTAL PHOSPHORUS

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

One continuing calibration verification (CCV) analysis in the 09/02/2021 analytical run exceeded the lower percent recovery (%R) criteria of 90% with a 54.2% recovery. Detected phosphorus results in the following associated samples are qualified "J-"

LMR21-WB-2	LMR21-SBC	LMR21-WC-1 FD
LMR21-WA-3	LMR21-WB-1	LMR21-WA-1
LMR21-WC-2	LMR21-WA-2	

Three continuing calibration verification (CCV) analyses in the 09/07/2021 analytical run exceeded the upper percent recovery (%R) criteria of 110% with %Rs of 111%, 115%, and 128%. Detected phosphorus results in the following associated samples are qualified "J+"

LMR21-SBA3	LMR21-SBB2	LMR21-SBA2
LMR21-SBD	LMR21-SBA1	

3. BLANKS

Phosphorus was detected in three method blanks at concentrations between the Reporting Limit (LOD) and the Detection Limit (DL). The results for the associated samples were much higher than those found in the blanks. No qualification of sample results was necessary.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

MS/MSD percent recoveries (%Rs) for phosphorus were reported by the laboratory as exceeding the lower acceptance limit. Upon review of the raw data it was observed that the 10X dilution factor was not taken into account and the %Rs were within the acceptance limits. No qualification of sample results was necessary.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. LABORATORY DUPLICATE

Duplicate analysis was performed on phosphorus sample LMR21-WA-1. The RPD was within laboratory-established RPD criteria.

7. FIELD BLANK AND FIELD DUPLICATES

Sample LMR21-WC-1 FD is the field duplicate of sample LMR21-WC-1. The RPD for phosphorus is within the 100% RPD criteria required in the QAPP. No qualification of results is necessary.

8. SYSTEM PERFORMANCE

No problems were found.

9. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/22/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26, 2022
SUBJECT:	Review of Data for SDG Number: AEG-175 Received for Review: 01/28/2022
LABORATORY:	ALS Environmental, Middletown, Pennsylvania
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	AEG-175
Number and Type of Samples:	Two (2) Sediment Samples for TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D)

EPA Sample Numbers:	LMR21-SBA1	LMR21-SBA3

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-175
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Two (2) sediment samples for SDG AEG-175 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 12 and 13, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for TCLP Metals (SW-846 6010C) and Mercury (SW-846 7470A), TCLP Semivolatile (SW-846 8270D), TCLP Pesticide (SW-846 8081B), TCLP Herbicides (SW-846 8151A), TCLP Volatiles (SW-846 8260C), Reactive Cyanide and Sulfide (SW-846 7.3), Ignitability (SW-846 1030), and pH (SW-846 9045D) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

TCLP Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

TCLP Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

TCLP Pesticide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
CCV %D criteria exceeded (high)	Methoxychlor	UJ non-detects	LMR21-SBA1 LMR21-SBA3

TCLP Herbicide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

TCLP Volatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Reactive Cyanide and Sulfide Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Reactive Cyanide	UJ non-detects	LMR21-SBA1 LMR21-SBA3
Technical holding time exceeded	Reactive Sulfide	UJ non-detects	LMR21-SBA1 LMR21-SBA3

Case Number: NA
SDG Number: AEG-175
Site Name: Lower Maumee River
Laboratory: ALS Environmental

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in Method Blank	Reactive Cyanide	U	LMR21-SBA1 LMR21-SBA3
Analyte detected below RL in Method Blank	Reactive Sulfide	U	LMR21-SBA1 LMR21-SBA3

Ignitability and pH Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Corrosivity as pH	J results	LMR21-SBA1 LMR21-SBA3

TCLP METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria.

The Low Level CCV (LLCCV) analyzed in the 08/29/2021 mercury run was not reported in this data package. A %R of 104.5% was reported in the raw data. No qualification was necessary as the LLCCV %R was within criteria.

4. BLANKS – INITIAL AND CONTINUING

No problems were found.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A MS/MSD was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

No field duplicates were included in this SDG.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 5 mL initial volume to calculate mercury results reported on the report forms in the data package. The Analysis Prep Sheet in the data package and form 1's indicate an initial volume of 5 mL and final volume of 25 mL. The digestion log in the data and EDD file all indicate that a final volume of 5 ml and initial volume of 5 mL was used. The results on the "analytical results" sheet at the beginning of the data package and in the EDD file are all reported using 5 mL initial and 5 mL final.

Note that incorrect units of mg/kg were reported on the Form 1 in the data package. The correct units, mg/L were reported in the EDD file and in the Analytical Results Summary in the beginning of the data package.

REVIEWED BY: Aimee Perez **DATE:** 03/30/2022

TCLP SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for surrogate 2,4,6-Tribromophenol exceeded the lower %R criteria of 43% required in the QAPP in one sample in this SDG. Note that that the semivolatile TCLP target analytes are different from those in the non-TCLP analyses in this project and therefore DMC associations are also different. Where 2,4,6-Tribromophenol is not associated with the target analytes in the non-TCLP SDGs, the DMC is associated with several target analytes in this SDG. However, since the other two acid DMCs met %R criteria, no qualification of the data is necessary.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/08/2022

TCLP PESTICIDE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The percent drift (%D) for Methoxychlor in one continuing calibration verification (CCV) exceeded the %D criteria of ±20% as specified in the QAPP. The %D for Methoxychlor in CCV5 analyzed on 08/27/2021 at 14:26 is 28.4% on the RTX-CLP1 GC column and 33.9% on the RTX-CLP2 GC column. Note that this CCV is the ending calibration for both samples in this SDG. Note that the NFG requires qualification of non-detected results even where the CCV %D is high. The non-detected analyte results in the following samples are qualified "UJ".

LMR21-SBA1: Methoxychlor
LMR21-SBA3: Methoxychlor

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

One MS/MSD pair was extracted (TCLP) and analyzed with the samples in this SDG; however, the parent sample is not included in this SDG. No problems were found with that QC sample.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: **Rebecca Garry** **DATE:** **03/08/2022**

TCLP HERBICIDE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

One MS/MSD pair was extracted (TCLP) and analyzed with the samples in this SDG; however, the parent sample is not included in this SDG. No problems were found with that QC sample.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Internal Standard 4,4' – DBFOB was added to all standards and samples. No problems were found.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/08/2022

TCLP VOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The percent difference (%D) for one analyte in the initial calibration verification (ICV) analysis exceeded the laboratory-established %D criteria of ±20% (80%-120%). The %D for 2-Butanone in ICV 3379694(LCS) exceeded the lower criteria with a 69.2%D. Note that the laboratory uses the LCS spike and ID as an ICV; however, for this analysis the criteria is specific to the calibration and not the LCS criteria. After the analysis of ICV 3379694(LCS) on 08/24/2021 and before the sample analyses on 08/25/2021 a continuing calibration verification (CCV) analysis and an LCS analysis were analyzed in which 2-Butanone passed CCV %D criteria and the LCS %R criteria required in the QAPP. For these reasons no qualification of sample results is necessary.

5. BLANKS

One analyte, Trichloroethene, was detected above the reporting limit in Blank 3379081(SAM). Note that all organic TCLP procedures submitted with this project (Volatiles, Semivolatiles, Pesticides, and Herbicides) are prepared with a method blank and a SAM blank. The exact definition of the SAM prefix is not provided in the data packages, QAPP, or SOPs. The SAM Blank is assumed to be a leachate blank. All volatiles samples in this SDG are non-detect and no qualification of sample results is necessary.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

One MS/MSD pair was extracted (ZHE) and analyzed with the samples in this SDG; however, the parent sample is not included in this SDG. No problems were found with that QC sample.

8. LABORATORY CONTROL SAMPLE

In this SDG two LCS analyses were submitted. As previously discussed, one LCS analysis was submitted as the ICV analysis with laboratory-established ICV criteria of ±20%. An additional LCS, 3380439(LCS), was submitted with laboratory-established LCS criteria of ±50% (50%-150%). All analytes in this LCS passed the laboratory-established %R criteria as well as the analyte-specific LCS criteria provided in the QAPP.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/08/2022

REACTIVE CYANIDE AND SULFIDE

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day technical holding time criteria for both reactive cyanide sediment samples in this SDG. The analysis holding time was exceeded by three days. Note that for both cyanide samples detects below the reporting level were reported; however, the results were changed to "U" for method blank contamination (see Blanks section) and therefore the sample results are qualified as non-detects. Non-detected analytes are qualified “UJ” for the following samples.

LMR21-SBA1 LMR21-SBA3

The laboratory did not meet the seven (7) day technical holding time criteria for both reactive sulfide sediment samples in this SDG. The holding time was exceeded by 11 days. Note that for both sulfide samples detects below the reporting level were reported; however, the results were changed to "U" for method blank contamination (see Blanks section) and therefore the sample results are qualified as non-detects. Non-detected analytes are qualified “UJ” for the following samples.

LMR21-SBA1 LMR21-SBA3

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

Reactive cyanide was detected in Method Blank MB 338696 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The results in both samples were also reported at concentrations between the LOD and the DL. The reactive cyanide results were elevated to the LOD and qualified "U".

LMR21-SBA1 LMR21-SBA3

Reactive sulfide was detected in Method Blank MB 3382699 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The results in both samples were also reported at concentrations between the LOD and the DL. The reactive sulfide results were elevated to the LOD and qualified "U".

LMR21-SBA1 LMR21-SBA3

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/28/2022

IGNITABILITY AND pH

1. HOLDING TIME AND PRESERVATION

The pH was not recorded in the field within 15 minutes of sampling. Since the pH was recorded at the laboratory approximately six days after sample collection, the pH results are qualified “J" in the following samples:

LMR21-SBA-1 LMR21-SBA-3

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No blank was analyzed.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No LCS were analyzed.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 04/01/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-176
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-176

Number and Type of Samples: Two (2) Sediment Samples for Metals (SW-846 6010C) and Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A)

EPA Sample Numbers: LMR21-SBA1 LMR21-49C-4-7.5ft

Case Number: NA
SDG Number: AEG-176
Site Name: Lower Maumee River
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Two (2) sediment samples for SDG AEG-176 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 13, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7471B), Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), Oil and Grease (HEM)(SW-846 9071B), GRO/DRO/ORO (SW-846 8015D), and Total Organic Carbon (TOC) (SW-846 9060A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical Holding Time exceeded	Mercury	J- detects UJ non-detects	LMR21-SBA1 LMR21-49C-4-7.5ft

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	All SVOA analytes	J- detects UJ non-detects	LMR21-SBA1

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects	LMR21-SBA1 LMR21-49C-4-7.5ft

TOC Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	TOC	J- detects	LMR21-SBA1 LMR21-49C-4-7.5ft

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for mercury sediment samples. The technical holding time was exceeded by four or five days. Detected results are qualified "J-" and non-detected results are qualified "UJ" in the following samples:

LMR21-SBA1	LMR21-49C-4-7.5ft

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2B (CRDL Standard for AA & ICP) report form. Results were calculated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/13/2021 mercury run was not reported in this data package. %R of 106.4% was reported in the raw data. No qualification was necessary as the LLCCV/LLICV %R were within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in two CCBs between the MDL and RL for the analytical sequence analyzed on 09/20/2021. All associated aluminum were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

Note that potassium was not reported on the Form 3a (Initial and Continuing Calibration Blank Summary) report form. Results are evaluated from the raw data.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A MS/MSD was performed for the mercury fraction only. All %R's and RPD were within criteria.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

A Field Duplicate was not analyzed with this SDG.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A Serial Dilution was not performed for this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 100 mL final volume to calculate mercury results and not the 25 mL final volume listed on the Form 13 (Sample Preparation Summary) and the Form 1-sample result form. The validator requested verification from laboratory (through the contractor) that the 100 mL final volume is correct and the 25 mL final volume reported on the report forms is incorrect. On 04/05/2022 the laboratory confirmed the 100 mL volume to be correct.

REVIEWED BY: Aimee Perez DATE: 03/29/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC Terphenyl-d14 exceeded the lower %R criteria of 54% required in the QAPP in one sample in this SDG. Note that an additional DMC, 2-Fluorobiphenyl, exceeded the lower %R criteria in this sample; however, the DMC is not associated with the target analytes in this SDG. Terphenyl-d14 is associated with all target analytes. The detected analytes in the following sample are qualified "J-", non-detects are qualified "UJ".

LMR21-SBA1

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/09/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/09/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/10/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for both GRO samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by nine days. For this SDG, the laboratory indicated that one sample was prepared out of the method 5035 48 hour holding time but also indicated on the "Analysis - Prep Method Cross Reference Table" that method SW846 5035 was used for both samples. Detected analytes are qualified “J” for the following samples.

LMR21-SBA1 LMR21-49C-4-7.5ft

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in one sample in this SDG. Since the sample was diluted at a dilution factor ≥5, no qualification of sample results is necessary.

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/04/2022

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-176
Laboratory: ALS Environmental

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 28 day technical holding time criteria for TOC sediment samples. The technical holding time was exceeded by 13 days. Detected results in the following samples are qualified "J-".

LMR21-SBA1 LMR21-49C-4-7ft

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

All Initial and Continuing Calibration Verification standards were within criteria.

3. BLANKS

No problems were found. Note that the blank results reported in the EDD do not match those reported in the data package. All blanks reported in the data package are non-detected. The blanks in the EDD are all incorrectly reported as detected results with a concentration of 5001 mg/kg. The two method blank results associated with the samples in this SDG have been highlighted yellow in the EDD file.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

A matrix spike was not analyzed with this SDG.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/31/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-177
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-177

Number and Type of Samples: Two (2) Water Samples for Metals (SW-846 6010C), Mercury (SW-846 7471B), and GRO/DRO/ORO (SW-846 8015D), and One (1) Water Sample for Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Oil and Grease (HEM) (SW-846 9071B)

EPA Sample Numbers: Equipment Blank Suite BNC Equipment Blank Suite A

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-177
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Two (2) water samples for SDG AEG-177 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 13, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania. Two water samples were designated for Metals (SW-846 6010C), Mercury (SW-846 7471B), and GRO/DRO/ORO (SW-846 8015D) analysis; and one (1) water sample was designated for Semivolatile (SW-846 8270D), Aroclor (SW-846 8082A), and Oil and Grease (HEM) (SW-846 9071B) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Semivolatile Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	UJ non-detects	Equipment Blank Suite BNC Equipment Blank Suite A
Extraction holding time exceeded	DRO ORO	J detects UJ non-detects	Equipment Blank Suite BNC Equipment Blank Suite A

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2A and B report forms. Results were calculated and evaluated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/05/2021 mercury run did not meet criteria and was re-analyzed twice with %Rs of 84.5% and 80%. No qualification was necessary as the LLCCV/LLICV %R were within criteria.

4. BLANKS – INITIAL AND CONTINUING

No problems were found.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

A field duplicate was not analyzed with this SDG.

ICP INTERFERENCE CHECK SAMPLE

No problems were found.

10. LABORATORY CONTROL SAMPLE

No problems were found.

11. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

12. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 5 mL initial volume to calculate mercury results reported on the report forms in the data package. The Analysis Prep Sheet in the data package and form 1's indicate an initial volume of 5 mL and final volume of 25 mL. The digestion log in the data and EDD file all indicate that a final volume of 5 mL and initial volume of 5 mL was used. The results on the "analytical results" sheet at the beginning of the data package and in the EDD file are all reported using 5 mL initial and 5 mL final.

REVIEWED BY: Aimee Perez **DATE:** 03/29/2022

SEMIVOLATILE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry **DATE:** 03/09/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry **DATE: 03/09/2022**

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/10/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for both GRO aqueous samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by four days. For this SDG, there was no indication that method SW846 5035 was used for the samples; however, the QAPP requires that the method be used; no extraction log was submitted with the GRO data indicating an alternative prep method; and the volatiles reporting forms were used for the samples. The non-detected results are qualified “UJ” for the following samples:

Equipment Blank Suite BNC   Equipment Blank Suite A

The laboratory did not meet the seven day holding time criteria for both DRO/ORO aqueous samples in this SDG. Note that no holding time criteria was available in the QAPP; however, the laboratory stated in the Project Summary that the two DRO/ORO samples were extracted past the holding time. The holding time was exceeded by three days. The one detected analyte is qualified "J" and the non-detected results are qualified “UJ” for the following samples. Note that the one detected result for DRO was less than the reporting level and already qualified "J".

Equipment Blank Suite BNC   Equipment Blank Suite A

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) for GRO or DRO/ORO surrogates.

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included all samples in this SDG and several samples exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/04/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-178
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-178

Number and Type of Samples: One (1) Water Sample for Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Oil and Grease (HEM) (EPA 1664B), GRO/DRO/ORO (SW-846 8015D), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)

EPA Sample Numbers: Equipment Blank

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

One (1) water sample for SDG AEG-178 was collected by USACE, Buffalo District from the Lower Maumee River project locations on August 13, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Oil and Grease (HEM)(EPA 1664B), GRO/DRO/ORO (SW-846 8015D), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3) (ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), and Total Phosphorus (EPA 365.1) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Cyanide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	UJ non-detect	Equipment Blank
Extraction holding time exceeded	DRO ORO	UJ non-detects	Equipment Blank

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-178
Laboratory: ALS Environmental

Ammonia-Nitrogen (NH3) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Total Kjeldahl Nitrogen (TKN) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank	TKN	U	Equipment Blank

Total Phosphorus Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2A and B report forms. Results were calculated and evaluated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/05/2021 mercury run did not meet criteria and was re-analyzed twice with %Rs of 84.5% and 80%. No qualification was necessary as the LLCCV/LLICV %R were within criteria.

4. BLANKS – INITIAL AND CONTINUING

No problems were found.

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

A field duplicate was not analyzed with this SDG.

ICP INTERFERENCE CHECK SAMPLE

No problems were found.

10. LABORATORY CONTROL SAMPLE

No problems were found.

11. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

12. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 5 mL initial volume to calculate mercury results reported on the report forms in the data package. The Analysis Prep Sheet in the data package and form 1's indicate an initial volume of 5 mL and final volume of 25 mL. The digestion log in the data and EDD file all indicate that a final volume of 5 mL and initial volume of 5 mL was used. The results on the "analytical results" sheet at the beginning of the data package and in the EDD file are all reported using 5 mL initial and 5 mL final.

REVIEWED BY: Aimee Perez **DATE:** 03/29/2022

CYANIDE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/16/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the sample in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/09/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/10/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for the GRO aqueous sample in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by four days. For this SDG, there was no indication that method SW846 5035 was used for the sample; however, the QAPP requires that the method be used; no extraction log was submitted with the GRO data indicating an alternative prep method; and the volatiles reporting form was used for the sample. The non-detected result is qualified "UJ" for the following sample:

Equipment Blank

The laboratory did not meet the seven day holding time criteria for the DRO/ORO aqueous sample in this SDG. Note that no holding time criteria was available in the QAPP; however, the laboratory stated in the Project Summary that the DRO/ORO sample was extracted past the holding time. The holding time was exceeded by three days. The non-detected result is qualified "UJ" for the following sample.

Equipment Blank

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) for GRO or DRO/ORO surrogates.

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included the sample in this SDG which exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample result and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/04/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/03/2021

AMMONIA NITROGEN (NH3)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/22/2022

TOTAL KJELDAHL NITROGEN (TKN)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

TKN was detected in Method Blank MB 3386429 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The results in the equipment blank was also reported at a concentration between the LOD and the DL. The TKN results were elevated to the LOD and qualified "U".

Equipment Blank

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/22/2022

TOTAL PHOSPHORUS

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/22/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-182
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plan (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-182

Number and Type of Samples: Six (6) Water Samples for Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Semivolatile-SIM (SW-846 8270 SIM), Oil and Grease (HEM)(EPA 1664B), GRO/DRO/ORO (SW-846 8015D), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH_3) (ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)

EPA Sample Numbers:

LMR21-SBA1	LMR21-SBA2	LMR21-SBA3
LMR21-SBB1	LMR21-SBB2	LMR21-SBC

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-182
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Six (6) water samples for SDG AEG-182 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 23, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Semivolatile-SIM (SW-846 8270SIM), Oil and Grease (HEM)(EPA 1664B), GRO/DRO/ORO (SW-846 8015D), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), and Total Phosphorus (EPA 365.1) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank	Lead	U	LMR21-SBA2 LMR21-SBB1

Cyanide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank	Cyanide	U	LMR21-SBA1 LMR21-SBA3 LMR21-SBB1 LMR21-SBB2 LMR21-SBC

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Semivolatile-SIM Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Internal Standard response criteria exceeded (high)	Acenaphthylene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene	J- detects	LMR21-SBA1
Internal Standard response criteria exceeded (high)	Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	J- detects	LMR21-SBB2

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	J detects UJ non-detect	All samples

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Ammonia-Nitrogen (NH3) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Total Kjeldahl Nitrogen (TKN) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank	TKN	U	LMR21-SBA2

Total Phosphorus Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. INITIAL CALIBRATION

No problems were found.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2A and B report forms. Results were calculated and evaluated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/18/2021 mercury run was not reported in this data package. A Percent Recovery (%R) of 90.0% was reported in the raw data. No qualification was necessary as the LLICV %R was within criteria.

4. BLANKS – INITIAL AND CONTINUING

Lead was detected in one CCB between the MDL and RL for the analytical sequence analyzed on 09/14/2021. The associated lead results for the following samples were also detected between the MDL and RL, therefore, the results are qualified "U" at the RL:

Lead in samples: LMR21-SBA2 LMR21-SBB1

5. PREPARATION BLANK

No problems were found.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed with this SDG.

7. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

8. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

9. FIELD DUPLICATE COMPARISON

A field duplicate was not analyzed with this SDG.

ICP INTERFERENCE CHECK SAMPLE

No problems were found.

10. LABORATORY CONTROL SAMPLE

No problems were found.

11. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

12. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 5 mL initial volume to calculate mercury results reported on the report forms in the data package. The Analysis Prep Sheet in the data package and form 1's indicate an initial volume of 5 mL and final volume of 25 mL. The digestion log in the data and EDD file all indicate that a final volume of 5 mL and initial volume of 5 mL was used. The results on the "analytical results" sheet at the beginning of the data package and in the EDD file are all reported using 5 mL initial and 5 mL final.

REVIEWED BY: Aimee Perez DATE: 03/29/2022

CYANIDE

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

Cyanide was detected in Method Blank MB 3383695 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The detected results in five of the six samples were also reported at a concentration between the LOD and the DL. The Cyanide results in the following samples were elevated to the LOD and qualified "U".

LMR21-SBA1	LMR21-SBA3	LMR21-SBB1
LMR21-SBB2	LMR21-SBC	

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/17/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/10/2022

SEMIVOLATILE-SIM

1. HOLDING TIME AND PRESERVATION

One cooler containing the semivolatiles SIM samples was received at the laboratory at a temperature of 9˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMCs Fluoranthene-d10 and 2-Methylnaphthalene-d10 exceeded the lower %R criteria in one sample dilution in this SDG. Since the sample was diluted at a dilution factor ≥5, no qualification of sample results is necessary.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

Internal standard Acenaphthene-d10 exceeded the 100% upper limit of the criteria window in one undiluted sample in this SDG. Note that this sample was reported at 1X, 10X, 50X, and 200X dilution factors and only one analyte associated with Acenaphthene-d10 was reported from the undiluted analysis. The associated detected analyte is qualified "J-" in the following sample.

LMR21-SBA1: Acenaphthylene

Internal standard Perylene-d12 exceeded the 100% upper limit of the criteria window in one diluted sample in this SDG. As previously noted, this sample was reported at 1X, 10X, 50X and 200X dilution factors and Perylene-d12 exceeded the upper criteria window in the 10X, 50X and 200X dilutions. Several of the associated analytes were reported from the undiluted sample in which Perylene-d12 passed internal standard criteria and therefore are not qualified. The associated detected analytes are qualified "J-" in the following sample.

LMR21-SBA1: Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene

Internal standard Perylene-d12 exceeded the 100% upper limit of the criteria window in an additional sample in this SDG. The associated detected analytes are qualified "J-" in the following sample.

LMR21-SBB2: Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene

Internal standard Perylene-d12 exceeded the 100% upper limit of the criteria window in Method Blank 3382544(MB). No qualification of sample results is necessary.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/10/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/10/2022

GASOLINE RANGE ORGANICS (GRO)/
DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 48 hour QAPP-required holding time criteria for the GRO aqueous samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by six days. For this SDG, there was no indication that method SW846 5035 was used for the samples; however, the QAPP requires that the method be used; no extraction log was submitted with the GRO data indicating an alternative prep method; and the volatiles reporting form was used for the samples. The detected results are qualified "J" and the non-detected results are qualified “UJ” for the following samples:

LMR21-SBA1	LMR21-SBA2	LMR21-SBA3
LMR21-SBB1	LMR21-SBB2	LMR21-SBC

One cooler which contained the DRO/ORO samples (not the GRO samples) was received at the laboratory at a temperature of 9˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) for GRO or DRO/ORO surrogates.

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The RT fluctuation occurred throughout the analytical sequence that included the samples in this SDG which exceeded the RT criteria. The surrogate RT fluctuation does not appear to have an adverse effect on the sample results and no qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/05/2022

TOTAL ORGANIC CARBON (TOC)

1. **HOLDING TIME AND PRESERVATION**

   No problems were found.

2. **CALIBRATION - INITIAL AND CONTINUING CALIBRATION**

   No problems were found.

3. **BLANKS**

   No problems were found.

4. **MATRIX SPIKE AND MATRIX SPIKE DUPLICATE**

   No problems were found.

5. **LABORATORY CONTROL SAMPLE**

   No problems were found.

6. **FIELD BLANK AND FIELD DUPLICATES**

   No Field Duplicate was included in this SDG.

7. **SYSTEM PERFORMANCE**

   No problems were found.

8. **ADDITIONAL INFORMATION**

   No problems were found.

REVIEWED BY: Julie Hall DATE: 03/03/2022

AMMONIA NITROGEN (NH3)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

NH3 was detected in MB 3388661 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). All sample results were much higher than the method blank. No qualification of sample results is necessary.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/03/2022

TOTAL KJELDAHL NITROGEN (TKN)

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

TKN was detected in Method Blank MB 3388661 at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The results in samples were much higher than that in the method blank, with one exception. One sample result was also reported at a concentration between the LOD and the DL. The TKN result in the following sample was elevated to the LOD and qualified "U".

LMR21-SBA2

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/24/2022

TOTAL PHOSPHORUS

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/24/2022

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-182
Laboratory: ALS Environmental

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-205
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-205

Number and Type of Samples: Six (6) Water Samples for Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Oil and Grease (HEM)(EPA 1664B), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), Total Phosphorus (EPA 365.1) and GRO (SW-846 8015D); Two (2) Water Samples for Aroclor (SW-846 8082A); and Eight (8) Water Samples for Semivolatile-SIM (SW-846 8270 SIM) and DRO/ORO (SW-846 8015D)

EPA Sample Numbers:

LMR21-SBD	LMR21-WA-1	LMR21-WA-2
LMR21-WA-3	LMR21-WB-1	LMR21-WB-2
LMR21-WC-1	LMR21-WC-2	

Note that the laboratory inserted a hyphen between LMR and 21 on all the client sample IDs in the data package and EDD file. The Chain-of-Custody does not include the hyphen.

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Eight (8) water samples for SDG AEG-205 were collected by USACE, Buffalo District from the Lower Maumee River project locations on September 20, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania. Six (6) water samples were designated for Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Oil and Grease (HEM) (EPA 1664B), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), Total Phosphorus (EPA 365.1) and GRO (SW-846 8015D). Two (2) water samples were designated for Aroclor (SW-846 8082A) analysis, and eight (8) water samples for Semivolatile-SIM (SW-846 8270 SIM) and DRO/ORO (SW-846 8015D) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded	Mercury	UJ non-detects	LMR21-SBD LMR21-WA-2 LMR21-WA-3 LMR21-WB-1 LMR21-WC-1 LMR21-WC-2
MS %R exceeded criteria (high) post-digestion spike within criteria	Aluminum Iron	J detects	LMR21-SBD LMR21-WA-2 LMR21-WA-3 LMR21-WB-1 LMR21-WC-1 LMR21-WC-2
MS %R exceeded criteria (low) post-digestion spike within criteria	Arsenic Cadmium Chromium Lead Manganese Silver Thallium Vanadium	J detects UJ non-detects	LMR21-SBD LMR21-WA-2 LMR21-WA-3 LMR21-WB-1 LMR21-WC-1 LMR21-WC-2

Cyanide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in the method blank	Cyanide	U	LMR21-SBD LMR21-WA-2 LMR21-WA-3 LMR21-WB-1

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
			LMR21-WC-1 LMR21-WC-2

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Semivolatile-SIM Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
DMC %R criteria exceeded (low)	Naphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene	J- detects UJ non-detects	LMR21-WA-1
Internal Standard response criteria exceeded (high)	2-Methylnaphthalene	J- detect	LMR21-WA-1

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

GRO/DRO/ORO Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Technical holding time exceeded (48 hr. Method 5035B)	GRO	UJ non-detects	LMR21-SBD LMR21-WA-2 LMR21-WA-3 LMR21-WB-1 LMR21-WC-1 LMR21-WC-2
Surrogate %R criteria exceeded (low)	DRO ORO	J detects UJ non-detects	All samples
Surrogate RT criteria exceeded	DRO ORO	J detects UJ non-detects	All samples

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
MS and MSD %R criteria exceeded (high)	TOC	J+ detects	All samples

Ammonia-Nitrogen (NH3) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Total Kjeldahl Nitrogen (TKN) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

Total Phosphorus Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
None			

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

The laboratory did not meet the 28 day technical holding time criteria for mercury water samples. The technical holding time was exceeded by seven days. Non-detected results are qualified "UJ" in the following samples:

LMR21-SBD	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WC-1	LMR21-WC-2

2. INITIAL CALIBRATION

No problems were found with the data provided.

3. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2A and B report forms. Results were calculated and evaluated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 09/18/2021 mercury run was not reported in this data package. A Percent Recovery (%R) of 90.0% was reported in the raw data. No qualification was necessary as the LLICV %R was within criteria.

4. BLANKS – INITIAL AND CONTINUING

Aluminum was detected in one CCB between the MDL and RL for the analytical sequence analyzed on 10/15/2021. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

5. PREPARATION BLANK

Aluminum was detected in the Method Blank between the MDL and RL. All associated aluminum results were detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

6. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

Aluminum, arsenic, cadmium, chromium, iron, lead, manganese, silver, thallium and vanadium MS recoveries exceeded the various DOD QSM5.3 %R acceptance limits for QC sample LMR21-SBD. The post-digestion spike %Rs for all analytes were within criteria; therefore, the aluminum and iron (MS %Rs out high) results for the following associated samples are qualified "J".

LMR21-SBD	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WC-1	LMR21-WC-2

The arsenic, cadmium, chromium, lead, manganese, silver, thallium and vanadium (MS %R out low) results for the following associated samples are qualified "J" or "UJ".

LMR21-SBD	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WC-1	LMR21-WC-2

7. POST DIGESTION SPIKE

No problems were found.

8. LABORATORY DUPLICATE

No problems were found.

9. FIELD DUPLICATE COMPARISON

A field duplicate was not analyzed with this SDG.

10. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

11. LABORATORY CONTROL SAMPLE

No problems were found.

12. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

13. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 5 mL initial volume to calculate mercury results reported on the report forms in the data package. The Analysis Prep Sheet in the data package and form 1's indicate an initial volume of 5 mL and final volume of 25 mL. The digestion log in the data and EDD file all indicate that a final volume of 5 mL and initial volume of 5 mL was used. The results on the "analytical results" sheet at the beginning of the data package and in the EDD file are all reported using 5 mL initial and 5 mL final.

REVIEWED BY: Aimee Perez DATE: 04/21/2022

CYANIDE

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

Cyanide was detected in Method Blank MB 3398490at a concentration between the Reporting Limit (LOD) and the Detection Limit (DL). The results in the samples were also reported at a concentration between the LOD and the DL. The Cyanide results in the following samples were elevated to the LOD and qualified "U".

LMR21-SBD	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WC-1	LMR21-WC-2

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: <u>Julie Hall</u> **DATE:** <u>03/17/2022</u>

AROCLOR

1. HOLDING TIME AND PRESERVATION

Four of the six samples scheduled for Aroclor analysis on the Chains of Custody (COCs) were not analyzed. The laboratory stated "Due to a laboratory error the Elutriate sample formed and provided for PCB (Arochlor) analysis was discarded prior to analysis. There was no remaining unpreserved volume from another container to perform this testing. The affected samples were: LMR21-WA-3, LMR21-WB-1, LMR21-WC-1, LMR21-WC-2." Note that three of these samples were subsequently scheduled for analysis on the COC for SDG AEG-222.

The coolers containing the two Aroclor samples that were analyzed were received at the laboratory on ice but at temperatures of 8˚C and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

The calibration factor percent difference (%D) for Aroclor-1016 (peak #2) on one GC column in one continuing calibration verification (CCV) exceeded the %D criteria of ±20%. The %D for Aroclor-1016 peak #2 in CCV 1016_1260 analyzed on 09/29/2021 is 28.5% on one GC column. Note that the QAPP requires that analytes in the CCV analyses should be "within ±20% of their true value" and is not specific whether this requirement is per peak or averaged. Note that SW-846 8082A allows for average %D. Note that the NFG suggests qualification of non-detected results even where the CCV %D is high. However, since the sample result for Aroclor-1016 is non-detect; the non-detected result is confirmed on a second GC column; and the method allows for average %D, no qualification of sample results is necessary.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/11/2022

SEMIVOLATILE-SIM

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which slightly exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

The percent recovery (%R) for DMC 2-Methylnaphthalene-d10 exceeded the laboratory-established lower %R criteria of 29% in one samples in this SDG. Note that the QAPP requires that %R criteria of 50-150% be used until in-house limits are established. The detected associated analytes in the following sample are qualified "J-" and the non-detected associated analytes are qualified "UJ".

LMR21-WA-1: Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

Internal standard Naphthalene-d8 exceeded the 100% upper limit of the criteria window in one sample in this SDG. The associated detected analyte, 2-Methylnaphthalene, is qualified "J-"

and the other associated non-detected analyte, Naphthalene, is not qualified in the following sample.

LMR21-WA-1: 2-Methylnaphthalene

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

REVIEWED BY: Rebecca Garry DATE: 03/11/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/10/2022

GASOLINE RANGE ORGANICS (GRO)/ DIESEL RANGE ORGANICS (DRO)/OIL RANGE ORGANICS (ORO)

1. HOLDING TIME AND PRESERVATION

Note that for this SDG the samples scheduled for GRO analysis on the Chains of Custody (COCs) differed from the samples scheduled for DRO/ORO analysis. Eight (8) samples were scheduled for DRO/ORO analysis and six (6) were scheduled for GRO analysis. The two samples were subsequently scheduled for GRO analysis on the COC for SDG AEG-206.

The laboratory did not meet the 48 hour QAPP-required holding time criteria for the GRO aqueous samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by five days. For this SDG, there was no indication that method SW846 5035 was used for the samples; however, the QAPP requires that the method be used; no extraction log was submitted with the GRO data indicating an alternative prep method; and the volatiles reporting forms were used for the samples. The non-detected results are qualified “UJ” for the following samples. No GRO detects were observed.

LMR21-SBD	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WC-1	LMR21-WC-2

The coolers were received at the laboratory at temperatures of 8˚C, 9 ˚C, and 10˚C which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found with the percent recovery (%R) of surrogate a,a,a-Trifluorotoluene (TFT) in the GRO samples in this SDG.

The percent recovery (%R) for DRO/ORO surrogate o-Terphenyl (OTP) exceeded the QAPP-required lower %R criteria of 45% in all samples in this SDG. In addition, the Method Blank, LCS, and LCSD exceeded the lower %R criteria. The %R values ranged from 30.1% to 52.3% in the samples and QC samples. The detected DRO and ORO results are qualified "J-" and the non-detected results are qualified "UJ" in the following samples:

LMR21-SBD	LMR21-WA-1	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WB-2	LMR21-WC-1	LMR21-WC-2

Retention times (RT) for DRO/ORO surrogate o-Terphenyl (OTP) fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.05 minutes. The mean surrogate RT determined during the initial calibration was 9.14 whereas the surrogate RT for the opening CCV was 9.70. The surrogate RTs in the samples were 9.71 and 9.72 minutes. The RT remained stable from the opening CCV (9.70) to the closing CCV (9.72); however, since the surrogate percent recovery (%R) exceeded criteria in all analyses associated with the samples in this SDG, qualification of sample results is necessary. The detected DRO and ORO results are qualified "J-" and the non-detected results are qualified "UJ" in the following samples:

LMR21-SBD	LMR21-WA-1	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WB-2	LMR21-WC-1	LMR21-WC-2

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

9. INTERNAL STANDARDS

Internal Standard 1-Chloro-4-fluorobenzene was added to GRO standards and samples. No problems were found.

Not applicable to DRO/ORO.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/05/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) for aqueous QC sample LMR21-WC-1 was analyzed with this SDG. The MS and MSD percent recovery (%R) exceeded the laboratory-established upper criteria of 115%. The results in the following samples are qualified "J+". Note that it appears that no MS/MSD %R criteria for aqueous TOC samples was provided in the QAPP.

LMR21-SBD	LMR21-WA-2	LMR21-WA-3
LMR21-WB-1	LMR21-WC-1	LMR21-WC-2

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/04/2022

AMMONIA NITROGEN (NH3)

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/24/2022

TOTAL KJELDAHL NITROGEN (TKN)

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/24/2022

TOTAL PHOSPHORUS

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at temperatures of 8˚C, 9˚C, and 10˚C, which exceeded the QAPP requirement of ≤6˚C. Professional judgment was used to assess that qualification of sample results is not applied unless the temperature is >10℃.

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall **DATE: 03/24/2022**

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: AEG-206
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-206

Number and Type of Samples: Two (2) Water Sample for Metals (SW-846 6010C) and Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Oil and Grease (HEM) (EPA 1664B), GRO (SW-846 8015D), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), and Total Phosphorus (EPA 365.1)

EPA Sample Numbers: LMR21-WA-1 LMR21-WB-2

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Two (2) water samples for SDG AEG-206 were collected by USACE, Buffalo District from the Lower Maumee River project locations on September 20, 2021, and shipped to ALS Environmental Laboratory in Middletown, Pennsylvania for Metals (SW-846 6010C), Mercury (SW-846 7470A), Cyanide (SW-846 9012B), Aroclor (SW-846 8082A), Oil and Grease (HEM)(EPA 1664B), GRO (SW-846 8015D), Total Organic Carbon (TOC) (SW-846 9060A), Ammonia-Nitrogen (NH3)(ASTM D6919-09), Total Kjeldahl Nitrogen (TKN) (SM4500NH3G-2011), and Total Phosphorus (EPA 365.1) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; inorganic parameters were validated in accordance with the National Functional Guidelines for Inorganic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Metals and Mercury Fractions

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	Mercury	UJ non-detects	LMR21-WA-1 LMR21-WB-2

Cyanide Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	Cyanide	UJ non-detects	LMR21-WA-1 LMR21-WB-2

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	All Aroclors	UJ non-detects	LMR21-WA-1 LMR21-WB-2
Surrogate %R criteria exceeded (low)	All Aroclors	UJ non-detects	LMR21-WA-1

Oil and Grease (HEM) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	HEM	UJ non-detects	LMR21-WA-1 LMR21-WB-2

GRO Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	GRO	UJ non-detects	LMR21-WA-1 LMR21-WB-2
Technical holding time exceeded (48 hr. Method 5035B)	GRO	UJ non-detects	LMR21-WA-1 LMR21-WB-2

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-206
Laboratory: ALS Environmental

Total Organic Carbon (TOC) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	TOC	J detects	LMR21-WA-1 LMR21-WB-2
MS/MSD %R criteria exceeded (high)	TOC	J+ detects	LMR21-WA-1 LMR21-WB-2

Ammonia-Nitrogen (NH3) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	NH3	J detects	LMR21-WA-1 LMR21-WB-2

Total Kjeldahl Nitrogen (TKN) Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	TKN	J detects	LMR21-WA-1 LMR21-WB-2

Total Phosphorus Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Sample not properly preserved (temperature)	Phosphorus	J detect UJ non-detect	LMR21-WA-1 LMR21-WB-2

METALS and MERCURY

1. HOLDING TIME AND PRESERVATION

The coolers were received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. Because the temperature is >10℃, the mercury results in the following samples are qualified "UJ".

LMR21-WA-1 LMR21-WB-2

1. INITIAL CALIBRATION

No problems were found with the data provided.

2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

All initial and continuing calibration verification standard recoveries were within criteria. The ICP CRDL standard recoveries were within criteria. Note that Potassium was not reported on the Form 2A report forms. Results were calculated and evaluated from the raw data.

The Low Level CCV (LLCCV) or (LLICV) analyzed in the 10/14/2021 mercury run was not reported in this data package. A Percent Recovery (%R) of 103.5% was reported in the raw data. No qualification was necessary as the LLICV %R was within criteria.

3. BLANKS – INITIAL AND CONTINUING

Aluminum, potassium, and selenium were detected in the ICB and/or CCBs between the MDL and RL for the analytical sequences analyzed on 10/06/2021 and 10/15/2021. All associated aluminum and potassium results were detected at levels much greater than 10x the levels detected in the calibration blanks. The associated selenium results is a non-detect. No qualification is necessary.

4. PREPARATION BLANK

Aluminum was detected in the Method Blank between the MDL and RL. The associated aluminum result was detected at levels much greater than 10x the levels detected in the calibration blanks. No qualification is necessary.

5. PRE-DIGESTION/DISTILLATION MATRIX SPIKE

A matrix spike was not analyzed with this SDG.

6. POST DIGESTION SPIKE

A post-digestion spike was not analyzed with this SDG.

7. LABORATORY DUPLICATE

A laboratory duplicate was not analyzed with this SDG.

8. FIELD DUPLICATE COMPARISON

A field duplicate was not analyzed with this SDG.

9. ICP INTERFERENCE CHECK SAMPLE

No problems were found.

10. LABORATORY CONTROL SAMPLE

No problems were found.

11. SERIAL DILUTION

A serial dilution was not analyzed with this SDG.

12. ADDITIONAL INFORMATION

For the mercury analysis; it was determined that the laboratory used 5 mL final volume and 5 mL initial volume to calculate mercury results reported on the report forms in the data package. The Analysis Prep Sheet in the data package and form 1's indicate an initial volume of 5 mL and final volume of 25 mL. The digestion log in the data and EDD file all indicate that a final volume of 5 mL and initial volume of 5 mL was used. The results on the "analytical results" sheet at the beginning of the data package and in the EDD file are all reported using 5 mL initial and 5 mL final.

REVIEWED BY: Aimee Perez DATE: 04/21/2022

CYANIDE

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The non-detected results for cyanide in the following samples are qualified "UJ".

LMR21-WA-1   LMR21-WB-2

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/17/2022

AROCLOR

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The non-detected results for all Aroclors in the following samples are qualified "UJ".

LMR21-WA-1   LMR21-WB-2

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

The percent recovery (%R) for surrogate TCX exceeded the laboratory-established lower %R criteria of 30% with a 29.7 %R in one sample in this SDG. Note that the QAPP does not provide surrogate %R criteria for aqueous Aroclor samples. No Aroclors were detected in the sample. The non-detected Aroclors in the following sample are qualified "UJ".

LMR21-WA-1

Retention times (RT) for surrogates TCX and DCB fluctuated from the RT windows established during the initial calibration, exceeding the RT criteria of ±0.10 minutes. The RT fluctuation occurred before the analysis of the opening CCV for the samples in this SDG and remained stable through the analytical sequence. No qualification of sample results is necessary.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/14/2022

HEXANE EXTRACTABLE MATERIAL (HEM)

9. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The detected results for HEM in the following samples are qualified "J".

LMR21-WA-1 LMR21-WB-2

10. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

Not applicable.

11. BLANKS

No problems were found.

12. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

13. LABORATORY CONTROL SAMPLE

No problems were found.

14. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

15. SYSTEM PERFORMANCE

No problems were found.

16. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/10/2022

GASOLINE RANGE ORGANICS (GRO)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The non-detected results for GRO in the following samples are qualified "UJ".

LMR21-WA-1 LMR21-WB-2

The laboratory did not meet the 48 hour QAPP-required holding time criteria for the GRO aqueous samples in this SDG. The QAPP specifies that the GRO samples use the 5035B preparation method. Note that this purge-and-trap extraction method is commonly used for volatile samples and requires a 48 hour holding time as specified in the QAPP. The holding time was exceeded by five days. For this SDG, there was no indication that method SW846 5035 was used for the samples; however, the QAPP requires that the method be used; no extraction log was submitted with the GRO data indicating an alternative prep method; and the volatiles reporting forms were used for the samples. The non-detected results are qualified “UJ” for the following samples. No GRO detects were observed.

LMR21-WA-1 LMR21-WB-2

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

9. INTERNAL STANDARDS

No problems were found.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 04/05/2022

TOTAL ORGANIC CARBON (TOC)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The detected results for TOC in the following samples are qualified "J".

LMR21-WA-1 LMR21-WB-2

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) for aqueous QC sample LMR21-WA-1 was analyzed with this SDG. The MS and MSD percent recovery (%R) exceeded the laboratory-established upper criteria of 115%. The results in the following samples are qualified "J+". Note that it appears that no MS/MSD %R criteria for aqueous TOC samples was provided in the QAPP.

LMR21-WA-1 LMR21-WB-2

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/04/2022

AMMONIA NITROGEN (NH3)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The detected results for NH3 in the following samples are qualified "J".

LMR21-WA-1 LMR21-WB-2

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/04/2022

TOTAL KJELDAHL NITROGEN (TKN)

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The detected results for TKN in the following samples are qualified "J".

LMR21-WA-1 LMR21-WB-2

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/04/2022

TOTAL PHOSPHORUS

1. HOLDING TIME AND PRESERVATION

The cooler was received at the laboratory at a temperature of 13˚C, which exceeded the QAPP requirement of ≤6˚C. The detected result for Phosphorus is qualified "J" and the non-detected result is qualified "UJ".

LMR21-WA-1 "J"   LMR21-WB-2 "UJ"

2. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

3. BLANKS

No problems were found.

4. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

5. LABORATORY CONTROL SAMPLE

No problems were found.

6. FIELD BLANK AND FIELD DUPLICATES

A Field Duplicate was not analyzed with this SDG.

7. SYSTEM PERFORMANCE

No problems were found.

8. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Julie Hall DATE: 03/04/2022

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-206
Laboratory: ALS Environmental

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 19, 2022

SUBJECT: Review of Data for SDG Number: AEG-222
Received for Review: 01/28/2022

LABORATORY: ALS Environmental, Middletown, Pennsylvania

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: AEG-222

Number and Type of Samples: Three (3) Water Samples for Aroclor (SW-846 8082A)

EPA Sample Numbers: LMR21-WA3 LMR21-WB1 LMR21-WC1

Case Number: NA
Site Name: Lower Maumee River

SDG Number: AEG-222
Laboratory: ALS Environmental

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Three (3) water samples for SDG AEG-222 were collected by USACE, Buffalo District from the Lower Maumee River project locations on November 3, 2021, and shipped to the ALS Environmental laboratory in Middletown, Pennsylvania for Aroclor (SW-846 8082A) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

Aroclor Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Surrogate %R criteria exceeded (low)	All Aroclors	J- detects UJ non-detects	LMR21-WB1

AROCLOR

1. HOLDING TIME AND PRESERVATION

No problems were found.

2. GC PERFORMANCE

No problems were found.

3. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

The percent recovery (%R) for surrogate DCB exceeded the laboratory-established lower %R criteria of 30% with a 23.2%R in one sample in this SDG. Note that the QAPP does not provide surrogate %R criteria for aqueous Aroclor samples. The detected Aroclors in the following sample are qualified "J-" and the non-detected Aroclors are qualified "UJ".

LMR21-WB1

6. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed.

7. LABORATORY CONTROL SAMPLE

No problems were found.

8. FIELD BLANK AND FIELD DUPLICATES

No Field Duplicate was included in this SDG.

9. INTERNAL STANDARDS

Not applicable.

10. COMPOUND IDENTIFICATION

No problems were found.

11. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

12. SYSTEM PERFORMANCE

No problems were found.

13. ADDITIONAL INFORMATION

No problems were found.

REVIEWED BY: Rebecca Garry DATE: 03/24/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 19, 2022

SUBJECT: Review of Data for SDG Number: DP-21-1009-S21-1066
Received for Review: 12/21/2021

LABORATORY: Battelle, Norwell, Massachusetts

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: DP-21-1009-S21-1066

Number and Type of Samples: Eighteen (18) Sediment Samples for Polycyclic Aromatic Hydrocarbons (PAH) SIM (SW-846 8270D Modified)

EPA Sample Numbers:

LMR21-45S	LMR21-43S	LMR21-37S
LMR21-11S	LMR21-25S	LMR21-19S
LMR21-41S	LMR21-49S	LMR21-17S
LMR21-47S	LMR21-14S	LMR21-35S
LMR21-30S	LMR21-12S	LMR21-15S
LMR21-27S	LMR21-52S	LMR21-39S

Case Number: NA
Site Name: Lower Maumee River

SDG Number: DP-21-1009-S21-1066
Laboratory: Battelle

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Eighteen (18) sediment samples for SDG DP-21-1009-S21-1066 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10-11, 2021, and shipped to the Battelle Laboratory in Norwell, Massachusetts for Polycyclic Aromatic Hydrocarbons (PAH) SIM (SW-846 8270D Modified) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

PAH SIM Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Extraction holding time exceeded for samples not properly preserved	All PAH SIM analytes	J detects	All samples

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) SIM

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day QAPP required extraction holding time criteria for the extraction of all sediment samples in this SDG. The extraction holding time was exceeded by 20 and 24 days. In addition, the sample cooler was received at the laboratory at a temperature of 18.8℃. Detected analytes in the following samples are qualified "J". No non-detects were observed.

LMR21-45S	LMR21-43S	LMR21-37S
LMR21-11S	LMR21-25S	LMR21-19S
LMR21-41S	LMR21-49S	LMR21-17S
LMR21-47S	LMR21-14S	LMR21-35S
LMR21-30S	LMR21-12S	LMR21-15S
LMR21-27S	LMR21-52S	LMR21-39S

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No problems were found.

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

Since no separate calibration is performed for the PAH alkyl homologues, the laboratory reports the concentration of each homologue group as an estimated concentration; therefore, the detected PAH alkyl homologues in all samples are qualified "J". Note that there were no non-detected PAH alkyl homologues in the samples.

<u>All Samples</u>
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
C1-Fluoranthenes/pyrene
C2-Fluoranthenes/pyrene
C3-Fluoranthenes/pyrene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes

REVIEWED BY: Rebecca Garry DATE: 03/28/2022

Case Number: NA
Site Name: Lower Maumee River

SDG Number: DP-21-1009-S21-1066
Laboratory: Battelle

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 19, 2022

SUBJECT: Review of Data for SDG Number: DP-21-1209-S21-1067
Received for Review: 12/21/2021

LABORATORY: Battelle, Norwell, Massachusetts

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: DP-21-1209-S21-1067

Number and Type of Samples: Ten (10) Sediment Samples for Polycyclic Aromatic Hydrocarbons (PAH) SIM (SW-846 8270D Modified)

EPA Sample Numbers:

LMR21-53S	LMR21-55S	LMR21-57S
LMR21-59S	LMR21-61S	LMR21-62S
LMR21-54S	LMR21-66S	LMR21-68S
LMR21-69S		

Case Number: NA
Site Name: Lower Maumee River

SDG Number: DP-21-1209-S21-1067
Laboratory: Battelle

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Ten (10) sediment samples for SDG DP-21-1209-S21-1067 were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 12, 2021, and shipped to the Battelle Laboratory in Norwell, Massachusetts for Polycyclic Aromatic Hydrocarbons (PAH) SIM (SW-846 8270D Modified) analysis.

The organic fractions were validated in accordance with the National Functional Guidelines for Organic Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

PAH SIM Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Extraction holding time exceeded for samples not properly preserved	All PAH SIM analytes	J detects	All samples
MS and/or MSD %R criteria exceeded (high)	Benzo(b)fluoranthene Benzo(g,h,i)perylene Fluoranthene Perylene	J detects	LMR21-55S
No Calibration for PAH Homologues	Detected PAH Alkyl Homologues	J detects	All samples

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) SIM

1. HOLDING TIME AND PRESERVATION

The laboratory did not meet the 14 day QAPP required extraction holding time criteria for the extraction of all sediment samples in this SDG. The extraction holding time was exceeded by 20 and 24 days. In addition, the sample cooler was received at the laboratory at a temperature of 18.8℃. Detected analytes in the following samples are qualified “J”. No non-detects were observed.

LMR21-53S	LMR21-55S	LMR21-57S
LMR21-59S	LMR21-61S	LMR21-62S
LMR21-54S	LMR21-66S	LMR21-68S
LMR21-69S		

2. GC/MS TUNING AND INSTRUMENT PERFORMANCE CHECK

No problems were found.

3. INITIAL CALIBRATION

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. BLANKS

No problems were found.

6. DEUTERATED MONITORING COMPOUND RECOVERY

No problems were found.

7. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

The MS and/or MSD percent recoveries (%Rs) for four analytes exceeded the upper %R criteria of 120% specified in the QAPP. The detected analytes in the following parent sample are qualified "J".

LMR21-55S: Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Fluoranthene, Perylene

8. LABORATORY CONTROL SAMPLE

No problems were found.

9. FIELD BLANK AND FIELD DUPLICATES

No field duplicates were included in this SDG.

10. INTERNAL STANDARDS

No problems were found.

11. COMPOUND IDENTIFICATION

No problems were found.

12. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

13. SYSTEM PERFORMANCE

No problems were found.

14. ADDITIONAL INFORMATION

Since no separate calibration is performed for the PAH alkyl homologues, the laboratory reports the concentration of each homologue group as an estimated concentration; therefore, the detected PAH alkyl homologues in all samples are qualified "J". Note that there were no non-detected PAH alkyl homologues in the samples.

<u>All Samples</u>
C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes
C1-Fluorenes
C2-Fluorenes
C3-Fluorenes
C1-Phenanthrenes/Anthracenes
C2-Phenanthrenes/Anthracenes
C3-Phenanthrenes/Anthracenes
C4-Phenanthrenes/Anthracenes
C1-Fluoranthenes/pyrene
C2-Fluoranthenes/pyrene
C3-Fluoranthenes/pyrene
C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes

REVIEWED BY: Rebecca Garry DATE: 03/28/2022

Case Number: NA
Site Name: Lower Maumee River

SDG Number: DP-21-1209-S21-1067
Laboratory: Battelle

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26, 2022
SUBJECT:	Review of Data for SDG Number: L2628741 (1-14) Received for Review: 12/21/2021
LABORATORY:	ALS Life Sciences, Burlington, Ontario, Canada
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	L2628741 (1-14)
Number and Type of Samples:	Fourteen (14) Sediment Samples for PCB Congeners (EPA 1668C)

EPA Sample Numbers:

LMR-21-11S	LMR-21-12S	LMR-21-14S
LMR-21-15S	LMR-21-17S	LMR-21-19S
LMR-21-25S	LMR-21-27S	LMR-21-30S
LMR-21-35S	LMR-21-37S	LMR-21-39S
LMR-21-41S	LMR-21-43S	

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2628741 (1-14)
Laboratory: ALS Life Sciences

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fourteen (14) sediment samples for SDG L2628741 (1-14) were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10, 2021, and shipped to ALS Life Sciences Laboratory in Burlington, Ontario, Canada for PCB Congeners (EPA 1668C) analysis.

The PCB Congeners were validated in accordance with the National Functional Guidelines for High Resolution Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

PCB Congener Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
LCS %R Criteria exceeded (low)	PCB-105, PCB-123	J- detects UJ non-detects	All samples
Labeled Compound failed Ion Abundance Ratio (IAR) Criteria in sample	PCB-152, PCB-150, PCB-136, PCB-145, PCB-148, PCB-135/151, PCB-154, PCB-144, PCB-147/149, PCB-134/143, PCB-139/140, PCB-131, PCB-142, PCB-132, PCB-133, PCB-165, PCB-146 PCB-161, PCB-153/168, PCB-141, PCB-130, PCB-137/164, PCB-129/138/163, PCB-160, PCB-158, PCB-128/166, PCB-159, PCB-162, PCB-169	J detects UJ non-detects	LMR-21-15S LMR-21-17S
Labeled Compound failed Ion Abundance Ratio (IAR) Criteria in sample	PCB-103, PCB-094, PCB-095, PCB-093/098/100/102, PCB-088/091, PCB-084, PCB-089, PCB-121, PCB-092, PCB-090/101/113, PCB-083/099, PCB-112, PCB-086/087/097/109/119/125, PCB-085/110/115/116/117, PCB-082, PCB-111, PCB-120, PCB-108/124, PCB-107, PCB-106, PCB-122, PCB-105, PCB-127	J detects UJ non-detects	LMR-21-19S
Labeled Compound failed Ion Abundance Ratio (IAR) Criteria in sample	PCB-2, PCB-3	J detects	LMR-21-39S
Labeled Compound failed Ion Abundance Ratio (IAR) Criteria in sample	PCB-050/053, PCB-045/051, PCB-046, PCB-052 PCB-073, PCB-043, PCB-049/069, PCB-048, PCB-044/047/065, PCB-059/062/075, PCB-042, PCB-040/041/071, PCB-064, PCB-072, PCB-068, PCB-057, PCB-058, PCB-067, PCB-063, PCB-061/070/074/076, PCB-066, PCB-055, PCB-056, PCB-060, PCB-080, PCB-079, PCB-078, PCB-081	J detects UJ non-detects	LMR-21-41S
Laboratory Duplicate RPD criteria exceeded	Numerous PCB Congeners Refer to report table	J detects	LMR-21-11S
Sample result failed Ion abundance Ratio (IAR) criteria (EMPC)	Numerous PCB Congeners Refer to report section	J detects	All samples
Analyte exceeded calibration range	PCB-086/087/097/109/119/125 PCB-085/110/115/116/117	J detects	LMR-21-19S

CHLORINATED BIPHENYL CONGENER (CBC)

1. DATA COMPLETENESS

No problems were found.

2. HOLDING TIME AND PRESERVATION

No problems were found.

3. INSTRUMENT PERFORMANCE CHECKS

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. ANALYTICAL SEQUENCE

No problems were found.

6. BLANKS – METHOD, RINSATE, FIELD

Two PCB congeners were detected in Method Blank WG3603653-1 at concentrations between the Reporting Limit (RL) and the Estimated Detection Limit (EDL). However, where these analytes were detected in the samples the concentrations were much higher than the MB results. No qualification of sample results is necessary.

7. LABELED COMPOUNDS

Several labeled compounds in five samples were reported with the ion abundance ratios (IARs) outside acceptance criteria. Detected analytes in the associated quantitation groups were qualified "J" and non-detects were qualified "UJ". Note that additional analytes in each of the affected quantitation groups were not qualified where the labeled compound specific to those analytes passed IAR criteria.

LMR-21-15S:
Labeled Compound 13C12-PCB-169: PCB-128 – PCB-154, PCB-158 – PCB-166, PCB-168, PCB-169

LMR-21-17S:
Labeled Compound 13C12-PCB-169: PCB-128 – PCB-154, PCB-158 – PCB-166, PCB-168, PCB-169

LMR-21-19S:
Labeled Compound 13C12-PCB-105: PCB-082 – PCB-103, PCB-105 – PCB-113, PCB-115 – PCB-117, PCB-119 – PCB-122, PCB-124, PCB-125, PCB-127

LMR-21-39S:
Labeled Compound 13C12-PCB-003: PCB-002, PCB-003

LMR-21-41S:
Labeled Compound 13C12-PCB-081: PCB-040 – PCB-053, PCB-055 – PCB-076, PCB-078 – PCB-081

Note: For specific PCB Congeners and co-eluted PCB Congeners refer to the Data Qualification Summary Tables.

8. INTERNAL STANDARD AREA RESPONSE

No problems were found.

9. ISOMER SPECIFICITY AND TEF

No problems were found.

10. LABORATORY CONTROL SAMPLE

The percent recoveries (%Rs) for PCB-105 and PCB-123 in LCS WG3603653-2 exceeded the analyte-specific lower %R criteria specified in the QAPP. Note that PCB-167 exceeded the laboratory-reported %R criteria; however, the analyte did not exceed the analyte-specific lower %R criteria specified in the QAPP. The PCB-105 and PCB-123 results are qualified "J-", and non-detects for the analytes are qualified "UJ" in the following samples:

LMR-21-11S	LMR-21-12S	LMR-21-14S
LMR-21-15S	LMR-21-17S	LMR-21-19S
LMR-21-25S	LMR-21-27S	LMR-21-30S
LMR-21-35S	LMR-21-37S	LMR-21-39S
LMR-21-41S	LMR-21-43S	

11. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed with this SDG.

12. LABORATORY DUPLICATE

Sample LMR-21-11S DUP was identified as the laboratory duplicate of sample LMR-21-11S. Several PCB congeners exceeded the 20% RPD criteria specified in the QAPP. Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the RL (LQL) and the RPD is greater than the 20% RPD criteria required by the QAPP. The following analytes exceeded the 20% RPD criteria and are qualified “J” in the sample:

Analyte	LMR-21-11S Result (pg/g)	LMR-21-11S DUP Result (pg/g)	RPD (%)
PCB-003	60.6	76.8	23.58%
PCB-012/013	285	354	21.60%
PCB-015	986	1240	22.82%

Analyte	LMR-21-11S Result (pg/g)	LMR-21-11S DUP Result (pg/g)	RPD (%)
PCB-034	30.3	38.1	22.81%
PCB-026/029	780	961	20.79%
PCB-052	3500	4350	21.66%
PCB-049/069	2470	3060	21.34%
PCB-072	37.2	52.8	34.67%
PCB-068	26.3	36.1	31.41%
PCB-057	20.8	30.2	36.86%
PCB-067	135	179	28.03%
PCB-063	159	222	33.07%
PCB-061/070/074/076	5640	7440	27.52%
PCB-066	3070	3990	26.06%
PCB-055	60	86.8	36.51%
PCB-056	1640	2040	21.74%
PCB-060	691	873	23.27%
PCB-079	19.6	25.1	24.61%
PCB-077	291	357	20.37%
PCB-103	32.1	40.6	23.38%
PCB-083/099	1580	1960	21.47%
PCB-108/124	78.2	96.5	20.95%
PCB-107	182	230	23.30%
PCB-123	29.1	21	32.34%
PCB-118	1990	2500	22.72%
PCB-122	18	31.8	55.42%
PCB-114	46.5	60.3	25.84%
PCB-105	807	1050	39.16%
PCB-135/151	681	895	27.16%
PCB-144	86.8	111	24.47%
PCB-147/149	1760	2250	24.44%
PCB-134/143	87.7	126	35.84%
PCB-139/140	39.3	54.4	32.23%
PCB-133	36	56.2	43.82%
PCB-146	391	517	27.75%
PCB-153/168	1910	2500	26.76%
PCB-141	398	513	25.25%
PCB-130	144	184	24.39%
PCB-137/164	264	335	23.71%
PCB-129/138/163	2340	2950	23.06%
PCB-158	176	241	31.18%
PCB-167	76.8	97.5	23.75%
PCB-156/157	239	307	24.91%
PCB-176	55.7	71.4	24.70%
PCB-178	101	138	30.96%
PCB-187	781	988	23.40%
PCB-183	322	420	26.42%
PCB-174	518	645	21.84%
PCB-180/193	1110	1490	29.23%
PCB-191	17.6	27	42.15%
PCB-170	371	497	29.03%
PCB-190	73.0	89.3	20.09%
PCB-201	24.8	38.5	43.29%
PCB-200	28	38.2	30.82%
PCB-196	131	173	27.63%

Analyte	LMR-21-11S Result (pg/g)	LMR-21-11S DUP Result (pg/g)	RPD (%)
PCB-203	193	244	23.34%
PCB-195	27.6	43.4	44.51%
PCB-194	235	319	30.32%
PCB-208	94.3	65.6	35.90%
PCB-207	21.6	27.5	24.03%
PCB-209	125	204	48.02%

13. FIELD DUPLICATES

No Field Duplicate was included in this SDG.

14. ADDITIONAL INFORMATION

The laboratory reported numerous sample results with an "R" qualifier, defined as "The ion abundance ratio for the analyte did not meet the control limit. The reported value represents an estimated concentration." As a result, the following results are qualified "J" estimated. Note that several of the sample results were also qualified "J" due to results that are less than the reporting level.

LMR-21-11S: PCB-023, PCB-039, PCB-054, PCB-058, PCB-055, PCB-104, PCB-121, PCB-111, PCB-122, PCB-152, PCB-133, PCB-165, PCB-169, PCB-182, PCB-204, PCB-197, PCB-200

LMR-21-12S: PCB-023, PCB-079, PCB-081, PCB-127, PCB-150, PCB-165, PCB-169, PCB-188, PCB-184, PCB-182, PCB-197, PCB-200

LMR-21-14S: PCB-005, PCB-023, PCB-121, PCB-112, PCB-123, PCB-127, PCB-152, PCB-162, PCB-188, PCB-169, PCB-182, PCB-191

LMR-21-15S: PCB-005, PCB-014, PCB-038, PCB-121, PCB-127, PCB-155, PCB-148, PCB-169, PCB-186

LMR-21-17S: PCB-121, PCB-111, PCB-127, PCB-126, PCB-155, PCB-142, PCB-169, PCB-188

LMR-21-19S: PCB-005, PCB-014, PCB-111, PCB-126, PCB-155, PCB-169, PCB-184, PCB-181

LMR-21-25S: PCB-024, PCB-023, PCB-104, PCB-112, PCB-111, PCB-127, PCB-126, PCB-145, PCB-131, PCB-165, PCB-169, PCB-188, PCB-184, PCB-182, PCB-197, PCB-205

LMR-21-27S: PCB-005, PCB-023, PCB-036, PCB-058, PCB-104, PCB-112, PCB-127, PCB-148, PCB-169, PCB-188, PCB-184, PCB-175, PCB-182, PCB-181

LMR-21-30S: PCB-038, PCB-058, PCB-096, PCB-094, PCB-122, PCB-127, PCB-126, PCB-155, PCB-152, PCB-150, PCB-165, PCB-159, PCB-162, PCB-169, PCB-184, PCB-185, PCB-191, PCB-200

LMR-21-35S: PCB-039, PCB-058, PCB-104, PCB-108/124, PCB-123, PCB-122, PCB-127, PCB-126, PCB-152, PCB-150, PCB-148, PCB-188, PCB-184, PCB-182, PCB-185

LMR-21-37S: PCB-080, PCB-078, PCB-104, PCB-111, PCB-126, PCB-152, PCB-148, PCB-131, PCB-165, PCB-184, PCB-185, PCB-181, PCB-191

LMR-21-39S: PCB-005, PCB-027, PCB-036, PCB-038, PCB-058, PCB-094, PCB-127, PCB-152, PCB-145, PCB-133, PCB-165, PCB-169, PCB-188, PCB-175, PCB-181, PCB-191, PCB-207

LMR-21-41S: PCB-005, PCB-027, PCB-080, PCB-078, PCB-104, PCB-121, PCB-111, PCB-127, PCB-126, PCB-152, PCB-150, PCB-148, PCB-169, PCB-207

LMR-21-43S: PCB-005, PCB-038, PCB-078, PCB-104, PCB-111, PCB-127, PCB-162, PCB-169

Several co-eluted analyte results in one sample dilution in this SDG exceeded the calibration range. The detected analytes in the following sample are qualified "J".

LMR-21-19S: PCB-86/87/97/109/119/125, PCB-85/110/115/116/117

REVIEWED BY: Timothy Vonnahme/ Rebecca Garry DATE: 03/24/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: L2628741 (15-28)
Received for Review: 12/21/2021

LABORATORY: ALS Life Sciences, Burlington, Ontario, Canada

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: L2628741 (15-28)

Number and Type of Samples: Fourteen (14) Sediment Samples for PCB Congeners (EPA 1668C)

EPA Sample Numbers:

LMR-21-49S	LMR-21-45S	LMR-21-47S
LMR-21-52S	LMR-21-53S	LMR-21-55S
LMR-21-57S	LMR-21-59S	LMR-21-61S
LMR-21-62S	LMR-21-64S	LMR-21-68S
LMR-21-69S	LMR-21-66S	

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2628741 (15-28)
Laboratory: ALS Life Sciences

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fourteen (14) sediment samples for SDG L2628741 (15-28) were collected by USACE, Buffalo District from the Lower Maumee River project locations on August 10 and 12, 2021, and shipped to ALS Life Sciences Laboratory in Burlington, Ontario, Canada for PCB Congeners (EPA 1668C) analysis.

The PCB Congeners were validated in accordance with the National Functional Guidelines for High Resolution Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction.

DATA QUALIFICATION SUMMARY TABLES

PCB Congener Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected above RL in method blank	PCB-011	J+ detects	LMR-21-49S LMR-21-45S
Labeled Compound failed Ion Abundance Ratio (IAR) Criteria in sample	PCB-001 PCB-002	J detects	LMR-21-49S LMR-21-47S LMR-21-57S LMR-21-59S LMR-21-61S
Labeled Compound %R exceeded criteria (low)	PCB-001 PCB-002	J- detects	LMR-21-52S
Labeled Compound %R exceeded criteria (low)	PCB-209	J- detects	LMR-21-47S
Laboratory Duplicate RPD criteria exceeded	Numerous PCB Congeners Refer to report table	J detects	LMR-21-49S
Sample result failed Ion abundance Ratio (IAR) criteria (EMPC)	Numerous PCB Congeners Refer to report section	J detects	All samples
Analyte exceeded calibration range	PCB-061/070/074/076	J detect	LMR-21-61S

CHLORINATED BIPHENYL CONGENER (CBC)

1. DATA COMPLETENESS

No problems were found.

2. HOLDING TIME AND PRESERVATION

No problems were found.

3. INSTRUMENT PERFORMANCE CHECKS

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. ANALYTICAL SEQUENCE

No problems were found.

6. BLANKS – METHOD, RINSATE, FIELD

Several PCB congeners were detected in Method Blank WG3603656-1 at concentrations between the Reporting Limit (RL) and the Estimated Detection Limit (EDL) and also above the RL. The concentrations in the samples were much higher than the MB results with the exception of PCB-011 in two samples. Detected PCB-011 results in the following samples are qualified "J+".

LMR-21-49S LMR-21-45S

7. LABELED COMPOUNDS

Labeled compound 13C12-PCB-001 in five samples was reported with the ion abundance ratio (IAR) exceeding acceptance criteria. Detected analytes in the associated quantitation group were qualified "J". Note that one additional analyte, PCB-003, in the quantitation group associated with 13C12-PCB-001 was not qualified since the labeled compound specific to that analyte passed IAR criteria.

LMR-21-49S, LMR-21-47S, LMR-21-57S, LMR-21-59S, and LMR-21-59S
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

Labeled compounds 13C12-PCB-001 and 13C12-PCB-209 were reported with percent recoveries (%Rs) which exceeded the lower criteria of 5% required by Method 1668C. Detected analytes in the associated quantitation groups were qualified "J" in the two samples. Note that one additional analyte, PCB-003, in the quantitation group associated with 13C12-PCB-001 was not qualified since the labeled compound specific to that analyte passed %R criteria.

LMR-21-52S
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR-21-47S
Labeled Compound 13C12-PCB-209: PCB-209

8. INTERNAL STANDARD AREA RESPONSE

No problems were found.

9. ISOMER SPECIFICITY AND TEF

No problems were found.

10. LABORATORY CONTROL SAMPLE

No problems were found.

11. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed with this SDG.

12. LABORATORY DUPLICATE

Sample LMR-21-49S DUP was identified as the laboratory duplicate of sample LMR-21-49S. Several PCB congeners exceeded the 20% RPD criteria specified in the QAPP. Note that qualifiers are not applied to the original and FD samples unless both of the sample concentrations are greater than 5X the RL (LQL) and the RPD is greater than the 20% RPD criteria required by the QAPP. The following analytes exceeded the 20% RPD criteria and are qualified "J" in the sample:

Analyte	LMR-21-49S Result (pg/g)	LMR-21-49S DUP Result (pg/g)	RPD (%)
PCB-002	457	290	44.71%
PCB-003	255	198	25.17%
PCB-004	304	430	34.33%
PCB-007	21.6	29.2	29.92%
PCB-008	386	521	29.77%
PCB-015	483	659	30.82%
PCB-019	159	245	42.57%
PCB-018/030	1030	1530	39.06%
PCB-017	645	922	35.35%
PCB-027	85.5	125	37.53%
PCB-016	352	521	38.72%
PCB-032	224	274	20.08%
PCB-034	18.4	25.0	30.41%
PCB-026/029	447	567	23.67%
PCB-025	252	319	23.47%
PCB-031	1490	2410	47.18%
PCB-020/028	2430	3500	36.09%
PCB-021/033	673	1000	39.09%
PCB-022	536	809	40.59%

Analyte	LMR-21-49S Result (pg/g)	LMR-21-49S DUP Result (pg/g)	RPD (%)
PCB-039	15.1	21.1	33.15%
PCB-037	580	810	33.09%
PCB-050/053	329	424	25.23%
PCB-045/051	419	549	26.86%
PCB-046	134	183	30.91%
PCB-043	91.8	152	49.38%
PCB-049/069	1820	2270	22.00%
PCB-048	486	649	28.72%
PCB-044/047/065	2590	3250	22.60%
PCB-059/062/075	208	288	32.26%
PCB-042	625	903	36.39%
PCB-040/041/071	1280	1730	29.90%
PCB-064	1130	1470	26.15%
PCB-057	13.6	17.8	26.75%
PCB-067	71.5	87.9	20.58%
PCB-063	108	138	24.39%
PCB-061/070/074/076	4350	5820	28.91%
PCB-066	1970	2810	35.15%
PCB-055	40.4	64.4	45.80%
PCB-056	1100	1480	29.46%
PCB-060	382	536	33.55%
PCB-077	212	261	20.72%
PCB-096	17.7	23.0	26.04%
PCB-093/098/100/102	105	139	27.87%
PCB-084	628	817	26.16%
PCB-123	31.7	23.2	30.97%
PCB-122	45.3	58.0	24.59%
PCB-202	163	132	21.02%
PCB-201	71.1	58.1	20.12%
PCB-203	436	347	22.73%
PCB-208	258	195	27.81%
PCB-207	66.5	52.0	24.47%
PCB-206	727	552	27.37%
PCB-209	925	691	28.96%

13. FIELD DUPLICATES

No Field Duplicate was included in this SDG

14. ADDITIONAL INFORMATION

The laboratory reported numerous sample results with an "R" qualifier, defined as "The ion abundance ratio for the analyte did not meet the control limit. The reported value represents an estimated concentration." As a result, the following results are qualified "J" estimated. Note that several of the sample results were also qualified "J" due to results that are less than the reporting level.

LMR-21-49S: PCB-058, PCB-111, PCB-142, PCB-169, PCB-192

LMR-21-45S: PCB-036, PCB-058, PCB-055, PCB-078, PCB-081, PCB-127, PCB-126, PCB-155, PCB-145, PCB-148, PCB-162, PCB-169, PCB-188, PCB-191, PCB-204

LMR-21-47S: PCB-038, PCB-155, PCB-142, PCB-169

LMR-21-52S: PCB-010, PCB-034, PCB-057, PCB-058, PCB-079, PCB-081, PCB-089, PCB-111, PCB-126, PCB-155, PCB-152, PCB-165, PCB-184, PCB-181, PCB-190, PCB-201, PCB-197

LMR-21-53S: PCB-036, PCB-038, PCB-078, PCB-121, PCB-120, PCB-152, PCB-145, PCB-165, PCB-169, PCB-188, PCB-184, PCB-185, PCB-204

LMR-21-55S: PCB-001, PCB-005, PCB-014, PCB-078, PCB-121, PCB-169, PCB-188, PCB-204

LMR-21-57S: PCB-005, PCB-014, PCB-024, PCB-078, PCB-121, PCB-169

LMR-21-59S: PCB-014, PCB-078, PCB-121, PCB-127, PCB-169, PCB-186, PCB-205

LMR-21-61S: PCB-014, PCB-038, PCB-080, PCB-078, PCB-121

LMR-21-62S: PCB-005, PCB-080, PCB-079, PCB-078, PCB-111, PCB-148, PCB-182, PCB-204

LMR-21-64S: PCB-010, PCB-014, PCB-036, PCB-038, PCB-058, PCB-080, PCB-078, PCB-204

LMR-21-68S: PCB-058, PCB-078, PCB-169, PCB-204

LMR-21-69S: PCB-014, PCB-038, PCB-055, PCB-080, PCB-127, PCB-169, PCB-204

LMR-21-66S: PCB0-38, PCB-080, PCB-078

Co-eluted analyte results in one sample in this SDG exceeded the calibration range. The detected analytes in the following sample are qualified "J".

LMR-21-61S: PCB-061/070/074/076

REVIEWED BY: Timothy Vonnahme/Rebecca Garry DATE: 03/24/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26, 2022
SUBJECT:	Review of Data for SDG Number: L2656883 (1-17) Received for Review: 02/17/2022
LABORATORY:	ALS Life Sciences, Burlington, Ontario, Canada
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	L2656883 (1-17)
Number and Type of Samples:	Seventeen (17) Worm Tissue Samples for PCB Congeners (EPA 1668C)

EPA Sample Numbers:

LMR21-11S REP A	LMR21-11S REP B	LMR21-11S REP C
LMR21-11S REP D	LMR21-11S REP E	LMR21-12S REP A
LMR21-12S REP B	LMR21-12S REP C	LMR21-12S REP D
LMR21-12S REP E	LMR21-14S REP A	LMR21-14S REP B
LMR21-14S REP C	LMR21-14S REP D	LMR21-14S REP E
LMR21-15S REP A	LMR21-15S REP B	

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Seventeen (17) worm tissue samples for SDG L2656883 (1-17) were collected by USACE, Buffalo District from the Lower Maumee River project locations on October 12, 14 and 18, 2021, and shipped to ALS Life Sciences Laboratory in Burlington, Ontario, Canada for PCB Congeners (EPA 1668C) analysis.

The PCB Congeners were validated in accordance with the National Functional Guidelines for High Resolution Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction. Note that since only the chemical names for the analytes were provided on the EDD, QATS added a column with analyte names that match the report forms. Also note that all non-detected analytes were qualified "UJ" in the "lab_qualifiers" column and the "interpreted_qualifiers" column of the EDD although those non-detects are reported as "U" on the report forms.

DATA QUALIFICATION SUMMARY TABLES

PCB Congener Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank (above RL in sample)	PCB-001	J+ detects	LMR21-11S REP B LMR21-11S REP C LMR21-11S REP D LMR21-11S REP E LMR21-12S REP C LMR21-12S REP D LMR21-12S REP E LMR21-14S REP B LMR21-14S REP C LMR21-14S REP D LMR21-14S REP E
Analyte detected below RL in reagent blank (below RL in sample)	PCB-002	U	LMR21-14S REP D
Analyte detected below RL in reagent blank (above RL in sample)	PCB-002	J+ detect	LMR21-14S REP C LMR21-14S REP E
Analyte detected below RL in method and reagent blank (above RL in sample)	PCB-003	J+ detect	LMR21-14S REP C LMR21-14S REP D
Analyte detected above RL in method blank and/or reagent blank (above RL in sample)	PCB-011	J+ detects	All samples
Analyte detected below RL in reagent blank (above RL in sample)	PCB-035	J+ detects	LMR21-11S REP A LMR21-11S REP C LMR21-11S REP D LMR21-11S REP E LMR21-12S REP A LMR21-12S REP B LMR21-12S REP C LMR21-12S REP D

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2656883 (1-17)
Laboratory: ALS Life Sciences

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
			LMR21-12S REP E LMR21-14S REP B LMR21-14S REP C LMR21-14S REP D LMR21-14S REP E
Analyte detected below RL in reagent blank (below RL in sample)	PCB-035	U	LMR21-11S REP B LMR21-14S REP A
Analyte detected below RL in reagent blank (below RL in sample)	PCB-036	U	LMR21-11S REP C LMR21-11S REP D LMR21-11S REP E LMR21-12S REP C LMR21-12S REP D LMR21-12S REP
LCS %R criteria exceeded (low)	PCB-189	J- detects	All samples
Labeled Compound %R exceeded criteria (low)	PCB-001 PCB-002	J- detects	LMR21-11S REP A LMR21-11S REP C LMR21-12S REP B LMR21-12S REP C LMR21-14S REP A LMR21-14S REP C LMR21-15S REP A LMR21-15S REP B
Labeled Compound %R exceeded criteria (low)	PCB-001, PCB-002, PCB-004, PCB-010, PCB-009, PCB-007, PCB-006, PCB-005, PCB-008, PCB-014, PCB-011, PCB-012/013	J- detects UJ non-detects	LMR21-12S REP A
Sample result failed Ion abundance Ratio (IAR) criteria (EMPC)	Numerous PCB Congeners Refer to report section	J detects	All samples

CHLORINATED BIPHENYL CONGENER (CBC)

1. DATA COMPLETENESS

No problems were found.

2. HOLDING TIME AND PRESERVATION

No problems were found.

3. INSTRUMENT PERFORMANCE CHECKS

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. ANALYTICAL SEQUENCE

No problems were found.

6. BLANKS – METHOD, RINSATE, FIELD

One method blank and one reagent blank (corn oil) were analyzed with the tissue samples in this SDG.

Several PCB congeners were detected in in Method Blank WG3649954-1 and Reagent Blank WG3649954-4 at concentrations between the Reporting Limit (LQL) and the Estimated Detection Limit (EDL). In addition, one analyte, PCB-011, was detected above the RL in both blanks. For many of the analytes detected in the two blanks, the analyte concentrations in the samples were either much higher or not detected; however, several exceptions exist. The detected results in the samples that are less than the LQL and less than 5X the amount found in the blank were elevated to the LQL and the sample result is qualified "U". Where the analyte was detected in the sample above the LQL but less than five times the blank concentration, the analyte was qualified "J+".

LMR21-11S REP A:	PCB-011, PCB-035 "J+"
LMR21-11S REP B:	PCB-001, PCB-011 "J+" PCB-035 "U"
LMR21-11S REP C:	PCB-001, PCB-011, PCB-035 "J+" PCB-036 "U"
LMR21-11S REP D:	PCB-001, PCB-011, PCB-035 "J+" PCB-036 "U"
LMR21-11S REP E:	PCB-001, PCB-011, PCB-035 "J+" PCB-036 "U"

LMR21-12S REP A:	PCB-011, PCB-035 "J+"
LMR21-12S REP B:	PCB-011, PCB-035 "J+"
LMR21-12S REP C:	PCB-001, PCB-011, PCB-035 "J+" PCB-036 "U"
LMR21-12S REP D:	PCB-001, PCB-011, PCB-035 "J+" PCB-036 "U"
LMR21-12S REP E:	PCB-001, PCB-011, PCB-035 "J+" PCB-036 "U"
LMR21-14S REP A:	PCB-011 "J+" PCB-035 "U"
LMR21-14S REP B:	PCB-001, PCB-011, PCB-035 "J+"
LMR21-14S REP C:	PCB-001, PCB-002, PCB-003, PCB-011, PCB-035 "J+"
LMR21-14S REP D:	PCB-001, PCB-003, PCB-011, PCB-035 "J+" PCB-002 "UJ"
LMR21-14S REP E:	PCB-001, PCB-002, PCB-011, PCB-035 "J+"
LMR21-15S REP A:	PCB-011 "J+"
LMR21-15S REP B:	PCB-011 "J+"

7. LABELED COMPOUNDS

Labeled compounds 13C12-PCB-001 and 13C12-PCB-004 were reported with percent recoveries (%Rs) which exceeded the lower criteria of 5% required by Method 1668C. Detected analytes in the associated quantitation groups were qualified "J-" and non-detects in the samples were qualified "UJ". Note that additional analytes in each of the affected quantitation groups were not qualified where the labeled compound specific to those analytes passed %R criteria (i.e., PCB-003, PCB-015). Also note that labeled compound 13C12-PCB-001 failed %R criteria in method blank WG3649954-1 and LCS WG3649954-2.

LMR21-11S REP A:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-11S REP C:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-12S REP A:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002
Labeled Compound 13C12-PCB-004: PCB-001, PCB-002, PCB-004, PCB-010, PCB-009, PCB-007, PCB-006, PCB-005, PCB-008, PCB-014, PCB-011, PCB-012/013

LMR21-12S REP B:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-12S REP C:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-14S REP A:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-14S REP C:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-15S REP A:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-15S REP B:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

8. INTERNAL STANDARD AREA RESPONSE

No problems were found.

9. ISOMER SPECIFICITY AND TEF

No problems were found.

10. LABORATORY CONTROL SAMPLE

The percent recovery (%R) for PCB-189 in LCS WG3649954-2 exceeded the 85% lower %R criteria specified in the QAPP with an 83%R. The PCB-189 results are qualified "J-" in the following samples. Note that no non-detects for the analyte were reported.

LMR21-11S REP A	LMR21-11S REP B	LMR21-11S REP C
LMR21-11S REP D	LMR21-11S REP E	LMR21-12S REP A
LMR21-12S REP B	LMR21-12S REP C	LMR21-12S REP D
LMR21-12S REP E	LMR21-14S REP A	LMR21-14S REP B
LMR21-14S REP C	LMR21-14S REP D	LMR21-14S REP E
LMR21-15S REP A	LMR21-15S REP B	

11. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed with this SDG.

12. LABORATORY DUPLICATE

The laboratory duplicate analysis in the SDG does not appear to be associated with the samples in this SDG. The QAPP requirement is one duplicate (field or lab) per 10 samples. No indication of the duplicate association or RPD results are included in the data package.

13. FIELD DUPLICATES

No Field Duplicate was included in this SDG.

14. ADDITIONAL INFORMATION

The laboratory reported numerous sample results with an "R" qualifier, defined as "The ion abundance ratio for the analyte did not meet the control limit. The reported value represents an estimated concentration." As a result, the following results are qualified "J" estimated. Note that several of the sample results were also qualified due to results that are less than the reporting level.

LMR21-11S REP A: PCB-010, PCB-005, PCB-023, PCB-068, PCB-121, PCB-172

LMR21-11S REP B: PCB-005, PCB-027, PCB-034, PCB-068, PCB-058, PCB-081, PCB-094, PCB-127, PCB-152, PCB-150, PCB-165, PCB-184, PCB-204

LMR21-11S REP C: PCB-001, PCB-002, PCB-010, PCB-038, PCB-127

LMR21-11S REP D: PCB-014, PCB-023, PCB-058, PCB-127, PCB-186, PCB-192

LMR21-11S REP E: PCB-001, PCB-014, PCB-034, PCB-038, PCB-123, PCB-127, PCB-145, PCB-169, PCB-204

LMR21-12S REP A: PCB-004, PCB-006, PCB-005, PCB-039, PCB-058, PCB-055, PCB-081, PCB-104, PCB-126, PCB-134/143, PCB-165, PCB-159, PCB-181, PCB-204

LMR21-12S REP B: PCB-001, PCB-073, PCB-057, PCB0-81, PCB-127, PCB-152, PCB-165, PCB-197

LMR21-12S REP C: PCB-001, PCB-002, PCB-005, PCB-023, PCB-204

LMR21-12S REP D: PCB-001, PCB-005, PCB-054, PCB-081, PCB-204

LMR21-12S REP E: PCB-010, PCB-023, PCB-058, PCB-145, PCB-181

LMR21-14S REP A: PCB-001, PCB-002, PCB-007, PCB-034, PCB-058, PCB-081, PCB-111, PCB-184, PCB-181, PCB-201, PCB-204

LMR21-14S REP B: PCB-001, PCB-010, PCB-007, PCB-038, PCB-121, PCB-111, PCB-145, PCB-204

LMR21-14S REP C: PCB-010, PCB-005, PCB-104, PCB-186, PCB-204

LMR21-14S REP D: PCB-023, PCB-127, PCB-204

LMR21-14S REP E: PCB-204

LMR21-15S REP A: PCB-002, PCB-010, PCB-014

LMR21-15S REP B: PCB-001, PCB-192, PCB-204

REVIEWED BY: Timothy Vonnahme/Rebecca Garry DATE: 03/28/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26 2022
SUBJECT:	Review of Data for SDG Number: L2656883 (18-34) Received for Review: 02/17/2022
LABORATORY:	ALS Life Sciences, Burlington, Ontario, Canada
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	L2656883 (18-34)
Number and Type of Samples:	Seventeen (17) Worm Tissue Samples for PCB Congeners (EPA 1668C)

EPA Sample Numbers:

LMR21-15S REP C	LMR21-15S REP D	LMR21-15S REP E
LMR21-17S REP A	LMR21-17S REP B	LMR21-17S REP C
LMR21-17S REP D	LMR21-17S REP E	LMR21-19S REP A
LMR21-19S REP B	LMR21-19S REP C	LMR21-19S REP D
LMR21-19S REP E	LMR21-25S REP A	LMR21-25S REP B
LMR21-25S REP C	LMR21-25S REP D	

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2656883 (18-34)
Laboratory: ALS Life Sciences

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Seventeen (17) worm tissue samples for SDG L2656883 (18-34) were collected by USACE, Buffalo District from the Lower Maumee River project locations on October 12, 14 and 18, 2021, and shipped to ALS Life Sciences Laboratory in Burlington, Ontario, Canada for PCB Congeners (EPA 1668C) analysis.

The PCB Congeners were validated in accordance with the National Functional Guidelines for High Resolution Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction. Note that since only the chemical names for the analytes were provided on the EDD, QATS added a column with analyte names that match the report forms. Also note that all non-detected analytes were qualified "UJ" in the "lab_qualifiers" column and the "interpreted_qualifiers" column of the EDD although those non-detects are reported as "U" on the report forms.

DATA QUALIFICATION SUMMARY TABLES

PCB Congener Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank and reagent blank (above RL in sample)	PCB-001	J+ detects	LMR21-25S REP C LMR21-25S REP D
Analyte detected below RL in method blank (below RL in sample)	PCB-001	U	LMR21-25S REP A
Analyte detected below RL in method blank and/or reagent blank (above RL in sample)	PCB-002	J+ detects	LMR21-15S REP C LMR21-15S REP D LMR21-15S REP E LMR21-17S REP C LMR21-17S REP D LMR21-17S REP E LMR21-19S REP C
Analyte detected below RL in method blank and/or reagent blank (below RL in sample)	PCB-002	U	LMR21-19S REP B LMR21-19S REP E LMR21-25S REP A LMR21-25S REP B LMR21-25S REP C LMR21-25S REP D
Analyte detected below RL in method blank and/or reagent blank (above RL in sample)	PCB-003	J+ detects	LMR21-15S REP C LMR21-17S REP E LMR21-25S REP C LMR21-25S REP D
Analyte detected below RL in method blank (below RL in sample)	PCB-003	U	LMR21-25S REP A LMR21-25S REP B
Analyte detected below RL in method blank and reagent blank (below RL in sample)	PCB-009	U	LMR21-25S REP A LMR21-25S REP B LMR21-25S REP D

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2656883 (18-34)
Laboratory: ALS Life Sciences

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank and reagent blank (above RL in sample)	PCB-011	J+ detects	LMR21-15S REP C LMR21-15S REP D LMR21-15S REP E LMR21-17S REP C LMR21-17S REP D LMR21-17S REP E LMR21-19S REP C LMR21-19S REP D LMR21-19S REP E LMR21-25S REP A LMR21-25S REP B LMR21-25S REP C LMR21-25S REP D
Analyte detected below RL in reagent blank (above RL in sample)	PCB-035	J+ detects	LMR21-25S REP B LMR21-25S REP C LMR21-25S REP D
Analyte detected below RL in method blank (below RL in sample)	PCB-036	U	LMR21-19S REP B LMR21-25S REP A LMR21-25S REP B LMR21-25S REP D
Analyte detected below RL in reagent blank (above RL in sample)	PCB-037	J+ detects	LMR21-25S REP C LMR21-25S REP D
Analyte detected below RL in method blank (below RL in sample)	PCB-155	U	LMR21-25S REP C
LCS %R criteria exceeded (low)	PCB-114	J- detects	All samples
Labeled Compound %R exceeded criteria (low)	PCB-096, PCB-103, PCB-094, PCB-095, PCB-093/098/100/102, PCB-088/091, PCB-084, PCB-089, PCB-121, PCB-092, PCB-090/101/113, PCB-083/099, PCB-112, PCB-086/087/097/109/119/125, PCB-085/110/115/116/117, PCB-082, PCB-111, PCB-120, PCB-108/124, PCB-107, PCB-106, PCB-122, PCB-114 PCB-105, PCB-127	J- detects UJ non-detects	LMR21-19S REP D
Labeled Compound %R exceeded criteria (low)	PCB-001, PCB-002	J- detect UJ non-detect	LMR21-25S REP B
Labeled Compound failed Ion Abundance Ratio (IAR) Criteria in sample	PCB-004, PCB-010, PCB-009, PCB-007, PCB-006, PCB-005, PCB-008, PCB-014, PCB-011, PCB-012/013, PCB-019, PCB-018/030, PCB-017, PCB-027, PCB-024, PCB-016, PCB-032, PCB-034 PCB-023, PCB-026/029, PCB-025, PCB-031, PCB-020/028, PCB-021/033, PCB-022, PCB-036, PCB-039, PCB-038, PCB-035, PCB-054, PCB-050/053, PCB-045/051, PCB-046, PCB-052, PCB-073, PCB-043, PCB-049/069, PCB-048, PCB-044/047/065, PCB-059/062/075, PCB-042, PCB-040/041/071, PCB-064, PCB-072, PCB-068, PCB-057, PCB-058, PCB-067, PCB-063, PCB-061/070/074/076, PCB-066, PCB-055, PCB-056, PCB-060, PCB-080, PCB-079, PCB-078, PCB-077, PCB-096, PCB-103, PCB-094, PCB-095, PCB-093/098/100/102, PCB-088/091, PCB-084, PCB-089, PCB-121, PCB-092, PCB-090/101/113, PCB-083/099, PCB-112, PCB-086/087/097/109/119/125	J detects UJ non-detects	LMR21-19S REP D

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
	PCB-085/110/115/116/117, PCB-082, PCB-111, PCB-120, PCB-108/124, PCB-107, PCB-106, PCB-122, PCB-114, PCB-105, PCB-127, PCB-152, PCB-150, PCB-136, PCB-145, PCB-148, PCB-135/151, PCB-154, PCB-144, PCB-147/149, PCB-134/143, PCB-139/140, PCB-131, PCB-142, PCB-132, PCB-133, PCB-165, PCB-146, PCB-161, PCB-153/168, PCB-141 PCB-130, PCB-137/164, PCB-129/138/163, PCB-160, PCB-158, PCB-128/166, PCB-159, PCB-162, PCB-167, PCB-188, PCB-179, PCB-184, PCB-176, PCB-186, PCB-178, PCB-175, PCB-187, PCB-182, PCB-183, PCB-185, PCB-174, PCB-177, PCB-181, PCB-171/173, PCB-172, PCB-192, PCB-180/193, PCB-191, PCB-170, PCB-190, PCB-201, PCB-204, PCB-197, PCB-200, PCB-198/199, PCB-196, PCB-203, PCB-195, PCB-194, PCB-205		
Labeled Compound failed Ion Abundance Ratio (IAR) Criteria in sample	PCB-019, PCB-018/030, PCB-017 PCB-027, PCB-024, PCB-016, PCB-032, PCB-034, PCB-023, PCB-026/029, PCB-025, PCB-031, PCB-020/028 PCB-021/033, PCB-022, PCB-036 PCB-039, PCB-038, PCB-035, PCB-096 PCB-103, PCB-094, PCB-095 PCB-093/098/100/102, PCB-088/091 PCB-084, PCB-089, PCB-121, PCB-092 PCB-090/101/113, PCB-083/099 PCB-112, PCB-086/087/097/109/119/125 PCB-085/110/115/116/117, PCB-082 PCB-111, PCB-120, PCB-108/124, PCB-107, PCB-123, PCB-106, PCB-122, PCB-127	J detects UJ non-detects	LMR21-19S REP E
Sample result failed Ion abundance Ratio (IAR) criteria (EMPC)	Numerous PCB Congeners Refer to report section	J detects	All samples

CHLORINATED BIPHENYL CONGENER (CBC)

1. DATA COMPLETENESS

No problems were found.

2. HOLDING TIME AND PRESERVATION

No problems were found.

3. INSTRUMENT PERFORMANCE CHECKS

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. ANALYTICAL SEQUENCE

No problems were found.

6. BLANKS – METHOD, RINSATE, FIELD

One method blank and one reagent blank (corn oil) were analyzed with the tissue samples in this SDG.

Several PCB congeners were detected in in Method Blank WG3649964-1 and Reagent Blank WG3649964-4 at concentrations between the Reporting Limit (LQL) and the Estimated Detection Limit (EDL). In addition, one analyte, PCB-011, was detected above the RL in both blanks. For many of the analytes detected in the two blanks, the analyte concentrations in the samples were either much higher or not detected; however, several exceptions exist. The detected results in the samples that are less than the LQL and less than 5X the amount found in the blank were elevated to the LQL and the sample result is qualified "U". Where the analyte was detected in the sample above the LQL but less than five times the blank concentration, the analyte was qualified "J+".

LMR21-15S REP C: PCB-002, PCB-003, PCB-011 "J+"

LMR21-15S REP D: PCB-002, PCB-011 "J+"

LMR21-15S REP E: PCB-002, PCB-011 "J+"

LMR21-17S REP C: PCB-002, PCB-011 "J+"

LMR21-17S REP D: PCB-002, PCB-011 "J+"

LMR21-17S REP E: PCB-002, PCB-003, PCB-011 "J+"

LMR21-19S REP B: PCB-002, PCB-036 "U"

LMR21-19S REP C:	PCB-002, PCB-011 "J+"
LMR21-19S REP D:	PCB-011 "J+"
LMR21-19S REP E:	PCB-011 "J+" PCB-002 "U"
LMR21-25S REP A:	PCB-011 "J+" PCB-001, PCB-002, PCB-003, PCB-009, PCB-036 "U"
LMR21-25S REP B:	PCB-011, PCB-035 "J+" PCB-002, PCB-003, PCB-009, PCB-036 "U"
LMR21-25S REP C:	PCB-001, PCB-003, PCB-011, PCB-035, PCB-037 "J+" PCB-002, PCB-155 "U"
LMR21-25S REP D:	PCB-001, PCB-003, PCB-011, PCB-035, PCB-037 "J+" PCB-002, PCB-009, PCB-036 "U"

7. LABELED COMPOUNDS

Labeled compounds 13C12-PCB-001 and 13C12-PCB-114 were reported with percent recoveries (%Rs) which exceeded the Method 1668 C lower criteria of 5% and 10%, respectively. Detected analytes in the associated quantitation groups were qualified "J" and non-detected analytes were qualified "UJ" in the samples. Note that additional analytes in each of the affected quantitation groups were not qualified for exceeding %R criteria where the labeled compound specific to those analytes passed %R criteria (i.e., PCB-003, PCB-126).

LMR21-25S REP B:
Labeled Compound 13C12-PCB-001: PCB-001, PCB-002

LMR21-19S REP D:
Labeled Compound 13C12-PCB-114: PCB-082 – PCB-103, PCB-105 – PCB-117, PCB-119 – PCB-122, PCB-124, PCB-125, PCB-127

Note: For specific PCB Congeners and co-eluted PCB Congeners refer to the Data Qualification Summary Tables.

Several labeled compounds were reported with the ion abundance ratios (IARs) outside acceptance criteria in two samples. Detected analytes in the associated quantitation groups were qualified "J" and non-detects were qualified "UJ". Note that additional analytes in each of the affected quantitation groups were not qualified where the labeled compound specific to those analytes passed IAR criteria (i.e., PCB-015, PCB-037).

LMR21-19S REP D:
Labeled Compound 13C-PCB-4: PCB-004 – PCB-014
Labeled Compound 13C-PCB-19: PCB-016 – PCB-036, PCB-038, PCB-039
Labeled Compound 13C-PCB-54: PCB-040 – PCB-076, PCB-078 – PCB-080
Labeled Compound 13C12-PCB-114: PCB-082 – PCB-103, PCB-105 – PCB-117,

	PCB-119 – PCB-122, PCB-124, PCB-125, PCB-127
Labeled Compound 13C12-PCB-105:	PCB-082 – PCB-103, PCB-105 – PCB-117, PCB-119 – PCB-122, PCB-124, PCB-125, PCB-127
Labeled Compound 13C12-PCB-167:	PCB-128 – PCB-154, PCB-158 – PCB-168
Labeled Compound 13C12-PCB-188:	PCB-170 – PCB-188, PCB-190 – PCB-193
Labeled Compound 13C12-PCB-205:	PCB-194 – PCB-201, PCB-203 – PCB-205

LMR21-19S REP E:

Labeled Compound 13C-PCB-19:	PCB-016 – PCB-036, PCB-038, PCB-039
Labeled Compound 13C-PCB-123:	PCB-082 – PCB-103, PCB-106 – PCB-113, PCB-115 – PCB-117, PCB-119 – PCB-125, PCB-127

Note: For specific PCB Congeners and co-eluted PCB Congeners refer to the Data Qualification Summary Tables.

8. INTERNAL STANDARD AREA RESPONSE

No problems were found.

9. ISOMER SPECIFICITY AND TEF

No problems were found.

10. LABORATORY CONTROL SAMPLE

The percent recovery (%R) for PCB-114 in LCS WG3649964-2 exceeded the 87% lower %R criteria specified in the QAPP with an 83%R. The PCB-114 results are qualified "J-" in the following samples. Note that no non-detects for the analyte were found.

LMR21-15S REP C	LMR21-15S REP D	LMR21-15S REP E
LMR21-17S REP A	LMR21-17S REP B	LMR21-17S REP C
LMR21-17S REP D	LMR21-17S REP E	LMR21-19S REP A
LMR21-19S REP B	LMR21-19S REP C	LMR21-19S REP D
LMR21-19S REP E	LMR21-25S REP A	LMR21-25S REP B
LMR21-25S REP C	LMR21-25S REP D	

11. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed with this SDG.

12. LABORATORY DUPLICATE

The laboratory duplicate analysis in the SDG does not appear to be associated with the samples in this SDG. The QAPP requirement is one duplicate (field or lab) per 10 samples. No indication of the duplicate association or RPD results are included in the data package.

13. FIELD DUPLICATES

No Field Duplicate was included in this SDG.

14. ADDITIONAL INFORMATION

The laboratory reported numerous sample results with a "R" qualifier, defined as "The ion abundance ratio for the analyte did not meet the control limit. The reported value represents an estimated concentration." As a result, the following results are qualified "J" estimated. Note that several of the sample results were also qualified due to results that are less than the reporting level.

LMR21-15S REP C: PCB-186, PCB-204

LMR21-15S REP D: PCB-186, PCB-192, PCB-204

LMR21-15S REP E: PCB-201, PCB-204

LMR21-17S REP A: PCB-142, PCB-188

LMR21-17S REP B: PCB-127, PCB-142, PCB-165, PCB-204

LMR21-17S REP C: PCB-186

LMR21-17S REP D: PCB-142, PCB-204

LMR21-17S REP E: PCB-127, PCB-186

LMR21-19S REP A: PCB-001, PCB-002, PCB-155, PCB-186, PCB-204

LMR21-19S REP B: PCB-38, PCB-165

LMR21-19S REP C: PCB-204

LMR21-19S REP D: PCB-003, PCB-009, PCB-007, PCB-068, PCB-096, PCB-111, PCB-145, PCB-162 ,PCB-169, PCB-188, PCB-184, PCB-175, PCB-181, PCB-205, PCB-207

LMR21-19S REP E: PCB-005, PCB-038, PCB-127, PCB-126, PCB-155

LMR21-25S REP A: PCB-005, PCB-039, PCB-035, PCB-058, PCB-121, PCB-126, PCB-165, PCB-201, PCB-204

LMR21-25S REP B: PCB-007, PCB-005, PCB-024, PCB-035, PCB-054, PCB-073, PCB-058, PCB-079, PCB-081, PCB-104, PCB-121, PCB-120, PCB-145, PCB-169, PCB-188, PCB-204, PCB-197

LMR21-25S REP C: PCB-003, PCB-006, PCB-054, PCB-058, PCB-104, PCB-111, PCB-188, PCB-204, PCB-197

LMR21-25S REP D: PCB-014, PCB-024, PCB-054, PCB-104, PCB-127, PCB-152, PCB-192, PCB-197

REVIEWED BY: Timothy Vonnahme/Rebecca Garry DATE: 03/29/2022

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2656883 (18-34)
Laboratory: ALS Life Sciences

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE:	April 26, 2022
SUBJECT:	Review of Data for SDG Number: L2656883 (35-51) Received for Review: 02/17/2022
LABORATORY:	ALS Life Sciences, Burlington, Ontario, Canada
FROM:	APTIM Federal Services, LLC Quality Assurance Technical Support (QATS) Program, Las Vegas, NV
TO:	Mark Loomis, Great Lakes National Program Office (GLNPO)
LEVEL OF REVIEW:	Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name:	Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC
Case Number:	NA
SDG Number:	L2656883 (35-51)
Number and Type of Samples:	Seventeen (17) Worm Tissue Samples for PCB Congeners (EPA 1668C)

EPA Sample Numbers:

LMR21-25S REP E	LMR21-27S REP A	LMR21-27S REP B
LMR21-27S REP C	LMR21-27S REP D	LMR21-27S REP E
LMR21-45S REP A	LMR21-45S REP B	LMR21-45S REP C
LMR21-45S REP D	LMR21-45S REP E	LMR21-64S REP A
LMR21-64S REP B	LMR21-64S REP C	LMR21-64S REP D
LMR21-64S REP E	LMR21-66S REP A	

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2656883 (35-51)
Laboratory: ALS Life Sciences

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Seventeen (17) worm tissue samples for SDG L2656883 (35-51) were collected by USACE, Buffalo District from the Lower Maumee River project locations on October 12, 14 and 18, 2021, and shipped to ALS Life Sciences Laboratory in Burlington, Ontario, Canada for PCB Congeners (EPA 1668C) analysis.

The PCB Congeners were validated in accordance with the National Functional Guidelines for High Resolution Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction. Note that since only the chemical names for the analytes were provided on the EDD, QATS added a column with analyte names that match the report forms. Also note that all non-detected analytes were qualified "UJ" in the "lab_qualifiers" column and the "interpreted_qualifiers" column of the EDD although those non-detects are reported as "U" on the report forms.

PCB Congener Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank and/or reagent blank (above RL in sample)	PCB-001	J+ detects	LMR21-45S-REP C LMR21-45S-REP D LMR21-45S-REP E LMR21-64S-REP C LMR21-64S-REP D
Analyte detected below RL in method blank and/or reagent blank (above RL in sample)	PCB-003	J+ detects	LMR21-27S-REP C LMR21-27S-REP D LMR21-27S-REP E LMR21-45S-REP C LMR21-45S-REP D LMR21-45S-REP E LMR21-64S-REP D LMR21-64S-REP E
Analyte detected below RL in method blank and/or reagent blank (below RL in sample)	PCB-003	U	LMR21-64S-REP B LMR21-64S-REP C LMR21-66S-REP A
LCS %R criteria exceeded (low)	PCB-189	J- detects	All samples
Sample result failed Ion abundance Ratio (IAR) criteria (EMPC)	Numerous PCB Congeners Refer to report section	J detects	All samples

CHLORINATED BIPHENYL CONGENER (CBC)

1. DATA COMPLETENESS

No problems were found.

2. HOLDING TIME AND PRESERVATION

No problems were found.

3. INSTRUMENT PERFORMANCE CHECKS

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. ANALYTICAL SEQUENCE

No problems were found.

6. BLANKS – METHOD, RINSATE, FIELD

One method blank and one reagent blank (corn oil) were analyzed with the tissue samples in this SDG.

Several PCB congeners were detected in in Method Blank WG3649967-1 and Reagent Blank WG3649967-4 at concentrations between the Reporting Limit (LQL) and the Estimated Detection Limit (EDL). For many of the analytes detected in the two blanks, the analyte concentrations in the samples were either much higher or not detected; however, exceptions exist for two PCB congeners. The detected results in the samples that are less than the LQL and less than 5X the amount found in the blank were elevated to the LQL and the sample result is qualified "U". Where the analyte was detected in the sample above the LQL but less than five times the blank concentration, the analyte was qualified "J+".

LMR21-27S-REP C:	PCB-003 "J+"
LMR21-27S-REP D:	PCB-003 "J+"
LMR21-27S-REP E:	PCB-003 "J+"
LMR21-45S-REP C:	PCB-001, PCB-003 "J+"
LMR21-45S-REP D:	PCB-001, PCB-003 "J+"
LMR21-45S-REP E:	PCB-001, PCB-003 "J+"
LMR21-64S-REP B:	PCB-003 "U"

LMR21-64S-REP C:	PCB-001 "J+" PCB-003 "U"
LMR21-64S-REP D:	PCB-001, PCB-003 "J+"
LMR21-64S-REP E:	PCB-003 "J+"
LMR21-66S-REP A:	PCB-003 "U"

7. LABELED COMPOUNDS

No problems were found.

8. INTERNAL STANDARD AREA RESPONSE

No problems were found.

9. ISOMER SPECIFICITY AND TEF

No problems were found.

10. LABORATORY CONTROL SAMPLE

The percent recovery (%R) for PCB-189 in LCS WG3649954-2 exceeded the 85% lower %R criteria specified in the QAPP with an 83%R. The PCB-189 results are qualified "J-" in the following samples. Note that no non-detects for the analyte were found.

LMR21-25S REP E	LMR21-27S REP A	LMR21-27S REP B
LMR21-27S REP C	LMR21-27S REP D	LMR21-27S REP E
LMR21-45S REP A	LMR21-45S REP B	LMR21-45S REP C
LMR21-45S REP D	LMR21-45S REP E	LMR21-64S REP A
LMR21-64S REP B	LMR21-64S REP C	LMR21-64S REP D
LMR21-64S REP E	LMR21-66S REP A	

11. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed with this SDG.

12. LABORATORY DUPLICATE

No Laboratory Duplicate was analyzed.

13. FIELD DUPLICATES

No Field Duplicate was included in this SDG.

14. ADDITIONAL INFORMATION

The laboratory reported numerous sample results with an "R" qualifier, defined as "The ion abundance ratio for the analyte did not meet the control limit. The reported value represents an estimated concentration." As a result, the following results are qualified "J" estimated. Note that several of the sample results were also qualified "J" due to results that are less than the reporting level.

LMR21-25S-REP E:	PCB-010, PCB-023, PCB-038, PCB-055, PCB-145, PCB-165, PCB-204
LMR21-27S-REP A:	PCB-003, PCB-007, PCB-006, PCB-034, PCB-054, PCB-058, PCB-120, PCB-126, PCB-139/140, PCB-131, PCB-165, PCB-188, PCB-184, PCB-189, PCB-201
LMR21-27S-REP B:	PCB-001, PCB-002, PCB-004, PCB-035, PCB-054, PCB-055, PCB-079, PCB-094, PCB-120, PCB-155, PCB-148, PCB-131, PCB-188, PCB-184, PCB-191, PCB-197, PCB-207
LMR21-27S-REP C:	PCB-010, PCB-009, PCB-005, PCB-038, PCB-058, PCB-081, PCB-127, PCB-126, PCB-131
LMR21-27S-REP D:	PCB-145, PCB-169, PCB-204
LMR21-27S-REP E:	PCB-002, PCB-039, PCB-038, PCB-035, PCB-127, PCB-186, PCB-181, PCB-204
LMR21-45S-REP A:	PCB-009, PCB-007, PCB-005, PCB-024, PCB-023, PCB-054, PCB-057, PCB-145, PCB-181, PCB-189, PCB-204
LMR21-45S-REP B:	PCB-002, PCB-010, PCB-007, PCB-005, PCB-024, PCB-058, PCB0-79, PCB-081, PCB-104, PCB-121, PCB-111, PCB-148, PCB-165, PCB-204
LMR21-45S-REP C:	PCB-014, PCB-123, PCB-127
LMR21-45S-REP D:	PCB-034, PCB0-36, PCB-165, PCB-186, PCB-204
LMR21-45S-REP E:	PCB-010, PCB-005, PCB-127, PCB-126, PCB-165
LMR21-64S-REP A:	PCB-002, PCB-039, PCB-058, PCB-055, PCB-122, PCB-127, PCB-126, PCB-155, PCB-165, PCB-204
LMR21-64S-REP B:	PCB-002, PCB-005, PCB-038, PCB-058, PCB-121, PCB-184, PCB-204
LMR21-64S-REP C:	PCB-023, PCB-079, PCB-081, PCB-186, PCB-204
LMR21-64S-REP D:	PCB-014, PCB-078, PCB-204
LMR21-64S-REP E:	PCB-036, PCB-127, PCB-165
LMR21-66S-REP A:	PCB-001, PCB-010, PCB-007, PCB-005, PCB-039,

PCB-035, PCB-055, PCB-079, PCB-081, PCB-104,
PCB-155, PCB-145, PCB-165, PCB-184, PCB-204

REVIEWED BY: Timothy Vonnahme/ Rebecca Garry DATE: 03/30/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.

APTIM Federal Services, LLC
QATS Program
2700 Chandler Avenue
Las Vegas, Nevada 89120

RELEASE OF VALIDATED DATA

DATE: April 26, 2022

SUBJECT: Review of Data for SDG Number: L2656883 (52-65)
Received for Review: 02/17/2022

LABORATORY: ALS Life Sciences, Burlington, Ontario, Canada

FROM: APTIM Federal Services, LLC
Quality Assurance Technical Support (QATS) Program, Las Vegas, NV

TO: Mark Loomis, Great Lakes National Program Office (GLNPO)

LEVEL OF REVIEW: Tier 2 Validation Review

QATS has reviewed the data for the following SDG:

SITE Name: Lower Maumee River Waste Water Treatment Plant (WWTP) and Sway Bridge Data Gap Investigation Maumee AOC

Case Number: NA

SDG Number: L2656883 (52-65)

Number and Type of Samples: Fourteen (14) Worm Tissue Samples for PCB Congeners (EPA 1668C)

EPA Sample Numbers:

LMR21-66S REP B	LMR21-66S REP C	LMR21-66S REP D
LMR21-66S REP E	LMR21-68S REP A	LMR21-68S REP B
LMR21-68S REP C	LMR21-68S REP D	LMR21-68S REP E
LMR21-69S REP A	LMR21-69S REP B	LMR21-69S REP C
LMR21-69S REP D	LMR21-69S REP E	

VALIDATION SUMMARY

This report summarizes the data validation results of samples from the Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation was performed by APTIM's Quality Assurance Technical Support Program (QATS) under Task Order 1025.

Fourteen (14) worm tissue samples for SDG L2656883 (52-65) were collected by USACE, Buffalo District from the Lower Maumee River project locations on October 12, 14 and 18, 2021, and shipped to ALS Life Sciences Laboratory in Burlington, Ontario, Canada for PCB Congeners (EPA 1668C) analysis.

The PCB Congeners were validated in accordance with the National Functional Guidelines for High Resolution Superfund Methods Data Review, November, 2020; the DoD/DOE Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, 2019; and the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Sediment Sampling and Analysis: Lower Maumee River WWTP and Sway Bridge Data Gap Investigation Maumee AOC. A Tier 2 review was applied to all fractions.

Listed in the tables below are summaries of the data qualified in each fraction. Note that since only the chemical names for the analytes were provided on the EDD, QATS added a column with analyte names that match the forms. Also note that all non-detected analytes were qualified "UJ" in the "lab_qualifiers" column and the "interpreted_qualifiers" column of the EDD although those non-detects are reported as "U" on the report forms.

DATA QUALIFICATION SUMMARY TABLES

PCB Congener Fraction

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank and/or reagent blank (above RL in sample)	PCB-001	J+ detects	LMR21-66S-REP B LMR21-66S-REP C LMR21-66S-REP D LMR21-66S-REP E LMR21-68S-REP A LMR21-68S-REP B LMR21-68S-REP D LMR21-69S-REP C LMR21-69S-REP D
Analyte detected below RL in method blank and/or reagent blank (below RL in sample)	PCB-001	U	LMR21-69S-REP A LMR21-69S-REP B
Analyte detected below RL in method blank and/or reagent blank (below RL in sample)	PCB-002	U	LMR21-66S-REP B LMR21-66S-REP C LMR21-66S-REP D LMR21-66S-REP E LMR21-68S-REP A LMR21-68S-REP D LMR21-68S-REP E LMR21-69S-REP A LMR21-69S-REP B LMR21-69S-REP D
Analyte detected below RL in method blank and/or reagent blank (above RL in sample)	PCB-003	J+ detects	LMR21-66S-REP B LMR21-66S-REP C LMR21-66S-REP D LMR21-66S-REP E LMR21-68S-REP D

Case Number: NA
Site Name: Lower Maumee River

SDG Number: L2656883 (52-65)
Laboratory: ALS Life Sciences

Criteria Exceeded	Analytes	Validation Qualifier	Samples Impacted
Analyte detected below RL in method blank and/or reagent blank (below RL in sample)	PCB-003	U	LMR21-68S-REP A LMR21-69S-REP A LMR21-69S-REP B LMR21-69S-REP D
Analyte detected below RL in method blank and/or reagent blank (above RL in sample)	PCB-011	J+ detects	LMR21-66S-REP B LMR21-66S-REP C LMR21-66S-REP D LMR21-66S-REP E LMR21-68S-REP A LMR21-68S-REP D LMR21-68S-REP E LMR21-69S-REP A LMR21-69S-REP B LMR21-69S-REP C LMR21-69S-REP D LMR21-69S-REP E
Analyte detected below RL in method blank and/or reagent blank (below RL in sample)	PCB-068	U	LMR21-69S REP D
Sample result failed Ion abundance Ratio (IAR) criteria (EMPC)	Numerous PCB Congeners Refer to report section	J detects	LMR21-66S-REP B LMR21-66S-REP C LMR21-66S-REP D LMR21-68S-REP A LMR21-68S-REP B LMR21-68S-REP C LMR21-68S-REP D LMR21-68S-REP E LMR21-69S-REP A LMR21-69S-REP B LMR21-69S-REP C LMR21-69S-REP D LMR21-69S-REP E

CHLORINATED BIPHENYL CONGENER (CBC)

1. DATA COMPLETENESS

No problems were found.

2. HOLDING TIME AND PRESERVATION

No problems were found.

3. INSTRUMENT PERFORMANCE CHECKS

No problems were found.

4. CALIBRATION - INITIAL AND CONTINUING CALIBRATION

No problems were found.

5. ANALYTICAL SEQUENCE

No problems were found.

6. BLANKS – METHOD, RINSATE, FIELD

One method blank and one reagent blank (corn oil) were analyzed with the tissue samples in this SDG.

Several PCB congeners were detected in in Method Blank WG3649970-1 and Reagent Blank WG3649970-4 at concentrations between the Reporting Limit (LQL) and the Estimated Detection Limit (EDL). In addition, in addition, PCB-001 was detected above the LQL in the reagent blank and PCB-011 was detected above the RL in both blanks. For many of the analytes detected in the two blanks, the analyte concentrations in the samples were either much higher or not detected; however, exceptions exist for four PCB congeners. The detected results in the samples that are less than the LQL and less than 5X the amount found in the blank were elevated to the LQL and the sample result is qualified "U". Where the analyte was detected in the sample above the LQL but less than five times the blank concentration, the analyte was qualified "J+".

LMR21-66S-REP B:	PCB-001, PCB-003, PCB-011 "J+" PCB-002 "U"
LMR21-66S-REP C:	PCB-001, PCB-003, PCB-011 "J+" PCB-002 "U"
LMR21-66S-REP D:	PCB-001, PCB-003, PCB-011 "J+" PCB-002 "U"
LMR21-66S-REP E:	PCB-001, PCB-003, PCB-011 "J+" PCB-002 "U"

LMR21-68S-REP A:	PCB-001, PCB-011 "J+" PCB-002, PCB-003 "U"
LMR21-68S-REP B:	PCB-001 "J+"
LMR21-68S-REP D:	PCB-001, PCB-003, PCB-011 "J+" PCB-002 "U"
LMR21-68S-REP E:	PCB-011 "J+" PCB-002 "U"
LMR21-69S-REP A:	PCB-011 "J+" PCB-001, PCB-002, PCB-003 "U"
LMR21-69S-REP B:	PCB-011 "J+" PCB-001, PCB-002, PCB-003 "U"
LMR21-69S-REP C:	PCB-001, PCB-011 "J+"
LMR21-69S-REP D:	PCB-001, PCB-011 "J+" PCB-002, PCB-003, PCB-068 "U"
LMR21-69S-REP E:	PCB-011 "J+"

7. LABELED COMPOUNDS

No problems were found.

8. INTERNAL STANDARD AREA RESPONSE

No problems were found.

9. ISOMER SPECIFICITY AND TEF

No problems were found.

10. LABORATORY CONTROL SAMPLE

No problems were found.

11. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE

No MS/MSD were analyzed with this SDG.

12. LABORATORY DUPLICATE

No Laboratory Duplicate was analyzed with this SDG.

13. FIELD DUPLICATES

No Field Duplicate was analyzed with this SDG.

14. ADDITIONAL INFORMATION

The laboratory reported numerous sample results with a "R" qualifier, defined as "The ion abundance ratio for the analyte did not meet the control limit. The reported value represents an estimated concentration." As a result, the following results are qualified "J" estimated. Note that several of the sample results were also qualified due to results that are less than the reporting level.

LMR21-66S-REP B: PCB-002, PCB-009, PCB-005, PCB-012/013, PCB-081, PCB-111, PCB-169, PCB-181, PCB-204

LMR21-66S-REP C: PCB-127, PCB-126, PCB-201, PCB-204, PCB-197

LMR21-66S-REP D: PCB-121, PCB-127, PCB-184, PCB-186, PCB-204

LMR21-68S-REP A: PCB-005, PCB-023, PCB-078, PCB-127, PCB-204

LMR21-68S-REP B: PCB-002, PCB-081, PCB-165, PCB-181

LMR21-68S-REP C: PCB-023, PCB-038, PCB-186, PCB-192

LMR21-68S-REP D: PCB-023, PCB-078, PCB-121, PCB-192, PCB-204

LMR21-68S-REP E: PCB-038, PCB-081, PCB-121, PCB-127, PCB-145, PCB-165, PCB-204

LMR21-69S-REP A: PCB-010, PCB-009, PCB-005, PCB-073, PCB-081, PCB-127, PCB-126, PCB-145, PCB-148, PCB-169, PCB-181, PCB-204

LMR21-69S-REP B: PCB-007, PCB-012/013, PCB-039, PCB-035, PCB-073, PCB-072, PCB-57, PCB-121, PCB-126, PCB-131, PCB-165, PCB-188, PCB-181, PCB-189, PCB-204

LMR21-69S-REP C: PCB-014, PCB-078, PCB-127, PCB-186, PCB-204,

LMR21-69S-REP D: PCB-014, PCB-023, PCB-039, PCB-035, PCB-145, PCB-165, PCB-192

LMR21-69S-REP E: PCB-023, PCB-078, PCB-081

REVIEWED BY: Timothy Vonnahme/Rebecca Garry DATE: 03/31/2022

GLNPO DATA QUALIFIER SHEET

Data Qualifier	Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. The compound may or may not be present.